BIOLOGICAL RESOURCES REPORT
FOR THE RUGGED SOLAR FARM PROJECT
County of San Diego, California

Environmental Review Number PDS2012-3910-120005
MUP PDS2017-MUP-12-007W1

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
ACOE	U.S. Army Corps of Engineers
amsl	above mean sea level
APN	Assessor's Parcel Number
BLM	Bureau of Land Management
BMO	Biological Mitigation Ordinance
BMP	Best Management Practice
BRCA	Biological Resource Core Areas
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
County	County of San Diego
CPUC	California Public Utilities Commission
CPV	Concentrating Photovoltaic
CRPR	California Rare Plant Rank
CSS	Coastal Sage Scrub
CWA	Clean Water Act
DEV	Developed Land
DPLU	Department of Planning and Land Use
DPW	Department of Public Works
ECMSCP	East County Multiple Species Conservation Plan
EDA	Estate Development Area
EIR	environmental impact report
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FMZ	Fuel Modification Zone
GIS	Geographic Information System
GNMX	Granitic Northern Mixed Chaparral
GPS	Global Positioning System
HCP	Habitat Conservation Plan
LBZ	Limited Building Zone
LEDPA	Least Environmentally Damaging Practicable Alternative
MBTA	Migratory Bird Treaty Act
MOU	Memorandum of Understanding
MSCP	Multiple Species Conservation Program
NABA	North American Butterfly Association
NCCP	Natural Communities Conservation Program
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollution Discharge Elimination System
O&M	Operations and Maintenance
PAMA	Pre-approved Mitigation Area
RPO	Resource Protection Ordinance

Acronym/Abbreviation	Definition
RWQCB	Regional Water Quality Control Board
SDAM	Streamflow Duration Assessment Method
SSC	Species of Special Concern
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TPM	Tentative Parcel Map
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Service
WHMP	Wildlife Habitat Management Plan
WL	Watch List

Summary of Findings

The proposed 764-acre Rugged Solar Project (project) area consists of 9 parcels located within the boundary of Rough Acres Ranch in southeastern San Diego County, near the unincorporated community of Boulevard. Rough Acres Ranch is located north of Interstate (I) 8 and is bordered by sparsely developed private county lands to the west, south, and north (Rough Acres Ranch also retains ownership of parcels located to the north) that are predominantly used for grazing. Public lands managed by the Bureau of Land Management (BLM) are also located to the north and to the east. The unincorporated community of Boulevard is located approximately 2.5 miles to the south. The proposed project (Project Number 60212653) includes development of an 80-megawatt (MW) concentrating photovoltaic (CPV) facility and ancillary structures/facilities, including but not limited to an on-site step-up substation, an operations and maintenance (O&M) building, a 138-kilovolt (kV) Tule gen-tie, and access roads. The gen-tie includes a 69 kV undersling line and would transmit energy produced on site to San Diego Gas & Electric (SDG&E) rebuilt Boulevard Substation located approximately 3 miles south of the Project site. One roadway would be constructed off site from Ribbonwood Road leading to the northwest subarea if Rough Acres Ranch Road is not constructed per Rough Acres Ranch Major Use Permit 3300-09-019. An SDG&E Sunrise Powerlink Project construction tie down area is located in the northeastern portion of the site, and this area is currently disturbed but has been mitigated through the environmental analysis prepared for the Sunrise Powerlink Project.

This report relies on survey data and information obtained from multiple field reconnaissance/site visits of the proposed Project area conducted by AECOM and Dudek between April 2011 and June 2013 and updated in 2019. AECOM biologists and subcontractors conducted biological reconnaissance surveys of the Project area between April 2011 and January 2012. Dudek conducted surveys for additional off-site survey areas between October 2012 and June 2013; however, off-site areas are no longer part of the project. Surveys consisted of oak woodland surveys, rare plant surveys, and focused Quino checkerspot butterfly surveys (*Euphydryas editha quino*). Dudek updated vegetation mapping and performed a jurisdictional wetland delineation review within the 764-acre Project area from May 2019 to August 2019. A total of 24 vegetation communities (including communities identified as disturbed) and land covers were mapped in the Project area. The upland vegetation communities recorded in the Project area include coast live oak woodland, mixed oak woodland, big sagebrush scrub (including disturbed), montane buckwheat scrub (including disturbed), granitic chamise chaparral, granitic northern mixed chaparral, red shank chaparral, scrub oak chaparral (including disturbed), and semi-desert chaparral (including rocky and disturbed). Riparian and wetland vegetation communities in the Project area include alkali meadow (including disturbed) and disturbed mulefat scrub. The non-native, non-natural, or non-vegetated habitat types/land covers occurring within the Project area are non-native grassland, non-native grassland: Broadleaf-dominated, disturbed habitat, urban/developed land, tamarisk scrub, open water, and non-vegetated channel. A majority of the riparian and wetland communities, in addition to unvegetated stream channels, are under the jurisdiction of the U.S. Army Corps of Engineers (ACOE), California Department of Fish and Wildlife (CDFW), Regional Water Quality Control Board (RWQCB), and/or County of San Diego (County).

During 2019 rare plant surveys, seven special-status plant species were found in the project area. These species are listed in the California Native Plant Society's (CNPS's) *Inventory of Rare and Endangered Plants* (CNPS 2019): Jacumba milkvetch (*Astragalus douglasii* var. *perstrictus*), a California Rare Plant Rank (CRPR) List 1B.2 and County List A species; Tecate tarplant (*Deinandra floribunda*), a CRPR List 1B.2 and County List A species; desert larkspur (*Delphinium parishii* ssp. *subglobosum*), a CRPR List 4 and County List D species; Peninsular spineflower (*Chorizanthe leptotheca*), a CRPR 4.2 and County List D species; sticky geraea (*Geraea viscida*), a CRPR list 2B.3 and County List B species; pride of California (*Lathyrus splendens*), a CRPR List 4.2 and County List D species;

Colorado desert beauty (*Linanthus bellus*), a CRPR List 2B.1 and County List B species. Two additional plants were observed during the 2011 rare plant survey within the project area: Payson's jewel flower (*Caulanthus simulans*), a CRPR List 4.2 and County List D species; and low bush monkeyflower (*Diplacus aridus*), a CRPR List 4.3 and County List D species.

A total of 24 special-status wildlife species were documented from the project area during the 2011/2012 and/or 2019 biological surveys. Two state or federally listed species, Swainson's hawk (*Buteo swainsoni*) and tricolored blackbird *(*Agelaius tricolor*)*, were observed within the project area. Expected use of the project area for stopover or foraging habitat by Swainson's hawk is low and tricolored blackbird was observed in 2011 flying over the project area. A total of 44 additional special-status wildlife species were determined to have moderate to high potential to occur within the project area.

Impacts from the proposed project include significant short-term and long-term direct and indirect impacts to special-status plant and wildlife species; short-term and long-term direct and indirect impacts to 369.52 acres of special-status upland vegetation communities; short-term and long-term direct impacts to 2.24 acres of oak root protection zone; short-term direct, and short-term and long-term indirect impacts to jurisdictional wetlands and waters; long-term direct impacts to 0.01 acres (218 linear feet) of jurisdictional non-wetland waters, 0.21 acres (124 linear feet) of wetlands under the jurisdiction of ACOE, RWQCB, CDFW, and the County, and 0.76 acres (734 linear feet) of riparian habitat under the jurisdiction of CDFW-only; long-term direct impacts to areas under the County Resource Protection Ordinance (RPO); short-term and long-term direct impacts to potential foraging and breeding habitat; and short-term impacts to migratory birds and active migratory bird nests and/or eggs protected under the Migratory Bird Treaty Act (MBTA).

Mitigation measures needed to reduce these impacts to less than significant include the implementation of best management practices (BMPs) during construction, biological monitoring and reporting, preconstruction nesting bird surveys, and preservation of 352.57 acres of habitat (including mitigation required for RPO wetland buffers and oak root protection zone) in on-site open space.

1 Introduction

1.1 Purpose of the Report

The purpose of this biological resources report is to document the biological resources that are present or have potential to occur in the proposed 764-acre Rugged Solar Project (project) area as identified through literature review, formal wetlands delineation, vegetation community mapping, and focused surveys for special-status[1] plant and wildlife species recognized by local, state, or federal resource agencies. This report also analyzes the potential direct and indirect impacts to biological resources resulting from the proposed project; it analyzes the biological significance of the site with respect to regional biological resource planning documents and policies, and it discusses mitigation measures that will reduce significant biological impacts to a less-than-significant level consistent with federal, state, and local regulations, including the California Environmental Quality Act (CEQA) the County of San Diego's (County) *Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources* (County of San Diego 2010a) (County Guidelines), and the Resource Protection Ordinance (RPO; County of San Diego 2012).

1.2 Project Location and Description

The approximate 764-acre solar farm site includes Assessor's Parcel Numbers (APNs) 611-060-04, 611-090-02, 611-090-04, 611-091-03, 611-091-07 (portion), 611-100-07, 612-030-01, 612-030-19, and 611-110-01 (portion). The project is located in the unincorporated community of Boulevard in southeast San Diego County. The project is located north of I-8 within private lands in eastern San Diego County, California (Figure 1, Project Location). Access to the project site would be provided by McCain Valley Road. The project site would be divided into five array subareas. Four of the subareas would be located to the west of McCain Valley Road. One array subarea would be located to the east of the McCain Valley Road. The project is situated on the eastern side of McCain Valley and the In-Ko-Pah Mountains, north of I-8, and north of the unincorporated community of Boulevard. The project lies within the Live Oak Springs U.S. Geological Survey (USGS) 7.5-minute quadrangles, Township 17 South, Range 7 East, Sections 8, 9, 15, 16, 17, 20, and 21 (Figure 2, Vicinity Map).

The solar farm site is currently undeveloped, with the exception of the northeast portion which was disturbed and fenced as a staging area for the Sunrise Powerlink Project, and has historically been used for grazing cattle and horses. Portions of the solar farm site are fenced with barbed wire fencing. Existing dirt access roads and a paved road traverse portions of the site and provide access to most of the sites. The entire project is within the future East County Multiple Species Conservation Program (ECMSCP) Plan Area, which is subject to evaluation of consistency with the ECMSCP Planning Agreement (County of San Diego 2019) is provided (see Chapter 7, Local Policies, Ordinances, and Adopted Plans).

The applicants are seeking an extension of and modification to the Rugged Solar Major Use Permit (PDS2017-MUP-12-007), which was originally approved by the County Board of Supervisors on February 4, 2015. The Rugged Solar Project is one of four individual solar energy projects analyzed in the Soitec Solar Development Program

[1] The term "special-status" is used in this report instead of "sensitive" with the exception of where it occurs in headings required in accordance with the County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources (County of San Diego 2010a) or text cited from this document. However, herein, these terms are interchangeable and have the same meaning.

Environmental Impact Report (EIR) (PDS2012-3910-120005 (ER), SCH NO. 2012121018), which was certified by the County Board of Supervisors on February 4, 2015. The Rugged Solar Energy Project would utilize photovoltaic (PV) electric generation system technology to produce solar energy at the utility-scale and would produce up to 74 megawatts alternating current (MWac) of solar energy. PV modules are designed to absorb sunlight and therefore reduce glare by design. The project includes the following primary components:

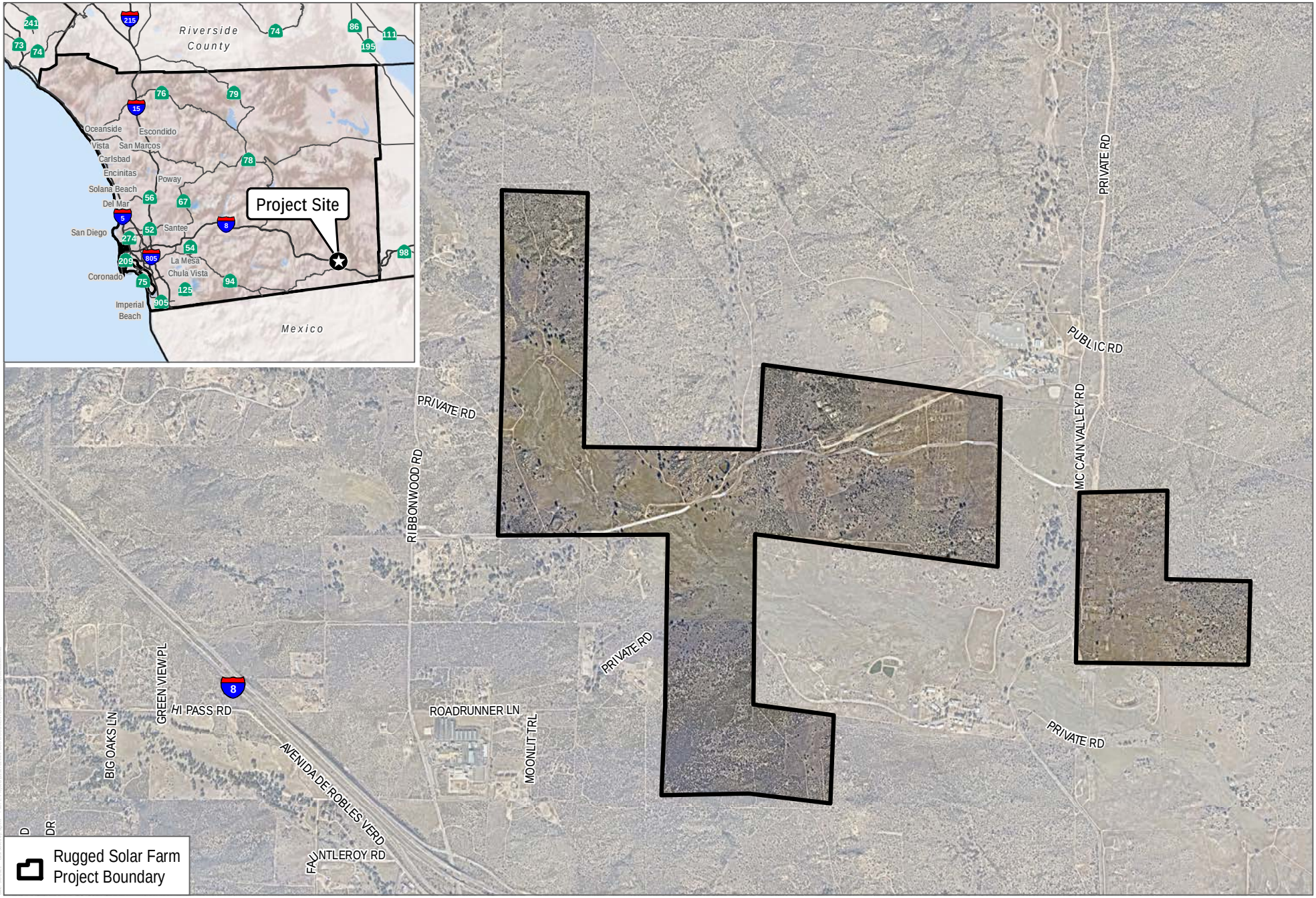
- A Photovoltaic Array, with photovoltaic modules mounted on trackers oriented towards the sun that rotate East-West to track the sun. Trackers would be arranged around inverter stations.
- A collection system linking the trackers to the on-site substation would consist of 1,000-volt (V) DC underground conductors leading to 34.5 kV underground and overhead AC conductors. The collection system would be located within the same development footprint as the Photovoltaic Array.
- A combined overhead and underground generation 69kV interconnection tie to the Boulevard East Substation utilizing vacant conductor positions on the existing Tule Wind 138kV right of way until the overhead gen-tie crosses Interstate 8. At that point, the gen-tie is undergrounded in a concrete vault until it crosses SR-80 and connects to the Substation.
- A collector substation within a fenced area of approximately 26,000 square feet. The on-site substation would include a 450-square-foot control house.
- A 60-foot by 105-foot (5,400-square-foot) warehouse building used for storage of parts and equipment.

Upon completion, the solar facility would be monitored remotely through a supervisory control and data acquisition (SCADA) system.

Project Construction

Construction of the proposed project would involve clearing and grubbing of the existing vegetation, large rocks, and/or debris from within the development footprint. Power from the on-site substation would be delivered to the 69 kV bus at SDG&E's Rebuilt Boulevard East Substation, which is located just west of Ribbonwood Road on the southern side of Old Highway 80. The power would be delivered via the existing overhead transmission line for the Tule Wind Energy project ((Tule gen-tie). The 138 kV Tule gen-tie includes a 69 kV undersling line, which would be used to service the proposed project. Rugged Solar LLC and Tule Wind LLC have a joint-use agreement in place for use of the gen-tie line, associated transmission towers, and access road.

Of the 764 acres of the project site, approximately 393.3 acres would be cleared, grubbed, and graded. Of the 393.3 disturbed acres approximately 7 acres would be disturbed on a given day, which equates to 140 acres on a given month. After construction, approximately 393.3 acres of the project site would be permanently disturbed with project facilities. Grading necessary for the construction of the facility is 75,000 cubic yards of balanced cut/fill. There would be no import or export of soils to or from the project site because excavated soils are expected to be engineered on site (i.e., compacted and hydrated to optimum moisture content) for use as fill. During the peak of construction, a typical day would include the transportation of trackers, movement of heavy equipment, and transportation of materials. Trip generation for construction workers and delivery trucks would vary depending on the phase of construction with an average of 60 to 70 workers per day and a peak of 146 workers per day. The peak period of construction activity would occur during the clearing and grubbing phase and would last approximately 3 months. It is estimated that approximately 49,773 total vehicle trips would be made during the 12-month construction period. Thus, on average approximately 160 trips per day would be generated during project construction. During the clearing and grubbing phase, construction trips would peak at approximately 392 trips per day for two months. Construction staging and material laydown areas would be distributed across the project site evenly to allow for efficient distribution of components to different parts of the project.



SOURCE: Michael Baker 2019; SANGIS 2020, 2021

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

Biological Resources Report - Rugged Solar Farm

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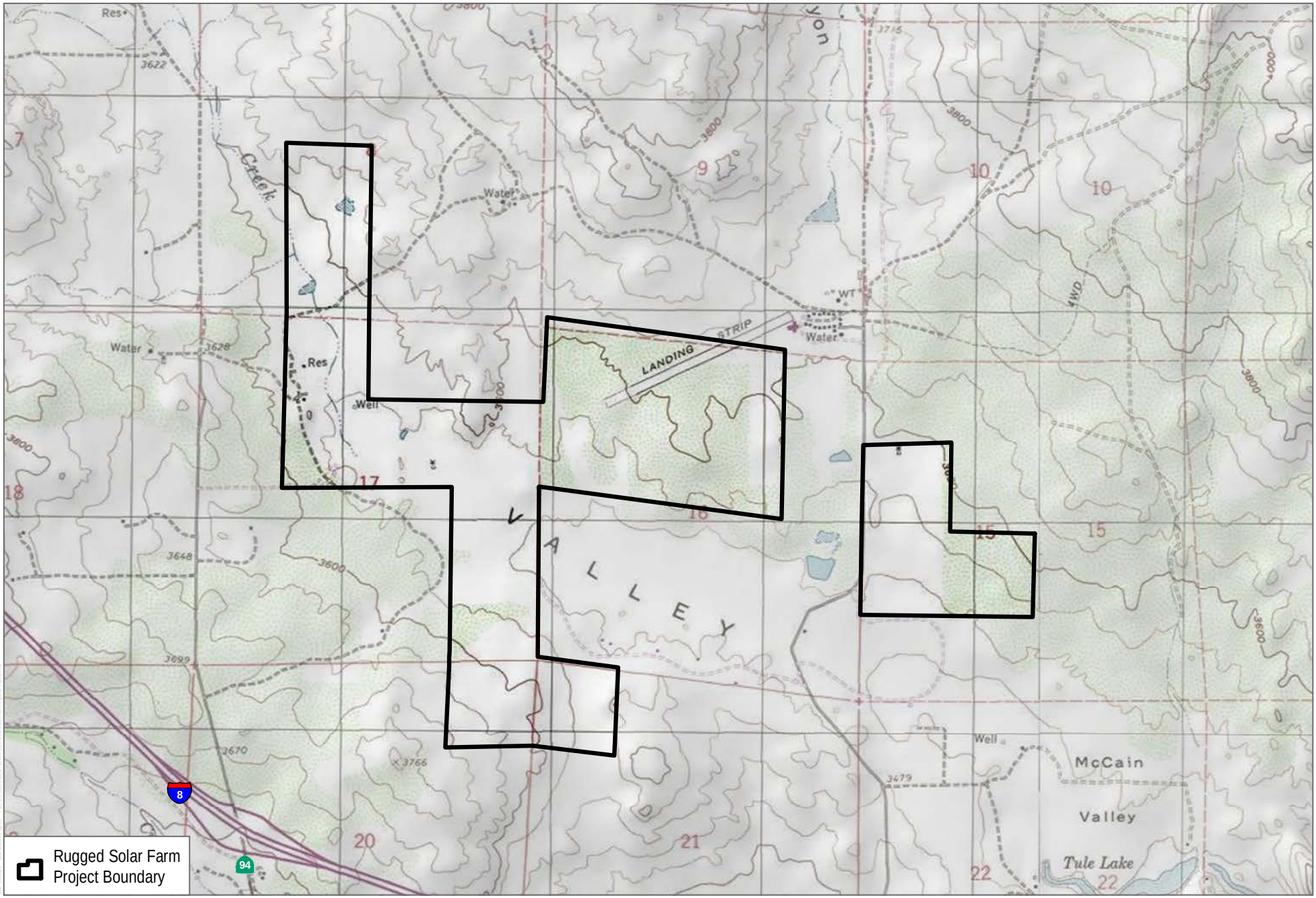

SOURCE: Michael Baker 2019; USGS 7.5-Minute Series Live Oak Springs Quadrangle

DUDEK

0 1,000 2,000 Feet

FIGURE 2

Vicinity Map

Biological Resources Report - Rugged Solar Farm

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Trenching for the electrical collection system and telecommunication lines would consist of trenches up to approximately 3 to 4 feet deep and 1 to 2 feet wide. The trenches may be filled with sand or another inert material to provide insulation and heat dissipation for the direct buried cable within the collection system. The topsoil from trench excavation would be set aside before the trench is backfilled and would ultimately comprise the uppermost layer of the trench. Excess material from the foundation and trench excavations would be used for project site leveling. Tracker installation would include the assembly of trackers, the pile-driving of support masts, and the placement of trackers on those support masts. Tracker assembly may require small gas-powered generators to power hand tools to assemble trackers and modules. Remaining materials would be limited and would be contained and disposed of offsite, consistent with the County of San Diego Construction Demolition and Debris Management Plan (County Ordinance 68.508-68.518).

Project Operations

Operations of the project would entail real-time monitoring of the project through the Supervisory Control and Data Acquisition (SCADA) system using sensors. The SCADA system would use on-site sensors to maintain tracker orientation toward the sun. At night, the trackers would be positioned at the angle designated by the manufacturer, to minimize dust collection and to be ready to begin generation soon after sunrise each morning. When winds are high, the trackers would be positioned horizontally in "stow" mode to reduce wind loading. The trackers and communication/monitoring system on site would require minimal usage of grid-provided electricity for operation. A generator may be used for emergency power.

Water Usage

Water would be used during the proposed project's construction and site preparation, operations, and the decommissioning and dismantling. The majority of the project's construction-related water demand would be for the purpose of dust control. The initial clearing, grubbing, and grinding of each array subarea would require the most intensive use of water. During this phase of construction, which is expected to occur in the first two to three months following mobilization, heavy equipment (e.g., tractors/loaders/backhoes, scrapers, skid steer loaders, graders, and dumpers/tenders) would be clearing woody vegetation, rocks, and other debris/vegetation over large contiguous areas of each site, requiring relatively large volumes of water to control dust. Watering for dust control would continue to occur throughout the construction period but would be geographically limited (to active work areas). Water usage would be reduced, as tracker installation and assembly proceeds, through the application of a permeable nontoxic soil binding agent to any bare inactive areas following initial site clearing. Construction-related water demand estimates for dust control have accounted for the entire development footprint and construction duration of each project and have included a contingency for high wind days. It has also accounted for dust control required for operation of the temporary rock crusher on the project site.

Various levels of cut/fill are required to level sites and properly prepare foundations, including the compaction and watering necessary to achieve engineered specifications. Water requirements associated with hydration of fills are limited to surfaced roads, parking lots and facility foundation pads (e.g., warehouse building, the collector substation, and inverters), and are usually dependent on the difference between the "optimum" and actual soil moisture content on the construction site.

The proposed project would provide two permanent 20,000-gallon water storage tanks, one water tank at the warehouse building and a second water tank at the collector substation. These would be dedicated tanks put in place at the start of construction and would be labeled "fire water" using reflective paint. These tanks would either be elevated or equipped with a pump and would not suffer appreciable evaporation losses because they would be enclosed and water-tight.

The weed control plan may require weed control treatments, which could include manual and/or mechanical methods. Such treatments may require installation and use of weed washing stations, which would consist of 1,000-gallon water buffalos equipped with a portable hydro washer.

It is anticipated that in-place tracker washing would occur once per year. Washing of the tracker panels would be undertaken using a water truck or similar vehicle, with water sourced from Rough Acres Ranch groundwater. As a conservative (i.e., high) estimate, approximately 0.5 gallon of water per module would be required to wash the installation. Based on 225,264 modules, the total annual water usage for module washing is estimated to be 458,16-gallons (1.41 acre-feet).

It is estimated that the amount of water necessary to decommission and dismantle the proposed project would be significantly less than that required for construction because there would be no need to use water for grading, concrete mixing, panel washing, or construction site preparation. It is anticipated that some water may be required for dust control during decommissioning and dismantling. Decommissioning would not involve installation or use of an irrigation system. Water storage tanks installed for the operational phase of the proposed project would remain on site through the decommissioning and dismantling phase. Water stored in these tanks would be used as necessary for decommissioning and dismantling activities.

Security

The proposed solar facility would be fenced around the solar production areas for security with fencing that meets National Electrical Safety Code (NESC) requirements for protective arrangements in electric supply stations. Examples of acceptable fencing may include a 6-foot chain-link perimeter fence with three strands of barbed wire along the top with a 4-inch maximum clearance from the ground surface. Signage in Spanish and English for electrical safety would be placed along the perimeter of the project site, warning the public of the high voltage and the need to keep out. Signage would also be placed within the project site where appropriate. Some localized security-related lighting, on-site security personnel, and/or remotely monitored alarm system may be required during construction and/or operation. Alarm system(s), perimeter and safety lighting would be used only on an as-needed basis for emergencies, protection against security breach, or unscheduled maintenance and trouble-shooting (such as may occasionally be required) would be installed.

Maintenance and Security Lighting

Lighting at the project site would be designed to provide security lighting and general nighttime lighting for O&M personnel, as may be required from time to time. Lighting would be shielded and directed downward to minimize any effects to surrounding properties and would be used only on an as-needed basis. Lighting would be provided in the warehouse building, entrance gates, and entrance to the on-site project substation. Lighting would also be provided next to the entrance door to the control house and mounted at the entrance gates to allow for safe entry. Since maintenance activities are not anticipated to be completed during the evening hours, lights would only be turned on if needed. All lighting within the project site would have bulbs that do not exceed 100 watts, and all lights would be shielded, directed downward, and would comply with the County of San Diego Light Pollution Code Section 59.101 et seq.

Access Roads

Access to the project site would be from existing McCain Valley Road. No improvements to the existing roadways are proposed. Most of the proposed solar facility would be located to the west of McCain Valley Road, with access provided off of Tule Mountain Road. One subarray would be located to the east of McCain Valley Road and would be accessible via an access road leading from McCain Valley Road crossing beneath the Sunrise Powerlink. Subarrays would be connected via service roads designed to meet Fire and Safety Access requirements. The central subarray would also include an access road leading south crossing Tule Creek to provide access to the southern subarray. Permanent access would also be provided off of Ribbonwood Road and Tule Mountain Road. Tule Mountain Road would also provide internal access.

New internal access road surfaces, widths and turning radii would be designed to meet San Diego County Fire Code Section 4903. Primary and Fire Access roads would be surfaced with decomposed granite or other aggregate base material as required to meet Fire and Emergency Access requirements. Primary Access roads would be constructed to a minimum improved width of 24 feet on a 28-foot-wide graded width and be used to access and operate the solar equipment as well as provide access for fire apparatus. Secondary Access roads would be 20 feet in width and would provide additional access for fire apparatus. Permeable nontoxic soil binding agents would be used as required to meet San Diego County Air Pollution Control District Regulations.

The primary fire access roads would be constructed would be graded, designed, constructed, and maintained to support the imposed loads of fire apparatus (not less than 75,000 pounds), and would consist of an approved surface (D.G., Class II base, or gravel). The purpose of the fire access roads is to allow for two-way access of fire apparatus for ingress and egress of the project site in a looped fashion and to provide access to the on-site substation and invertors. Access across the occasional inundation area to the southernmost array subarray would be paved with asphaltic concrete.

Fire Protection

The project site would be serviced by the SDCFA's Boulevard Fire Station (Station 47). Fire emergencies that may occur at the proposed project site would be primarily responded to by SDCFA's Boulevard Fire Station, as well as from mutual aid resources from throughout the County and state, when necessary. Fire prevention measures include, but are not limited to:

- All on-site facilities would be constructed of non-combustible or ignition-resistant materials in accordance with County Building Code;
- Roads and structures would be identified to comply with County Consolidated Fire Code, Section 505;
- An illuminated sign at each solar facility entrance that clearly indicates inverter and electrical grid layout, trackers "safe" mode switch location, and entire site de-energizing disconnect switch identification and location would be installed;
- All existing native vegetation within solar tracker areas would be cleared to a height no taller than 6 inches and removal of all dead, dying, and dried (low fuel moisture) vegetation would be conducted;
- Ensuring safe and effective emergency response with an ample on-site road system within the site should a fire or medical emergency occur.

1.3 Survey Methodologies

Data regarding biological resources present in the project area were obtained through a review of pertinent literature, previous studies, and through current field reconnaissance; all are described in detail as follows.

1.3.1 Literature Review

Special-status biological resources present or potentially present in the project area were identified through a literature search, conducted between 2009 and 2012, and updated in 2019, in addition to prior reports prepared for the project area. The following sources were used during the literature review process:

- USFWS National Wetland Inventory (NWI) Geographic Information System (GIS) Data (USFWS 2019a) was reviewed and accessed August 2019.
- USFWS Critical Habitat and Occurrence Data (USFWS 2019b) was searched within 5 miles of the project area.
- CDFW's (2019a) Natural Diversity Database was queried to compile a list of potentially occurring flora and fauna in the Live Oak Spring quadrangle and surrounding seven quadrangles.
- CNPS Inventory of Rare and Endangered Plants of California, 8th online edition (CNPS 2019), was searched to compose a list of potentially occurring flora in the Live Oak Spring quadrangle and surrounding seven quadrangles.
- San Diego Plant Atlas (SDNHM 2019a) was queried to compile a list of potentially occurring special-status plant species in the Live Oak Spring quadrangle.
- CalFlora (CalFlora 2019) was queried to compile a list of potentially occurring special-status plant species within the Live Oak Spring quadrangle.
- Roberts' (1995) Guide to the Oaks of Southern Californian Floristic Province: The Oaks of Coastal Southern California and Northwester Baja California, Mexico was reviewed due to the abundance of oak species within the Live Oak Spring quadrangle.
- Consortium of California herbaria (CCH 2019) was queried to compile a list of potentially occurring special status species in the Live Oak Spring quadrangle.
- Reiser's (2001) Rare Plants of San Diego County was reviewed due to the descriptions of historical rare plant locations and soil descriptions.
- The Jepson Manual: Vascular Plants of California was reviewed prior to field work to compile detailed couplet characteristics that divide rare plants from common species especially varietal differences (Jepson Flora Project 2019a, 2019b).
- NRCS USDA soil survey (USDA 2019) was reviewed prior to conducting jurisdictional delineation review, rare plant survey update and vegetation mapping updates.
- San Diego Bird Atlas (SDNHM 2019b) was queried to compile a list of potentially occurring special-status bird species in the Live Oak Spring quadrangle and surrounding seven quadrangles.
- Draft Biological Technical Report for the Tule Wind Project (HDR 2010) was reviewed.
- Draft Biological Technical Memorandum for the Tule Wind Project (HDR 2011) was reviewed.
- Environmental Impact Report/Environmental Impact Statement (Biological Resources Section) for the ECO Substation/Tule Wind/ESJ Gen-Tie Project (CPUC and BLM 2011) was reviewed.
- Environmental Impact Report/Environmental Impact Statement (Biological Resources Section) for the SDG&E Sunrise Powerlink Project (CPUC and BLM 2008a, 2008b) was reviewed.

- Comprehensive List of Sensitive Species provided by the County Planning and Development Services (PDS) (now known as Department of Planning and Land Use (DPLU); Appendix A, Pre-Application Summary Letter) was reviewed.
- Memorandum for Rugged Solar Project (AECOM 2012a) was reviewed.
- Digital GIS Data for Rugged Solar Project Survey Results (AECOM 2012b) was used for analysis.
- 2011 Rugged Energy Solar Project Quino Checkerspot Butterfly 45-Day Summary Report, Boulevard, California (Appendix D1) was used for analysis.
- 2012 Table Mountain and Carrizo Canyon Golden Eagle Territories in San Diego County, California: A Compilation of Historical and Current Data (WRI 2012) was reviewed.
- 2013 Rugged Energy Solar Project Off-Site Access Roads Quino Checkerspot Butterfly 45-Day Survey Report (Dudek 2013a; Appendix D2) was used for analysis.

In terms of regional preserve planning efforts, the project is within the draft East County Multiple Species Conservation Plan (ECMSCP) planning area; however, since this plan has yet to be developed and there is no specific timeline for finalization, the project is not analyzed in the context of the draft ECMSCP. This report is prepared in accordance with the County Guidelines (County of San Diego 2010a), and significance determination is also based on the County's Guidelines (County of San Diego 2010a). The County RPO (County of San Diego 2012) was also utilized to assess resource sensitivity and habitat connectivity.

1.3.2 Field Reconnaissance

In 2009, Dudek biologists performed biological surveys for the portion of the project area that overlaps Rough Acres Ranch in June and July (south–central parcels were excluded as they were not part of this project). Biological surveys and investigations conducted for the project area by Dudek in 2009 included vegetation mapping and a formal jurisdictional delineation (Table 1-1a), which are described in more detail in Section 1.3.3, Vegetation Community Mapping, and Section 1.3.6, Jurisdictional Delineation of Waters Including Wetlands.

AECOM biologists and their subcontractor (Table 1-1a) performed biological surveys for the project area between March 29, 2011, and January 27, 2012. Biological surveys and investigations conducted for the proposed project area by AECOM included vegetation mapping, oak woodland surveys, special-status plant surveys, and focused Quino checkerspot butterfly (*Euphydryas editha quino*) protocol surveys, which are described in more detail in Section 1.3.3.1, Oak Woodland Survey; Section 1.3.4.1, Special-Status Plant Surveys; and Section 1.3.5.1, Quino Checkerspot Butterfly Surveys. A small portion of the project area was excluded from the 2011 special-status plant survey; however, special-status plant surveys in this excluded area were conducted by others (HDR 2010, 2011) (see Section 1.3.4.1 for additional information).

In March and April 2012, Dudek biologists conducted biological reconnaissance surveys in the project area, including vegetation community mapping and a formal jurisdictional delineation, which are described in more detail in Sections 1.3.3 and 1.3.6. In 2012 and 2013, Dudek conducted a rare plant survey for the off-site northern access roads for that project footprint. In 2013, Dudek conducted focused Quino checkerspot butterfly protocol surveys for the off-site northern access road that was part of that project footprint.

In 2019, Dudek biologists conducted an update of biological surveys in the project area, including vegetation community mapping (including a 100-foot buffer around the site), a jurisdictional delineation review, and focused special-status plant surveys (Table 1-1b). A protocol-level Quino checkerspot butterfly survey was conducted within the impact area plus a 100-foot buffer in 2020 and a stream duration assessment was conducted in 2021 (Table 1-1b).

Table 1-1a includes a list of dates, survey focus, personnel, and numbers of surveys in the project area conducted for the proposed project in 2009, 2011, 2012, and 2013. Conditions were not recorded in surveys prior to 2019, except for the protocol Quino checkerspot butterfly surveys, which can be found in the focused survey reports. Table 1-1b lists the dates, conditions, and survey focus for each survey performed in 2019.

Table 1-1a. Biological Surveys Conducted for the Rugged Solar Site in 2009, 2011, 2012, and 2013

Date	Personnel
Vegetation Mapping Survey	
06/23/2009	CF, MH, BO, BS
07/15/2009	CF, MH, BO, BS
07/22/2009	CF, MH, BO, BS
07/23/2009	CF, MH, BO, BS
07/29/2009	CF, MH, BO, BS
10/13/2011	BH, EB
10/14/2011	BH, EB
10/18/2011	BH, EB
10/20/2011	BH, EB, LW
10/25/2011	BH
10/26/2011	BH, EB, LW, FS
11/10/2011	BH, EB, MR
03/22/2012	PS, CF
03/28/2012	PS, CF, CO, VJ
04/16/2012	VJ
06/19/2012	CF (Western off-site access road)
Special-Status Plant Survey	
04/19/2011	EB, KH
04/20/2011	FS, EB
04/21/2011	BH, EB, MM
04/22/2011	BH, EB, MM
04/23/2011	FS, MM
04/26/2011	BH, EB, FS, MM
04/27/2011	EB, MM
05/02/2011	BH
06/07/2011	BH, LW
06/08/2011	BH, MM, EB, JM
06/14/2011	BH, EB, FS, JM
10/13/2011	BH, EB
10/14/2011	BH, EB
10/18/2011	BH, EB
10/20/2011	BH, EB, LW
10/25/2011	BH
10/26/2011	BH, EB, LW, FS
11/10/2011	BH, EB, MR
10/10/2012	CF, KD (Northern off-site access road only)*
03/22/2013	VJ (Northern off-site access road only)*
06/13/2013	CF (Northern off-site access road only)*

Table 1-1a. Biological Surveys Conducted for the Rugged Solar Site in 2009, 2011, 2012, and 2013

Date	Personnel
Oak Woodland Survey	
12/13/2011	JZ, EB
12/19/2011	JZ, EB
Jurisdictional Wetlands Delineation	
06/10/2008	MH, JTS
12/08/2011	JZ
12/09/2011	JZ, EB
01/25/2012	JZ, EB
01/26/2012	JZ
01/27/2012	JZ
03/22/2012	PS, CF
03/28/2012	PS, CF, CO, VJ
04/16/2012	VJ
06/25/2012	VJ
11/26/2013	TL
Quino Checkerspot Butterfly Focused Survey[a]	
03/29–04/01/2011 (Week 1)	EB (Permit No. 820658-4), BC (Permit No. 820658-4), MC (Permit No. 782703-8), AF (Permit No. 820658-4), BH (Permit No. 820658-4), MM (Permit No. 233291-0)
04/04–05/2011 (Week 2)	BC (Permit No. 820658-4), MC (Permit No. 782703-8), AF (Permit No. 820658-4), BH (Permit No. 820658-4), KI (Permit No. 797999-7.2), MM (Permit No. 233291-0), SR (Permit No. 797999-7.2), AB (Permit No. 797999-7.2)
04/14–15/2011 (Week 3)	EB(Permit No. 820658-4), AG (Permit No. 797999-7.2), BH (Permit No. 820658-4), KI (Permit No. 797999-7.2), MM (Permit No. 233291-0), SR (Permit No. 797999-7.2)
04/18–20/2011 (Week 4)	EB (Permit No. 820658-4), MC (Permit No. 782703-8), AG (Permit No. 797999-7.2), BH (Permit No. 820658-4), KI (Permit No. 797999-7.2), MM (Permit No. 233291-0), KO (Permit No. 837760-6), SR (Permit No. 797999-7.2)
04/25–05/01/2011 (Week 5)	MC (Permit No. 782703-8), AG (Permit No. 797999-7.2), MM (Permit No. 233291-0), KO (Permit No. 837760-6)
05/02–05/2011 (Week 6)	EB (Permit No. 820658-4), BH (Permit No. 820658-4), MM (Permit No. 233291-0), KO (Permit No. 837760-6)
Quino Checkerspot Butterfly Focused Survey (Additional Survey Areas)[b]	
03/22/2013	VJ (Permit No. 019949-0)
03/29/2013	PL (Permit No. 051248-4)
04/04/2013	PL (Permit No. 051248-4)
04/12/2013	PL (Permit No. 051248-4) and PS
04/24/2013	JP (Permit No. 840619-2)

Notes:
AB = Adam Behle (AECOM); AF = Andrew Fisher (AECOM); AG = Antonette Gutierrez (AECOM); BC = Barbara Calantas (AECOM); BH = Bonnie Hendricks (AECOM); BO = Brock Ortega (Dudek); BS = Britney Strittmater (Dudek); CF = Callie Ford (Dudek); CO = Chris Oesch (Dudek); EB = Erin Bergman (AECOM prior to 2013; Dudek 2019 to current); FS = Fred Sproul (AECOM); JM = John Messina (AECOM); JTS = J. Travis Smith (Dudek); JZ = Joshua Zinn (AECOM); KD = Kathleen Dayton (Dudek); LW = Lance Woolley (AECOM); MR = Kyle Harper (AECOM); KI = Kyle Ince (AECOM); JP = Jeff Priest (Dudek); KO = Ken Osborne (AECOM); MC = Mike Couffer (AECOM); MH = Mike Howard (Dudek); MM = Margie Mulligan (AECOM); MR = Mark Roll (AECOM); PS = Patricia Schuyler (Dudek); SR = Stephen Rink (AECOM); VJ = Vipul Joshi (Dudek); PL = Paul Lemons (Dudek); TL = Thomas Liddicoat (Dudek).

* Off-site roads were analyzed in previous studies and are no longer part of the project.

[a] The schedule for the 2011 focused Quino checkerspot butterfly surveys is included in the 2011 Rugged Energy Solar Project Quino Checkerspot Butterfly 45-Day Summary Report, Boulevard, California (Appendix D1).

[b] The schedule for the 2013 focused Quino checkerspot butterfly surveys is included in the 2013 Rugged Energy Solar Project Off-Site Access Roads Quino Checkerspot Butterfly 45-Day Survey Report (Dudek 2013a; Appendix D2).

Table 1-1b. Biological Surveys Conducted for the Rugged Solar Site in 2019-2021

Date	Hours	Personnel	Conditions
Vegetation Mapping Survey			
06/10/2019	8:25 a.m.–5:39 p.m.	EB	77°F–96°F; 0%–30% cloud cover; 0–3 mph wind
06/11/2019	8:09 p.m.–4:02 p.m.	EB	80°F–103°F; 0% cloud cover; 0–3 mph wind
06/12/2019	8:41 a.m.–5:33 p.m.	EB	66°F–88°F; 10%–20% cloud cover; 0–4 mph wind
Special-Status Plant Survey			
05/15/2019	7:10 a.m.–5:11 p.m.	EB	61°F–66°F; 10%–50% cloud cover; 0–3 mph wind
05/16/2019	8:23 a.m.–4:30 p.m.	EB, LM	75.2°F–87°F; 100% cloud cover; 0–4 mph wind
05/17/2019	8:29 a.m.–5:07 p.m.	EB	55°F–65°F; 20%–40% cloud cover; 0–15 mph wind
05/20/2019	8:10 a.m.–4:27 p.m.	EB, SM	42°F–55°F; 80% cloud cover; 0–5 mph wind
05/21/2019	7:47 a.m.–5:41 p.m.	EB	50°F–52°F; 30%–40% cloud cover; 0–5 mph wind
05/23/2019	6:59 a.m.–5:52 p.m.	EB, LH	52°F–55°F; 30%–90% cloud cover; 0–3 mph wind
05/24/2019	7:58 a.m.–5:09 p.m.	EB, LM, SM, LH	54°F–65°F; 30% cloud cover; 0–4 mph wind
05/25/2019	8:35 p.m.–10:35 a.m.	EB	54°F–55°F; 100% cloud cover; 0–36 mph wind
05/28/2019	8:04 a.m.–5:16 p.m.	CS, EB, SC	59°F–60°F; 30%–40% cloud cover; 0–3 mph wind
05/29/2019	8:19 a.m.–5:22 p.m.	CS, EB	61°F–66°F; 10% cloud cover; 0–3 mph wind
06/03/2019	7:38 a.m.–6:11 p.m.	EB	65°F–82°F; 0%–70% cloud cover; 0–3 mph wind
06/05/2019	7:58 a.m.–5:47 p.m.	EB	63°F–73°F; 30%–70% cloud cover; 0–3 mph wind
08/20/2019	8:11 a.m.–4:13 p.m.	EB, SM	67°F–100°F; 0%–10% cloud cover; 0–4 mph wind
08/22/2019	5:26 a.m.–3:11 p.m.	EB, SC	56°F–99°F; 0% cloud cover; 0–3 mph wind
08/23/2019	4:59 a.m.–3:16 p.m.	EB, SC	59°F–102°F; 0% cloud cover; 0–4 mph wind
08/25/2019	5:55 a.m.–2:19 p.m.	EB	57°F–102°F; 0%–20% cloud cover; 0 mph wind
08/26/2019	8:00 a.m.–1:36 p.m.	EB, SM	66°F–91°F; 10%–20% cloud cover; 0–4 mph wind
08/27/2019	5:51 a.m.–3:33 p.m.	EB, SC	55°F–101°F; 0%–40% cloud cover; 0–4 mph wind
08/29/2019	5:13 a.m.–3:30 p.m.	EB, SC	63°F–109°F; 0% cloud cover; 0–3 mph wind
08/30/2019	5:02 a.m.–2:40 p.m.	EB, SC, SM	61°F–102°F; 0% cloud cover; 0–3 mph wind
Quino Checkerspot Butterfly Focused Surveys			
February 19-20 and 27-28, 2020 March 4-5 and 30, 2020 April 3, 15-16, 19, 21-22, 24, 29-30, 2020 May 6 and 8, 2020		Blackhawk Environmental, Inc	The schedule for the 2020 focused Quino checkerspot butterfly surveys is included in the Quino Checkerspot Butterfly Survey Results 45-Day Report McCain Valley Solar Project (Appendix D3).
Jurisdictional Wetlands Delineation Review and Stream Duration Assessment			
06/13/2019	9:32 a.m.–1:30 p.m.	PS	73°F–79°F; 10%–40% cloud cover; 2–10 mph wind
04/12/2021	8:15 a.m.–1:00 p.m.	CS	63°F–73°F; 0% cloud cover; 0–10 mph wind

Notes: EB = Erin Bergman (AECOM prior 20 2013; mph = miles per hour; Dudek 2019 to current); LM = Lindsy Mobley (Dudek); LH = Laura Hernandez (Dudek); SM = Scott Mcmillan (Dudek); CS = Cody Schaaf (Dudek); PS = Patricia Schuyler (Dudek); SC = Shana Carey (Dudek).

All field surveys were completed according to county requirements and included directed searches and habitat assessments for the County list of potential special-status faunal and floral species. The entire project site was surveyed by personnel qualified to perform biological surveys. Sensitive biological resources were mapped and analyzed together with the project plans (PDS2012-3300-12-007).

1.3.3 Vegetation Community Mapping

Vegetation mapping data for the project area were collected over several years, including 2009, 2011, and 2012 by AECOM and Dudek (Table 1-1a), and Dudek in 2019 (Table 1-1b). Biologists conducted vegetation mapping using the *Draft Vegetation Communities of San Diego County* (Oberbauer et al. 2008), which is a local (i.e., San Diego County) refinement of the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986). The *Manual of California Vegetation* (2nd edition) (MCV2; Sawyer et al. 2009) was utilized as an additional reference to help determine characteristics (e.g., percentage species cover) of various classifications.

The methodology for vegetation community mapping is described by year as follows.

2009 Vegetation Mapping: In June and July 2009, Dudek mapped vegetation communities in the field directly onto a 250-foot-scale (1 inch = 250 feet) aerial photograph (Digital Globe 2008). Surveys covered the entire project area with the exception of three parcels in the southcentral portion of the project area. Surveys also encompassed other portions of Rough Acres Ranch that are not part of the project area.

2011 Vegetation Mapping: AECOM completed vegetation mapping within the project area in October and November 2011. Sawyer et al. (2009) and CDFW (2010) classifications were used to provide additional detail where appropriate, such as denoting special or sensitive vegetation communities that are either known or believed to be of high priority for inventory in the California Natural Diversity Database (CNDDB) due to their unique nature, limited distribution (i.e., rarity), or importance for special-status wildlife species. Communities were mapped by hand in the field on a 200-foot-scale (1 inch = 200 feet) aerial photograph and later screen-digitized in the office using ArcGIS software (AECOM 2012a).

2012 Vegetation Mapping: Prior to conducting the field visits in 2012 to map vegetation communities, Dudek reviewed the vegetation mapping description provided in the *Biological Technical Report for the Tule Wind Project* (HDR 2010). Dudek also reviewed the mapping completed in previous years, 2009 by Dudek and 2011 by AECOM, described previously.

In March 2012, biologists mapped vegetation communities in the field directly onto 300-foot-scale (1 inch = 300 feet) aerial photography (Bing Maps 2012). Biologists covered the project area by foot and vehicle, traversing existing dirt roads and traveling along canyons and ridgelines. The 100-foot buffer surrounding the project area was included in the vegetation mapping survey but was not accessed on foot; rather, the buffer was mapped from adjacent parts of the project area using aerial photography. Communities were mapped based on the dominant species present and their associated cover classes, aspect, and canopy height. If the vegetation communities observed in the field did not match those described in Oberbauer et al. (2008) or Holland (1986), Dudek generated additional site-specific vegetation community or land cover classifications (e.g., bare rock). Minimum mapping units established included 2.2 acres (1 hectare) for vegetation communities not considered sensitive and 1 acre for communities that are considered sensitive.

In addition to mapping vegetation communities by visually assessing the percentage cover, transect data were collected to analyze the percentage cover of species in non-native grasslands and alkali meadow to more precisely delineate the boundaries between these two communities. A total of six 25-meter-long (82 feet) point-intercept transects were conducted by Dudek in portions of the non-native grassland and alkali meadow within Tule Creek to determine the percentage cover of plant species within those vegetation communities. More specifically, a transect tape was run between two points within a stand of vegetation, and a vegetative intercept

line was visually projected above and below the tape at every half-meter mark. Each herb, shrub, or tree that intercepted the projected line was recorded by species.

Another site visit was conducted on April 16, 2012, and the vegetation community mapping was refined based on a field reconnaissance survey using a 100-scale, high-resolution, project-specific aerial photograph. A summer survey was conducted on June 25, 2012, to finalize the alkali meadow/non-native grassland mapping. In the spring, both *Hordeum* and *Juncus* species are green; however, in the early summer, *Juncus* remains green while *Hordeum* senesces and turns brown, making it easier to differentiate between the alkali meadow and non-native grassland areas. A 0.1-acre minimum mapping unit was used for final mapping of the alkali meadow vegetation community.

Following completion of the field mapping, vegetation boundaries were digitized and GIS coverage was created. Once major line work and community designations were completed, a geodatabase was created to ensure these data were topologically correct and met final quality control and assurance procedures. These processes included reviewing the original hard-copy field maps in tandem with the digital data, as well as comparing the field data collected (i.e., notes) with the final vegetation community designations.

While oak woodlands are considered a vegetation community, there are specific methods, required by the County, that are used to define the boundaries of oak woodland, which are described in Section 1.3.3.1.

2019 Vegetation Mapping:

Prior to conducting the field visits in 2019 to map vegetation communities, Dudek reviewed the mapping completed in previous years, 2009, 2012 (Dudek) and 2011 (AECOM), described previously.

On June 10, 2019, June 11, 2019, and June 12, 2019, biologists updated mapped vegetation communities in the field directly onto 300-foot-scale (1 inch = 300 feet) aerial photography utilizing field application (Collector Classic ArcGIS Collector Esri). A layer of vegetation mapping from 2012 was included on Collector mapping application along with a layer of vegetation mapping from 2011.Vegetation was updated based upon any changes seen from 2012 to 2019 (examples include levels of disturbance, paved roads, high levels of weed invasion, fire that changed the landscape enough to change the vegetation community). Biologists covered the project area mostly by foot and vehicle, traversing existing dirt roads and traveling along canyons and ridgelines. The 100-foot buffer surrounding the project area was included in the vegetation mapping survey but was not accessed on foot; rather, the buffer was mapped from adjacent parts of the project area using aerial photography. Communities were mapped based on the dominant species present and their associated cover classes, aspect, and canopy height. Dudek biologists recorded dominant species while walking each vegetation community to acquire the most accurate level of plant species abundance. If the vegetation communities observed in the field did not match those described in Oberbauer et al. (2008) or Holland (1986), Dudek generated additional site-specific vegetation community or land cover classifications (e.g., bare rock). Minimum mapping units established included 2.2 acres (1 hectare) for vegetation communities not considered sensitive and 1 acre for communities that are considered sensitive.

Following completion of the field mapping, vegetation boundaries were digitized and GIS coverage was created. Once major line work and community designations were completed, a geodatabase was created to ensure these data were topologically correct and met final quality control and assurance procedures. These processes included reviewing the original field collector application field maps in tandem with the digital data on the computer, as well as comparing the field data collected (i.e., notes) with the final vegetation community designations.

1.3.3.1 Oak Woodland Survey

In accordance with County Guidelines (County of San Diego 2010a), the oak woodlands boundaries were delineated at the edge of the canopy, and all mature oak trees (measuring 6 inches in diameter at breast height [dbh] or greater) identified within 100 feet of established oak woodland were mapped as part of the woodland. However, in some cases, individual oaks more than 100 feet apart from established oak woodlands were included based upon ecological function within the project area.

1.3.4 Flora

All plant species encountered during the field surveys were identified and recorded. Latin and common names for plant species with a CRPR (formerly CNPS List) follow the *California Native Plant Society On-Line Inventory of Rare, Threatened, and Endangered Plants of California* (CNPS 2019). For plant species without a CRPR, Latin names follow the *Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California* (Jepson Flora Project 2019a), and common names follow the California Natural Community list (CDFW 2018a) or U.S. Department of Agriculture (USDA) Natural Resources Conservation Service Plants Database (USDA 2018). A cumulative list of plant species observed on the project area is presented in Appendix B.

1.3.4.1 Special-Status Plant Surveys

Special-status plant surveys were conducted by AECOM to determine the presence or absence of plant species considered endangered, rare, or threatened under CEQA Guideline 15380 (14 CCR 15000 et seq.) in 2011. The majority of the project area was covered during the 2011 survey with the exception of two areas—a small portion of the easternmost parcel and an area that overlaps with the SDG&E Sunrise Powerlink Project. The small portion of the easternmost parcel was surveyed in 2010 as part of the Tule Wind Project (HDR 2010, 2011), and the special-status plant survey data collected on this excluded area, which includes occurrences of Jacumba milkvetch (*Astragalus douglasii* var. *perstrictus*), will be used to analyze proposed project impacts. The area overlapping the SDG&E Sunrise Powerlink Project that was excluded from the special-status plant survey area was evaluated in the EIR/EIS for the SDG&E Sunrise Powerlink Project (CPUC and BLM 2008a, 2008b), and was a staging area for the Sunrise Powerlink Project, has been impacted and no longer contains special-status plants or suitable habitat for these plants. In 2019, Dudek conducted rare plant surveys for the project area.

Prior to field surveys, AECOM and Dudek conducted a query of the CDFW CNDDB to determine which special-status species are known to occur within the project area and vicinity. Additionally, the County PDS provided AECOM a list of potentially occurring special-status species (Appendix A). Survey emphasis was placed on determining the presence, or potential for occurrence, of state, and/or federally listed species; CRPR 1B and 2 lists (CNPS 2019); and County lists A–D (County of San Diego 2010a; AECOM 2012a).

While special-status plant surveys were timed to capture the blooming periods of special-status plant species with the potential to occur on site, as described previously, the surveys were floristic in nature, meaning plant taxon were identified to the taxonomic level necessary to determine rarity and listing status. As shown in Table 1-1a and Table 1-1b, AECOM and Dudek conducted several special-status plant surveys during three phenological time periods to capture the blooming periods of all potential special-status plant species (i.e., early spring, late spring, and fall). Surveys were conducted on foot using meandering transects to cover the entire project area in accordance with the *CNPS Botanical Survey Guidelines* (CNPS 2001), *Protocols for Surveying and Evaluating Impacts to Special*

Status Native Plant Populations and Natural Communities (CDFW 2018b), and the USFWS's *General Rare Plant Survey Guidelines* (Cypher 2002).

Dudek 2019 Rare Plant Surveys

Prior to conducting both spring and late season rare plant surveys, a reference check was conducted by Dudek biologists outside the project boundary on forest service lands where large populations of each of the rare species are known to occur. The reference check was conducted to determine the flowering status of rare plant species that also occur within the project boundary. The reference check confirmed the phenological timeframe of when surveys would be conducted to assure full bloom period.

Observed special-status plants were mapped with a GPS unit with submeter accuracy and incorporated into ArcGIS software. Dudek mapped rare plant polygons to establish area of rare plants and established exact counts within these polygons of each rare plant species. Host plants for Quino checkerspot butterfly were documented during rare plant surveys with the same methodology. (i.e., surveys were timed to capture the blooming periods of special-status plant species with the potential to occur on site, were floristic in nature, and special-status plants were mapped with a GPS unit with submeter accuracy, etc.). All plant species observed within the project area were recorded and placed on the plant species list (Appendix B).

All plant species observed in the project area were noted, and plants that could not be identified in the field were collected and identified later using a microscope with taxonomic keys.

1.3.5 Fauna

In 2011, AECOM biologists conducted focused wildlife surveys for Quino checkerspot butterfly. All wildlife species observed or detected during the Quino checkerspot butterfly survey and incidentally observed during additional field surveys (vegetation mapping, plant surveys, etc.) were recorded. Latin and common names of animals follow Crother (2017) for reptiles and amphibians, American Ornithological Society (AOS 2018) for birds, Wilson and Reeder (2005) for mammals, and North American Butterfly Association (NABA 2016) or SDNHM (2002) for butterflies. A cumulative list of wildlife species observed on the project area is presented in Appendix C.

1.3.5.1 Quino Checkerspot Butterfly Surveys

2011 USFWS Protocol Surveys

A habitat assessment of the project area was conducted by qualified AECOM biologists on March 29, 2011, prior to the first protocol-level survey. Protocol-level surveys were determined to be necessary due to the presence of suitable Quino checkerspot butterfly habitat throughout the project area. However, approximately 99 acres were excluded from focused Quino checkerspot butterfly surveys because of lack of suitable habitat, overlap with other project sites that had completed surveys, or small modifications made to the project area after completion of protocol surveys (Appendix D1, 45-Day Quino Checkerspot Butterfly Summary Report). All closed-canopy chaparral, riparian forest, and oak woodland habitats in the Quino checkerspot butterfly survey area were included, because these areas were small and contained open patches of habitat with the potential to support the Quino checkerspot butterfly.

Following completion of a formal habitat assessment, nine protocol-level Quino checkerspot butterfly surveys were conducted within the Quino checkerspot butterfly survey area during a 6-week period between March 29 and May

5, 2011. Surveys were conducted by permitted biologists under optimal climatic conditions for detecting species. If weather conditions were out of protocol, biologists waited for the weather conditions to improve before proceeding with surveys. Surveys were conducted by walking meandering transects through all potentially suitable habitat, scanning the ground and surrounding bushes, and searching for nectar sources for Quino checkerspot butterfly. Biologists recorded any potential Quino checkerspot butterfly host plant populations, all species of flowering plants (potential nectar sources), and all species of butterflies observed. Potential Quino checkerspot butterfly host plants were mapped with submeter accuracy using a GPS unit. Detailed survey methodology and results are included in the Quino checkerspot butterfly 45-day report submitted to USFWS (Appendix D1).

2013 USFWS Protocol Surveys

In 2013, Dudek biologists conducted protocol-level Quino checkerspot butterfly surveys for two proposed access roads that were not surveyed previously. The methods were the same as those described above. Detailed survey methodology and results are included in the Quino checkerspot butterfly 45-day report submitted to USFWS (Appendix D2).

2019 Quino Host Plant Mapping

In 2019, no Quino checkerspot butterfly surveys were conducted. Dudek conducted Quino checkerspot butterfly host plant mapping during 2019 rare plant surveys. Dudek mapped polygon areas for each host plant population and collected total counts for each species of host plant.

2020 Quino Checkerspot Survey

In 2020, Blackhawk Environmental, Inc. conducted protocol-level Quino checkerspot butterfly surveys for the impact area plus a 100-foot buffer. Detailed survey methodology and results are included in the Quino checkerspot butterfly 45-day report submitted to USFWS (Appendix D3). Briefly, Per USFWS protocol, a Quino checkerspot butterfly site assessment of the survey area was conducted to map areas of Quino checkerspot butterfly suitable habitat to be included in the surveys, as well as areas of Quino checkerspot butterfly unsuitable habitat that could be excluded from the surveys. Due to timing constraints in fitting in the assessment and the initial survey pass in week one of the Quino checkerspot butterfly protocol survey season, the assessments were conducted during the initial survey pass. Therefore, Quino checkerspot butterfly assessments were conducted on February 19 and 20, 2020. Excluded areas were mapped directly onto the ESRI ArcGIS Collector app that the Quino checkerspot butterfly biologists utilized for navigation during the surveys. Quino checkerspot butterfly host plant populations, where found, were recorded in the field on the Collector app and included in this report. The Quino checkerspot butterfly biologists also recorded potential nectar sources and all observed butterfly species in their daily field notes; these notes were then compiled for complete compendiums in this report.

Survey methods followed the condition parameters of the latest USFWS Quino checkerspot butterfly protocol (December 15, 2014), with an allowance made on one occasion by the USFWS to conduct surveys on consecutive days due to survey time being previously lost to weather conditions that consistently remained too cool, precipitous and/or windy to facilitate protocol level Quino checkerspot butterfly surveys (Appendix D3). Quino checkerspot butterfly surveys were conducted during favorable weather conditions in the mid-morning to late afternoon hours of February 19, 20, 27 and 28; March 4, 5, and 30; April 3, 15, 16, 19, 21, 22, 24, 29 and 30; and May 6 and 8, 2020. The surveys were conducted slowly and on foot, with the aid of binoculars, butterfly nets and/or binoculars, while constantly looking for presence/absence of flying adult Quino checkerspot butterfly; care was taken on each step to examine the ground before setting foot in order to minimize or avoid the chance of accidentally stepping on

larvae. On each survey pass, potential Quino checkerspot butterfly nectar sources, host plant populations, and all butterfly species and their numbers were detailed in the field notes.

1.3.6 Jurisdictional Delineation of Waters Including Wetlands

A formal jurisdictional delineation of waters, including wetlands, was conducted in 2009, 2011, and 2012 (Table 1-1a). An additional jurisdictional delineation review was conducted in 2019 and a stream duration assessment was conducted for the site in 2021 (Table 1-1b). Jurisdictional boundaries were mapped in the field directly onto a 300-foot-scale (1 inch = 300 feet) or 100-foot-scale (1 inch = 100 feet) aerial photograph (Bing Maps 2012) or using a Trimble GeoXT GPS with submeter accuracy. The methodology used for each jurisdiction or regulating agency, including the ACOE, CDFW, RWQCB, and County of San Diego, is described as follows. See Appendix E for the completed data station and Beta Arid West Streamflow Duration Assessment Method (SDAM) forms.

The ACOE wetlands delineations conducted in 2009, 2011, and 2012 were performed in accordance with the 1987 *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Technical Report Y-87-1; ACOE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (ACOE 2008) and guidance provided by the ACOE and U.S. Environmental Protection Agency (EPA) on the geographic extent of jurisdiction based on the U.S. Supreme Court's interpretation of the Clean Water Act (CWA) (ACOE and EPA 2008). The 2019 delineation review focused solely on reviewing the extent of vegetation changes within the landscape which may have resulting in a decrease or increase of the extent of a previously mapped jurisdictional resource. The 2021 stream duration assessment was determined using the User Manual for a Beta Streamflow Duration Assessment Method for the Arid West of the United States (Mazor et al. 2021).

ACOE and RWQCB, pursuant to the federal CWA, include all areas supporting all three wetlands criteria described in the ACOE manual: hydric soils, hydrology, and hydrophytic vegetation. In California, the State Water Resources Control Board and the RWQCBs are responsible for implementing the Clean Water Act. Discharges into waters of the state are regulated under Section 401. The "State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State" (Procedures), issued by the State Water Resources Control Board in April 2020, states that "all waters of the United States are also 'waters of the state.'" The Procedures also provided clarification on the definition of a wetland, which include areas that under normal circumstances: (1) have continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anerobic conditions in the upper substrate; and (3) the vegetation is dominated by hydrophytes or the area lacks vegetation. This modified three-parameter definition is similar to the federal definition in that it identifies three wetland characteristics that determine the presence of a wetland: wetland hydrology, hydric soils, and hydrophytic vegetation. However, unlike the federal definition, the Procedures' wetland definition allows for the presence of hydric substrates as a criterion for wetland identification (not just wetland soils) and wetland hydrology for an area devoid of vegetation (less than 5% cover) to be considered a wetland.

A predominance of hydrophytic vegetation, where associated with a stream channel, was used to determine CDFW-regulated wetlands. Waters under the jurisdiction of CDFW were delineated using the Cowardin method of waters classification, which defines waters boundaries by a single parameter (i.e., hydric soils, hydrophytic vegetation, or hydrology).

The County RPO (County of San Diego 2012) identifies environmental resources, including wetlands, present within the County and provides measures to preserve these resources.

The County RPO identifies wetlands as lands that have one or more of the following attributes:

- Lands that periodically support a predominance of hydrophytes (plants whose habitat is water or very wet places)
- Lands in which the substratum is predominantly undrained hydric soil
- Lands where an ephemeral or perennial stream is present and whose substratum is predominantly non-soil, and where such lands contribute substantially to the biological functions or values of wetlands in the drainage system.

Hydrology, vegetation, and soils were assessed at 18 geographically distinct sampling locations throughout the project area to determine the presence or absence of wetland field indicators. The overall area was assessed for evidence of an ordinary high water mark, hydrology indicators, wetland vegetation, and nexus to traditional navigable waters of the United States.

Consistent with the vegetation community boundaries, as described in Section 1.3.1, Literature Review, following completion of the field mapping, vegetation boundaries were digitized and GIS coverage was created. Once major line work and community designations were completed, a geodatabase was created to ensure these data were topologically correct and met final quality control and assurance procedures. These processes included reviewing the original hard-copy field maps in tandem with the digital data, as well as comparing the data station forms and other field notes with the jurisdictional delineation. The vegetation community boundaries were digitized by Dudek GIS staff using ArcMap software.

A more detailed description of the field methods used is described as follows by parameter.

Hydrophytic Vegetation

Seasonal changes in species composition, human land-use practices, wildfires, and other natural disturbances can adversely affect the wetlands vegetation determination. During the delineation, a data station point was considered positive for hydrophytic vegetation if it passed the basic dominance test (Indicator 1), meaning that more than 50% of the dominant species sampled were characterized as either obligate, facultative wetland, and/or facultative per the *National List of Vascular Plant Species that Occur in Wetlands: 1988 National Summary* (Reed 1988). In those cases where the dominance test failed but there were positive indicators of hydric soils and/or hydrology, the vegetation parameter was reevaluated using the prevalence index (Indicator 2), which takes into account all plant species in the community, not just dominants. The standard plot sampling technique was used to sample vegetation within a 10-foot radius for herbaceous vegetation and a 30-foot radius for trees, shrubs, and woody vines (Technical Report Y-87-1; ACOE 1987). All plant species observed during the surveys were identified and recorded. Where plant identification could not be made in the field, a sample was taken and later identified in the laboratory.

Hydric Soils

According to the National Technical Committee for Hydric Soils, hydric soils are "soils that are formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (USDA 1994). Soil from the data station pits, prepared using a "sharp shooter" shovel, was examined for various hydric soil indicators, as described in the 1987 Manual, *Field Indicators of Hydric Soils in the United States v. 5.01* (USDA NRCS 2003), and ACOE's *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (ACOE 2008). Munsell Soil Color Charts were used to determine soil chroma and value. Where feasible, soil pits were prepared to depths ranging from 10 to 12 inches; however, in many cases, pit depth only reached 6 inches due to the nature of the soil. Dry soils were moistened to

obtain the most accurate color. Excavated soils were inspected for such hydric indicators as low chroma values and mottling, vertical streaking, sulfidic odor, and high organic matter content in the upper horizon. Evidence of previous ponding or flooding, slope shape, existing landform characteristics, soil material/composition, and hydrophytic vegetation were also assessed to determine the presence of hydric soils.

Hydrology

In accordance with the guidelines prescribed in ACOE's *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (ACOE 2008), wetland hydrology indicators are separated into four major groups: Groups A, B, C, and D. Group A indicators are based on direct observations of surface flow, ponding, and soil saturation/groundwater. Group B indicators consist of evidence that the site has been or is currently subjected to ponding, including, but not limited to, water marks, drift deposits, and sediment deposits. Group C indicators include signs of previous and/or current saturation, including oxidized rhizospheres surrounding living roots and the presence of reduced iron or sulfur, both of which are indicative of extended periods of soil saturation. Group D indicators consist of "vegetation and soil features that are indicative of current rather than historic wet conditions and include a shallow aquitard and results of the Facultative (FAC)-Neutral test" (ACOE 2008). Each group is subdivided into primary and secondary categories based on their frequency and reliability to occur in the Arid West region. Signs of hydrology were investigated in the project area by intensive field review. See Appendix E for the completed data station forms.

1.3.7 Survey Limitations

2011 Surveys

The vegetation mapping, jurisdictional delineation, and special-status plant surveys were conducted during the day and during the months of the year when most annuals are evident or identifiable. For the botanical surveys described previously, three blooming periods were captured (i.e., early spring, summer, and fall) for optimal chances of detection of a full range of floral diversity expected within the project area. Additionally, due to above-average rainfall during the 2010/2011 wet season, plant population growth was not limited by rainfall (NOAA 2011). Given the ample winter precipitation, abundant wildflowers, and well-coordinated timing of the surveys relative to blooming periods of special-status plant populations, the survey results are valid on all portions of the project area.

The jurisdictional wetlands delineation was conducted over a number of visits over a number of years. Although the current delineation represents current conditions, Dudek has observed shifts in the extent of hydrophytic vegetation over a period of years. This is likely due to the ephemeral hydrology of Tule Creek; therefore, it can be expected that communities such as alkali meadow may shift location and density over time. The current survey period is representative of typical conditions rather than drought or extreme wet weather conditions based on a review of the annual rainfall between 2001 and 2011. The annual rainfall recorded at the Campo weather station in 2011 was 14.66 inches, and the average annual rainfall recorded between 2001 and 2011 was 15.94 inches (Western Regional Climate Center 2012).

Surveys specifically aimed at detection of the full range of wildlife species were not conducted. However, notes were taken for incidental wildlife observations made during protocol-level Quino checkerspot butterfly surveys and during vegetation mapping and special-status plant surveys to establish a general baseline of wildlife diversity within the project area. These surveys were conducted during the daytime, which usually results in few observations about mammals, many of which may be active at night. In addition, many species of reptiles and amphibians are nocturnal or cryptic in their habits and are difficult to observe using standard meandering transects.

2019 Surveys

Reference checks were conducted to determine the best start time for rare plant surveys. Most species within the project boundary were found in the reference check during the spring season and late season.

The majority of plants were easily detected in high numbers and in full bloom with the exception of Payson's jewel flower (*Caulanthus simulans*) as its bloom period (early March) is much earlier when compared to all other spring rare plant species. Due to higher rainfall this season, Payson's jewel flower was determined to be in peak bloom during February. Due to the early unexpected bloom time for this species, Dudek likely missed capturing this rare plant species as Dudek surveys started in May (determined best timing for all rare plant species). Dudek could not capture dried remnant specimens of Payson's jewel flower. AECOM, in previous years collected data on this species, which likely was the extent of the Payson's jewel flower population, and that location and data has been included in this analysis. AECOM population numbers were low for this species.

In addition, desert beauty (*Linanthus bellus*) is challenging annual to capture in peak bloom as it is fast to bloom and set seed. The conducted surveys captured the bloom period but did not capture the peak of its bloom timing (determined this based on the number of total flowers per plant). When documenting desert beauty, fewer flowers were present but the species was still detectable. The seed bank is loaded with this species as it continued to bloom into June. Due to the level of experience of the surveyors, desert beauty was detected. However, peak numbers and actual area of this plant species may not be exhaustive.

Low bush monkeyflower (*Diplacus aridus*) was not observed in 2019 by Dudek but was previously observed by AECOM within the Rugged Solar boundary. This could be due to invasive species taking over areas where the plant was previously present. Cheat grass (*Bromus tectorum*) is abundant within the boundary and especially near roads, disturbed areas, and burned areas. In addition, Mediterranean grass (*Schismus barbatus*), a highly noxious weed, was also present within the Rugged Solar boundary. After fire and general disturbances, both annuals and perennials are challenged to compete with both of these two noxious grasses. The 2011 AECOM location and data for low bush monkeyflower is included in this analysis.

Other rare plants previously observed by AECOM that were not captured by Dudek in 2019 were outside the Rugged Solar boundary (within Lan East and Lan West sections).

All other documented plant species were captured at the peak of the bloom periods and largest quantities and areas specifically due to higher quality rain events within eastern San Diego County.

The current survey effort provides an accurate representation of the potential for special-status species to occur in the project area. The surveys were thorough and comprehensive, and the results of the study contained herein provide a reasonable, accurate assessment of the project area.

Incidental wildlife observations were documented in 2019 while conducting updated rare plant surveys, updated jurisdictional delineation, and updated vegetation mapping. Focused 2019 wildlife surveys were not conducted.

1.4 Environmental Setting

The project area features relatively flat to gently sloping hills and is located at an elevation ranging from approximately 3,500 to 3,670 feet above mean sea level (amsl). The primary hydrologic feature within the project area is Tule Creek, which is essentially a subsurface (or near surface) riverine feature that daylights

during rain events. Tule Creek bisects the entire project area and flows in a northwest to southeast orientation. The project area generally is within the Peninsular Range and has a warm, dry climate consistent with the San Diego, high desert-transition area. Average temperatures range from approximately 34°F to 94°F with an average rainfall of less than 15 inches per year (as measured from the Campo measuring station) (Western Regional Climate Center 2012).

According to the U.S. Department of Agriculture (USDA) (2019), there are nine soil types found in the project area, and descriptions based on those by Bowman (1973) and Web Soil Survey are provided below.

Acid igneous rock land soil is found in rough broken terrain. The topography ranges from low hills to steep mountains. Large boulders and rock outcrops of granite, quartz diorite, gabbro, basalt, and other rock types cover greater than 50% of the total area of this soil type. The soil material is very shallow consisting of loam to loamy course sand textures over decomposed granite or basic igneous rock. In some locales, pockets of deep soils may be present between the rocks. Many areas are practically barren and have very rapid runoff. The vegetation for this soil type varies by elevation and climate. In the foothills and mountains, acid igneous rock land supports various chaparral vegetation communities.

The Calpine series consists of very deep, well-drained soils that formed in alluvium derived from granitic rocks. The following Calpine soil inclusions occur within the project area: Calpine coarse sandy loam, 2%–5% slopes (CaB) and Calpine coarse sandy loam, 5%–9% slopes (CaC). Calpine soils occur on alluvial fans, fan remnants, and stream terraces on slopes of 0%–15% and at elevations of 3,000–6,000 feet. Calpine soils are well drained with very low or low surface runoff and moderately rapid permeability. Native vegetation expected on this soil type within the project area is mainly big sagebrush (*Artemisia tridentata*).

The Kitchen Creek series is a member of the coarse-loamy, mixed, mesic family of Ultic Argixerolls. Kitchen Creek soils have dark brown, slightly acid, loamy coarse sand and coarse sandy loam A horizons, pale brown, medium acid, coarse-sandy loam B2t horizons grading to weathered granitic rock at a depth of 54 inches. Kitchen Creek soils occur on moderately to strongly sloping to rolling broad ridges that are bounded by short escarpment slopes. They formed in residuum weathered from granitic and other acid igneous rocks. Kitchen Creek soils occur at elevations of 2,500–4,500 feet and native vegetation expected on this soil type in the project area include is chamise (*Adenostoma fasciculata*) and a small amount of annual grasses.

The La Posta series has grayish brown and brown, slightly acid and neutral, loamy coarse sand A horizons grading to weathered acid igneous rock at a depth of 29 inches. These soils occur in hilly mountainous areas that are moderately sloping to very steep. The following La Posta soil inclusions occur within the project area: La Posta loamy coarse sand, 5%–30% slopes, eroded (LaE2); and La Posta rocky loamy coarse sand, 5%–30% slopes, eroded. The soils formed in residuum weathered from granitic rocks at elevations of 2,000–4,500 feet. La Posta soils are somewhat excessively drained with medium or rapid runoff and rapid permeability, and native vegetation expected on this soil type in the project area is mainly annual grasses and forbs, chamise, red shank (*Adenostoma sparsifolia*), manzanita (*Arctostaphylos* spp.), scrub oak (*Quercus* spp.), and a few scattered oak trees (*Quercus agrifolia*) along drainages.

Loamy alluvial land consists of areas of recent alluvium adjacent to stream channels and in meadows. Loamy alluvial land is nearly level to gently sloping, and it is somewhat poorly drained to poorly drained. Permeability and the available water capacity vary. Runoff is very slow.

The Mottsville series consists of very deep, excessively drained soils that formed in alluvium derived from granitic rocks. Mottsville soils occur on gently sloping (0%–15%) alluvial fans, fan remnants, and fan aprons. Mottsville soil inclusion occurs within the project area: Mottsville loamy coarse sand, 2%–9% slopes. Mottsville soils occur at elevations of 4,500–5,300 feet. Mottsville soils have negligible or very low surface runoff, rapid or very rapid permeability, and high saturated hydraulic conductivity. Native vegetation expected on this soil type within the project area is mainly big sagebrush, other desert transition shrubs, and needlegrass (*Stipa* spp.).

The Tollhouse series consists of shallow, somewhat excessively or excessively drained soils that formed in material weathered from granite and closely related coarse crystalline rocks. The following Tollhouse soil inclusion occurs within the project area: Tollhouse rocky, coarse sandy loam, 5%–30% slopes, eroded (ToE2). Tollhouse soils are on strongly sloping to very steep mountain slopes. Rock outcrops are common to many soils of this series. Tollhouse soils occur at elevations of approximately 2,000–8,000 feet. Native vegetation expected on this soil type within the project area is primarily chaparral consisting of a variety of native shrubs and oak trees. Naturalized grasses and forbs may occur in some locations.

Rough Acres Ranch is a privately owned ranch. Existing land uses include agricultural activities and scattered structures, and a laydown area for the Sunrise Powerlink Project. The ranch is primarily utilized for grazing but also contains housing for ranch employees.

1.4.1 Regional Context

The Rugged Solar Farm is located on the eastern side of McCain Valley and the In-Ko-Pah Mountains and consists of 11 parcels of Rough Acres Ranch, which is located north of I-8, along McCain Valley Road, and north of the unincorporated community of Boulevard. Set Free Rough Acres, a drug rehabilitation center that occupies the site that previously served as the Chargers training camp is located immediately north of the project site along McCain Valley Road. The McCain Valley Conservation Camp is located at 2550 McCain Valley Road, immediately south of the Rugged Solar Farm's central development subarea and immediately east of the southern development subarea.

The project area is located approximately 60 miles east of downtown San Diego. Existing conserved lands in the area include the BLM-managed 38,960-acre McCain Valley National Cooperative Land and Wildlife Management Area (which includes the 9,743-acre In-Ko-Pah Area of Critical Environmental Concern (ACEC) and the 14,735-acre Carrizo Gorge Wilderness) approximately 1 mile north of the site and east, adjacent to the isolated project parcel located east of McCain Valley Road (Figure 3, Regional Context). Additional conserved lands include the Walker Canyon Ecological Reserve, approximately 1.5 miles southeast of the project site, and the Descanso district of the Cleveland National Forest, whose boundary is located approximately 7 miles northwest of the project parcels (CDFW 2019d).

The survey area is within the boundaries of land that will be within the future ECMSCP; more specifically, the project area falls within a preliminarily delineated Focused Conservation Area (FCA) of the ECMSCP planning area, which suggests that the area has regional conservation value. Projects in this area are subject to the Planning Agreement for the ECMSCP (County of San Diego 2019) which is intended to establish if their approval would have an effect on the preparation and approval of the future ECMSCP.

1.4.2 Habitat Types/Vegetation Communities

The native vegetation communities on site are alkali meadow (including disturbed), big sagebrush scrub (including disturbed), coast live oak woodland, montane buckwheat scrub (including disturbed), granitic chamise chaparral, granitic northern mixed chaparral, mixed oak woodland, disturbed mulefat scrub, red shank chaparral, scrub oak chaparral

(including disturbed), and semi-desert chaparral (including disturbed). The non-native, vegetation communities and land cover types (non-vegetated areas) occurring within the project area are non-native grassland, non-native grassland: broadleaf-dominated, disturbed habitat, urban/developed land, tamarisk scrub, open water, and non-vegetated channel. These vegetation communities and land cover types were mapped in 2019; Table 1-2 provides associated acreages, and Figure 4, Biological Resources – Vegetation Communities, illustrates spatial distributions.

The County requires mitigation at varying ratios for many vegetation communities. These vegetation communities follow the *Draft Vegetation Communities of San Diego County* (Oberbauer et al. 2008). Vegetation communities considered special-status are those that require mitigation by the County (Table 5, County of San Diego 2010a). These communities are denoted in Table 1-2 with an asterisk (*).

Table 1-2. Vegetation Communities and Land Cover Types

Habitat Types/Vegetation Communities	Code[1]	Existing Acreage
Upland Scrub and Chaparral		
Big Sagebrush Scrub*	35210	75.93
Disturbed Big Sagebrush Scrub*	35210	14.25
Montane Buckwheat Scrub*	37K00	102.39
Disturbed Montane Buckwheat Scrub*	37K00	9.64
Granitic Chamise Chaparral*	37210	116.83
Granitic Northern Mixed Chaparral*	37131	11.30
Red Shank Chaparral*	37300	42.89
Scrub Oak Chaparral*	37900	73.65
Disturbed Scrub Oak Chaparral*	37900	0.54
Semi-Desert Chaparral*	37400	102.55
Semi-Desert Chaparral – Rock*	37400	12.39
Disturbed Semi-Desert Chaparral*	37400	1.56
	Subtotal	*563.92*
Upland Woodland and Savannah		
Coast Live Oak Woodland*	71160	9.38
Mixed Oak Woodland*	77000	2.19
	Subtotal	*11.56*
Riparian Herb		
Alkali Meadow*	45300	14.27
Disturbed Alkali Meadow*	45300	4.61
	Subtotal	*18.88*
Riparian Scrub		
Disturbed Mulefat Scrub*	63310	0.50
Tamarisk Scrub*	63810	5.58
	Subtotal	*6.08*
Unvegetated Waters		
Non-Vegetated Channel*	NA	1.64
	Subtotal	*1.64*

Table 1-2. Vegetation Communities and Land Cover Types

Habitat Types/Vegetation Communities	Code[1]	Existing Acreage
Non-Native Communities and Land Covers		
Disturbed Habitat	11300	49.48
Non-Native Grassland*	42200	101.38
Non-Native Grassland: Broadleaf-Dominated*	42210	0.16
Open Water	64100	0.18
Urban/Developed	12000	10.79
	Subtotal	*161.99*
	Total[2]	**764.07**
	Oak Root Zone[3]	***26.22***

Notes: NA = not appliable, these non-vegetated channels do not conform to classifications in Oberbauer et al. 2008 (refer to Section 1.4.2.5.1 for details).

1 Holland (1986) as modified by Oberbauer et al. (2008).

2 May not total due to rounding.

3 Oak root zone is overlaid on the biological resources and is not counted toward the overall acreage.

* Considered special-status by the County of San Diego (2010a).

The County (County of San Diego 2010a) requires a 50-foot oak root protection zone around the oak woodlands in the project area. There are approximately 26.22 acres of oak root zone mapped in the project area (Figure 4).

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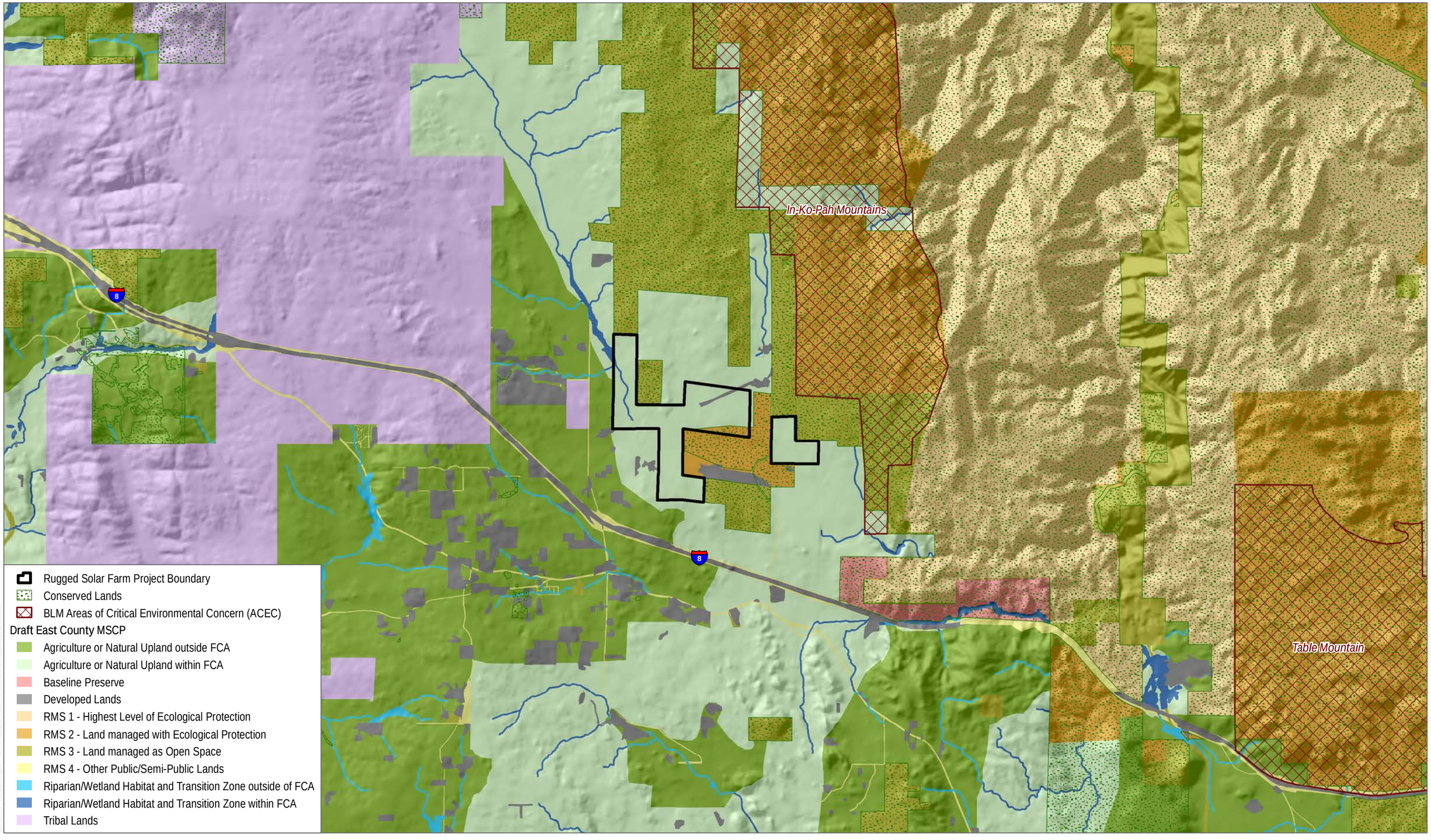

SOURCE: Michael Baker 2019; SANGIS 2020; BLM 2019

DUDEK

0 0.5 1 Miles

FIGURE 3

Regional Context

Biological Resources Report - Rugged Solar Farm

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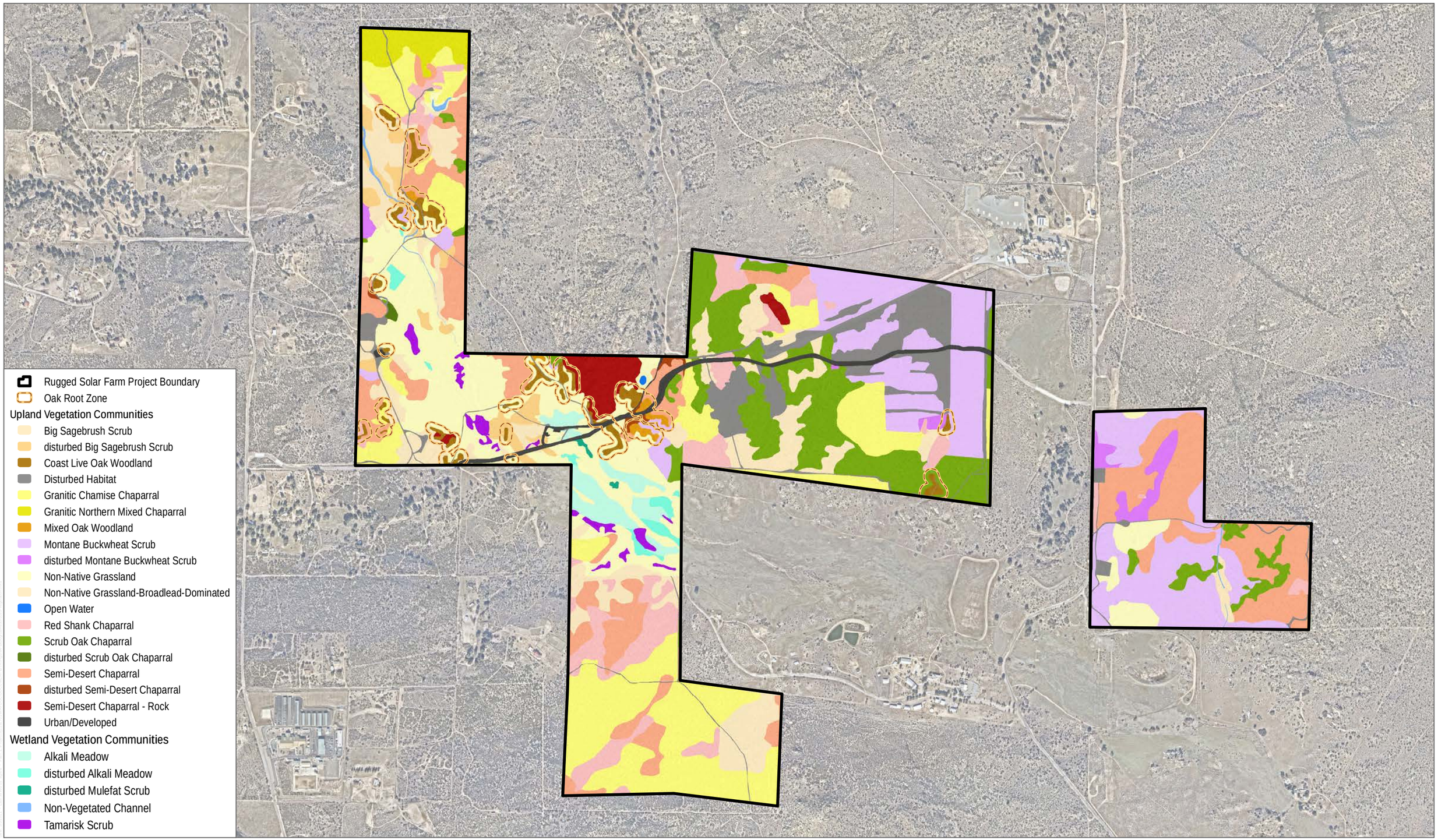

SOURCE: SANGIS 2020

DUDEK

0 500 1,000 Feet

FIGURE 4

Biological Resources - Vegetation Communities

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1.4.2.1 Upland Scrub and Chaparral

1.4.2.1.1 Big Sagebrush Scrub (35210)

Big sagebrush scrub is characterized as being a moderately open shrubland consisting predominantly (greater than 50% absolute cover) of big sagebrush (*Artemisia tridentata* ssp. *tridentata*). It often occurs in or adjacent to the floodplain in the sandy transition to chaparral (Oberbauer et. al. 2008)

Within the project area, the big sage scrub community is relatively common on site, although it occurs in smaller, distinct patches. Areas mapped as big sagebrush scrub are dominated by big sagebrush scrub which is also distinctive on aerial photography as having greater than 50%–75% relative cover. Less commonly occurring perennial shrubs and or perennial subshrubs consisting of approximately 10% relative cover include, but are not limited to, California buckwheat (*Eriogonum fasciculatum* var. *polifolium*), showy penstemon (*Penstemon spectabilis*), scarlet bugler (*Penstemon centranthifolius*) and bastard sage (*Eriogonum wrightii* var. *membranaceum*). Annual wildflowers, annual non-natives, and perennial and annual grasses surround big sage scrub and consist of approximately 10%–20% relative cover of the community depending on the time of year of the specific survey. These less common species include short pod mustard (*Hirschfeldia incana*), tall tumble mustard (*Sisymbrium altissimum*), Davidson's buckwheat (*Eriogonum davidsonii*), common stork's bill (*Erodium cicutarium*), salt grass (*Distichlis spicata*), cheat grass, salt heliotrope (*Heliotropium curassavicum*), and goldfields (*Lasthenia gracilis*).

Disturbed big sage scrub was also observed and consisted of a much higher percentage of annual non-native grasses like cheat grass and patches of tall tumble mustard.

Big sagebrush scrub is considered special-status based on mitigation recommendations of the County (County of San Diego 2010a).

1.4.2.1.2 Granitic Chamise Chaparral (37210)

Chamise chaparral is strongly dominated by chamise (*Adenostoma fasciculatum)* and is adapted to repeated fire by stump sprouting. Granitic chamise chaparral is a 1–3-meter-tall community and consists of granitic soil. Associated species provide nominal cover to the vegetation community (Oberbauer et. al. 2008).

Within the project area, chamise was observed at approximately 50%–75% absolute cover, with an herb layer of annual forbs comprising 10%–20% absolute cover. Soils within this granitic chamise community are undisturbed and non-native species are absent. The granitic soils specifically support native wildflowers like desert beauty, variable linanthus (*Leptosiphon parviflorus*), Lemmon's linanthus (*Leptosiphon lemmonii*), goldfields, scalebud (*Anisocoma acaulis*), purple mat (*Nama demissa*), woolly easterbonnet (*Eriophyllum wallacei*), and cream cups (*Platystemon californicus*). Other woody shrubs include point-leaf manzanita (*Arctostaphylos pungens*), and cup leaf ceanothus (*Ceanothus perplexans*), and few redshank (*Adenostoma sparsifolium*) which collectively comprise less than 5% absolute cover. Disturbed granitic chamise chaparral was also mapped on the ranch in areas where shrub cover is approximately 30%–50%, and the remainder of the area is dominated by non-native grasses and forbs.

Granitic chamise chaparral is considered special-status based on mitigation recommendations of the County (County of San Diego 2010a).

1.4.2.1.3 Granitic Northern Mixed Chaparral (37131)

Granitic northern mixed chaparral consists of broad-leaved sclerophyll shrubs that range from 2 to 4 meters (7 to 13 feet) in height and that form dense stands dominated by chamise, red shank, manzanita (*Arctostaphylos* spp.), and ceanothus (*Ceanothus* spp.). This community occurs inland of southern mixed chaparral in San Diego County and is indicated by cup leaf ceanothus and other codominants (chamise, scrub oak (*Quercus berberidifolia*), and other oak hybrids). Granitic northern mixed chaparral is underlain by granitic soils.

Within the project area, this community was further classified as closed or open to indicate shrub density. Perennial species common to this community include chamise, sugar bush (*Rhus ovata*), scrub oak, Muller oak (*Quercus cornelius-mulleri*), holly-leaf redberry (*Rhamnus ilicifolia*), mountain mahogany (*Cercocarpus betuloides* var. *betuloides*), and Mojave yucca (*Yucca schidigera*). Herbaceous species include San Diego gilia (*Gilia diegensis*), Arizona popcorn flower (*Plagiobothrys arizonicus*), Santa Cruz Island suncup (*Camissoniopsis hirtella*), Wallace's woolly daisy, desert beauty, Lemmon's linanthus, chia (*Salvia columbariae*), cream cups, scalebud, Davidson's buckwheat, and goldfields.

Granitic northern mixed chaparral is not considered special-status by CDFW, but it is considered special-status based on mitigation recommendations of the County (County of San Diego 2010a).

1.4.2.1.4 Red Shank Chaparral (37300)

Red shank chaparral is composed of nearly pure stands of red shank (*Adenostoma sparsifolium*) (at least 50% absolute cover). Red shank chaparral is similar to chamise chaparral but typically taller (2 to 4 meters) and more open. Red shank flowers mid-summer when compared with chamise, which flowers in spring. In the winter, at higher elevations redshank is likely dormant. Other dominant species in redshank include opuntia (*Opuntia* spp.), cup leaf ceanothus, oak (*Quercus* spp.), and chamise (Oberbauer et. al. 2008).

Within the project area, red shank chaparral intergrades with chamise chaparral (37200) and scrub oak chaparral (37900). Red shank comprises approximately 50%–75% absolute cover, with scrub oak occasionally present at less than 15% absolute cover. Like chamise chaparral, the herb layer consists of numerous native annuals, including goldfields, desert beauty, chia, variable linanthus, San Diego gilia, Arizona popcorn flower, cream cups, scalebud, Davidson's buckwheat, baby blue eyes (*Nemophila menziesii*), and Lemmon's linanthus. Within the redshank chaparral are the largest populations of sticky geraea (*Geraea viscida*). This vegetation community was found throughout the site.

Red shank chaparral is considered special-status based on mitigation recommendations of the County (County of San Diego 2010a).

1.4.2.1.5 Semi-Desert Chaparral (37400)

Semi-desert chaparral is very similar to northern mixed chaparral (37110) but is more open and not as tall (1.5 to 3 meters [4.9 to 10 feet]). Dominant taxa include *Juniperus* sp*., Eriogonum* sp., and *Opuntia* sp. But characteristic species include chamise, *Arctostaphylos* sp., *Ceanothus* sp. *Quercus* sp. and a variety of other shrubs and subshrubs. It is most common from 2,000 to 5,000 feet elevation and includes the Peninsular Ranges bordering the Colorado Desert, which are consistent with the elevation range and geographic location of the project area (Oberbauer et. al. 2008).

Within the project area, areas mapped as semi-desert chaparral are very diverse and dominated by California juniper (*Juniperus californica*), Gander's cholla (*Cylindropuntia ganderi*), desert prickly pear (*Opuntia phaeacantha*), California buckwheat, and interior goldenbush (*Ericameria linearifolia*). Less commonly occurring species include chamise and point-leaf manzanita, at 3%–10% absolute cover each. Associated species within semi-desert chaparral on site include the following at usually 1%–5% cover each: cup leaf ceanothus, big sagebrush, our Lord's candle (*Yucca whipplei*), Muller oak (*Quercus cornelius-mulleri*), birch-leaf mountain mahogany (*Cercocarpus betuloides* var. *betuloides*), and sugar bush (*Rhus ovata*). Numerous annuals make up the ground cover for this community and include chia, scalebud, variable linanthus, Lemmon's linanthus, Wallace's woolly daisy, Arizona popcorn flower, and gold fields. These native annuals were observed to make up roughly 5%–15% absolute cover. Cheatgrass and red-stem filaree also occur in these areas at usually 1%–5% cover. Bare ground was observed at roughly 5%.Disturbed semi-desert chaparral was also mapped on the ranch in areas where shrub cover is approximately 30%–50%, and the remainder of the area is dominated by non-native grasses and forbs.

Semi-desert chaparral – rock was mapped in areas that supported a high percentage of large boulders within the vegetation.

Semi-desert chaparral and semi-desert chaparral – rock are considered special-status based on mitigation recommendations of the County (County of San Diego 2010a).

1.4.2.1.6 Scrub Oak Chaparral (37900)

Scrub oak chaparral is a dense, evergreen chaparral up to 20 feet tall. Scrub oak chaparral is described as being dominated by scrub oak and considerable numbers of mountain mahogany (*Cercocarpus betuloides*) (Oberbauer et. al. 2008).

Within the project area, scrub oak chaparral is dominated by scrub oak at between 50%–75% absolute cover. Species of scrub oak that dominate this community include hybrid scrub oak (*Quercus x acutidens*), Muller's scrub oak, and few California scrub oak (*Quercus berberidifolia*). Red shank is commonly associated with this vegetation community but occurs at less than 15% absolute cover. The herb layer is similar to that of chamise and red shank chaparral communities. Disturbed scrub oak chaparral also mapped on the ranch in areas where shrub cover is approximately 30%–50%, and the remainder of the area is dominated by non-native grasses and forbs.

Scrub oak chaparral is considered special-status based on mitigation recommendations of the County (County of San Diego 2010a).

1.4.2.1.7 Montane Buckwheat Scrub (37K00)

Montane buckwheat scrub is characterized by a nearly monoculture community of California buckwheat, bastard sage or both found at higher elevations in San Diego County. Characteristic species in this community can include several varieties of California buckwheat and bastard sage. Montane buckwheat usually occurs on sandy soils near montane meadows (Oberbauer et. al. 2008).

Within the project area, areas mapped as montane buckwheat scrub are almost exclusively dominated by bastard sage with an abundance of sand-aster (*Corethrogyne filaginifolia*). California buckwheat (*Eriogonum fasciculatum* var. *polifolium*) is also a dominant species. Montane buckwheat scrub has approximately 25%–70% absolute cover of these two buckwheat species, and has a well-developed herb layer, composed of annual wildflowers, including variable linanthus, chia, Lemmon's linanthus, Wallace's woolly daisy, scalebud, and Arizona popcorn flower at

approximately 25%–50% absolute cover. Red-stem filaree was observed at 15%–25% cover, indicating past disturbance in some areas, likely long-term cattle grazing. Cheat grass also fills disturbed gaps. Associated shrub species occurring at 1%–5% absolute cover include California match weed (*Gutierrezia californica*), deerweed (*Acmispon glaber*), and interior goldenbush. Areas mapped as disturbed montane buckwheat scrub typically had 50% cover of non-native species (*Bromus* spp. and short pod mustard).

Montane buckwheat scrub is not included in the Habitat Mitigation Ratios in the County Significance Guidelines (Table 5, County of San Diego 2010a); however, it was originally classified together with California buckwheat scrub (32800), which is considered special status based on mitigation recommendations of the County (County of San Diego 2010a).

In 1993, the California Department of Fish and Game (CDFG; now CDFW) and California Resources Agency (CRA) published the Southern California Coastal Sage Scrub Natural Community Conservation Plan (NCCP) Conservation Guidelines (Conservation Guidelines) (CDFG and CRA 1993a) and the Southern California Coastal Sage Scrub NCCP Process Guidelines (Process Guidelines) (CDFG and CRA 1993b). The Conservation Guidelines provide guidance to determine the habitat value of the coastal sage scrub, and the Process Guidelines explain the roles of local, state, and federal agencies and how the NCCP planning process will shift focus from the regional level to the subregional level. The County Significance Guidelines (County of San Diego 2010a) state that mitigation ratios for flat-topped buckwheat[2] are subject to the Process Guidelines based on the habitat value defined in the Conservation Guidelines (Lower, Moderate, or High). However, the Subregional Coastal Sage Scrub NCCP Planning Unit Focus Map (CDFG and CRA 1993a) does not extend as far east as the project area (Figure 1). In addition, the montane buckwheat scrub does not support California sagebrush (*Artemisia californica*), is outside of the range of coastal California gnatcatcher (*Polioptila californica californica*), and does not provide habitat for a particular special-status species in the project area. Therefore, the montane buckwheat scrub is considered to have a lower value.

1.4.2.2 Upland Woodland and Savannah

1.4.2.2.1 Coast Live Oak Woodland (71161)

Coast live oak woodland is an evergreen woodland dominated by interior coast live oak (*Quercus agrifolia* var. *oxyadenia*). The understory is typically made up of grassland, scrub, or chaparral species, and the community often intergrades with coastal sage scrub or mixed chaparral (Oberbauer et. al. 2008).

Within the project area, interior coast live oak woodland is an open woodland, with generally less than 40% cover of coast live oak. The understory is dominated by non-native grasses and annual forbs (see non-native grassland).

Coast live oak woodland is considered special-status based on mitigation recommendations of the County (County of San Diego 2010a).

[2] Mitigation ratio requirements for flat-topped buckwheat are used because the County of San Diego does not specify mitigation ratios for impacts to montane-buckwheat scrub (County of San Diego 2010a). It should be noted that montane buckwheat is now classified with chaparral (37000) series of Oberbauer et al. (2008).

1.4.2.2.2 Mixed Oak Woodland (77000)

Mixed oak woodland is dominated by larger oaks trees like coast live oak, black oak (*Quercus kelloggii*), Engelmann oak (*Quercus engelmannii*), and canyon live oak (*Quercus chrysolepis*). Mixed oak woodland occurs at higher elevations and will yield to pine dominated types (Oberbauer et. al. 2008).

Within the project area, mixed oak woodland communities may include interior coast live oak, Palmer's oak (*Quercus palmeri*), Muller oak, and hybrid scrub oak. Total shrub and tree cover is less than 40% in this open woodland community. The understory is similar to redshank chaparral consisting of numerous annual wildflowers.

Mixed oak woodland is considered special-status based on mitigation recommendations of the County (County of San Diego 2010a).

1.4.2.3 Riparian Herb

1.4.2.3.1 Alkali Meadow (45300)

Alkali meadow is a low-growing; dense; or open association of grasses, sedges, and rushes on moist, alkaline soils. This community may intergrade with marsh communities in wetter settings or Great Basin scrub or non-native grassland in drier settings (Oberbauer et. al. 2008).

Within the project area alkali meadow was dominated overall by salt grass (*Distichlis spicata*), seaside heliotrope (*Heliotropium curassavicum*) and Mexican rush (*Juncus mexicanus*). Plant species growing in patchy distributions throughout the alkali meadow include questionable rush (*Juncus dubious*), alkali sacaton *(Sporobolus airoides),* iris leaf rush (*Juncus xiphioides*), and clustered field sedge (*Carex praegracilis*). The outer edges of the alkali meadow are dominated by Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*). This community occurs in the floodplain of Tule Creek in the southern portion of the site.

Areas mapped as alkali meadow were dominated by Mexican rush, with a cover typically between 75%–100%. Areas mapped as disturbed alkali meadow were dominated by both Mexican rush and Mediterranean barley and other non-native grasses (*Bromus* spp.); Mexican rush typically had a percentage cover of 50%–75% with a similar percentage cover of non-native species. The percentage cover of plant species was determined through a series of point-intercept transects (six total transects, 25 meters (82 feet) in length each) performed within representative samples of areas where Mexican rush was present. Because non-native grasses and forbs have a high percentage cover in the grass/herb-dominated communities, the dominance test for hydrophytic vegetation from the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (ACOE 2008) was used to map areas as alkali meadow or disturbed alkali meadow. Areas that did not pass the dominance test due to high percentage cover of non-native species and lower percentage cover of native hydrophytic herbs were mapped as non-native grassland. This methodology also conforms to the vegetation classification for Mexican rush and other rush species that are the defining, dominant species in several alliances described in MCV2.

Alkali meadow is considered special-status by the County (County of San Diego 2010a) based in its qualification as a RPO wetland and the County's recommended mitigation ratio for this vegetation community.

1.4.2.4 Riparian Scrub

1.4.2.4.1 Disturbed Mulefat Scrub (63310)

Mulefat scrub is an herbaceous riparian scrub dominated by mulefat (*Baccharis salicifolia*) that occurs along intermittent stream channels with generally coarse substrate and a moderate depth to the water table (Oberbauer et. al 2008). Frequent flooding and/or scouring apparently maintain this community in an early successional state. Disturbed mulefat scrub is mapped on site in the central portion of the site on Tule Creek where other wetland communities occur (i.e., alkali meadow and tamarisk scrub).

Disturbed mulefat scrub is considered special-status based on mitigation recommendations of the County (County of San Diego 2010a).

1.4.2.4.2 Tamarisk Scrub (63810)

Tamarisk scrub is a weedy, monoculture of any of several *Tamarix* species, usually supplanting native vegetation following a disturbance. This habitat is usually found in sandy or gravelly braided washes or intermittent streams. Common species include narrowleaf willow (*Salix exigua*), salt grass (*Distichlis spicata*), and tamarisk (*Tamarix* sp.). Tamarisk often occupies jurisdictional wetlands (Oberbauer et. al. 2008).

Within the survey area, tamarisk scrub is dominated by salt cedar (*Tamarix ramosissima*) with an understory of desert baccharis (*Baccharis sergiloides*), salt grass, and seaside heliotrope. Tamarisk scrub is also heavily invaded by tall tumble mustard (*Sisymbrium altissimum*).

However, it is considered special-status based on mitigation recommendations of the County (County of San Diego 2010a).

1.4.2.5 Unvegetated Waters

1.4.2.5.1 Non-Vegetated Channel

According to Oberbauer et al. (2008), non-vegetated floodplain or channel is the sandy, gravelly, or rocky fringe of waterways or flood channels that is unvegetated on a relatively permanent basis. Vegetation may be present but is usually less than 10% total cover and grows on the outer edge of the channel. The non-vegetated channels within the project area contain ordinary high water mark indicators (i.e., break in slope) but lack evidence of surface hydrology (e.g. wracking, scouring, etc.) during the 2021 survey effort and contained annual herbaceous species at greater than 10% cover. Therefore, the non-vegetated channels do not conform to classifications in Oberbauer et al. 2008.

Within the study area, the most abundant populations of Tecate tarplant (*Deinandra floribunda*) occur within the non-vegetated channels. Hundreds of plants were documented within the northwestern portion in areas where the non-vegetated channel is wider and has longer periods of inundation.

Non-vegetated channels are mapped within the project area under the jurisdiction of ACOE and RWQCB as non-wetland waters, and CDFW as streambed. Non-vegetated channels are considered special-status based on mitigation recommendations of the County (County of San Diego 2010a).

1.4.2.6 Non-Native Communities and Land Covers

1.4.2.6.1 Non-Native Grassland (42220)

Non-native grasslands include a dense to sparse cover of annual grasses that die during the summer months, persisting as seeds. Many times non-native grassland is associated with numerous species of showy-flowered annual forbs especially in years with favorable rainfall. Typically, in San Diego County the presence of annual grasses like wild oat (*Avena* spp.) and annual brome (*Bromus* spp.) are typical of the non-native grassland community. Stork's bill (*Erodium* spp.) and mustards (Brassica spp.) are also common indicators of non-native grasslands. Germination in this community follows the onset of late fall rains (Oberbauer et. al. 2008).

Within the project area, non-native grasslands that dominate the site include cheat grass, ripgut grass (*Bromus diandrus*), foxtail chess (*Bromus madritensis*), and Mediterranean barley and are heavily disturbed by long-term cattle grazing. Shortpod mustard, tall tumble mustard, and red-stem filaree comprise 25%–50% absolute cover, collectively, within areas mapped as non-native grasslands, which is found throughout the site.

Mediterranean barley is the dominant grass within the central portion of project area, proximate with Tule Creek, whereas the more upland sites support a mixture of grass species. Areas dominated by Mediterranean barley can also support sparse Mexican rush (typically 1%–10% cover) and so were evaluated to determine whether these areas should be classified as alkali seep or alkali meadow. Mediterranean barley, however, is not an indicator species for either of these communities. Further, Mediterranean barley is not listed as a hydrophytic species, although there are two species that are synonymous with Mediterranean barley: *Hordeum geniculatus* is listed as "no indicator," and *H. hystrix* is listed as facultative (Reed 1988). Although portions of the non-native grassland, therefore, could be interpreted as supporting 50% or greater cover of a facultative species, these areas area not considered RPO wetland because they do no support wetland functions nor support wetland-dependent special-status species, but rather function as non-native grassland.

Because non-native grassland can provide habitat for a variety of species, the County requires mitigation for impacts to this vegetation community (County of San Diego 2010a).

1.4.2.6.2 Non-Native Grassland: Broadleaf-Dominated (42210)

Non-native grassland: broadleaf-dominated is a subset of non-native grassland (42200) and is dominated by one or several non-native, invasive broadleaf species. This designation occurs where non-native broadleaf species account for more than 50% of the total vegetative cover. Characteristic species for this community includes black mustard (*Brassica nigra*), shortpod mustard (*Hirschfeldia incana*), fennel (*Foeniculum vulgare*), and other non-native, invasive broadleaf species (Oberbauer et. al 2008).

Within the project area, short-pod mustard and tall tumble mustard dominate this community with over 50% relative cover. Other species present within this community include ripgut brome and cheat grass.

Because non-native grassland can provide habitat for a variety of species, the County requires mitigation for impacts to this vegetation community (County of San Diego 2010a).

1.4.2.6.3 Open Water (64100)

Within the project area, a small pond is mapped as open water. No streambeds or channels were mapped flowing into the pond, but there is a pipe outlet that apparently provides hydrology to the depressional area. It is presumed that this area is a historical upland area that artificially functions as a stock pond. Portions of the pond are also lined with plastic.

The County considers it part of the associated wetland. This land cover type is typically considered an RPO wetland and is considered jurisdictional waters (County of San Diego 2010a). The RPO provides an exemption for areas that have wetland attributes solely due to man-made structures (e.g., culverts, ditches, road crossings, or agricultural ponds), provided that they: (i) have negligible biological function or value as wetlands; (ii) are small and geographically isolated from other wetland systems; (iii) are not being a vernal pool; and, (iv) do not have substantial or locally important populations of wetland dependent sensitive species (County of San Diego 2012). In this case, the open water is non-jurisdictional and non-RPO and therefore is not considered special status (see RPO findings in Section 1.4.7, Jurisdictional Aquatic Resources).

1.4.2.6.4 Disturbed Habitat (11300)

Disturbed land refers to areas that have been permanently altered by previous human activity that has eliminated all future biological value of the land for most species. The native or naturalized vegetation is no longer present, and the land lacks habitat value for sensitive wildlife, including potential raptor foraging (Oberbauer et. al. 2008).

Within the project area, disturbed habitat consists of graded pads and unpaved roads on the site. These roads are graded periodically, and no native vegetation remains. Disturbed habitat also includes highly disturbed areas in the central portions of the site that contain tumbleweed (*Salsola tragus*), tall tumble mustard and red-stem filaree, which are non-native species, at greater than 75% cover. Brome grasses (*Bromus* sp.) occupy less than 25% cover in these areas and therefore are not considered non-native grasslands.

Disturbed habitat is not considered special-status by the County (County of San Diego 2010a).

1.4.2.6.5 Urban/Developed (12000)

Urban developed lands have physically altered the native vegetation to the point that it is no long supported. Developed land is characterized as having semi-permanent or permanent structures (e.g., pavement, hardscape). Developed land may also have ornamental vegetation that requires irrigation. Developed lands are areas where no natural land is evident (Oberbauer et. al. 2008).

Within the project area, urban/developed areas consist of the buildings on the property, associated outbuildings, the surrounding yard and trees, and all paved roads on the property and adjacent to it. Some areas of ornamental plantings occur in this land cover, but no native vegetation remains. Urban/developed is not considered special-status by the County (County of San Diego 2010a).

1.4.3 Flora

A total of 319 plant species have been recorded within the project area, with 280 species (88%) encountered considered native and the remaining 39 species (12%) considered non-native and/or naturalized into the area. Species richness in the project area is relatively high due to the property size, amount of undeveloped land, and the diversity of native upland and wetland habitats. Species richness is generally increased with the presence of more habitat types, soils, ecotones, and microhabitats. Although the species richness in the project area is high, it is consistent with species observed in the region. This is discussed in more detail with the special-status plant species in Section 1.4.5. Appendix B provides a cumulative list of plant species observed on site.

1.4.4 Fauna

The project area supports habitat for common upland and riparian species. Scrub, chaparral, and oak woodland habitats within the project area provide foraging and nesting habitat for migratory and resident bird species and other wildlife species. Grassland habitat provides foraging habitat for a variety of raptor species. Rock outcroppings within the project area provide cover and foraging opportunities for wildlife species, including reptiles and mammals. Finally, wetland features within the project area provide habitat to amphibian and invertebrate species.

A list of the wildlife species incidentally observed within and adjacent to the project area during focused Quino checkerspot butterfly surveys, vegetation mapping, and rare plant surveys is provided in Appendix C. There were 151 species observed on the project site. Species richness in the project area is relatively high due to the property size, amount of undeveloped land, and the number of native upland and wetland habitats. Species richness is generally increased with the presence of more habitat types and ecotones. Although species richness is high, the number of species and the wildlife population levels (i.e., number of individuals) is typical for undeveloped areas in this region, particularly those areas that support multiple upland, riparian, and wetland habitat types. Special-status wildlife species are addressed in Section 1.4.6.

1.4.4.1 Reptiles and Amphibians

Six reptile species were observed within and adjacent to the project area during 2011/2012 by AECOM (AECOM 2012b) and in 2019 by Dudek and include the following species: Blainville's horned lizard (*Phrynosoma blainvillii*), granite spiny lizard (*Sceloporus orcutti*), orange-throated whiptail (*Aspidoscelis hyperythrus*), San Diegan tiger whiptail (*Aspidoscelis tigris stejnegeri*), common side-blotched lizard (*Uta stansburiana*), and striped racer (*Coluber lateralis*). No amphibian species were documented within the project area during 2011/2012 and 2019 surveys. Common species that likely occur in the project area include western fence lizard (*Sceloporus occidentalis*), gopher snake (*Pituophis catenifer*), and western rattlesnake (*Crotalus oreganus*).

1.4.4.2 Birds

A total of 65 bird species were detected during the biological surveys. Common species observed within the project area include California quail (*Callipepla californica*), killdeer (*Charadrius vociferus*), mourning dove (*Zenaida macroura*), acorn woodpecker (*Melanerpes formicivorus*), northern flicker (*Colaptes auratus*), Say's phoebe (*Sayornis saya*), western kingbird (*Tyrannus verticalis*), common raven (*Corvus corax*), California scrub-jay (*Aphelocoma californica*), oak titmouse (*Baeolophus inornatus*), cliff swallow (*Petrochelidon pyrrhonota*), northern rough-winged swallow (*Stelgidopteryx serripennis*), bushtit (*Psaltriparus minimus*), Bewick's wren (*Thryomanes bewickii*), blue-gray gnatcatcher (*Polioptila caerulea*), western bluebird (*Sialia mexicana*), wrentit (*Chamaea*

fasciata), northern mockingbird (*Mimus polyglottos*), yellow-rumped warbler (*Setophaga coronata*), orange-crowned warbler (*Oreothlypis celata*), California towhee (*Melozone crissalis*), spotted towhee (*Pipilo maculates*), lark sparrow (*Chondestes grammacus*), white-crowned sparrow (*Zonotrichia leucophrys*), Bullock's oriole (*Icterus bullockii*), and house finch (*Haemorhous mexicanus*).

Raptor Foraging and Nesting

Habitat assessment for raptors was conducted during the course of field work; observations of raptors and nests were mapped during field work activities, which included 381 survey hours in 2011/2012 (Appendix A). Common species observed within the project area include red-tailed hawk (*Buteo jamaicensis*) and turkey vulture (*Cathartes aura*).

1.4.4.3 Mammals

Eight mammal species were detected (directly or indirectly) within and adjacent to the project area during biological surveys, including white-tailed antelope squirrel (*Ammospermophilus leucurus*), desert cottontail (*Sylvilagus audubonii*), San Diego black-tailed jackrabbit (*Lepus californica bennettii*), woodrat species (*Neotoma* sp.), coyote (*Canis latrans*), bobcat (*Lynx rufus*), cougar (*Puma concolor*), and mule deer (*Odocoileus hemionus*).

Bats occur throughout most of Southern California and may use any portion of the project area as foraging habitat. In addition, there is potential for some bat species to roost within rock outcroppings or trees within the project area. Because the majority of the surveys were conducted during daylight hours and did not include focused efforts to locate roosting bats, no bats were detected within the project area. However, based on existing conditions of the project area, the pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), western mastiff bat (*Eumops perotis californicus*), and western red bat (*Lasiurus blossevillii*) have moderate or high potential to roost and/or forage within the project area.

Special-status wildlife species are further addressed in Section 1.4.6.

1.4.4.4 Invertebrates

A total of 72 invertebrates were observed on the project site during protocol surveys in 2011 and reconnaissance surveys in 2019 (Appendix C). The five most abundant butterflies found in the project area during 2011 Quino checkerspot butterfly surveys were, in order of abundance, Behr's metalmark (*Apodemia mormo virgulti*), Pacific sara orangetip (*Anthocharis sara sara*), desert pearly marble (*Euchloe hyantis*), common buckeye (*Junonia coenia*), and Acmon blue (*Icaricia acmon acmon*) (Appendix D1).

1.4.4.5 Fish

No fish species were documented in the project area during 2011/2012 and 2019 surveys. While wetland vegetation communities exist within the project area, these features do not support perennial water sources or native fish populations. There is one basin mapped as open water in the project area that also does not support fish populations.

1.4.5 Special-Status Plant Species

Endangered, rare, or threatened plant species, as defined in CEQA Guideline 15380(b) (14 CCR 15000 et seq.), are referred to as "special-status plant species" in this report and include (1) endangered or threatened plant species recognized in the context of the California ESA and the federal ESA; (2) plant species with a CRPR (CDFW 2019b; CNPS 2019) (List 1 through 4); and (3) plant species considered "sensitive" by the County of San Diego (Table 2, County of San Diego 2010a).

Special-status plant surveys were conducted to determine the presence or absence of plant species that are considered endangered, rare, or threatened under CEQA Guideline 15380 (14 CCR 15000 et seq.), as described in Section 1.3.4.1.

Appendices F and G list the special-status plant species reported in the USGS 7.5-minute Live Oak Springs quadrangle, the surrounding seven topographic quadrangles (CNPS and CNDDB occurrences), recorded in the Live Oak Springs quadrangle from the San Diego Plant Atlas (a), and those identified in the County Pre-Application Summary Letter (Appendix A). These appendices also analyze each special-status species' occurrence or potential to occur based on known range, habitat associations, preferred soil substrate, life form, elevation, and blooming period. Appendix F includes the special-status plant species that are either not expected to occur or have a low potential to occur. Appendix G includes the special-status species that were observed on site. There are no special-status plants with a moderate or high potential to occur.

Nine special-status plant species were observed in the project area during the course of the 2012–2013 and 2019 surveys conducted by Dudek, 2011 surveys (AECOM 2012a, 2012b), and 2010 surveys (HDR 2010, 2011) (Appendix G). Each of these special-status species is described in Sections 1.4.5.2, County List A and B Species, and 1.4.5.3, County List C and D Species.

The special-status plant species observed in the project area are consistent with the results of biological surveys conducted for projects in the surrounding area. For example, HDR conducted rare plant surveys for the Tule Wind Project, which is located north and northeast of the project area. Nearly the same amount of flora were recorded, and four of the same special-status species were observed in that study area (Jacumba milkvetch, Tecate tarplant, desert larkspur [*Delphinium parishii* ssp. *subglobosum*], and sticky geraea [*Geraea viscida*]) (HDR 2011). Rare plant surveys were conducted for the East County Substation Project, which is located south and southeast of the project area. The rare plant surveys also identified some of the same special-status species: Jacumba milkvetch, sticky geraea, and desert beauty (Insignia Environmental 2010).

1.4.5.1 Critical Habitat

There is no USFWS-designated critical habitat for plant species within or near the project area (USFWS 2019b).

1.4.5.2 County List A and B Species

Plants categorized as County List A species are plants that are rare, threatened, or endangered in California and elsewhere. Plants categorized as County List B are rare, threatened, or endangered in California but more common elsewhere (County of San Diego 2010a). County List A and B species that have been observed in the study area are described as follows and included in Appendix G.

Jacumba Milk-vetch *(Astragalus douglasii* var. *perstrictus)*

Jacumba milk-vetch is a CRPR List 1B.2 (CNPS 2019) and County List A species (County of San Diego 2010a). This perennial herb in the pea or bean family (*Fabaceae*) blooms from April through June. It occurs in chaparral, cismontane woodland, pinyon and juniper woodland, riparian scrub, valley and foothill grassland, and rocky communities at elevations of 2,953–4,495 feet (CNPS 2019). It has been recorded in San Diego County and Baja California, Mexico (CNPS 2019). The Jepson bioregional range for Jacumba milk-vetch is based on the elevation range restrictions, which shows its potential range along the foothills of the Peninsular Ranges, San Jacinto Mountain, and Santa Ana Mountain (Jepson Flora Project 2019c). Specimen records include Boulevard, Jacumba, La Posta, Tierra del Sol, Live Oak Springs, Kitchen Creek, and Julian (Jepson Flora Project 2019c). This species is relatively common in upland habitats and roadsides in this region. Jacumba milk-vetch does well with disturbance including cattle grazing, disturbed soils (abundant on old dirt roads) and after fire based on experience observing this species throughout eastern San Diego County and based on the results of plant surveys in the area. Jacumba milk-vetch is easy to reproduce in restoration efforts (collecting seeds and propagating). As described in Section 1.4.5, Jacumba milk-vetch has been observed commonly during surveys throughout the Boulevard area.

2019 Surveys

Approximately 1,518 Jacumba milk-vetch individuals were observed during the 2019 focused surveys. Each Jacumba milk-vetch was counted individually, and polygon areas were mapped for each location. Populations were scattered throughout the entire project area in upland habitat and especially concentrated on old dirt roads, disturbed soils, areas where cattle congregate to graze and in areas that had burned previously.

Additionally, another closely related variety of milkvetch occurs in eastern San Diego County and within the project area. Parish's locoweed (*Astragalus douglasii* var. *parishii*) is a common species that can be easily confused with Jacumba milk-vetch. Plant characters were checked in the field before mapping any Jacumba milkvetch.

2011 Surveys

During the 2011 surveys, there were 236 occurrences of Jacumba milk-vetch mapped with 1 to 10 individuals per occurrence and 6 occurrences with 11 to 50 individuals per occurrence. Therefore, approximately 302 to 2,660 individuals of Jacumba milk-vetch were documented within the project area during 2011 surveys (AECOM 2012b) (Figure 5A, Biological Resources – Special-Status Plant Observations). Additionally, there are 3 occurrences of Jacumba milkvetch with 1 to 10 individuals per occurrence that are off site and lie within the impact footprint (see Section 2.3, Special-Status Plant Species). Populations are scattered throughout the entire project area but on site are restricted to uplands habitat, including scrub, chaparral, woodlands and grasslands, and disturbed areas.

The small portion of the easternmost parcel that was surveyed in 2010 as part of the Tule Wind Project (HDR 2010, 2011) also includes occurrences of Jacumba milk-vetch.

Rugged Solar Farm Project Boundary

Special-Status Plants

- *Astragalus douglasii var. perstrictus*
- *Chorizanthe leptotheca*
- *Deinandra floribunda*
- *Delphinium parishii ssp. subglobosum*
- *Geraea viscida*
- *Lathyrus splendens*
- *Linanthus bellus*
- *Caulanthus simulans*
- *Diplacus aridus*

Population Count

- 1-10 individuals
- 11-20 individuals
- 21-50 individuals
- 51-100 individuals
- 101-500 individuals
- 501-1,000 individuals
- 1,00-5,000 individuals

SOURCE: AECOM 2011; SANGIS 2020

DUDEK

0 500 1,000 Feet

FIGURE 5A

Biological Resources - Special-Status Plant Observations

Biological Resources Report - Rugged Solar Farm

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Tecate Tarplant (*Deinandra floribunda*)

Tecate tarplant is a CRPR List 1B.2 (CNPS 2019) and a County List A species (County of San Diego 2010a). A member of the sunflower (*Asteraceae*) family, this species blooms from August through October in chaparral and coastal scrub habitats. Tecate tarplant is an annual herb that occurs at elevations of 230–4,003 feet (CNPS 2019). It has been recorded in San Diego County and Baja California, Mexico (CNPS 2019). The Jepson bioregional range for Tecate tarplant is based on the elevation range restrictions, which shows its potential range throughout inland San Diego County, a portion of southern Riverside County, and parts of Orange County (Jepson Flora Project 2019d). Specimen records are primarily from Jamul to the Boulevard area (Jepson Flora Project 2019d). One of the most abundant locations within Southern California for Tecate tarplant is Long Potrero in Potrero, California, where hundreds of thousands of plants occur. Tecate tarplant can be found in large numbers in Potrero within any sandy drainage during August just driving along Potrero Valley Road. This species occurs within dry, ephemeral sandy drainages, sandy washes (and up the banks of washes into the upland habitat where water flows at some point), streams, or ponds with little other vegetation in this region based on the results of plant surveys in the area and experience within eastern San Diego county. Tecate tarplant is easy to reproduce in restoration efforts and can handle some level of disturbance when compared to other species.

2019 Surveys

Approximately 4,995 Tecate tarplant individuals were observed during the 2019 focused surveys. Each Tecate tarplant was counted individually, and polygon areas were mapped for each location. Populations were scattered throughout the northern portion of the study area and the north central portion of the study area in dry ephemeral washes and within one pond. A reference check was conducted within Potrero, and hundreds of thousands were observed in bloom which supported the timing of late season rare plant surveys.

2011 Surveys

During the 2011 surveys, there were 48 occurrences of Tecate tarplant, including 14 occurrences with 1 to 10 individuals per occurrence, 12 occurrences with 11 to 50 individuals per occurrence, 1 occurrence with 51 to 100 individuals, 1 occurrence with 501 to 1,000 individuals, 7 occurrences with 1,001 to 5,000 individuals, and 13 occurrences with greater than 10,000 individuals per occurrence. Therefore, approximately 137,717 to 166,852 individuals[3] of Tecate tarplant were documented within the project area during 2011 surveys (AECOM 2012b) (Figure 5A). The majority of the occurrences are in the northwestern portion of the project area (Figure 5A).

Sticky Geraea (*Geraea viscida*)

Sticky geraea is a CRPR List 2B.3 (CNPS 2019) and a County List B species (County of San Diego 2010a). A member of the sunflower (*Asteraceae*) family, this perennial herb blooms from May through June in chaparral habitats and occurs at elevations of 1,476–5,557 feet (CNPS 2019). It has been recorded in San Diego County, Imperial County, and Baja California, Mexico (CNPS 2019). The Jepson bioregional range for sticky geraea is based on the elevation range restrictions, which shows its potential range throughout inland San Diego County, a portion of southern Riverside County, and parts of Orange County (Jepson Flora Project 2019e). Specimen records are primarily from Campo to the Ocotillo area (Jepson Flora Project 2019e). This species is more likely to be found within openings in upland habitats in this eastern region and into Jacumba, California. Sticky geraea is specifically found in the Boulevard area within the shade of other shrubs where undisturbed granitic soils are found. Numerous populations

[3] For occurrences that were mapped as greater than 10,000 individuals, the range of individuals on site was calculated assuming that 10,001 individuals was the low end of the range and the high end of the range.

were found under redshank chaparral throughout the Boulevard area by Dudek biologists in granitic sandy undisturbed soils based on the results of plant surveys in the area and experience in eastern San Diego County.

2019 Surveys

Approximately 950 sticky geraea individuals were observed during the 2019 focused surveys. Each sticky geraea was counted individually, and polygon areas were mapped for each location. Populations were scattered throughout the entire project area in upland habitat and especially concentrated under redshank chaparral or individual redshank plants in other upland vegetation communities. Soils were undisturbed, and cattle grazing was limited in areas where sticky geraea was observed.

2011 Surveys

During the 2011 surveys, there were 41 occurrences of sticky geraea, including 37 occurrences with 1 to 10 individuals per occurrence, 1 occurrence with 11 to 50 individuals per occurrence, 1 occurrence with 51 to 100 individuals, and 2 occurrences with 101 to 500 individuals. Therefore, approximately 301 to 1,520 individuals of sticky geraea were documented within the project area during 2011 surveys (AECOM 2012b) (Figure 5A). All of the occurrences were documented in uplands, including chaparral and scrub habitats, or disturbed areas.

Desert Beauty (*Linanthus bellus*)

Desert beauty is a CRPR List 2B.1 (CNPS 2019) and a County List B species (County of San Diego 2010a). A member of the phlox (*Polemoniaceae*) family, this annual herb blooms from April through May in chaparral habitats. This species typically occurs at elevations of 3,281–5,493 feet (CNPS 2019). It has been recorded in San Diego County and Baja California, Mexico (CNPS 2019). The Jepson bioregional range for desert beauty is based on the elevation range restrictions, which shows its potential range along the foothills of the Peninsular Ranges, San Jacinto Mountain, and Santa Ana Mountain (Jepson Flora Project 2019f). Specimen records are primarily from the Boulevard and McCain Valley areas, with a couple of records also north of Warner Springs, Tierra del Sol, and Jacumba (Jepson Flora Project 2019f). Desert beauty is found within openings in upland habitats on granitic soils that have not been disturbed. Desert beauty cannot tolerate disturbance. Locations where soil movement is found, desert beauty is absent even with larger populations nearby. Desert beauty is extremely sensitive to weed species like cheat grass and Mediterranean grass in this region based on the results of plant surveys in the area and experience within eastern San Diego county. Reproduction of desert beauty in restoration efforts is extremely challenging because timing of bloom and seed set is so rapid. In addition, quality of soil and absence of weeds is critical in the success of desert beauty.

2019 Surveys

Approximately 216 desert beauty individuals were observed during the 2019 focused surveys. Each desert beauty was counted individually, and polygon areas were mapped for each location. Populations were scattered in uplands and mostly in the most southern section of the survey area where very little soil disturbance was present and rarely any annual weeds were present.

2011 Surveys

During the 2011 surveys, there were 235 occurrences of desert beauty, including 186 occurrences with 1 to 10 individuals per occurrence, 39 occurrences with 11 to 50 individuals per occurrence, 5 occurrences with 51 to 100 individuals, 4 occurrences of 101 to 500 per occurrence, and 1 occurrence with 501 to 1,000. Therefore, approximately 1,775 to 7,310 individuals of desert beauty were documented within the project area during 2011 surveys (AECOM 2012b) (Figure 5A). All of the occurrences were documented in uplands, including chaparral and scrub habitats and areas of bare rock.

1.4.5.3 County List C and D Species

Plants categorized as County List C species are plants that may be rare but need more information to determine their true rarity status. Plants categorized as County List D are of limited distribution and are uncommon, but not presently rare or endangered (County of San Diego 2010a). There were no County List C species observed during focused surveys. County List D species that have been observed in the study area are described as follows and included in Appendix G.

Payson's Jewel Flower (*Caulanthus simulans*)

Payson's jewel flower is a CRPR List 4.2 (CNPS 2019) and County List D species (County of San Diego 2010a). A member of the mustard (*Brassicaceae*) family, this annual herb blooms between February and June and occurs in chaparral and coastal scrub on sandy and granitic substrates at elevations between 295 and 7,218 feet amsl (CNPS 2019). It has been recorded in San Diego County and Riverside County (CNPS 2019). The Jepson bioregional range for Payson's jewel flower is based on the elevation range restrictions, which shows its potential range in the foothills and mountains of portions of San Diego, Riverside, Orange, Los Angeles, and Imperial Counties (Jepson Flora Project 2019g). Specimen records range from southeast San Diego County north to the San Jacinto Mountains, with some scattered locations near Oceanside and Hemet, California (Jepson Flora Project 2019g). This species appears to be found in a variety of locations in San Diego and Riverside Counties.

2019 Surveys

This species was not observed during the 2019 focused surveys, because surveys were conducted outside of its bloom period as it was determined to have bloomed in February earlier than it typically blooms due to more rain this season. Therefore, the 2011 AECOM location and data for this species are included on Figure 5A.

2011 Surveys

During 2011 surveys, one occurrence of 1 to 10 individuals of Payson's jewel flower was documented in within the northwestern central portion of the project area and was found within semi-desert chaparral (rock outcrop) (AECOM 2012b) (Figure 5A).

Peninsular Spineflower (*Chorizanthe leptotheca*)

Peninsular spineflower is a CRPR 4.2 (CNPS 2019) and County List D species (County of San Diego 2010a). A member of the buckwheat (*Polygonaceae*) family, this annual herb blooms between May and August and occurs in chaparral, yellow pine forest, and coastal sage scrub on granitic, alluvial fan substrates at elevations of 1,309–6,234 feet amsl (CNPS 2019). It has been recorded in San Diego, San Luis Obispo, Kern, Los Angeles, Riverside, and San Bernardino Counties and Baja California, Mexico (CNPS 2019). The Jepson bioregional range for peninsular spineflower is based on the elevation range restrictions, which shows its potential range along the foothills and mountains of the Peninsular Ranges (Jepson Flora Project 2019h). Specimen records are concentrated along the Peninsular Range in San Diego and Riverside Counties (Jepson Flora Project 2019h).

2019 Surveys

Approximately 190 peninsular spineflower individuals were observed during 2019 focused surveys. Each Peninsular spineflower was counted individually, and polygon areas were mapped for each location. Populations were scattered on the north eastern side of the project area off the western side of McCain Valley Road in areas with undisturbed soils within similar habitat to desert beauty.

2011 Surveys

This species was not observed during the previous 2011 or 2013 focused surveys.

Colorado Desert Larkspur (*Delphinium parishii* ssp. *subglobosum*)

Colorado Desert larkspur is a CRPR List 4.3 (CNPS 2019) and a County List D species (County of San Diego 2010a). A member of the buttercup family (*Ranunculaceae*), this perennial herb blooms from March through June in chaparral, cismontane woodland, pinyon and juniper woodland, and Sonoran desert scrub habitats. The species occurs at elevations between 1,969 and 5,906 feet (CNPS 2019). It has been recorded in San Diego, Imperial, and Riverside Counties and Baja California, Mexico (CNPS 2019). The Jepson bioregional range for desert larkspur is based on the elevation range restrictions, which shows its potential range along the foothills of the eastern Peninsular Range in San Diego and Riverside Counties and additional foothills in portions of Riverside and Imperial Counties (Jepson Flora Project 2019i). Specimen records are concentrated from southeast San Diego County north to Warner Springs, with some scattered locations near Palm Springs and Beaumont, California (Jepson Flora Project 2019i). This species appears to be found in a variety of locations in San Diego and Riverside Counties.

2019 Surveys

Approximately 1,932 Colorado desert larkspur individuals were observed during the 2019 focused surveys. Each Colorado desert larkspur was counted individually, and polygon areas were mapped for each location. Populations were scattered throughout the project area in upland habitat and specifically found in areas with California buckwheat. Colorado desert larkspur was associated with California buckwheat in the areas it was mapped. In the majority of cases Colorado desert larkspur grows within the California buckwheat plants.

2011 Surveys

During the 2011 surveys, there were 127 occurrences of desert larkspur, including 97 occurrences with 1 to 10 individuals per occurrence, 23 occurrences with 11 to 50 individuals per occurrence, and 7 occurrences with 51 to 100 individuals. Therefore, approximately 707 to 2,820 individuals of Colorado desert larkspur were documented within the project area during 2011 surveys (AECOM 2012b) (Figure 5A). All of the occurrences were documented in uplands, including chaparral, scrub and woodlands habitats, or disturbed areas.

Pride of California (*Lathyrus splendens*)

Pride of California is a CRPR List 4.3 (CNPS 2019) and a County List D species (County of San Diego 2010a). A member of the *Fabaceae* family, this perennial herb (vine) blooms from March to June at elevations between 656 and 5,003 feet (CNPS 2019). It has been recorded in San Diego County and Baja California, Mexico (CNPS 2019). The Jepson bioregional range for pride of California is based on the elevation range restrictions, which shows its potential range in the coastal region and foothills of San Diego, Riverside, Orange, and Los Angeles Counties (Jepson Flora Project 2019j). Specimen records are concentrated in the Boulevard region and In-Ko-Pah Mountains, with

some scattered locations near Agua Caliente Springs (Jepson Flora Project 2019j). This species appears to be found in a variety of locations in San Diego and Riverside Counties. Based upon experience in eastern San Diego county pride of California is extremely sensitive to fire. Numerous reference populations have been documented within San Diego County by botanists that can no longer be found due to fire in these areas.

2019 Surveys

A total of three pride of California individuals were observed during the 2019 focused surveys. Each pride of California was counted individually, and polygon areas were mapped for each location. Plants were found on the most southern section of the study area growing next to Mueller's scrub oak and redshank. The pride of California vine has wrapped itself around the large shrubs where it occurs.

2011 Surveys

During 2011 surveys, approximately seven occurrences of pride of California with 1 to 10 individuals were documented on site—six occurrences in chaparral and one occurrence in disturbed alkali meadow (AECOM 2012b) (Figure 5A). Additionally, there is one occurrence of pride of California with 1 to 10 individuals that is off site and lies within in the impact footprint (see Section 2.3).

Low Bush Monkeyflower (*Diplacus aridus*)

Low bush monkeyflower is a CRPR List 4.3 (CNPS 2019) and a County List D species (County of San Diego 2010a). Desert monkeyflower is a perennial evergreen shrub that blooms from April through July in rocky chaparral and Sonoran desert scrub at elevations of 2,461–3,937 feet (CNPS 2019). It has been recorded in San Diego and Imperial Counties and Baja California, Mexico (CNPS 2019). The Jepson bioregional range for desert monkeyflower is based on the elevation range restrictions, which shows its potential range in the foothills of San Diego, Riverside, and Orange Counties (Jepson Flora Project 2019k). Specimen records are concentrated from southeast San Diego County north to Warner Springs, with some scattered locations near Palm Springs and Beaumont, California (Jepson Flora Project 2019k). This species appears to be found in a variety of locations in San Diego and Riverside Counties.

2019 Surveys

This species was not observed during 2019 focused surveys, likely due to non-native weed species invasion where it was previously found. Low bush monkey was observed during the AECOM 2011 surveys and the location and data are included on Figure 5A.

2011 Surveys

During 2011 surveys, one occurrence of 1 to 10 individuals of low bush monkeyflower was documented within the project area in the central northwestern portion of the project area (AECOM 2012b) in chaparral, specifically semi-desert chaparral (rocky areas) (Figure 5A).

1.4.6 Special-Status Wildlife Species

Endangered, rare, or threatened wildlife species, as defined in CEQA Guidelines, Section 15380(b) (14 CCR 15000 et seq.), are referred to as "special-status wildlife species" and, as used in this report, include (1) endangered or threatened wildlife species recognized in the context of the California ESA and federal ESA; (2) California Species of Special Concern (SSC) and Watch List (WL) species, as designated by the CDFW (2019a); (3) mammals and birds that are fully protected (FP) species, as described in Fish and Game Code, Sections 4700 and 3511; (4) Birds of

Conservation Concern (BCC), as designated by the USFWS (2008); and (5) wildlife species considered "sensitive" by the County of San Diego (Table 3, County of San Diego 2010a).

A total of 24 sensitive wildlife species were detected, including species sign (e.g. middens, tracks, scat), within the project area in 2011 (AECOM 2012a, 2012b; Appendix D1) and/or 2019: monarch butterfly; orange-throated whiptail; San Diegan tiger whiptail; Blainville's horned lizard; Cooper's hawk; tricolored blackbird; Bell's sage sparrow; Swainson's hawk; turkey vulture; northern harrier; prairie falcon; loggerhead shrike; great blue heron; oak titmouse; California horned lark; black-tailed gnatcatcher; yellow warbler; western bluebird; Lawrence's goldfinch; Brewer's sparrow; San Diego black-tailed jackrabbit; San Diego desert woodrat, mule deer; and cougar. These species are described as follows in further detail and depicted on Figure 5B, Biological Resources – Special-Status Wildlife Observations.

Appendices H and I list occurrences of special-status wildlife species reported in the USGS 7.5-minute Live Oak Springs quadrangle and the surrounding seven topographic quadrangles resulting from a CNDDB search (CDFW 2019c) and records found in the San Diego Bird Atlas (SDNHM 2019b), as well as special-status species identified in the County Pre-Application Summary Letter (Appendix A). Appendices H and I describe these species' potential to occur in the project area based on the range, presence of suitable habitat, and life history of the wildlife.

1.4.6.1 Critical Habitat

There is no critical habitat within the project area. The USFWS has designated critical habitat for one species within 5 miles of the project area: peninsular bighorn sheep. Designated Critical Habitat Unit 3 is located approximately 1.5 miles from the eastern extent of the project area (Figure 5B). Unit 3 of the 2009 revised critical habitat for peninsular bighorn sheep includes the Carrizo Gorge and portions of the In-Ko-Pah Mountains (74 FR 17288–17365). The overall area of Unit 3 contains the physical and biological features that are essential for peninsular bighorn sheep habitat, including a range of vegetation types, foraging and watering areas, and steep to very steep, rocky terrain with appropriate elevations and slope (74 FR 17288–17365). In addition, Unit 3 is currently occupied by peninsular bighorn sheep (74 FR 17288–17365). The project area does not contain constituent elements required for peninsular bighorn sheep and therefore it is considered unoccupied.

Rugged Solar Farm Project Boundary

Special-Status Wildlife

- Bell's sage sparrow
- Blainville's horned lizard
- California horned lark
- Cooper's hawk
- loggerhead shrike
- mule deer
- oak titmouse
- Orange-throated whiptail
- Prairie falcon
- Red-tailed hawk
- San Diego black-tailed jackrabbit
- San Diegan tiger whiptail
- Swainson's hawk
- turkey vulture
- western bluebird
- white-tailed antelope squirrel
- woodrat sp.
- yellow warbler

SOURCE: SANGIS 2020

DUDEK

0 500 1,000 Feet

FIGURE 5B

Biological Resources - Special-Status Wildlife Observations

Biological Resources Report - Rugged Solar Farm

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1.4.6.2 County Group 1 Species

County Group 1 species that have been observed in the project area, or have high potential to occur, are described below and included in Appendix H. In addition, all federally or state-listed species identified in the County's Pre-Application Summary Letter (Appendix A) are discussed as follows.

Reptiles

Two-Striped Gartersnake (Thamnophis hammondii)

The two-striped gartersnake[4] is a CDFW Species of Special Concern (SSC) and County Group 1 species. It is found in coastal California in the vicinity of the southeast slope of the Diablo Range and the Salinas Valley, and south along the Coastal and Transverse Ranges to Rio Rosario in Baja California, Mexico (NatureServe 2019). Although the two-striped gartersnake was historically common throughout this range and is the most common gartersnake in the Southern California's cismontane region, it is now abundant only in eastern San Diego County (Jennings and Hayes 1994; Schwenkmeyer 2007).

Two-striped gartersnakes are found in a variety of perennial and intermittent freshwater streams within oak woodlands, shrublands, and sparse coniferous forests from sea level to 2,400 meters (7,874 feet) amsl (Stebbins 2003; Zeiner et al. 1988). They are restricted to streams, vernal pools, lakes, and stock and artificial ponds with good adjoining riparian vegetation (Jennings and Hayes 1994; Schwenkmeyer 2007) and are commonly found within wetlands and streams having rocky or sandy beds with willows (*Salix* sp.) or dense vegetation (Zeiner et al. 1988). Two-striped gartersnakes tend to stay near water, entering it often and retreating to it when alarmed (Stebbins 2003). They use dense vegetation, flat rocks, rocky outcrops, and rotting logs as cover (Zeiner et al. 1988). The species tends to avoid open expanses because of increased risk of predation.

Two-striped gartersnake has not been observed in the proposed project area but based on the seasonal ponding of some of the alkali meadow habitat in the project area, this species has high potential to occur. Within the project area, suitable habitat includes disturbed mulefat scrub, tamarisk scrub, alkali meadow (including disturbed), and open water.

Birds

Cooper's Hawk (Accipiter cooperi)

Cooper's hawk is a CDFW WL and a County Group 1 species. It is found throughout California in wooded areas. It inhabits live oak, riparian, deciduous, or other forest habitats near water. Nesting and foraging usually occur near open water or riparian vegetation. Nests are built in dense stands with moderate crown depths, usually in second-growth conifer or deciduous riparian areas. Cooper's hawks use patchy woodlands and edges with snags for perching while they are hunting for prey such as small birds, small mammals, reptiles, and amphibians within broken woodland and habitat edges (Zeiner et al. 1990a).

Three Cooper's hawk observations were made within the project area during 2011 surveys (Figure 5B), and additional points were mapped adjacent to the project area (AECOM 2012b). Two records are mapped in the northern portion of the project area; the other observation was made in the eastern portion of the project area, west of McCain Valley Road. Both observations were made in semi-desert chaparral habitat.

[4] The common name "gartersnake" follows Crother (2017) for this species account. The CDFW Special Animals List (2019b) uses the common name "garter snake."

Within the proposed project area, there are no permanent water sources. However, the proposed project area may support limited nesting opportunities within coast live oak woodland, mixed oak woodland, and tamarisk scrub. Suitable foraging habitat includes coast live oak woodland, mixed oak woodland, granitic chamise chaparral, granitic northern mixed chaparral, red shank chaparral, scrub oak chaparral (including disturbed), semi-desert chaparral (including disturbed), mulefat scrub (including disturbed), alkali meadow, and tamarisk scrub.

Tricolored Blackbird (Agelaius tricolor)

The tricolored blackbird is a USFWS BCC, state-listed as threatened, CDFW SSC, and County Group 1 species with regard to its nesting colony status. It is found throughout the Central Valley of California and the coastal areas from Sonoma County south to San Diego County (Zeiner et al. 1990a). Locally, it breeds in southern and western San Diego County.

The tricolored blackbird forages and roosts in large flocks and breeds in large colonies. The tricolored blackbird forms the largest colonies of any North American passerine bird (Beedy and Hamilton 1999). These birds prefer to breed in freshwater marshes with dense growths of emergent vegetation dominated by cattails (*Typha* spp.) or bulrushes (*Schoenoplectus* spp.), but have also established colonies in willows (*Salix* spp.), blackberries (*Rubus* spp.), thistles (*Cirsium* and *Centaurea* spp.), and nettles (*Urtica* sp.). More recently, the breeding habitat has included diverse upland and agricultural areas. Breeding individuals forage away from the nest sites, often well out of sight of the colony. Most individuals forage within 3 miles of colony sites but may travel up to 8 miles one way (Beedy and Hamilton 1999).

A group of tricolored blackbirds was observed flying overhead, south of the project area, during 2011 surveys (AECOM 2012b). This species has high potential to forage in the project area in the alkali meadow (including disturbed), disturbed habitat, non-native grassland, and open water habitats, but it is not expected to nest in the project area due to lack of suitable nesting habitat.

Southern California Rufous-Crowned Sparrow (Aimophila ruficeps canescens)

The Southern California rufous-crowned sparrow is a CDFW WL and County Group 1 species. The rufous-crowned sparrow is a resident of the southwest region of the United States. The Southern California rufous-crowned sparrow, also called the ashy rufous-crowned sparrow (Collins 1999a), is one of three Pacific Coast subspecies. The current distribution of the Southern California rufous-crowned sparrow is restricted to a narrow belt of semiarid coastal sage scrub and sparse chaparral from Santa Barbara south to the northwestern corner of Baja California, Mexico. (Todd 1922; Grinnell 1926; Grinnell and Miller 1944; Bent 1968; Zeiner et al. 1990a; Unitt 2012; Collins 1999b). The subspecies has also been found on San Martin Island, Baja California. The Southern California rufous-crowned sparrow is considered a resident throughout its range. No true migratory movements have been recorded, though limited movements to lower elevations in some areas have been reported during especially severe winters (Collins 1999a). The Southern California rufous-crowned sparrow occupies moderate to steep hillsides that are rocky, grassy, or covered by coastal sage scrub or chaparral. It is a secretive species, seeking cover in shrubs, rocks, grass, and forb patches. The species often occurs near the edges of denser scrub and chaparral associations, but usually does not occur within these associations.

No Southern California rufous-crowned sparrows were observed during surveys; however, there is suitable habitat, and it has high potential to occur in the project area. Within the project area, suitable habitat includes big sagebrush scrub (including disturbed), granitic chamise chaparral, redshank chaparral, montane buckwheat scrub (including disturbed), granitic northern mixed chaparral, semi-desert chaparral (including rocky and disturbed), disturbed mulefat scrub, and non-native grassland. There are records of this species in the area (SDNHM 2019b).

Bell's Sage Sparrow (Amphispiza belli belli)

The Bell's sage sparrow is a USFWS BCC, CDFW WL species, and County Group 1 species. It occurs as a nonmigratory resident on the western slope of the central Sierra Nevada Range, and in the coastal ranges of California, southward from Marin County and Trinity County, extending into north–central Baja California, Mexico (County of Riverside 2008). The range of Bell's sage sparrow overlaps with that of at least one other subspecies of sage sparrow (County of Riverside 2008).

Bell's sage sparrow occupies semi-open habitats with evenly spaced shrubs that are 3.3–6.6 feet high (County of Riverside 2008). For site selection, specific shrub species may be less important than overall vertical structure, habitat patchiness, and vegetation density (Wiens and Rotenberry 1981). Bell's sage sparrow is uncommon to fairly common in dry chaparral and coastal sage scrub along the coastal lowlands, inland valleys, and lower foothills of the mountains within its range.

Bell's sage sparrow was observed once in the central portion of the project area in 2011 within big sagebrush scrub habitat (Figure 5B). There are no CNDDB records within Live Oak Springs quadrangle; however, there are confirmed breeding locations within the vicinity (Unitt 2004). Within the project area, suitable habitat includes big sagebrush scrub (including disturbed), granitic chamise chaparral, montane buckwheat scrub (including disturbed), semi-desert chaparral (including rocky and disturbed), granitic northern mixed chaparral, and scrub oak chaparral (including disturbed).

Golden Eagle (Aquila chrysaetos)

The golden eagle is a USFWS BCC, CDFW WL, state FP, and County Group 1 species, and is protected under the federal Bald and Golden Eagle Protection Act. It is a yearlong, diurnally active species that is a permanent resident and migrant throughout California. The species is sparsely distributed throughout California, and it is found in Southern California occupying primarily mountain, foothill, and desert habitats. Golden eagles are more common in northeast California and the Coast Ranges than in Southern California and the deserts. Foraging habitat for this species is very broad and in California includes open habitats with scrub, grasslands, desert communities, and agricultural areas. This species nests on cliffs within canyons and escarpments and in large trees (generally occurring in open habitats) and is primarily restricted to rugged, mountainous country (Garrett and Dunn 1981; Johnsgard 1990). Most nests are located on cliffs or trees near forest edges or in small stands near open fields (Kochert et al. 2002). Nest locations tend to be more closely associated with topographic heterogeneity than with a particular vegetation type (Call 1978).

Nest building can occur almost any time during the year but breeding typically begins in January with nest building and egg laying occurring in February to March (Brown 1976; WRI 2010 as cited in CPUC and BLM 2011). Pairs may build more than one nest and attend them prior to laying eggs (Kochert et al. 2002). Each pair can have up to 10 nests, but only 2 to 3 are generally used in rotation from one year to the next. Some pairs use the same nest each year, while others use alternate nests year after year, and still others apparently nest only every other year. Succeeding generations of eagles may even use the same nest (Terres 1980 as cited in CPUC and BLM 2011). The hatching and feeding of the nestlings takes place from April through June. After fledging, the adult eagles continue to feed the young birds until late November (WRI 2010 as cited in CPUC and BLM 2011). As a result of the long breeding cycle, some pairs breed every other year even when food is abundant (WRI 2010 as cited in CPUC and BLM 2011). Other environmental conditions may also affect the breeding of eagles, including drought conditions that may affect prey populations. Currently, this region has been undergoing a prolonged drought, which has resulted in a reduced population size of jackrabbits, a primary prey source for golden eagles in this region (WRI

2010 as cited in CPUC and BLM 2011). As a correlate to the lower prey population size, Wildlife Research Institute (WRI) has confirmed unusually low reproductive levels of golden eagles in other regions of Southern California (WRI 2010 as cited in CPUC and BLM 2011).

There is no suitable nesting habitat within the project area due to the lack of forested areas and cliffs. Within the project area, suitable foraging habitat includes big sagebrush scrub (including disturbed), montane buckwheat scrub (including disturbed), semi-desert chaparral (including rocky and disturbed), non-native grassland, and disturbed habitat. Typically, the denser vegetation communities, such as chaparral habitat, are not suitable for foraging of golden eagle.

WRI prepared a golden eagle report in 2013, which describes the active territories of several golden eagle territories in southeast San Diego County, including the Table Mountain and Carrizo Canyon pairs, as well as flight paths and GPS points of the golden eagles with satellite transmitters. The estimated territories of the Table Mountain and Carrizo Canyon pairs overlap with the northeast portion of Rugged Solar Farm and a 4,000-foot buffer around the project site (Appendix J). WRI has documented various golden eagle nest locations on two separate cliffs on Table Mountain; the most recent use was on the southwest cliff. Several golden eagle nests are documented in Carrizo Canyon; one nest was active in 2010, and the pair was productive (i.e., produced young) in 2011 and 2012 (Appendix J).

There are some additional data available from the *Final Environmental Impact Report/Environmental Impact Statement for the SDG&E East County Substation Project, Tule Wind LLC, Tule Wind Project, and Energia Sierra Juarez U.S. Transmission LLC, Energia Sierra Juarez Gen-Tie Project* (CPUC and BLM 2011). This information is provided as follows.

In Spring 2010, WRI conducted a golden eagle helicopter survey within a 10-mile radius of the proposed Tule Wind Project, located just north of the project area. The 2010 survey for the Tule Wind Project found 10 golden eagle territories, 6 of which were active,[5] with 1 territory possibly active and the 3 remaining territories considered inactive. All of the 10 territories were documented to be active within the past 2–3 years. A total of 37 nests were recorded during the helicopter survey, 31 of which were considered golden eagle nests, many are alternative nesting sites for the same territory used in past years. Because the survey was conducted at the end of March, some of the eagle pairs may have already attempted and failed at nesting for the 2010 breeding season (WRI 2010 as cited in CPUC and BLM 2011). Every mountain range within the survey area, except for the Boundary Peak territory, has had recent nest evidence, but only six or possibly seven territories showed evidence of 2010 activity. This is considered typical for breeding activity of this species, and golden eagles may average as few as 62% of the pairs breeding within any 1 year (Kochert et al. 2002 as cited in CPUC and BLM 2011).

Of the six active territories, three nests had golden eagles incubating eggs. The nests incubated by adults are generally described as the Canebrake, Moreno Butte, and Glenn Cliff/Buckman Springs locations. The Canebrake location is approximately 10 miles north of the project area. The Moreno Butte location is approximately 10 miles southwest of the project area. The Glenn Cliff/Buckman Springs location is approximately 9 miles west of the central portion of the project area. The other active territories, located at Garnet Mountain, Monument Peak, and Thing Valley, are approximately 8, 7, and 7 miles west or northwest of the project area, respectively.

[5] Active territories were determined by the presence of active nests, which can be defined by either the presence of a golden eagle (e.g., an incubating female or a young bird), or evidence of new material having been added during the season in which the survey was conducted (WRI 2010).

In 2011, additional eagle observations were collected during bird use county surveys completed for the Tule Wind Project along the valley portion of the project area and the four closest territories: Table Mountain, Carrizo Gorge, Thing Valley, and Canebrake. Observations were made weekly during the breeding season. Based on these observations, Table Mountain is considered an occupied territory due to adult eagles flying in the area, but not active since no nesting behavior was observed. The flight paths gathered during these observations demonstrate eagle use of the ridge line area of the project area and support limited golden eagle use in the valley.

Also in 2011, five satellite transmitters were attached to golden eagle nestlings to collect data about their movements upon fledging. These data indicate the following regarding golden eagle behavior. The Canebrake fledgling used the north end of the ridge and would overlap the northernmost ridge line turbines (Tule Wind Project). The O'Neil fledgling flew more than 20 miles from its nest, likely crossing the Tule Wind Project ridgeline turbines and the northern end of the valley turbines. The Glen Cliff fledgling flew up to the project area and south of the project area, going distances that are long enough to ultimately cross over or through the Tule Wind project area. Data provided to the agencies regarding the Moreno Butte fledglings indicate that the birds were in the initial fledgling period; therefore, they had not begun the expanding movement phase of fledging, and thus, the data cannot inform us about whether the birds may or may not use the Tule Wind Project area. Regardless, none of these nests or territories occurred within 4,000 feet of the Rugged Solar Farm project area.

There are no CNDDB records of this species where the Rugged Solar Farm project area is located. The San Diego County Bird Atlas corroborates the above description, with active breeding locations found southwest and northwest of the project site, as well as nesting locations farther east within the Carrizo Gorge area (Unitt 2004).

Red-Shouldered Hawk (Buteo lineatus)

The red-shouldered hawk is a County Group 1 species. In California, it is a yearlong resident along the coast, in the Central Valley woodlands west of the southern deserts, and occasionally in the western Sierra Nevada foothills. It nests in dense riparian areas below 5,000 feet elevation and hunts in and along the edges of swamps, marshes, and wet meadows.

No red-shouldered hawks were observed during the surveys; however, there is suitable habitat for this species, and it has high potential to occur in the project area. Within the proposed project area, there are no permanent water sources. However, the proposed project area may support limited nesting opportunities within coast live oak woodland, mixed oak woodland, and tamarisk scrub. Suitable foraging habitat includes granitic chamise chaparral, red shank chaparral, scrub oak chaparral (including disturbed), semi-desert chaparral (including disturbed), alkali meadow (including disturbed), disturbed mulefat scrub, and non-vegetated channel.

Swainson's Hawk (Buteo swainsoni)

The Swainson's hawk is state-listed as threatened and is a County Group 1 species. Swainson's hawk is a small hawk that is known to migrate seasonally over long distances. The annual round trip for this species, from South America (primarily Argentina) up to North America and back, covers up to 12,500 miles and passes through the Southern California and Baja region (England et al. 1997). The species breeds throughout much of the western United States and Canada, and in northern Mexico (Woodbridge 1998). In California, Swainson's hawks are locally common-to-rare breeders. Currently, approximately 94% of breeding pairs in California are found in the Central Valley between Modesto and Sacramento (Bloom 1980; CDFG 2007). According to Bloom (1980), Swainson's hawks historically nested throughout the California lowlands, including plains and coastal valleys, but they no longer occur today. There are some remnant (or recolonizing) populations in Southern California in the western Mojave Desert in the Antelope Valley and in

the eastern Mojave Desert in the Mojave National Preserve. The hawk's breeding range is no longer considered to encompass San Diego County or Eastern Imperial County due to habitat loss and effects of pesticides in its South American range (Unitt 2004). Swainson's hawks inhabit primarily grassland habitats, but are also found in sparse shrubland and small, open woodlands (Bechard et al. 2010). They nest within riparian forests near grassland or agricultural lands (such as fallow fields and alfalfa fields), narrow bands of trees, and isolated trees (Babcock 1995). Swainson's hawks typically avoid mountainous terrain or steep canyons (Woodbridge 1998). They feed on a variety of mammalian, avian, and insect prey (Woodbridge 1998).

In the Anza-Borrego Desert State Park and Borrego Valley (located approximately 10 miles east of the project area in the desert region), detailed observation records of Swainson's hawks have been collected during their peak migration months (February to April) (Hopkins 2013). Since 2004, during the month of March, observers have seen an average of 3,172 Swainson's hawks per year and an average of 4,489 Swainson's hawks per year between 2011 and 2013 (Hopkins 2013). The Borrego Valley is within a migration corridor for these species and is an important staging site in spring (Unitt 2004). While Swainson's hawks are more likely to migrate through the Borrego Valley than the project site, there is some potential for this species to forage over the project site based on their migration patterns, ranges, and records in San Diego (Unitt 2004; CDFW 2019c). While no project-specific bird count studies were conducted for the proposed project, data were collected for two proposed project areas located in close proximity to the proposed project: Tule Wind Project and a now defunct project in the McCain Valley.

Between October 2010 and May 2012, Dudek conducted weekly bird utilization counts at 10 different locations (with an additional location surveyed between July 2011 and May 2012) for the McCain Valley site, which was comprised of two separate project areas: the northern boundary was located within 0.5 miles of the Rugged Solar Farm boundary, and the second was located within 0.5 miles of the Tierra del Sol boundary. These surveys recorded all bird species observed, along with additional behaviors and data. No Swainson's hawks were observed during these surveys, even during their typical migration months (February to April) (Dudek, unpublished data). While these surveys were not conducted specifically for the proposed project, based on the proximity of the study areas to the proposed project, the recorded bird use would be similar to all or portions of the proposed project.

Between March 2005 and March 2006 and between September 2007 and September 2008, avian surveys were conducted every 2 weeks for the Tule Wind Project (located northeast of the project area) using a fixed-point survey methodology and recording incidental observations of species (Tetra Tech EC Inc. 2008). No Swainson's hawks were recorded during either survey period. While these surveys were not conducted specifically for the proposed project, several of the fixed-point locations are within a couple of miles of the project area, and the recorded bird use would be similar to all or portions of the project area.

The Swainson's hawk was detected flying over the proposed project area in the northern portion of the project area in 2011 (Figure 5B). This species no longer nests in the majority of Southern California, including San Diego County. Therefore, this species is expected only as an occasional and temporary visitor of the project area during annual migration from wintering habitat in South America to suitable breeding areas in western North America, and suitable nesting habitat is not identified within the project area. Based on this and the results of the avian surveys conducted at the Tule Wind Project there is low potential for Swainson's hawk to forage within the project area.

Turkey Vulture (Cathartes aura)

The turkey vulture is not considered special status by any state or federal agencies; however, it is considered a Group 1 species by the County (County of San Diego 2010a). In California, it is common during the breeding season and is a yearlong resident west of the Sierra Nevada Mountains, especially in coastal areas. Summer and yearlong

ranges also include the southeastern United States; portions of Texas, Mexico, Central America, and South America; and some islands in the Caribbean (Kirk and Mossman 1998).

Turkey vultures use a variety of habitats while foraging on both wild and domestic carrion. They prefer open stages of most habitats. In the western United States, they tend to occur regularly in areas of hilly pastured rangeland, nonintensive agriculture, and areas with rock outcrops suitable for nesting, although they are not generally found in high-elevation mountain areas (Kirk and Mossman 1998; Zeiner et al. 1990a). Nest locations tend to be difficult to find and are usually located in a crevice among granite boulders (Unitt 2004). However, the species prefers hilly areas that provide deflective updrafts for flight and generally avoids extensive areas of row-crop farmland (Kirk and Mossman 1998).

Turkey vulture was observed flying over the project area in 2019 frequently. This species was also observed during surveys in 2011; however, the observations were not mapped. The project area does not support suitable cliffs and large trees for nesting, but there is suitable foraging habitat within the project area. Suitable foraging habitat includes coast live oak woodland, mixed oak woodland, big sagebrush scrub (including disturbed), montane buckwheat scrub (including disturbed), granitic chamise chaparral, granitic northern mixed chaparral, red shank chaparral, scrub oak chaparral (including disturbed), semi-desert chaparral (including rock-dominated and disturbed, alkali meadow, disturbed mulefat scrub (non-native grassland, disturbed habitat, and non-vegetated channel. Turkey vulture breeding surrounding the project area is poorly documented, and no nests have been recorded within the area (Unitt 2004).

Northern Harrier (Circus cyaneus)

The northern harrier is a CDFW SSC and County Group 1 species. Also known as the "marsh hawk" because of its affinity for marshes and open grassland and prairie, this species has a wide geographical range throughout much of North America. The northern harrier is common along the West Coast in mountain and desert regions. Northern harriers winter throughout much of Canada, the United States, and the Caribbean islands (Macwhirter and Bildstein 1996).

This species occurs throughout California from sea level to 3,000 meters (10,000 feet) amsl as a widespread winter migrant (Zeiner et al. 1990a). The northern harrier is also a permanent resident in coastal areas, the northeastern plateau, the Central Valley, and the Sierra Nevada, where its elevation range as a breeder reaches 1,700 meters (5,700 feet) (Zeiner et al. 1990a). Breeding populations are also known from around San Francisco Bay and in the Mono Lake area (Gaines 1977; Zeiner et al. 1990a). Most of the breeding population in California occurs in ungrazed parts of the state and in federal wildlife refuges (Zeiner et al. 1990a).

Northern harriers use a wide variety of open habitats in California, including deserts, coastal sand dunes, pasturelands, croplands, dry plains, grasslands, estuaries, flood plains, and marshes (Macwhirter and Bildstein 1996). Nesting areas are associated with marshes, pastures, grasslands, prairies, croplands, desert shrub steppe, and riparian woodland (Macwhirter and Bildstein 1996). Winter habitats similarly include a variety of open habitats dominated by herbaceous cover.

The northern harrier was documented southeast of the project area during 2011 surveys (AECOM 2012a), but its location was not recorded. However, based on the lack of observations during the breeding season, this species is only expected as a winter visitor in grassland habitat and the more open areas of scrub and chaparral communities on site. There are no CNDDB records of this species within the project area, but it has been recorded in the area (SDNHM 2019b). Within the project area, suitable winter and foraging habitat includes big sagebrush scrub (including

disturbed), montane buckwheat scrub (including disturbed), alkali meadow (including disturbed), non-native grassland, and non-vegetated channel.

Prairie Falcon (Falco mexicanus)

The prairie falcon is a USFWS BCC, CDFW WL, and County Group 1 species. The prairie falcon is a permanent resident found throughout most of California. It prefers chaparral, desert grasslands, and creosote bush habitats for foraging and nests on cliffs or bluffs near these open habitats.

One prairie falcon observation was made within the project area in 2011 (Figure 5B). Within the project area, suitable foraging habitat includes alkali meadow (including disturbed), big sagebrush scrub, montane buckwheat scrub (including disturbed), non-native grassland, and non-vegetated channel. Potential nest locations are located within the vicinity in Carrizo Gorge and other rocky mountain and cliff terrain north and east of the project components (Unitt 2004).

Loggerhead Shrike (Lanius ludovicianus)

The loggerhead shrike is a USFWS BCC, CDFW SSC, and County Group 1 species. It is found in lowlands and foothills throughout California, and it remains in the southern portion of the state year-round. Preferred habitats for the loggerhead shrike are open areas that include scattered shrubs, trees, posts, fences, utility lines, or other structures that provide hunting perches with views of open ground, as well as nearby spiny vegetation or man-made structures (such as top of chain-link fences or barbed wire) that provide means to skewer prey items. The species occurs most frequently in riparian areas along the woodland edge, grasslands with sufficient perch and butcher sites, scrublands, and open-canopied woodlands, although they can be common in agricultural and grazing areas, and can sometimes be found in mowed roadsides, cemeteries, and golf courses, although they occur rarely in heavily urbanized areas (Zeiner et al. 1990a). Loggerhead shrikes build nests in stable shrubs or trees requiring dense foliage for well-concealed nests.

Loggerhead shrikes were documented several times in the same location within the eastern portion of the project area within semi-desert chaparral habitat in 2011 and 2019. In 2019, loggerhead shrikes were observed most often on posts and cattle fencing (Figure 5B). Within the project area, suitable habitat includes big sagebrush scrub (including disturbed), montane buckwheat scrub (including disturbed), granitic chamise chaparral, granitic northern mixed chaparral, scrub oak chaparral (including disturbed), semi-desert chaparral (including rocky and disturbed), disturbed mulefat scrub, non-native grassland, and tamarisk scrub.

Invertebrates

Quino Checkerspot Butterfly (Euphydryas editha quino)

The Quino checkerspot butterfly is a federally endangered species found only in western Riverside County, southern San Diego County, and northern Baja California, Mexico (USFWS 2003). This species is found on sparsely vegetated hilltops, ridgelines, and occasionally on rocky outcrops in open chaparral and coastal sage scrub habitat (typically less than 3,000 feet in elevation). This species requires host plants within these vegetation communities for feeding and reproduction. The primary larval host plant is dwarf plantain (*Plantago erecta*); however, several other species have been documented as important larval host plants, including desert plantain, sometimes called woolly plantain (*P. patagonica*); thread-leaved bird's beak (*Cordylanthus rigidus*); white snapdragon (*Antirrhinum coulterianum*); owl's clover (*Castilleja exserta*); and Chinese houses (*Collinsia* spp.) (USFWS 2003). Potential habitat surveyed for

Quino checkerspot butterfly consists of all habitat types on site except for open water (cattle ponds), developed areas, and other portions of the project area excluded from the survey. Results of habitat assessments defined all potentially suitable habitats in the survey area (Figure 3 in Appendix D1). Closed-canopy chaparral, riparian forest, and oak woodland habitats were included in the survey area because these areas were small and adjacent to open patches of habitat with the potential to support Quino checkerspot butterfly.

Protocol surveys were conducted in 2011 (Appendix D1), by Dudek in 2013 (Appendix D2), and by Blackhawk Environmental, Inc. in 2020 (Appendix D3). All surveys were negative. In 2019 and 2020, host plant populations for Quino checkerspot butterfly were documented. Populations of thread-leaved bird's beak and white snapdragon were documented throughout the survey area.

The nearest USFWS occurrence for Quino checkerspot butterfly is located approximately 2.5 miles southwest of the project area (USFWS 2019b). This species was also observed approximately 6 miles north of the project area during surveys for the Tule Wind Project (HDR 2010).

1.4.6.3 County Group 2 Species

County Group 2 species that have been observed in the project area or have high potential to occur (Appendix H), are described below.

Amphibians and Reptiles

Western Spadefoot Toad (Spea hammondii)

The western spadefoot toad is a CDFW SSC and County Group 2 species. It is endemic to California and northern Baja California, Mexico. The species ranges from the north end of California's Central Valley near Redding, south, west of the Sierras and the deserts, and into northwest Baja California, Mexico (Jennings and Hayes 1994; Stebbins 2003). Although the species primarily occurs in lowlands, it also occupies foothill and mountain habitats. Within its range, the western spadefoot toad occurs from sea level to 4,000 feet amsl, but mostly at elevations below 3,000 feet (Stebbins 2003).

The western spadefoot toad is almost completely terrestrial, entering water only to breed. The species aestivates in upland habitats near potential breeding sites in burrows approximately 1 meter (3 feet) in depth (Stebbins 1972). The species prefers open areas with sandy or gravelly soils in a variety of habitats, including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, river floodplains, alluvial fans, playas, and alkali flats (Stebbins 2003; Holland and Goodman 1998). However, the species is most common in grasslands with vernal pools or mixed grassland/coastal sage scrub areas (Holland and Goodman 1998).

Western spadefoot was not detected during surveys; however, there is suitable habitat in the project area and spadefoot tadpoles were observed on the nearby Tule Wind Project site (HDR 2010). This species can occur in a variety of habitats within the project area, including alkali meadow (including disturbed), disturbed mulefat scrub, tamarisk scrub, and open water.

Orange-Throated Whiptail (Aspidoscelis hyperythra)

The orange-throated whiptail is a CDFW SSC and County Group 2 species. Its current range includes southwestern California and Baja California, Mexico, from the southern edges of Orange County (Corona del

Mar) and San Bernardino County (near Colton), southward to the Mexican border. This species is located on the coastal slope of the Peninsular Ranges and extends from near sea level to 3,412 feet (northeast of Aguanga, Riverside County) (Jennings and Hayes 1994). It commonly occurs in coastal sage scrub, chaparral, grassland, juniper, and oak woodland.

The project area, at 3,500 to 3,670 feet amsl, is about 100 feet above the reported elevation range for orange-throated whiptail. However, the species was observed in the eastern portion of the project area, west of McCain Valley Road, within semi-desert chaparral habitat in 2011 (Figure 5B). Within the project area, suitable habitat includes coast live oak woodland, mixed oak woodland, big sagebrush scrub (including disturbed), montane buckwheat scrub (including disturbed), granitic chamise chaparral, granitic northern mixed chaparral, red shank chaparral, scrub oak chaparral (including disturbed), semi-desert chaparral (including rocky and disturbed), non-native grassland, disturbed mulefat scrub, non-native grassland, and non-vegetated channel.

San Diegan Tiger Whiptail (Aspidoscelis tigris stejnegeri)

San Diegan tiger whiptail is a SSC and County Group 2 species. It is found in coastal Southern California, mostly west of the Peninsular Ranges and south of the Transverse Ranges, north into Ventura County and south into Baja California, Mexico (Lowe et al. 1970; Stebbins 2003). The project area falls within the range of the San Diegan tiger whiptail.

The western whiptail (*A. tigris*) is found in a variety of habitats, primarily in areas where plants are sparse and there are open areas for running. According to Stebbins (2003), the species ranges from deserts to montane pine forests, where it prefers warmer and drier areas. The species also occurs in woodland and streamside growth, and it avoids dense grassland and thick shrub growth.

Within the project area, scattered San Diegan tiger whiptail observations were made within montane buckwheat scrub and semi-desert chaparral habitats in 2011 and 2019 (Figure 5B). Within the project area, suitable habitat includes coast live oak woodland, mixed oak woodland, big sagebrush scrub (including disturbed), montane buckwheat scrub (including disturbed), granitic chamise chaparral, granitic northern mixed chaparral, red shank chaparral, scrub oak chaparral (including disturbed), semi-desert chaparral (including rock-dominated and disturbed), disturbed mulefat scrub, and non-vegetated channel.

Rosy Boa (Charina trivirgata)

The rosy boa is a County Group 2 species. It occurs from Southern California and southwestern Arizona, south throughout Baja California, Mexico, and northwestern mainland Mexico, avoiding the lowest deserts, which are mainly in agricultural production or open dunes (Stebbins 2003; Yingling 1982; Zeiner et al. 1988). The rosy boa in California ranges from Los Angeles, eastern Kern, and southern Inyo Counties, and south through San Bernardino, Riverside, Orange, and San Diego Counties (Spiteri 1988; Stebbins 2003; Zeiner et al. 1988). It occurs at elevations from sea level to 5,000 feet in the Peninsular and Transverse Mountain Ranges. Within its range in Southern California, the rosy boa is absent only from the southeastern corner of California around the Salton Sea and the western and southern portions of Imperial County (Zeiner et al. 1988).

The rosy boa inhabits rocky shrubland and desert habitats, and is attracted to oases and streams, but does not require permanent water (Stebbins 2003). In the desert it occurs on scrub flats with good cover (Zeiner et al. 1988). Holland and Goodman (1998) add that the species is known in a variety of desert and semi-desert habitats, that it may occur in oak woodlands intergrading with scrub or chaparral habitats but is absent from grasslands.

Rosy boa was not observed during surveys, but there is suitable habitat in the vegetation communities with rocky outcroppings, and it has high potential to occur in the project area. Suitable habitat includes coast live oak woodland, mixed oak woodland, granitic chamise chaparral, montane buckwheat scrub (including disturbed), redshank chaparral, northern mixed chaparral, semi-desert chaparral (including rocky and disturbed), scrub oak chaparral, and non-vegetated channel. This species was also observed approximately 3 miles north of the project area in similar habitat during surveys for the Tule Wind Project (HDR 2010).

Red-Diamond Rattlesnake (Crotalus ruber)

The red-diamond rattlesnake is a CDFW SSC and County Group 2 species. It is found in a variety of habitats from the coast to the deserts, from San Bernardino County into Baja California, Mexico (below 5,000 feet in elevation). It commonly occurs in rocky areas within coastal sage scrub, chaparral, juniper woodlands, and desert habitats, but can also be found in areas devoid of rocks (Lemm 2006).

Red-diamond rattlesnake was not observed during surveys, but there is suitable habitat in the vegetation communities with rocky outcroppings, and it has high potential to occur in the project area. Suitable habitat includes coast live oak woodland, mixed oak woodland, big sagebrush scrub (including disturbed), montane buckwheat scrub (including disturbed), granitic chamise chaparral, granitic northern mixed chaparral, red shank chaparral, scrub oak chaparral (including disturbed), semi-desert chaparral (including rocky and disturbed), disturbed habitat, non-native grassland, and non-vegetated channel.

San Diego Ringneck Snake (Diadophis punctatus similis)

The San Diego ringneck snake is a County Group 2 species. A fair amount of information is available for the full species ringneck snake (*Diadophis punctatus*), while less information is available for the subspecies San Diego ringneck snake (*D. p. similis*) Therefore, the habitat associations known for the full species ringneck snake are applied to San Diego ringneck snake subspecies.

The San Diego ringneck snake subspecies is one of 13 currently recognized subspecies occurring from southern Washington and Idaho to northern Baja California, Mexico, and from the Atlantic Coast to the Pacific Coast (Hinojosa 1996; Pinou et al. 1995; Stebbins 2003; Stoltz 1993). It should be noted, however, that the genus *Diadophis* is in need of taxonomic study, and the six recognized subspecies in California are nearly genetically indistinguishable (NatureServe 2019). San Diego ringneck snake occurs along the Southern California coast from northern San Diego County, south to Baja California. Mexico (Stebbins 2003). The ringneck snake is found in moist habitats, including woodlands, hardwood and conifer forest, grassland, sage scrub, chaparral, croplands/hedgerows, and gardens (NatureServe 2019; Stebbins 2003). In arid regions, the ringneck snake occurs in forests, woodlands, sage scrub, chaparral, and riparian corridors (Stebbins 2003).

San Diego ringneck snake was not observed during surveys; however, there is suitable habitat, and it has high potential to occur in the project area. Suitable habitat includes coast live oak woodland, mixed oak woodland, big sagebrush scrub (including disturbed), montane buckwheat scrub (including disturbed), alkali meadow (including disturbed), mulefat scrub (including disturbed), mulefat scrub/tamarisk scrub, tamarisk scrub, granitic chamise chaparral, granitic northern mixed chaparral, red shank chaparral, scrub oak chaparral (including disturbed), semi-desert chaparral (including rock-dominated and disturbed), disturbed habitat, urban/developed land, non-native grassland, and non-vegetated channel.

Coronado Skink (Plestiodon skiltonianus interparietalis)

The Coronado skink is a CDFW SSC and County Group 2 species. The range of the Coronado skink is from inland Southern California, south through the north Pacific coast region of northern Baja California, from sea level to

approximately 8,300 feet amsl (Nafis 2012). This reptile typically prefers grassland, woodlands, pine forests, and chaparral, especially in open sunny areas near the edges of creeks, rivers, and clearings. It prefers rocky areas near streams with abundant vegetation, but it is also found in areas away from water (Nafis 2012).

Coronado skink was not observed during surveys; however, there is suitable habitat, and it has high potential to occur in the project area. Suitable habitat includes coast live oak woodland, mixed oak woodland, granitic chamise chaparral, granitic northern mixed chaparral, montane buckwheat scrub, red shank chaparral, scrub oak chaparral, semi-desert chaparral, non-vegetated channel, and disturbed mulefat scrub.

Blainville's Horned Lizard (Phrynosoma blainvillii)

The Blainville's horned lizard (called coast horned lizard in the CDFW Special Animals List [CDFW 2019d]) is a CDFW SSC and a County Group 2 species. It occurs from the Sierra Nevada foothills and central California to coastal Southern California. It is often associated with coastal sage scrub, especially areas of level to gently sloping ground with well-drained loose or sandy soil, but it can also occur in annual grasslands, chaparral, oak woodland, riparian woodland, and coniferous forest between 30 and 7,030 feet amsl (Jennings and Hayes 1994). This reptile typically avoids dense vegetation, preferring 20%–40% bare ground in its habitat. The Blainville's horned lizard can be locally abundant in areas where it occurs, with densities near 20 adults per acre. Up to 90% of the diet of the Blainville's horned lizard consists of native harvester ants (*Pogonomyrmex* spp.).

Blainville's horned lizard observations were made within a variety of upland habitats in the project area in 2011 and 2019. In 2019, Blainville's horned lizard was mainly observed in the southern most portion of the survey area camouflaged in open sandy granitic soils (Figure 5B), and it is expected to occur throughout suitable habitat on site. Suitable habitat includes sandy soils within coast live oak woodland, mixed oak woodland, big sagebrush scrub (including disturbed), montane buckwheat scrub (including disturbed), granitic chamise chaparral, granitic northern mixed chaparral, red shank chaparral, scrub oak chaparral (including disturbed), semi-desert chaparral (including rocky and disturbed), non-native grassland, disturbed mulefat scrub, and non-vegetated channel.

Coast Patch-Nosed Snake (Salvadora hexalepis virgultea)

The coast patch-nosed snake is a CDFW SSC and County Group 2 species. The full species western patch-nosed snake (*S. hexalepis*) ranges from west–central Nevada south to the tip of Baja California, Mexico, and northwestern Sonora, and from coastal Southern California to southwestern Utah and central Arizona. The coast patch-nosed snake subspecies occurs along the foothills and mountains of Southern California from San Luis Obispo County to San Diego County, and south into northern Baja California. The coast patch-nosed snake is found at elevations from near sea level to approximately 6,988 feet amsl (Goldberg 1995).

The western patch-nosed snake is a broad generalist in its habitat requirements, and it seems to make use of whatever cover is available and thrives in most environments (Stebbins 1954). It occupies desert scrub, coastal chaparral, washes, sandy flats, and rocky areas. Bogert (1939) noted a predilection in the subspecies coast patch-nosed snake for brush or chaparral. Coast patch-nosed snakes seem to require at least a low shrub structure of minimum density because they are not found in habitats lacking this structural component. Coast patch-nosed snakes are presumed to take refuge and perhaps overwinter in burrows or woodrat nests, so the presence of one or more burrow- or refuge-creating mammals may be necessary for this snake to be present (Zeiner et al. 1988).

Coast patch-nosed snake was not observed during surveys; however, there is suitable habitat, and it has high potential to occur in the project area. Within the project area, suitable habitat includes coast live oak woodland, big sagebrush scrub (including disturbed), montane buckwheat scrub (including disturbed), granitic chamise chaparral, granitic northern mixed chaparral, mixed oak woodland, red shank chaparral, scrub oak chaparral

(including disturbed), semi-desert chaparral (including rocky and disturbed), non-native grassland, and disturbed habitat. There are no CNDDB records within the project area.

Birds

Great Blue Heron (Ardea herodias)

Great blue heron is a County Group 2 species. Great blue heron inhabits freshwater and saltwater marshes throughout North America. This species forages in grasslands and agricultural fields. Great blue heron breeding colonies are located within 2 to 4 miles of feeding areas, often in isolated swamps or on islands, and near lakes and ponds bordered by forests (The Cornell Lab of Ornithology 2019). This species nests in trees, on the ground, on bushes, in mangroves, and on structures. Because Great Blue Herons depend on wetlands for feeding and on relatively undisturbed sites for breeding, they are vulnerable to habitat loss and to impacts such as traffic, logging, motorboats, and other human intrusions that can disrupt nesting colonies (The Cornell Lab of Ornithology 2019).

Great blue heron was observed during surveys in 2011; however, the location was not mapped.

California Horned Lark (Eremophila alpestris actia)

The California horned lark is a CDFW WL and County Group 2 species. The California horned lark is a permanent resident found throughout much of the southern half of California. This species breeds and resides in the coastal region of California from Sonoma County southeast to the United States–Mexico border, including most of the San Joaquin Valley, and eastward to the foothills of the Sierra Nevada (Grinnell and Miller 1944; Beason 1995). It occurs in grasslands along the coast and deserts near sea level to alpine dwarf-shrub habitat above the tree line. This species prefers open habitats, grassland, rangeland, shortgrass prairie, montane meadows, coastal plains, and fallow grain fields, and it nests on the ground in a hollow scrape.

Scattered California horned lark observations were made, primarily in the eastern portion of the project area within montane buckwheat scrub habitat (Figure 5B). Within the project area, suitable nesting and foraging habitat includes big sagebrush scrub (including disturbed), montane buckwheat scrub (including disturbed), alkali meadow (including disturbed), and non-native grassland.

Yellow Warbler (Setophaga petechial)

Yellow warbler is a USFWS BCC, CDFW SSC, and County Group 2 species. Yellow warbler inhabits riparian woodland in coastal and desert lowlands, montane chaparral, open ponderosa pine, and mixed conifer habitats (Zeiner et al. 1990a). This species breeds along the coast of California west of the Sierra Nevada, and eastern California from Lake Tahoe south to Inyo County. Yellow warbler occurs in medium-density woodlands and forests with heavy brush understory and migrates to sparse to dense woodland and forest habitats.

Yellow warbler was observed during surveys in 2019 in the central portion of the project area within scrub oak chaparral near the alkali meadow. In addition, yellow warbler was observed during surveys in 2011; however, the location was not mapped. Within the project area, suitable foraging habitat includes coast live oak woodland, mixed oak woodland, disturbed mulefat scrub, and tamarisk scrub.

Western Bluebird (Sialia mexicana)

Western bluebird is a County Group 2 species. It is a common resident species in San Diego County, where it prefers montane coniferous and oak woodlands (Unitt 2004). Because this species is not considered special-status by state or federal agencies, this species is not tracked in CNDDB.

Western bluebird was observed during surveys in 2019 in the eastern portion within red shank chaparral. This species was observed during surveys in 2011; however, the location was not mapped. Suitable habitat includes coast live oak woodland and mixed oak woodland.

Barn Owl (Tyto alba)

Barn owl is a County Group 2 species. It is a common resident in San Diego County, except in the eastern deserts where it is only found near developed or agricultural areas. It is widespread along the coastal region of San Diego County where it nests in riparian and oak woodland, palm trees, buildings, man-made structures, and nest boxes (Unitt 2004). Because this species is not considered special-status by state or federal agencies, this species is not tracked in CNDDB.

No barn owls were observed during surveys; however, there is suitable nesting and foraging habitat, and it has high potential to occur in the project area. Suitable nesting habitat includes coast live oak woodland and mixed oak woodland. Suitable foraging habitat includes all vegetation communities and undeveloped land cover on site (i.e., coast live oak woodland, mixed oak woodland, big sagebrush scrub (including disturbed), montane buckwheat scrub (including disturbed), granitic chamise chaparral, granitic northern mixed chaparral, red shank chaparral, scrub oak chaparral (including disturbed), semi-desert chaparral (including rock-dominated and disturbed), alkali meadow, mulefat scrub (including disturbed), mulefat scrub/tamarisk scrub, tamarisk scrub, non-native grassland, open water, disturbed habitat, urban/developed land, and non-vegetated channel).

Mammals

Dulzura Pocket Mouse (Chaetodipus californicus femoralis)

The Dulzura pocket mouse is a CDFW SSC and County Group 2 species. It is associated with open habitat in coastal sage scrub, chaparral, oak woodland, and mixed conifer habitats up to 3,000 feet amsl.

The Dulzura pocket mouse was not observed during surveys; however, detection of this species usually requires focused live trapping studies, which were not conducted in the project area. However, there is suitable habitat, and this species has high potential to occur in the project area because it is a relatively common species in suitable habitat. Suitable habitat includes big sagebrush scrub (including disturbed), non-native grassland, and semi-desert chaparral (including rocky and disturbed). There are three CNDDB records of this species within the Mount Laguna, Sombrero Peak, and Live Oak Springs quadrangles; the closest record is from 1958, approximately 1 mile northwest of the proposed project.

Northwestern San Diego Pocket Mouse (Chaetodipus fallax fallax) and Pallid San Diego Pocket Mouse (Chaetodipus fallax pallidus)

The northwestern San Diego pocket mouse is a CDFW SSC and County Group 2 species. The northwestern San Diego pocket mouse occurs in southwestern California in San Diego County and portions of Riverside and San Bernardino Counties. It has potential to occur in a variety of habitats in the project area, including coastal sagebrush

scrub, chaparral, and non-native grassland where there are sandy soils (Zeiner et al. 1990b). The project area is also generally located in the boundary zone between the ranges of the northwestern San Diego pocket mouse and the subspecies *C. f. pallidus* (pallid San Diego pocket mouse), which is also a CDFW SSC and County Group 2 species. The pallid San Diego pocket mouse occurs on the eastern slopes of the Peninsular Range, so this subspecies may also occur in the general project vicinity.

Neither the northwestern nor pallid San Diego pocket mouse subspecies was observed during surveys; however, detection of these subspecies usually requires focused live trapping studies, which were not conducted in the project area. Live-trapping would also be required to determine which subspecies of San Diego pocket mouse occurs on site, if present. Nonetheless, there is suitable habitat, and at least one of the San Diego pocket mouse subspecies has high potential to occur in the project area because San Diego pocket mouse is a relatively common species in suitable habitat. Within the project area, suitable habitat includes big sagebrush scrub (including disturbed), montane buckwheat scrub (including disturbed), granitic chamise chaparral, granitic northern mixed chaparral, red shank chaparral, scrub oak chaparral (including disturbed), semi-desert chaparral (including rocky and disturbed), non-native grassland, non-vegetated channel, and urban/developed. There are no CNDDB records for this species in the project area.

San Diego Black-Tailed Jackrabbit (Lepus californicus bennettii)

The San Diego black-tailed jackrabbit is a CDFW SSC and County Group 2 species. It is confined to coastal Southern California, with marginal eastern records being Mount Pinos, Arroyo Seco, Pasadena, San Felipe Valley, and Jacumba (Hall 1981). It is found in many diverse habitats, but primarily in arid regions supporting short-grass habitats. Jackrabbits typically are not found in high grass or dense brush where it is difficult for them to move quickly, and the openness of open scrub habitat probably is preferred over dense chaparral. Jackrabbits are common in grasslands that are overgrazed by cattle, and they are well adapted to using low-intensity agricultural habitats (Hall 1981).

Numerous observations of this species were recorded within the project area in 2011 and 2019, primarily within scrub and chaparral habitats (Figure 5B). It can occur within a variety of shrub and woodland habitats within the project area, including coast live oak woodland, mixed oak woodland, big sagebrush scrub (including disturbed), montane buckwheat scrub (including disturbed), granitic chamise chaparral, granitic northern mixed chaparral, red shank chaparral, scrub oak chaparral (including disturbed), semi-desert chaparral (including rock-dominated and disturbed), alkali meadow (including disturbed), disturbed mulefat scrub, non-vegetated channel, disturbed habitat, and tamarisk scrub.

San Diego Desert Woodrat (Neotoma lepida intermedia)

The San Diego desert woodrat is a CDFW SSC and County Group 2 species. This species is found in coastal Southern California into Baja California, Mexico (Reid 2006). Marginal eastern records for the San Diego desert woodrat in the United States include San Luis Obispo, San Fernando in Los Angeles County, the San Bernardino Mountains and Redlands in San Bernardino County, and Julian in San Diego County (Hall 1981). Desert woodrats are found in a variety of shrub and desert habitats and are primarily associated with rock outcroppings, boulders, cacti, or areas of dense undergrowth.

Sign of the woodrat was observed within the project area in the form of woodrat middens in 2011 and 2019. Given that suitable habitat for San Diego desert woodrat is present in the project area, this species has high potential to occur on site. Within the project area big sagebrush scrub (including disturbed), montane buckwheat scrub

(including disturbed), granitic chamise chaparral, granitic northern mixed chaparral, red shank chaparral, scrub oak chaparral (including disturbed), semi-desert chaparral (including rocky and disturbed), and disturbed mulefat scrub. The species has previously been documented at two locations approximately 2 miles north of the project area (CDFW 2019c).

Mule Deer (Odocoileus hemionus)

Mule deer is a County Group 2 species. It is a common species with a widespread distribution throughout the western United States and Canada and south into mainland and Baja California, Mexico (Hall 1981). It occurs throughout most of California, except in deserts and intensively farmed areas without cover (Zeiner et al. 1990b). Throughout its range, mule deer uses coniferous and deciduous forests, riparian habitats, desert shrub, coastal scrub, chaparral, and grasslands with shrubs. It is often associated with successional vegetation, especially near agricultural lands (NatureServe 2019). It uses forested cover for protection from the elements and open areas for feeding (Wilson and Ruff 1999). Mule deer fawn in a variety of habitats that have available water and abundant forage, including moderately dense shrubs and forests, dense herbaceous stands, and higher-elevation riparian and mountain shrub vegetation.

Sign of mule deer (track) was observed throughout the survey area and was especially abundant in the northern portion of the study area. Wildlife points were collected where mule deer were observed in 2011 and 2019 (Figure 5B). Suitable habitat in the project area includes coast live oak woodland, mixed oak woodland, big sagebrush scrub (including disturbed), montane buckwheat scrub (including disturbed), granitic chamise chaparral, granitic northern mixed chaparral, red shank chaparral, scrub oak chaparral (including disturbed), semi-desert chaparral (including rock-dominated and disturbed), mulefat scrub (including disturbed), mulefat scrub/tamarisk scrub, tamarisk scrub, open water, non-native grassland, disturbed habitat, urban/developed land, and non-vegetated channel.

Cougar (Puma concolor)

The cougar is not considered special status by any state or federal agencies; however, it is a County Group 2 species and is considered a Specially Protected Mammal under California Fish and Game Code (CFGC) Section 4800. Its range throughout California extends from deserts to humid forests in the Coast Ranges and from sea level to 3,050 meters (10,000 feet), but cougars do not inhabit xeric regions of the Mojave and Colorado Deserts. They are most abundant in habitats that support their primary prey, mule deer, and their seasonal movements tend to follow migrating deer herds. Cougar prefer habitats that provide cover such as thickets in brush and timber in woodland vegetation (Zeiner et al. 1990b). They also use caves and other natural cavities for cover and breeding. They require extensive areas of riparian vegetation and brushy stages of various habitats, with interspersions of irregular terrain, rocky outcrops, and tree-brush edges.

Cougar sign was detected during the 2010/2011 surveys, but the location was not mapped. Cougars are expected to use suitable habitat throughout the project area for hunting. Within the project area, suitable habitat includes coast live oak woodland, mixed oak woodland, granitic chamise chaparral, granitic northern mixed chaparral, red shank chaparral, scrub oak chaparral (including disturbed), and semi-desert chaparral (including rock-dominated and disturbed).

Special-Status Bats

No special-status bats were observed during surveys; however, no focused surveys (e.g., acoustic, mist-netting, or visuals surveys) were conducted during suitable times to observe bats (e.g., sunset and night). Although there is no suitable roosting habitat in rock crevices and cliffs in the project area for several of the special-status bat species, there is high potential for several of the species to forage in the project area. These species include Mexican long-tongued bat (*Choeronycteris mexicana*), a CDFW SSC and County Group 2 species; Townsend's big-eared bat (*Corynorhinus townsendii*), a CDFW SSC and County Group 2 species; spotted bat (*Euderma maculatum*), a CDFW SSC and County Group 2 species; California leaf-nosed bat (*Macrotus californicus*), CDFW SSC and County Group 2 species; and big free-tailed bat (*Nyctinomops macrotis*), a CDFW SSC and County Group 2 species. Two tree-roosting species may roost in the woodlands on site and forage in the project area: western mastiff bat (*Eumops perotis californicus*), a CDFW SSC and County Group 2 species, and western red bat (*Lasiurus blossevillii*), a CDFW SSC and County Group 2 species.

Suitable foraging habitat for bats generally includes most vegetation communities and undeveloped land cover on site (i.e., coast live oak woodland, mixed oak woodland, big sagebrush scrub [including disturbed], montane buckwheat scrub [including disturbed], granitic chamise chaparral, granitic northern mixed chaparral, red shank chaparral, scrub oak chaparral [including disturbed], semi-desert chaparral [including rock-dominated and disturbed], alkali meadow, disturbed mulefat scrub, tamarisk scrub, non-native grassland, open water, disturbed habitat, and non-vegetated channel).

Invertebrates

Monarch Butterfly (Danaus plexippus)

The monarch butterfly is a CDFW special animal (CDFW 2019a) and a County Group 2 species. The monarch butterfly occurs throughout North and South America. The populations in North America are split into populations east of the Rocky Mountains and populations west of the Rocky Mountains (The Xerces Society 2012). The western population overwinters at more than 200 coastal sites along the California coast, from north of San Francisco south to the Mexican border. Typically, monarch overwintering occurs in in coastal southern blue gum (*Eucalyptus globulus*), red gum (*Eucalyptus camaldulensis*), Monterey pine (*Pinus radiata*), western sycamore (*Platanus racemosa*), coast live oak (*Quercus agrifolia*) and coast redwood (*Sequoia sempervirens*) (The Xerces Society 2012). Monarchs are found in a variety of habitats, including conifer forests, grasslands, old fields, dune habitat, scrublands, chaparral, orchards, woodlands, and herbaceous and shrub wetlands.

Within the project area, suitable habitat includes coast live oak woodland, mixed oak woodland, big sagebrush scrub (including disturbed), granitic chamise chaparral, montane buckwheat scrub (including disturbed), redshank chaparral, northern mixed chaparral, semi-desert chaparral (including rocky and disturbed), and scrub oak chaparral (including disturbed). Suitable mass roosting locations (e.g., coastal dense populations of native oaks and sycamores or eucalyptus groves) are not present. Eggs are laid on milkweed plants (genus *Asclepias*). This species was observed in the project area during 2011 focused Quino checkerspot butterfly surveys, east of McCain Valley Road in scrub and chaparral habitats (Appendix D1); its location was not recorded.

Other Sensitive Species

Oak Titmouse (Baeolophus inornatus)

Oak titmouse is a USFWS BCC species. Oak titmouse inhabits montane hardwood-conifer, montane hardwood, blue, valley, and coastal oak woodlands, and montane and valley foothill riparian habitats (Zeiner et al. 1990a). This species ranges from Humboldt County to the Mexican border and prefers open woodland of oak and pine. Oak titmouse builds nests of grass, moss, mud, and feathers in woodpecker holes, or natural cavity, and often breeds near water (Harrison 1978).

Oak titmouse was observed during surveys in 2019 within larger Muller's oak trees within the central portion of the survey area. The vegetation community that oak titmouse was found in was the scrub oak chaparral. This species was also observed during surveys in 2011; however, the location was not mapped.

Black-Tailed Gnatcatcher (Polioptila melanura)

Black-tailed gnatcatcher is a CDFW WL species. The black-tailed gnatcatcher is a common resident below 1,000 feet in desert wash habitat from Palm Springs and Joshua Tree National Monument south, and common along the Colorado River (Zeiner et al. 1990a). This species nests in wooded desert wash habitat and occurs sparingly in desert scrub habitat in winter (Grinnell and Miller 1944; Garrett and Dunn 1981). Black-tailed gnatcatcher is absent from areas where introduced saltcedar or other exotic vegetation dominates (Small 1994).

Black-tailed gnatcatcher was observed during surveys in 2011; however, the location was not mapped.

Lawrence's Goldfinch (Spinus lawrencei)

Lawrence's goldfinch is a USFWS BCC species. Lawrence's goldfinch is a common resident along the western edge of southern deserts throughout California, and winters in coastal lowlands and Colorado River Valley (Zeiner et al. 1990a). In Southern California, this species inhabits desert riparian, palm oasis, pinyon-juniper, and lower montane habitats. Lawrence's goldfinch breeds in open oak or other arid woodland and chaparral near water and feeds on nearby herbaceous habitats. Most individuals that breed in California would winter in other southwestern states and in northern Mexico and would be absent from September to March.

Lawrence's goldfinch was observed during in 2011; however, the location was not mapped.

Brewer's Sparrow (Spizella breweri)

Brewer's sparrow is a USFWS BCC species. Brewer's sparrow inhabits desert scrub, croplands, and treeless shrub habitats with moderate canopy and sagebrush (Zeiner et al. 1990a). This species breeds east of Cascade-Sierra Nevada crest, Mojave and Colorado deserts, and San Joaquin Valley. In recent years, the Brewer's sparrow rarely breeds in southwestern California (Garrett and Dunn 1981). This species finds cover in sagebrush and nests in the center of sagebrush or other shrub up to 3.9 feet above the ground.

Brewer's sparrow was observed during surveys in 2011; however, the location was not mapped.

1.4.7 Jurisdictional Aquatic Resources

A formal jurisdictional delineation was conducted in 2009, 2011, and 2012 on the 764-acre project site, which spans 11 parcels on the southern portion of the ranch. A jurisdictional delineation review was conducted in 2019 and a streamflow duration assessment was conducted in 2021. Tule Creek is located within the center of the project site

and supports the majority of jurisdictional aquatic resources mapped within the project site. In addition, there are two ephemeral stream channels which likely flow into off-site portions of Tule Creek. There is also a large impoundment or isolated basin, mapped as a non-vegetated channel, located in the northern portion of the project site.

Wetland determinations were made at 20 data station sampling points (Appendix E) to determine the status of three wetland criteria (vegetation, soils, and hydrology) within representative potential wetlands on site, however 2 data stations were removed during the 2019 jurisdictional aquatic resource review because the data stations were located within or immediately adjacent to a newly constructed road after completion of the wetland determinations. In 2009, 8 areas were sampled within the southern portion of Tule Creek on site; in 2012, 8 additional areas were sampled, and in 2013, 5 additional areas were sampled (Figure 6, Biological Resources – Jurisdictional Delineation and RPO Lands). The 2019 jurisdictional aquatic resource review did not include any new data station sampling points as it was focused solely on reviewing the extent of vegetation changes within the landscape that may have resulted in a decrease or increase of the extent of a previously mapped jurisdictional resource. The extent of wetland areas was determined by mapping the areas with similar vegetation and topography to sampled locations.

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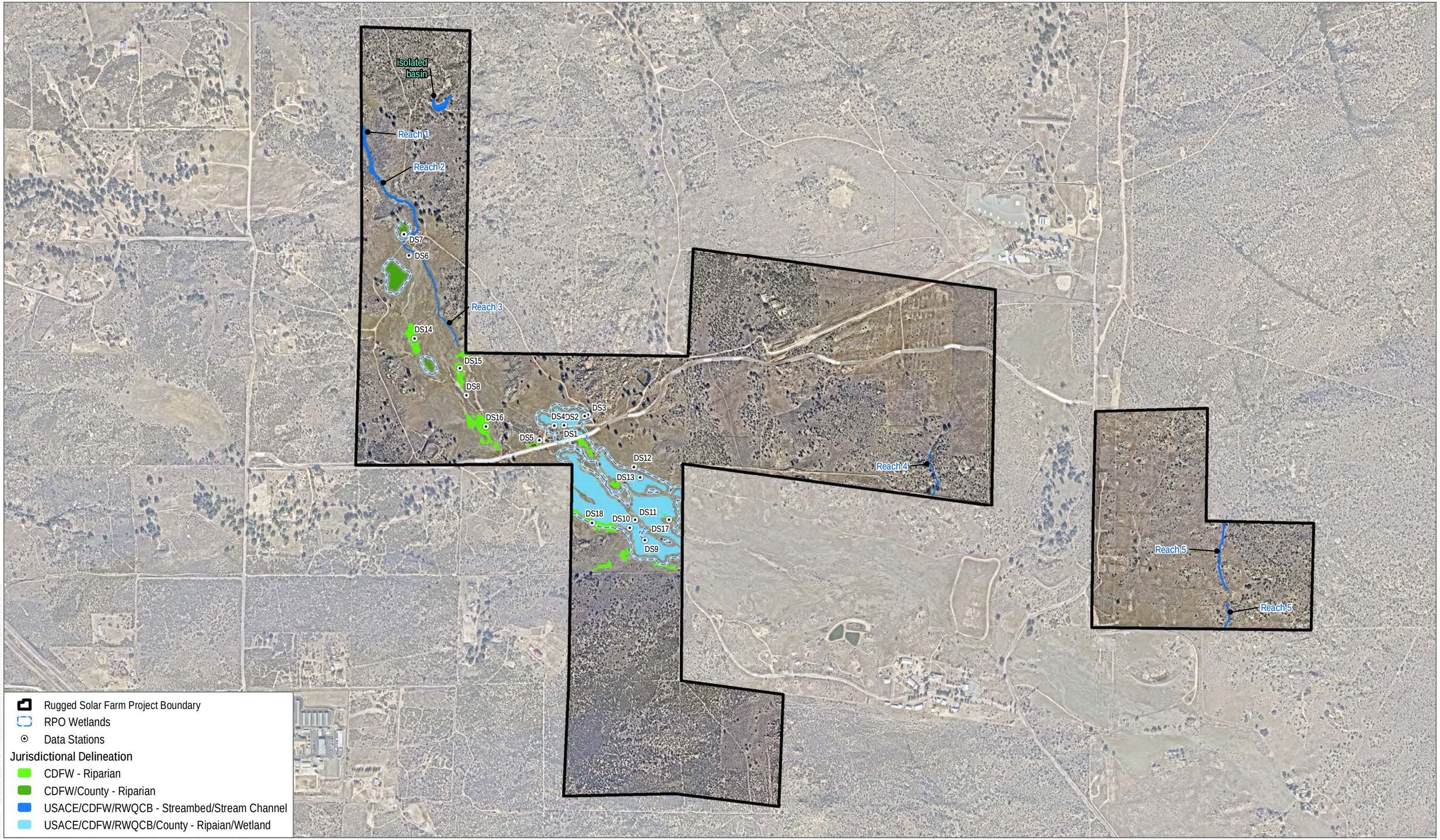

SOURCE: SANGIS 2020

DUDEK

0 500 1,000 Feet

FIGURE 6

Biological Resources - Jurisdictional Delineation and RPO Lands

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The data station sampling point results are summarized in Table 1-3.

Table 1-3. Summary of Data Station Sampling Points

Data Station	Wetland Determination Field Indicators			Vegetation Community	Jurisdiction
	Vegetation	*Hydric Soils*	*Hydrology*		
1	✓	✓	✓	alkali meadow	ACOE/CDFW/RWQCB/County
2	✓	✓	✓	alkali meadow	ACOE/CDFW/RWQCB/County
3		✓	✓	non-native grassland	None[1]
4	✓	NS	NS	alkali meadow	ACOE/CDFW/RWQCB/County
5		✓	✓	Disturbed mulefat scrub	CDFW/County
6		✓	✓	non-native grassland	None[1]
7	✓			alkali meadow	CDFW/County
8				non-native grassland	None
9	✓	✓	✓	tamarisk scrub	ACOE/CDFW/RWQCB/County
10	✓	✓	✓	alkali meadow	ACOE/CDFW/RWQCB/County
11	✓			non-native grassland	None
12				non-native grassland	None
13	✓	✓	✓	alkali meadow	ACOE/CDFW/RWQCB/County
14		✓	✓	tamarisk scrub	CDFW[2]
15		✓	✓	tamarisk scrub	CDFW[2]
16		✓		tamarisk scrub	CDFW[2]
17		✓		tamarisk scrub	CDFW[2]
18		✓		tamarisk scrub	CDFW[2]

Notes: ACOE = U.S. Army Corps of Engineers; CDFW = California Department of Fish and Wildlife; RWQCB = Regional Water Quality Control Board; County = County of San Diego; NS = Not sampled. Some data stations are limited to assessment of vegetation cover. Soils and hydrology conditions are assumed to be consistent with adjacent data stations.

1 Although soils and hydrology, or vegetation only, are present, the area is functionally grassland and not wetland. The area has negligible biological function or value as wetlands and does not support wetland-dependent sensitive species. Therefore, the area does not meet CDFW or County wetland criteria.

2 Hydric soil indicators within are not considered a sufficient indicator of RPO wetlands due to the presence of such indicators throughout the Tule Creek floodplain/valley. It is assumed that the parent soil material has low chroma characteristics that alone are not sufficient to establish the presence of wetlands.

In general, areas supporting greater than 50% cover of Mexican rush, mulefat, or tamarisk were mapped as alkali meadow, mulefat scrub, or tamarisk scrub, respectively. The occurrences of these communities in the northern and northwestern portions of the Tule Creek do not support hydric soils or indicators of hydrology and/or are adjacent to the main flow path of the creek and were therefore mapped as CDFW/County jurisdiction (with the exception of tamarisk scrub, which is CDFW jurisdiction only). Tamarisk meets CDFW's definition of riparian vegetation but does not meet the County's requirement for a predominance of hydrophytes (tamarisk is a phreatophyte – see discussion in Section 1.4.2.4.2). Further downstream, the cover of Mexican rush, mulefat, and/or tamarisk increases and additional hydrophytic species are found. These areas generally support all three wetland criteria and were therefore mapped as ACOE/CDFW/RWQCB/County jurisdiction. The exception to this are stands of disturbed mulefat scrub and tamarisk scrub. The disturbed mulefat scrub in this area does not support a predominance of

hydrophytic vegetation, as required by the ACOE but does meet CDFW/County jurisdictional criteria. The tamarisk scrub in this area, with the exception of one polygon located in an area surrounded by alkali meadow (which is classified as ACOE/CDFW/RWQCB/County jurisdiction), does not support an understory of hydrophytes and is therefore classified as CDFW jurisdiction only.

Most of these communities along Tule Creek occur adjacent to non-native grassland that can sometimes support hydrophytic vegetation, hydric soils, or hydrology indicators. However, these adjacent non-native grassland areas do not support typical wetland plant species (e.g., rush, mulefat, and tamarisk), and therefore, these areas function as grasslands as opposed to wetlands. Despite the presence of some wetland indicators, these areas have negligible biological function or value as wetlands and do not support wetland-dependent sensitive species. Therefore, these areas do not meet CDFW or County wetland criteria.

The vegetation mapping described previously includes communities that meet jurisdictional criteria by some or all of the regulatory agencies. These communities include alkali meadow and disturbed alkali meadow, disturbed mulefat scrub, and tamarisk scrub (Table 1-4). A large wash was mapped as a non-vegetated channel, based on the presence and location of an ordinary high water mark, which would be regulated as non-wetland jurisdictional waters. Other narrow, non-vegetated waters of the United States/state, varying in width from 1 to 3 feet between the ordinary high water marks, have been mapped as an overlay to the vegetation classification. The stream duration assessment was conducted within the non-vegetated stream channels within the project site; described as “Reaches 1-5” in Appendix E and shown on Figure 6. Based on the data taken during the stream duration assessment, the non-vegetated channels were determined to be under ACOE jurisdiction. For details on the indicators present within the ephemeral, non-vegetated channels refer to the Appendix E. There is a large water impoundment (i.e. isolated basin) in the northern part of the project site that appears to have been manufactured. There are signs of a relic channel which likely flowed through along the dirt road and down to Tule Creek prior to creation of the impoundment. There are no longer signs of flow that area.

RPO Wetland Determination

As stated in the County’s RPO wetland definition, lands having one or more of the following attributes are defined as "wetlands” in the RPO: (aa) At least periodically, the land supports a predominance of hydrophytes (plants whose habitat is water or very wet places); (bb) The substratum is predominantly undrained hydric soil; or (cc) An ephemeral or perennial stream is present, whose substratum is predominantly non-soil and such lands contribute substantially to the biological functions or values of wetlands in the drainage system (County of San Diego 2012). The riparian habitats/wetlands mapped within the project meet the County’s RPO wetland definition. These wetlands support hydrophytic vegetation (i.e., Juncus) and are associated with stream channels. They form a nexus with other hydrologic processes in the region and support important wetland features.

The riparian habitat mapped as alkali meadow supports Mexican rush and other hydrophytic vegetation, and has hydrology indicators; therefore, this meadow meets the definition of an RPO wetland.

The riparian habitat mapped as disturbed mulefat scrub supports mulefat and other hydrophytic vegetation, has indicators of hydrology, and occurs near other wetland communities occur (i.e., alkali meadow); therefore, this habitat meets the definition of an RPO wetland.

Tamarisk species are considered phreatophytes, which have deep roots to reach the water table and depend on groundwater for their water supply (DiTomaso 1996) rather than hydrophytes, which are plants that grow only in water or very moist soils (Dictionary.com 2012). Because tamarisk species are also able to grow in conditions where no groundwater is accessible, it is classified as a facultative phreatophyte rather than an obligate phreatophyte

(Kerpez and Smith 1987 as cited in DiTomaso 1996). Tamarisk scrub occurs in areas that do exhibit hydric soil indicators, but these indicators are also present in non-native grasslands and are assumed to be a natural feature of the parent material and not an indicator of wetlands. Tamarisk scrub does not occur within non-soil streams. Tamarisk scrub, therefore, does not qualify as a County RPO wetland.

Based on lack of hydrophytic vegetation and hydric soils, most of the tamarisk scrub on site is likely to have established in areas that did not previously support wetlands, but rather likely would have supported non-native grassland. Furthermore, the preservation of tamarisk is counter to the goals of the RPO, which strive to protect sensitive lands and prevent their degradation (County of San Diego 2012). Tamarisk is also known to outcompete other vegetation due to its extensive lateral root system that can draw down the water table, and the allelopathic effect of the salt crystals that the leaves secrete, which can prevent other plants from growing around them (DiTomaso 1996). If preserved and restored, it is uncertain whether these areas would function as wetlands. The species that could most likely be established would include native phreatophytes such as oak and cottonwood *(Populus* sp.), but may not include typical hydrophytes such as willow *(Salix* sp.), mulefat, and rush *(Juncus* sp.).

The RPO determination for tamarisk scrub, as described in Section 1.4.2.4.2, consists of areas dominated by a phreatophyte but lacking a predominance of hydrophytic vegetation or hydric soils and therefore does not meet the definition of an RPO wetland, with the exception of one polygon surrounded by alkali meadow that does have an understory of Mexican rush and therefore meets the definition of an RPO wetland.

The ephemeral non-vegetated channels lack hydrophytic vegetation and hydric soils, and do not support substratum that is "predominantly non-soil and such lands contribute substantially to the biological functions or values of wetlands in the drainage system;" therefore, they do not meet the definition of an RPO wetland.

The open water mapped on site does not have any associated streambeds or channels, but there is a pipe outlet that apparently provides hydrology to this depressional area. It is presumed that this area is an historical upland area that has been artificially manipulated to function as a stock pond. The RPO wetland exemption applies if it has the following characteristics:

i. Has negligible biological function or value as wetlands: The pond does not support any hydrophytic vegetation or provide watershed functions because it is manmade and not connected to other wetlands or waters.
ii. Is small and geographically isolated from other wetland systems: The pond is 0.2 acres and does not have any hydrologic connection to wetlands or waters.
iii. Is not a vernal pool: A botanical inventory of the project site has been completed and no vernal pool indicator species, as defined by ACOE (1997) were identified within the open water area, or within other portions of the project.
iv. Does not have substantial or locally important documented populations of wetland dependent sensitive species: No special-status species have been detected in this area in 2011, 2013, or 2019 (incidental observations).

Therefore, this particular location is not an RPO wetland because it meets the exemption for areas that have wetland attributes solely due to man-made structures.

Table 1-4. Jurisdictional Delineation Summary

Vegetation Community/ Waters Type	Jurisdiction				Total Acres
	ACOE, RWQCB, CDFW, County (acres)	*ACOE, RWQCB, CDFW (acres)*[1]	*CDFW, County (acres)*	*CDFW Only (acres)*	
Alkali Meadow	14.27	—	—	—	14.27
Disturbed Alkali Meadow	3.48	—	1.13	—	4.61
Disturbed Mulefat Scrub	—	—	0.50	—	0.50
Tamarisk Scrub	0.79	—	0.28	4.51	5.58
Wetlands Subtotal	*18.54*	—	*1.91*	*4.51*	*24.96*
Non-Vegetated Channel	—	1.64	—	—	1.64
Jurisdictional Total	**18.54**	**1.64**	**1.91**	**4.51**	**26.60**

Notes: ACOE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife; County = County of San Diego.

[1] This column includes the 0.33-acre isolated basin/impoundment.

Figure 6 shows the distribution of jurisdictional wetlands and non-wetland waters in the project area

1.4.7.1 Hydrologic Context and Connectivity

The project area is located within the southwest portion of the approximately 653-square-mile Carrizo Creek Watershed (Hydrologic Unit Code [HUC]: 18100202). Partially contained within the Carrizo Creek Watershed is the 1,501-square-mile Anza Borrego Hydrologic Unit (HU: 722.00). Within the Anza Borrego Hydrologic Unit is the approximately 135-square-mile Jacumba Hydrologic Area (HA: 722.70). Within the Jacumba Hydrologic Area is the approximately 110-square-mile McCain Hydrologic Subarea (HSA 722.71). All watersheds are located within the approximately 19,865-square-mile RWQCB Colorado River Region (RWQCB Region 7) (Figure 7, Hydrologic Setting).

The McCain Hydrologic Subarea (watersheds) drains a relatively underdeveloped region. However, these watersheds are still experiencing significant land development. The degree of imperviousness within these watersheds can be used to consider the condition and health of the aquatic resources within them, which are often used as a measure for determining the amount of stress a watershed is experiencing (Shilling et al. 2005). There are no water bodies occurring within the project area that are listed on the CWA 303(d) List (impaired water bodies) (SWRCB 2011). The primary hydrologic feature within the project survey area is Tule Creek. Within the project area, Tule Creek is essentially a subsurface (or near surface) riverine feature that likely daylights only during rain events. Tule Creek bisects the project area and flows in a northwest to southeast orientation, supporting an active floodplain, which in turn promotes wetland hydrology development. Tule Creek's surface proximity and flow regime is a product and result of an alluvium overlaying fractured and decomposed granite (DG), which in turn overlays deep bedrock. The DG layer is pervious and allows groundwater to collect and be retained to the point of subsurface flow while the bedrock layer creates an impervious surface that results in conditions similar to a perched water table.

Tule Creek on site drains to the southeast. Tule Lake is located approximately 1.8 miles downstream to the southeast from the portion of the project area that crosses Tule Creek. Tule Lake was not investigated to determine connectivity with downstream waters. It is presumed that Tule Lake has downstream connectivity with Carrizo Creek,

which is in turn presumed to have connectivity with the Salton Sea. The Salton Sea is considered a traditional navigable waters, and ACOE and RWQCB jurisdiction of waters within the study area is based on the presumed connectivity between waters on site and the Salton Sea. The actual extent of physical, chemical, and/or biological connectivity between these waters has not been determined

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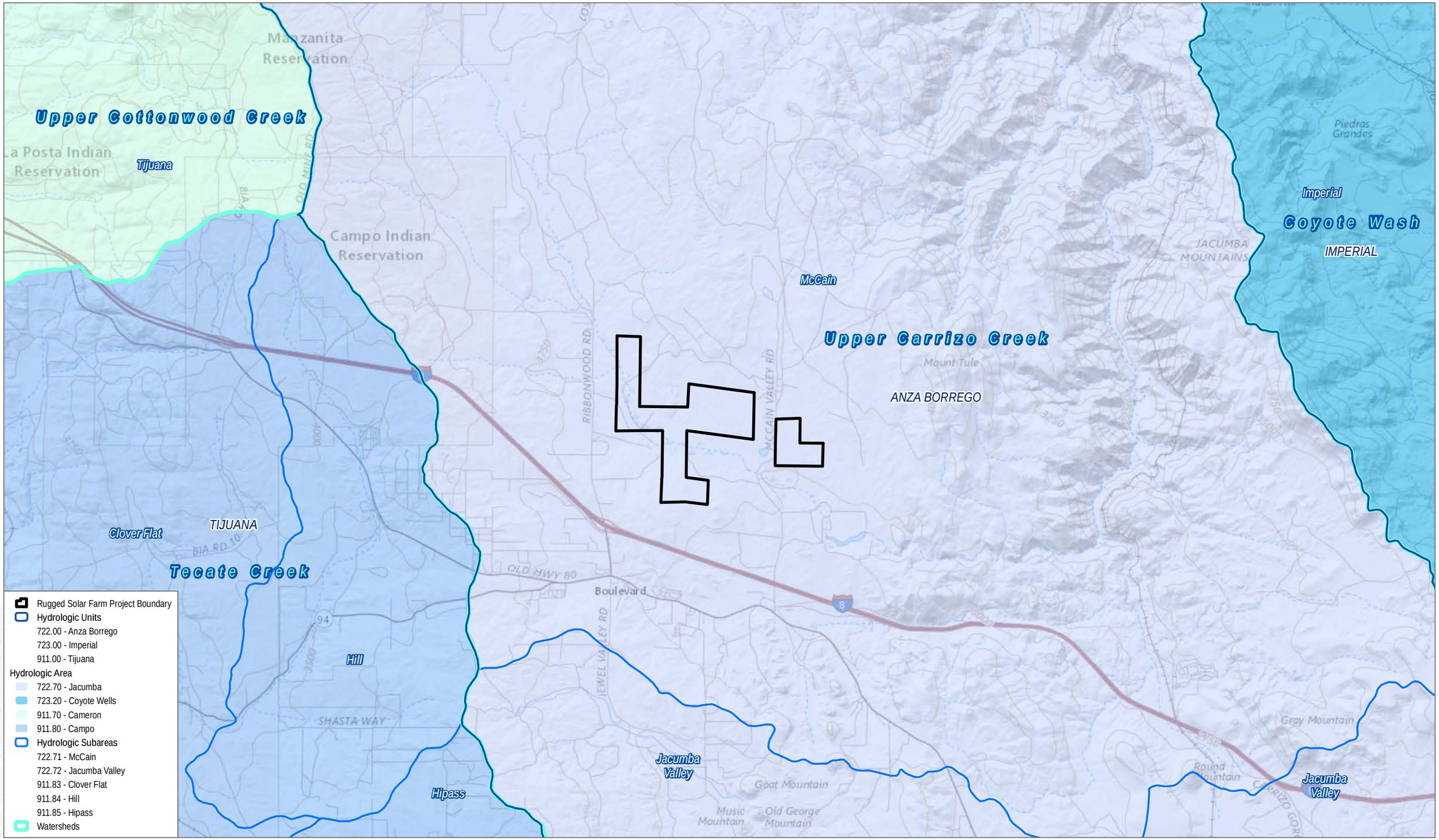

SOURCE: Michael Baker 2019; CA Department of Water Resources; USGS Topo Map

DUDEK

0 0.5 1 Miles

FIGURE 7

Hydrologic Setting

Biological Resources Report - Rugged Solar Farm

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1.4.7.2 Functions and Values

The beneficial uses associated with Tule Creek are listed in the State Water Resources Control Board (SWRCB) Water Quality Control Plan for the Colorado River Basin (Region 7) (SWRCB 2017). These uses include potential municipal and domestic supply, agriculture supply, groundwater recharge, water contact recreation, non-contact water recreation, warm freshwater habitat, and wildlife habitat. Waters and wetlands are an important part of an ecosystem based on the functions and values they can provide. These functions and values of waters and wetlands in the project area are characterized as having a low, moderate, or high ability to provide the following:

- Flood storage and flood flow modification
- Nutrient retention and transformation
- Groundwater recharge
- Sediment trapping
- Toxicant trapping
- Wildlife habitat
- Aquatic habitat
- Public use

Flood storage and flood flow modification. Tule Creek is a wide floodplain with no regular bed and bank or incised channel and therefore low potential for flood storage and flood flow modification. It is currently used for cattle grazing within the project area, and vegetation consists of herbs and grasses, with some irregular patches of mulefat and tamarisk. Water from rainfall likely results in sheet flow and temporary flooding of certain areas before flowing into the groundwater table. Narrow non-vegetated channels in the project area have low to moderate flood storage and flood flow modification because they are moderately incised and have natural bottoms, but they do not have surface connection to any main channels.

Nutrient retention and transformation. There are no commercial or residential uses in the project area; however, portions of the watershed proximate to and within the project area are currently used for cattle grazing, resulting in animal waste. Because the Tule Creek floodplain is composed of grasses and herbaceous wetlands (i.e., alkali meadow), it has a higher potential for nutrient retention and transformation. The small non-vegetated channels in the project area have low potential for nutrient retention and transformation due to the lack of wetland vegetation and ponding potential within the channels.

Groundwater recharge. Because Tule Creek is a floodplain and not an incised channel, there is high potential for groundwater recharge. In addition, the non-vegetated channels do not have a surface connection to other channels in the project area, and flow from storm events likely flows into the floodplain and contributes to groundwater recharge.

Sediment trapping. Due to the lack of an incised channel in Tule Creek, sediment carried in sheet flow in the floodplain would have high potential to settle and filter rather than be carried downstream to Tule Lake.

Toxicant trapping. Potential toxicants in the project area would include waste from the cattle grazing activities on site. The toxicant trapping abilities of the channels in the project area are the same as described previously in nutrient retention and transformation.

Wildlife habitat. There are a variety of wetland communities in the project area, as described in Section 2.2, including mulefat scrub, tamarisk scrub, and alkali meadow. The beneficial uses listed for Tule Creek by the SWRCB (2017) include wildlife habitat. Within the project area, Tule Creek is characterized by a wide floodplain composed of non-native grassland, alkali meadow, and scattered mulefat and tamarisk vegetation communities. This area is currently used for cattle grazing, but provides habitat for raptor and songbird foraging, rodents and other small mammals, invertebrates, and reptiles. The other non-vegetated waters mapped in the project area generally lack vegetation or cover but could provide some habitat for these species as well.

Aquatic habitat. The beneficial uses listed for Tule Creek by SWRCB (2017) include warm, freshwater habitat. Within the project area, Tule Creek does not have a consistent bed and bank for confined water flow. It is a floodplain that likely floods during rain events and could provide habitat for some aquatic species such as certain amphibians and aquatic reptiles (e.g., two-striped gartersnake). None of the non-vegetated channels outside of Tule Creek have regular water flow and would not provide habitat for aquatic species.

Public use. Rough Acres Ranch is a private ranch and does not have public access. Fencing also excludes most vehicles from entering the property. The beneficial uses listed for Tule Creek by SWRCB (2017) include municipal and domestic supply of water, agricultural supply of water, and contact and non-contact water recreation.

1.4.7.3 Resource Protection Ordinance Wetland Buffer

County Guidelines for Determining Significance (County of San Diego 2010a) provide the following examples for the establishment of appropriate RPO wetland buffers, to be based on the best available science:

- A 50-foot wetland buffer would be appropriate for lower quality RPO wetlands where the wetland has been assessed to have low physical and chemical functions, vegetation is not dominated by hydrophytes, soils are not highly erosive, and slopes do not exceed 25%.
- A wetland buffer of 50 to 100 feet is appropriate for moderate- to high-quality RPO wetlands that support a predominance of hydrophytic vegetation or wetlands within steep slope areas (greater than 25%) with highly erosive soils. Within the 50- to 100-foot range, wider buffers are appropriate where wetlands connect upstream and downstream, where the wetlands serve as a local wildlife corridor, or where the adjacent land use(s) would result in substantial edge effects that count not be mitigated.
- Wetland buffers of 100 to 200 feet are appropriate for RPO wetlands within regional wildlife corridors or wetlands that support significant populations of wetland-associated sensitive species or where stream meander, erosion, or other physical factors indicate a wider buffer is necessary to preserve wildlife habitat.
- Buffering of greater than 200 feet may be necessary when an RPO wetland is within a regional corridor or supports significant populations of wetland-associated sensitive species and lies adjacent to land use(s) that could result in a high degree of edge effects within the buffer. Although the RPO stipulates a maximum of 200 feet for RPO wetland buffers, actions may be subject to other laws and regulations (such as the Endangered Species Act) that require greater wetland buffer widths.

As discussed previously, the RPO wetlands within the project area are located sporadically within the upper portion of Tule Creek on site and occupy more of the valley in the lower portion of Tule Creek. Most wetlands are classified as alkali meadow with other areas characterized by mulefat and tamarisk. These wetlands occur within a broad, flat valley that, overall, is dominated by annual non-native grassland. Tule Creek, within the project area, does not support significant populations of wetland-associated special-status species and does not support important or unique wildlife movement functions for wetland species or wildlife in general (see Section 1.4.8, Habitat Connectivity and Wildlife Corridors). The RPO wetlands occur in areas where slopes do not exceed 25% and where

soils are not highly erosive making the buffer generally a stable environment. These wetlands occur in a broader valley that is dominated by annual (non-hydrophytic) grasslands. The overall function and value of wetlands on site would be moderate due to its broad floodplain with braided channels, beneficial uses for wildlife, and effects from cattle grazing. Finally, edge effects of the proposed conditions would be relatively low intensity and would not require a broader buffer. Given the stable wetland environment and the low-intensity edge effects, a 50-foot wetland buffer is considered adequate to protect the RP0 wetlands on site (Figure 6).

1.4.8 Habitat Connectivity and Wildlife Corridors

Background and Literature Review for Terrestrial Wildlife Movement

Wildlife corridors are defined as areas that connect suitable wildlife habitat areas in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Natural features, such as canyon drainages, ridgelines, or areas with vegetation cover, often provide corridors for wildlife travel, but corridors may not be limited to such features and use of certain wildlife corridors may be species-specific. Wildlife corridors are important because they provide access to mates, food, and water; allow the dispersal of wildlife from high-density areas; and facilitate the exchange of genetic traits between populations (Beier and Loe 1992). Wildlife corridors are considered sensitive by resource and conservation agencies.

Although a project-level wildlife corridor study has not been conducted specifically for the project area, results from several studies of wildlife movement in areas with varying levels of urban and road development have shown that wildlife can move through areas with various kinds of development and may use a variety of pathways for travel. A selected review of studies, as applicable to wildlife species expected to occur in the project area, is presented here.

Although bobcats are nocturnal, fairly secretive, and seldom seen by humans, they are relatively adaptable to urban development as long as adequate natural habitat is provided. Availability of prey such as rabbits (*Leporidae*) and squirrels (*Sciuridae*), and habitat cover (rocky and brushy areas) are likely the limiting factors in bobcat distribution (Larivière and Walton 1997). Bradley and Fagre (1988), for example, found that bobcats in south Texas used fence-lines and roads for hunting more than expected by chance and were relatively undisturbed by human presence. Although buffer habitats may enhance the overall habitat value through increased cover and prey, reduced lighting, noise, and less human activity, there is no evidence that they shy away from development at particular distances from urban development as long as other habitat features and prey are present. Hawes and Smith (2005) suggest that a riparian zone of 330 feet is adequate for bobcat. The main risk to bobcats in urban areas is collisions with vehicles.

Mountain lions are a wide-ranging species, with adult male home ranges exceeding 100 square miles (e.g., National Park Service 2018). Based on a study in the Santa Ana Mountains of Southern California, Dickson and Beier (2006) suggest that mountain lion preferentially move along canyon bottoms and gently sloping terrain rather than ridgelines and steep terrain and that they prefer riparian vegetation for diurnal use and nocturnal travel. Although large, non-fragmented landscapes are desirable for mountain lions, which tend to avoid urban areas, they will use constricted passages (i.e., low openness factors) in fragmented landscapes when necessary (Beier 1995; CBI 2002, 2003; Foster and Humphrey 1995; Hilty and Merenlender 2004). Similar to the situation with bobcats, vehicle collisions are probably the greatest risk to mountain lions in urbanizing environments.

Ng et al. (2004) studied wildlife movement at 15 potential wildlife passages, including underpasses, drainage culverts, and livestock tunnels in eastern Ventura County adjacent to the Los Angeles metropolitan area. The study area included the Simi Hills and the Santa Monica Mountains, which support a mix of highly urbanized and relatively

natural lands, and the Santa Susana Mountains, which consist of mostly intact natural landscapes with urbanization encroaching along the fringes. The study area also has three major highways. Ng et al. (2004) documented the regular use of underpasses and drainage culverts beneath highways by a variety of wildlife, including rodents and other small mammals; raccoon, skunk, and other midsized mammals; and larger mammals, including coyote, deer, and mountain lion. Riley et al. (2003) also conducted studies on bobcats and coyotes in the central Santa Monica Mountains and Simi Hills areas and found that from 65% to 89% of bobcat and coyote ranges home ranges were comprised of natural areas, with the remaining areas comprised of developed and altered (golf course, park, and rural residential) land uses. Tigas et al. (2002) investigated the effects of habitat fragmentation on daily activity, home range size, location, and movement patterns of bobcats and coyotes in the Simi Hills and Conejo Valley (eastern Ventura County) where much of the area has been urbanized and fragmented. Tigas et al. (2002) found no difference in home range size for either bobcat or coyote in the fragmented and unfragmented areas and bobcat and coyote density was not related to development. Both species were observed frequently using the corridors set aside for wildlife within the region.

George and Crooks (2006) conducted remote camera studies in the Nature Reserve of Orange County, California, a nature reserve located in an urban setting, in order to assess activity of bobcat, coyote, and mule deer. The Nature Reserve includes two core open space reserves of approximately 19,000 acres and 18,000 acres, with residential and commercial development encircling and fragmenting the core reserved areas as well as "special linkage areas" such as golf courses, utilities corridors, or other uses connecting the cores compatible with wildlife use. George and Crooks (2006) found that these species continue to inhabit the reserves and appear to move within the landscape of interspersed reserves and development. VerCauteren et al. (2005) also documented the use of human-altered landscapes by deer, with individuals regularly occurring less than 150 feet from human dwellings.

Grinder and Krausman (2001) studied movement by radio-collared coyotes in the Tucson, Arizona, which is representative of many western cities where an abrupt transition occurs between artificial and natural environments. Although their home ranges were highly variable, all of the coyotes' ranges encompassed rural, urban, and natural habitats. Based in the configuration of home ranges, Grinder and Krausman (2001) concluded individual were moving through very urban and residential areas during their daily and yearly cycle.

These studies demonstrate that most large and mobile wildlife species in Southern California adapt to some level of urbanization and find ways to move through habitats as long as adequate wildlife corridors and passages are available.

Regional Planning Efforts

Other existing habitat management planning in the region is relevant to the analysis of regional wildlife corridors and habitat connectivity, because these features cross broad areas of the landscape and typically extend beyond the boundaries of a particular project. Habitat management programs are planned for east San Diego County in physically relevant to the project area include an MSCP Framework Management Plan (FMP), the 1978 and 1984 McCain Valley Wildlife Habitat Management Plans (WHMPs), and an Eastern San Diego County Resource Management Plan (RMP). The project area also is located within the study areas for larger scale conservation initiatives, including the Las Californias Binational Conservation Initiative (CBI 2004) and the Parque to Park Binational Corridor.

ECMSCP planning seeks to preserve the unique, native habitats and wildlife within San Diego County. The MSCP is a regional conservation effort that relies on multiple jurisdiction and agencies to ensure that conservation goals and policies are implemented and successful. The MSCP includes three subareas, each containing a separate conservation plan. The three subareas are North County, South County, and East County (ECMSCP). Only the South

County MSCP Subarea Plan is approved. The proposed project is located within the boundary of the ECMSCP Plan (Figure 3). As described in Section 1.5.3, Regional, the ECMSCP Plan is currently in preparation (a Preliminary Draft Map has been completed). The overall intent of the ECMSCP is to create a large, connected preserve that addresses the regional habitat needs for multiple species. It is unknown at this time when the ECMSCP Plan will be approved.

The 1978 McCain Valley WHMP contains specific management objectives for three groups of priority species, including (1) Peninsular bighorn sheep, (2) small game species, and (3) small mammals and reptiles of high scientific interest (BLM 1978). Second-priority species (small game species) of interest in the McCain Valley identified in the WHMP included Gambel's quail (*Callipepla gambelii*), California quail (*Callipepla californicus*), mountain quail (*Oreortyx pictus*), Audubon cottontail (*Sylvilagus audubonii*), mourning dove (*Zenaida macroura*), and brush rabbit (*Sylvilagus bachmani*). Third-priority species of interest as included in the McCain Valley WHMP included the desert horned lizard (*Phrynosoma platyrhinos*), Blainville's horned lizard (*Phrynosoma blainvillii*), deer mouse (*Peromyscus maniculatus*), banded rock lizard (*Petrosaurus mearnsi*), and the Baja California brush lizard (*Urosaurus nigricaudus*). The management objectives of the 1978 WHMP primarily focused on the protection and rehabilitation of priority species habitat within the McCain Valley area (the protection and rehabilitation of Peninsular bighorn sheep habitat is the top priority of the Plan) through deployment of specific actions, including the provision of free water; construction of road barriers on access routes into the bighorn sheep range; signing and posting (and patrol) of closed roads and trails; and restoration of closed roads, barrier sites, ditches, roads put to bed, and roads water-barred to minimized erosion (BLM 1978). In describing the location of priority species, the plan notes that "most of the unique sensitive species in the McCain subunit are found on the desert slopes area that may eventually be designated as an ACEC"—this area, the In-Ko-Pah area of critical environmental concern (ACEC), is located northeast of the project area (Figure 3).

The 1984 WHMP updated the 1978 WHMP and was determined to be necessary to address more current (to 1984) resource management problems. Similar to the 1978 WHMP, the management objectives of the 1984 WHMP focus on the management and protection of Peninsular bighorn sheep herds and habitat identified within plan boundaries and the improvement of habitat for native game and non-game species through the McCain Valley area. The protection of mule deer was an area of focus of the 1984 WHMP not established in the 1978 WHMP. Planned actions to achieve the management objectives of the 1984 WHMP include (similar to the 1978 WHMP) water source development, habitat protection and rehabilitation (through continuance or expansion of existing programs and restrictions on burning and informal target shooting within the area), and ACEC designation (the area identified for designation has since been designated as the In-Ko-Pah ACEC). Unique to the 1984 WHMP, a land acquisition program was identified and implemented for the acquisition of lands for wildlife habitat (the 1984 WHMP itself merely identifies lands desired for acquisition and does not establish funds for acquisition). Similar to the 1978 WHMP, provisions for review and modification of the 1984 WHMP are included.

In 2008, BLM established the Eastern San Diego County RMP. The intent of the Eastern San Diego County RMP and Final EIS is to update the 1981 Eastern San Diego County Management Framework Plan and direct future land uses and land management within the Eastern San Diego Planning Area. The RMP addresses conflicts among various recreational users accessing BLM lands; provides direction for future site-specific development, including renewable energy projects, and provides for monitoring to determine the effectiveness of BLM land management strategies. The RMP stresses that future policy decisions and land management strategies shall be compatible with the multiple use mission of the BLM. The multiple use mission promotes recreational use and responsible development within BLM-managed lands while maintaining environmental quality of the land.

The Nature Conservancy's cross-border project, the Las Californias Binational Conservation Initiative (CBI 2004), functions as a binational partnership between the Nature Conservancy and Mexico's Pronatura and is intended to establish an interconnected conservation network and sustaining ecosystem process along the United States–Mexico border region. The proposed binational conservation network, which includes lands from downtown San Diego, east to the Laguna Mountains, south to the southern extent of the Sierra Juarez mountain range, and west to Salsipuedes, consists of a vision report containing general objectives and land designations that coincide with one of four specific conservation objectives and functions.

Regional Wildlife Movement and Migration

Most of the terrestrial wildlife movement in the project region is likely be local movement and regional dispersal rather than large-scale, long-distance migration. However, migration by peninsular bighorn sheep along the Peninsular Mountain Range and south in the mountain ranges of Baja California, Mexico, is an important issue in the East County. Although I-8 is a constraint to north–south wildlife movement, peninsular bighorn sheep occasionally migrate south and cross into Mexico to breed with other populations. Additionally, movement between the United States and Mexico can only occur where gaps in the border fence occur in areas of rugged terrain. The closest peninsular bighorn sheep population to the project area is the Carrizo Canyon subpopulation (63 FR 13134–13150; USFWS 2000). Also, west of the In-Ko-Pah Gorge and I-8 there are "island" areas that receive transient bighorn sheep use. Other "islands" between the eastbound and westbound I-8 lanes on the desert slope are known to be yearly lambing areas. The project area is located well west of these areas, so development on the site would not affect bighorn sheep movement or lambing areas.

Many of the birds in the project area are year-round residents and thus probably move relatively small distances from their natal areas. These include most of the common scrub and chaparral species observed in the project area such as California quail, western scrub-jay, bushtit, Bewick's wren, California towhee, and spotted towhee. However, the project area is also used by several migratory bird species and possibly some bat species. Common migrant birds observed in the project area include yellow-rumped warbler, orange-crowned warbler, white-crowned sparrow, cliff swallow and northern rough-winged swallow. A major north–south migration route for birds that travel between North, Central, and South America is the Pacific Flyway, which is a broad-front route that generally covers much of the landscape in California. The project area is situated between the two main routes of the Pacific Flyway: the Pacific Coast route and the inland route. The Pacific Coast route, which skirts the coast of California, is used mostly by gulls, ducks, and other water birds. An important stopover for many birds that travel along the inland route is the Salton Sea, located approximately 40 miles northeast of the project area (SDG&E 2009). More than 450 bird species and subspecies have been documented in the Salton Sea area, of which more than 300 species use the area during migration and/or for wintering (Patton et al. 2003). A study from 1985 to 1999 focused on shorebird migration and recorded avian use at the Salton Sea and adjacent Imperial Valley. Large numbers of shorebirds, including black-necked stilt (*Himantopus mexicanus*), American avocet (*Recurvirostra americana*), western sandpiper (*Calidris mauri*), and dowitcher (*Limnodromus* spp.), were recorded during migration periods (Shuford et al. 2003). In addition, the study showed that the Salton Sea is not only an important migratory stopover, but also a wintering area for many species, including the mountain plover (*Charadrius montanus*) (Shuford et al. 2003). In general, bird migration occurs during the months of March through April (northward spring migration) and August through November (southward fall migration). Migration timing in Southern California along the Pacific Flyway varies from species to species. For many migrant birds, the arrival and departure in San Diego has been well documented (e.g., Unitt 2004), but for some species there is little documentation of migratory behavior.

Some migrant bird species were observed on site, but the project area does not support the large abundance and diversity of birds observed in the Salton Sea area. Although the site supports a small pond (0.2 acres), it lacks large bodies of water, wetlands, and agricultural areas that attract the large numbers of birds to the Salton Sea area. There are some other larger water bodies in the general region, however, that may attract migrating birds, including Tule Lake just southwest of the project area, Lake Domingo about 5 miles south of the project area, and Cuyamaca Lake located approximately 30 miles northwest of the project area, as well as several other smaller reservoirs. Birds using these water bodies may fly over the project area but are less likely to land on the site.

Bat migration is less well understood than bird migration, but there is some information available on their seasonal movement patterns in the southwestern United States. Some bat species that could occur in the project area migrate large distances. Mexican long-tongued bat migrates from Mexico and Central America to maternity roosts in the United States, although there are winter records from Southern California (Noel and Cryan 2005), indicating that some bat populations in Southern California migrate shorter distances. Western red bat is highly migratory, traveling between different summer ranges in British Colombia and the western United States to winter ranges in Mexico, Central America, and South America (Bolster 2005). Other bat species are not known to migrate long distances but may move some distance between day roosts and forages and exhibit shorter distance seasonal migrations. Townsend's big-eared bats are known to travel over 93 miles in an evening during foraging and may migrate locally; however, seasonal migration patterns are not well known for this species (Sherwin and Piaggo 2005). Spotted bats may travel between foraging and roosting habitats during the day. Spotted bats at lower elevations may not migrate, but some individuals may migrate from summer ranges at higher elevations to lower elevation wintering areas; generally seasonal migration is not well understood for this species (Luce and Herder 2005). Greater mastiff bats are known to be periodically active in the winter and move relatively short distances, rather than long-distance seasonal migration. In Arizona and California, greater mastiff bats have been detected all year round, but may change roost sites (Pierson and Siders 2005).

Some bats, such as pallid bat, Townsend's big-eared bat, and western mastiff bat, may use the project area year round for foraging habitat, and others, such as western red bat, may pass through the area during seasonal migrations.

Project Area Wildlife Corridors

The project is located within an area that is generally referred to as McCain Valley, located in the In-Ko-Pah Mountains region of southeastern San Diego County. These mountains have few dramatic peaks and are characterized by broad rolling upland areas of granite rock formations. The mountains are oriented generally northwest to southeast and rise gradually above the McCain Valley in the west and drop off into the Carrizo Canyon in the east. The Laguna Mountains are located west and north of the project area, and the Anza-Borrego Desert and the eastern slope of the Peninsular Range are located to the east of the project area. The project area is approximately 5 miles north of the United States–Mexico border.

The region in general is largely public lands dominated by undeveloped land. In terms of landscape movement patterns of larger mammals (e.g., mountain lion, bobcat, mule deer) in the region, north–south movement is primarily restricted by two landscape features: I-8 and the fence at the United States–Mexico Border. The project area is bordered by transportation-oriented development with I-8 to the south and the Sunrise Powerlink. Located north of the project area is State Route (SR) 78; State Highway S-2 is located to the east; and SR-79 (Sunrise Highway) and Kitchen Creek Road are located to the west. The roads vary in the degree to which they are barriers to wildlife, from the busy four-lane highway of I-8 to rural roads with light vehicle traffic (e.g., S-2 and Kitchen Creek Road). The amount of barrier varies with the size of the road (four-, two-, or single lane), frequency of travel, the number of available crossings in each portion of the road. The roads and highways within the project region often

have bridges and culverts that provide passage for wildlife, although it is likely that substantial at-grade movement occurs on roads in the more remote areas with little traffic and during nighttime. In addition to roads, the upper McCain Valley and surrounding mountains support other uses and physical structures that may affect wildlife movement patterns, including campgrounds, fencing, off-highway vehicle (OHV) uses, grazing uses, other scattered rural residential uses, and the existing Kumeyaay wind farm on the Campo Indian Reservation. The Boulevard area south I-8 to the Mexico border supports low-density rural development that may somewhat affect wildlife movement, but the density of development is low enough to not severely constrain movement. The Laguna Mountains west of the project area have existing camping areas and a segment of the Pacific Crest Trail, and also support small communities such as Pine Valley, Guatay, and Descanso that have pockets of higher residential densities. Otherwise, there is little development in the Laguna Mountains that could constrain regional wildlife movement.

The Carrizo Gorge in the Anza-Borrego Desert located east of the project area provides a transition zone from chaparral to desert. While some of the species that occur in the project area (e.g., mule deer, mountain lion, bobcat) may occur in this transition zone, the majority of desert wildlife species do not typically inhabit the higher elevation chaparral (e.g., peninsular bighorn sheep) and, likewise, many chaparral wildlife species do not occur in desert habitats. Generally the bridged canyons in this very rugged transition zone (e.g., along I-8) provide passage routes for wildlife, so north–south movement probably is not substantially constrained in this transition zone. For example, based on the 2009 USFWS Biological Opinion for the Sunrise Powerlink, Peninsular bighorn sheep have been reported using Devil's Canyon (approximately 11 miles east of the project site) to venture south of the highway, an area in which they were thought to be extirpated in the 1980s (USFWS 2009). It can be assumed that other, smaller species also use this canyon and similar passages for traveling between areas north and south of the I-8 (HDR 2010).

A nonprofit group, South Coast Wildlands, has also suggested a Jacumba corridor to Mexico, south of the proposed project (HDR 2010; Penrod et al. 2006). Finally, to the north, South Coast Wildlands has proposed creating a linkage corridor between the Peninsular Range and the Anza-Borrego Desert (HDR 2010; Penrod et al. 2006). This linkage is several miles north of the project area, and wildlife movement through this corridor would not be affected by the project.

Local wildlife movement in immediate the vicinity of the project area is currently constrained by existing transportation infrastructure. Specifically, movement is hindered by I-8 to the south and, to a much lesser degree, by McCain Valley Road through the eastern portion of the project area, and by Ribbonwood Road through the western portion of the project area. As a major transportation corridor, I-8 can be a significant barrier to wildlife movement and source of mortality for large animals (CBI 2003), though mule deer, coyotes, mountain lion, bobcats, and other species may cross under I-8 at McCain Valley Road when traffic allows. The patterns of deer, lion, and coyotes have been shown to occur when traffic volumes would be expected to be reduced (Clevenger 2013). In contrast, the rural two-lane roads, McCain Valley Road and Ribbonwood Road, have low traffic densities and are much less of a risk and barrier to movement than I-8.

In addition, the northeast portion of the project area was temporarily being used by SDG&E as a staging area for the Sunrise Powerlink Project. Indirect and direct effects associated with this staging area, including perimeter chain-link fencing and temporary helicopter activity, may constrain movement in this portion of the project area.

Other land uses and human activities likely affect movement patterns of animals depending on their sensitivity to anthropogenic factors. For example, species such as bobcat and mountain lion usually avoid areas with high levels of human activity, or alter their temporal patterns to avoid certain periods such as shifting movement to nocturnal periods when there is less human activity and staying in cover during the daytime to avoid direct contact with humans. Coyotes, on the other hand, are relatively tolerant of human activity and will move through fairly fragmented landscapes. Mule deer may also be fairly tolerant of human activity and development but tend to remain close to cover in which to escape.

Potential water sources for migrating and resident wildlife in and around the project area include Tule Creek, which runs the length of McCain Valley and drains into Tule Lake at the southern end of the valley. Several reservoirs and wells are located in the valley, along with numerous unnamed creeks and springs. Bow Willow Creek intersects McCain Valley at the northern end of the project area near Canebrake Road.

Typical wildlife species expected to move across the project area include mule deer, mountain lion, bobcat, coyote, small mammals, reptiles, and birds. Winged wildlife such as birds and butterflies would be able to move freely over the entire site. In general, the project area does not support clearly definable wildlife corridors for the large mobile species (mule deer, mountain lion, bobcat, coyote), as indicated by prominent landscape features (e.g., canyons, ridgelines) or vegetative cover (e.g., woodland or riparian zones). The landscape in and around the project area is composed of relatively flat or gentle slopes where wildlife can move throughout and among a variety of habitats (approximately 70% scrub and chaparral) without constraint (i.e., wildlife movement is not limited to canyons or ridgelines). For the most part, the area in and around the project area is very similar with regard to vegetation communities and limited human disturbance. While existing movement is likely to be fairly unconstrained, there could be concentrations of movement within on-site drainages and on ridgelines, or wildlife may use some areas relatively more where higher cover is present, especially during the daytime. Some species may use areas with the least resistance (e.g., less expenditure of energy) such as dirt roads and game trails as long as associated risks are low (e.g., vehicle collisions, predation). Figure 8, Wildlife Corridors and Habitat Linkages, shows conceptual movement corridors that would follow topographic features (e.g., ridgelines, drainages, vegetation cover, roads).

In conclusion, the entire area currently functions as a block of habitat and is not constrained to only function as a wildlife corridor between two larger blocks. The area is not readily identifiable as an existing wildlife corridor or habitat linkage, per se, to adjacent large habitat blocks because wildlife movement is not constrained or funneled through the project area by adjacent landscape constraints. Therefore, the designation of the project area as a specific habitat linkage is not appropriate. Rather, the site allows for a variety of wildlife movement opportunities and supports habitats and movement corridors that are similar to other sites within the region.

1.5 Applicable Regulations

1.5.1 Federal

Federal Endangered Species Act

The federal Endangered Species Act (ESA) (16 USC 1531 et seq.) is implemented by the USFWS for protection of various species of freshwater fish, terrestrial wildlife, and plants deemed to be in danger of or threatened with extinction. As part of this regulatory act, federal ESA provides for designation of critical habitat, defined in federal ESA Section 3(5)(A) as specific areas within the geographical range occupied by a species where physical or biological features "essential to the conservation of the species" are found and that "may require special management considerations or protection." Critical habitat may also include areas outside the current geographical area occupied by the species that are nonetheless "essential for the conservation of the species." The project site does not overlap within any critical habitat.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits the take of any migratory bird or any part, nest, or eggs of any such bird. Under the MBTA, "take" is defined as pursuing, hunting, shooting, capturing, collecting, or killing, or attempting to do so (16 USC 703 et seq.). In December 2017, Department of Interior Principal Deputy Solicitor Jorjani issued a memorandum (M-37050) that interprets the MBTA to only prohibit intentional take. Unintentional or accidental

take is not prohibited. Additionally, Executive Order (EO) 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, requires that any project with federal involvement address impacts of federal actions on migratory birds with the purpose of promoting conservation of migratory bird populations (66 Federal Register [FR] 3853–3856). The EO requires federal agencies to work with USFWS to develop a memorandum of understanding. USFWS reviews actions that might affect these species.

Clean Water Act

Pursuant to Section 404 of the CWA, the ACOE regulates the discharge of dredged and/or fill material into "waters of the United States." The term "wetlands" (a subset of waters of the United States) is defined in 33 Code of Federal Regulations 328.3(c)(4) as "those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." In the absence of wetlands, the limits of ACOE jurisdiction in non-tidal waters, such as intermittent streams, extend to the "ordinary high water mark," which is defined in 33 Code of Federal Regulations 328.3(c)(6).

Bald and Golden Eagle Protection Act

Bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) are federally protected under the Bald and Golden Eagle Protection Act, passed in 1940 to protect bald eagle and amended in 1962 to include golden eagle (16 USC 668a–d). The Bald and Golden Eagle Protection Act (16 USC 668–668d) prohibits the take, possession, sale, purchase, barter, offering to sell or purchase, export or import, or transport of bald eagles or golden eagles and their parts, eggs, or nests without a permit issued by USFWS. The definition of "take" includes to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb. The definition of "disturb" has been further clarified by regulation as follows: "Disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle; (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior" (50 CFR, Part 22.3). The act prohibits any form of possession or taking of either eagle species, and the statute imposes criminal and civil sanctions as well as an enhanced penalty provision for subsequent offenses. Further, the act provides for the forfeiture of anything used to acquire eagles in violation of the statute. The statute exempts from its prohibitions on possession the use of eagles or eagle parts for exhibition, scientific, and Native American religious uses.

In November 2009, USFWS published the Final Eagle Permit Rule (74 FR 46836–46879) providing a mechanism to permit and allow for incidental (i.e., nonpurposeful) take of bald and golden eagles pursuant to the BGEPA (16 USC 668 et seq.). The previous year, 2008, USFWS adopted 50 CFR Part 22.11(a), which provides that a permit authorizing take under ESA Section 10 applies with equal force to take of golden eagles authorized under the BGEPA. These regulations were followed by issuance of guidance documents for inventory and monitoring protocols and for avian protection plans (USFWS 2010). In January 2011, USFWS released its Draft Eagle Conservation Plan Guidance aimed at clarifying expectations for acquiring take permits by wind power projects, consistent with the 2009 rule (USFWS 2011).

On December 16, 2016, USFWS adopted additional regulations regarding incidental take of golden eagles and their nests (81 FR 91494 et seq.). Most of the new regulations address "programmatic eagle nonpurposeful take permits" such as those typically requested by members of the alternative energy industry, including wind farms. For example, the new regulations extend the duration of such permits from 5 to 30 years. In addition, the new regulations modify the definition of the BGEPA "preservation standard" to mean "consistent with the goals of maintaining stable or increasing breeding populations in all eagle management units and the persistence of local populations throughout the service range of each species" (81 FR 91496–91497). This process has also resulted in standardizing mitigation options for permitted take.

Rugged Solar Farm Project Boundary
Fence Line
Existing Conditions
Post Entitlement Conditions

SOURCE: Michael Baker 2019; SANGIS 2019

DUDEK

0 0.5 1 Miles

FIGURE 8

Wildlife Corridors and Habitat Linkages

Biological Resources Report - Rugged Solar Farm

INTENTIONALLY LEFT BLANK

1.5.2 State

California Endangered Species Act

CDFW administers the California Endangered Species Act (CESA) (CFGC Section 2050 et seq.), which prohibits the "take" of plant and animal species designated by the California Fish and Game Commission as endangered or threatened in California. Under California ESA Section 86, take is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." California ESA Section 2053 stipulates that state agencies may not approve projects that will "jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available consistent with conserving the species or its habitat which would prevent jeopardy."

CFGC Sections 3511, 4700, and 5515 designate certain birds, mammals, and fish as "Fully Protected" species. These species may not be taken or possessed without a permit from the Fish and Game Commission, and such take may only occur pursuant to scientific research or in connection with an authorized Natural Communities Conservation Plan (NCCP). No "incidental take" of fully protected species is allowed.

California ESA Sections 2080 through 2085 address the taking of threatened, endangered, or candidate species by stating,

> No person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the Commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided in this chapter, the Native Plant Protection Act (CFGC Sections 1900–1913), or the California Desert Native Plants Act (Food and Agricultural Code, Section 80001).

CFGC Section 2081(b) and (c) authorizes take of endangered, threatened, or candidate species if take is incidental to otherwise lawful activity and if specific criteria are met. In such cases, CDFW issues the applicant an incidental take permit, which functions much like an incidental take statement in the federal context. CDGC Sections 2081(b) and (c) also require CDFW to coordinate consultations with USFWS for actions involving federally listed species that are also state-listed species. In certain circumstances, Section 2080.1 of California ESA allows CDFW to adopt a federal incidental take statement or a 10(a) permit as its own, based on its findings that the federal permit adequately protects the species and is consistent with state law. CDFW may not issue a Section 2081(b) incidental take permit for take of "fully protected" species. The CFGC lists the fully protected species in Section 3511 (birds), Section 4700 (mammals), Section 5050 (reptiles and amphibians), and Section 5515 (fish).

California Fish and Game Code

The CFGC provides protection for wildlife species. It states that no mammals, birds, reptiles, amphibians, or fish species listed as fully protected can be "taken or possessed at any time." In addition, CDFW affords protection over the destruction of nests or eggs of native bird species (CFGC Section 3503), and it states that no birds in the orders of Falconiformes or Strigiformes (birds of prey) can be taken, possessed, or destroyed (CFGC Section 3503.5). CDFW cannot issue permits or licenses that authorize the take of any fully protected species, except under certain circumstances such as scientific research and live capture and relocation of such species, pursuant to a permit for the protection of livestock (CFGC Section 3511). Separate from federal and state designations of species, CDFW

designates certain vertebrate species as Species of Special Concern, based on declining population levels, limited ranges, and/or continuing threats that have made them vulnerable to extinction.

Streambed Alteration Agreement

Pursuant to CFGC Section 1602, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. A Streambed Alteration Agreement (CFGC Section 1602 et seq.) is required for impacts to jurisdictional resources, including streambeds and associated riparian habitat.

Birds and Mammals

According to CFGC Sections 3511 and 4700, which regulate birds and mammals, a fully protected species may not be taken or possessed. CDFW may not authorize the take of such species except for necessary scientific research, for the protection of livestock, and when the take occurs for fully protected species within an approved NCCP.

California Native Plant Protection Act

The Native Plant Protection Act of 1977 (CFGC Section 1900–1913) directed CDFW to carry out the legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The Native Plant Protection Act gave the California Fish and Game Commission the power to designate native plants as "endangered" or "rare" and to protect endangered and rare plants from take. When California ESA was passed in 1984, it expanded on the original Native Plant Protection Act, enhanced legal protection for plants, and created the categories of "threatened" and "endangered" species to parallel federal ESA. California ESA categorized all rare animals as threatened species under California ESA, but did not do so for rare plants, which resulted in three listing categories for plants in California: rare, threatened, and endangered. The Native Plant Protection Act remains part of the California Fish and Game Code, and mitigation measures for impacts to rare plants are specified in a formal agreement between CDFW and project proponents.

California Desert Native Plants Act

California Food and Agriculture Code, Division 23, Chapter 3, Sections 80071–80075, affords protection to desert native plants under the California Desert Native Plants Act passed in 1981. Sections 1925–1926 of the CFGC agree to enforce the provisions of the act. The California Desert Native Plants Act prohibits the harvesting, transport, sale, or possession of designated native desert plants except for scientific or educational purposes (under a permit), or if the person has a valid permit, or wood receipt, and the required tags and seals. The provisions are applicable within the boundaries of Imperial, Inyo, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego Counties.

Porter–Cologne Water Quality Control Act

The Porter–Cologne Water Quality Control Act protects water quality and the beneficial uses of water. It applies to surface water and groundwater. Under this law, the SWRCB develops statewide water quality plans, and the RWQCBs develop regional basin plans that identify beneficial uses, water quality objectives, and implementation plans. The RWQCBs have the primary responsibility to implement the provisions of statewide plans and basin plans. Waters regulated under the Porter–Cologne Water Quality Control Act include isolated waters that are no longer regulated by ACOE. Developments with impacts to jurisdictional waters must demonstrate compliance with the

goals of the act by developing stormwater pollution prevention plans (SWPPPs), standard urban stormwater mitigation plans, and other measures to obtain regulatory permits from the RWQCB.

California Environmental Quality Act

CEQA requires identification of a project's potentially significant impacts on biological resources and feasible mitigation measures and alternatives that could avoid or reduce significant impacts. CEQA Guideline 15380(b)(1) defines endangered animals or plants as species or subspecies whose "survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors." A rare animal or plant is defined in CEQA Guideline 15380(b)(2) as a species that, although not presently threatened with extinction, exists "in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or [t]he species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered 'threatened' as that term is used in the federal Endangered Species Act." Additionally, an animal or plant may be presumed to be endangered, rare, or threatened if it meets the criteria for listing, as defined further in CEQA Guideline 15380(c). CEQA also requires identification of a project's potentially significant impacts on riparian habitats (e.g., wetlands, bays, estuaries, marshes) and other sensitive natural communities, including habitats occupied by endangered, rare, and threatened species.

1.5.3 Regional

Draft East County Multiple Species Conservation Program Plan

The County is in the process of developing the East County Multiple Species Conservation Program (MSCP) Plan. The East County MSCP Plan is currently in draft form with no current schedule for completion. The intent of preparing the East County Plan is to create a large, connected preserve system that addresses the regional habitat needs for multiple species. The East County MSCP Plan would cover approximately 1.6 million acres within the eastern unincorporated portion of the San Diego County (County of San Diego 2008). The Cleveland National Forest is located along the western boundary of the East County MSCP Plan area. The East County MSCP Plan area is bounded by Riverside County to the north, Imperial County on the east, and Mexico to the south. Tribal lands will be excluded from the East County MSCP Plan. The East County MSCP Plan is a cooperative effort among the County of San Diego, USFWS, and CDFW. Authority for this process comes from the California Natural Community Conservation Planning Act and Section 10(a) of federal ESA that addresses habitat conservation plans.

The project site is located within the draft East County MSCP Plan area. Projects in this area are subject to the Planning Agreement for the East County MSCP (County of San Diego 2019), which is intended to determine if project approval would have an effect on the preparation and approval of the draft East County MSCP. A Preliminary Planning Map has been completed for the East County MSCP. According to this map the project site falls partially within a preliminarily delineated Focused Conservation Area of the East County MSCP Planning area, which suggests that the area has regional conservation value.

Until the East County MSCP Plan is drafted and approved, the Planning Agreement between the County, CDFW, and the USFWS (County of San Diego 2019) remains in place and applies to the proposed project. The Planning Agreement outlines Preliminary Conservation Objectives for the East County MSCP (County of San Diego 2019). In addition to the preliminary conservation objectives, the Planning Agreement for the draft East County MSCP Plan identifies an interim project review process, including a set of preserve design principles that interim projects are evaluated against during the period when the East County MSCP Plan is in preparation.

County Resource Protection Ordinance

The RPO, administered by the County, regulates biological and other natural resources within the County. These resources include wetlands, wetland buffers, floodways, floodplain fringe, steep slope lands, sensitive habitat lands, and significant prehistoric or historic sites. The RPO stipulates that no impacts may occur to wetlands except for scientific research; removal of diseased or invasive exotic plant species; wetland creation and habitat restoration; revegetation and management projects; and crossings of wetlands for roads, driveways, or trails/pathways when certain conditions are met. The same exemptions apply to impacts to wetland buffer areas and improvements necessary to protect adjacent wetlands. Sensitive habitat lands are unique vegetation communities, and support sensitive species, lands essential to the healthy functioning of a balanced natural ecosystem, and wildlife corridors. Impacts to sensitive habitat lands may be allowed "when all feasible measures necessary to protect and preserve the sensitive habitat lands are required as a condition of permit approval and where mitigation provides an equal or greater benefit to the affected species" (County of San Diego 2012).

RPO Sensitive Habitat Lands

The RPO, Section 86.602(p), defines Sensitive Habitat Lands as (County of San Diego 2012):

> Land which supports unique vegetation communities, or the habitats of rare or endangered species or sub-species of animals or plants as defined by Section 15380 of the State California Environmental Quality Act (CEQA) Guidelines (14 Cal. Admin. Code Section 15000 et seq.), including the area which is necessary to support a viable population of any of the above species in perpetuity, or which is critical to the proper functioning of a balanced natural ecosystem or which serves as a functioning wildlife corridor.
>
> "Unique vegetation community" refers to associations of plant species which are rare or substantially depleted. These may contain rare or endangered species, but other species may be included because they are unusual or limited due to a number of factors, for example: (a) they are only found in the San Diego region; (b) they are a local representative of a species or association of species not generally found in San Diego County; or (c) they are outstanding examples of the community type as identified by the California Department of Fish and Game listing of community associations.

According to Section 86.604, development, grading, grubbing, clearing, or any other activity or use damaging to sensitive habitat lands is prohibited. However, development may be allowed when all feasible measures necessary to protect and preserve the sensitive habitat lands are required as a condition of permit approval and where mitigation provides an equal or greater benefit to the affected species (County of San Diego 2012).

To determine whether portions of the project area are considered Sensitive Habitat Lands under the RPO, an analysis of the criteria described in the definition for Sensitive Habitat Lands is provided as follows:

Unique Vegetation Community

To determine whether any of the vegetation communities would be considered a "unique vegetation community," special-status plant species that occur in the project area and are only found in the San Diego region were reviewed; the rarity of the species or association of species found within one or more vegetation communities on site were reviewed; and the vegetation communities were analyzed in the context of their status with CDFW.

a. Based on a review of records in CNPS (2019), CNDDB (CDFW 2019c), and the Jepson Flora Project (2019c–k), the following plants are present in the study area and have only been recorded in San Diego County: Jacumba milk-vetch, Tecate tarplant, sticky geraea, and desert beauty. These plants are found in a variety of habitats in the project area and are discussed in more detail in Section 1.4.5.
b. The vegetation communities mapped in the project area are described in detail in Section 1.4.2. The vegetation on site is commonly found in the Boulevard region and these communities support species that are found throughout San Diego County, particularly the inland areas (e.g., chamise, red shank, big sagebrush, deerweed, California buckwheat, scrub oak, and cholla). None of the vegetation communities mapped on site stand out as unique in the San Diego region.

Habitat for Rare and Endangered Species

As described in Sections 1.4.5 and 1.4.6, the project area supports a variety of plant and wildlife species considered special-status by federal, state, or local agencies.

No federal or state-listed threatened or endangered species were observed except Swainson's hawk, which was incidentally observed during surveys and is expected only as an occasional and temporary visitor of the project area during annual migration, and tricolored blackbird, which was observed flying overhead but is not expected to nest in the project area due to lack of suitable nesting habitat.

Protocol-level surveys for Quino checkerspot butterfly were determined necessary due to the presence of suitable habitat, known occurrences in the region, and the USFWS recommendation for Quino checkerspot butterfly surveys of the area. Subsequently, a habitat assessment for the Endangered Quino Checkerspot Butterfly was conducted on March 25, 2011, prior to the first protocol-level survey by permitted biologists (Appendix D1). Potential habitat surveyed for Quino checkerspot butterfly consists of all habitat types on site except for open water (cattle ponds), developed areas, and other portions of the project area excluded from the survey. Following completion of a formal habitat assessment, nine protocol-level Quino checkerspot butterfly surveys were conducted within the Quino checkerspot butterfly survey area during a 6-week period between March 29 and May 5, 2011 (Appendix D1). No Quino checkerspot butterflies were detected during the habitat assessment or the focused adult Quino checkerspot butterfly surveys. These results were confirmed during protocol surveys in 2020 (Appendix D3).

Four County List A or B species (Jacumba milk-vetch, Tecate tarplant, sticky geraea, and desert beauty) and three County List C or D species (Payson's jewel flower, desert larkspur, and pride of California) were mapped in the project area.

Some special-status plant species observed in the project area are relatively common in the Boulevard region and/or San Diego County (e.g., Jacumba milk-vetch).

Due to the lack of presence of Quino checkerspot butterfly during USFWS protocol surveys in 2011, 2013, and 2020, the project site does not meet this definition of Sensitive Habitat Land under the RPO, because the area does not support a "rare or endangered species or sub-species of animals" as defined by Section 15380 of the CEQA Guidelines. The special-status wildlife species observed on site are commonly found in San Diego County,

including turkey vulture, coastal whiptail, and Cooper's hawk. Because the special-status species found on site are relatively common elsewhere in Boulevard or throughout San Diego County, the site itself is not "necessary to support a viable population" of any of these species within the Boulevard region.

Ecosystem

The final criterion for Sensitive Habitat Lands (SHL) is land which is critical to the proper functioning of a balanced natural ecosystem or which serves as a functioning wildlife corridor. The project site is set in a largely undeveloped region and the primary focal point is a prominent drainage, Tule Creek. Tule Creek is considered a SHL, and therefore, the project has been designed to avoid impacts to this feature.

As described in Section 1.4.8, wildlife typically move throughout many habitats and utilize a variety of paths for travel. Due to the largely undeveloped surroundings of the project area and the flat-to-moderately sloping topography, the site allows for a variety of wildlife movement opportunities and supports habitats and movement corridors that are similar to other sites within the region. Wildlife is not constrained to a particular wildlife corridor in the project area; however, Tule Creek does support significant movement functions that would warrant designation of these areas as Sensitive Habitat Lands under RPO. With development of the project, protection of and access to the primary wetland areas would satisfy the requirements of RPO.

2 Project Effects

2.1 Definition of Impacts

This section defines the types of impacts considered in this report to analyze the proposed project's potential effects on biological resources. These impacts are discussed in more detail as follows.

Direct impacts refer to 100% permanent loss of a biological resource. For purposes of this report, it refers to the area where the limits of grading and the fuel modification zone (FMZ) are proposed. A 30-foot wide FMZ, which would require vegetation removal, is provided around the perimeter of the solar arrays separating them from the off-site wildland fuels. The only except are the portions of the solar arrays that abut Tule Mountain Road and, in these areas, the width of Tule Mountain Road combined with the array perimeter road would exceed the 30-foot wide FMZ requirement. Therefore, no formal FMZ is required in the arrays that abut Tule Mountain Road. Direct impacts were quantified by overlaying the limits of grading on GIS-located biological resources (Figure 9, Impacts – Vegetation Communities and Jurisdictional Delineation). It should be noted that all proposed power pole locations occur within the impact footprint or along Tule Mountain Road within the 60-foot right-of-way. Each power pole includes a surrounding 20-foot diameter work area as required by the County, which is entirely included in the 60-foot right-of way. No impacts would occur outside the 60-foot right-of-way. Therefore, only indirect impacts are associated with the overhead transmission line. Furthermore, the proposed project has been designed to minimize permanent impacts to oak woodland and associated oak root zones, and to minimize permanent impacts to the RPO wetlands/buffers to the extent feasible, as well as minimize fuel management activities within the RPO wetlands/buffers.

Indirect impacts are reasonably foreseeable effects caused by project implementation on remaining or adjacent biological resources outside the direct limits of grading. Indirect impacts may affect areas within the defined project area but outside the limits of grading, including non-impacted areas and areas outside the project area, such as downstream effects. Indirect impacts include short-term effects immediately related to construction activities and long-term or chronic effects related to long-term maintenance of the solar panels or potential electrocution of, and/or collisions by, listed or special-status bird or bat species associated with the proposed and existing overhead transmission lines. In most cases, indirect effects are not quantified, but in some cases, quantification might be included (e.g., using a noise contour to quantify indirect impacts to nesting birds).

Cumulative impacts refer to the combined environmental effects of the proposed project and other relevant projects. In some cases, the impact from a single project may not be significant, but when combined with other projects, the cumulative impact may be significant. This report does not include analysis of cumulative impacts; this analysis is being prepared separately for direct inclusion in the CEQA document being prepared for the project.

Impact neutral refers to an open space area, comprised of an existing paved road, located between two array subareas. Following the County Guidelines (County of San Diego 2010a), areas that are not being directly impacted but cannot be counted toward mitigation will be considered "impact neutral;" these areas include RPO wetlands and wetland buffers, and isolated pockets of undeveloped lands. This area would not be impacted by the limits of grading, fuel modification, or access roads and is therefore considered impact neutral.

2.2 Vegetation Communities/Land Covers

2.2.1 Direct Impacts to Vegetation Communities/Land Covers

2.2.1.1 Temporary Direct Impacts

Short-term, construction-related, or temporary direct impacts to vegetation communities would primarily result from construction activities. Clearing, trampling, or grading of vegetation outside designated construction zones could occur in the absence of avoidance and mitigation measures. These potential effects could damage vegetation communities and alter their ecosystem, creating gaps in vegetation that allow exotic, non-native plant species to become established, thus increasing soil compaction and leading to soil erosion. The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Chapter 4, Riparian Habitat or Sensitive Natural Community.

2.2.1.2 Permanent Direct Impacts

Long-term or permanent direct impacts to vegetation communities were quantified by comparing the impact footprint with the boundaries of the vegetation communities mapped in the project area. Direct impacts to vegetation communities would occur as a result of grading activities. The County (County of San Diego 2010a) requires a 50-foot oak root protection zone established around the oak woodlands in the project area. The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Chapter 4. Table 2-1 shows the acreage of direct impacts to vegetation communities in the project area as a result of the limits of grading (Figure 9).

Table 2-1. Impacts – Vegetation Communities

Habitat Types/Vegetation Communities	Existing Acreage (Acres) [1]	Permanent Impacts			Open Space (Acres)[3]
		Impacts – Limits of Grading (Acres)	Fuel Modification Zone (Acres)	SDG&E Construction Yard	
Upland Scrub and Chaparral					
Big Sagebrush Scrub*	75.93	47.25	2.43	—	26.25
Big Sagebrush Scrub (Disturbed)*	14.25	0.59	0.07	—	13.58
Montane Buckwheat Scrub*	102.39	43.56	2.97	11.30	44.56
Montane Buckwheat Scrub (Disturbed)*	9.64	5.96	0.34	0.47	2.86
Granitic Chamise Chaparral*	116.83	89.34	5.68	0.18	21.64
Granitic Northern Mixed Chaparral*	11.30	—	—	—	11.30
Red Shank Chaparral*	42.89	31.33	1.44	0.01	10.11
Scrub Oak Chaparral*	73.65	54.82	3.13	0.01	15.69
Scrub Oak Chaparral (Disturbed)*	0.54	—	—	—	0.54
Semi-Desert Chaparral*	102.55	41.62	3.45	—	57.49
Semi-Desert Chaparral – Rock*	12.39	0.01	0.10	—	12.28
Semi-Desert Chaparral (Disturbed)*	1.56	0.02	—	—	1.54
Subtotal	*563.92*	*314.48*	*19.61*	*11.98*	*217.85*
Upland Woodland and Savannah					
Coast Live Oak Woodland*	9.38	0.48	—	0.06	8.84
Mixed Oak Woodland*	2.19	—	—	—	2.19
Subtotal	*11.56*	*0.48*	—	*0.06*	*11.03*
Riparian Herb					
Alkali Meadow*	14.27	0.05	—	—	14.22
Alkali Meadow (Disturbed)*	4.61	0.16	—	—	4.45

Table 2-1. Impacts – Vegetation Communities

Habitat Types/Vegetation Communities	Existing Acreage (Acres) [1]	Permanent Impacts			Open Space (Acres)[3]
		Impacts – Limits of Grading (Acres)	Fuel Modification Zone (Acres)	SDG&E Construction Yard	
Subtotal	*18.88*	*0.21*	—	—	*18.67*
Riparian Scrub					
Mulefat Scrub (Disturbed)*	0.50	—	—	—	0.50
Tamarisk Scrub*	5.58	0.52	0.25	—	4.82
Subtotal	*6.08*	*0.52*	*0.25*	—	*5.32*
Unvegetated Waters					
Non-Vegetated Channel*	1.64	0.01	<0.01	—	1.63
Subtotal	*1.6*	*0.01*	*<0.01*	—	*1.63*
Non-Native Communities and Land Covers					
Disturbed Habitat	49.48	14.59	0.99	6.06	27.83
Non-Native Grassland*	101.38	18.28	3.64	—	79.46
Non-Native Grassland: Broadleaf-Dominated*	0.16	—	—	—	0.16
Open Water	0.18	—	—	—	0.18
Urban/Developed	10.79	—	0.01	—	10.78
Subtotal	*161.99*	*32.87*	*4.64*	*6.06*	*118.41*
Total	**764.07**	**348.57**	**24.50**	**18.10**	**372.90**
Oak Root Zone [2]	**26.22**	**2.06**	**<0.01**	**0.18**	**23.99**

Notes:

1 Totals may not sum due to rounding.

2 Oak root zone is overlaid on the biological resources and is not counted toward the overall acreage.

3 Open Space includes both impact neutral acreages, which will not be counted toward mitigation, and a portion of the SDG&E construction yard.

* Considered special-status by the County (County of San Diego 2010a).

- Rugged Solar Farm Project Boundary
- SDG&E Construction Yard
- Fence line
- Onsite Impact Area
- Open Space
- Fuel Mod Zone
- Vegetation Communities

Uplands

- BSS - Big Sagebrush Scrub
- dBSS - disturbed Big Sagebrush Scrub
- CC - Granitic Chamise Chaparral
- CLOW - Coast Live Oak Woodland
- DEV - Urban/Developed
- DH - Disturbed Habitat
- MBWS - Montane Buckwheat Scrub
- dMBWS - disturbed Montane Buckwheat Scrub
- MOW - Mixed Oak Woodland
- NNG - Non-Native Grassland
- NNGB - Non-Native Grassland-Broadlead-Dominated
- OW - Open Water
- RSCH - Red Shank Chaparral
- SDC - Semi-Desert Chaparral
- dSDC - disturbed Semi-Desert Chaparral
- SDC-rock - Semi-Desert Chaparral - Rock
- SMX - Granitic Northern Mixed Chaparral
- SOC - Scrub Oak Chaparral
- dSOC - disturbed Scrub Oak Chaparral
- Oak Root Zone

Wetlands

- AM - Alkali Meadow
- dAM - disturbed Alkali Meadow
- dMFS - disturbed Mulefat Scrub
- NVC - Non-Vegetated Channel
- TS - Tamarisk Scrub

Jurisdictional Delineation

- CDFW - Riparian
- CDFW/County - Riparian
- USACE/CDFW/RWQCB - Streambed/Stream Channel
- USACE/CDFW/RWQCB/County - Ripaian/Wetland
- RPO Wetlands

SOURCE: Michael Baker 2020; SANGIS 2020

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FIGURE 9

Impacts - Vegetation Communities and Jurisdictional Delineation

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2.2.2 Indirect Impacts to Vegetation Communities

2.2.2.1 Temporary Indirect Impacts

Potential short-term or temporary indirect impacts to special-status vegetation communities in the project area would primarily result from construction activities and include impacts related to or resulting from the generation of fugitive dust; changes in hydrology resulting from construction, including sedimentation and erosion; and the introduction of chemical pollutants (including herbicides). Potential short-term indirect impacts that could affect all the special-status vegetation communities that occur on the project site are described in detail as follows.

Generation of Fugitive Dust. Excessive dust can decrease the vigor and productivity of vegetation through effects on light, penetration, photosynthesis, respiration, transpiration, increased penetration of phytotoxic gaseous pollutants, and increased incidence of pests and diseases.

Changes in Hydrology. Construction could result in hydrologic and water-quality-related impacts adjacent to and downstream of the construction area. Hydrologic alterations include changes in flow rates and patterns in streams and rivers and dewatering, which may affect adjacent and downstream aquatic, wetland, and riparian vegetation communities. Water-quality impacts include chemical-compound pollution (fuel, oil, lubricants, paints, release agents, and other construction materials), erosion, increased turbidity, and excessive sedimentation. Direct impacts, as described previously, can also remove native vegetation and increase runoff from roads and other paved surfaces, resulting in increased erosion and transport of surface matter into vegetation communities. Altered erosion, increased surface flows, and underground seepage can allow for the establishment of non-native plants. Changed hydrologic conditions can also alter seed bank characteristics and modify habitat for ground-dwelling fauna that may disperse seed.

Chemical Pollutants. Erosion and chemical pollution (releases of fuel, oil, lubricants, paints, release agents, and other construction materials) may affect special-status vegetation communities. The use of chemical pollutants can decrease the number of plant pollinators, increase the existence of non-native plants, and cause damage to and destruction of native plants. No herbicides will be used during construction.

All special-status vegetation communities on site could be impacted by potential temporary indirect impacts such as those previously listed. The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Chapter 4.

2.2.2.2 Permanent Indirect Impacts

Long-term (operation-related) or permanent indirect impacts could result from the proximity of the proposed project to special-status vegetation communities after construction, including impacts related to operation and maintenance. Operation and maintenance activities will occur within the impact footprint. Permanent indirect impacts that could affect special-status vegetation communities include generation of fugitive dust, habitat fragmentation, chemical pollutants, altered hydrology, non-native invasive species, increased human activity, alteration of the natural fire regime, and shading. Each of these potential indirect impacts is discussed as follows.

Generation of Fugitive Dust. The effects of fugitive dust on special-status vegetation communities are described in Section 2.2.2.1.

Habitat Fragmentation. Habitat fragmentation and isolation of plant populations may cause extinction of local populations as a result of two processes: reduction in total habitat area, which reduces effective population sizes; and insularization of local populations, which affects dispersal rates (Wilcox and Murphy 1985; Wilcove et al. 1986). Although these effects are more readily observable in wildlife, there are potential ecological effects, such as changes in pollinator populations, which can result in altered plant community composition and thus adversely affect special-status vegetation communities.

Chemical Pollutants. The effects of chemical pollutants on special-status vegetation communities are described in Section 2.2.2.1. During operation and maintenance, herbicides may be used to prevent vegetation from reoccurring around structures. However, weed control treatments shall include all legally permitted chemical, manual, and mechanical methods applied with the authorization of the San Diego County agriculture commissioner. Additionally, the herbicides used during operation and maintenance activities will be contained within the proposed project impact footprint.

Altered Hydrology. Water would be used for operational purposes for cleaning the solar modules and for reapplication of the nontoxic permeable soils stabilizers that may alter the on-site hydrologic regime. These hydrologic alterations may affect special-status vegetation communities. Altered hydrology can allow for the establishment of non-native plants and invasion by Argentine ants, which can compete with native ant species that could be seed dispersers or plant pollinators. Potential impacts would be reduced by design features that (i) contain the water and associated runoff used during operation and maintenance activities within the proposed project impact footprint, (ii) specify installation of drip-irrigated landscaping for the proposed project, and (iii) ensure that nursery stock has been fumigated against ant infestation prior to transport to the project site.

Non-Native, Invasive Plant and Animal Species. Invasive plant species that thrive in edge habitats are a well-documented problem in Southern California and throughout the United States. Development could also fragment native plant populations, which may increase the likelihood of invasion by exotic plants due to the increased interface between natural habitats and developed areas. Bossard et al. (2000) list several adverse effects of non-native species in natural open areas, including but not limited to the fact that exotic plants compete for light, water, and nutrients and can create a thatch that blocks sunlight from reaching smaller native plants. Exotic plant species may alter habitats and displace native species over time, leading to extirpation of native plant species and unique vegetation communities. The introduction of non-native, invasive animal species could negatively affect native species that may be pollinators of or seed dispersal agents for plants within special-status vegetation communities. A large number of non-native annual grasses are specific to eastern San Diego County, including Mediterranean grass (*Schismus barbatus*) and cheat grass (*Bromus tectorum*), which have increased in population size near newly created roads, power lines, and on new construction sites or adjacent to new construction sites. Specifically, Mediterranean grass spreads rapidly and can only be controlled chemically. This is based upon observations by Dudek biologists within eastern San Diego County.

Increased Human Activity. The proposed project includes a building that would provide a base of operations and maintenance for approximately 25 to 30 fulltime employees. Increased human activity could result in the potential for trampling of vegetation outside of the impacts footprint, as well as soil compaction, and could affect the viability of plant communities. Trampling can alter the ecosystem, creating gaps in vegetation and allowing exotic, non-native plant species to become established, leading to soil erosion. Trampling may also affect the rate of rainfall interception and evapotranspiration, soil moisture, water penetration pathways, surface flows, and erosion. An increased human population increases the risk for damage to special-status vegetation communities.

Alteration of the Natural Fire Regime. The proposed project could potentially increase the risk of fire, including but not limited to fire associated with electrical shorts or electrical equipment malfunction. Shorter-than-natural fire return intervals can preclude recovery of the native vegetation between fires, weaken the ecological system, allow for invasion of exotic species, and, in some cases, result in permanent transition of the vegetation to non-native communities such as annual grassland and weedy communities (Malanson and O'Leary 1982; Keeley 1987; O'Leary et al. 1992). If the natural fire regime is suppressed, longer-than-natural fire return intervals can result in excessive buildup of fuel loads so that when fires do occur, they are catastrophic. Unnaturally long fire intervals can also result in senescence of plant communities, such as chaparral, that rely on shorter intervals for rejuvenation.

Shading. The proposed project includes inverters and transformers mounted on a skid that would include a shade structure. Shading can reduce the amount of sunlight available for photosynthesis, eliminating longer wavelengths of the visible light spectrum, and can reduce transpiration due to reduced photosynthetic rates, increasing soil moisture, and resulting in changes to soil nutrient availability and microbial communities, potentially favoring non-native species and other shade-tolerant plants. However, shading will be contained within the proposed project impact footprint, and long-term indirect impacts associated with shading are not expected.

All special-status vegetation communities in the project area could be impacted by potential long-term or permanent indirect impacts such as those previously listed. The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Chapter 4.

2.3 Special-Status Plant Species

2.3.1 Direct Impacts to Special-Status Plant Species

2.3.1.1 Temporary Direct Impacts

Short-term, construction-related, or temporary direct impacts to special-status plants would primarily result from construction activities. Clearing, trampling, or grading of special-status plants outside designated construction zones could occur in the absence of avoidance and mitigation measures. These potential effects could damage individual plants and/or alter their ecosystem, creating gaps in vegetation that allow exotic, non-native plant species to become established, thus increasing soil compaction and leading to soil erosion. All special-status plant species on site could be impacted by potential temporary direct impacts such as those previously listed. The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Chapter 3, Special-Status Species.

2.3.1.2 Permanent Direct Impacts

Long-term or permanent direct impacts to special-status plant species were quantified by comparing the impact footprint with the occurrence data for each special-status plant species. The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Chapter 3. Table 2-2 includes each species' County status, CRPR, estimates of the number of individuals on site, and an assessment of permanent direct impacts based on the number of individual plants located within the impact footprint (both on site and off site), and the estimated percentage of occurrences impacted on site (Figures 10A and 10B).

Table 2-2. Summary of Direct Impacts to Special-Status Plant Species

County List	Species	CRPR	Individuals within Project Area	Impacts to Number of Individuals	Percent of Occurrences Impacted
A	Jacumba milkvetch	1B.2	1,518	1,210	80%
	Tecate tarplant	1B.2	4,995	—	0%
B	Sticky geraea	2B.3	950	544	57%
	Desert beauty	2B.1	216	203	94%
D	Peninsular spineflower	4.2	190	190	100%
	Colorado desert larkspur	4.3	1,932	772	40%
	Pride of California	4.3	3	3	100%
	Payson's jewel flower	4.2	1-10	—	0%
	Low bush monkeyflower	4.3	1-10	—	0%

CRPR: California Rare Plant Rank
1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
4: Plants of Limited Distribution – A Watch List
Threat Rank
0.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
0.2 – Moderately threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)
0.3 – Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

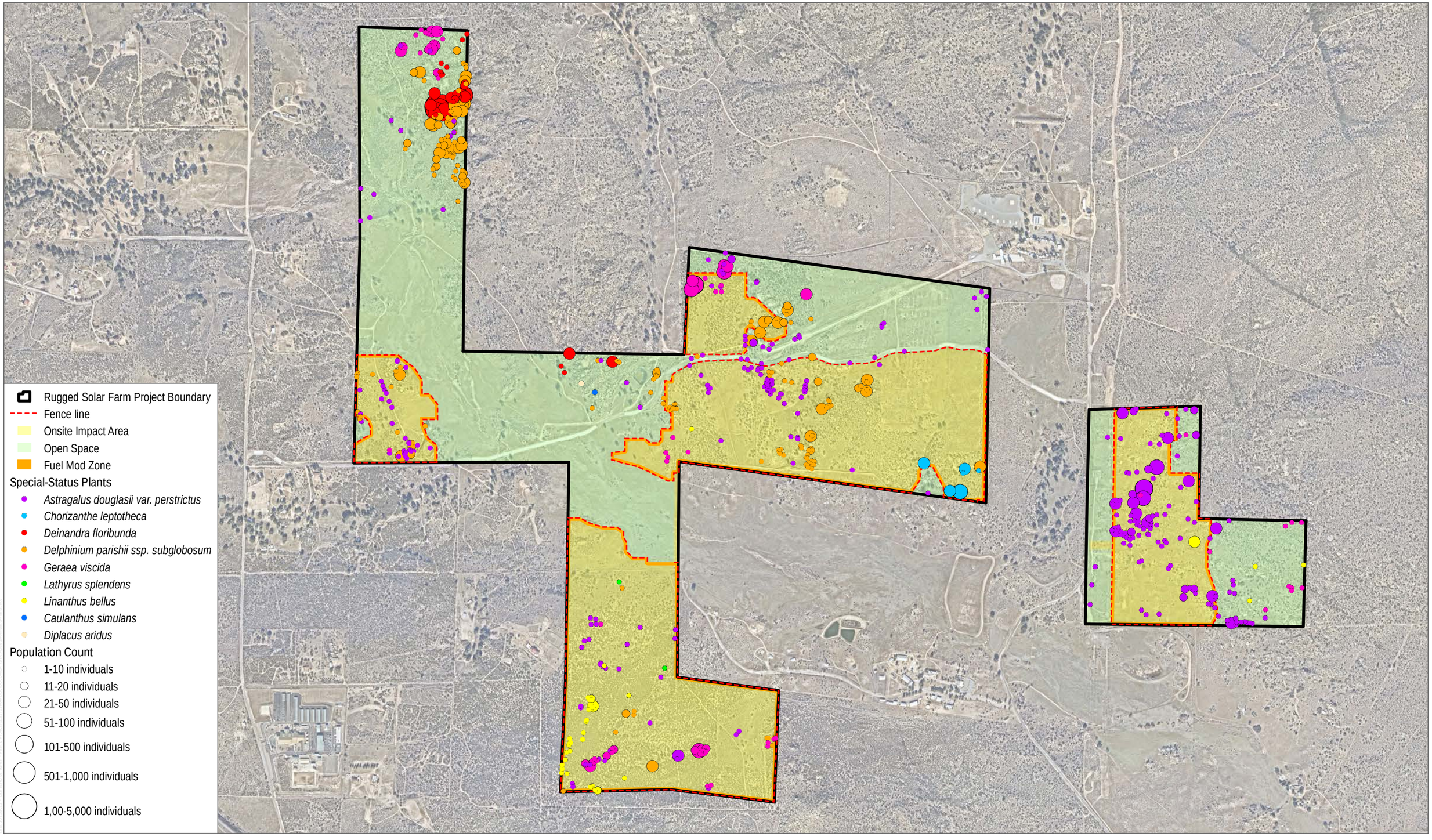
2.3.2 Indirect Impacts to Special-Status Plant Species

2.3.2.1 Temporary Indirect Impacts

Potential short-term or temporary indirect impacts to special-status plant species in the project area would primarily result from construction activities and include impacts related to or resulting from the generation of fugitive dust; changes in hydrology resulting from construction, including sedimentation and erosion; and the introduction of chemical pollutants, including herbicides. Potential short-term indirect impacts that could affect all the special-status plant species that occur on the project site are described in detail as follows.

Generation of Fugitive Dust. Excessive dust can decrease the vigor and productivity of special-status plants through effects on light, penetration, photosynthesis, respiration, transpiration, increased penetration of phytotoxic gaseous pollutants, and increased incidence of pests and diseases.

Changes in Hydrology. Construction could result in hydrologic and water-quality-related impacts adjacent to and downstream of the construction area. Hydrologic alterations include changes in flow rates and patterns in streams and rivers and dewatering, which may affect adjacent and downstream aquatic, wetland, and riparian vegetation communities. Water-quality impacts include chemical-compound pollution (fuel, oil, lubricants, paints, release agents, and other construction materials), erosion, increased turbidity, and excessive sedimentation. Direct impacts, as described previously, can also remove native vegetation and increase runoff from roads and other paved surfaces, resulting in increased erosion and transport of surface matter into special-status plant occurrences. Altered erosion, increased surface flows, and underground seepage can allow for the establishment of non-native plants. Changed hydrologic conditions can also alter seed bank characteristics and modify habitat for ground-dwelling fauna that may disperse seed.



SOURCE: AECOM 2011; Michael Baker 2020; SANGIS 2020

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0 500 1,000 Feet

FIGURE 10A

Impacts - Special-Status Plant Observations

Biological Resources Report - Rugged Solar Farm

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Rugged Solar Farm Project Boundary
Fence line
Onsite Impact Area
Open Space
Fuel Mod Zone

Special-Status Wildlife
Bell's sage sparrow
Blainville's horned lizard
California horned lark
Cooper's hawk
loggerhead shrike
mule deer
oak titmouse
Orange-throated whiptail
Prairie falcon
Red-tailed hawk
San Diego black-tailed jackrabbit
San Diegan tiger whiptail
Swainson's hawk
turkey vulture
western bluebird
white-tailed antelope squirrel
woodrat sp.
yellow warbler

SOURCE: Michael Baker 2019; SANGIS 2017

DUDEK

0 500 1,000 Feet

FIGURE 10B

Impacts - Special-Status Wildlife Observations

Biological Resources Report - Rugged Solar Farm

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Chemical Pollutants. Erosion and chemical pollution (releases of fuel, oil, lubricants, paints, release agents, and other construction materials) may affect special-status plant species. The use of chemical pollutants can decrease the number of plant pollinators, increase the existence of non-native plants, and cause damage to and destruction of native plants. No herbicides will be used during construction.

All special-status plant species on site could be impacted by potential temporary indirect impacts such as those previously listed. The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Chapter 3.

2.3.2.2 Permanent Indirect Impacts

Long-term (operation-related) or permanent indirect impacts could result from the proximity of the proposed project to special-status plants after construction, including impacts related to operation and maintenance. Operation and maintenance activities will occur within the impact footprint. Permanent indirect impacts that could affect special-status plant species include generation of fugitive dust, habitat fragmentation, chemical pollutants, altered hydrology, non-native invasive species, increased human activity, alteration of the natural fire regime, and shading. Each of these potential indirect impacts is discussed as follows.

Generation of Fugitive Dust. The effects of fugitive dust on special-status plants are described above in Section 2.3.2.1.

Habitat Fragmentation. Habitat fragmentation and isolation of plant populations may cause extinction of local populations as a result of two processes: reduction in total habitat area, which reduces effective population sizes; and insularization of local populations, which affects dispersal rates (Wilcox and Murphy 1985; Wilcove et al. 1986).

Chemical Pollutants. The effects of chemical pollutants on special-status plants are described above in Section 2.3.2.1. During operation and maintenance, herbicides may be used to prevent vegetation from reoccurring around structures. However, weed control treatments shall include all legally permitted chemical, manual, and mechanical methods applied with the authorization of the San Diego County agriculture commissioner. Additionally, the herbicides used during operation and maintenance activities will be contained within the proposed project impact footprint.

Altered Hydrology. Water would be used for operational purposes for cleaning the solar modules and for reapplication of the nontoxic permeable soils stabilizers that may alter the on-site hydrologic regime. These hydrologic alterations may affect special-status plant species. Altered hydrology can allow for the establishment of non-native plants and invasion by Argentine ants, which can compete with native ant species that could be seed dispersers or plant pollinators. Project design features that (i) contain operational water use, and associated runoff, within the proposed project impact footprint; (ii) specify installation of drip-irrigated landscaping for the proposed project, and (iii) ensure that landscape stock has been fumigated against ant infestation prior to transport to the project site would control non-native exotic herbaceous plants from spreading out from the project footprint and possibly out-competing sensitive annual species in the zone around the project footprint. Potential impacts would be reduced to less than significant.

Non-Native, Invasive Plant and Animal Species. Invasive plant species that thrive in edge habitats are a well-documented problem in Southern California and throughout the United States. Development could also fragment native plant populations, which may increase the likelihood of invasion by exotic plants due to the increased interface between natural habitats and developed areas. Bossard et al. (2000) list several adverse effects of non-native species in natural open areas, including but not limited to the fact that exotic plants compete for light, water,

and nutrients and can create a thatch that blocks sunlight from reaching smaller native plants. Exotic plant species may alter habitats and displace native species over time and with the introduction of altered hydrology, leading to extirpation of native plant species. The introduction of non-native, invasive animal species could negatively affect native species that may be pollinators of or seed dispersal agents for special-status plant species, as discussed above. Large numbers of non-native annual grasses are specific to eastern San Diego County, including Mediterranean grass and cheat grass, which have increased in population size near newly created roads, power lines, and on new construction sites or adjacent to new construction sites. Specifically, Mediterranean grass spreads rapidly and can only be controlled chemically. This is based upon observations by Dudek biologists within eastern San Diego County.

Increased Human Activity. The proposed project includes an operation and maintenance building that would provide a base of operations and maintenance for approximately 25 to 30 fulltime employees. Increased human activity could result in the potential for trampling of vegetation outside of the impacts footprint, as well as soil compaction, and could affect the viability of plant communities. Trampling can damage individual special-status plants and alter their ecosystem, creating gaps in vegetation and allowing exotic, non-native plant species to become established, leading to soil erosion. Trampling may also affect the rate of rainfall interception and evapotranspiration, soil moisture, water penetration pathways, surface flows, and erosion. An increased human population increases the risk for the collection of and damage to special-status plant species.

Alteration of the Natural Fire Regime. The proposed project could potentially increase the risk of fire, including but not limited to fire associated with electrical shorts or electrical equipment malfunction. Shorter-than-natural fire return intervals can preclude recovery of the native vegetation between fires, weaken the ecological system, allow for invasion of exotic species, and result, in some cases, in permanent transition of the vegetation to non-native communities such as annual grassland and weedy communities (Malanson and O'Leary 1982; Keeley 1987; O'Leary et al. 1992). If the natural fire regime is suppressed, longer-than-natural fire return intervals can result in excessive buildup of fuel loads so that when fires do occur, they are catastrophic. Unnaturally long fire intervals can also result in senescence of plant communities, such as chaparral, that rely on shorter intervals for rejuvenation.

Shading. The proposed project includes inverters and transformers mounted on a skid that would include a shade structure. Shading can reduce the amount of sunlight available for photosynthesis, eliminating longer wavelengths of the visible light spectrum, and can reduce transpiration due to reduced photosynthetic rates, increasing soil moisture, and resulting in changes to soil nutrient availability and microbial communities, potentially favoring non-native species and other shade-tolerant plants. However, shading will be contained within the proposed project impact footprint and long-term indirect impacts associated with shading are not expected.

All special-status plant species on site could be impacted by potential long-term, or permanent indirect impacts such as those previously listed. The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Chapter 3.

2.4 Special-Status Wildlife Species

2.4.1 Direct Impacts to Special-Status Wildlife Species

2.4.1.1 Temporary Direct Impacts

Short-term, construction-related, or temporary direct impacts to special-status wildlife species would primarily result from construction activities. Clearing, trampling, or grading of vegetation communities outside designated construction zones could occur in the absence of avoidance and mitigation measures. These potential effects could reduce suitable habitat for wildlife species and alter their ecosystem, thus creating gaps in vegetation that allow exotic, non-native plant species to become established. The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Chapter 3.

2.4.1.2 Permanent Direct Impacts

Long-term or permanent direct impacts to special-status wildlife species were quantified by comparing the impact footprint with suitable habitat for wildlife species. The direct impacts include the project components. Table 2-3 outlines impacts to suitable habitat for County Group 1 and/or SSC species that are known to occur within the project area and those with a high potential to occur. Group 2 special-status wildlife species, that are not state SSC designated animals, are not included in the table. These Group 2 species that are not SSC designated occur within a variety of habitats and through a wide geographic, topographic, and elevation ranges where there are an abundance of these species in the region. The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Chapter 3.

Table 2-3. Impacts to Suitable Habitat for Group 1 and/or Species of Special Concern Wildlife Species

Species Common Name (Scientific Name)	Regulatory Status: Federal/ State/ County Group	Modeled Habitat within the Project Area	Occurrence and Habitat within the Project Area	Impacted Habitat within the Project Area	Significance Determination
Invertebrates, Amphibians, and Reptiles					
Quino checkerspot butterfly *(Euphydryas editha quino)*	USFWS: FE CDFW: None County: Group 1	• Alkali Meadow • Big Sagebrush Scrub • Disturbed Habitat • Disturbed Mulefat Scrub • Semi-Desert Chaparral • Granitic Chamise Chaparral • Granitic Northern Mixed Chaparral • Oak Woodland • Montane Buckwheat Scrub • Non-Native Grassland • Non-Vegetated Channel • Red Shank Chaparral • Scrub Oak Chaparral • Semi-Desert Chaparral • Tamarisk Scrub	Not observed in the project area during 2011, 2013 or 2020 protocol surveys. Approximately 0.38 acres of host plants, thread-leaved bird's beak and white snapdragon, documented within project area. There is 753.1 acres of modeled habitat within the project area.	There are 391.2 acres of modeled habitat potentially impacted as a result of the project.	Although there is potentially suitable modeled habitat, three protocol surveys, including the most recent in 2020 were negative. Therefore, impacts to unoccupied suitable habitat is less than significant.
San Diegan tiger whiptail (*Aspidoscelis tigris stejnegeri*)	USFWS: None CDFW: SSC County: Group 2	• Big Sagebrush Scrub • Disturbed Mulefat Scrub • Granitic Chamise Chaparral • Granitic Northern Mixed Chaparral • Oak Woodland • Montane Buckwheat Scrub • Non-Native Grassland • Non-Vegetated Channel • Red Shank Chaparral • Scrub Oak Chaparral • Semi-Desert Chaparral	Observed throughout the project area. There are 679.2 acres of modeled habitat within the project area.	There are 368.5 acres of modeled habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).

Orange-throated whiptail (*Aspidoscelis hyperythra*)	USFWS: None CDFW: SSC County: Group 2	• Big Sagebrush Scrub • Disturbed Mulefat Scrub • Granitic Chamise Chaparral • Granitic Northern Mixed Chaparral • Oak Woodland • Montane Buckwheat Scrub • Non-Native Grassland • Non-Vegetated Channel • Red Shank Chaparral • Scrub Oak Chaparral • Semi-Desert Chaparral	Observed in the eastern portion of the project area. There are 679.2 acres of modeled habitat within the project area.	There are 368.5 acres of modeled habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).
Blainville's horned lizard (*Phrynosoma blainvillii*)	USFWS: None CDFW: SSC County: Group 2	• Big Sagebrush Scrub • Disturbed Mulefat Scrub • Granitic Chamise Chaparral • Granitic Northern Mixed Chaparral • Oak Woodland • Montane Buckwheat Scrub • Non-Native Grassland • Red Shank Chaparral • Scrub Oak Chaparral • Semi-Desert Chaparral	Observed throughout the project area. There are 677.5 acres of modeled habitat within the project area.	There are 368.5 acres of modeled habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).
Coast patch-nosed snake (*Salvadora hexalepis virgultea*)	USFWS: None CDFW: SSC County: Group 2	• Big Sagebrush Scrub • Disturbed Habitat • Disturbed Mulefat Scrub • Granitic Chamise Chaparral • Granitic Northern Mixed Chaparral • Oak Woodland • Montane Buckwheat Scrub • Non-Native Grassland • Red Shank Chaparral • Scrub Oak Chaparral	High potential to occur. There are 727.0 acres of modeled habitat within the project area.	There are 390.2 acres of modeled habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).

		• Semi-Desert Chaparral			
Coronado skink (*Plestiodon skiltonianus interparietalis*)	USFWS: None CDFW: SSC County: Group 2	• Big Sagebrush Scrub • Disturbed Mulefat Scrub • Granitic Chamise Chaparral • Granitic Northern Mixed Chaparral • Oak Woodland • Montane Buckwheat Scrub • Non-Native Grassland • Non-Vegetated Channel • Red Shank Chaparral • Scrub Oak Chaparral • Semi-Desert Chaparral	High potential to occur. There are 679.2 acres of modeled habitat within the project area.	There are 368.5 acres of modeled habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).
Red-diamond rattlesnake (*Crotalus ruber*)	USFWS: None CDFW: SSC County: Group 2	• Big Sagebrush Scrub • Disturbed Habitat • Disturbed Mulefat Scrub • Granitic Chamise Chaparral • Granitic Northern Mixed Chaparral • Oak Woodland • Montane Buckwheat Scrub • Non-Native Grassland • Non-Vegetated Channel • Red Shank Chaparral • Scrub Oak Chaparral • Semi-Desert Chaparral	High potential to occur. There are 728.6 acres of modeled habitat within the project area.	There are 390.2 acres of modeled habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).
Two-striped garter snake (*Thamnophis hammondii*)	USFWS: None CDFW: SSC County: Group 1	• Alkali Meadow • Disturbed Mulefat Scrub • Open Water • Tamarisk Scrub	High potential to occur. There are 25.1 acres of modeled habitat within the project area.	There is 1.0 acre of modeled habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than

					5% of habitat within the project area (Impact W-3).
Western spadefoot (*Spea hammondii*)	USFWS: None CDFW: SSC County: Group 2	• Alkali Meadow • Non-Vegetated Channel • Open Water • Tamarisk Scrub	High potential to occur. There are 26.3 acres of modeled habitat within the project area.	There is 1.0 acre of modeled habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).
Birds					
Bell's sage sparrow (*Artemisiospiza belli belli)*	USFWS: BCC CDFW: WL County: Group 1	• Big Sagebrush Scrub • Granitic Chamise Chaparral • Granitic Northern Mixed Chaparral • Montane Buckwheat Scrub • Red Shank Chaparral • Scrub Oak Chaparral • Semi-Desert Chaparral	Observed within the central portion of the project area. There are 563.9 acres of modeled habitat within the project area.	There are 346.1 acres of modeled habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).
Cooper's hawk (*Accipiter cooperii*) (foraging)	USFWS: None CDFW: WL County: Group 1	Nesting • Oak Woodland • Tamarisk Scrub Foraging • Alkali Meadow • Big Sagebrush Scrub • Granitic Chamise Chaparral	Observed within the northwestern and eastern portions of the project area. There are 17.1 acres of modeled nesting habitat and 703.6 acres of modeled foraging habitat within the project area.	There are 1.3 acres of modeled nesting habitat potentially impacted and 369.5 acres of modeled foraging habitat potentially	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of

		• Granitic Northern Mixed Chaparral • Oak Woodland • Montane Buckwheat Scrub • Non-Native Grassland • Non-Vegetated Channel • Red Shank Chaparral • Scrub Oak Chaparral • Semi-Desert Chaparral • Tamarisk Scrub		impacted as a result of the project.	mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).
Golden eagle (*Aquila chrysaetos*) (foraging)	USFWS: BCC CDFW: WL, FP County: Group 1	Foraging • Alkali Meadow • Big Sagebrush Scrub • Granitic Chamise Chaparral • Granitic Northern Mixed Chaparral • Oak Woodland • Montane Buckwheat Scrub • Non-Native Grassland • Non-Vegetated Channel • Red Shank Chaparral • Scrub Oak Chaparral • Semi-Desert Chaparral • Tamarisk Scrub	High potential to forage. There are 703.6 acres of modeled foraging habitat within the project area.	There are 369.5 acres of modeled foraging habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).
Loggerhead shrike (*Lanius ludovicianus*)	USFWS: BCC CDFW: SSC County: Group 1	• Big Sagebrush Scrub • Disturbed Mulefat Scrub • Granitic Chamise Chaparral • Granitic Northern Mixed Chaparral • Montane Buckwheat Scrub • Non-Native Grassland • Semi-Desert Chaparral • Tamarisk Scrub	Observed within the eastern portion of the project area. There are 554.5 acres of modeled foraging habitat within the project area.	There are 278.0 acres of modeled foraging habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the

					project area (Impact W-3).
Northern harrier (*Circus cyaneus*) (foraging)	USFWS: None CDFW: SSC County: Group 1	• Alkali Meadow • Big Sagebrush Scrub • Disturbed Mulefat Scrub • Oak Woodland • Montane Buckwheat Scrub • Non-Native Grassland • Non-Vegetated Channel	Observed within the southeast portion of the project area. There are 336.3 acres of modeled foraging habitat within the project area.	There are 137.6 acres of modeled foraging habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).
Prairie falcon (*Falco mexicanus*)	USFWS: BCC CDFW: WL County: Group 1	• Alkali Meadow • Big Sagebrush Scrub • Montane Buckwheat Scrub • Non-Native Grassland • Non-Vegetated Channel	Observed within the central portion of the project area. There are 324.3 acres of modeled foraging habitat within the project area.	There are 137.1 acres of modeled habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).
Red-shouldered hawk (*Buteo lineatus*)	USFWS: None CDFW: None County: Group 1	Nesting • Oak Woodland • Tamarisk Scrub Foraging • Alkali Meadow • Big Sagebrush Scrub • Granitic Chamise Chaparral • Montane Buckwheat Scrub • Non-Native Grassland • Non-Vegetated Channel	There are 17.1 acres of modeled nesting habitat and 686.5 acres of modeled foraging habitat within the project area.	There are 1.3 acres of modeled nesting habitat potentially impacted and 368.2 acres of modeled foraging habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the

		• Red Shank Chaparral • Scrub Oak Chaparral • Semi-Desert Chaparral			project area (Impact W-3).
Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)	USFWS: None CDFW: SSC County: Group 1	• Big Sagebrush Scrub • Disturbed Mulefat Scrub • Granitic Chamise Chaparral • Granitic Northern Mixed Chaparral • Montane Buckwheat Scrub • Non-Native Grassland • Semi-Desert Chaparral	High potential to occur. There are 548.9 acres of modeled foraging habitat within the project area.	There are 277.3 acres of modeled habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).
Tricolored blackbird (*Agelaius tricolor*) (foraging)	USFWS: BCC CDFW: ST, SSC County: Group 1	Habitat within 3 kilometers of nesting colony: • Alkali Meadow • Non-Native Grassland • Open Water • Disturbed Mulefat Scrub • Tamarisk Scrub	Observed flying over the project area. High potential to occur. There are 10.1 acres of modeled foraging habitat within the project area.	There is 8.3 acres of modeled habitat impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).
Turkey vulture (*Cathartes aura*)	USFWS: None CDFW: None County: Group 1	• Alkali Meadow • Big Sagebrush Scrub • Disturbed Habitat • Disturbed Mulefat Scrub • Granitic Chamise Chaparral • Granitic Northern Mixed Chaparral • Oak Woodland • Montane Buckwheat Scrub	Observed flying over the project area. There are 514.5 acres of modeled foraging habitat within the project area.	There are 254.5 acres of modeled habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the

		• Non-Native Grassland • Non-Vegetated Channel			project area (Impact W-3).
Yellow warbler (*Setophaga petechial)* (foraging)	USFWS: BCC CDFW: SSC County: Group 2	• Oak Woodland • Disturbed Mulefat Scrub • Tamarisk Scrub	Observed within the central portion of the project area. There are 17.6 acres of modeled foraging habitat within the project area.	There are 1.3 acres of modeled foraging habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).
Mammals					
Dulzura pocket mouse (*Chaetodipus californicus femoralis*)	USFWS: None CDFW: SSC County: Group 2	• Big Sagebrush Scrub • Non-Native Grassland • Semi-Desert Chaparral	High potential to occur. There are 308.2 acres of modeled habitat within the project area.	There are 117.5 acres of modeled habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).
Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax)*	USFWS: None CDFW: SSC County: Group 2	• Big Sagebrush Scrub • Granitic Chamise Chaparral • Granitic Northern Mixed Chaparral • Montane Buckwheat Scrub • Non-Native Grassland • Non-Vegetated Channel • Red Shank Chaparral	High potential to occur. There are 677.9 acres of modeled habitat within the project area.	There are 368.0 acres of modeled habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project

		• Scrub Oak Chaparral • Semi-Desert Chaparral • Urban/Developed			would impact more than 5% of habitat within the project area (Impact W-3).
San Diego Black-Tailed Jackrabbit (*Lepus californicus bennettii*)	USFWS: None CDFW: SSC County: Group 2	• Alkali Meadow • Big Sagebrush Scrub • Disturbed Habitat • Disturbed Mulefat Scrub • Semi-Desert Chaparral • Granitic Chamise Chaparral • Granitic Northern Mixed Chaparral • Oak Woodland • Montane Buckwheat Scrub • Non-Native Grassland • Non-Vegetated Channel • Red Shank Chaparral • Scrub Oak Chaparral • Semi-Desert Chaparral • Tamarisk Scrub	Observed throughout the project area. There are 753.1 acres of modeled habitat within the project area.	There are 391.2 acres of modeled habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).
San Diego desert woodrat (*Neotoma lepida intermedia*)	USFWS: None CDFW: SSC County: Group 2	• Big Sagebrush Scrub • Disturbed Mulefat Scrub • Granitic Chamise Chaparral • Granitic Northern Mixed Chaparral • Montane Buckwheat Scrub • Non-Native Grassland • Red Shank Chaparral • Scrub Oak Chaparral • Semi-Desert Chaparral	High potential to occur based on presence of middens within the project area. There are 666.0 acres of modeled habitat within the project area.	There are 368.0 acres of modeled habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).
Mexican long-tongued bat (*Choeronycteris mexicana*) (foraging)	USFWS: None CDFW: SSC County: Group 2	• Alkali Meadow • Big Sagebrush Scrub • Disturbed Habitat • Disturbed Mulefat Scrub	High potential to occur. There are 764.1 acres of modeled habitat within the project area.	There are 391.2 acres of modeled habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project

		• Semi-Desert Chaparral • Granitic Chamise Chaparral • Granitic Northern Mixed Chaparral • Oak Woodland • Montane Buckwheat Scrub • Non-Native Grassland • Non-Vegetated Channel • Open Water • Red Shank Chaparral • Scrub Oak Chaparral • Semi-Desert Chaparral • Tamarisk Scrub • Urban/Developed			would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).
Townsend's big-eared bat (*Corynorhinus townsendii*) (foraging)	USFWS: None CDFW: SSC County: Group 2	• Alkali Meadow • Big Sagebrush Scrub • Disturbed Habitat • Disturbed Mulefat Scrub • Semi-Desert Chaparral • Granitic Chamise Chaparral • Granitic Northern Mixed Chaparral • Oak Woodland • Montane Buckwheat Scrub • Non-Native Grassland • Non-Vegetated Channel • Open Water • Red Shank Chaparral • Scrub Oak Chaparral • Semi-Desert Chaparral • Tamarisk Scrub • Urban/Developed	High potential to occur. There are 764.1 acres of modeled habitat within the project area.	There are 391.2acres of modeled habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).
Spotted bat (*Euderma maculatum*)	USFWS: None CDFW: SSC County: Group 2	• Alkali Meadow • Big Sagebrush Scrub • Disturbed Habitat	High potential to occur. There are 764.1 acres of	There are 391.2acres of modeled habitat	Although there is a large amount of habitat within the region, impacts to

(foraging)		• Disturbed Mulefat Scrub • Semi-Desert Chaparral • Granitic Chamise Chaparral • Granitic Northern Mixed Chaparral • Oak Woodland • Montane Buckwheat Scrub • Non-Native Grassland • Non-Vegetated Channel • Open Water • Red Shank Chaparral • Scrub Oak Chaparral • Semi-Desert Chaparral • Tamarisk Scrub • Urban/Developed	modeled habitat within the project area.	potentially impacted as a result of the project.	suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).
Western mastiff bat *(Eumops perotis californicus)* (foraging)	USFWS: None CDFW: SSC County: Group 2	• Alkali Meadow • Big Sagebrush Scrub • Disturbed Habitat • Disturbed Mulefat Scrub • Semi-Desert Chaparral • Granitic Chamise Chaparral • Granitic Northern Mixed Chaparral • Oak Woodland • Montane Buckwheat Scrub • Non-Native Grassland • Non-Vegetated Channel • Open Water • Red Shank Chaparral • Scrub Oak Chaparral • Semi-Desert Chaparral • Tamarisk Scrub • Urban/Developed	High potential to occur. There are 764.1 acres of modeled habitat within the project area.	There are 391.2acres of modeled habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).
Western red bat (*Lasiurus*	USFWS: None CDFW: SSC	• Alkali Meadow • Big Sagebrush Scrub	High potential to forage. There are 764.1 acres of	There are 391.2 acres of modeled	Although there is a large amount of habitat within

blossevillii) (foraging)	County: Group 2	• Disturbed Habitat • Disturbed Mulefat Scrub • Semi-Desert Chaparral • Granitic Chamise Chaparral • Granitic Northern Mixed Chaparral • Oak Woodland • Montane Buckwheat Scrub • Non-Native Grassland • Non-Vegetated Channel • Open Water • Red Shank Chaparral • Scrub Oak Chaparral • Semi-Desert Chaparral • Tamarisk Scrub • Urban/Developed	modeled foraging habitat within the project area.	habitat potentially impacted as a result of the project.	the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).
California leaf-nosed bat (*Macrotus californicus*) (foraging)	USFWS: None CDFW: SSC County: Group 2	• Alkali Meadow • Big Sagebrush Scrub • Disturbed Habitat • Disturbed Mulefat Scrub • Semi-Desert Chaparral • Granitic Chamise Chaparral • Granitic Northern Mixed Chaparral • Oak Woodland • Montane Buckwheat Scrub • Non-Native Grassland • Non-Vegetated Channel • Open Water • Red Shank Chaparral • Scrub Oak Chaparral • Semi-Desert Chaparral • Tamarisk Scrub • Urban/Developed	High potential to occur. There are 764.1 acres of modeled habitat within the project area.	There are 391.2acres of modeled habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).

Big free-tailed bat (*Nyctinomops macrotis*) (foraging)	USFWS: None CDFW: SSC County: Group 2	• Alkali Meadow • Big Sagebrush Scrub • Disturbed Habitat • Disturbed Mulefat Scrub • Semi-Desert Chaparral • Granitic Chamise Chaparral • Granitic Northern Mixed Chaparral • Oak Woodland • Montane Buckwheat Scrub • Non-Native Grassland • Non-Vegetated Channel • Open Water • Red Shank Chaparral • Scrub Oak Chaparral • Semi-Desert Chaparral • Tamarisk Scrub • Urban/Developed	High potential to occur. There are 764.1 acres of modeled habitat within the project area.	There are 391.2acres of modeled habitat potentially impacted as a result of the project.	Although there is a large amount of habitat within the region, impacts to suitable habitat associated with the proposed project would be potentially significant prior to implementation of mitigation as the project would impact more than 5% of habitat within the project area (Impact W-3).

2.4.1.2.1 County Group 1 Species

The information provided in this section discusses the potential effects for County Group 1 species. More detailed information about observation of the species or its potential to occur within the study area, suitable habitat, and range is provided in Section 1.4.6.2.

Reptiles

Two-striped gartersnake has not been observed in the project area, but based on the seasonal ponding of some of the alkali meadow habitat in the project area, this species has high potential to occur. Within the project area, suitable habitat includes mulefat scrub, tamarisk scrub, alkali meadow, and open water. There are direct impacts to 1.0 acre of suitable habitat as a result of the proposed project.

Construction-related impacts could result in the loss of individual two-striped gartersnakes through vegetation clearing activities or equipment (e.g., trucks).

Birds

Cooper's Hawk

Cooper's hawk was observed in the project area and has potential to use the project area for both nesting and foraging. There are direct impacts to approximately 1.3 acres of suitable nesting habitat and 369.5 acres of suitable foraging habitat as a result of the proposed project. Construction-related impacts could result in the loss of active nests and/or young during vegetation clearing activities.

Tricolored Blackbird

A group of tricolored blackbirds were observed flying overhead, south of the project area. This species has high potential to forage occasionally in the project area in the alkali meadow and grassland habitats, but it is not expected to nest in the project area due to lack of suitable nesting habitat. There are direct impacts to approximately 8.3 acres of suitable foraging habitat. This would be a significant impact.

Because tricolored blackbird is not expected to nest in the project area, no loss of individual birds as result of construction-related impacts is anticipated.

Southern California Rufous-Crowned Sparrow

No Southern California rufous-crowned sparrows were observed during surveys; however, there is suitable habitat and the species has high potential to occur in the project area. There are direct impacts to approximately 277.3 acres of suitable habitat. Construction-related impacts could result in the loss of active nests and/or young during vegetation clearing activities. This would be a significant impact.

Bell's Sage Sparrow

The Bell's sage sparrow was observed in the project area. There are direct impacts to approximately 346.1 acres of suitable habitat. Construction-related impacts could result in the loss of active nests and/or young during vegetation clearing activities. This would be a significant impact.

Golden Eagle

There is no suitable nesting habitat within the project area due to the lack of forested areas and cliffs. WRI has documented the Carrizo Canyon pair of golden eagles foraging and flying through the 4,000-foot buffer around the Rugged Solar Farm, and both the Carrizo Canyon and Table Mountain eagles' territories overlap slightly with the project site (WRI 2012). Based on the lack of observations of golden eagle during project-specific surveys, this species may not use the project area regularly. However, there is suitable foraging habitat throughout most of the project area. There are direct impacts to approximately 369.5 acres of suitable foraging habitat. This would be a significant impact.

Because golden eagle is not expected to nest in the project area, no loss of individual birds as a result of construction-related impacts is anticipated.

Red-Shouldered Hawk

No red-shouldered hawks were observed during the surveys; however, there is suitable habitat for this species, and it has high potential to occur in the project area. There are direct impacts to approximately 1.3 acres of suitable nesting habitat and 368.2 acres of suitable foraging habitat as a result of the proposed project. Construction-related impacts could result in the loss active nests and/or young during vegetation clearing activities.

Swainson's Hawk

The Swainson's hawk was detected in the project area. This species no longer nests in Southern California, including San Diego County, but could flyover the project area during annual migration from wintering habitat in South America to suitable breeding areas in western North America. However, expected use of the project area for stopover or foraging habitat is low.

Turkey Vulture

Turkey vulture was observed in the project area, but the observation locations were not recorded. The project area does not support suitable cliffs and large trees for nesting, but there is suitable foraging habitat within the project area. There are direct impacts to approximately 254.5 acres of suitable foraging habitat as a result of the proposed project. Because turkey vulture is not expected to nest in the project area, no loss of individual birds as a result of construction-related impacts is anticipated.

Northern Harrier

The northern harrier was observed in the project area. However, based on the lack of observations during the breeding season, this species is only expected as a winter visitor in grassland habitat and the more open areas of scrub and chaparral communities within the project area. There are direct impacts to approximately 137.6 acres of suitable habitat as a result of the proposed project. Because northern harrier is not expected to nest in the project area, no loss of individual birds as a result of construction-related impacts is anticipated.

Prairie Falcon

One prairie falcon was observed in the project area. There is no suitable nesting habitat in the project area, but this species could forage in the project area. There are direct impacts to approximately 137.1 acres of suitable foraging habitat as a result of the proposed project. Because prairie falcon is not expected to nest in the project area, no loss of individual birds as a result of construction-related impacts is anticipated.

Loggerhead Shrike

Loggerhead shrikes were documented several times in the same location within the eastern portion of the project area. There are direct impacts to approximately 278.0 acres of suitable habitat as a result of the proposed project. Construction-related impacts could result in the loss of active nests and/or young during vegetation clearing activities.

Invertebrates

Quino Checkerspot Butterfly

Focused surveys for Quino checkerspot butterfly were conducted over the project area in 2011. A total of 66 person days were spent conducting these surveys (Appendix D1), and no Quino checkerspot butterflies were observed. In addition, Dudek conducted surveys off site for the Northern/Eastern road area in 2013, although the off-site roads are no longer part of the project; no Quino checkerspot butterflies were observed (Dudek 2013a; Appendix D2). As described in Section 1.4.6.2, the nearest USFWS occurrence for Quino checkerspot butterfly is located approximately 2.5 miles southwest of the project area (USFWS 2019b). This species was also observed approximately 6 miles north of the project area during surveys for the Tule Wind Project (HDR 2010). In 2019, two host plant populations for Quino checkerspot were: thread-leaved bird's beak and white snapdragon. Approximately 0.38 acres of host plants were documented throughout the survey area within big sagebrush scrub, granitic chamise chaparral, montane buckwheat scrub, non-native grassland, red shank chaparral, scrub oak chaparral, semi-desert chaparral (including rock), non-vegetated channel, and disturbed habitat. Based on the negative Quino checkerspot survey results, and the lack of records in the project area Quino checkerspot butterfly has a low potential to occur. However, given the presence of host plants within the project area, a Quino checkerspot butterfly protocol survey was conducted during 2020 to confirm absence (Appendix D3). Based on the combined negative survey results, Quino checkerspot butterfly is not considered to be present.

2.4.1.2.2 County Group 2 Species

County Group 2 species that have been observed in the project area, or have high potential to occur (Appendix H), are described as follows.

Amphibians and Reptiles

Western spadefoot toad, orange-throated whiptail, San Diegan tiger whiptail, rosy boa, red-diamond rattlesnake, San Diego ringneck snake, Coronado skink, Blainville's horned lizard, and coast patch-nosed snake have been observed in upland shrubland or grassland areas. Amphibians and reptiles are low-mobility or sedentary species, and direct impacts to these species could occur as a result of the grading activities and activities within the fire buffer.

Birds

Great blue heron, oak titmouse, California horned lark, black-tailed gnatcatcher, yellow warbler, western bluebird, Lawrence's goldfinch, Brewer's sparrow, and barn owl have been observed or have high potential to occur in the project area. There are direct impacts to suitable habitat for these species. Construction-related impacts could result in the loss of active nests and/or young during vegetation clearing activities.

Mammals

Dulzura pocket mouse, northwestern San Diego pocket mouse, and pallid San Diego pocket mouse have not been observed in the project area, but they have high potential to occur based on suitable habitat and range. San Diego black-tailed jackrabbit and woodrat middens have been observed in the project area. There are direct impacts to suitable habitat for these species. Direct loss of individuals could occur during construction-related activities.

Signs of cougar were observed near the project area, and mule deer tracks were observed in the project area. There are direct impacts to suitable habitat for these species. Construction-related impacts to mountain lion and mule deer are not anticipated, because these species are highly mobile and can use a variety of habitats in the project area.

No special-status bats were observed during surveys. However, several special-status bats have high potential to forage in the project area, including Mexican long-tongued bat, Townsend's big-eared bat, spotted bat, greater western mastiff bat, western red bat, California leaf-nosed bat, and big free-tailed bat. There is no suitable roosting habitat in rock crevices and cliffs.

Monarch Butterfly

Within the project area, general suitable habitat includes coast live oak woodland, mixed oak woodland, big sagebrush scrub (including disturbed), granitic chamise chaparral, montane buckwheat scrub (including disturbed), red shank chaparral, granitic northern mixed chaparral, semi-desert chaparral (including rocky and disturbed), and scrub oak chaparral (including disturbed). However, suitable mass roost trees are not present. Eggs are laid on milkweed plants (genus *Asclepias*). This species was observed in the project area during 2011 focused Quino checkerspot butterfly surveys, east of McCain Valley Road in scrub and chaparral habitats (Appendix D1); its location was not recorded.

2.4.2 Indirect Impacts to Special-Status Wildlife Species

2.4.2.1 Temporary Indirect Impacts

Short-term, construction-related, or temporary indirect impacts to special-status wildlife species would primarily result from construction activities. Potential temporary indirect impacts could occur as a result of generation of fugitive dust, noise, chemical pollutants, increased human activity, and non-native animal species during construction.

Generation of Fugitive Dust. Dust and applications for fugitive dust control can impact vegetation surrounding the limits of grading, resulting in changes in the community structure and function. These changes could result in impacts to suitable habitat for special-status wildlife species.

Noise. Construction-related noise would occur from equipment used during vegetation clearing and construction of the solar panels and associated infrastructure. Noise impacts can have a variety of indirect impacts on wildlife species, including increased stress, weakened immune systems, altered foraging behavior, displacement due to startle, degraded communication with conspecifics (e.g., masking), damaged hearing from extremely loud noises, and increased vulnerability to predators (Lovich and Ennen 2011; Brattstrom and Bondello 1983 as cited in Lovich and Ennen 2011).

Chemical Pollutants. Accidental spills of hazardous chemicals could contaminate nearby surface waters and groundwater and indirectly impact wildlife species through poisoning or altering suitable habitat.

Increased Human Activity. Construction activities can deter wildlife from using habitat areas near the proposed project footprint and increase the potential for vehicle collisions.

Non-Native Animal Species. Trash from construction-related activities could attract invasive predators such as ravens and coyotes that could impact the wildlife species in the project area. Landscaping stock and irrigation could bring in Argentinean ants or other pests that could compete with native wildlife. All special-status wildlife species on site could be impacted by potential temporary indirect impacts such as those previously listed. The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Chapter 3.

2.4.2.2 Permanent Indirect Impacts

Potential long-term or permanent indirect impacts to special-status wildlife species include generation of fugitive dust; off-road vehicle use; non-native, invasive plant and animal species; habitat fragmentation; increased human activity; alteration of the natural fire regime; and altered hydrology. In addition, potential electrocution of, and/or collisions by, listed or special-status bird or bat species associated with the proposed and existing overhead transmission lines is an indirect impact. Figure 12 shows the location of the proposed on-site overhead collection system as well as the existing Tule Wind overhead transmission line (i.e. Tule gen-tie) that would be utilized as part of the project. Electrocutions can occur under any one of the following three conditions: (1) phase-to-phase contact when a bird that is perched, landing, or taking off from a utility pole cross-arm comes into contact with two conductors completing an electrical circuit; (2) simultaneous contact with energized phase conductors and other equipment; and (3) simultaneous contact with an energized wire and a grounded wire or other grounded device or neutral wire. Although transmission line systems may be of higher voltage, most electrocutions occur on distribution systems that are at a lower voltage. This is due to the closer spacing of the distribution system wires, which can be 2 to 6 feet apart. With a larger body size and wingspan, raptors are able to span that distance. For transmission line systems, the wires are separated by 8 to 30 feet, which is beyond the reach of the larger bird species.

Generation of Fugitive Dust. The effects of fugitive dust on special-status plants are described in Section 2.4.2.1.

Off-Road Vehicle Use. Indirect impacts to adjacent suitable habitat for special-status wildlife species could occur from dust, trash, or illegal off-road access.

Non-Native, Invasive Plant and Animal Species. Invasive plant species that thrive in edge habitats are a well-documented problem in Southern California and throughout the United States. Development could also fragment native plant populations, which may increase the likelihood of invasion by exotic plants due to the increased interface between natural habitats and developed areas. Bossard et al. (2000) list several adverse effects of non-native species in natural open areas, including but not limited to the fact that exotic plants compete for light, water, and nutrients and can create a thatch that blocks sunlight from reaching smaller native plants. Exotic plant species may alter habitats and displace native species over time, leading to extirpation of native plant species and subsequently suitable habitat for special-status wildlife species. In addition, trash can attract invasive predators such as ravens and coyotes that could impact the wildlife species in the project area.

Habitat Fragmentation. The proposed project will impact approximately 391 acres of vegetation communities and land covers, resulting in potential habitat fragmentation. Habitat fragmentation can reduce diversity of species,

spread invasive species, and reduce access to important habitats (Lovich and Ennen 2011). In addition, habitat fragmentation and isolation of wildlife populations may cause extinction of local populations as a result of two processes: reduction in total habitat area, which reduces effective population sizes; and insularization of local populations, which affects dispersal rates (Wilcox and Murphy 1985; Wilcove et al. 1986).

Increased Human Activity. The proposed project includes an operation and maintenance building that would provide a base of operations and maintenance for approximately 25 to 30 fulltime employees. Increased human activity could result in the potential for trampling of vegetation outside of the impacts footprint, and soil compaction and could affect the viability and function of suitable habitat for wildlife species. Trampling can alter the ecosystem, creating gaps in native vegetation either leading to soil erosion or allowing exotic, non-native plant species to become established. Trampling may also affect the rate of rainfall interception and evapotranspiration, soil moisture, water penetration pathways, surface flows, and erosion. An increased human population increases the risk for damage to suitable habitat for wildlife species. In addition, increased human activity can deter wildlife from using habitat areas near the proposed project footprint. In addition, increased human activity and vehicle trips on the proposed access roads could result in vehicle collisions with wildlife species.

Alteration of the Natural Fire Regime. The proposed project could potentially increase the risk of fire, including but not limited to fire associated with electrical shorts or electrical equipment malfunction. Shorter-than-natural fire return intervals can preclude recovery of the native vegetation between fires, weaken the ecological system, allow for invasion of exotic species, and result, in some cases, in permanent transition of the vegetation to non-native communities such as annual grassland and weedy communities (Malanson and O'Leary 1982; Keeley 1987; O'Leary et al. 1992). If the natural fire regime is suppressed, longer-than-natural fire return intervals can result in excessive buildup of fuel loads so that when fires do occur, they are catastrophic. Unnaturally long fire intervals can also result in senescence of plant communities, such as chaparral, that rely on shorter intervals for rejuvenation. Alterations of plant communities could affect wildlife that relies on those habitat types.

Altered Hydrology. Water would be used for operational purposes for cleaning the solar modules and for reapplication of the nontoxic permeable soils stabilizers that may alter the on-site hydrologic regime. These hydrologic alterations may affect special-status wildlife species. Altered hydrology can allow for the establishment of non-native plants and invasion by Argentine ants, which can compete with native ant species that could be seed dispersers or plant pollinators. Changes in plant composition could affect the native vegetation communities and wildlife habitat. However, the water, and associated runoff, used during operation and maintenance activities will be contained within the proposed project impact footprint, which minimizes the long-term indirect impacts associated with altered hydrology. Potential impacts would be reduced by design features that (i) contain the water and associated runoff used during operation and maintenance activities within the proposed project impact footprint, (ii) specify installation of drip-irrigated landscaping for the proposed project, and (iii) ensure that nursery stock has been fumigated against ant infestation prior to transport to the project site.

The special-status wildlife species in the project area could be impacted by potential temporary direct or indirect impacts, or potential permanent direct or indirect impacts, such as those previously listed. The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Chapter 3.

2.5 Wetlands/Jurisdictional Waters

2.5.1 Direct Impacts to Wetlands/Jurisdictional Waters

2.5.1.1 Temporary Direct Impacts

Short-term, construction-related, or temporary direct impacts to wetlands/jurisdictional waters would primarily result from construction activities. Clearing, trampling, or grading of vegetation outside designated construction zones could occur in the absence of avoidance and mitigation measures. These potential effects could damage individual plants and alter their ecosystem, creating gaps in vegetation that allow exotic, non-native plant species to become established, thus increasing soil compaction and leading to soil erosion. The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Chapter 5, Jurisdictional Wetlands and Waterways.

2.5.1.2 Permanent Direct Impacts

Long-term or permanent direct impacts to wetlands/jurisdictional waters were quantified by comparing the impact footprint with the boundaries of the wetlands and jurisdictional waters mapped in the project area.

There will be a total of 0.99 acres of direct permanent impacts to aquatic resources under the jurisdiction of ACOE, CDFW, and RWQCB, including permanent direct impacts to 0.21 acres of County RPO wetlands (Figure 9). There are direct impacts to 0.01 acres (218 linear feet) of impacts to non-vegetated channel under the jurisdiction of ACOE, RWQCB, and CDFW as a result of the proposed project components. There are direct permanent impacts from grading activities and fuel modification zone to 0.21 acres (124 linear feet) of alkali meadow (including disturbed), which is under ACOE, CDFW, and RWQCB jurisdiction and is considered a County RPO wetlands (Table 2-4). There are direct permanent impacts from grading and fuel modification activities to 0.76 acres (734 linear feet) of tamarisk scrub, which is under the jurisdiction of CDFW, as a result of the proposed project (see Table 2-4). The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Chapter 5.

Table 2-4. Permanent Direct Impacts to Wetlands/Jurisdictional Waters

Vegetation Community/ Waters Type	*Jurisdiction*	*Existing (acres)*	Impacts		
			Project Impacts (acres)	*Fuel Modification Zone (acres)*	*Total Impact (Acres)*
Wetlands/Riparian Habitat					
Alkali Meadow	ACOE/RWQCB/CDFW/County	14.27	0.05	—	0.05
Disturbed Alkali Meadow	ACOE/RWQCB/CDFW/County	3.48	0.16	—	0.16
Tamarisk Scrub	ACOE/RWQCB/CDFW/County	0.79	—	—	—
	Subtotal	*18.54*	*0.21*	—	*0.21*
Disturbed Alkali Meadow	CDFW/County	1.13	—	—	—

Table 2-4. Permanent Direct Impacts to Wetlands/Jurisdictional Waters

Vegetation Community/ Waters Type	*Jurisdiction*	*Existing (acres)*	Impacts		
			Project Impacts (acres)	*Fuel Modification Zone (acres)*	*Total Impact (Acres)*
Disturbed Mulefat Scrub	CDFW/County	0.50	—	—	—
Tamarisk Scrub	CDFW/County	0.28	—	—	—
	Subtotal	*1.91*	—	—	—
Tamarisk Scrub	CDFW-Only	4.51	0.52	0.25	0.76
	Wetlands/Riparian Subtotal	*24.96*	*0.73*	*0.25*	*0.97*
Non-Wetland Waters/Streambed					
Non-Vegetated Channel	ACOE/RWQCB/CDFW	1.64	0.01	<0.01	0.01
	Non-Wetland Waters/Streambed Subtotal	*1.64*	*0.01*	*<0.01*	*0.01*
	Jurisdictional Total	**26.60**	**0.74**	**0.25**	**0.99**
	RPO Wetland and Wetland Buffer Total[1]	**36.35**	**0.58**	**—**	**0.58**

Notes: Sums may not total due to rounding.

1 The impact total (0.58 acres) includes the 0.21 acres for the County RPO Wetlands impacts and therefore these totals should not be summed.

There are approximately 36.35 acres of RPO wetlands and wetland buffers (i.e., a 50-foot buffer around wetland features to protect the function and value of the existing wetland) present along Tule Creek within the central portion of the project area. A total of 0.58 acres comprised of RPO wetlands (0.21 acres) and wetland buffer (0.37 acres) would be impacted by the proposed project. Impacts would occur from the proposed on-site access road. To comply with Section 86.604, Permitted Uses and Development Criteria, of the San Diego County Code of Regulatory Ordinances the following is provided:

a. This road is necessary to provide access to the southern-most subarray within the project area and there are no other feasible alternatives (i.e., all other adjacent roads are not wide enough, and the project does not have right-of-way access).

b. The crossing has been limited to one location and all other RPO wetland areas have been avoided.

c. The proposed access road would not limit wildlife access through the Tule Creek corridor and there are no sensitive species locations within the proposed road alignment.

d. The following text has been added to M-BI-PP-14: All staging areas shall be located outside of sensitive areas, work shall not be performed during the sensitive avian breeding season, noise attenuation measures shall be included, and hours of operation shall be limited so as to comply with all applicable ordinances and to avoid impacts to sensitive resources.

e. There is no development immediately adjacent to the site and the access road would only be used for project-related activities.

f. Impacts to Resource Protection Ordinance (RPO) wetlands shall be mitigated at a minimum of ratio 3:1, with a minimum of 1:1 impact-to-creation ratio; restoration/enhancement of existing wetlands may be used to make up the remaining requirements. This would result in no net loss of County RPO wetlands.

2.5.2 Indirect Impacts to Wetlands/Jurisdictional Waters

2.5.2.1 Temporary Indirect Impacts

Potential short-term or temporary indirect impacts to wetlands/jurisdictional waters in the project area would primarily result from construction activities and include impacts related to or resulting from the generation of fugitive dust; changes in hydrology resulting from construction, including sedimentation and erosion; and the introduction of chemical pollutants (including herbicides). Potential short-term indirect impacts that could affect all the wetlands/jurisdictional waters that occur on the project site are described in detail as follows.

Generation of Fugitive Dust. Excessive dust can decrease the vigor and productivity of vegetation through effects on light, penetration, photosynthesis, respiration, transpiration, increased penetration of phytotoxic gaseous pollutants, and increased incidence of pests and diseases.

Changes in Hydrology. Construction could result in hydrologic and water-quality-related impacts adjacent to and downstream of the construction area. Hydrologic alterations include changes in flow rates and patterns in streams and rivers and dewatering, which may affect adjacent and downstream aquatic, wetland, and riparian vegetation communities. Water-quality impacts include chemical-compound pollution (fuel, oil, lubricants, paints, release agents, and other construction materials), erosion, increased turbidity, and excessive sedimentation. Direct impacts, as described previously, can also remove native vegetation and increase runoff from roads and other paved surfaces, resulting in increased erosion and transport of surface matter into wetlands/jurisdictional waters. Altered erosion, increased surface flows, and underground seepage can allow for the establishment of non-native plants. Changed hydrologic conditions can also alter seed bank characteristics and modify habitat for ground-dwelling fauna that may disperse seed.

Chemical Pollutants. Erosion and chemical pollution (releases of fuel, oil, lubricants, paints, release agents, and other construction materials) may affect wetlands/jurisdictional waters. The use of chemical pollutants can decrease the number of plant pollinators, increase the existence of non-native plants, and cause damage to and destruction of native plants.

All wetlands/jurisdictional waters on site could be impacted by potential temporary indirect impacts such as those previously listed. The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Chapter 5.

2.5.2.2 Permanent Indirect Impacts

Long-term (operation-related) or permanent indirect impacts could result from the proximity of the proposed project to wetlands/jurisdictional waters after construction, including impacts related to operation and maintenance. Operation and maintenance activities will occur within the impact footprint. Permanent indirect impacts that could affect wetlands/jurisdictional waters include generation of fugitive dust, habitat fragmentation, chemical pollutants, altered hydrology, non-native invasive species, increased human activity, alteration of the natural fire regime, and shading. Each of these potential indirect impacts is discussed as follows.

Generation of Fugitive Dust. The effects of fugitive dust on wetlands/jurisdictional waters are described above in Section 2.5.2.1.

Habitat Fragmentation. Habitat fragmentation and isolation of plant populations may cause extinction of local populations as a result of two processes: reduction in total habitat area, which reduces effective population sizes; and insularization of local populations, which affects dispersal rates (Wilcox and Murphy 1985; Wilcove et al. 1986). Although these effects are more readily observable in wildlife, there are potential ecological effects, such as changes in pollinator populations, which can result in altered plant community composition and thus adversely affect wetlands/jurisdictional waters.

Chemical Pollutants. The effects of chemical pollutants on wetlands/jurisdictional waters are described in Section 2.5.2.1. Additionally, during operation and maintenance, herbicides may be used in accordance with SDG&E's Herbicides and Application Procedures to prevent vegetation from reoccurring around structures.

Altered Hydrology. Water would be used for operational purposes for cleaning the solar modules and for reapplication of the nontoxic permeable soils stabilizers, which may alter the on-site hydrologic regime. These hydrologic alterations may affect wetland/jurisdictional waters. However, the water, and associated runoff, used during operation and maintenance activities will be contained within the proposed project impact footprint, and long-term indirect impacts associated with altered hydrology are not expected. Groundwater draw down and potential impacts to groundwater dependent vegetation is described in Section 4.2.3.

Non-Native, Invasive Plant and Animal Species. Invasive plant species that thrive in edge habitats are a well-documented problem in Southern California and throughout the United States. Development could also fragment native plant populations, which may increase the likelihood of invasion by exotic plants due to the increased interface between natural habitats and developed areas. Bossard et al. (2000) list several adverse effects of non-native species in natural open areas, including but not limited to the fact that exotic plants compete for light, water, and nutrients and can create a thatch that blocks sunlight from reaching smaller native plants. Exotic plant species may alter habitats and displace native species over time, leading to extirpation of native plant species and alteration of wetland plant communities. The introduction of non-native, invasive animal species could negatively affect native species that may be pollinators of or seed dispersal agents for plants within wetlands/jurisdictional waters.

Increased Human Activity. The proposed project includes a building that would provide a base of operations and maintenance for approximately 25 to 30 fulltime employees. Increased human activity could result in the potential for trampling of vegetation outside of the impact footprint, could result in soil compaction, and could affect the viability and function of wetlands/jurisdictional waters. Trampling can alter the ecosystem, by creating gaps in vegetation and allowing exotic, non-native plant species to become established, thus leading to soil erosion. Trampling may also affect the rate of rainfall interception and evapotranspiration, soil moisture, water penetration pathways, surface flows, and erosion. An increased human population increases the risk for damage to wetlands/ jurisdictional waters.

Alteration of the Natural Fire Regime. The proposed project could potentially increase the risk of fire, including but not limited to fire associated with electrical shorts or electrical equipment malfunction. Shorter-than-natural fire return intervals can preclude recovery of the native vegetation between fires, weaken the ecological system, allow for invasion of exotic species, and, in some cases, result in permanent transition of the wetland vegetation to non-native communities such as annual grassland and weedy communities (Malanson and O'Leary 1982; Keeley 1987; O'Leary et al. 1992). If the natural fire regime is suppressed, longer-than-natural fire return intervals can result in excessive buildup of fuel loads so that when fires do occur, they are catastrophic.

Shading. The proposed project includes inverters and transformers mounted on a skid that would include a shade structure. Shading can reduce the amount of sunlight available for photosynthesis, eliminating longer wavelengths of the visible light spectrum, and can reduce transpiration due to reduced photosynthetic rates, increasing soil moisture, and resulting in changes to soil nutrient availability and microbial communities, potentially favoring non-native species and other shade-tolerant plants. However, shading will be contained within the proposed project impact footprint, and long-term indirect impacts associated with shading are not expected.

All wetlands/jurisdictional waters in the project area could be impacted by potential long-term, or permanent indirect impacts such as those previously listed. The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Chapter 5.

2.6 Habitat Connectivity and Wildlife Corridors

2.6.1 Direct Impacts to Habitat Connectivity and Wildlife Corridors

2.6.1.1 Temporary Direct Impacts

Short-term, construction-related, or temporary direct impacts to habitat connectivity and wildlife corridors would primarily result from construction activities. Construction-related impacts to vegetation communities such as clearing, trampling, or grading of vegetation outside designated construction zones could occur in the absence of avoidance and mitigation measures. These potential effects could impact wildlife movement through these areas by reducing cover and food sources. The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Chapter 6, Wildlife Movement and Nursery Sites.

2.6.1.2 Permanent Direct Impacts

Implementation of the proposed project is not expected to result in long-term or permanent direct impacts to habitat connectivity and wildlife corridors. See Section 1.4.8 for a detailed discussion regarding habitat connectivity and wildlife corridors. Permanent fencing (i.e., 9-foot chain linked with barbed wire topping) will be placed around each large cluster of solar panels as opposed to the entire project area and would allow continued movement through the project site, including along the Tule Creek corridor (Figure 8). Since mule deer, the largest mammal that may utilize the site, are not likely to jump over a 9-foot fence, installing barbed wire at the top of the fence is not likely to affect wildlife in the area. The proposed designated open space and proposed access roads will not be fenced and will allow for wildlife movement through the site. The proposed access roads are not anticipated to support high volumes of traffic. This will allow for larger wildlife to still move across the site in a north–south or east–west direction. Some of the central valley will be blocked, but the most biologically important portion of the valley will be accessible. The terrain in the vicinity does not preclude wildlife from moving in any direction to, through, or away from the project area. Small wildlife species (e.g., lizards and small mammals) will be able to access the site and adjacent habitats through openings in the fence, despite the presence of soil binders. Wildlife can use a variety of local corridors as shown on Figure 8. The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Chapter 6.

2.6.2 Indirect Impacts to Habitat Connectivity and Wildlife Corridors

2.6.2.1 Temporary Indirect Impacts

Short-term indirect impacts to habitat connectivity and wildlife corridors could result from lighting, noise, and increased human activity during construction.

Increased Human Activity. Project construction would likely take place during the daytime and would not affect wildlife species such as mammals that are most active in evenings and nighttime. Wildlife species such as birds, rabbits, and lizards are active in the daytime, but they use a variety of habitats and could continue using other areas within and adjacent to the project area for wildlife movement. Increased traffic along adjacent roadways, in particular Ribbonwood and McCain Valley Roads, could deter some wildlife movement; however, the improvements are to low volume roads and wildlife would still cross through the area as needed.

Lighting. Some localized security-related lighting, on-site security personnel, and/or remotely monitored alarm system may be required during construction and/or operations. These impacts to wildlife movement would be short-term.

Noise. Project construction will result in the production of noise and ground vibrations through the use of mechanized equipment and increased traffic within the area. Noise would most likely only be a disturbance to those species that are active during the daytime, as the noise levels are less at night. Most wildlife that would utilize the area as a habitat corridor are nocturnal, and therefore, would not be impacted while foraging, moving, etc. Noise pollution is not anticipated to hamper breeding of any special-status species.

2.6.2.2 Permanent Indirect Impacts

Long-term indirect impacts include fencing of the project site operation and lighting.

Fencing. A 9-foot perimeter fence topped with 1 foot of security barbed wire will be constructed around the solar panel trackers, which would result in limited movement of certain species. Since mule deer, the largest mammal that may utilize the site, are not likely to jump over a 9-foot fence, installing barbed wire at the top of the fence would not injure wildlife or further prohibit movement.

Lighting. The building and parking areas would include security lighting designed to minimize light pollution and preserve dark skies, while enhancing safety, security, and functionality.

The project area is not considered a core wildlife corridor. Tule Creek will be avoided and will remain in open space; the majority of the creek will not be fenced, and wildlife can continue to move through this area. The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Chapter 6.

2.7 Impact Comparison of Proposed Project to the Approved Project

This section provides a comparison of the on-site impacts from the proposed project to the on-site impacts of the County-approved Alternative 2A (i.e., approved project) as described in the Revised Final Program Environmental Impact Report (Revised PEIR) (SCH NO. 2012-121-018) for the Soitec Solar Development Project (Soitec Project; County of San Diego 2015). As shown on Figure 11, the proposed project is greatly reduced as compared to the approved project in the northcentral and northwestern portions of the site while retaining the same general development footprint elsewhere, except for slight additions near fence lines. Off-site impacts for the approved project associated with access roads and off-site FMZ areas are shown on Figure 11 but are not included in the impact comparison since these would not be required by either project. Also shown on Figure 11 are road improvement areas within and adjacent to the on-site portions of Tule Mountain Road associated with the Tule Wind Energy Project. It is assumed that with the implementation of the Tule Wind Energy Project the impacts along Tule Mountain Road would no longer be required by the approved project.

Vegetation Community Impacts

As shown in Table 2-5, overall, the proposed project impacts are less than the approved project. Specifically, the proposed project would impact a total of 71.5 acres less sensitive upland habitat as compared to the approved project (Table 2-5). Only two sensitive upland vegetation communities would have greater impacts under the Proposed Project: granitic chamise chaparral and coast live oak woodland.

Table 2-5. On-Site Upland Vegetation Communities Impacts for the Proposed Project Compared to the Approved Project (Alternative 2A)

Habitat Types/Vegetation Communities	Proposed Project Impacts (Grading & Fuel Modification Zone) (Acres)	Approved Project Total Impacts (Grading & Fuel Modification Zone) (Acres)[1]	Acreage Difference between Approved and Proposed Projects
Upland Scrub and Chaparral			
Big Sagebrush Scrub[2]	49.68	62.0	12.3
Big Sagebrush Scrub (Disturbed)[2]	0.67	2.9	2.2
Montane Buckwheat Scrub[2]	57.83	65.6	7.7
Montane Buckwheat Scrub (Disturbed)[2]	6.78	7.2	0.5
Granitic Chamise Chaparral[2]	95.19	89.6	-5.16
Granitic Northern Mixed Chaparral[2]	—	—	—
Red Shank Chaparral[2]	32.78	35.6	2.8
Scrub Oak Chaparral[2]	57.96	60.1	2.1
Scrub Oak Chaparral (Disturbed)[2]	—	0.5	0.5
Semi-Desert Chaparral[2]	45.07	50.7	5.6
Semi-Desert Chaparral – Rock[2]	0.11	0.7	0.6

Table 2-5. On-Site Upland Vegetation Communities Impacts for the Proposed Project Compared to the Approved Project (Alternative 2A)

Habitat Types/Vegetation Communities	Proposed Project Impacts (Grading & Fuel Modification Zone) (Acres)	Approved Project Total Impacts (Grading & Fuel Modification Zone) (Acres)[1]	Acreage Difference between Approved and Proposed Projects
Semi-Desert Chaparral (Disturbed)[2]	0.02	0.3	0.2
Subtotal	*346.07*	*375.1*	*29.0*
Upland Woodland and Savannah			
Coast Live Oak Woodland[2]	0.54	0.03	-0.50
Mixed Oak Woodland[2]	—	0.03	0.03
Subtotal	*0.54*	*0.06*	*-0.47*
Non-Native Communities			
Non-Native Grassland[2]	21.93	64.9	43.0
Non-Native Grassland: Broadleaf-Dominated[2]	—	N/A	—
Subtotal	*21.93*	*64.9*	*43.0*
Impact Total	**368.53**	**440.1**	**71.5**
Oak Root Zone [2]	**2.24**	**4.4**	**2.2**

Notes: Acreages may not sum due to rounding. N/A = this vegetation community was not mapped during this analysis year.

1 The impact totals for the Approved Project are based on Table 4-7 in the RPEIR (County of San Diego 2015).

2 Considered special-status by the County of San Diego (2010b).

Rare Plant Impacts

As summarized in Table 2-6, the proposed project would overall have less impacts to rare plants than the approved project.

Table 2-6. On-Site Rare Plant Impacts for the Proposed Project Compared to the Approved Project (Alternative 2A)

County List	Species	Proposed Project Impacts (Individuals)	Approved Project Impacts (Individuals)[1]
A	Jacumba milkvetch	1,210	226 to 2,020
	Tecate tarplant	—	1 to 10
B	Sticky geraea	544	177 to 850
	Desert beauty	203	956 to 4,770
D	Peninsular spineflower	190	—
	Desert larkspur	772	98 to 450
	Pride of California	3	7 to 70
	Payson's jewel flower	—	—
	Low bush monkeyflower	—	—

Note: Totals may not sum due to rounding.

1 The impact totals for the Approved Project are based on Tables 4-4 and 4-6 in the Revised PEIR (County of San Diego 2015).

Comparative Wetlands/Jurisdictional Waters Impacts

As shown in Table 2-7, overall, the proposed project impacts less jurisdictional aquatic resources than the approved project.

Table 2-7. On-Site Wetlands/Jurisdictional Waters Impacts for the Proposed Project Compared to the Approved Project

Vegetation Community/ Waters Type	Impacts		
	Jurisdiction	*Proposed Project Impact (Acres)*	*Approved Project Impact (Acres)*[1]
Wetlands/Riparian Habitat			
Alkali Meadow	ACOE/RWQCB/CDFW/County	0.05	0.1
Disturbed Alkali Meadow	ACOE/RWQCB/CDFW/County	0.16	0.2
Tamarisk Scrub	ACOE/RWQCB/CDFW/County	—	—
	Subtotal	*0.21*	*0.3*
Disturbed Alkali Meadow	CDFW/County	—	—
Disturbed Mulefat Scrub	CDFW/County	—	—
Tamarisk Scrub	CDFW/County	—	—
	Subtotal	—	—
Tamarisk Scrub	CDFW-Only	0.76	3.6
	Wetlands/Riparian Subtotal	*0.97*	*3.9*
Non-Wetland Waters/Streambed			
Non-Vegetated Channel	ACOE/RWQCB/CDFW	0.01	—
	Non-Wetland Waters/Streambed Subtotal	*0.01*	—
	Jurisdictional Total	**0.99**	**3.9**

Note: Totals may not sum due to rounding.

[1] The impact totals for the Approved Project are based on Table 4-7 in the RPEIR (County of San Diego 2015).

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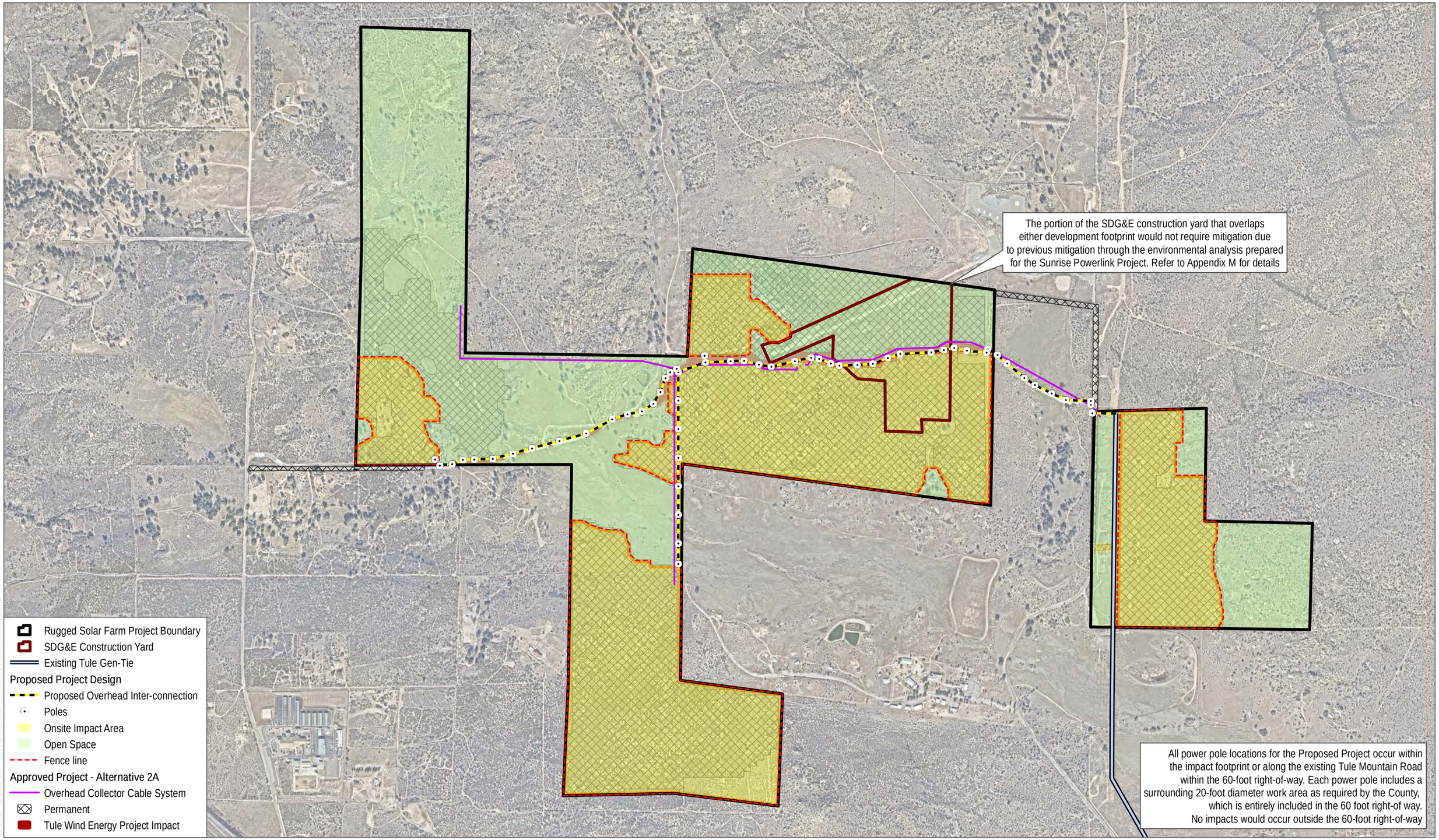

SOURCE: Michael Baker; SANGIS 2020

DUDEK

0 500 1,000 Feet

FIGURE 11

Impacts - Comparison Analysis

Biological Resources Report - Rugged Solar Farm

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Comparative Wildlife Impacts

As shown in Table 2-5, the proposed project impacts less habitat that would require mitigation than the approved project, which is a surrogate for identifying wildlife habitat. The proposed project will impact approximately 59 acres less natural habitat for wildlife species without adding substantial additional impacts. Therefore, general impacts to wildlife species are expected to be less than the approved project.

Similarly, wildlife connectivity impacts are also expected to be reduced by the proposed project because of the reduced footprint and more accessible habitat and wider movement corridors through the project site. Movement in the northcentral portion of the site is expected to be increased by 750 to 1,000 feet and movement in the northwestern portion of the site is expected to increase to 1,000's of feet wide, preserving a large 1,400-foot by 4,000-foot plus block in the northwest, and a roughly 1,400-foot by 3,000-foot block in the central and a roughly 1,000-foot by 3,000-foot block in the northcentral portion of the site.

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3 Special-Status Species

3.1 Guidelines for the Determination of Significance

The County's *Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources* (County of San Diego 2010a) are based on the criteria in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) and were used to analyze potential direct and indirect impacts to biological resources. The significance criteria include analysis of whether:

Guideline 4.1 The project would have a substantial adverse effect, either directly or through habitat modifications, on a candidate, sensitive, or special-status species listed in local or regional plans, policies, or regulations, or by CDFW or USFWS.

A. The project would impact one or more individuals of a species listed as federally or state endangered or threatened.

B. The project would impact an on-site population of a County List A or B plant species, or a County Group 1 animal species, or a species listed as a state Species of Special Concern (SSC). Impacts to these species are considered significant; however, impacts of less than 5% of the individual plants or of the sensitive species' habitat on a project site may be considered less than significant if a biologically based determination can be made that the project would not have a substantial adverse effect on the local long-term survival of that plant or animal taxon.

C. The project would impact the local long-term survival of a County List C or D plant species or a County Group 2 animal species.

D. The project may impact arroyo toad aestivation, foraging, or breeding habitat. Any alteration of suitable habitat within 1 kilometer (3,280 feet) in any direction of occupied breeding habitat or suitable stream segments (unless very steep slopes or other barriers constrain movement) could only be considered less than significant if a biologically based determination can be made that the project would not impact the aestivation or breeding behavior of arroyo toads.

E. The project would impact golden eagle habitat. Any alteration of habitat within 4,000 feet of an active golden eagle nest could only be considered less than significant if a biologically based determination can be made that the project would not have a substantially adverse effect on the long-term survival of the identified pair of golden eagles.

F. The project would result in the loss of functional foraging habitat for raptors. Impacts to raptor foraging habitat is considered significant; however, impacts of less than 5% of the raptor foraging habitat on a project site may be considered less than significant if a biologically based determination can be made that the project would not have a substantial adverse effect on the local long-term survival of any raptor species.

G. The project would impact the viability of a core wildlife area, defined as a large block of habitat (typically 500 acres or more not limited to project boundaries, although smaller areas with particularly valuable resources may also be considered a core wildlife area) that supports a viable population of a sensitive wildlife species or supports multiple wildlife species. Alteration

of any portion of a core habitat could only be considered less than significant if a biologically based determination can be made that the project would not have a substantially adverse effect on the core area and the species it supports.

H. The project would cause indirect impacts, particularly at the edge of proposed development adjacent to proposed or existing open space or other natural habitat areas, to levels that would likely harm sensitive species over the long term. The following issues should be addressed in determining the significance of indirect impacts: increasing human access; increasing predation or competition from domestic animals, pests, or exotic species; altering natural drainage; and increasing noise and/or nighttime lighting to a level above ambient that has been shown to adversely affect sensitive species.

I. The project would impact occupied burrowing owl habitat.

J. The project would impact occupied cactus wren habitat, or formerly occupied coastal cactus wren habitat that has been burned by wildfire.

K. The project would impact occupied Hermes copper habitat.

L. The project would impact nesting success of the following sensitive bird species through grading, clearing, fire-fuel modification, and/or other noise-generating activities such as construction.

Species	Breeding Season
Coastal cactus wren	February 15 to August 15
Coastal California gnatcatcher	February 15 to August 31
Least Bell's vireo	March 15 to September 15
Southwestern willow flycatcher	May 1 to September 1
Tree-nesting raptors	January 15 to July 15
Ground-nesting raptors	February 1 to July 15
Golden eagle	January 1 to July 31
Light-footed clapper rail	February 15 to September 30

3.2 Analysis of Project Effects

3.2.1 Project Effects Relevant to Guideline 4.1.A

Swainson's hawk was observed in the project area, but this species no longer nests in Southern California, including San Diego County, but could flyover the project area during annual migration from wintering habitat in South America to suitable breeding areas in western North America. However, expected use of the project area for stopover or foraging habitat is low. Tricolored blackbirds were observed flying overhead, south of the project area. This species is not expected to nest in the project area due to lack of suitable nesting habitat. Because tricolored blackbird is not expected to nest in the project area, no loss of individual birds as result of construction-related impacts is anticipated. No Quino checkerspot butterflies were observed during protocol surveys in 2011, 2013, or 2020. Based on combined negative surveys the species is not considered to be present. Therefore, the project would have **a less than significant impact** on individuals of a species listed as federally endangered or threatened.

There are direct impacts to approximately 8.30 acres of suitable foraging habitat for tricolored blackbird. This significant impact is addressed in Section 3.2.2, Project Effects Relevant to Guideline 4.1B and would be mitigated through **M-BI-PP-1** (habitat preservation and management).

3.2.2 Project Effects Relevant to Guideline 4.1.B

3.2.2.1 Special-Status Plant Species (County List A and B Species)

Impact SP-1: Temporary Direct Impacts to Special-Status Plant Species

Short-term, construction-related, or temporary direct impacts to County List A and B plant species would primarily result from construction activities. Clearing, trampling, or grading of special-status plants outside designated construction zones could occur in the absence of avoidance and mitigation measures. Potential temporary direct impacts to County List A and B plant species on site would be significant (**Impact SP-1**). However, these short-term direct impacts will be mitigated to less than significant through implementation of **M-BI-PP-2** (biological monitoring and temporary fencing), **M-BI-PP-3** (restrictions on construction vehicle speed limits), **M-BI-PP-4** (preparation of a biological monitoring report), and **M-BI-PP-7** (restrictions on operation and maintenance personnel activity).

Impact SP-2: Permanent Direct Impacts to Special-Status Plant Species

One County List A plant species would be directly impacted by the proposed project: Jacumba milkvetch. Two County List B plant species would be directly impacted by the proposed project: sticky geraea and desert beauty (**Impact SP-2**). Figure 10A, Impacts – Special-Status Plant Observations, shows the proposed project impacts to County List A and B plant species on site. Impacts to County List A and B species would be mitigated through the preservation of suitable habitat for and populations of each species per County requirements (**M-BI-PP-1**). Impacts to County List A species will be mitigated at a 2:1 mitigation to impact ratio, whereas County List B species will be mitigated at a 1:1 ratio (Table 3-1). Since none of the County List A species proposed for impact are state or federally listed and are relatively common throughout the region, a mitigation ratio of 2:1, rather than 3:1, is appropriate to mitigate for impacts to these species. With implementation of this measure, permanent direct impacts resulting from construction the project would be less than significant. The full text of mitigation measures is presented in Section 3.4.

Table 3-1 summarizes the proposed direct impacts to County List A and List B Species and the significance of the impacts prior to mitigation.

Table 3-1. Summary of Direct Impacts to County List A and B Species and Significance Prior to Mitigation

Species	Regulatory Status: Federal/State/CRPR	Mitigation Ratio	Individuals within Preserve	Individuals Impacted	Percent of Individuals Impacted	Remaining Requirement
County List A						
Jacumba milkvetch	None/None/1B.2	2:1	308	1,210	80%	2,112
Tecate tarplant	None/None/1B.2	2:1	4,995	—	0%	—
County List B						
Sticky geraea	None/None/2B.3	1:1	406	544	57%	138

Desert beauty	None/None/2B.1	1:1	13	203	94%	190

Notes:
CRPR: California Rare Plant Rank
1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
Threat Rank
0.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
0.2 – Moderately threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)
0.3 – Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

3.2.2.2 Special-Status Wildlife Species (County Group 1 or State SSC Species)

A total of 12 County Group 1 and/or state SSC wildlife species were detected within the project area during 2011 surveys (AECOM 2012a) and/or 2019 surveys: orange-throated whiptail, Blainville's horned lizard, San Diegan tiger whiptail, Cooper's hawk, Bell's sage sparrow, Swainson's hawk, turkey vulture, northern harrier, prairie falcon, loggerhead shrike, yellow warbler, and San Diego black-tailed jackrabbit (see Section 1.4.6). Figure 10B, Impacts – Special-Status Wildlife Observations, shows the proposed project impacts in relation to the special-status wildlife observations mapped on site.

In addition, 10 County Group 1 and/or state SSC wildlife species have high potential to occur within the project area: western spadefoot, red-diamond rattlesnake, Coronado skink, coast patch-nosed snake, two-striped gartersnake, Southern California rufous-crowned sparrow, red-shouldered hawk, Dulzura pocket mouse, northwestern San Diego pocket mouse, and San Diego desert woodrat.

The following nine County Group 1 and/or state SSC wildlife species have high potential to forage in the project area, but are not expected to nest/roost: tricolored blackbird, golden eagle, Mexican long-tongued bat, Townsend's big-eared bat, spotted bat, greater western mastiff bat, western red bat, California leaf-nosed bat, and big free-tailed bat. Impacts to wildlife species are discussed in detail in Section 2.4.1.

Impact W-1 and W-2: Short-Term Direct Impacts to Special-Status Wildlife Species

Loss of special-status wildlife species (County Group 1 or state SSC animals), including individual amphibian, reptiles, and small mammals, from construction-related activities would be considered significant (**Impact W-1**). This impact will be mitigated through **M-BI-PP-2** (biological monitoring), **M-BI-PP-3** (restrictions on construction vehicle speed limits), **M-BI-PP-4** (preparation of a biological monitoring report), **M-BI-PP-7** (restrictions on operation and maintenance personnel activity), and **M-BI-PP-11** (monitor excavated areas and soil piles). Therefore, permanent direct impacts to County Group 1 species or state SSC would be **less than significant** with implementation of these mitigation measures.

If any active nests or the young of nesting special-status bird species (County Group 1 or state SSC animals) are impacted through direct grading, these impacts would be considered significant (**Impact W-2**), based on the Migratory Bird Treaty Act (MBTA). This impact will be mitigated through **M-BI-PP-10** (preconstruction surveys for nesting birds and setbacks). With this mitigation measure, impacts to nesting birds and raptors and other sensitive status species would be less than significant. Therefore, impacts to active nests or the young of nesting special-status bird species would be **less than significant**.

Impact W-3: Permanent Direct Impacts to Habitat for Special-Status Wildlife Species

Potential permanent direct impacts to the wildlife species described previously in Section 2.4.1.2 include removal of suitable nesting and/or foraging habitat, summarized in Table 2-3 (**Impact W-3**). These species occur within a

variety of habitats and through a wide geographic, topographic, and elevation ranges where there is an abundance of these species within the south desert slopes and southern mountains ecoregions, and generally a substantial portion of the suitable habitat for these species are in public ownership and therefore reasonably anticipated to remain undisturbed. However, since the project would result in impacts to more than 5% of modeled habitat for each of the species, impacts to suitable habitat within the development footprint are considered potentially significant. These impacts will be mitigated through **M-BI-PP-1** (habitat preservation and management).

3.2.3 Project Effects Relevant to Guideline 4.1.C

3.2.3.1 Special-Status Plant Species (County List C and D Species)

There will be no direct impacts resulting from implementation of the proposed project to any County List C plant species or to the two County List D plant species (Payson's jewel flower and low bush monkeyflower) occurring within the Open Space area.

Three County List D plant species would be directly impacted by the proposed project: peninsular spineflower, Colorado desert larkspur, and pride of California. Table 2-2 summarizes the proposed impacts to County List D species, and Figure 10A shows the proposed project impacts to County List D plant species on site. Although these proposed impacts to County List D species are not considered significant per the County Guidelines, suitable habitat for these species would be conserved within the open space preserve (**M-BI-PP-1**).

3.2.3.2 Special-Status Wildlife Species (County Group 2)

As summarized in Section 1.4.6, the following six County Group 2 special-status wildlife species were incidentally observed either directly or indirectly (i.e., scat, tracks) within the project area: monarch butterfly, San Diegan tiger whiptail, great blue heron, California horned lark, western bluebird, and mule deer. Figure 10B shows the proposed project impacts in relation to the special-status wildlife observations mapped on site. Four additional Group 2 species were observed but are analyzed in Section 3.2.2.2 because they are state SSC wildlife: orange-throated whiptail, Blainville's horned lizard, yellow warbler, and San Diego black-tailed jackrabbit.

The following additional four County Group 2 wildlife species have high potential to occur within the project area: San Diego ringneck snake, rosy boa, barn owl, and cougar. A total of 14 additional Group 2 species have high potential to occur but are analyzed in Section 3.2.2.2 because they are state SSC wildlife: western spadefoot, red-diamond rattlesnake, Coronado skink, coast patch-nosed snake, Dulzura pocket mouse, northwestern San Diego pocket mouse, San Diego desert woodrat, Mexican long-tongued bat, Townsend's big-eared bat, spotted bat, greater western mastiff bat, western red bat, California leaf-nosed bat, and big free-tailed bat.

Impact W-4 and W-5: Short-Term Direct Impacts to Special-Status Wildlife Species

Loss of Group 2 special-status wildlife species that are not state SSC wildlife from construction-related activities (**Impact W-4**) is considered significant. Implementation of **M-BI-PP-2** (biological monitoring), **M-BI-PP-3** (restrictions on construction vehicle speed limits), **M-BI-PP-4** (preparation of a biological monitoring report), and **M-BI-PP-11** (monitor excavated areas and soil piles) would be reduce impacts to Group 2 special-status wildlife species to less than significant.

If any active nests or young of nesting special-status bird species (County Group 2) are impacted through direct grading, these impacts would be considered significant (**Impact W-5**), based on the MBTA. This impact will be mitigated through **M-BI-PP-10** (preconstruction surveys for nesting birds and setbacks).

Impact W-6: Permanent Direct Impacts to Habitat for Special-Status Wildlife Species

Potential permanent direct impacts to suitable habitat for Group 2 special-status wildlife species including, monarch butterfly, San Diegan tiger whiptail, great blue heron, California horned lark, western bluebird, barn owl, cougar, mule deer, San Diego ringneck snake, and rosy boa could occur as a result of the proposed project (**Impact W-6**). This impact would be considered significant, and implementation of **M-BI-PP-1** (habitat preservation and management) would reduce impacts to Group 2 special-status wildlife species to less than significant.

3.2.4 Project Effects Relevant to Guideline 4.1.D

No arroyo toads (*Anaxyrus californicus*) have been incidentally detected in the project area, and they are not expected to occur in the project area due to the lack of suitable habitat. Arroyo toads are not known from this area and have not been documented in the Live Oak Springs quadrangle (CDFW 2019c). The project area lacks suitable habitat for this species. In addition, focused arroyo toad surveys on the nearby Tule project site were negative (HDR 2010). The closest USFWS occurrence is approximately 12 miles south of the project area (USFWS 2019b).

3.2.5 Project Effects Relevant to Guideline 4.1.E

No active golden eagle nests are known to occur within 4,000 feet of the project area (Appendix J). A golden eagle pair referred to as the "Boulevard pair" was known to exist within and around the Rugged Solar Farm site; however, the nest is not active, and the Boulevard pair is assumed to be extirpated. The Carrizo Canyon and Table Mountain territories, located east and southeast of the solar farm site, respectively, each support an active breeding pair. While the core nesting areas for these pairs are outside of the Rugged Solar Farm site and the 4,000-foot buffer, these pairs would be expected to forage over the project site, as their territories overlap slightly with the project site (WRI 2012). The WRI study of the project determined that the project site includes golden eagle flyways. The results of a golden eagle territory report specific to the proposed project are included as Appendix H; see Section 1.4.6.2 for a more detailed discussion regarding status and distribution of golden eagle in the project area. Although this species has potential to forage over the project site, there are no suitable nesting areas within the project site or within 4,000 feet of the project site. Therefore, there is no impact to golden eagle habitat within 4,000 feet of an active nest.

Implementation of the project would impact golden eagle foraging habitat, which would be significant. This significant impact is addressed in Section 3.2.6, Project Effects Relevant to Guideline 4.1F.

3.2.6 Project Effects Relevant to Guideline 4.1.F

Foraging habitat for raptors is present throughout portions of the project area. Approximately 391.17 acres of vegetation communities and land covers will be impacted through project impacts. Many of these habitats would be considered suitable foraging habitat for raptors, including golden eagle. The project would result in impacts to more than 5% of the raptor foraging habitat within the entire project site, however, the amount of impact (369.5 acres; 49% of the project site) is relatively small compared to available habitat in the overall landscape. Per the County guidelines, impacts to raptor foraging habitat would be a significant impact because more than 5% of the raptor

foraging habitat on the project site would be impacted (**Impact W-7**). Impacts to raptor foraging habitat would be mitigated to less than significant through off-site preservation of suitable habitat for raptors (**M-BI-PP-1**).

3.2.7 Project Effects Relevant to Guideline 4.1.G

The project area is considered a core wildlife area based on its total acreage and the presence of surrounding undeveloped areas. Impacts to the area are considered significant (**Impact CWA-1**) and will be mitigated through mitigation measure **M-BI-PP-1** (habitat preservation and management).

3.2.8 Project Effects Relevant to Guideline 4.1.H

3.2.8.1 Special-Status Plant Species

Impact SP-3: Short-Term Indirect Impacts to Special-Status Plant Species

Short-term indirect impacts to County List A and B plant species as a result of the proposed project are described in Section 2.3.2.1 and include short-term, construction-related, or temporary indirect impacts and include generation of fugitive dust, changes in hydrology resulting from construction, and the introduction of chemical pollutants.

Short-term indirect impacts to County List A and B plant species would be considered significant (**Impact SP-3**). Short-term indirect impacts to County List A and B plant species will be mitigated to less than significant through implementation of **M-BI-PP-2** (biological monitoring), **M-BI-PP-3** (preparation and implementation of a SWPPP), **M-BI-PP-4** (preparation of a biological monitoring report), **M-BI-PP-5** (implementation of a Fugitive Dust Control Plan), and **M-BI-PP-9** (regulated herbicide application).

Impact SP-4: Long-Term Indirect Impacts to Special-Status Plant Species

Potential long-term or permanent indirect impacts to County List A and B plant species as result of the proposed project are described in Section 2.3.2.2 and include generation of fugitive dust, habitat fragmentation, chemical pollutants (herbicides), altered hydrology, non-native invasive species, increased human activity, and the alteration of the natural fire regime. Long-term indirect impacts from shading are not expected since the shading will be contained within the proposed project impact footprint.

Potential long-term indirect impacts to County List A and B plant species would be considered significant (**Impact SP-4**). Long-term indirect impacts to County List A and B plant species will be mitigated to less than significant through implementation of **M-BI-PP-1** (habitat preservation and management), **M-BI-PP-5** (implementation of a Fugitive Dust Control Plan), **M-BI-PP-6** (biological review of landscape plans), **M-BI-PP-7** (restrictions on operation and maintenance personnel activity), **M-BI-PP-8** (implementation of a Fire Protection Plan), and **M-BI-PP-9** (regulated herbicide application).

3.2.8.2 Special-Status Wildlife Species

Impact W-8: Short-Term Indirect Impacts to Special-Status Wildlife Species

Short-term indirect impacts to County Group 1 and 2 special-status wildlife species as a result of the proposed project are described in Section 2.4 and include short-term, construction-related, or temporary indirect impacts, including generation of fugitive dust, noise, chemical pollutants, increased human activity, and non-native animal species.

Short-term indirect impacts to special-status wildlife species would be considered significant **(Impact W-8)**. Short-term indirect impacts to special-status wildlife species will be mitigated to less than significant through implementation of **M-BI-PP-2** (biological monitoring), **M-BI-PP-3** (restrictions on construction vehicle speed limits, preparation and implementation of an SWPPP, and containment and removal of trash), **M-BI-PP-4** (preparation of a biological monitoring report), **M-BI-PP-5** (implementation of a Fugitive Dust Control Plan), **M-BI-PP-6** (biological review of landscape plans), **M-BI-PP-7** (restrictions on operation and maintenance personnel activity), and **M-BI-PP-9** (regulated herbicide application), **M-BI-PP-10** (preconstruction surveys for nesting birds and setbacks), **M-BI-PP-11** (monitor excavated areas and soil piles), and **M-BI-PP-12** (minimize night lighting).

Impact W-9: Long-Term Indirect Impacts to Special-Status Wildlife Species

Potential long-term or permanent indirect impacts to special-status wildlife species include generation of fugitive dust; off-road vehicle use; non-native, invasive plant and animal species; habitat fragmentation; increased human activity; altered hydrology; and alteration of the natural fire regime. Additionally, potential long-term indirect impacts could occur from electrocution of, and/or collisions by, listed or special-status bird or bat species as a result of the proposed and existing overhead transmission lines. These potential long-term indirect impacts to special-status wildlife species would be considered significant (**Impact W-9**).

Long-term indirect impacts to special-status wildlife species will be mitigated to less than significant through implementation of **M-BI-PP-1** (habitat preservation and management), **M-BI-PP-5** (implementation of a Fugitive Dust Control Plan), **M-BI-PP-6** (biological review of landscape plans), **M-BI-PP-7** (restrictions on operation and maintenance personnel activity), **M-BI-PP-8** (implementation of a Fire Protection Plan), and **M-BI-PP-13** (conformance with Avian Power Line Interaction Committee standards).

3.2.9 Project Effects Relevant to Guideline 4.1.I

No burrowing owls (*Athene cunicularia*) have been detected in the project area and are not known to occur between Jacumba Valley and Otay areas in San Diego County; therefore, there are no impacts to occupied burrowing owl habitat.

3.2.10 Project Effects Relevant to Guideline 4.1.J

No coastal (San Diego) cactus wrens (*Campylorhynchus brunneicapillus sandiegensis*) have been detected in the project area and are not expected to occur within the project area due to lack of suitable habitat. Coastal cactus wren rely on cactus thickets at elevations below 1,500 feet (Unit 2004). The site is above this elevation range and there are no large patches of *Cylindropuntia* spp. or *Opuntia* spp. on site; however, there are scattered cacti throughout the scrub and chaparral. Therefore, due to the lack of suitable habitat and observations within the project area there are no impacts to occupied coastal cactus wren habitat.

3.2.11 Project Effects Relevant to Guideline 4.1.K

No Hermes copper butterflies were incidentally detected in the project area. The known range for Hermes copper butterfly are farther west toward Descanso, Jamul, and Potrero (CDFW 2019c). The adult butterflies' preferred nectaring plant, California buckwheat, occurs throughout the project area; however, the larval host plant (i.e., true limiting factor), spiny redberry (*Rhamnus crocea*), has not been detected during plant surveys. Based on the lack

of suitable habitat for this species, the project area is not considered occupied Hermes copper butterfly habitat. Therefore, there are no impacts related to this guideline.

3.2.12 Project Effects Relevant to Guideline 4.1.L

Construction-related noise impacts to the nesting success of tree-nesting raptors would be considered significant (**Impact W-10**) and would be mitigated through **M-BI-PP-10** (preconstruction surveys for nesting birds and setbacks).

Impacts to the nesting success of tree-nesting raptors (e.g., Cooper's hawk, great-horned owl, and/or red-tailed hawk) as a result of habitat removal associated with the proposed project are anticipated. Impacts to nesting tree habitat within the project area totals 0.54 acres and includes coast live oak woodland and mixed oak woodland. Long-term direct impacts to nesting habitat for special-status raptors including Cooper's hawk and red-shouldered hawk is summarized in Table 2-3 and impacts to general vegetation communities are described in Table 2-1. Impacts to the nesting success of tree-nesting raptors associated with the loss of suitable nesting habitat would be considered significant (**Impact W-11**). The loss of suitable nesting habitat would be mitigated by **M-BI-PP-1** (habitat preservation and management).

Coastal cactus wren, coastal California gnatcatcher (*Polioptila californica californica*), least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), golden eagle, and light-footed clapper rail (*Rallus longirostris levipes*) do not nest in the project area; therefore, the proposed project would not impact the nesting success of those species. No ground-nesting raptors (e.g., northern harrier [*Circus cyaneus*] and short-eared owl [*Asio flammeus*]) are expected to nest in the project area. Therefore, the proposed project would not impact the nesting success of those species.

3.3 Cumulative Impact Analysis

Cumulative impacts are not assessed in this document but are discussed thoroughly in the project's EIR. For purposes of assessing cumulative impacts related to the Rugged Solar Farm Project, an appropriate geographic scope would be the Peninsular Ranges of the California floristic province, as defined by the Jepson Flora Project (2019b).

3.4 Mitigation Measures and Design Considerations

M-BI-PP-1 **(a)** Habitat Preservation. To mitigate for impacts to vegetation communities, habitats for special-status wildlife species, and occurrences of special-status plant species, suitable mitigation land shall be acquired prior to approval of any plan or issuance of grading or building permits, and prior to use of the premises in reliance of this permit. The project applicant shall provide for the conservation of habitat generally consistent with the assemblage of vegetation communities impacted by the project. As proposed, the project is estimated to impact the following vegetation community acreages summarized in Table 3-2. Table 3-2 also includes the total mitigation required per County Guidelines mitigation ratios (County of San Diego 2010a). The on-site Open Space Preserve would provide the majority of the requirement and a small portion, approximately 18.92 acres, would be provided off-site within the Soitec Mitigation Site. Based on vegetation mapping, elevation ranges, soils, and proximity of the mitigation site to the project site, it has been determined that the Soitec Mitigation Site provides suitable habitat to compensate for the loss of

vegetation communities and special-status plant and wildlife species within the project site (Dudek 2014). This shall mitigate for project impacts to special-status sensitive vegetation communities, thereby preserving compensatory habitat that provides equal or greater benefit to plant and wildlife species. The open space conservation area may be composed of more than one set of contiguous parcels.

The project applicant shall provide for the conservation of habitat generally consistent with the assemblage of vegetation communities impacted by the project as indicated below:

a. A Resource Management Plan (RMP) shall be prepared and approved pursuant to the County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources to the satisfaction of the director of Department of Planning and Development Services (PDS). If the off-site mitigation is proposed to be managed by Department of Parks and Recreation (DPR), the RMP shall also be prepared and approved to the satisfaction of the director of DPR.
b. An open space easement over the land shall be dedicated to the County of San Diego or like agency to the satisfaction of the Director of PDS. The land shall be protected in perpetuity.
c. The purchase and dedication of the land and the selection of the Resource Manager and establishment of an endowment to ensure funding of annual ongoing basic stewardship costs shall be complete prior to approval of the RMP.
d. In lieu of providing a private habitat manager, the applicant may contract with a federal, state, or local government agency with the primary mission of resource management to take fee title and manage the mitigation land. Evidence of satisfaction must include a copy of the contract with the agency, and a written statement from the agency that (1) the land contains the specified acreage and the specified habitat, or like functioning habitat, and (2) the land will be managed by the agency for conservation of natural resources in perpetuity.

(b) Resource Management Plan. To provide for the long-term management of the proposed on-site and off-site Open Space Preserves, an RMP for each Preserve has been prepared and shall be implemented. See Appendix K1 for details on the on-site RMP and Appendix K2 for details on the off-site RMP. The final RMP shall be completed to the satisfaction of the Director of PDS, as follows: (1) the RMP shall be prepared and approved pursuant to the most current version of the County of San Diego Report Format and Content Requirements: Biological Resources; (2) the habitat land to be managed shall be owned by a land conservancy or equivalent; (3) open space easements shall be dedicated or deed restrictions recorded in perpetuity; (4) a resource manager shall be selected and approved, with evidence provided demonstrating acceptance of this responsibility; (5) the RMP funding mechanism shall be identified and adequate to fund annual costs for implementation; and (6) a contract between the project applicant and County of San Diego shall be executed for the implementation of the RMP, and funding will be established with the County of San Diego as the third-party beneficiary.

(c) Revegetation Plan. To mitigate for impacts to special-status plants, a Restoration Plan for Special-Status Plants (RPSP) has been prepared and shall be implemented. See Appendix L for details. The final RPSP shall address mitigation for permanent impacts to County List A and B plant species through the preservation of populations of each species per County requirements. County List A plant species will be mitigated at a 2:1 ratio, List B species are mitigated at a 1:1 ratio, and impacts to List D species are not mitigated based on a ratio basis but will be mitigated

through the preservation of suitable habitat. Therefore, mitigation for the loss of special-status plant species as summarized in Table 3-1, shall be as follows: 2:1 mitigation ratio for a total of 2,112 Jacumba milk vetch individuals, 1:1 ratio for a total of 138 sticky geraea individuals, and 1:1 ratio for a total of 190 desert beauty individuals. It should be noted that the assessment of the number of individuals of these species supported within the impact and mitigation areas shall be conducted in comparable survey years to appropriately account for potential annual variation in the number of individuals.

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Table 3-2. Summary of Impacts and Mitigation for Sensitive Vegetation Communities

Habitat Types/Vegetation Communities	Existing Acreage	Total Impacts (Acres)	Mitigation Ratio	Mitigation Required (Acres)	On-Site Open Space[2]	Mitigation Excess/Deficit[3]
Upland Scrub and Chaparral						
Big Sagebrush Scrub*	75.93	49.68	2:1	99.36	26.14	73.22
Disturbed Big Sagebrush Scrub*	14.25	0.67	2:1	1.34	13.58	12.25
Montane Buckwheat Scrub*	102.39	57.83 (11.30[1])	1:1	46.53	44.56	1.97
Disturbed Montane Buckwheat Scrub*	9.64	6.78 (0.47[1])	1:1	6.31	2.86	3.44
Granitic Chamise Chaparral*	116.83	95.19	0.5:1	47.59	21.56	26.04
Granitic Northern Mixed Chaparral*	11.30	—	0.5:1	—	11.30	11.30
Red Shank Chaparral*	42.89	32.78	1:1	32.78	9.99	22.79
Scrub Oak Chaparral*	73.65	57.96	1:1	57.96	15.54	42.42
Disturbed Scrub Oak Chaparral*	0.54	—	1:1	—	0.54	0.54
Semi-Desert Chaparral*	102.55	45.07	1:1	45.07	57.49	12.42
Semi-Desert Chaparral – Rock*	12.39	0.11	1:1	0.11	12.28	12.17
Disturbed Semi-Desert Chaparral*	1.56	0.02	1:1	0.02	1.54	1.52
Subtotal[4]	*563.92*	*346.07*	—	*337.05*	*217.39*	*119.67*
Upland Woodland and Savannah						
Coast Live Oak Woodland*	9.38	0.54	3:1	1.61	8.84	7.23
Mixed Oak Woodland*	2.19	—	3:1	—	2.19	2.19
Subtotal[4]	*11.56*	*0.54*	—	*1.61*	*11.03*	*9.42*
Non-Native Communities and Land Covers						
Non-Native Grassland*	101.38	21.93	0.5:1	10.96	79.46	68.49
Non-Native Grassland: Broadleaf-Dominated*	0.16	—	0.5:1	—	0.16	0.16
Subtotal[4]	*101.54*	*21.93*	—	*10.96*	*79.62*	*68.65*
Total Upland Summary						
Total[4]	**677.03**	**369.52**	**—**	**349.63**	**308.03**	**41.60**
Oak Root Zone[5]	**26.22**	**2.24**	**3:1**	**6.71**	**23.99**	**17.28**

Table 3-2. Summary of Impacts and Mitigation for Sensitive Vegetation Communities

Habitat Types/Vegetation Communities	Existing Acreage	Total Impacts (Acres)	Mitigation Ratio	Mitigation Required (Acres)	On-Site Open Space[2]	Mitigation Excess/Deficit[3]
RWQCB/CDFW						
Non-vegetated channel[6]	1.64	0.01	1:1	0.01	1.63	1.61
RWQCB/CDFW/County						
Alkali Meadow*	14.27	0.05	3:1	0.16	14.22	14.06
Disturbed Alkali Meadow*	3.48	0.16	3:1	0.48	3.32	2.83
Tamarisk Scrub*	0.79	—	3:1	—	0.79	0.79
Subtotal[4]	*18.54*	*0.21*	—	*0.64*	*18.32*	*17.68*
CDFW and County						
Disturbed Alkali Meadow*	1.13	—	3:1	—	1.13	1.13
Disturbed Mulefat Scrub*	0.50	—	3:1	—	0.50	0.50
Tamarisk Scrub*	0.28	—	3:1	—	0.28	0.28
Subtotal[4]	1.91	—	—	—	1.91	1.91
CDFW-only						
Tamarisk Scrub*	4.51	0.76	3:1	2.28	3.75	1.47
Total Wetland Summary						
Jurisdictional Waters and Wetlands Total[4]	**26.60**	**0.99**	**—**	**2.94**	**25.61**	**22.68**
RPO Wetland Buffer[5]	**36.35**	**0.58**	**1:1**	**0.58**	**34.86**	**33.37**
Open Space Preserve Summary						
Total[4]	**370.51**	**—**	**352.57**	**333.64**	**18.92**	

Notes:

1 The portion of the SDG&E construction yard that overlaps the development footprint has been removed from impact total due to previous mitigation through the environmental analysis prepared for the Sunrise Powerlink Project. Refer to Appendix M for details.

2 Open Space includes a portion of the SDG&E construction yard. Open Space does not include impact neutral acreages, which will not be counted toward mitigation.

3 Mitigation for each vegetation community will be provided in-kind within the Open Space Preserve, where possible. If additional needs are still required, mitigation will be provided through out-of-kind, but biologically similar in function communities within the Open Space Preserve.

4 Totals may not add due to rounding.

5 Oak root zone and RPO Wetland Buffers are an overlay to the vegetation community layer and are not counted toward the total existing acreage.

6 Due to lack of evidence of surface hydrology and annual herbaceous species at greater than 10% cover, these non-vegetated channels do not conform to classifications in Oberbauer et al. 2008 (refer to Section 1.4.2.5.1 for details). Therefore, the mitigation ratio for impacts to these features is 1:1.

* Considered special-status by the County of San Diego (2010b).

M-BIO-PP-2 **Biological Monitoring**. To prevent inadvertent disturbance to areas outside the limits of grading, all grading shall be monitored by a biologist. A County-approved biologist (project Biologist) shall be contracted to perform biological monitoring during all grading, clearing, grubbing, trenching, and construction activities.

The project Biologist shall perform the monitoring duties before, during, and after construction pursuant to the most current version of the County of San Diego *Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources*. The contract provided to the County shall include an agreement that this will be completed, and a Memorandum of Understanding (MOU) between the biological consulting company and the County of San Diego shall be executed. The contract shall include a cost estimate for the monitoring work and reporting. In addition to performing monitoring duties pursuant to the most current version of the County of San Diego *Report Format and Content Requirements, Biological Resources*, the project Biologist also will perform the following duties:

a. Attend the preconstruction meeting with the contractor and other key construction personnel prior to clearing, grubbing, or grading to reduce conflict between the timing and location of construction activities with other mitigation requirements (e.g., seasonal surveys for nesting birds).
b. Conduct meetings with the contractor and other key construction personnel describing the importance of restricting work to designated areas prior to clearing, grubbing, or grading and clarifying that the project Biologist has the authority to halt work that could harm or harass a protected species.
c. Discuss procedures for minimizing harm to or harassment of wildlife encountered during construction with the contractor and other key construction personnel prior to clearing, grubbing, or grading;
d. Review and/or designate the construction area in the field with the contractor in accordance with the final grading plan prior to clearing, grubbing, or grading.
e. Conduct a field review of the staking to be set by the surveyor, designating the limits of all construction activity prior to clearing, grubbing, or grading.
f. Be present during initial vegetation clearing, grubbing, and grading.
g. Flush special-status species (i.e., avian or other mobile species) from occupied habitat areas immediately prior to brush-clearing and earth-moving activities. If brush-clearing and earth-moving activities take place within the bird breeding season, flushing shall not occur in an area identified as having an active nest and thus resulting in a potential take of a species (see **M-BI-PP-10**).
h. To address hydrology impacts, the project Biologist shall verify that grading plans include a Stormwater Pollution Prevention Plan (see **M-BI-PP-3** for required best management practices [BMPs]).

The cost of the monitoring shall be added to the grading bonds that will be posted with the Department of Public Works (DPW), or bond separately with the PDS.

Documentation: The applicant shall provide a copy of the biological monitoring contract, cost estimate, and MOU to PDS. Additionally, the cost amount of the monitoring work shall be added to the grading bond cost estimate. Timing: Prior to approval of any grading and or improvement plans and issuance of any grading or construction permits. Monitoring: PDS shall review the contract,

MOU, and cost estimate or separate bonds for compliance with this condition. The cost estimate should be forwarded to the project manager for inclusion in the grading bond cost estimate and grading bonds. DPW shall add the cost of the monitoring to the grading bond costs.

M-BI-PP-3 **SWPPP.** Prior to issuance of a grading permit, the Stormwater Pollution Prevention Plan (SWPPP) that shall be prepared in compliance with the Construction General Storm Water Permit, State Water Resources Control Board Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ,) shall include at a minimum, the best management practices (BMPs) listed below. The combined implementation of these requirements shall protect adjacent habitats and special-status species during construction to the maximum extent practicable. At a minimum, the following measures and/or restrictions shall be incorporated into the SWPPP and noted on construction plans, where appropriate, to avoid impacts on special-status species, sensitive vegetation communities, and/or jurisdictional waters during construction. The County-approved biologist (project Biologist) shall verify the implementation of the following design requirements:

1. No planting or seeding of invasive plant species per the most recent version of the California Invasive Plant Council (Cal-IPC) California Invasive Plant Inventory for the project region shall be permitted.
2. When construction operations are completed, any excess materials or debris will be removed from the work area.
3. Fully covered trash receptacles that are animal-proof and weather-proof will be installed and used by all on-site personnel to contain all food, food scraps, food wrappers, beverage containers, and other miscellaneous trash. Prohibit littering and remove trash from construction areas daily. All food-related trash and garbage shall be removed from the construction sites on a daily basis.
4. Pets on or adjacent to construction sites will not be permitted by any on-site personnel.
5. Enforce speed limits in and around all construction areas. Vehicles shall not exceed 15 miles per hour on unpaved roads and the right-of-way accessing the construction site or 10 miles per hour during the night.

M-BI-PP-4 **Monitoring Report**. To ensure that the biological monitoring occurred during the grading phase of the project, a final biological monitoring report shall be prepared. The County-approved biologist (project Biologist) shall prepare a final biological monitoring report. The report shall substantiate the supervision of the grading activities and state that grading or construction activities did not impact any additional areas or any other sensitive biological resources. The report shall conform to the County of San Diego *Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources*, and include the following items:

A. Photos of the temporary fencing that was installed during the trenching, grading, or clearing activities.
B. Monitoring logs showing the date and time that the project Biologist was on site.
C. Photos of the site after the grading and clearing activities.
D. Documentation: The project Biologist shall prepare the final report and submit it to the PDS for review and approval. Timing: Prior to any occupancy, final grading release, or use of the premises in reliance of this permit, the final report shall be approved. Monitoring: The PDS shall review the final report for compliance with this condition and the report format guidelines. Upon approval of the report, PDS shall inform DPW that the requirement is complete and the bond

amount can be relinquished. If the monitoring was bonded separately, then PDS shall inform DPW to release the bond back to the applicant.

M-BI_PP-5 **Fugitive Dust Control Plan.** The applicant shall develop a Fugitive Dust Control Plan in compliance with San Diego County Air Pollution Control Regulations to reduce particulate matter less than 10 microns (PM_{10}) and fine particulate matter less than 2.5 microns ($PM_{2.5}$) emissions during construction. The Fugitive Dust Control Plan shall include:

1. Name(s), address(es), and phone number(s) of person(s) responsible for the preparation, submission, and implementation of the plan.

2. Description and location of operation(s).

3. Listing of all fugitive dust emissions sources included in the operation.

4. The following dust control measures shall be implemented:

    a. All on-site unpaved roads shall be effectively stabilized using an aggregate base material, such as disintegrated granite (DG), as early as practical during construction.

    b. All material excavated or graded shall be sufficiently watered to prevent excessive dust. Watering shall occur as needed with complete coverage of disturbed areas. The excavated soil piles shall be watered hourly for the duration of construction or covered with temporary coverings.

    c. Construction activities that occur on unpaved surfaces will be discontinued during windy conditions when winds exceed 25 miles per hour and when those activities cause visible dust plumes. All grading activities shall be suspended when wind speeds are greater than 30 miles per hour.

    d. Track-out shall not extend 25 feet or more from an active operation, and track-out shall be removed at the conclusion of each workday.

    e. All haul trucks hauling soil, sand, and other loose materials shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions).

    f. Soil loads shall be kept below 18 inches of the freeboard of the truck.

    g. Drop heights shall be minimized when loaders dump soil into trucks.

    h. Traffic speeds on unpaved roads shall be limited to 25 miles per hour.

    i. Disturbed areas shall be minimized.

    j. Disturbed areas shall be stabilized using soil binders that can be determined to be as efficient, or more efficient, for fugitive dust control than California Air Resources Board-approved soil stabilizers, as soon as possible after disturbance and shall not increase any other environmental impacts, including loss of vegetation.

M-BI-PP-6 **Prevention of Invasive Plant Species.** Prior to installation of any landscaping, plant palettes shall be reviewed by the Project Biologist to minimize the effects that proposed landscape plants could have on biological resources outside of the project footprint due to potential naturalization of landscape plants in the undeveloped lands. Landscape plants will not include invasive plant species on the most recent version of the California Invasive Plant Council's California Invasive Plant Inventory for the project region. Landscape plans will include a plant palette composed of climate-appropriate, drought- tolerant species.

M-BI-PP-7 **Personnel Activity Restrictions.** Operation and maintenance personnel will be prohibited from:

1. Harming, harassing, or feeding wildlife and/or collecting special-status plant or wildlife species.
2. Traveling (either on foot or in a vehicle) outside of project footprint in undisturbed portions of the project area.
3. Bringing pets on the project area.
4. Littering on the project area.

M-BI-PP-8 **Fire Protection**. To minimize the potential exposure of the project area to fire hazards, all features of the Rugged Solar Farm Fire Protection Plan (Dudek 2015) were prepared in 2015 in accordance with the most current version of the County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements: Wildland Fire and Fire Protection, shall be implemented in conjunction with development of the Rugged Solar Farm.

M-BI-PP-9 **Regulation of Chemical Pollutants**. Weed control treatments shall include any legally permitted chemical, manual, and mechanical methods applied with the authorization of the San Diego County agriculture commissioner. The application of herbicides shall be in compliance with all state and federal laws and regulations under the prescription of a pest control advisor (PCA) and implemented by a licensed applicator for the project owner. Where manual and/or mechanical methods are used, disposal of the plant debris will follow the regulations set by the San Diego County agriculture commissioner. The timing of the weed control treatment shall be determined for each plant species in consultation with the PCA, the San Diego County agriculture commissioner, and Cal-IPC with the goal of controlling populations before they start producing seeds.

MBI-PP-10 **Nesting Bird Survey**. To avoid impacts to nesting birds the applicant shall:

1. Submit to the California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS) a Nesting Bird Management, Monitoring, and Reporting Plan (NBMMRP) for review and approval prior to commencement project activities during the breeding season (February 1 to August 31, and as early as January 1 for some raptors). The NBMMRP should include the following:

    a. Nest survey protocols describing the nest survey methodologies.

    b. A management plan describing the methods to be used to avoid nesting birds and their nests, eggs, and chicks.

c. A monitoring and reporting plan detailing the information to be collected for incorporation into a regular Nest Monitoring Log (NML) with sufficient details to enable USFSW and CDFW to monitor the applicant's compliance with Fish and Game Code Sections 3503, 3503.5, 3511, and 3513.

d. A schedule for the submittal (usually weekly) of the nesting monitoring logs (NML).

e. Standard buffer widths deemed adequate to avoid or minimize significant project-related edge effects (disturbance) on nesting birds and their nests, eggs, and chicks.

f. A detailed explanation of how the buffer widths were determined.

g. All measures the applicant will implement to preclude birds from utilizing project-related structures (i.e., construction equipment, facilities, or materials) for nesting.

2. Conduct preconstruction nesting bird surveys within 72 hours of construction-related activities; conduct preconstruction survey sweeps immediately prior to ground-disturbing activities; and implement appropriate avoidance measures for identified nesting birds.

To determine the presence of nesting birds that the project activities may affect, surveys should be conducted beyond the project area—300 feet for passerine birds and 500 feet for raptors. The survey protocols should include a detailed description of methodologies utilized by CDFW-approved avian biologists to search for nests and describe avian behaviors that indicate active nests. The protocols should include but are not limited to the size of the project area being surveyed, method of search, and behavior that indicates active nests.

Each nest identified in the project area should be included in the NML. The NMLs should be updated daily and submitted to the CDFW weekly. Since the purpose of the NMLs is to allow the CDFW to track compliance, the NMLs should include information necessary to allow comparison between nests protected by standard buffer widths recommended for the project (300 feet for passerine birds, 500 feet for raptors) and nests whose standard buffer width was reduced by encroachment of project-related activities. The NMLs should provide a summary of each nest identified, including the species, status of the nest, buffer information, and fledge or failure data. The NMLs will allow for tracking the success and failure of the buffers and will provide data on the adequacy of the buffers for certain species.

The applicant(s) will rely on its avian biologists to determine the appropriate standard buffer widths for nests within the project area to employ based on the sensitivity levels of specific species or guilds of avian species. The determination of the standard buffer widths should be site- and species-/guild-specific and data-driven and not based on generalized assumptions regarding all nesting birds. The determination of the buffer widths should consider the following factors:

a. Nesting chronologies

b. Geographic location

c. Existing ambient conditions (human activity within line of sight—cars, bikes, pedestrians, dogs, noise)

d. Type and extent of disturbance (e.g., noise levels and quality—punctuated, continual, ground vibrations—blasting-related vibrations proximate to tern colonies are known to make the ground-nesting birds flush the nests)

e. Visibility of disturbance

f. Duration and timing of disturbance

g. Influence of other environmental factors

h. Species' site-specific level of habituation to the disturbance.

Application of the standard buffer widths should avoid the potential for project- related nest abandonment and failure of fledging, and minimize any disturbance to the nesting behavior. If project activities cause or contribute to a bird being flushed from a nest, the buffer must be widened.

M-BI-PP-11 **Monitor Excavated Areas and Soil Piles.** As a condition on the grading plans, the biologist approved by the County of San Diego (project Biologist) shall cover and/or provide escape routes for wildlife from excavated areas and monitor these areas daily. All steep trenches, holes, and excavations during construction shall be covered at night with backfill, plywood, metal plates, or other means, and the edges covered with soils and plastic sheeting such that small wildlife cannot access. Soil piles will be covered at night to prevent wildlife from burrowing in. The edges of the sheeting will be weighed down by sandbags. These areas may also be fenced to prevent wildlife from gaining access. Exposed trenches, holes, and excavations shall be inspected twice daily (i.e., morning and prior to sealing the exposed area) by the project Biologist to monitor for, and release wildlife, if they become entrapped. Excavations shall provide an earthen ramp to allow for a wildlife escape route.

M-BI-PP-12 **Minimizing Night Lighting.** As a condition on the grading plans, night construction lighting adjacent to native habitats shall be minimized. Lighting of construction areas at night shall be the minimum necessary for personnel safety and shall be low illumination, selectively placed, and directed/shielded appropriately to minimize lighting in adjacent native habitats.

M-BI-PP-13 **Conformance with Avian Power Line Interaction Committee (APLIC) Standards.** Provide evidence to the Director of PDS that all transmission and distribution towers and lines are designed to conform to Avian Power Line Interaction Committee (APLIC) standards. Where applicable, the Proposed Project shall implement recommendations by the APLIC (2006), which will protect raptors and other birds from electrocution. These measures are sufficient to protect even the largest birds that may perch or roost on transmission lines or towers from electrocution. Specifically, these measures will include guidance on proper pole and cross member dimensions, phasing, and insulator design and dimensions to preclude wire-to-wire contact with a goal of providing 150 centimeters (59 inches) of separation between energized conductors and energized hardware and ground wire. In addition, bird diverters or other means to make lines more visible to birds will be installed to help avoid collisions.

3.5 Conclusions

3.5.1 Sensitive Plant Species

Impact SP-1 The significant short-term direct impacts to Jacumba milkvetch, sticky geraea, and desert beauty will be reduced to less than significant through implementation of **M-BI-PP-2**, **M-BI-PP-3**, **M-BI-PP-4**, and **M-BI-PP-7** because the mitigation, which requires biological monitoring; review of areas designated for clearing, grubbing, or grading; construction limitations including restrictions on construction vehicle speeds; preparation of a biological monitoring report; and restrictions on operation and maintenance personnel activity; will prevent and document that construction will not cause additional impacts beyond the project footprint. Additional design features that will reduce potential impacts include landscape monitoring and maintenance.

Impact SP-2 The significant long-term direct impacts to Jacumba milkvetch, sticky geraea, and desert beauty will be reduced to less than significant through implementation of **M-BI-PP-1**, which provides habitat management and conservation that has been demonstrated to contain these species with mitigation for the individuals (which may be based on the estimated extent of the population) at a 1:1 ratio or 2:1 ratio depending on the rarity of the species. These impacts have been reduced to less than significant because there would be adequate numbers of individuals and habitat to preserve and manage the species in perpetuity and in accordance with the County of San Diego *Biological Guidelines for Determining Significance*.

Impact SP-3 The significant short-term indirect impacts to Jacumba milkvetch, sticky geraea, and desert beauty will be reduced to less than significant through implementation of **M-BI-PP-2**, **M-BI-PP-3**, **M-BI-PP-4**, **M-BI-PP-5**, and **M-BI-PP-9** which require biological monitoring during construction; review of areas designated for clearing, grubbing, or grading; restrictions on construction vehicle speeds; preparation of a biological monitoring report; implementation of a Fugitive Dust Control Plan; and regulated herbicide application. These impacts have been reduced to less than significant because these measures will prevent and document that construction will not cause additional impacts beyond the project footprint. Additional design features that will also help reduce potential impacts include landscape monitoring and maintenance.

Impact SP-4 The significant long-term indirect impacts to Jacumba milkvetch, sticky geraea, and desert beauty will be reduced to less than significant through implementation of **M-BI-PP-1**, **M-BI-PP-5**, **M-BI-PP-6**, **M-BI-PP-7**, **M-BI-PP-8**, and **M-BI-PP-9**, which requires off-site compensatory mitigation with habitat conservation and management and includes on-site implementation of a Fugitive Dust Control Plan, biological review of landscape plans, restrictions on operation and maintenance personnel activities, implementation of a Fire Protection Plan, regulation of landscape installation and herbicide application. Potential indirect impacts have been reduced to less than significant because human activity has been restricted to the project footprint, the risk of fire has been reduced, and release of exotic plants and animals has been minimized.

3.5.2 Sensitive Wildlife Species

Impact CWA-1 The significant impact to a core wildlife area will be reduced to less than significant through implementation of **M-BI-PP-1** because the mitigation requires both on- and off-site habitat conservation and management of equivalent or better function and value.

Impacts W-1/W-2/W-4/W-5 The significant short-term direct impacts to active nests or the young of nesting County Group 1 or Group 2 species will be reduced to less than significant through implementation of **M-BI-PP-10**, because the mitigation, which requires preconstruction surveys for nesting birds and setbacks for active nests, will prevent the direct loss of active nests during clearing and grading. Potential significant short-term direct impacts from loss of individual San Diego ringneck and rosy boa will be reduced to less than significant through implementation of **M-BI-PP-2**, **M-BI-PP-3**, **M-BI-PP-4**, **M-BI-PP-7**, and **M-BI-PP-11**, which require biological monitoring, restrictions on construction vehicle speeds, preparation of a biological monitoring report, restrictions on operation and maintenance personnel acitivty, and monitor excavated areas and soil piles to minimize the potential for loss of individuals.

Impacts W-3/W-6/W-7 The significant long-term direct impacts to County Group 1 species (described in Table 2-3); Group 2 species; and loss of foraging habitat for raptors as a result of removal of suitable habitat will be reduced to less than significant through implementation of **M-BI-PP-1**, which provides commensurate off-site habitat conservation and management that has been demonstrated to contain habitat for these species, as well as preservation of an on-site wildlife corridor in open space through project design. These impacts have been reduced to less than significant because the off-site habitat and its management will provide equivalent or better function and value for these species and be managed and monitored in perpetuity. In addition, on-site long-term direct impacts to wildlife will be minimized because human activity has been limited to the project operational footprint and long-term preservation of the on-site wildlife movement corridor will be provided.

Impacts W-8 The significant short-term indirect impacts to special-status wildlife species will be reduced to less than significant through implementation of **M-BI-PP-2**, **M-BI-PP-3**, **M-BI-PP-4**, **M-BI-PP-5**, **M-BI-PP-6, M-BI—PP-7, M-BI-PP-9, M-BI-PP-10, M-BI-PP-11**, and **M-BI-PP-12**, because the mitigation, which requires biological monitoring; review of areas designated for clearing, grubbing, or grading; restrictions on construction vehicle speeds; preparation of a biological monitoring report; implementation of a Fugitive Dust Control Plan; biological review of landscape plans; restrictions on operation and maintenance personnel activity; regulated herbicide applications; preconstruction surveys for nesting birds and setbacks for active nests; monitoring excavated areas and soil piles; and minimizing night lighting; will prevent and document that construction will not cause additional impacts beyond the project footprint.

Impacts W-9 The significant long-term indirect impacts to special-status wildlife species will be reduced to less than significant through implementation of **M-BI-PP-1**, **M-BI-PP-5**, **M-BI-PP-6**, **M-BI-PP-7**, **M-BI-PP-8,** and **M-BI-PP-13**, which requires off-site habitat conservation and management of equivalent or better function and value, on-site preservation of significant wildlife movement corridors and movement between core habitats, implementation of a Fugitive Dust Control Plan, biological review of landscape plans, restrictions on operation and maintenance personnel activity, implementation

of a Fire Protection Plan, and conformance with Avian Power Line Interaction Committee standards. Potential indirect impacts have been reduced to less than significant because human activity has been limited to the project operational footprint, long-term preservation of on-site wildlife habitat movement corridor will be provided, the risk of fire has been reduced, release of exotic plants and animals has been minimized, and potential electrocution and/or collisions of special-status wildlife species with overhead transmission lines will be avoided.

Impact W-10/W-11 The significant impact to the nesting success of tree-nesting raptors will be reduced to less than significant through implementation of **M-BI-PP-1**, which requires habitat conservation and management of equivalent or better function and value, and through implementation of **M-BI-PP-10**, which requires setbacks for active nests.

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4 Riparian Habitat or Sensitive Natural Community

4.1 Guidelines for the Determination of Significance

The County's *Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources* (County of San Diego 2010a) are based on the criteria in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) and were used to analyze potential direct and indirect impacts to biological resources. The following guidelines for the determination of significance come directly from the County Guidelines (County of San Diego 2010a).

Guideline 4.2 The project would have a substantial adverse effect on riparian habitat or another sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS.

A. Project-related grading, clearing, construction, or other activities would temporarily or permanently remove sensitive native or naturalized habitat (as listed in Table 5, excluding those without a mitigation ratio) on or off the project site. This Guideline would not apply to small remnant pockets of habitat that have a demonstrated limited biological value. No *de minimus* standard is specified under which an impact would not be significant; however, minor impacts to native or naturalized habitat that is providing essentially no biological habitat or wildlife value can be evaluated on a case-by-case basis to determine whether the projected impact may be less than significant. For example, an impact to native or naturalized upland habitat under 0.1 acre in an existing urban setting may be considered less than significant (depending on a number of factors). An evaluation of this type should consider factors including, but not limited to, type of habitat, relative presence or potential for sensitive species, relative connectivity with other native habitat, wildlife species and activity in the project vicinity, and current degree of urbanization and edge effects in project vicinity, etc. Just because a particular habitat area is isolated, for example, does not necessarily mean that impacts to the area would not be significant (e.g., vernal pools). An area that is disturbed or partially developed may provide a habitat "island" that would serve as a functional refuge area "stepping stone" or "archipelago" for migratory species.

B. Any of the following will occur to or within jurisdictional wetlands and/or riparian habitats as defined by U.S. Army Corps of Engineers (ACOE), California Department of Fish and Wildlife (CDFW), and the County of San Diego: removal of vegetation; grading; obstruction or diversion of water flow; adverse change in velocity, siltation, volume of flow, or runoff rate; placement of fill; placement of structures; construction of a road crossing; placement of culverts or other underground piping; any disturbance of the substratum; and/or any activity that may cause an adverse change in native species composition, diversity, and abundance.

C. The project would draw down the groundwater table to the detriment of groundwater-dependent habitat, typically a drop of 3 feet or more from historically low groundwater levels.

D. The project would cause indirect impacts, particularly at the edge of proposed development adjacent to proposed or existing open space or other natural habitat areas, to levels that would likely harm sensitive habitats over the long term. The following issues should be addressed in determining the significance of indirect impacts: increasing human access; increasing predation or competition from domestic animals, pests, or exotic species; altering natural drainage; and increasing noise and/or nighttime lighting to a level above ambient that has been shown by the best available science to adversely affect the functioning of sensitive habitats.

E. The project does not include a wetland buffer adequate to protect the functions and values of existing wetlands. If the project is subject to the Resource Protection Ordinance (RPO), buffers of a minimum of 50 feet and a maximum of 200 feet to protect wetlands are required based on the best available science available to the County at the time of adoption of the ordinance. The following examples provide guidance on determining appropriate buffer widths.

- A 50-foot wetland buffer would be appropriate for lower quality RPO wetlands where the wetland has been assessed to have low physical and chemical functions, vegetation is not dominated by hydrophytes, soils are not highly erosive, and slopes do not exceed 25%.
- A wetland buffer of 50 to 100 feet is appropriate for moderate- to high-quality RPO wetlands that support a predominance of hydrophytic vegetation or wetlands within steep slope areas (greater than 25%) with highly erosive soils. Within the 50- to 100-foot range, wider buffers are appropriate where wetlands connect upstream and downstream, where the wetlands serve as a local wildlife corridor, or where the adjacent land use(s) would result in substantial edge effects that could not be mitigated.
- Wetland buffers of 100 to 200 feet are appropriate for RPO wetlands within regional wildlife corridors or wetlands that support significant populations of wetland-associated sensitive species, or where stream meander, erosion, or other physical factors indicate a wider buffer is necessary to preserve wildlife habitat.
- Buffering of greater than 200 feet may be necessary when an RPO wetland is within a regional corridor or supports significant populations of wetland-associated sensitive species and lies adjacent to land use(s) that could result in a high degree of edge effects within the buffer. Although the RPO stipulates a maximum of 200 feet for RPO wetland buffers, actions may be subject to other laws and regulations (such as the Endangered Species Act) that require greater wetland buffer widths.

4.2 Analysis of Project Effects

The proposed project will result in significant impacts that are mitigated under the guidelines above for the following reasons:

4.2.1 Project Effects Relevant to Guideline 4.2.A

Impact V-1: Short-Term Direct Impacts to Sensitive Vegetation Communities and Oak Root Protection Zone

Short-term, construction-related, or temporary direct impacts to sensitive vegetation communities and oak root protection zone would primarily result from construction activities. Clearing, trampling, or grading of sensitive vegetation communities and oak root protection zones outside designated construction zones could occur in the absence of avoidance and mitigation measures. Potential temporary direct impacts to sensitive vegetation

communities would be significant (**Impact V-1**). However, these short-term direct impacts will be mitigated to less than significant through implementation of **M-BI-PP-2** (biological monitoring), **M-BI-PP-3** (best management practices [BMPs]), and **M-BI-PP-4** (preparation of a biological monitoring report).

Impact V-2: Permanent Direct Impacts to Sensitive Vegetation Communities

Permanent direct impacts to developed land and disturbed habitat are not considered significant. Permanent direct impacts to 369.5 acres of sensitive vegetation communities would occur as a result of the proposed project. Permanent direct impacts to sensitive vegetation communities would be considered a significant impact (**Impact V-2**). This impact will be mitigated to less than significant through **M-BI-PP-1** (habitat preservation and management), which will conserve on-site habitat of equivalent or better function and value, and through **M-BI-PP-14** (federal and state permits), which requires agency permitting and no net loss of jurisdictional resources.

Table 2-1 in Section 2.2 summarize permanent direct impacts to vegetation communities and land covers found in the project area. Figure 9 illustrates the distribution of biological resources on site and the locations where proposed impacts would occur. Table 4-1 summarizes the impacts and required mitigation for sensitive vegetation communities and RPO buffers in the project area. Mitigation ratios provided in Table 4-1 conform to County Guidelines (County of San Diego 2010a).

Table 4-1. Summary of Impacts and Mitigation for Vegetation Communities and Jurisdictional Areas

Habitat Types/Vegetation Communities	Existing Acreage	Total Impacts (Acres)	Mitigation Ratio	Mitigation Required (Acres)
Non-Jurisdictional Vegetation Communities				
Upland Scrub and Chaparral				
Big Sagebrush Scrub*	75.93	49.68	2:1	99.36
Disturbed Big Sagebrush Scrub*	14.25	0.67	2:1	1.34
Montane Buckwheat Scrub*	102.39	57.83 (11.30[1])	1:1	46.53
Disturbed Montane Buckwheat Scrub*	9.64	6.78 (0.47[1])	1:1	6.31
Granitic Chamise Chaparral*	116.83	95.19	0.5:1	47.59
Granitic Northern Mixed Chaparral*	11.30	—	0.5:1	—
Red Shank Chaparral*	42.89	32.78	1:1	32.78
Scrub Oak Chaparral*	73.65	57.96	1:1	57.96
Disturbed Scrub Oak Chaparral*	0.54	—	1:1	—
Semi-Desert Chaparral*	102.55	45.07	1:1	45.07
Semi-Desert Chaparral – Rock*	12.39	0.11	1:1	0.11
Disturbed Semi-Desert Chaparral*	1.56	0.02	1:1	0.02
Subtotal	*563.92*	*346.07*	—	*337.05*
Upland Woodland and Savannah				
Coast Live Oak Woodland*	9.38	0.54	3:1	1.61
Mixed Oak Woodland*	2.19	—	3:1	—
Subtotal	*11.56*	*0.54*	—	*1.61*

Table 4-1. Summary of Impacts and Mitigation for Vegetation Communities and Jurisdictional Areas

Habitat Types/Vegetation Communities	Existing Acreage	Total Impacts (Acres)	Mitigation Ratio	Mitigation Required (Acres)
Non-Native Communities and Land Covers				
Disturbed Habitat	49.48	21.65 (6.06[1])	NA	—
Non-Native Grassland*	101.38	21.93	0.5:1	10.96
Non-Native Grassland: Broadleaf-Dominated*	0.16	—	0.5:1	—
Open Water	0.18	—	—	—
Urban/Developed	10.79	0.01	NA	—
Subtotal	*161.99*	*43.58*	—	*10.96*
Total Non-Jurisdictional Vegetation Communities	**737.48**	**390.18**	**—**	**349.63**
Jurisdictional Waters and Wetlands				
ACOE/RWQCB/CDFW				
Non-Vegetated Channel*[2]	1.64	0.01	1:1	0.01
Subtotal	*1.64*	*0.01*	—	*0.01*
ACOE/RWQCB/CDFW/County				
Alkali Meadow*	14.27	0.05	3:1	0.16
Disturbed Alkali Meadow*	3.48	0.16	3:1	0.48
Tamarisk Scrub*	0.79	—	3:1	—
Subtotal	*18.54*	*0.21*	*NA*	*0.64*
CDFW and County				
Disturbed Alkali Meadow*	1.13	—	3:1	—
Disturbed Mulefat Scrub*	0.50	—	3:1	—
Tamarisk Scrub*	0.28	—	3:1	—
Subtotal	1.91	—	*NA*	—
CDFW Only				
Tamarisk Scrub*	4.51	0.76	3:1	2.28
Total Jurisdictional Wetlands and Waters	**26.60**	**0.99**	**—**	**2.94**
Totals				
Oak Root Zone[3]	26.22	2.24	3:1	**6.71**
RPO Wetland and Buffer[3]	36.35	0.58	1:1	**0.58**
Total Non-Jurisdictional Vegetation Communities	**737.48**	**390.18**	**—**	**349.63**
Total Jurisdictional Wetlands and Waters	**26.60**	**0.99**	**—**	**2.94**
Total **	**764.07**	**391.17**	**—**	**352.57**

Notes: NA = not applicable; ACOE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife; County = County of San Diego; RPO = Resource Protection Ordinance.

[1] The portion of the SDG&E construction yard that overlaps the development footprint has been removed from impact total due to previous mitigation through the environmental analysis prepared for the Sunrise Powerlink Project. Refer to Appendix M for details.

[2] Due to lack of evidence of surface hydrology and annual herbaceous species at greater than 10% cover, these non-vegetated channels do not conform to classifications in Oberbauer et al. 2008 (refer to Section 1.4.2.5.1 for details). Therefore, the mitigation ratio for impacts to these features is 1:1.
[3] RPO buffers are overlaid on the biological resources and is not counted toward the overall acreage.
* Considered special-status by the County (County of San Diego 2010a).
** Totals may not add due to rounding.

Impact V-3: Permanent Direct Impacts to Oat Root Protection Zone

The proposed project is designed to avoid oak woodland habitats to the greatest extent feasible. An oak root protection zone, totaling 26.22 acres, has been established around the extent of coast live oak woodland and mixed oak woodland habitats within the project area (Figure 9). The proposed project would permanently impact 2.24 acres of the oak root protection zone as summarized in Table 4-1. Permanent direct impacts to the oak root protection zone would be considered a significant impact (**Impact V-3**). This impact will be mitigated to less than significant through mitigation measure **M-BI-PP-1** (habitat preservation and management), which will conserve on-site habitat of equivalent or better function and value.

4.2.2 Project Effects Relevant to Guideline 4.2.B

Any activity resulting from construction activities, which result in an adverse change to jurisdictional aquatic resources (i.e., wetlands and riparian habitat under the jurisdiction of ACOE, CDFW, and/or County), would be significant. As stated in Guideline 4.2.B, an activity is defined as: removal of vegetation; grading; obstruction or diversion of water flow; adverse change in velocity, siltation, volume of flow, or runoff rate; placement of fill; placement of structures; construction of a road crossing; placement of culverts or other underground piping; any disturbance of the substratum; and/or any activity that may cause an adverse change in native species composition, diversity, and abundance.

Impact V-4: Short-Term Direct Impacts to Jurisdictional Aquatic Resources

Short-term, construction-related, or temporary direct impacts to jurisdictional wetlands and waters would primarily result from construction activities. Clearing, trampling, or grading of jurisdictional wetlands and waters outside designated construction zones could occur in the absence of avoidance and mitigation measures. Potential temporary direct impacts to jurisdictional wetlands and waters on site would be significant (**Impact V-4**). However, these short-term direct impacts will be mitigated to less than significant through implementation of **M-BI-PP-2** (biological monitoring), **M-BI-PP-3** (preparation and implementation of an SWPPP), and **M-BI-PP-4** (preparation of a biological monitoring report).

Impact V-5: Permanent Direct Impacts to Jurisdictional Aquatic Resources

There is 0.01 acre (218 linear feet) of impacts to non-vegetated channel under the jurisdiction of ACOE, RWQCB, and CDFW (Figure 9; Table 4-1). There are direct impacts to 0.21 acres of wetlands under the jurisdiction of ACOE, RWQCB, CDFW, and County; and impacts to 0.76 acres of tamarisk scrub under CDFW only. Impacts to 0.01 acres (218 linear feet) of non-vegetated channel, 0.21 acres (124 linear feet) of RPO wetlands, and 0.76 acres (734 linear feet) of riparian habitat would be considered significant (**Impact V-5**). A minimum of a 1:1 ratio is proposed to compensate for impacts to non-vegetated channel, and a minimum of 3:1 ratio is proposed for the wetland and riparian habitat impacts. Impacts would require permits from the ACOE, CDFW, and RWQCB, which will determine the final mitigation ratio required to compensate for this impact. Impacts to non-vegetated channel and the

wetland/riparian habitat will be mitigated to less than significant through implementation of **M-BI-PP-1** (habitat preservation and management) and **M-BI-PP-14** (federal and state permits).

Impact V-6: Short-Term Indirect Impacts to Jurisdictional Aquatic Resources

Short-term, construction-related, or temporary indirect impacts to jurisdictional wetlands and waters would primarily result from construction activities. Indirect impacts could include the generation of fugitive dust; changes in hydrology resulting from construction, including sedimentation and erosion; and the introduction of chemical pollutants, including herbicides. Potential temporary direct impacts to jurisdictional wetlands and waters on site would be significant (**Impact V-6**). However, these short-term direct impacts will be mitigated to less than significant through implementation of **M-BI-PP-2** (biological monitoring), **M-BI-PP-3** (preparation and implementation of an SWPPP), **M-BI-PP-4** (preparation of a biological monitoring report), **M-BI-PP-5** (implementation of a Fugitive Dust Control Plan), and **M-BI-PP-9** (regulated herbicide application).

Impact V-7: Long-Term Indirect Impacts to Jurisdictional Aquatic Resources

Long-term indirect impacts that could affect jurisdictional wetlands and waters include generation of fugitive dust, habitat fragmentation, chemical pollutants, altered hydrology, non-native invasive species, increased human activity, and alteration of the natural fire regime. Long-term indirect impacts from shading are not expected since the shading will be contained within the proposed project impact footprint. Potential long-term indirect impacts to jurisdictional wetlands and waters would be considered a significant impact **(Impact V-7)**. Long-term indirect impacts to jurisdictional wetlands and waters will be mitigated to less than significant through implementation of **M-BI-PP-1** (habitat preservation and management), **M-BI-PP-5** (implementation of a Fugitive Dust Control Plan), **M-BI-PP-6** (biological review of landscape plans), **M-BI-PP-7** (restrictions on operation and maintenance personnel activity), **M-BI-PP-8** (implementation of a Fire Protection Plan), and **M-BI-PP-9** (regulated herbicide application).

Section 2.5 summarizes direct impacts to jurisdictional areas found in the project area. Figure 9 illustrates the distribution of biological resources on site and the locations where the proposed impact would occur.

4.2.3 Project Effects Relevant to Guideline 4.2.C

Impact V-8: Impacts to Groundwater Table

A Groundwater Resources Investigation Report for the proposed project was prepared by Dudek (2013b). The projected water demand for construction-related activities associated with the Rugged Solar Farm is estimated to be 19.4 million gallons, or 59 acre-feet over a period of 1 year. Operational water demand is expected to require approximately 2.83 million gallons (or 8.7 acre-feet) per year. The Groundwater Resources Investigation Report (Dudek 2013b) describes the existing groundwater level within the alluvial aquifer and analyzes impacts to the groundwater-dependent vegetation communities on site. The Groundwater Resources Investigation Report (Dudek 2013b) describes the groundwater-dependent vegetation on site, root depths, and the existing aquifer depth. Based on these data, and the estimated draw-down of the aquifer, the plant species with deep root systems (i.e., coast live oak and tamarisk) would still be able to tap the aquifer; therefore, the potential drawdown of the water table is not expected to impact these species. However, as noted in the report (Dudek 2013b), the historical low groundwater level in the vicinity of the oak woodland and tamarisk scrub is not known over the period corresponding to the lifespan of the vegetation. This lack of historical water level data precludes determination of a water level threshold 3 feet below the historical low, and therefore, impacts to groundwater-dependent vegetation on site would

be considered significant (**Impact V-8**). Impacts to groundwater-dependent vegetation will be mitigated to less than significant through implementation of **M-BI-PP-15** (Groundwater Monitoring and Mitigation Plan).

4.2.4 Project Effects Relevant to Guideline 4.2.D

Impact V-9: Short-Term Indirect Impacts to Sensitive Vegetation Communities and the Oak Root Protection Zone

Short-term indirect impacts to special-status upland vegetation communities as a result of the proposed project are described in Section 2.2.2.1 and include short-term, construction-related, or temporary indirect impacts and include generation of fugitive dust, changes in hydrology resulting from construction, and the introduction of chemical pollutants (including herbicides). Short-term indirect impacts to special-status upland vegetation communities would be considered a significant impact (**Impact V-9**). Short-term indirect impacts to special-status upland vegetation communities will be mitigated to less than significant through implementation of **M-BI-PP-2** (biological monitoring), **M-BI-PP-3** (preparation and implementation of an SWPPP), **M-BI-PP-4** (preparation of a biological monitoring report), **M-BI-PP-5** (implementation of a Fugitive Dust Control Plan), and **M-BI-PP-9** (regulated herbicide application).

Impact V-10: Long-Term Indirect Impacts to Sensitive Vegetation Communities

Potential long-term or permanent indirect impacts to special-status upland vegetation communities as a result of the proposed project are described in Section 2.2.2.2 and include generation of fugitive dust, habitat fragmentation, chemical pollutants (herbicides), altered hydrology, non-native invasive species, increased human activity, and alteration of the natural fire regime. Long-term indirect impacts from shading are not expected since the shading will be contained within the proposed project impact footprint.

Potential long-term indirect impacts to special-status upland vegetation communities would be considered a significant impact (**Impact V-10**). Long-term indirect impacts to special-status upland vegetation communities will be mitigated to less than significant through implementation of **M-BI-PP-1** (habitat preservation and management), **M-BI-PP-5** (implementation of a Fugitive Dust Control Plan), **M-BI-PP-6** (biological review of landscape plans), **M-BI-PP-7** (restrictions on operation and maintenance personnel activity), **M-BI-PP-8** (implementation of a Fire Protection Plan), and **M-BI-PP-9** (regulated herbicide application).

4.2.5 Project Effects Relevant to Guideline 4.2.E

There are approximately 36.35 acres of RPO wetlands and wetland buffers (i.e., a 50-foot buffer around wetland features to protect the function and value of the existing wetland) present along Tule Creek within the central portion of the project area (Figure 9). There are impacts to 0.21 acres of RPO wetland (see Table 2-4) and 0.37 acres of RPO wetland buffer for a total of approximately 0.58 acres from the proposed project. The limits of impacts will be staked for avoidance to ensure ground-disturbing activities do not encroach into the non-impacted wetlands and their associated buffers. To reduce impacts to RPO wetlands and RPO wetland buffer to less than significant (**V-5**), mitigation shall be conducted in accordance with Table 4-2, which would require a minimum mitigation ratio of 3:1, with a minimum of 1:1 impact-to-creation ratio; restoration/enhancement of existing wetlands may be used to make up the remaining requirements (**M-BI-PP-14**). This would result in no net loss of County RPO wetlands. Additionally, implementation of **M-BI-PP-1** (habitat preservation and management), which will conserve on-site habitat of equivalent or better function and value, and includes the preparation of an RMP, which provides for the long-term management of the proposed Open Space Preserve.

4.3 Cumulative Impact Analysis

Cumulative impacts are not assessed in this document; they will be discussed thoroughly in the proposed project's EIR.

4.4 Mitigation Measures and Design Considerations

M-BI-PP-1 through **M-BI-PP-13** are described above in Section 3.4.

M-BI-PP-14 **Federal and State Agency Permits.** Prior to impacts occurring to U.S. Army Corps of Engineers (ACOE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) (collectively, the Resource Agencies) jurisdictional aquatic resources, the project applicant or its designee shall obtain the following permits: ACOE 404 permit or authorization under a Nationwide Permit, RWQCB 401 Water Quality Certification, and California Fish and Game Code 1602 Streambed Alteration Agreement. To mitigate for impacts to jurisdictional waters, the applicant may purchase mitigation bank credits, including establishment, re-establishment, enhancement, or rehabilitation. Alternatively, a suitable mitigation site shall be selected and approved by the Resource Agencies during the permitting process. Either of these mitigation options would result in no net loss of jurisdictional aquatic resources. A functional assessment, such as the California Rapid Assessment Method (CRAM), of the jurisdictional areas proposed to be impacted and preserved at the mitigation site shall be conducted. The purpose of the functional assessment is to evaluate the existing functions and services within the jurisdictional drainages and ensure that the functions and values of the jurisdictional areas lost are replaced at the mitigation site. The precise mitigation ratio shall depend on the functions and values of the mitigation site and any restoration activities that may be conducted to further increase the functions and values of the mitigation site.

To comply with Section 86.604, Permitted Uses and Development Criteria, of the San Diego County Code of Regulatory Ordinances, impacts to Resource Protection Ordinance (RPO) wetlands shall be mitigated at a minimum of ratio 3:1, with a minimum of 1:1 impact-to-creation ratio; restoration/enhancement of existing wetlands may be used to make up the remaining requirements. This would result in no net loss of County RPO wetlands. Additionally, all staging areas shall be located outside of sensitive areas, work shall not be performed during the sensitive avian breeding season, noise attenuation measures shall be included, and hours of operation shall be limited so as to comply with all applicable ordinances and to avoid impacts to sensitive resources. The mitigation requirements for impacts to jurisdictional non-wetland waters and wetlands is summarized in Table 4-2.

Table 4-2. Summary of Impacts and Mitigation for Jurisdictional Waters and Wetlands

Habitat Types/Vegetation Communities	Existing Acreage	Total Impacts (Acres)	Mitigation Ratio	Mitigation Required (Acres)	On-Site Open Space	Mitigation Excess/Deficit
ACOE/RWQCB/CDFW						
Non-vegetated channel[1]	1.64	0.01	1:1	0.01	1.63	**1.61**

Table 4-2. Summary of Impacts and Mitigation for Jurisdictional Waters and Wetlands

Habitat Types/Vegetation Communities	Existing Acreage	Total Impacts (Acres)	Mitigation Ratio	Mitigation Required (Acres)	On-Site Open Space	Mitigation Excess/Deficit
ACOE/RWQCB/CDFW/County						
Alkali Meadow*	14.27	0.05	3:1	0.16	14.22	**14.06**
Disturbed Alkali Meadow*	3.48	0.16	3:1	0.48	3.32	**2.83**
Tamarisk Scrub*	0.79	—	3:1	—	0.79	**0.79**
Subtotal[2]	*18.54*	*0.21*	—	*0.64*	*18.32*	***17.68***
CDFW and County						
Disturbed Alkali Meadow*	1.13	—	3:1	—	1.13	**1.13**
Disturbed Mulefat Scrub*	0.50	—	3:1	—	0.50	**0.50**
Tamarisk Scrub*	0.28	—	3:1	—	0.28	**0.28**
Subtotal[2]	1.91	—	—	—	1.91	**1.91**
CDFW-only						
Tamarisk Scrub*	4.51	0.76	3:1	2.28	3.75	**1.47**
Total Summary						
Jurisdictional Waters and Wetlands Total[2]	**26.60**	**0.99**	—	**2.94**	**25.61**	**22.68**
RPO Wetland Buffer[3]	**36.35**	**0.58**	**1:1**	**0.58**	**34.86**	**33.37**

Notes:

1 Due to lack of evidence of surface hydrology and annual herbaceous species at greater than 10% cover, these non-vegetated channels do not conform to classifications in Oberbauer et al. 2008 (refer to Section 1.4.2.5.1 for details). Therefore, the mitigation ratio for impacts to these features is 1:1.

2 Totals may not add due to rounding.

3 RPO Wetland Buffer is an overlay to the vegetation community layer and are not counted toward the total existing acreage.

* Considered special-status by the County of San Diego (2010b).

If mitigation is proposed to occur within the project area or within the off-site mitigation area, then a Wetlands Mitigation and Monitoring Plan shall be prepared. Prior to issuance of land development permits, including clearing, grubbing, and grading permits for activities that would impact jurisdictional aquatic resources, the project applicant shall prepare a Wetlands Mitigation and Monitoring Plan to the satisfaction of the Director of Planning & Development Services (or his/her designee). This Conceptual Wetlands Mitigation and Monitoring Plan will follow the County's Report Format and Content Requirements for Revegetation Plans. The Conceptual Wetlands Mitigation and Monitoring Plan shall include a description of the mitigation site, existing resources, and a pre-project assessment of the functions and values for the stream and associated riparian habitat within the limits of work. The Conceptual Wetlands Mitigation and Monitoring Plan shall, at a minimum, prescribe site preparation, planting, irrigation, and a 5-year maintenance and monitoring program with qualitative and quantitative evaluation of the revegetation effort, specific performance criteria to determine successful revegetation (refer to Table 4-3 for specific criteria), and final sign-off, including parameters tied to the documented existing functions and values of the site, as well as the specific project impact mitigation acreage requirements. The Conceptual Wetlands Mitigation and Monitoring Plan will also cover potential contingency measures, as well as estimated costs to implement and monitor the program. The

Conceptual Wetlands Mitigation and Monitoring Plan, survey results and post-construction re-vegetation reports shall be provided to the County; as well as reports demonstrating compliance with the project and Long-Term Monitoring and Long-Term Management Plans.

The stated performance standards for wetland habitats are based on reasonable expected vegetative cover within the established timeframe and shall apply to any vegetated portion of the site restored with native wetland habitat. The performance standards included in Table 4-3 are intended as a guide for potential onsite restoration of wetland habitat and may be modified, as needed, to better suit target communities to be restored, pending further discussion with regulatory agencies.

Table 4-3. Summary of Performance Standards and Success Criteria for Wetland Habitats

Year	Native Species Richness	Native Species Cover (Absolute)	Non-native Species Cover
1	3	20%	<10% absolute cover 0% Cal-IPC rated high or moderate perennial species
2	4	30%	<10% absolute cover 0% Cal-IPC rated high or moderate perennial species
3	5	40%	<10% absolute cover 0% Cal-IPC rated high or moderate perennial species
4	6	50%	<10% absolute cover 0% Cal-IPC rated high or moderate perennial species
5	7	60%	<10% absolute cover 0% Cal-IPC rated high or moderate perennial species

M-BI-PP-15 The Groundwater Monitoring and Mitigation Plans (GMMPs) that have been prepared for the Rugged Solar Project and the off-site sources of groundwater (i.e., Jacumba Community Services District) will establish the current status and health of the existing oak woodland and document oak conditions up to a 5-year post-construction timeframe. The goal is to determine if the project's use of groundwater is impacting oak trees/woodlands. A water level monitoring network has been identified for all groundwater sources which will include the proposed production wells, other on-site wells, and off-site wells. Monitored wells on the Rugged site will include well MW-SPB (southern property boundary), the McCain Conservation Camp Well, well MW-01 (on-site oak woodland), and well MW-02 (off-site oak woodland). MW-SPB will be the compliance point for well-interference whereas MW-01 and MW-02 will serve as the compliance monitoring wells for groundwater-dependent habitat. Jacumba Community Services District (JCSD) Wells 6 and 4 will serve as the compliance monitoring wells for groundwater-dependent habitat. If water levels in Wells MW-01 or MW-02 do not drop more than 3 feet below baseline during the first year construction period, monitoring will cease at that time because impacts would be expected to be less than significant. Water level monitoring at JCSD would cease when construction imports are no longer required, but oak habitat monitoring will continue in accordance with the GMMP if monitoring reveals evidence that project-related impacts to groundwater-dependent habitat have occurred.

At all sites, baseline habitat monitoring data would be collected over the course of up to 1 year prior to project-related groundwater extraction. Pressure transducers would be installed in monitoring wells at least 1 month prior to project-related groundwater extraction to establish baseline water levels. Potentially affected native trees within the study area will be evaluated for

overall physical condition and attributes. The trees shall be inventoried by an International Society of Arboriculture (ISA)-Certified Arborist or Registered Professional Forester with specific experience evaluating native oak species, in particular coast live oaks. The baseline monitoring evaluations will include the following:

- Establishment of 28 pseudo-randomized 0.2-acre plots around oak groupings and scattered individual trees. Sample plots would include the range of existing habitat conditions, including elevation, slope and aspect, proximity to roads and other land uses. If an oak woodland monitoring site is less than 0.1 acres, the entire site will be evaluated.
- Tagging of trees and recording species, tag number, trunk diameter at breast height (dbh) (inches), height (feet) and dominance (i.e., whether the tree is under the canopy of another tree or forms the uppermost canopy). Slope, aspect, and elevation of each tree location, existing understory species (including proportion of natives to exotics), presence of debris and litter, and soil type, depth, and parent material will be noted for each tree or plot.
- Placement of tensiometers (or similar) to measure soil moisture levels
    - Soil moisture levels will be recorded quarterly at depths up to 48-inches
- Assessment of tree status, including documentation of:
    - Trunk diameter at breast height (dbh), measured at 4.5 feet aboveground (according to standard practices)
    - Number of stems
    - Overall tree height (based on ocular estimates)
    - Tree crown spread (measurement in each cardinal direction, based on ocular estimate)
    - Overall tree health condition (Good, Fair, Poor, Dead)
    - Overall tree structural condition (Good, Fair, Poor, Dead)
    - Pest presence (Type, Extent – minimal, moderate, high)
    - Disease presence (Type, Extent – minimal, moderate, high)
    - Other specific comments
- Assessment of acorn production, seedling establishment and sapling tree densities and conditions
- The data collection procedure will include full data collection at each plot so that consistency is maintained among sampling plots.
- Creation of oak tree database using GIS or similar application

Ongoing monitoring will be carried out quarterly during year 1 of the project construction period. If the Certified Arborist or Registered Professional Forester observes an impact to the oak woodland after this period, or if a drawdown threshold is reached at the groundwater-dependent habitat monitoring wells at any time during the construction phase, monitoring will continue in years 2 through 5 following initiation of project-related groundwater extraction. Monitoring will include the following components:

- Monitoring inspections will include re-evaluation of the baseline data as well as collection of soil moisture data from pre-placed tensiometers.
- Monitoring will include re-evaluating the trees to determine if changes are occurring that may indicate groundwater drawdown is having a deleterious effect on oak woodlands or individual

trees. The following information will be recorded during each monitoring visit and the data will be compared to previous monitoring results:

- Trunk dbh, measured at 4.5 feet aboveground (according to standard practices)
- Number of stems
- Overall tree height (based on ocular estimates)
- Tree crown spread (measurement in each cardinal direction, based on ocular estimate)
- Overall tree health condition (Good, Fair, Poor, Dead)
- Overall tree structural condition (Good, Fair, Poor, Dead)
- Pest presence (Type, Extent – minimal, moderate, high)
- Disease presence (Type, Extent – minimal, moderate, high)
- Other specific comments

In particular, monitoring evaluations will focus on examining crowns for discoloration, loss of vigor, foliage curling, and/or pest presence; and trunks and root crowns for beetle/borer symptoms, bleeding cankers, or seeping areas (indicative of fungal infections). These and similar signs may indicate that a tree or a grouping of trees is experiencing stress, which can be corroborated by tensiometer readings. Trees under stress are more susceptible to disease and insect attacks.

The following mitigation criteria will be established to protect groundwater resources and groundwater-dependent habitat in the project area:

Rugged Solar Farm

- If the groundwater level at well MW-SPB reaches or drops below 15 feet of the baseline level, groundwater pumping at Wells 6a and 6b will cease until the water level at MW-SPB has increased above the threshold and remained there for at least 30 continuous days. This threshold will prevent water levels at the closest property with a residential groundwater well from dropping below 10 feet of the pre-pumping baseline, as described in Section 2.1.1. Additionally, written permission from the County of San Diego (County) Planning and Development Services (PDS) must be obtained before production may be resumed.
- At least 90 days prior to project-related extraction, additional residential wells within a one mile radius of pumping Well 8, Well 6a and Well 6b shall be given the opportunity to have their wells added to the monitoring well network by the applicant at no cost to the well owner.
- If the groundwater level at the McCain Conservation Camp Well reaches or drops below 10 feet of the baseline pumping water level trend, groundwater pumping at Well 8 will cease until the water level at McCain Conservation Camp Well has increased above the threshold and remained there for at least 30 continuous days. Additionally, written permission from the County PDS must be obtained before production may be resumed.
- If the groundwater level at well MW-01 drops more than 10 feet below the pre-pumping level and there is evidence of deteriorating oak tree health by the Arborist or Forester, there may be a temporary or permanent cessation of pumping at Well 6a/6b. If the evidence of deterioration persists after the 5-year period, mitigation will consist of off-site wetland/oak woodland credits at a 3:1 ratio.
- If the groundwater level at MW-02 drops more than 10 feet below the pre-pumping level and there is evidence of deteriorating oak tree health by the Certified Arborist or Registered

Professional Forester, there may be a temporary or permanent cessation of pumping at Well 8. If the evidence of deterioration persists after the 5-year period, mitigation will consist of off-site wetland/oak woodland credits at a 3:1 ratio.

- If an impact to the oak woodland habitat is observed by the monitoring ISA Certified Arborist or Registered Professional Forester over the duration of the project construction period, routine monitoring of the oak woodland will continue for a maximum up to 5 years following initiation of project-related groundwater extraction. The monitoring Certified Arborist or Registered Professional Forester will base mitigation recommendations on the type and extent of tree issues observed. If groundwater drawdown is determined to be the cause of tree stress, resulting in the presence of secondary pests (insects and/or disease), halting groundwater extraction may be recommended.
- If less than 3 feet of drawdown is observed at monitoring wells MW-01 and MW-02 at the end of project construction or no deleterious health effects are observed in the oak woodland habitat, monitoring can cease at the end of the first year of project operation as long as the wells operate only as intended under the project's conditions of approval.

Jacumba Community Services District:

- If the groundwater levels at JCSD Wells 7 or 8 drops 10 feet below the baseline water levels, or if the groundwater level at Well 4 drops 5 feet below the baseline water level, groundwater pumping at Well 6 will cease until the water level at the well that experienced the threshold exceedance has increased above the threshold and remained there for at least 30 continuous days. Additionally, written permission from the County Planning and Development Services (PDS) must be obtained before production may be resumed.
- If groundwater levels at JCSD Well 6 drops more than 20 feet or at Well 4 drops more than 10 feet below baseline water levels, than monitoring of the groundwater dependent habitat would be triggered.
- If the groundwater levels exceed historical low water levels in JCSD Well 4 (lowest recorded static water level in Well 4 is 23 below ground surface [bgs]) and there is evidence of deteriorating riparian habitat health by the Arborist or Forester, there may be a temporary or permanent cessation of pumping at Well 6. If evidence of deterioration persists after a 5-year period, mitigation will consist of off-site wetland/oak woodland credits at a 3:1 ratio.

Under all GMMPs, a groundwater monitoring report will be completed by a Certified Hydrogeologist registered in the State of California and submitted to the County PDS each month, no later than 28 days following the end of the monitoring month for the on-site production wells, and no later than 28 days following the end of the pumping period for the off-site wells (JCSD and PVMWC). The report will include the following information:

- Water level hydrographs and tabulated water level data for each monitoring well.
- Tabulated groundwater production volumes from each production well.
- Documentation of groundwater drawdown at off-site monitoring wells.
- Documentation of any threshold-included curtailment of groundwater production.
- Appendix documenting groundwater dependent habitat monitoring as described above.

In addition to the monthly groundwater monitoring reports, annual reports annual reports for the on-site production wells will also be submitted to the county PDS summarizing groundwater-dependent habitat monitoring efforts and any mitigation recommendations implemented in the field during the monitoring year. The monitoring year will coincide with the calendar year. The annual reports will document tree health and mortality, tensiometer readings, water level readings, well production and success of mitigation efforts (if any were necessary). Annual reports will be completed prior to the end of January in the next calendar year.

4.5 Conclusions

Impact V-1/V-4 The significant short-term direct impacts to special-status upland vegetation communities, oak root protection zone, and jurisdictional wetlands and waters will be reduced to a level that is less than significant through implementation of **M-BI-PP-2**, **M-BI-PP-3**, and **M-BI-PP-4**, because the mitigation, which requires biological monitoring; review of areas designated for clearing, grubbing, or grading; restrictions on construction vehicle speeds; and preparation of a biological monitoring report, will require that construction stay within the project footprint, and monitoring will document that construction will not cause additional impacts beyond the project footprint.

Impact V-2/V-3 The significant permanent direct impact to 368.52 acres of special-status upland vegetation communities, 2.24 acres of oak root protection zone, 0.58 acres of RPO buffer, and 0.99 acres of jurisdictional aquatic resources will be reduced to less than significant through implementation of **M-BI-PP-1** and **M-BI-PP-14**, because the mitigation requires 349.63 acres for impacts of in-kind habitat/vegetation conservation and management of sensitive vegetation communities, based on the appropriate ratio specific to each type of sensitive resource, in conformance with the mitigation ratios required by the County of San Diego Guidelines for Biological Resources (County of San Diego 2010a) has been proposed and compliance with federal and state permits, and a Wetlands Mitigation and Monitoring Plan will ensure the overall functions and values of the waters and wetlands are maintained. The required mitigation ratios were determined through consideration of the rarity and sensitivity of each individual vegetation community throughout the county and are appropriate to maintain, preserve, and protect each specific habitat community. Typically, the required mitigation ratios are higher (i.e., 3:1) for vegetation communities that are most sensitive and rare to provide a higher level of preservation and protection. The RMP (**M-BI-PP-1**) provides for the long-term funding, management, and monitoring efforts including performance standards to measure the success of mitigation and will ensure that impacts to the habitat communities are truly mitigated. All mitigation land will be located within an open space easement (or owned by a governmental agency for the purpose of conservation) and is part of the ECMSCP Focus Conservation Area, which is an area that significantly contributes to important resources in the region and protects resources that are to be impacted by the proposed project. For these reasons, implementation of these mitigation measures will reduce significant impacts to vegetation communities to less than significant.

Impact V-5 The significant permanent direct impact to 0.01 acres (218 linear feet) of ephemeral stream channel under the jurisdiction of ACOE, RWQCB, and CDFW; 0.21 acres (124 linear feet) of wetlands under the jurisdiction of ACOE, RWQCB, CDFW, and County; and 0.76 acres (734 linear feet) of tamarisk scrub under the jurisdiction of CDFW only, will be reduced to a level that is less than significant through implementation of **M-BI-PP-1** and **M-BI-PP-14**, because the mitigation

requires habitat conservation and management of off-site habitat with equivalent or better function and value, compliance with federal and state permits, and a Wetlands Mitigation and Monitoring Plan will ensure the overall functions and values of the waters and wetlands are maintained.

Impact V-6/V-9 The significant short-term indirect impacts to special-status upland vegetation communities and jurisdictional wetlands and waters will be reduced to a level that is less than significant through implementation of **M-BI-PP-2**, **M-BI-PP-3**, **M-BI-PP-4**, **M-BI-PP-5**, and **M-BI-PP-9**, because this mitigation, which requires biological monitoring; review of areas designated for clearing, grubbing, or grading; restrictions on construction vehicle speeds; preparation of a biological monitoring report; implementation of a Fugitive Dust Control Plan; and regulated herbicide application; will prevent and document that construction will not cause additional impacts beyond the project footprint.

Impact V-7/V-10 The significant long-term indirect impacts to special-status upland vegetation communities will be reduced to a level that is less than significant through implementation of **M-BI-PP-1**, **M-BI-PP-5**, **M-BI-PP-6, M-BI-PP-7**, **M-BI-PP-8**, and **M-BI-PP-9**, because the mitigation, which requires habitat conservation of equivalent or better function and value, implementation of a Fugitive Dust Control Plan, biological review of landscape plans, restrictions on operation and maintenance personnel activity, implementation of a Fire Protection Plan, and regulates herbicide application, will provide long-term management of vegetation communities, prevent invasive plants or pests from being introduced through plantings, reduce potential indirect impacts from human activity, reduce the risk of fire, and reduce indirect impacts from herbicides.

Impact V-8 The significant impact to groundwater-dependent vegetation will be reduced to a level that is less than significant through implementation of **M-BI-PP-15** because the mitigation requires the preparation of a Groundwater Monitoring and Mitigation Plan that will ensure that groundwater pumping does not reduce water levels to below the established baseline.

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5 Jurisdictional Wetlands and Waterways

5.1 Guidelines for the Determination of Significance

The County's *Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources* (County of San Diego 2010a) are based on the criteria in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) and were used to analyze potential direct and indirect impacts to biological resources. The following guidelines for the determination of significance come directly from the County Guidelines (County of San Diego 2010a). This Guideline refers only to federally protected wetlands.

Guideline 4.3 The project would have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

The significance of impacts are determined under the Guidelines 4.2B, 4.2C, and 4.2E.

5.2 Analysis of Project Effects

5.2.1 Project Effects Relevant to Guideline 4.3

Impacts to jurisdictional wetlands and waters, which are applicable to County Guidelines 4.2B, 4.2C, and 4.2E, are discussed in Sections 4.2.2, 4.2.3, and 4.2.4. There are permanent direct impacts from grading to 0.01 acres (218 linear feet) of non-vegetated channel under the jurisdiction of ACOE and 0.21 acres (124 linear feet) of wetlands under the jurisdiction of ACOE.

5.3 Cumulative Impact Analysis

Cumulative impacts are not assessed in this document; they will be discussed thoroughly in the proposed project's EIR.

5.4 Mitigation Measures and Design Considerations

Mitigation applicable to County Guideline 4.3 are described in Section 4.4 of this report.

5.5 Conclusions

Refer to Section 4.5 for conclusions related to **Impacts V-4** through **V-10**.

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6 Wildlife Movement and Nursery Sites

6.1 Guidelines for the Determination of Significance

The County's *Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources* (County of San Diego 2010a) are based on the criteria in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) and were used to analyze potential direct and indirect impacts to biological resources. The following guidelines for the determination of significance come directly from the County Guidelines (County of San Diego 2010a).

Guideline 4.4 The project would interfere substantially with the movement of a native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

A. The project would impede wildlife access to foraging habitat, breeding habitat, water sources, or other areas necessary for their reproduction.

B. The project would substantially interfere with connectivity between blocks of habitat, or would potentially block or substantially interfere with a local or regional wildlife corridor or linkage. For example, if the project proposes roads that cross corridors, fencing that channels wildlife to underpasses located away from interchanges will be required to provide connectivity. Wildlife underpasses shall have dimensions (length, width, height) suitable for passage by the affected species based on a site-specific analysis of wildlife movement. Another example is increased traffic on an existing road that would result in significant road-kill or interference with an existing wildlife corridor/linkage.

C. The project would create artificial wildlife corridors that do not follow natural movement patterns; for example, constraining a corridor for mule deer or mountain lion to an area that is not well-vegetated or that runs along the face of a steep slope instead of through the valley or along the ridgeline.

D. The project would increase noise and/or nighttime lighting in a wildlife corridor or linkage to levels likely to affect the behavior of the animals identified in a site-specific analysis of wildlife movement.

E. The project does not maintain an adequate width for an existing wildlife corridor or linkage and/or would further constrain an already narrow corridor through activities such as (but not limited to) reduction of corridor width, removal of available vegetative cover, placement of incompatible uses adjacent to it, and placement of barriers in the movement path. The adequacy of the width shall be based on the biological information for the target species, the quality of the habitat within and adjacent to the corridor, topography, and adjacent land uses. Where there is limited topographic relief, the corridor should be well-vegetated and adequately buffered from adjacent development. Corridors for bobcats, deer, and other large animals should reach rim-to-rim along drainages.

F. The project does not maintain adequate visual continuity (i.e., long lines-of-site) within wildlife corridors or linkage. For example, development (such as homes or structures) sited along the rim

of a corridor could present a visual barrier to wildlife movement. For stepping-stone/archipelago corridors, a project does not maintain visual continuity between habitat patches.

6.2 Analysis of Project Effects

6.2.1 Project Effects Relevant to Guideline 4.4.A

Impact WM-1: Temporary Direct Impacts to Wildlife Movement

Short-term, construction-related, or temporary direct impacts to potential foraging and breeding habitat for species that use the project area (e.g., special-status birds) would primarily result from construction activities. Clearing, trampling, or grading of foraging and breeding habitat outside designated construction zones could occur in the absence of avoidance and mitigation measures. Potential temporary direct impacts to foraging and breeding habitat on site would be significant (**Impact WM-1**). However, these short-term direct impacts will be mitigated to less than significant through implementation of **M-BI-PP-2** (biological monitoring), **M-BI-PP-3** (restrictions on construction vehicle speed limits), **M-BI-PP-4** (preparation of a biological monitoring report), **M-BI-PP-7** (restrictions on operation and maintenance personnel activity), and **M-BI-PP-11** (monitor excavated areas and soil piles).

Impact WM-2: Permanent Direct Impacts to Wildlife Movement

Permanent direct impacts to potential foraging and breeding habitat for species that use the project area (e.g., special-status birds) would occur as a result of the proposed project (see Table 2-3 for impacts to species' habitats). Permanent direct impacts to foraging and breeding habitat would be considered a significant impact (**Impact WM-2**). This impact will be mitigated through **M-BI-PP-1** (habitat preservation and management), which will conserve a minimum of 1:1 mitigation ratio through off-site habitat acres of equivalent functions and values. Table 4-1 summarize the impacts and required mitigation for vegetation communities in the project area.

Impact WM-3: Indirect Impacts to Wildlife Movement

Short-term and long-term indirect impacts to wildlife access to foraging, breeding, or watering habitat for small and mid-sized animals would occur, as discussed in detail in Section 2.6. Based on the assessment of groundwater-dependent vegetation mapped near on-site wells (Dudek 2013b), potential impacts from well drawdown to groundwater-dependent vegetation may impede wildlife access to foraging habitat, breeding habitat, water sources, or other areas necessary for their reproduction. Although shallow-rooted vegetation, such as Mexican rush that dominates the alkali meadow, may be less impacted from anticipated drawdown of the aquifer, deep-rooted vegetation such as oak woodland and tamarisk scrub may be impacted by well drawdown (**Impact WM-3**) (see Section 4.2.3). Impacts to groundwater-dependent vegetation will be mitigated to less than significant through implementation of **M-BI-PP-15** (Groundwater Monitoring and Mitigation Plan). There are no impacts to other potential water sources for wildlife such as the on-site pond.

6.2.2 Project Effects Relevant to Guideline 4.4.B

The project does not increase traffic on existing roads that would result in significant road-kill or interference with existing wildlife corridors/linkages. The proposed project does not substantially interfere with the local or regional wildlife corridor known as Tule Creek because the project design allows for local and regional wildlife movement through the majority of Tule Creek by maintaining a minimum 675-foot-wide corridor that is suitable for the common types of wildlife using this area (coyote, mule deer, bobcat, and skunk).

Wildlife will continue to move around the project area through the large tracts of undeveloped land, including the variety of local corridors shown on Figure 8. Based on the surrounding land use, which includes rural residential homes, the McCain Valley Conservation Camp located at 2550 McCain Valley Road, and Set Free Rough Acres, a drug rehabilitation center that occupies the site that previously served as the Chargers training camp (located at 2750 McCain Valley Road), the proposed project would not substantially interfere with wildlife movement through and between blocks of habitat as wildlife could still move through the project area along Tule Creek and around the project area through the surrounding habitat.

Future land uses proposed adjacent to the site include Rough Acres Ranch, a conference/retreat and campground facility, and the Tule Wind Energy Project. While these uses would increase human activity in the area and add municipal and utility features to the landscape, they would not change the rural, low-density nature of the surrounding landscape.

Impact WM-4: Direct Impacts to Wildlife Movement

Smaller wildlife species (e.g., lizards and small mammals) will still be able to access the site through openings in the fence; however, vegetation within the solar farm site would be maintained at a maximum height of 6 inches aboveground, thereby removing suitable on-site habitat. Smaller wildlife species would not be able to navigate through the site to access habitat on the far side since the size of the site would be insurmountable for small wildlife. Therefore, the loss of habitat as a result of the Rugged Solar Farm for small and mid-sized wildlife that have smaller home ranges (e.g., grey fox, ringtail, and black-tailed jack rabbit) could be significant (**Impact WM-4**). This impact will be mitigated to less than significant through **M-BI-PP-1** (habitat preservation and management).

6.2.3 Project Effects Relevant to Guideline 4.4.C

As described above, the proposed project will allow for movement through the majority of Tule Creek. Currently, wildlife is able to move throughout the project site in a relatively uniform fashion, as topography does not differ greatly, there are no significant riparian features, and there are limited constraining features. After the project is developed, wildlife will still be able to move through the vicinity and region within similar habitats, slope, and directions as are currently present. The project maintains connectivity across and through low sloping hills and the valley. Connections across the project area will not be compromised, as wildlife will still be able to maintain east–west and north–south connections. The gaps between the various fenced project components (subareas) are large, with the minimum 675-foot gap occurring between the eastern and southern fenced project subareas for an approximate 500-foot-long segment. The remaining gaps are over 1,000 feet wide. As such, the proposed project would not create any artificial wildlife corridors and impacts from constraining wildlife movement would be less than significant.

6.2.4 Project Effects Relevant to Guideline 4.4.D

Permanent security lighting associated with the proposed project includes the building and parking areas. The lighting is designed to minimize light pollution and preserve dark skies, while maintaining safety, security, and functionality. Lighting would conform to County outdoor lighting requirements, and therefore, lighting associated with the proposed project is not expected to result in significant impacts to wildlife corridors related to lighting.

There would be short-term construction-related noise as described in Section 2.6. Long-term noise associated with routine maintenance is not expected to impact wildlife movement, because these activities will typically occur within the fenced areas and on an as-needed basis. Nighttime operational noise due to electrical generation would be minimal and non-intrusive. The project's potential noise and lighting impacts on wildlife movement would be less than significant.

6.2.5 Project Effects Relevant to Guideline 4.4.E

As described previously, the majority of Tule Creek will not be impacted or fenced. It will remain the most logical movement route due to the increasing vegetation cover, the change in land use, and due to the removal of cattle in this area. The width of Tule Creek will remain the same, and wildlife can continue using this open area to move through the region. Although the project would involve placement of solar panels within the landscape, these features would not be considered barriers that would interfere with the movement of wildlife through the area. Wildlife can move in a variety of local corridors surrounding the project area, as identified on Figure 8.

6.2.6 Project Effects Relevant to Guideline 4.4.F

Visual continuity between areas to the north and south of portions of Tule Creek in the project area would be maintained along the project's designated open space. Visual continuity between the east and west could be impacted by the solar panels and fencing. Although there are potential impacts to visual continuity, the topography is not steep in and around the project's open space, and it maintains 675 to 1,200 feet width with appropriate vegetative cover to allow for movement. Furthermore, wildlife has been using a variety of local wildlife corridors to move throughout the region and impacts to movement from visual continuity would be less than significant.

6.3 Cumulative Impact Analysis

Cumulative impacts are not assessed in this document; they will be discussed thoroughly in the proposed project's EIR.

6.4 Mitigation Measures and Design Considerations

Mitigation for impacts to wildlife corridors and movement include **M-BI-PP-1** (habitat preservation), **M-BI-PP-2** (biological monitoring), **M-BI-PP-3** (preparation and implementation of an SWPPP), **M-BI-PP-4** (preparation of a biological monitoring report), **M-BI-PP-7** (restrictions on operation and maintenance personnel acitivty), **M-BI-PP-11** (monitoring excavated areas and soil piles), and **M-BI-PP-15** (Groundwater Monitoring and Mitigation Plan), which are described in Section 3.4.

6.5 Conclusions

Impact WM-1 The significant short-term direct impacts to potential raptor foraging and breeding habitat will be reduced to a level that is less than significant through implementation of **M-BI-PP-2, M-BI-PP-3**, and **M-BI-PP-4**, **M-BI-PP-7**, and **M-BI-PP-11**, because this mitigation, which requires biological monitoring; review of areas designated for clearing, grubbing, or grading; restrictions on construction vehicle speeds; preparation of a biological monitoring report; restrictions on operation and maintenance personnel activity; and monitoring excavated areas and soil piles; will prevent and document that construction will not cause additional impacts beyond the project footprint.

Impact WM-2 The significant permanent direct impact to the loss of potential raptor foraging and breeding habitat will be reduced to a level that is less than significant through implementation of **M-BI-PP-1**, because this measure requires compensatory mitigation in the form of habitat conservation to provide equivalent or better function and value to raptors, including eagles.

Impact WM-3 The significant impacts to groundwater-dependent habitat will be reduced to a level that is less than significant through implementation of **M-BI-PP-15** because the mitigation requires the preparation of a Groundwater Monitoring and Mitigation Plan that will ensure that groundwater pumping does not reduce water levels to below the established baseline.

Impact WM-4 The significant impact to small and mid-sized wildlife movement from loss of habitat would be reduced to a level that is less than significant through implementation of **M-BI-PP-1** because this measure requires habitat preservation and management of equivalent or greater function and value.

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7 Local Policies, Ordinances, and Adopted Plans

7.1 Guidelines for the Determination of Significance

The County's *Guidelines for Determining Significance and Report Format and Content Requirements for Biological Resources* (County of San Diego 2010a) are based on the criteria in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) and were used to analyze potential direct and indirect impacts to biological resources. The following guidelines for the determination of significance come directly from the County Guidelines (County of San Diego 2010a).

Guideline 4.5 The project would conflict with one or more local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, and/or would conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state HCP.

A. For lands outside of the Multiple Species Conservation Plan (MSCP), the project would impact coastal sage scrub (CSS) vegetation in excess of the County's 5% habitat loss threshold as defined by the Southern California Coastal Sage Scrub Natural Communities Conservation Planning Process (NCCP) Guidelines.

B. The project would preclude or prevent the preparation of the subregional Natural Communities Conservation Planning Process (NCCP). For example, the project proposes development within areas that have been identified by the County or resource agencies as critical to future habitat preserves.

C. The project will impact any amount of wetlands or sensitive habitat lands as outlined in the Resource Protection Ordinance (RPO).

D. The project would not minimize and/or mitigate coastal sage scrub habitat loss in accordance with Section 4.3 of the Natural Communities Conservation Planning Process (NCCP) Guidelines.

E. The project does not conform to the goals and requirements as outlined in any applicable Habitat Conservation Plan (HCP), Habitat Management Plan (HMP), Special Area Management Plan (SAMP), Watershed Plan, or similar regional planning effort.

F. For lands within the Multiple Species Conservation Program (MSCP), the project would not minimize impacts to Biological Resource Core Areas (BRCAs), as defined in the Biological Mitigation Ordinance (BMO).

G. The project would preclude connectivity between areas of high habitat values, as defined by the Southern California Coastal Sage Scrub Natural Communities Conservation Planning Process (NCCP) Guidelines.

H. The project does not maintain existing movement corridors and/or habitat linkages as defined by the Biological Mitigation Ordinance (BMO).

I. The project does not avoid impacts to MSCP narrow endemic species and would impact core populations of narrow endemics.

J. The project would reduce the likelihood of survival and recovery of listed species in the wild.

K. The project would result in the killing of migratory birds or destruction of active migratory bird nests and/or eggs (Migratory Bird Treaty Act).

L. The project would result in the take of eagles, eagle eggs, or any part of an eagle (Bald and Golden Eagle Protection Act).

7.2 Analysis of Project Effects

7.2.1 Project Effects Relevant to Guideline 4.5.A

The project area does not support nor would it impact coastal sage scrub vegetation.

7.2.2 Project Effects Relevant to Guideline 4.5.B

Although the County, USFWS, and CDFW have developed a list of covered species and have created a preliminary draft map of the focused conservation areas, the East County MSCP Subarea Plan is currently in draft form with no current schedule for completion. The proposed project would not preclude or prevent the preparation of the subregional NCCP because the project has been planned in accordance with the planning principles of the MSCP and in consideration of preparation of the ECMSCP Subarea Plan. The project design has been evaluated according to the Preliminary Conservation Objectives outlined in the Planning Agreement for ECMSCP (County of San Diego 2019). These objectives are and project applicability/compliance is listed in Table 7-1.

Table 7-1. East County Multiple Species Conservation Plan Planning Agreement Conservation Objectives

Conservation Objective	Consistency with the Planning Agreement
Provide for the protection of species, natural communities, and ecosystems on a landscape level;	The project, with mitigation, will provide for protection and conservation of special-status species and natural communities.
Preserve the diversity of plant and animal communities throughout the Planning Area;	The project, with mitigation, would preserve the diversity of plant and animal communities throughout the Planning Area.
Protect threatened, endangered, or other special status plant and animal species, and minimizes and mitigate the take or loss of proposed Covered Species;	The project, with mitigation, will provide for protection and conservation of special-status species and natural communities.
Identify and designate biologically sensitive habitat areas;	Biological studies have been conducted for the site to determine sensitive habitat areas. Mitigation follows the County guidelines.
Preserve habitat and contribute to the recovery of Conversed Species;	The project, with mitigation, will provide for protection and conservation of special-status species and natural communities.
Reduce the need to list additional species;	The biological study area for the Proposed project does not support candidate or species in peril. The project is consistent with the County's guidelines and provides mitigation for County listed plant and wildlife species and therefore is expected to be consistent with the draft ECMSCP Plan.

Table 7-1. East County Multiple Species Conservation Plan Planning Agreement Conservation Objectives

Conservation Objective	Consistency with the Planning Agreement
Set forth species-specific goals and objectives; and	Although the draft ECMSCP Plan does not provide species-specific goals and objectives, the proposed project is consistent with the County's guidelines and provides mitigation for County listed plant and wildlife species and therefore is expected to be consistent with the draft ECMSCP Plan.
Set forth specific habitat-based goals and objectives expressed in terms of amount, quality, and connectivity of habitat	Although the draft ECMSCP Plan does not provide specific habitat-based goals and objectives expressed in terms of amount, quality, and connectivity of habitat, the project is consistent with the County's guidelines and provides mitigation for County listed plant and wildlife species and sensitive habitats and therefore is expected to be in compliance.

Notes: County = County of San Diego; ECMSCP = East County Multiple Species Conservation Program.

7.2.3 Project Effects Relevant to Guideline 4.5.C

The proposed project impacts approximately 0.21 acres of RPO wetland and 0.37 acres of wetland buffer as a result of the proposed on-site access road; the significance of these impacts is discussed in Section 4.2.5, Project Effects Relevant to Guideline 4.2.E (Resource Protection Ordinance Buffers).

7.2.4 Project Effects Relevant to Guideline 4.5.D

The proposed project does not support nor would it impact coastal sage scrub vegetation.

7.2.5 Project Effects Relevant to Guideline 4.5.E

The proposed project conforms to the goals and requirements as outlined in all applicable regional planning efforts; therefore, no impacts would occur.

7.2.6 Project Effects Relevant to Guideline 4.5.F

Since there is no approved ECMSCP and no associated BMO, this guideline does not apply to the Rugged Solar Project; therefore, no impacts would occur.

7.2.7 Project Effects Relevant to Guideline 4.5.G

The project is not expected to preclude habitat connectivity as discussed in Section 6.2.2; therefore, no impacts would occur.

7.2.8 Project Effects Relevant to Guideline 4.5.H

Since there is no approved ECMSCP and no associated BMO, this guideline does not apply to the Rugged Solar Project; therefore, no impacts would occur.

7.2.9 Project Effects Relevant to Guideline 4.5.I

Narrow endemic species are evaluated under the County Guidelines for Determining Significance for Biological Resources. There are none within the biological study area; therefore, no impacts would occur.

7.2.10 Project Effects Relevant to Guideline 4.5.J

No federally or state-listed plant or wildlife species have been observed in the project area except for Swainson's hawk. As discussed in Section 1.4.6.2, Swainson's hawk no longer nests in Southern California, including San Diego County. Therefore, this species is expected only as an occasional and temporary visitor (i.e. flyover) to the project area, and the proposed project would not reduce its likelihood of survival or recovery.

7.2.11 Project Effects Relevant to Guideline 4.5.K

Short-term, temporary, or construction-related impacts to migratory birds and active migratory bird nests and/or eggs protected under the MBTA are considered a significant impact (**Impact P-1**). This impact will be mitigated through **M-BI-PP-10** (preconstruction surveys for nesting birds and setbacks).

7.2.12 Project Effects Relevant to Guideline 4.5.L

Impacts to suitable raptor foraging habitat, including foraging habitat for golden eagle are considered significant (see **Impact W-7**). The project does not have site specific impacts on golden eagle nesting (see Appendix J). An extirpated golden eagle nesting territory referred to as the "Boulevard pair" exists within and around the Rugged Solar Farm site; however, the nest is not active. The Carrizo Canyon and Table Mountain territories, which each support an active breeding pair, are to the east and southeast of the solar farm site; however, the core nesting area is outside of the Rugged Solar Farm site and 4,000-foot buffer. Both of the territories overlap slightly with the project site (Appendix J).

7.3 Cumulative Impact Analysis

Cumulative impacts are not assessed in this document; they will be discussed thoroughly in the project's EIR.

7.4 Mitigation Measures and Design Considerations

Impacts to migratory birds and migratory bird nests (**Impact P-1**) will be mitigated through **M-BI-PP-10**. Construction will be phased, where appropriate, to avoid work during the bird breeding season (i.e., January through August). If construction activity is to commence during the breeding season, a one-time biological survey for nesting bird species must be conducted within the proposed impact area 72 hours prior to construction, as described in **M-BI-PP-10** in Section 3.4.

No other mitigation is proposed for impacts to local policies, ordinances, and plans because the proposed project remains consistent with all approved planning documents/plans.

7.5 Conclusions

Application of the currently established local policies, ordinances, and plans to the proposed project and implementation of appropriate mitigation has not resulted in any conflicts or inconsistencies. Therefore impacts are reduced to less than significant.

Impact P-1 The significant short-term direct impacts to active nests or the young protected by the federal Migratory Bird Treaty Act (MBTA) will be reduced to less than significant through implementation of **M-BI-PP-10**, which requires preconstruction surveys for nesting birds and setbacks to avoid impacts for active nests.

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8 Summary of Project Impacts and Mitigation

Sections 3.5, 4.5, 5.5, 6.5, and 7.5 summarize the impacts and associated mitigation for each significant impact that may occur as a result of the proposed project. Table 8-1 summarizes the impacts and mitigation required for impacts to special-status species, vegetation communities, and jurisdictional areas.

Table 8-1. Summary of Significant Impacts

Section of Report Analysis Is Described	Impact Number (Revised PEIR Impact Number)	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
Guideline 4.1 *The project would have a substantial adverse effect, either directly or through habitat modifications, on a candidate, sensitive, or special status species listed in local or regional plans, policies, or regulations, or by CDFW or USFWS.*						
3.2.2.1	Impact SP-1 (Impact BI-R-1)	Special-Status Plants, County List A and B: • Jacumba Milkvetch • Sticky Geraea • Desert Beauty	Short-Term Direct	• M-BI-PP-2 (biological monitoring) • M-BI-PP-3 (no planting or seeding of invasive plant species restrictions on construction vehicle speed limits) • M-BI-PP-4 (preparation of a biological monitoring report) • M-BI-PP-7 (restrictions on operation and maintenance personnel activity)	Less than significant	4.1B
3.2.2.1	Impact SP-2 (Impact BI-R-2, Impact BI-R-3)	Special-Status Plants, County List A and B: • Jacumba Milkvetch • Sticky Geraea • Desert Beauty	Long-Term Direct	• M-BI-PP-1 (habitat preservation and management at County approved mitigation ratios)	Less than significant	4.1B
3.2.2.2	Impact W-1 (Impact BI-R-4)	Special-Status Wildlife, County Group 1 • Two-striped garter snake • Bell's sage sparrow • Cooper's hawk • Golden eagle • Loggerhead shrike • Northern harrier • Prairie falcon	Short-Term Direct	• M-BI-PP-2 (biological monitoring) • M-BI-PP-3 (restrictions on construction vehicle speed limits) • M-BI-PP-4 (preparation of a biological monitoring report)	Less than significant	4.1B

Table 8-1. Summary of Significant Impacts

Section of Report Analysis Is Described	Impact Number (Revised PEIR Impact Number)	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
		• Red-shouldered hawk • Southern California rufous-crowned sparrow • Tricolored blackbird • Turkey vulture		• M-BI-PP-7 (restrictions on operation and maintenance personnel activity) • M-BI-PP-11 (monitor excavated areas and soil piles)		
3.2.2.2	Impact W-2 (Impact BI-R-5)	Special-Status Wildlife, County Group 1 or CDFW Species of Special Concern Impacts to active nests or young of nesting County Group 1 or CDFW Species of Special Concern	Short-Term Direct	• M-BI-PP-10 (pre-construction surveys for nesting birds and setbacks)	Less than significant	4.1B
3.2.2.2	Impact W-3 (Impact BI-R-6)	Special-Status Wildlife, County Group 1 or CDFW Species of Special Concern Removal of suitable habitat of County Group 1 or state SSC wildlife species (see Table 2-3 for details) including: • Orange-throated whiptail • Blainville's horned lizard • Coast patch-nosed snake • Coronado skink • Red-diamond rattlesnake • Two-striped garter snake • Western spadefoot • Bell's sage sparrow • Cooper's hawk • Golden eagle • Loggerhead shrike	Long-Term Direct	• M-BI-PP-1 (habitat preservation and management of compensatory habitats equal to or greater than total project impacts)	Less than significant	4.1B

Table 8-1. Summary of Significant Impacts

Section of Report Analysis Is Described	Impact Number (Revised PEIR Impact Number)	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
		• Northern harrier • Prairie falcon • Red-shouldered hawk • Southern California rufous-crowned sparrow • Tricolored blackbird • Turkey vulture • Yellow warbler • Dulzura pocket mouse • Northwestern San Diego pocket mouse • San Diego desert woodrat • Mexican long-tongued bat • Townsend's big-eared bat • Spotted bat • Greater western mastiff bat • Western red bat • California leaf-nosed bat • Big free-tailed bat				
3.2.3.2	Impact W-4 (Impact BI-R-7)	Special-Status Wildlife, County Group 2 • San Diego ringneck snake • Rosy boa	Short-Term Direct	• M-BI-PP-2 (biological monitoring) • M-BI-PP-3 (restrictions on construction vehicle speed limits) • M-BI-PP-4 (preparation of a biological monitoring report) • M-BI-PP-11 (monitor excavated areas and soil piles)	Less than significant	4.1C

Table 8-1. Summary of Significant Impacts

Section of Report Analysis Is Described	Impact Number (Revised PEIR Impact Number)	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
3.2.3.2	Impact W-5 (Impact BI-R-8)	Special-Status Wildlife, County Group 2 Impacts to active nests or young of nesting County Group 1 or CDFW Species of Special Concern	Short-Term Direct	• M-BI-PP-10 (pre-construction surveys for nesting birds and setbacks)	Less than significant	4.1C
3.2.3.2	Impact W-6 (Impact BI-R-9)	Special-Status Wildlife, Group 2 Loss of suitable habitat for: • monarch butterfly • San Diegan tiger whiptail • Great blue heron • California horned lark • western bluebird • barn owl • cougar • mule deer • San Diego ringneck snake • Rosy boa	Long-Term Direct	• M-BI-PP-1 (habitat preservation and management)	Less than significant	4.1C
3.2.3.6	Impact W-7 (Impact BI-R-10)	Special-Status Wildlife, Loss of foraging habitat for: • Raptors, including golden eagle	Long-Term Direct	• M-BI-PP-1 (habitat preservation and management)	Less than significant	4.1F
3.2.7	Impact CWA-1 (Impact BI-R-11)	Core Wildlife Area, Loss of habitat	Long-Term Direct	• M-BI-PP-1 (habitat preservation and management)	Less than significant	4.1G
3.2.8.1	Impact SP-3 (Impact BI-R-12)	Special-Status Plants, County List A and B: • Jacumba Milkvetch • Sticky Geraea • Desert Beauty	Short-Term Indirect	• M-BI-PP-2 (biological monitoring) • M-BI-PP-3 (preparation and implementation of a SWPPP) • M-BI-PP-4 (preparation of a biological monitoring report)	Less than significant	4.1H

Table 8-1. Summary of Significant Impacts

Section of Report Analysis Is Described	Impact Number (Revised PEIR Impact Number)	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
				• M-BI-PP-5 (implementation of a Fugitive Dust Control Plan) • M-BI-PP-9 (regulated herbicide application)		
3.2.8.1	Impact SP-4 (Impact BI-R-13)	Special-Status Plants, County List A and B: • Jacumba Milkvetch • Sticky Geraea • Desert Beauty	Long-Term Indirect	• M-BI-PP-1 (habitat preservation and management) • M-BI-PP-5 (implementation of a Fugitive Dust Control Plan • M-BI-PP-6 (biological review of landscape plans) • M-BI-PP-7 (restrictions on operation and maintenance personnel activity) • M-BI-PP-8 (implementation of a Fire Protection Plan) • M-BI-PP-9 (regulated herbicide application)	Less than significant	4.1H
3.2.8.2	Impact W-8 (Impact BI-R-14)	Special-Status Wildlife	Short-Term Indirect	• M-BI-PP-2 (biological monitoring) • M-BI-PP-3 (restrictions on construction vehicle speed limits and preparation and implementation of a SWPPP) • M-BI-PP-4 (preparation of a biological monitoring report) • M-BI-PP-5 (implementation of a Fugitive Dust Control Plan) • M-BI-PP-6 (biological review of landscape plans)	Less than significant	4.1H

Table 8-1. Summary of Significant Impacts

Section of Report Analysis Is Described	Impact Number (Revised PEIR Impact Number)	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
				• M-BI-PP-7 (restrictions on operations and maintenance personnel activity) • M-BI-PP-9 (regulated herbicide application) • M-BI-PP-10 (pre-construction surveys for nesting birds and setbacks) • M-BI-PP-11 (monitor excavated areas and soil piles) • M-BI-PP-12 (minimize night lighting)		
3.2.8.2	Impact W-9 (Impact BI-R-15)	Special-Status Wildlife	Long-Term Indirect	• M-BI-PP-1 (habitat preservation and management) • M-BI-PP-5 (implementation of a Fugitive Dust Control Plan) • M-BI-PP-6 (biological review of landscape plans) • M-BI-PP-7 (restrictions on operation and maintenance personnel activity) • M-BI-PP-8 (implementation of a Fire Protection Plan) • M-BI-PP-13 (conformance with Avian Power Line Interaction Committee standards)	Less than significant	4.1H

Table 8-1. Summary of Significant Impacts

Section of Report Analysis Is Described	Impact Number (Revised PEIR Impact Number)	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
3.2.12	Impact W-10 (Impact BI-R-16)	Special-Status Wildlife, Nesting Success of Tree-Nesting Raptors, Construction-Related (e.g., noise)	Short-Term Indirect	• M-BI-PP-10 (pre-construction surveys for nesting birds and setbacks)	Less than significant	4.1L
3.2.12	Impact W-11 (Impact BI-R-17)	Special-Status Wildlife, Nesting Success of Tree-Nesting Raptors, Loss of Suitable Nesting Habitat	Long-Term Direct	• M-BI-PP-1 (habitat preservation and management)	Less than significant	4.1L
Guideline 4.2 ***The project would have a substantial adverse effect on riparian habitat or another sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS.***						
4.2.1	Impact V-1 (Impact BI-R-18)	Special-Status Upland Vegetation Communities and Oak Root Protection Zone (Oak Woodlands)	Short-Term Direct	• M-BI-PP-2 (biological monitoring) • M-BI-PP-3 (restrictions on construction vehicle speed limits) • M-BI-PP-4 (preparation of a biological monitoring report)	Less than significant	4.2A
4.2.1	Impact V-2 (Impact BI-R-19)	Special-Status Vegetation Communities	Long-Term Direct	• M-BI-PP-1 (habitat preservation and management) • M-BI-PP-14 (federal and state permits and Wetlands Mitigation and Monitoring Plan)	Less than significant	4.2A
4.2.1	Impact V-3 (refer to Revised PEIR Table 4-7)	Oak Root Protection Zone (Oak Woodlands)	Long-Term Direct	• M-BI-PP-1 (habitat preservation and management)	Less than significant	4.2A

Table 8-1. Summary of Significant Impacts

Section of Report Analysis Is Described	Impact Number (Revised PEIR Impact Number)	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
4.2.2	Impact V-4 (Impact BI-R-20)	Jurisdictional Wetlands and Waters	Short-Term Direct	• M-BI-PP-2 (biological monitoring) • M-BI-PP-3 (restrictions on construction vehicle speed limits) • M-BI-PP-4 (preparation of a biological monitoring report)	Less than significant	4.2B
4.2.2	Impact V-5 (Impact BI-R-21, Impact BI-R-27)	Jurisdictional Wetlands and Waters	Long-Term Direct	• M-BI-PP-1 (habitat preservation and management) • M-BI-PP-14 (federal and state permits and Wetlands Mitigation and Monitoring Plan)	Less than significant	4.2B
4.2.2	Impact V-6 (Impact BI-R-22)	Jurisdictional Wetlands and Waters	Short-Term Indirect	• M-BI-PP-2 (biological monitoring) • M-BI-PP-3 (preparation and implementation of a SWPPP) • M-BI-PP-4 (preparation of a biological monitoring report) • M-BI-PP-5 (implementation of a Fugitive Dust Control Plan) • M-BI-PP-9 (regulated herbicide application)	Less than significant	4.2B
4.2.2	Impact V-7 (Impact BI-R-23)	Jurisdictional Wetlands and Waters	Long-Term Indirect	• M-BI-PP-1 (habitat preservation and management) • M-BI-PP-5 (implementation of a Fugitive Dust Control Plan	Less than significant	4.2B

Table 8-1. Summary of Significant Impacts

Section of Report Analysis Is Described	Impact Number (Revised PEIR Impact Number)	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
				• M-BI-PP-6 (biological review of landscape plans) • M-BI-PP-7 (restrictions on operation and maintenance personnel activity) • M-BI-PP-8 (implementation of a Fire Protection Plan) • M-BI-PP-9 (regulated herbicide application) • M-BI-PP-14 (federal and state permits and Wetlands Mitigation and Monitoring Plan)		
4.2.3	Impact V-8 (Impact BI-R-24)	Groundwater-Dependent Vegetation	Short-Term/ Long-Term Indirect	• M-BI-PP-15 (Groundwater Monitoring and Mitigation Plan)	Less than significant	4.2C
4.2.4	Impact V-9 (Impact BI-R-25)	Special-Status Upland Vegetation Communities and Oak Root Protection Zone (Oak Woodlands)	Short-Term Indirect	• M-BI-PP-2 (biological monitoring) • M-BI-PP-3 (preparation and implementation of a SWPPP) • M-BI-PP-4 (preparation of a biological monitoring report) • M-BI-PP-5 (implementation of a Fugitive Dust Control Plan) • M-BI-PP-9 (regulated herbicide application)	Less than significant	4.2D
4.2.4	Impact V-10 (Impact BI-R-26)	Special-Status Upland Vegetation Communities	Long-Term Indirect	• M-BI-PP-1 (habitat preservation and management)	Less than significant	4.2D

Table 8-1. Summary of Significant Impacts

Section of Report Analysis Is Described	Impact Number (Revised PEIR Impact Number)	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
				• M-BI-PP-5 (implementation of a Fugitive Dust Control Plan • M-BI-PP-6 (biological review of landscape plans) • M-BI-PP-7 (restrictions on operation and maintenance personnel activity) • M-BI-PP-8 (implementation of a Fire Protection Plan) • M-BI-PP-9 (regulated herbicide application)		
Guideline 4.3 *The project would have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.*						
5.2.1	See Section 4.2.2	Jurisdictional Wetlands and Waterways	See Section 4.2.2	See Section 4.2.2	See Section 4.2.2	4.3
Guideline 4.4 *The project would interfere substantially with the movement of a native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.*						
6.2.1	Impact WM-1 (Impact BI-R-28)	Foraging and Breeding Habitat	Short-Term Direct	• M-BI-PP-2 (biological monitoring) • M-BI-PP-3 (preparation and implementation of a SWPPP) • M-BI-PP-4 (preparation of a biological monitoring report) • M-BI-PP-7 (restrictions on operation and maintenance personnel activity)	Less than significant	4.4A

Table 8-1. Summary of Significant Impacts

Section of Report Analysis Is Described	Impact Number (Revised PEIR Impact Number)	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
				• M-BI-PP-11 (monitor excavated areas and soil piles)		
6.2.1	Impact WM-2 (Impact BI-R-29)	Foraging and Breeding Habitat	Long-Term Direct	• M-BI-PP-1 (habitat preservation and management)	Less than significant	4.4A
6.2.1	Impact WM-3 (Impact BI-R-30)	Groundwater-Dependent Vegetation	Short-Term/Long-Term Indirect	• M-BI-PP-15 (Groundwater Monitoring and Mitigation Plan)	Less than significant	4.4A
6.2.2	Impact WM-4 (Impact BI-R-31, Impact BI-R-32)	Wildlife Movement (small and mid-sized animals)	Long-Term Direct	• M-BI-PP-1 (habitat preservation)	Less than significant	4.4B
Guideline 4.5 *The project would conflict with one or more local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, and/or would conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state HCP.*						
7.2.11	Impact P-1 (Impact BI-R-33)	Migratory Bird Treaty Act	Short-Term Direct	• M-BI-PP-10 (pre-construction surveys for nesting birds and setbacks)	Less than significant	4.5K

9 References Cited

14 CCR 15000 15387 and Appendix A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

16 USC 1531–1544. Endangered Species Act of 1973, as amended.

16 USC 661 et seq. Fish and Wildlife Coordination Act (FWCA).

16 USC 668–668d. Bald and Golden Eagle Protection Act. June 8, 1940, as amended 1959, 1962, 1972, and 1978.

16 USC 703–712. Migratory Bird Treaty Act of 1918 (MBTA). July 3, 1918, as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986, and 1989.

33 CFR 328.1–328.5. Definition of Waters of the United States.

33 USC 1251 et seq. Federal Water Pollution Control Act (Clean Water Act).

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63 FR 13134–13150. Final rule: "Endangered and Threatened Wildlife and Plants; Endangered Status for the Peninsular Ranges Population Segment of the Desert Bighorn Sheep in Southern California." March 18, 1998.

74 FR 17288–17365. Final rule: "Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Peninsular Bighorn Sheep and Determination of a Distinct Population Segment of Desert Bighorn Sheep (*Ovis canadensis nelsoni*)." April 14, 2009.

74 FR 28776–28862. Final rule: "Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for the Quino Checkerspot Butterfly (*Euphydryas editha quino*)." June 17, 2009.

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Appendix A

Pre-Application Summary Letter

ERIC GIBSON
DIRECTOR

County of San Diego

DEPARTMENT OF PLANNING AND LAND USE

5201 RUFFIN ROAD, SUITE B, SAN DIEGO, CALIFORNIA 92123-1666
INFORMATION (858) 694-2960
TOLL FREE (800) 411-0017
www.sdcounty.ca.gov/dplu

October 25, 2011

FINAL

Rugged Solar LLC
4250 Executive Square, Suite 770
La Jolla, CA 92037

RUGGED SOLAR PRE-APPLICATION SUMMARY LETTER; 3992-11-018 (MPA), KIVA# 11-0159228, 1.5 miles north of I-8 between Ribbonwood Road and McCain Valley Road, Boulevard, CA within the Mountain Empire Subregional Planning Area. APN's 611-110-01; 611-100-02 & 01; 611-090-04; 611-091-03; 611-090-02; 611-060-04; 611-091-091-09.

On October 22, 2011, the Department of Planning and Land Use (DPLU) held a Pre-application Meeting on the above listed APN's. This letter provides a summary of the major issues discussed at the conference, key decisions or determination, and guidance for project processing.

OVERVIEW

A. Attendees: The following County staff and applicant representatives attended the Pre-application Meeting: See attached sign in sheet and meeting notes.

B. Project Description:

Applicants Request: The project would be a Major Use Permit to authorize an unmanned 82.2-megawatt (MW) solar power plant on an approximately 700-acre project site in the community of Boulevard in the unincorporated County of San Diego. The project would include approximately 3,132 concentrating photovoltaic (CPV) trackers that would utilize a dual axis tracking and mounting system. Individual tracker dimensions would be approximately 25 feet tall and 48 feet wide. The proposed use is subject to Major Impact Utility regulations pursuant to Sections 1350 and 2926 of the County's Zoning Ordinance.

Point of Interconnection: Each building block would be made up of forty-eight dual axis trackers that would deliver energy underground to inverter/transformer stations. Inverter/transformer stations would then deliver the power underground to an on-site 34.5KV/69kV step-up substation. Finally, the Substation would rely

on an overhead 69kV distribution line to carry the energy to the new Boulevard substation.

Facilities and Improvements: There are no required frontage or road improvements. he project's onsite groundwater demand is approximately 1 acre-foot per year that would be used for periodic cleaning of the solar panels and reapplication of the soil-binding agent when necessary. The amount of imported water includes the amount of water used during project construction and decommissioning. Potable Water and septic improvements are not required because the facility will be unmanned. The amount of grading and excavation is undetermined at this time.

C. Land Use Designation and Zoning: The project is located on approximately 700-acres between McCain Valley Road and Ribbonwood Road, about 1.5 miles north of Interstate 8, within the Mountain Empire Subregional Planning Area. It is subject to the Rural Land (RL-80) General Plan Land Use Designation. The Zoning for the site is (A72) General Agriculture, and has a 40-acre minimum lot size.

D. DETERMINATIONS: The following decisions or determinations were made at the Pre-application Meeting:

1. **Permit Path:** The project will require a Major Use Permit to authorize a Major Impact Utility Pursuant to Sections 1350 and 2926 of the Zoning Ordinance within the A72 zoned site. The A72 Zone allows Major Impact Services and Utilities upon issuance of a Major Use Permit.

2. **Environmental Review:** The Department The Department of Planning and Land Use has completed its review of your major preapplication request and has determined that there may be substantial evidence that your project may have a significant adverse effect on the environment due to direct impacts to visual resources, biological resources, cultural resources. The project would also have potentially significant cumulative impacts to the Boulevard Community only for the same impact areas. The project will be subject to prepare and submit a draft Environmental Impact Report (EIR) to comply with the requirements of the California Environmental Quality Act (CEQA).

   The County of San Diego's environmental review guidelines require that EIRs be prepared by a consultant from the County's List of Environmental Consultants. Furthermore, the guidelines require that environmental technical studies be prepared by a California Licensed professional (i.e., engineer, geologist) qualified to complete the study or a consultant from the County's List of Environmental Consultants. Consultant lists are available at the Department of Planning and Land Use – Zoning Counter.

MAJOR PROJECT ISSUES

The following project issues were identified during the project pre-application scoping and are further discussed in the attachments to this letter. These issues may require

substantial redesign of the proposed project or, if not resolved, would result in a recommendation for project denial by DPLU. These issues discussed below, were identified based upon information presently available to the County and are subject to change upon submittal of further information and studies:

1. **General Plan Consistency:** The General Plan Update was approved by the Board of Supervisors August 4, 2011. The newly adopted plan has several policies that may conflict with your project. General Plan conformance is one of the required Major Use Permit findings pursuant to ZO Section 7358. A General Plan Consistency Analysis is required to determine if the project would comply with the General Plan and the Boulevard Community Plan (See Attachment A letter C for the scope for analysis). It is recommended that the plan consistency analysis be performed early on in the process. If there are General Plan policy conflicts, they can be addressed with mitigation and/or site design. For example, Policy COS-11.1 addresses the protection of Scenic Highways. Old Highway 80 is a General Plan Designated Scenic Highway (Not State Designated), this policy may affect how the project is designed, and or what mitigation is proposed to comply with the policy. The following is a summary of some of the other plan policies you may be in conflict with, or could use extra attention when designing the project:

   General Plan Policies: LU.6.6, LU-6.9, LU-10.2, LU-12.4, COS-11.1-3, COS 12.2, and S.3.2.

   The Boulevard Community Plan has at least six policies that would prohibit or hinder the proposed project. These policies may be amended by the Board of Supervisors when the Zoning Ordinance update to the Wind regulations is adopted. The Wind Ordinance is on schedule to be heard by the Board of Supervisors the 1st quarter of 2012. The following is a summary of some of the other plan policies you may be in conflict with, or could use extra attention when designing the project:

   Boulevard Community Plan Policies: Policy LU: 1.1.1, 1.2.2, 1.3.2, 6.1.2, 6.1.3, and 6.1.4.

2. **Major Use Permit Findings:** As currently designed, it does not appear that staff will be able to make the necessary Major Use Permit findings necessary for approval. In order to be granted a Major Use Permit, the location, size, design, and operating characteristics of the proposed use needs to be compatible with adjacent uses, residents, buildings, or structures[1]. The project should be redesigned with special consideration given to making the following findings:
   1. Harmony in scale, bulk, coverage and density
   2. The availability of public facilities, services, and utilities
   3. The harmful effect, if any, upon the neighborhood character
   4. The generation of traffic and the capacity and physical character of the surrounding streets

[1] Please see section 7358 of the County's Zoning Ordinance.

5. The suitability of the site for they type and intensity of use or development which is proposed
6. Any other relevant impact of the proposed use.

3. **Visual Impacts:** The initial review of your project has revealed that the project may adversely affect visual resources. There may be potentially adverse impacts to Visual Resources from introduction of the project to the viewshed. Views from scenic vistas, scenic highways and County Scenic Routes will need to be analyzed further to determine the extent of any adverse impacts. Visual resources can include narrow or expansive views, views from one site or from a series of sites as along a scenic highway (Interstate 8), and views from above, at eye level, or from below. A particular aspect that defines a community or a region's character and can also identity a scenic resource. The evaluation of visual resources should be combined with the General Plan Consistency Analysis because of the policies that protect scenic resources. A full Visual Analysis will be required to evaluate the significance of the visual impacts

4. **Fire Protection:** The project sites are located in a Very High Fire Severity Zone and the project design and mitigation measure should be evaluated as early on as possible, as well as consultation with the County Fire Authority (CFA). The projects will be required to annex into a Community Facilities District in order for the CFA to provide adequate fire service to the project. The costs and process for annexation into the CFD should be discussed with the CFA. Additionally, a full fire protection plan with technical report will be required.

5. **Cultural Resources:** All parcels identified with this project contain numerous previously recorded sites with cultural resources. This may hinder the design and ultimate full implementation of what was proposed in the project description. The project will be required to comply with the Resource Protection Ordinance (RPO) to avoid and or preserve these sites. The RPO significance of the sites are unknown, so further evaluation and consultation with the County should be made before proceeding with the project.

6. **Biological Resources:**

    1. **Offsite Mitigation:** While the project description indicates that mitigation will be proposed onsite in the southeastern corner of the project site, it does not appear that this area will be large enough to account for all required mitigation. If offsite mitigation is required to meet habitat mitigation requirements, the applicant must identify in the Biological Resources Report where offsite mitigation is proposed. Staff is not aware of any mitigation banks in this area that could be used to fulfill the mitigation requirements of this project.

    2. **RPO:** The project site appears to contain large areas that qualify as wetlands in accordance with the Resource Protection Ordinance (RPO). In accordance with the RPO, all wetlands and a wetland buffer of 50 to 200-feet must be preserved. The Biological Resources Map must clearly

define all areas meeting the RPO definition of a wetland and must also show a wetland buffer of an appropriate width to preserve the wetlands. A limited building zone on 100-feet is also required from the edge of any open space easement to prevent future fire clearing from impacting the wetland.

ESTIMATE OF DISCRETIONARY PROCESSING COSTS AND SCHEDULE

An estimate of discretionary processing time and costs that includes several assumptions has been generated for your project and is included in Attachment B. It is estimated that $229,077 of County fees and deposits will be required to get the project through to a hearing. The estimated hearing date for this project is March 2014. Please note that the estimated cost and hearing date is based on certain assumptions detailed in the Attachment and could be more or less than the estimate provided. If the cost and schedule assumptions prove to be incorrect, the estimate will be revised. The estimate includes only the costs to get your present application to hearing and does not include additional post discretionary processing costs such as an appeal or final map fees or building permit fees.

Should your application be approved, there will be additional processing costs in the future (e.g., Final Map processing costs, park fees, drainage fees, building permit fees). To obtain an estimate of future building permit and plan check fees, parks fees, and Traffic Impact Fees, see http://www.sdcounty.ca.gov/dplu/bldgforms/index.html#fees.

Please note that building permits are required to construct, enlarge, alter, repair, move, improve, remove, convert, or demolish a building or structure. Permits are also required for plumbing, electrical, and mechanical work. A permit must be obtained prior to construction and prior to occupancy. Failure to obtain a building permit is a violation of the County of San Diego Ordinances. The Department's goal is to help facilitate the efficient and timely processing of each application. If, however, a project becomes delayed due to excessive project inactivity or account deficit, Board Policy I-137 will apply; please refer to the Board Policy I-137 at http://www.sdcounty.ca.gov/dplu/docs/Inactive_Case_Board_Policy-11.3.09.pdf and the FAQ sheet at http://www.sdcounty.ca.gov/dplu/docs/907.pdf for the Processing of Inactive and Deficit Projects.

DEFENSE AND INDEMNIFICATION

Execution of a Defense and Indemnification Agreement will likely be required due to the risk to the County of potential litigation associated with this project. Securities may also be required. While the indemnification agreement is not executed until Board of Supervisors authorization, typically at the end of the discretionary review process, you should be aware of the obligations, costs and potential risks associated with the agreement and potential future litigation filed against the County. For Frequently Asked Questions about Defense and Indemnification Agreements, see **Defense and Indemnification FAQs**

DEPARTMENT RECOMMENDATION

Comments and information in this letter, or lack thereof, should not be construed as the Department implying an overall recommendation or decision on your project. The

Department of Planning and Land Use generally makes a final recommendation to approve or deny a project when the entire planning analysis and environmental documentation is complete and Sponsor Group input is received.

CONSULTANT LIST & MEMORANDUM OF UNDERSTANDING (MOU)

Certain technical studies must be prepared by a consultant from the County's CEQA Consultant List, which can be found on the County of San Diego's website at: http://www.sdcdplu.org/dplu/Resource/docs/3~pdf/consList.pdf. No list is maintained for hydrology and stormwater management planning. With the exception of minor stormwater management plans, only registered engineers registered in the State of California shall be permitted to submit hydrology/drainage studies and only registered engineers or Certified Professionals in Storm Water Quality certified by CPESC, Inc., or an equivalent entity approved by the Director of Public Works, shall be permitted to submit stormwater management plans.

Applicants are responsible for selecting and direct contracting with specific consultants from the County's list to prepare CEQA documents for private projects. Prior to the first submittal of a CEQA document prepared by a listed consultant for a private project, the applicant, consultant, consultant's firm (if applicable) and County shall execute the attached Memorandum(s) of Understanding (MOU). The responsibilities of all parties involved in the preparation of environmental documents for the County (i.e. applicant, individual CEQA consultants/sub-consultants, consulting/sub-consultant firms, and County) are clearly established in the MOU for each requested applicable study. The clear identification of roles and responsibilities for all parties is intended to contribute to improved environmental document quality. The MOU can be found on the Department's website at: http://www.sdcounty.ca.gov/luegdocs/Templates /Boilerplate%20Templates/MOU.doc.

GUIDELINES FOR DETERMINING SIGNIFICANCE & REPORT FORMAT AND CONTENT REQUIREMENTS

Technical studies must be prepared using the Guidelines for Determining Significance and Report Format & Content Requirements. The Guidelines and Report Format & Content Requirements can be found on the Department's website at http://www.co.san-diego.ca.us/dplu/procguid.html (listed in alphabetical order).

COMMUNITY SPONSOR GROUP COORDINATION

The Department of Planning and Land Use (DPLU) strongly recommends coordination with the applicable Community Sponsor Group prior to application submittal, as the Department will consider comments from applicable community groups in its decision making process. The following link is for the Sponsor Group chairperson and contact information: Sponsor Group: http://www.sdcounty.ca.gov/dplu/docs/ plngchairs.pdf.

RECORDATION OF PERMIT

Pursuant to the San Diego County Zoning Ordinance Section 7019, Permit Decisions for Administrative Permits, Density Bonus Permits, Site Plans, Use Permits, Variances, Reclamation Plans, or any modifications to these permits shall be recorded to provide

constructive notice to all purchasers, transferees, or other successors to the interests of the owners named, of the rights and obligations created by this permit. The Recordation form, with Decision attached, will be provided immediately after the Decision determination for this project and must be signed, notarized and returned to DPLU at the initiation of the Condition Satisfaction Process, or as otherwise specified. Once received, DPLU staff shall have the document recorded at the County Recorder's Office.

PROJECT PROCESSING GUIDANCE

The Department of Planning and Land Use (DPLU) has reviewed your pre-application submittal for a Major Use Permit and is providing you with the attached package of information as a guide for further processing your application. A Project Issues Checklist for all issues, revisions or processing requirements has been prepared for your project and is included in this letter as **Attachment A**. This information shall be used by the County and the applicant as project issues that must be resolved and revisions that must be completed prior to public review under the California Environmental Quality Act (CEQA)**.** In response to the Project Issues information, the applicant is expected to include a letter with every submittal made to the Department stating how each item number has been addressed.

SUBMITTAL REQUIREMENTS

To assure timely cost-effective processing of your project, all items must be submitted concurrently. The submittal must be made to the DPLU Zoning Counter at 5201 Ruffin Road, Suite B, San Diego, CA 92123-1666. For fastest service when submitting information requested in this letter, arrive at the DPLU Zoning Counter between 8:00 a.m. and 10:00 a.m. Please note that all Public Counters at the DPLU Ruffin Road Annex are closed daily from 11:45 a.m. through 12:30 p.m. Expect longer wait times before and after the lunchtime closure.

The submittal must include the following items:

1. Submit a copy of this letter.

2. **SUBMIT AN APPLICATION FOR A Major Use Permit .** Please *contact the zoning counter at 858-694-2262 to verify your submittal requirements and schedule an appointment* for the submittal of your application. Please make the appointment as soon as possible, as the wait time for appointments fluctuates.

3. **SUBMIT A SEPARATE LETTER ADDRESSING EACH ITEM IN THE ATTACHED PROJECT ISSUE INFORMATION (Attachment A), BY REFERENCE NUMBER.** This letter is required to detail how every unresolved item has been addressed in the resubmittal package.

4. The following information and/or document(s) with the requested number of copies as specified.

Information/Document	# of Copies	CD or Flash Drive with Word and PDF Doc	Document Distribution *(For Admin Purposes Only)*
Project Issue Response Letter (see #3 above)	2	PDF	Patrick Brown PM (1), Ed Sinsay (1), DPW Business Rule: Project Issue Checklist Response Letter
Title Report with Schedule "B" Attachments ***(See Attachment A- Letter A)***	2	PDF	Patrick Brown PM (1), Ed Sinsay (1), DPW Business Rule: Title Report
Application for a **Major Use Permit**. (see #2 above) * Please refer to the Major Use Permit submittal requirements.	NA	PDF	PPS for Distribution
Preliminary Grading Plan (with Supporting Information) ***(See Attachment A-Letter-B)***	6	PDF	Larry Hofreiter (1), DPW (2), DEH (1), Planning/ Sponsor Group (1) Business Rule: Grading Plan
Amended Project Description ***(See Attachment A-Letter-A.1)***	4	Word & PDF	Larry Hofreiter (3) Ed Sinsay (1) Business Rule: Project Description
Land Use/Community Character Analysis ***(See Attachment A-Letter-C)***	2	Word & PDF	Larry Hofreiter (2), Business Rule: Land Use Analysis
Resource Protection Study: Wetlands, Cultural, and Steep slopes*(See Attachment A-Letter-K)*	2	Word & PDF	Larry Hofreiter (1), Ed Sinsay (1) Business Rule: Resource-Protection-Study
Visual Impact Analysis ***(See Attachment A-Letter-E)***	2	Word & PDF	Larry Hofreiter (2) Business Rule: Visual-Impact-Report
Air Quality Information/Study ***(See Attachment A-Letter-F)***	2	Word & PDF	Larry Hofreiter (1), Air Quality Specialist (1) Business Rule: Air Quality Report
Biological Resources Report ***(See Attachment A-Letter-G)***	2	Word & PDF	Larry Hofreiter (1), Ashley Gungle (1) Business Rule: Biological-Resource-Report
Cultural Resource Report ***(See Attachment A-Letter-H)***	2	Word & PDF	Larry Hofreiter (1), Cultural Resources Specialist (1) Business Rule: Business Rule: Cultural-Resource-Report

Information/Document	# of Copies	CD or Flash Drive with Word and PDF Doc	Document Distribution *(For Admin Purposes Only)*
Cultural Resource Report Confidential Appendix ***(See Attachment A-Letter-H)***	1	1 PDF	Cultural Resources Specialist (1) Business Rule: Arch Survey Confidential
Geologic Reconnaissance Report ***(See Attachment A-Letter-O)***	2	Word & PDF	Larry Hofreiter (1), Groundwater Geologist (1) Business Rule: Geology Report
Fire Protection Plan ***(See Attachment A-Letter-I)***	4	Word & PDF	Larry Hofreiter (1), DPW (1), Local Fire Protection District (1), DPLU Fire Marshal (1) Business Rule: Fire Protection Plan
Minor Stormwater Management Plan ***(See Attachment A-Letter-J)***	2	Word & PDF	Larry Hofreiter (1)(Ed Sinsay),DPW (1) Business Rule: Minor SWMP or Major –SWMP
Drainage/Flooding ***(See Attachment A-Letter-L)***	3	Word & PDF	Larry Hofreiter (1), DPW (2) Business Rule: Hydrology
Noise Analysis ***(See Attachment A-Letter-M)***	2	1 PDF	Larry Hofreiter (1), Noise Specialist (1) Business Rule: Acoustical/Noise Report
Memorandum(s) of Understanding according to Attachment ***(See Attachment A-Letter-D)***	All Subject Areas (1 Copy each)	PDF	Larry Hofreiter PM (1) Business Rule: MOU
The staff goal for review of the requested information/document is 30 days.			

4. Deposits:

DESCRIPTION	APPLICATION REQUIRED ADDITIONAL DEPOSITS
Estimate of Application Fees/Deposits. Actual intake amount will be calculated at application submittal based on current DPLU Fee Schedule http://www.sdcounty.ca.gov/dplu/docs/369.pdf	**SEE FEE SCHEDULE**
Additional DPLU Deposit	$20,000
Additional DPW Deposit	$5,000
TOTAL ADDITIONAL DEPOSITS*	$25,000

* Refer to the attached "Estimate of Discretionary Processing Time and Cost" for a complete estimate of project costs through hearing /decision.

If you choose not to proceed with the project and you would like to request a refund of any remaining funds in your account, you may contact the Developer Deposit Hotline at 858-694-2320 or via e-mail at DeveloperDeposits_CustomerService@sdcounty.ca.gov. Please note that deposit funds may have been fully expended and a refund may not be processed until all work on the project is complete and the project file is closed.

PRE-APP EXPIRATION DATE

In order to maintain adequate progress in processing of your project, the DPLU requires that all of the revisions/information requested in this letter be submitted in conformance with the above submittal requirements by **January 25, 2012**. Please note that an extension of this date may be granted at the discretion of the Director of the DPLU, however changes in circumstance may occur that render the direction in this letter outdated, incomplete or incorrect. To request an extension, submit a written request, signed and dated by the project applicant. The request must include the proposed new submittal date and a brief reasoning for the extension request. If the revised documents are not received, or an approved extension request is not granted by the Director by the above date, the information requested in this letter will not be accepted and a new pre-application may be needed to provide current submittal requirements.

If you have any questions or need additional information, please contact me at (858) 694-3011, Patrick Brown or at Patrick.Brown@sdcounty.ca.gov.

Sincerely,



Attachments:

A. Major Preapplication Issue Scoping
B. Estimated Discretionary Processing Time and Costs for EIR
C. DPW Preliminary Requirements
D. Estimated Water Demand Assumption Example
E. Meeting Sign-In Sheet

cc:

Mike Armstrong, Business Development Manager, Soitec, 4250 Executive Square Ste 770, La Jolla, CA 92037

email cc: David Sibbet, Planning Manager, Department of Planning and Land Use
Ed Sinsay, Team Leader, Department of Public Works

ATTACHMENT B

ESTIMATE OF DISCRETIONARY PROCESSING TIME AND COSTS

Project Name:	Rugged Solar LLC
Project Number:	3992-11-018 (MPA)
Staff Completing Schedule:	Larry Hofreiter
Decision-Making Body:	Planning Commission and Board of Supervisors
Date Schedule Produced/Revised:	10/19/2011

TASK/ACTIVITY	Estimated Duration (Days)	Estimated Completion Date	Actual Completion Date
APPLICATION SUBMITTAL			**2/4/2012**
DETERMINATION THAT AN EIR IS REQUIRED			**2/4/2012**
DPLU reviews project application "completeness", attends DRT and completes planning and scoping of EIR	30	3/5/2012	
DPLU meets with applicant to discuss need for EIR, scope and schedule	14	3/19/2012	
Applicant submits documents for Public Review of Notice of Preparation (NOP)	***7***	***3/26/2012***	
DPLU completes advertises and distributes NOP	*10*	*4/5/2012*	
Public review of NOP	*30*	*5/7/2012*	
DPLU receives and distributes public comments on NOP to Applicant (180 period for resubmittal of DEIR begins here)	*3*	*5/10/2012*	
DPLU meets with County Counsel, holds Kick-off Meeting with applicant/consultant. Discuss project schedule	*10*	*5/21/2012*	
Applicant submits 1st Draft EIR and Planning Documentation	**120**	**9/7/2012**	
DPLU reviews 1st Draft EIR, holds county counsel briefing, attends DRT	45	10/22/2012	
Meeting with applicant	*7*	*10/29/2012*	
Applicant submits 2nd Draft EIR and Planning Documentation*	**45**	**12/6/2012**	
DPLU reviews 2nd Draft EIR, holds county counsel briefing*	30	1/7/2013	
Meeting with applicant	*7*	**1/14/2013**	
Applicant submits 3rd Draft EIR and Planning Documentation*	**30**	**2/6/2013**	
DPLU reviews 3rd Draft EIR, holds county counsel briefing*	30	3/8/2013	
Meeting with applicant	*7*	**3/15/2013**	
Applicant produces copies of documents, submits DEIR and copies of documents	***10***	**3/18/2013**	
DPLU completes distribution paperwork, advertises and distributes Draft EIR	14	4/1/2013	
Public Review of Draft EIR	45	5/16/2013	
DPLU transmits Public Comments to Applicant	3	5/20/2013	
DPLU holds meeting with applicant to discuss approach to address public comments, discuss project schedule	10	5/27/2013	
Applicant submits 1st Draft Responses to Public Comment (RTC) and EIR Errata	**30**	**6/26/2013**	
DPLU reviews 1st Draft Responses to Public Comments and EIR Errata	25	7/22/2013	
Applicant submits 2nd Draft RTC and EIR Errata*	**21**	**8/12/2013**	
DPLU reviews 2nd draft RTC & EIR Errata, meets with applicant / consultant to finalize responses for I-119 review*	14	8/26/2013	
DPLU attends DRT prior to initating I-119 review	5	9/2/2013	
Applicant submits Draft RTC & EIR Errata for I-119 review & 1st draft EIR Findings for staff review	**5**	**9/9/2013**	
Board Policy I-119 Review of Responses to Comments and DEIR	*40*	*10/14/2013*	
DPLU reviews I-119 comments, meets with Counsel, transmit comments to applicant, set meeting with applicant	7	10/21/2013	
Applicant submits revised RTC, EIR Errata, and EIR Findings, meets with DPLU to review changes	**14**	**11/4/2013**	
DPLU reviews RTC, EIR Errata & Findings and sends to Counsel for review OR meet with Counsel if 2nd I-119 review not necessary	14	11/18/2013	
Second Board Policy I-119 Review of RTC, EIR Errata and Findings*	30	12/4/2013	
DPLU meets with County Counsel to finalize RTC, EIR Errata, and Findings. Holds meeting with applicant / consultant*	10	12/16/2013	
Applicant makes final revisions, produces copies of FEIR, CEQA Findings and RTCs and pays Fish and Game Fees	**7**	**12/23/2013**	
DPLU attends Director briefing to make project recommendation	7	12/30/2013	
DPLU finalizes project resolution/decision, completes findings, conditions, draft staff report and begins preparation of Board Letter	*30*	*1/15/2014*	
DPLU management and County Counsel review staff report, obtain concurrences from other Departments	10	1/27/2014	
DPLU finalizes legal advertisement for hearing, newspaper advertises Planning Commission Hearing	7	*2/3/2014*	
Planning Commission Hearing	14	2/17/2014	
DPLU Finalizes draft Board Letter, include Planning Commission Recommendation	7	2/24/2014	
DPLU management and County Counsel review Board Letter, obtain concurrences from other Departments	10	3/6/2014	
DPLU finalizes legal advertisement for hearing, Board Hearing advertised in newspaper	7	3/13/2014	
Board of Supervisors Hearing	18	3/31/2014	

PROJECT SCHEDULE ASSUMPTIONS	COST ESTIMATE ASSUMPTIONS
Project description remains consistent throughout process	Cost estimate includes DPLU costs & applicable DPW, DPR, & DEH costs
Applicant will submit information in accordance with schedule	Estimate is based on relative cost of projects of similar complexity
The project will not be continued by decision maker or appealed	Cost estimate does not include applicant's consultant/engineering costs
DPW, DEH and DPR issues will be resolved concurrently.	Cost estimate does not include additional deposits to DPR and DEH accounts made after the project application intake
Bolded tasks are under the control of applicant/consultant.	Does not include County costs for post discretionary review (e.g. final map)
Italicized tasks are completed concurrently with other tasks.	Costs assume project schedule assumptions are maintained
* Task can be eliminated if earlier draft documents are adequate.	Costs will be paid at installments throughout the process
Hearing date is subject to decision making body availability and schedule	If project is over budget, cost estimate will be revised
Dates which fall on a holiday have an actual completion date the first business	The State of CA adjusts Fish and Game Fees annually for inflation

COST ESTIMATE SUMMARY	
Total Discretionary Cost Estimate	**$229,077**
Deposits/Fees Paid to Date	$13,345
Account Balance	$2,571
Estimated County Costs Remaining	$215,732
Fish and Game Fees	$2,889
% Expended of Total Cost Estimate	4.70%

ATTACHMENT A
MUP APPLICATION SCOPING INFORMATION
3992-11-018 (MPA) RUGGEDSOLAR

A. PLANNING ANALYSIS:

1. **Project Description:** A detailed Project Description is required. The report shall detail the following information: general project description, location, consistency with CA Global Warming and AB 32 compliance information, grading information, purpose and need of project, description of activities, traffic and circulation, groundwater usage, security, electrical transmission and distribution onsite and offsite, lighting, signage, utilities, existing conditions, and site photographs. The following items should also be included in the project description:

   - A draft-decommissioning plan should be provided to the County that would describe how the project would be decommissioned. The project site should be left in a manner that is consistent with what could be permitted by right pursuant to the Zoning Ordinance Section 6952b.3.d. This plan should identify a potential financial mechanism for the plan, but does not need to actually provide the financial mechanism.

   - The project description shall include the Operation and Maintenance component for this project with the number of Average Daily Trips (ADT), in order to document if there are any direct impacts to the roadway network generated from the implementation of this project. Cumulative impacts will be mitigated by payment of the Transportation Impact Fee (TIF). In order to determine if a Traffic Analysis is required, please review the Transportation and Traffic Guidelines for Determining Significance and Report Format and Content Requirements. Additional information can be obtained in the following link: http://www.sdcounty.ca.gov/dplu/docs/Traffic_Guidelines.pdf

   - Water Usage for the project: Provide in the project description a water demand assumption as well as an identified water source for construction and ongoing cleaning and site maintenance. Any water that is not obtained from a private non-public agency will require review for a Groundwater Extraction Major Use permit. See Attachment D.

   - Discuss that the recycling during construction will be in compliance with the County of San Diego Construction Demolition and Debris Management Plan requirements in accordance with County Ordinance 68.508-68.518.

2. **Plot Plan:** A detailed plot plan is required that complies with DPLU Form #90, and should include these additional items:

   - Details of proposed structures, square footages of all structures in a cumulative table, lot coverage calculations, building setbacks, substations, transformer rooms, utility and County rights of ways,

generation tie lines, existing structures, and any additional elevations. Show solar panel arrays and proposed internal 24' wide improved driveway widths (Per County Fire Code).

- Include all existing onsite wastewater disposal systems and groundwater wells on the plot plan. If there is none that are contained within the property boundaries, the plans need to state it.

- Include all existing wells on the plot plan. All wells must be labeled to reflect the proposed groundwater use. The destruction of any well requires a destruction permit and inspection of the completed work by the Department of Environmental Health.

- Show the ultimate right-of-way and the ultimate building setback limits. At the time of the construction/improvements, any proposed facilities shall be relocated at the sole cost of the applicant to the satisfaction of the Director of Public Works.

- Show lines of inundation to the limits of the 100-year flood along the watercourse, which flows through the property, labeled "Subject To Inundation By The 100-Year Flood."

- Show existing and proposed property lines (PL), call out Centerline of Old Highway 80; call out edge of pavements (EOP) and dimensions from centerlines to existing & proposed PL, EOP, also include all public road and driveway cross-sections.

- The project access points from a public road shall be shown on the Plot Plan and Preliminary Grading Plan. The County prefers that the project take access from McCain Valley Road for both phases of the project.

- On the plot plan and preliminary grading plan, indicate the point of interconnection until it reaches the public utility. Any offsite generation tie lines need to be covered by the plot plans and project description because they need to be covered by the MUP.

- Proof of legal access will be required for all parcels. A Preliminary Title Report with Schedule B Attachments should be provided.

- Indicate all Assessor Parcel Numbers and boundary lines for each phase.

- Plot all open space easements and indicate permanent fencing around these areas.

- The County Fire Authority (CFA) requirements should be implemented on the plot plan. Consult with the CFA as indicated below in Section I.

Implement all circulation, gate, and other improvements as required by the County Fire Authority and County Fire Code 96.1.503 through 605.11.4.4. as follows:

Sec. 503.2.1 Dimensions. (a) Fire apparatus access roads shall have an unobstructed improved width of not less than 24 feet… (b) All fire apparatus access roads shall have an unobstructed vertical clearance of not less than 13 feet 6 inches…

Sec. 503.2.3 Surface. Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus (not less than 50,000 lbs.) and shall be provided with an approved surface so as to provide all-weather driving capabilities.

Sec. 503.2.4 Turning radius. The turning radius of a fire apparatus access road shall comply with the County public and private road standards approved by the Board of Supervisors. The turning radius for a private driveway shall be a minimum of 28 feet, as measured on the inside edge of the improvement width or as approved by the fire code official.

Sec. 503.2.5 Dead ends. All dead-end fire access roads in excess of 150 feet in length shall be provided with approved provisions for turning around emergency apparatus…

Sec. 503.6 Security gates. No person shall install a security gate or security device across a fire access roadway without the fire code official's approval. An automatic gate across a fire access roadway or driveway shall be equipped with an approved emergency key-operated switch overriding all command functions and opening the gate…

Sec. 605.11.4 Ground-mounted photovoltaic arrays: Ground-mounted photovoltaic array installations shall meet the requirements of sections 605.11.4.1 through 605.11.4.4.

- The driveway access and should be designed per County of San Diego Design Standard DS-17, DS-18, or DS-19.

3. **Sight Distance:** The project access points from a public road will need to meet Sight Distance Requirements per the County Public Road Standards, Section 6.1 Table 5 prior to recommendation for approval. In order to provide an unobstructed view for safety while exiting the property and accessing a public road from the site, and to comply with the Design Standards of Section 6.1.(E) of the County of San Diego Public Road Standards, an unobstructed sight distance shall provided to the County to be verified as indicated below:

http://www.sdcounty.ca.gov/dpw/docs/PublicRoadStandards.pdf

a. A registered civil engineer, a registered traffic engineer, or a licensed land surveyor provide a certified signed statement that: "Physically, there is a minimum unobstructed sight distance based upon prevailing traffic speeds in both directions along Palm Canyon Drive from the project's access is achievable per Section 6.1.E of the County Public Road Standards (approved July 14, 1999)."

b. If the lines of sight fall within the existing public road right-of-way, the engineer or surveyor shall further certify that: Said lines of sight fall within the existing right-of-way and a clear space easement is not required."

B. PRELIMINARY GRADING PLANS:

There is an undisclosed amount of grading for the site. A Preliminary Grading Plan must be completed in accordance with the Preliminary Grading Plan Guidelines, which can be found online http://www.sdcounty.ca.gov/dplu/docs/ZC034.pdf. Preliminary grading plans must be submitted at the beginning of the discretionary permit process in order to address concerns regarding the long-term protection and improvement of stormwater quality. Structural BMPs are difficult to add to the completed design of a private development project without causing significant changes to the project's character. As such, the earlier in the design process stormwater facilities are considered, the greater the chance a successful and efficient design can be accomplished.

C. SCOPE FOR COMMUNITY CHARACTER & LAND USE ANALYSIS:

Community Character Analysis:
A community character analysis shall be prepared for the proposal. This analysis shall include maps that indicate the surrounding land uses that exist in the area and the following additional information:

1. An evaluation of the compatibility of the scale and mass of the proposed project with the surrounding area:

   - This evaluation shall include information, which compares square footage, heights, lot sizes, required earthwork and occupancy rates of other uses near the proposed project.

   - The architectural style of the structures and their site utilization shall be related to the manner in which surrounding properties have developed.

   - Landscaping shall be discussed in light of the ability of the plantings to soften the exterior appearance and relative massiveness of the proposed structures.

   - A graphic showing all residences/land uses within proximity of the project site.

2. Other physical impacts resulting from the nature of the operations:

   - This evaluation shall include the type of activities to be conducted, the time of day during which the various operations will occur, the days of the week the facility will be used, and the number of peoples involved.

   - This information shall define any potential impacts associated with this intensification of use of the site as well as providing a baseline for the analysis of noise, traffic, lighting or other related impacts.

3. The potential for subsequent changes to the regional environmental setting resulting from similar additional requests encouraged by the now altered community character or what physical limitations would not permit other property owners from following suit.

4. The analysis shall include a Draft set of the Major Use Permit Findings pursuant to Section Section 7359.a of the Zoning Ordinance, for findings required for major use permits. Draft Major Use Permit findings to ensure the feasibility of proceeding with the project. Actual findings are made by decision makers, but the draft findings enable DPLU and the public an opportunity to see if the findings could be made by the decision maker. (SEE MAJOR ISSUE #3)

   The following findings in support of the granting of the Major Use Permit shall be made:

   (a) The location, size, design, and operating characteristics of the proposed use will be compatible with adjacent uses, residents, buildings, or structures with consideration given to

      1. Harmony in scale, bulk, coverage, and density

      2. The availability of public facilities, services, and utilities

      3. The harmful effect, if any, upon desirable neighborhood character

      4. The generation of traffic and the capacity and physical character of surrounding streets

      5. The suitability of the site for the type and intensity of use or development which is proposed

      6. Any other relevant impact of the proposed use

   (b) The impacts, as described in Findings (a) above, and the location of the proposed use will be consistent with the San Diego County General Plan.

   (c) That the requirements of the California Environmental Quality Act have been complied with.

Land Use Consistency Analysis:
The purpose of the study is to examine and provide evidence that the proposed project is consistent with the following: (1) All applicable land use plans by showing consistency with their goals and policies not limited to but including General Plan, Community Plans, Specific Plans, Airport Land Use Compatibility Plans, and any other pertinent land use plan. (2) Compliance with the County Board of Supervisor Land Development I-Policies. (3) Compliance with all ordinances that pertain to land development such as Groundwater, RPO, Noise, Zoning. If separate reports have been drafted to cover those issues, the report may make reference to those separate technical studies. (4) The analysis should also cover compatibility with any future land use plans such as the East County MSCP when applicable. The analysis should cover each plan General Plan and Community Plan policy and implementation measure that is relevant to the project. All policies and implementation measures that are not relevant to the proposed project should be listed in a separate table as an appendix to the study. The table should indicate that they were reviewed, but were considered not applicable. The Land Use Analysis shall detail how the project complies with all of the following:

- Goals and Policies of the recently adopted General Plan Update.
- Goals and Policies of the Mountain Empire Subregional Community Plan, specifically the Boulevard Community Plan.
- All County Ordinances, including but not limited to the following: Resource Protection, Stormwater and Discharge, Noise, Lighting, and Zoning (See Above #4).

General Plan Consistency: As currently designed, the proposed project does not comply with several General Plan policies and the Department of Planning and Land use may recommend denial if the project is not redesigned. These policies are identified below. The applicant should review these policies and redesign the project so that it complies with the County's newly adopted General Plan:

LU-5.3 Rural Land Preservation: Ensure the preservation of existing open space and rural areas (e.g., forested areas, agricultural lands, wildlife habitat and corridors, wetlands, watersheds, and groundwater recharge areas) when permitting development under the Rural and Semi Rural Land Use Designations.

Analysis: The site is designated as Rural Lands 80 (RL80), and the project appears to be impacting a large area that would qualify as wetland under the County's Resource Protection Ordinance. The project should be redesigned to ensure the preservation of this existing wetland and any other wildlife habitat corridors that may be found in the area.

LU-6.6 Integration of Natural Features into Project Design: Require incorporation of natural features (including mature oaks, indigenous trees, and rock formations) into proposed development and require avoidance of sensitive environmental resources.

Analysis: The project would be a solar facility containing numerous individual concentrating photovoltaic (CPV) trackers that are up to 35 feet tall and 48 feet wide on approximately 300-acres of land. Based on the submitted plot plan, there is no evidence that the proposed development incorporated any natural features into its

project design or avoided sensitive environmental resources on-site. The project should be redesigned to comply with this policy.

LU-10.2 Development-Environmental Resource Relationship: Require development in Semi-Rural and Rural areas to respect and conserve the unique natural features and rural character, and avoid sensitive or intact environmental and hazard areas.

Analysis: Based on the submitted plot plan, there is no evidence that the proposed development is conserving the project sites unique natural features or avoiding sensitive or intact environmental and hazard areas. The project should be redesigned to comply with this policy.

COS-11.1 Protection of Scenic Resources: Require the protection of scenic highways, corridors, regionally significant scenic vistas, and natural features, including prominent ridgelines, dominant landforms, reservoirs, and scenic landscapes.

Analysis: The project site is located approximately 1.5 miles north of Interstate 8 (County Scenic Highway) and may impact the view-shed of this scenic highway. Additionally, the area can be characterized as having prominent ridgelines, dominant landforms and scenic landscapes. Locating over 3,000 individual concentrating photovoltaic (CPV) trackers that are up to 35 feet tall and 48 feet wide on approximately 600-acres of land in this area is likely to impact the scenic resources of the area. The project should be redesigned to ensure scenic landscapes, including views from Interstate 8, are not adversely impacted.

COS-11.3 Development Siting and Design: Require development within visually sensitive areas to minimize visual impacts and to preserve unique or special visual features, particularly in rural areas, through the following:
- Creative site planning
- Integration of natural features into the project
- Appropriate scale, materials, and design to complement the surrounding natural landscape
- Minimal disturbance of topography
- Clustering of development so as to preserve a balance of open space vistas, natural features, and community character.
- Creation of contiguous open space networks

Analysis: Given the visual sensitivity of the area, the project should be redesigned to utilize the techniques listed above. The applicant may want to consider utilizing smaller, less prominent CPV trackers to ensure the appropriate scale, materials and design complement the surroundings of the natural landscape.

COS-11.7 Underground Utilities: Require new development to place utilities underground and encourage “undergrounding” in existing development to maintain viewsheds, reduce hazards associated with hanging lines and utility poles, and to keep pace with current and future technologies.

Analysis: The project proposes an overhead 69kV distribution line from the project site for approximately 1.5 miles south, over Interstate 8 to the new Boulevard substation. If

this is a new utility line, it should be placed underground. If not, the applicant should clarify that it's an existing utility line and explain why it should not be placed underground.

In addition to redesigning the project to comply with the County's General Plan, please include a Community Character / General Plan Consistency Analysis to demonstrate how the project complies with the County's General Plan and Boulevard Community Plan policies.

Boulevard Community Plan Consistency: As currently designed, it appears that the project would not comply with several Boulevard Community Plan policies. At this time, County staff is working on revisions to the Boulevard Community Plan. However, until the Community Plan has been formally amended by the County Board of Supervisors, the project is responsible for demonstrating compliance all of the Boulevard policies. Staff has identified the following policies as being particularly difficult to comply with, given the projects current design. Boulevard Community Plan Policies: Policy LU: 1.1.1, 1.2.2, 1.3.2, 6.1.2, 6.1.3, and 6.1.4.

Report Format: The report should have the following Format: (1) Brief project Description, describe physical Setting. (2) Land Use analysis as discussed above, including land use maps. (3) Community Character analysis that includes figures that show the surrounding land uses and describes how this project would or would not be harmonious, or would diminish the character of its surroundings. Photographs of the surrounding community and land uses would be helpful to paint the picture. (4) Draft MUP Findings. Note: avoid redundant information that is already described in detail in the project description of the report, and the main project description report.

D. MEMORANDUMS OF UNDERSTANDING:

The County of San Diego's CEQA guidelines require that environmental technical studies be prepared by a consultant from the County's CEQA Consultant List, which can be found on the County of San Diego's website at: http://www.co.san-diego.ca.us/dplu/procguid.html (item number 4 under "General Guidance"). No list is maintained for hydrology and stormwater management planning. With the exception of minor stormwater management plans, only registered engineers registered in the State of California shall be permitted to submit hydrology/drainage studies and only registered engineers or Certified Professionals in Storm Water Quality certified by CPESC, Inc., or an equivalent entity approved by the Director of Public Works, shall be permitted to submit stormwater management plans.

Applicants are responsible for selecting and direct contracting with specific consultants from the County's list to prepare CEQA documents for private projects. Prior to the first submittal of a CEQA document prepared by a listed consultant for a private project, the applicant, consultant, consultant's firm (if applicable) and County shall execute the attached Memorandum(s) of Understanding (MOU). The responsibilities of all parties involved in the preparation of environmental documents for the County (i.e. applicant, individual CEQA consultants/sub-consultants, consulting/sub-consultant firms, and County) are clearly established in the MOU for each requested applicable study. The clear identification of roles and responsibilities for all parties is intended to contribute to

improved environmental document quality. The MOU can be found on the Department's website at: http://www.co.san-diego.ca.us/dplu/procguid.html (item number 12 under "General Guidance") and can be downloaded in word format at http://www.sdcounty.ca.gov/dplu/docs/MOU.doc

Copies must be made and signed by the applicant, consultant and firm (if applicable) for each of the following requested subject area technical studies:

- *Air Quality*
- *Archaeological Resources*
- *Biological Resources*
- *Noise*
- *Visual Analysis*
- *Fire Protection Planning*
- *Land Use Planning*

E. SCOPE FOR VISUAL RESOURCES & AESTHETICS:

The Department of Planning and Land Use has completed review of your project application and has determined that the project may adversely affect visual resources (See also Major Issue #2). Visual resources can include narrow or expansive views, can be views from one site or from a series of sites (as along a scenic highway), and can be viewed from above, at eye level, or from below. A particular thing that defines a community or a region's character and identity is also a scenic resource.
The aesthetic value of visual resources is not limited to open space and rural lands, but can also be held in historic structures and districts, architectural design, streetscapes and manufactured landscapes. These valuable aesthetic elements of the human-made environment can be found throughout the unincorporated County, even though it is mostly undeveloped. It has been determined that a visual resource report and photo simulations of the project should be prepared as follows:

1. The report must follow the format given in the County's Report Format and Content Requirements for Visual Resources, which can be found at: http://www.sdcounty.ca.gov/dplu/docs/Visual_Report_Formats.pdf.

   The report must evaluate potentially adverse impacts to the environment according to the County's Guidelines for Determining Significance for Visual Resources, which can be found at: shallhttp://www.sdcounty.ca.gov/dplu/docs/Visual_Guidelines.pdf The report must be prepared by a visual resources analyst who is on the County's approved consultant list for completing Visual Resource Reports.

2. The photo simulations shall be prepared following the Photo Simulation Guidelines that are attached to the Report Format and Content Requirements for Visual Resources available at the following web page:
   http://www.sdcounty.ca.gov/dplu/docs/Visual_Report_Formats.pdf .

   The photo simulations shall show views that can be determined by the visual consultant **and DPLU staff**. Please do not prepare any visual simulations or determine any Key Observation Points (KOP) without approval from DPLU. Some of the views should be vantage points as indicated below:

- Interstate 8 Looking east
- Interstate 8 Looking west
- Directly adjacent to the project site from different positions.

Several Pictures shall be provided where a visual simulation would not be viable:

- From any place where the public could view the project from an elevated position
- Additional photos that would make sense to show vantage points of the project.
- From State Park, public lands, and any recreational areas that the project site can be seen.
- And any additional approved by the Department

Photo-simulations must be supplied by a visual resources analyst who is on the County's approved consultant list for completing Visual Resource Reports.

3. Provide a Glint and Glare Analysis.

4. General Plan Consistency Analysis (see Major Issue #1).

The Memorandum of Understanding must be executed by the applicant and consultant and subsequently submitted with the first iteration review.

F. SCOPE FOR AIR QUALITY ANALYSIS:

Project Information: The project has the potential to significantly contribute to the violation of an air quality standard or significantly contribute to an existing or projected air quality violation, primarily related to grading. Therefore, the project is required to discuss the project's potential impacts to air quality by preparing an air quality analysis report.

General Information: Based on the potential impacts the project may have on air quality an air quality analysis is required. The air quality analysis must be completed using the County's Air Quality Analysis Format Guidelines (attached) which can be found on the World Wide Web at http://www.sdcounty.ca.gov/dplu/Resource/docs/3~pdf/AQ-Report-Format.pdf.

Emissions of pollutants of concern from the proposed project may occur from construction activities and operations (traffic associated with the project). In general, emissions from construction activities include:

- Respirable particulate matter (PM_{10} and $PM_{2.5}$) from grading; trenching associated with underground utilities; and combustion emissions from mobile and stationary sources (generators)
- Products of combustion, including hazardous air pollutants, from construction equipment and stationary sources (generators);
- Products of combustion, including hazardous air pollutants, from mobile sources

resulting from traffic delays during construction.

The principle emissions from operations, (e.g. build-out), result from traffic throughout the project site and beyond. Queuing of vehicles at lights can result in concentration of emissions called “hot spots.” Given the present status of the San Diego Air Basin, of principal concern are emissions of carbon monoxide and VOCs in these areas. In order to adequately assess emissions during build-out of the area, the analysis should assess level of service impacts along major roadways.

Additionally, the following issues should be addressed as a part of the air quality analysis:

1. Would the proposed project conflict or obstruct the implementation of the San Diego Regional Air Quality Strategy (RAQs) or applicable portions of the State Implementation Plan (SIP)?

2. Would the proposed project result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation?

3. Since San Diego County is presently in non-attainment for the Federal and/or State Ambient Air Quality Standards for Ozone (O3) and Particulate Matter Less than 10 Microns (PM10), would the proposed project result in a cumulatively considerable net increase of PM10 or exceed quantitative thresholds for 03 precursors, oxides of nitrogen (NOX) and Volatile Organic Compounds (VOCs)? The analysis should also provide a detailed discussion on cumulative impacts, framed in light of Past, Present and Reasonable Anticipated Future Projects in the Project Area. This should include a discussion on other projects contribution of PM10 and ozone precursors.

4. Would the proposed project expose sensitive receptors (schools, hospitals, resident care facilities, or day-care centers) to substantial pollutant concentrations? This analysis should discuss the proximity of any surrounding or proposed sensitive receptors to any known point source pollutant emissions and if applicable, a health risk analysis for diesel fired PM10 (Construction phase and Operational).

5. Would the proposed project create objectionable odors affecting a substantial number of people?

6. Any proposed dust control measures or project design elements that may be incorporated to minimize criteria pollutant emissions should be described in the project description.

7. Staff recommends the following measure be included in the Study for ongoing dust control during project operation: A non-toxic, biodegradable agent or permeable rock material shall be maintained on all disturbed or exposed surface areas as follows: A binding agent suitable for both traffic and non-traffic areas shall be used. These agent shall be are biodegradable, eco-safe, with liquid

copolymers that stabilize and solidify soils or aggregates, which and facilitate dust suppression. Alternatively, a permeable rock material consisting of either river stone decomposed granite or gravel could be placed in a thin cover over all exposed surface area in-lieu of the binding agent referenced above.

A Memorandum of Understanding must be executed by the applicant and consultant and subsequently submitted with the first iteration review.

G. SCOPE FOR BIOLOGICAL RESOURCES REPORT:

Project Specific Information: Based on a review of aerial photos and County vegetation mapping, it appears that the project site contains the following biological habitats: semi-desert chaparral, flat-topped buckwheat, sagebrush scrub, alkali seep, open coast live oak woodland, redshank chaparral and urban/developed lands. To evaluate the impacts of the proposed project on biological resources, a Biological Resources Report is required, and must include a Biological Resources Map, as detailed below.

General Information: A Full Biological Resource Report must be prepared in accordance with the County's Report Format and Content Requirements Biological Resources, which can be found at http://www.sdcounty.ca.gov/dplu/docs/Biological_Report_Format.pdf. The report will provide a qualitative and quantitative analysis of all on and off-site biological impacts (both direct and indirect) related to all phases of the project.

The report must include a Biological Resources Map showing the location of all vegetation types and sensitive habitats and species of the project site and off-site areas being altered as a result of project implementation. The mapping guidelines are included in the Report Format and Content Guidelines at the link above. In order to evaluate impacts to sensitive resources, the most current project plot plan or preliminary grading plan must be included on the map along with proposed open space and limited building zone easements.

Staff has prepared and attached a comprehensive list of sensitive species that may exist on the project site. Directed and/or protocol surveys are required for species shown in **boldface** type in the list. The biology report shall address the potential for each sensitive species to occur on the project site (table format). For further guidance please see the Report Format and Content Guidelines.

DPLU has also determined that the report shall include ***focused survey(s) -or- site assessment*** for the following rare and endangered species: Quino checkerspot butterfly and spring rare plants. The focused survey(s) must be done by biologist(s) with demonstrable knowledge in field detection of the subject species (focused surveys for Federally listed species shall be in compliance with USFWS protocol, when such protocol exists, and must be done by a USFWS permitted biologist -- contact the USFWS at (760) 431-9440). If no protocol has been established, the methods of the directed search shall be described in the report. At a minimum, focused surveys must consist of walking transects across all areas with potential habitat for the species. The point locations and inferred territories of these species shall be included on the

biological resources map. Focused surveys reports may be attached to the biological survey report in appendix form, but survey results must be evaluated in the biological survey report.

The report must also propose applicable and feasible mitigation measures. Examples are listed in Appendix A of the Report Format and Content Guidelines.

Proposed Off-site Mitigation: If off-site mitigation is proposed to mitigate for significant biological impacts, please provide a statement indicating where the off-site mitigation will be located. If the off-site mitigation will be obtained in a mitigation bank, please provide the name of the bank along with evidence that such credits can be allocated for this project. If the off-site mitigation will be through the purchase and preservation of other off-site land, please provide sufficient information for staff to evaluate the off-site resources and the means to preserve the resources in perpetuity.

Open Space Easements: If biological open space is proposed, please submit a project-scale Open Space Map. The Open Space Map must show what biological resources are being protected and include a table showing the area (in acres) of land preserved according to vegetation type. All Biological Open Space Easements shall be protected from future fire-clearing through the dedication of a Limited Building Zone Easement. This easement is 100 feet wide and extends outward from the Biological Open Space Easement boundary. The Limited Building Zone Easement prohibits the construction of houses, barns, or other habitable structures that would require fire clearing into the Biological Open Space.

All existing and proposed open space easements (biological resource & limited building zones) must be clearly shown on the plans/map and on the preliminary grading plan.

In association with any proposed open space easements, temporary and/or permanent fencing and permanent signs may be required to protect the easements. These conditions are meant to protect from inadvertent disturbance of all open space easement(s) that do not allow grading, brushing or clearing. The open space fencing/signage plan for the proposed biological open space easement must be clearly shown on the preliminary grading plan and on the Open Space Map.

RPO: The project site contains a natural drainage that may qualify as a wetland under the San Diego County Resource Protection Ordinance (RPO). The Resource Protection Ordinance prohibits impacts to wetlands and wetland buffers. These natural features are a significant constraint for land uses on the project site and may affect project design. The biological information requested below is required for staff to determine project compliance with the RPO.

Wetlands Survey: A wetlands survey must be completed using the wetlands definition in the County's Resource Protection Ordinance (RPO). The County's definition of wetlands varies from the federal U.S. Army Corps of Engineers' definition. All RPO wetlands shall be mapped on the Biological Resources Map using aerial photographs and a field site visit. Should there be a disagreement over the extent of wetlands, staff may require further surveys using the U.S. Army Corps of Engineers standards and guidance for conducting wetland delineations.

The RPO requires buffers on all RPO wetlands. The biological resources map shall designate an appropriate wetland buffer width of 50-200 feet, depending on the biological resources present. The RPO prohibits impacts to wetlands and wetland buffers. Any part of the site that is a wetland and/or a wetland buffer must be placed into a dedicated Biological Open Space Easement. All Biological Open Space Easements shall be protected from future fire-clearing through the dedication of a Limited Building Zone Easement. This easement is 100 feet wide and extends outward from the Biological Open Space Easement boundary. The Limited Building Zone Easement prohibits the construction of houses, barns, or other habitable structures that would require fire clearing into the Biological Open Space. Once the wetland(s), wetland buffer(s) and limited building zone easement(s) are mapped, redesign of the proposed project may be required.

Jurisdictional Resources: DPLU staff has determined that the project may disturb wetlands, lakes, streams, and/or waters of the U. S. that may require notification to the California Department of Fish and Game (CDFG) and/or the Army Corps of Engineers (ACOE). Although it is not required at this time, DPLU recommends that you contact the above agencies about the permitting requirements for potential disturbances to wetlands, lakes, streams, and/or waters of the U. S. within 30 days of this letter. If such permitting requirements are incorporated into the project at this time, it may prevent future delays or changes in the project design. CDFG general information and submittal information can be obtained through the CDFG website http://www.dfg.ca.gov/1600/notification_pkg.html or by contacting the CDFG South Coast Regional Office @ (858) 467-4251. Information for consultation and formal submittal of the 404 Permit application required by the ACOE can be obtained through their website at: http://www.spl.usace.army.mil/regulatory/ or through the general information number at (858) 674-5387. When a formal wetland delineation is requested, the ACOE 1987 Wetland Delineation Manual and supplement “Guidelines for Jurisdictional Determinations for Waters of the United States in the Arid Southwest” should be used (http://www.spl.usace.army.mil/regulatory/technical.htm).

Please be aware that the County will condition your project to provide written evidence that all required permits from these agencies have been obtained or that such permits are not required before issuing any authorization for land disturbance (e.g., grading permits).

Indirect Impacts: Indirect impacts may be the result of secondary effects from direct impacts or those impacts that over time cause the degradation of a resource by changing its function, health or quality. Unlike direct impacts that are typically one-time effects, indirect impacts often continue in the long term and may actually increase.

Indirect impacts commonly result from a project’s “edge effects.” Edge effects from development may extend several hundred feet into adjacent open space areas, causing significant changes in species composition, diversity and abundance in those nearby lands. Projects can have a wide variety of indirect impacts depending on the nature of the project, the type of resources present, and the type and degree of edge effects. Certain restrictions may be required when the project proposes significant noise within close proximity to existing or proposed open space.

The Memorandum of Understanding must be executed by the applicant and consultant, and subsequently submitted with the first iteration review.

Revised Comprehensive List of Sensitive Species

Plant	Animal	*Latin Name*	Common Name	Directed Survey Required
X		***Astragalus douglasii perstrictus***	**Jacumba Milkvetch**	**X**
X		*Berberis fremontii*	Fremont barberry	
X		*Caulanthus simulans*	Payson's jewelflower	
X		*Delphinium parishii subglobosum*	Desert larkspur	
X		***Geraea viscida***	**Sticky geraea**	**X**
X		***Hemizonia floribunda***	**Tecate tarplant**	**X**
X		***Heuchera brevistaminea***	**Mt. Laguna alumroot**	**X**
X		***Hulsea californica***	**California hulsea**	**X**
X		*Lathyrus splendens*	Pride of California	
X		***Linanthus bellus***	**Desert beauty**	**X**
X		*Mimulus aridus*	Desert monkey flower	
X		*Pentachaeta aurea*	Golden-rayed pentachaeta	
X		***Ribes canthariforme***	**Morena currant**	**X**
X		***Streptanthus campestris***	**Southern jewelflower**	**X**
	X	***Accipiter cooperi***	**Cooper's hawk**	**X**
	X	***Accipiter striatus***	**Sharp-shinned hawk**	**X**
	X	*Antrozous pallidus*	Pallid bat	
	X	***Aquila chrysaetos***	**Golden eagle**	**X**
	X	*Bassariscus astutus*	Ringtail	
	X	***Buteo lineatus***	**Red-shouldered hawk**	**X**
	X	***Cathartes aura***	**Turkey vulture**	**X**
	X	*Chaetodipus californicus femoralis*	Dulzura California pocket mouse	
	X	*Chaetodipus fallax fallax*	Northwestern San Diego pocket mouse	
	X	*Corynorhinus townsendii*	Townsend's big-eared bat	
	X	*Crotalus ruber ruber*	Northern red diamond rattlesnake	
	X	*Danaus plexippus*	Monarch butterfly	
	X	*Diadophis punctatus similis*	San Diego ringneck snake	
	X	*Eumops perotis californicus*	Greater western mastiff bat	
	X	***Euphydryas editha quino***	**Quino checkerspot butterfly**	**X**
	X	*Felis concolor*	Mountain lion	
	X	*Lepus californicus bennettii*	San Diego black-tailed jackrabbit	
	X	***Melanerpes lewis***	**Lewis' woodpecker (Winter)**	**X**
	X	*Myotis ciliolabrum*	Small-footed myotis	
	X	*Myotis evotis*	Long eared myotis	
	X	*Myotis thysanodes*	Fringed myotis	
	X	*Myotis volans*	Long legged myotis	
	X	*Myotis yumanensis*	Yuma myotis	

	X	*Nyctinomops femorosaccus*	Pocketed free-tailed bat	
	X	*Odocoileus hemionus*	Southern mule deer	
	X	*Onychomys torridus ramona*	Southern grasshopper mouse	
	X	*Oreortyx pictus eremophila*	Mountain quail	
	X	*Phrynosoma coronatum blainvillei*	San Diego horned lizard	
	X	*Sceloporus graciosus vandenburgianus*	Southern sagebrush lizard	
	X	*Taxidea taxus*	American badger	

H. SCOPE FOR ARCHAEOLOGICAL RESOURCES:

ARCHAEOLOGICAL/HISTORICAL SURVEY

Project Specific Information: Staff has reviewed County records, as well as the archaeological database from the South Coastal Information Center (SCIC) at San Diego State University. This review indicates that much of the project area was surveyed previously throughout the years (Chace 1979, Clifford 03, Smith 05, and portions Hector 07). There are more than nineteen archaeological sites located on the subject parcels (three of which appear to be located in dedicated open space easements, CA-SDI-6893, CA-SDI-5933 and CA-SDI-6892). In addition there are structures that are older than 50 years within the proposed project area; however, it is unknown whether these structures are significant. The general area in which the project is located is very rich in archaeological resources. Due to recently amended CEQA guidelines (Section 15064.5) and County Significance Guidelines, effective December 2007, addressing archaeological and historic resources, and the time that has passed since the previous archaeological surveys, a County-approved archaeological consultant shall: 1) review previous documentation for adequacy; 2) resurvey the entire project area to relocate all known sites on the property; 3) determine if previously undiscovered sites can be identified; 3) prepare a new archaeological report that includes the details of the latest record search and field resurvey and 4) addresses the significance of all previously recorded sites (if relocated) and direct/indirect impacts to all archaeological sites and mitigation of those impacts as a result of the currently proposed project according to County guidelines.

General Information: A field survey for archaeological artifacts and features and/or an evaluation of the site as a historic resource must be conducted in accordance with the County of San Diego Guidelines for Determining Significance – 2007 (GDS) and Report Format and Content Guidelines – 2007 (RFCG), the Resource Protection Ordinance (RPO), Section 21083.2 of the Public Resources Code (CEQA), and the San Diego County CEQA Guidelines. The survey must provide evidence in the form of a letter from the South Coastal Information Center and the Museum of Man that an institutional record searches has been conducted. In addition, a field survey and/or evaluation by a County approved archaeologist/historian must be conducted. The study shall include a copy of the blueline map/plot plan with the location of the resources plotted. The report shall follow the RFCG. Please complete all appropriate DPR Series 123 forms and submit them to the South Coastal Information Center and the DPLU. Pursuant to the RFCG, a Native American monitor shall be present during the survey phase for archaeological resources. If no cultural resources are discovered, a brief letter report will be satisfactory documentation of the survey. Guidelines for Determining Significance and Report Format and Content Guidelines can be obtained from the County website at:

http://www.sdcounty.ca.gov/dplu/Resource/3~procguid/3~procguid.html#arch

Scientific evidence must be provided to substantiate (a) the scientific and/or historical significance, and (b) the boundaries of the resource(s). If the significant resources extend off-site, these must be shown on the map and discussed. The report must address both CEQA and County RPO significance criteria for each resource as outlined in Section 3.2.2 of the GDS.

The report must address the direct construction impacts to resources (both on- and off-site) as shown on the blueline map/plot plan and make a determination as to impact severity as outlined in Section 4.2 of the GDS. The RPO provides guidance for impact avoidance. Any resource(s) that will be exposed to indirect impacts from the project should be addressed as well.

All project specific archaeological/cultural site location maps and figures must be submitted under a separate cover that clearly states that the contents are not for public review.

Sacred Lands Check: County staff will conduct a Sacred Lands Check with the Native American Heritage Commission (NAHC). In addition, staff will communicate with any Native American individual or organization that may possess knowledge about Sacred Sites or be affected by your project. Staff will keep you informed as to future communications with local tribes.

ARCHAEOLOGICAL SIGNIFICANCE TESTING

Project Specific Information: Depending on the results of the archaeological survey, significance testing may be necessary. This determination will be made once the survey report has been reviewed by the Department of Planning and Land Use.

General Information: If the project design will impact cultural resources, a County approved archaeologist shall conduct scientific testing to demonstrate the significance, boundaries, and area (square meters/yards) of the resources. Pursuant to the RFCG, a Native American monitor shall be present during the significance testing phase. All testing shall use a 1/8 inch mesh or finer screens unless the use of larger mesh has been approved by the Department of Planning and Land Use. Any testing shall be approved by the Department of Planning and Land Use prior to commencing fieldwork.

If the project is **exempt from the RPO**, significant archaeological resources mitigation should include alternatives for either (1) avoidance (preservation), or (2) data recovery. Data recovery must be conducted by a County approved archaeologist with a Department of Planning and Land Use approved research design **prior to** conducting fieldwork. The analysis and report shall conform to the RFCG. Pursuant to the RFCG, a Native American monitor shall be present during data recovery activities.
If the project is **subject to the RPO**, and the cultural resources do not meet the definition of a significant prehistoric/historic site as defined in the RPO but do meet CEQA significance criteria, significant archaeological resources mitigation should consider avoidance (preservation) as the first alternative, however if infeasible, data recovery may be considered a mitigation measure. If the cultural resources do meet the definition of a significant prehistoric/historic site as defined in the RPO, avoidance is

required. An open space easement and preservation plan will be required. All activities associated with cultural resources must be conducted by a County approved archaeologist. The analysis and report shall conform to the RFCG.

PRESERVATION PLAN

Archaeological Resources

If significance testing produced evidence that indicates resources are to be protected pursuant to the RPO, or if preservation is the form of mitigation selected for CEQA significant sites, the project should be redesigned, if necessary, to avoid impacts and preserve the resource(s). The report should address the need to cap the resource(s) with soil, gravel, jute landscape matting, and/or leaf compost to protect the site from indirect impacts. Open space easements or other measures should also be considered to prevent future impacts to resources.

HISTORIC RESOURCES

If the historic resource evaluation determines that a site is significant pursuant to Section 3.2.2 of the Guidelines for Determining Significance (2007), the survey report must include a preservation plan. Adaptive reuse, open space easements, facade easements, and other conservation easements should be considered in the report. Specific performance criteria and/or easements should be proposed to guide future landowners.

The Memorandum of Understanding must be executed by the applicant and consultant and subsequently submitted with the first iteration review.

I. SCOPE FOR FIRE PROTECTION PLAN:

The Department of Planning and Land Use has completed review of the project design and has determined that the project may expose people or structures to a significant risk of loss, injury or death-involving wildland fires because the project is adjacent to and/or within wildlands that have the potential to support wildland fires. A Fire Protection Plan (FPP) shall therefore be prepared for the project. The Fire Protection Plan shall follow the Guidelines for Determining Significance for Wildland Fire and Fire Protection, available online at http://www.sdcounty.ca.gov/dplu/docs/Fire-Guidelines.pdf, and the County's Report Format and Content Requirements for Wildland Fire and Fire Protection, available online at: http://www.sdcounty.ca.gov/dplu/docs/Fire-Report-Format.pdf

The FPP shall be prepared by a wildland fire code expert included on the County's list of approved consultants. The plan will include mitigation measures consistent with the unique problems resulting from the location, topography, geology, flammable vegetation and climate of the proposed site. The FPP shall also address in terms of fire code requirements: water supply, access (including secondary access where required by code), building ignition and fire resistance, fire protection systems and equipment, defensible space and vegetation management (based on site fire behavior modeling). It is recommended that you contact the ***County of San Diego Fire Authority (CFA)*** for specific requirements, codes, and regulations to be incorporated into the Fire Protection Plan prior to initiation of the Fire Protection Plan.

The Fire Protection Plan shall meet all requirements of Section 4703 of the County Fire Code. The Plan shall also identify where any increases or decreases to the standard 100-foot fire-clearing zone are warranted. The Plan shall identify any special design elements or requirements associated with any increases in the fire-clearing zone. In addition, the Plan shall propose a mechanism whereby the (CFA) can track those lots where increases or decreases from the standard fire clearing distance of 100 feet has been approved, so that future fire clearing requirements will be consistent with approved fire clearing increases.

Technical Information Report: The County Fire Authority (CFA) has requested that a technical report be included with the Fire Protection Plan Letter report. Because of the unique application of the Fire Code, the Fire Authority needs to review the electrical connection information to determine where and how the components would be isolated. As an appendix to the fire protection plan, a detailed technical report prepared by a qualified engineer, specialist, or fire safety specialty organization needs to be submitted for the proposed project. The technical report needs to address—but is not limited to—the following items:

- Hazards of the proposed facilities to emergency responders.
- Discussion on how to properly de-energize equipment.
- Signage recommendations (provide figures for each):
    - At each disconnecting means depicting what equipment it de-energizes.
    - Each inverter structure is to be numbered and signed (To be visible from at least 1,000 feet)
    - Lighted directories at each entrance depicting the overall site plan and the locations of each numbered inverter structure (show locations on plot plan).
- Recommended training for emergency personnel. Training will be provided prior to commissioning and on an as requested basis.

You may contact County Fire Marshal James Pine at (858) 495-5434 to discuss the Fire Protection Plan requirements.

An evaluation of the completed Fire Protection Plan by the local fire protection district must be obtained prior to submittal of the Fire Protection Plan. The local fire protection district evaluation must be submitted to the Department of Planning and Land Use along with the Fire Protection Plan. Failure to obtain this evaluation may cause delay in the review of the FPP.

The Memorandum of Understanding must be executed by the applicant and consultant and subsequently submitted with the first iteration review.

The following are design features that need to be implemented on the plans. See comments in **section A** above related to the plot plans. An official consultation with the County CFA is required to discuss these potential requirements. Please contact James Pine at 858-495-5434:

1. **Access:** The driveway (fire apparatus access road) leading from Old Highway 80 to the project site entrance shall have an unobstructed improved driveway

entrance width of not less than 24 feet of decomposed granite (DG). Fire apparatus access roads shall be designed and maintained to support the imposed load of fire apparatus not less than 50,000 lbs and shall provided with an approved surface so as to provide all weather driving capabilities. It should be designed per County of San Diego Design Standard DS-17, DS-18, or DS-19.

2. **Gates:** Any gates, new or existing, must meet County Fire Code Section 96.1.503.6 for automatic operation with battery backup. The gates must open immediately upon emergency vehicle strobe light activation from either direction of approach. Gates must open for vehicles moving in the direction of egress (leaving the property) when the vehicle approaches it. Gates must open on AC power failure. Gate installation must include Knox key-operated switch.

3. **Sec. 96.1.605.11.4 Ground-mounted photovoltaic arrays:** Ground-mounted photovoltaic array installations shall meet the requirements of sections 605.11.4.1 through 605.11.4.4.

4. Defensible space should be determined by CFA.

5. The standard hose pull length is approximately 150 feet. All project equipment and structures must have access within at least 150 feet.

6. A 24-foot access driveway road is required around the entire facility. The access driveway should be designed as stated in comments #1 and #4 above.

7. Water supply for Fire Suppression should be provided in the form of multiple water tanks or fire hydrants.

J. SCOPE FOR STORMWATER MANAGEMENT PLAN:

Based on a review of the Stormwater Intake Form for Development Projects, your project is required to complete a Minor Stormwater Management Plan because you are **not considered** a priority development project (PDP). Please fill out the following form and provide with your submittal:

Intake Form: http://www.sdcounty.ca.gov/dplu/docs/LUEG-SW.pdf

The project lies east of the Pacific/Salton (Tecate) divide and is not considered a Priority Development Project (PDP); therefore a Major Storm Water Management Plan (SWMP) is not necessary. However the project is required to submit a Minor Stormwater Management Plan. Additional information can be obtained in the following link: http://www.sdcounty.ca.gov/dpw/watersheds/susmp/susmp.html

General Information: The County's Watershed Protection, Stormwater Management and Discharge Control Ordinance (WPO) implements the San Diego Municipal Stormwater Permit (Order R9-2007-0001) issued by the Regional Water Quality Control Board (RWQCB) on January 24, 2007, effective on March 24, 2008. The Municipal Permit regulates the stormwater and urban runoff management policies of jurisdictions in the San Diego region and details specific requirements for development projects.

WPO Link: http://www.sdcounty.ca.gov/cob/ordinances/ord9926.doc)

Stormwater runoff that flows over impervious surfaces (i.e., roofs and pavement) picks up and carries sediments and pollutants such as pesticides, fertilizers, oils, metals, bacteria, and animal waste into our stormwater drainage systems and to our streams, rivers, lakes, estuaries and beaches. The water that enters public storm drains in San Diego (west of the Tecate Divide) drains directly to the beaches and ocean without any wastewater treatment. The requirements of the Municipal Stormwater Permit and the updated WPO were developed to manage these pollutants by promoting filtration of each project's stormwater on site for natural cleansing by plants, soils, and microorganisms.

The WPO requires that all development projects use Low Impact Development (LID) planning and stormwater management techniques to maximize infiltration, provide retention, slow runoff, minimize the impervious footprint and constructed widths of the project, and direct runoff from impervious areas into landscaping (see Section 67.806(c)(2) of the WPO). The minimal LID requirements that you need to include in the design of your project are:

1) Disconnect impervious surfaces (from each other and from storm drains)
2) Design impervious surfaces to drain into properly designed pervious areas
3) Use pervious surfaces wherever appropriate
4) Implement site design Best Management Practices (BMPs)

K. SCOPE FOR RESOURCE PROTECTION STUDY

Project Specific Information: The project has steep slopes located onsite as well as a potential for cultural resources that could be RPO significant. A full resource protection study is required to determine that the project complies with RPO.

NOTE: The Resource Protection Ordinance was just modified August 4, 2011. Please use new version.

- Provide two copies of the three-color slope analysis map (0-25% one color, 25-50% another color, and 50% and above a third color).
- Provide written text that demonstrates compliance with the other RPO subject areas: Wetlands, Floodways and Floodplain Fringe, Steep Slopes, Sensitive Habitat Lands, and Significant Prehistoric and Historic sites.

General Information: This study shall consist of the materials required by Form #374 available from the Zoning Counter. Form #394, Preliminary Floodplain Evaluation, is also attached. These forms can also be found on the World Wide Web at http://www.sdcounty.ca.gov/dplu/appforms/index.html.

L. DRAINAGE/FLOODING ANALYSIS:

General Information: A drainage report is required to be prepared to determine the project's impact on the quantity and pattern of runoff to the surrounding area. The report shall also address siltation and erosion associated with the runoff. The report should describe the drainage amounts falling on the site and show how the drainage is directed on individual lots and on-site roads.

A CEQA Preliminary Hydrology/Drainage Study is required for this project. Additional information can be obtained in the following links.

Hydrology Manual:
http://www.sdcounty.ca.gov/dpw/floodcontrol/hydrologymanual.html

Drainage Design Manual:
http://www.sdcounty.ca.gov/dpw/floodcontrol/drainage.html

A report should describe drainage structures and locate them on a project map. No development should be planned that would disrupt drainage or cause off-site flooding. Discuss potential impacts of the project and proposed mitigation measures.

M. SCOPE FOR NOISE ANALYSIS:

Noise Level Limits Information:
A full noise technical study is required. There is insufficient information to determine whether permanent equipment and operations on-site will exceed sound level limits of the San Diego County Noise Ordinance (Section 36-404). The County Noise Ordinance does not permit noise levels that impact adjoining properties or exceed County Noise Standards, namely, San Diego County Noise Ordinance (Section 36-404). The analysis of the noise generated from the on-site substation and inverter and transformer buildings. The County Noise Ordinance does not permit noise levels that impact adjoining properties or exceed County Noise Standards. The project site as well as adjacent land uses are zoned **S-92** General Rural, that allows a one-hour average sound level of **70** (dBA) for the parcels adjacent to the industrial zone and **50** decibels (dBA). In order for the Department to make a determination on the project's conformance with County noise standards, the applicant must demonstrate that the hourly average sound levels do not exceed the 70 and 50-decibel threshold at the property line, as the most stringent condition for the project. This demonstration can be included as a section to the supplemental project description document that will elaborate on the project description. As part of this section, please provide the following information:

a. Manufacturers Spec Sheet for all noise producing equipment on-site that identifies the ARI standard and/or decibel (dBA) per range. It is important to note that all noise producing sources must be included.

b. Additional plot plan that that identifies the site location of all noise sources in relation to property lines. It is essential to address all potential noise sources on-site and to include a discussion related to openings within all surrounding walls or fences, such as driveways, fencing and gates.

c. Hours of operation and level activity at each hour.

There is insufficient information to determine whether temporary construction equipment and operations on-site will exceed sound level limits of the San Diego County Noise Ordinance (Section 36-410). It shall be unlawful for any person, including the County of San Diego, to operate construction equipment at any construction site on Sundays, and days appointed by the President, Governor, or the Board of Supervisors for a public

fast, Thanksgiving, or holiday. Except for the property owner condition noted in Section 36.410(a), it shall be unlawful for any person to operate construction equipment at any construction site on Monday through Saturdays except between the hours of 7 a.m. and 7 p.m. No such equipment, or combination of equipment regardless of age or date of acquisition, shall be operated so as to cause noise at a level in excess of seventy-five (75) decibels for more than 8 hours during any twenty-four (24) period when measured at or within the property lines of any property which is developed and used either in part or in whole for residential purposes.

To determine conformance to the County Noise Ordinance, a noise study is required and it is essential that this component of this analysis include the following information:

(1). Manufacturers Spec Sheet for all noise producing equipment on-site that identifies the ARI standard and/or decibel (dBA) per range. It is important to note that all noise producing sources must be included.

(2). Additional plot plans that identifies the site location of all noise sources in relation to property lines. It is essential to address all potential noise sources on-site and to include a discussion related to openings within all surrounding walls or fences, such as driveways, fencing and gates.

(3). Hours of operation and activity level at each hour.

The analysis shall follow the County's Guidelines for Determining Significance for Noise available online at http://www.sdcounty.ca.gov/dplu/docs/Noise-Guidelines.pdf and the Report Format and Content Requirements for noise available online at http://www.sdcounty.ca.gov/dplu/docs/Noise-Report-Format.pdf.

Corona Affect:
Corona is a phenomenon associated with all energized transmission lines. Under certain conditions, the localized electric field near an energized conductor can be sufficiently concentrated to produce a tiny electric discharge that can ionize air close to the conductors. This partial discharge of electrical energy is called corona discharge, or corona. Several factors, including conductor voltage, diameter, and surface irregularities such as scratches, nicks, dust, or water drops can affect a conductor's electrical surface gradient and its corona performance. Corona is the physical manifestation of energy loss, and can transform discharge energy into very small amounts of sound, radio noise, heat, and chemical reactions. The projects proposed generation transmission lines (Gen-Tie Lines), which can generate a small amount of sound energy during corona activity. This audible noise from the line can barely be heard in fair weather conditions on higher voltage lines, and is typically immediately near the structure. During wet weather conditions, water drops collect on the conductor and increase corona activity so that a crackling or humming sound may be heard near the line. This noise is caused by small electrical discharges from the water drops.

The Memorandum of Understanding must be executed by the applicant and consultant and subsequently submitted with the first iteration review.

N. DEPARTMENT OF PARKS AND RECREATION REQUIREMENTS:

There are no trail requirements for the project.

O. SCOPE FOR GEOLOGIC RECONNAISSANCE REPORT

Landslides (including Rockfalls)
The project is located on or within 500 feet of a "Landslide Susceptibility Area." Therefore, a Geologic Reconnaissance Report shall be prepared to evaluate any potential to expose people or structures to potential geologic hazards concerning risks of landslides (including rockfall). The report shall be prepared using the County's approved Guidelines for Determining Significance for Geologic Hazards and conform to report guidelines in the California Board of Geologists and Geophysicists Guidelines for Engineering Geologic Reports. The guidelines can be downloaded at the following web address: http://www.geology.ca.gov/forms-pubs/engineering.pdf. **The report shall be prepared by a California Certified Engineering Geologist.**

At a minimum, the Geologic Reconnaissance Report should include a review of topographic maps, geologic and soil engineering maps and reports (if available), stereoscopic aerial photograph review, and other published and non-published references. Aerial photographs can be useful in identifying potential landslide features. Several sets of stereoscopic aerial photographs that pre-date project site area development taken at different times of the year are particularly useful in identifying subtle geomorphic features. A field visit will likely be necessary to fill in information in questionable areas, to address the potential risk of rockfall to the project site, and to observe surface features and details that could not be determined from other data sources.

Although engineering design recommendations are generally not a required component of a Geologic Reconnaissance Report, feasible measures to mitigate potential impacts from landslides (including rockfall) to levels below significance and environmental design considerations (where appropriate), should be discussed. Suspected geologic problems that cannot be evaluated except through in-depth investigation should be clearly described in the report. If the Geologic Reconnaissance Report recommends further investigation, a Geologic Investigation must be prepared. The specific requirements to be included in a Geologic Investigation will be determined by the County on a project-by-project basis.

Fault Rupture
The project is located within zones of faults mapped as Quaternary or pre-Quaternary by the DMG. Therefore, a Geologic Reconnaissance Report shall be prepared to evaluate any potential to expose people or structures to potential geologic hazards concerning risks of fault rupture. The report shall be prepared using the County's approved Guidelines for Determining Significance for Geologic Hazards and conform to the California Board of Geologists and Geophysicists *Geologic Guidelines for Earthquake and/or Fault Hazard Reports.* The guidelines can be downloaded at the following web address: http://www.geology.ca.gov/forms-pubs/earthquake.pdf **The report shall be prepared by a California Certified Engineering Geologist.**

The Geologic Reconnaissance Report shall include a review of topographic maps, geologic and soil engineering maps and reports (if available), stereoscopic aerial

photographs, and other published and non-published references. A field visit may be necessary to fill in information regarding questionable areas, and to observe surface features and details that could not be determined from other data sources.

Although engineering design recommendations are generally not a required component of a Geologic Reconnaissance Report, feasible measures to mitigate potential impacts from fault rupture to levels below significance and environmental design considerations (where appropriate), should be discussed. Suspected geologic problems that cannot be evaluated except through in-depth investigation should be clearly described in the report. If the Geologic Reconnaissance Report recommends further investigation, a Geologic Investigation must be prepared. The specific requirements to be included in a Geologic Investigation will be determined by the County on a project-by-project basis.

Liquefaction

The project site is located within a "Potential Liquefaction Area." As a first screening, the depth to groundwater should be determined for the project site. If the highest historical groundwater level for the project site is determined to be deeper than 50 feet below the existing ground surface or proposed finished grade (whichever is deeper), no further assessment of potential liquefaction is required.

For projects where the highest groundwater level for the project site is determined to be less than 50 feet, further screening of potential liquefaction is required and a Geologic Reconnaissance Report shall be prepared using the County's approved Guidelines for Determining Significance for Geologic Hazards and follow guidelines in the California Geologic Survey's *Guidelines for Evaluation and Mitigating Seismic Hazards in California, Special Publication 117, Chapter 6 – Analysis and Mitigation of Liquefaction Hazards.* These guidelines can be downloaded from the California Department of Conservation's Geologic Survey website: http://gmw.consrv.ca.gov/shmp/webdocs/sp117.pdf. **The report shall be prepared by a California Certified Engineering Geologist.**

Although engineering design recommendations are generally not a required component of a Geologic Reconnaissance Report, feasible measures to mitigate potential impacts from liquefaction to levels below significance and environmental design considerations (where appropriate), should be discussed. Suspected geologic problems that cannot be evaluated except through in-depth investigation should be clearly described in the report. If the Geologic Reconnaissance Report recommends further investigation, a Geologic Investigation must be prepared. The specific requirements to be included in a Geologic Investigation will be determined by the County on a project-by-project basis.

P. SCOPE FOR HYDROMODIFICATION:

The project lies east of the Pacific/Salton (Tecate) divide and is not considered a Priority Development Project (PDP); therefore, it is exempt from Hydromodification requirements.

Q. AGRICULTURAL RESOURCES:

The EIR should discuss Agriculture (using the County's Guidelines for Determining Significance and Report Format and Content Requirements for Agricultural Resources) and analyze only the three Required Factors, within the County LARA Model. As we discussed, the Water Resources Required Factor will receive a Low Rating, for each project, due to their location outside the CWA and within a fractured crystalline aquifer (regardless of the existence of wells). Therefore, according to the County Guidelines, neither project will be identified as an Important Agricultural Resource and no mitigation is necessary.

Please note that Rugged Solar is partially in an Agricultural Preserve (without a Williamson Act Contract). The EIR must discuss this and explain that due to: The lack of a Williamson Act Contract; The fact the site is not an Important Agricultural Resource; and That the Preserve is quite extensive (verify that Preserve is off the subject properties) continued ag within the Preserve may continue, regardless of this project.

Attachment B: ESTIMATE OF DISCRETIONARY PROCESSING TIME AND COSTS

Project Name:	Rugged Solar LLC
Project Number:	3992-11-018 (MPA)
Staff Completing Schedule:	Larry Hofreiter
Decision-Making Body:	Planning Commission and Board of Supervisors
Date Schedule Produced/Revised:	10/21/2011

TASK/ACTIVITY	Estimated Duration (Days)	Estimated Completion Date	Actual Completion Date
APPLICATION SUBMITTAL			**2/4/2012**
DETERMINATION THAT AN EIR IS REQUIRED			**2/4/2012**
DPLU reviews project application "completeness", attends DRT and completes planning and scoping of EIR	30	3/5/2012	
DPLU meets with applicant to discuss need for EIR, scope and schedule	14	3/19/2012	
Applicant submits documents for Public Review of Notice of Preparation (NOP)	***7***	***3/26/2012***	
DPLU completes advertises and distributes NOP	*10*	*4/5/2012*	
Public review of NOP	*30*	*5/7/2012*	
DPLU receives and distributes public comments on NOP to Applicant (180 period for resubmittal of DEIR begins here)	*3*	*5/10/2012*	
DPLU meets with County Counsel, holds Kick-off Meeting with applicant/consultant. Discuss project schedule	*10*	*5/21/2012*	
Applicant submits 1st Draft EIR and Planning Documentation	**120**	**9/7/2012**	
DPLU reviews 1st Draft EIR, holds county counsel briefing, attends DRT	60	11/6/2012	
Meeting with applicant	*7*	*11/13/2012*	
Applicant submits 2nd Draft EIR and Planning Documentation*	**45**	**12/21/2012**	
DPLU reviews 2nd Draft EIR, holds county counsel briefing*	45	2/4/2013	
Meeting with applicant	*7*	**2/11/2013**	
Applicant submits 3rd Draft EIR and Planning Documentation*	**30**	**3/6/2013**	
DPLU reviews 3rd Draft EIR, holds county counsel briefing*	30	4/5/2013	
Meeting with applicant	*7*	**4/12/2013**	
Applicant produces copies of documents, submits DEIR and copies of documents	***10***	**4/15/2013**	
DPLU completes distribution paperwork, advertises and distributes Draft EIR	14	4/29/2013	
Public Review of Draft EIR	45	6/13/2013	
DPLU transmits Public Comments to Applicant	3	6/17/2013	
DPLU holds meeting with applicant to discuss approach to address public comments, discuss project schedule	10	6/24/2013	
Applicant submits 1st Draft Responses to Public Comment (RTC) and EIR Errata	**30**	**7/24/2013**	
DPLU reviews 1st Draft Responses to Public Comments and EIR Errata	25	8/19/2013	
Applicant submits 2nd Draft RTC and EIR Errata*	**21**	**9/9/2013**	
DPLU reviews 2nd draft RTC & EIR Errata, meets with applicant / consultant to finalize responses for I-119 review*	14	9/23/2013	
DPLU attends DRT prior to initating I-119 review	5	9/30/2013	
Applicant submits Draft RTC & EIR Errata for I-119 review & 1st draft EIR Findings for staff review	**5**	**10/7/2013**	
Board Policy I-119 Review of Responses to Comments and DEIR	*40*	*11/11/2013*	
DPLU reviews I-119 comments, meets with Counsel, transmit comments to applicant, set meeting with applicant	7	11/18/2013	
Applicant submits revised RTC, EIR Errata, and EIR Findings, meets with DPLU to review changes	**14**	**12/2/2013**	
DPLU reviews RTC, EIR Errata & Findings and sends to Counsel for review OR meet with Counsel if 2nd I-119 review not necessary	14	12/16/2013	
Second Board Policy I-119 Review of RTC, EIR Errata and Findings*	30	1/1/2014	
DPLU meets with County Counsel to finalize RTC, EIR Errata, and Findings. Holds meeting with applicant / consultant*	10	1/13/2014	
Applicant makes final revisions, produces copies of FEIR, CEQA Findings and RTCs and pays Fish and Game Fees	**7**	**1/20/2014**	
DPLU attends Director briefing to make project recommendation	7	1/27/2014	
DPLU finalizes project resolution/decision, completes findings, conditions, draft staff report and begins preparation of Board Letter	*30*	*2/12/2014*	
DPLU management and County Counsel review staff report, obtain concurrences from other Departments	10	2/24/2014	
DPLU finalizes legal advertisement for hearing, newspaper advertises Planning Commission Hearing	7	*3/3/2014*	
Planning Commission Hearing	14	3/17/2014	
DPLU Finalizes draft Board Letter, include Planning Commission Recommendation	7	3/24/2014	
DPLU management and County Counsel review Board Letter, obtain concurrences from other Departments	10	4/3/2014	
DPLU finalizes legal advertisement for hearing, Board Hearing advertised in newspaper	7	4/10/2014	
Board of Supervisors Hearing	18	4/28/2014	

PROJECT SCHEDULE ASSUMPTIONS

Project description remains consistent throughout process

Applicant will submit information in accordance with schedule

The project will not be continued by decision maker or appealed

DPW, DEH and DPR issues will be resolved concurrently.

Bolded tasks are under the control of applicant/consultant.

Italicized tasks are completed concurrently with other tasks.

* Task can be eliminated if earlier draft documents are adequate.

Hearing date is subject to decision making body availability and schedule

Dates which fall on a holiday have an actual completion date the first business day a

COST ESTIMATE ASSUMPTIONS

Cost estimate includes DPLU costs & applicable DPW, DPR, & DEH costs

Estimate is based on relative cost of projects of similar complexity

Cost estimate does not include applicant's consultant/engineering costs

Cost estimate does not include additional deposits to DPR and DEH accounts made after the project application intake

Does not include County costs for post discretionary review (e.g. final map)

Costs assume project schedule assumptions are maintained

Costs will be paid at installments throughout the process

If project is over budget, cost estimate will be revised

The State of CA adjusts Fish and Game Fees annually for inflation

COST ESTIMATE SUMMARY	
Total Discretionary Cost Estimate	**$229,077**
Deposits/Fees Paid to Date	$13,345
Account Balance	$2,571
Estimated County Costs Remaining	$215,732
Fish and Game Fees	$2,889
% Expended of Total Cost Estimate	4.70%

ATTACHMENT C: DPW CONCEPTUAL PRELIMINARY DRAFT REQUIREMENTS

DATE:	October 20, 2011	APPLICANT:	Rugged Solar LLC
PLANNING MANAGER:	David Sibbet	DPLU PLANNER:	Larry Hofreiter
PROJECT:	MPA 11-018	ENV REV:	Larry Hofreiter
STAFF PERSON COMPLETING THIS REVIEW:			René Vidales

THE FOLLOWING PRELIMINARY COMMENTS ARE BASED ON AN OFFICE REVIEW AND/OR A FIELD REVIEW BY DPW FOR PROJECT DESCRIPTION RECEIVED 10/03/11, AND MAY BE REVISED UPON FURTHER REVIEW AND INPUT FROM OTHER AGENCIES.

SPECIFIC CONDITIONS: Compliance with the following Specific Conditions (Mitigation Measures when applicable) shall be established before the property can be used in reliance upon this Major Use Permit. Where specifically indicated, actions are required prior to approval of any grading, improvement, building plan and issuance of grading, construction, building, or other permits as specified:

ANY PERMIT: *(Prior to the approval of any plan, issuance of any permit, and prior to occupancy or use of the premises in reliance of this permit).*

1. **ENCROACHMENT PERMIT: [DPW, LDR] [GP, CP, BP, UO].**
   Intent: In order ensure that improvements for the private road comply with the County of San Diego Public Road Standards, and The Caltrans Facility Standards and Requirements, an encroachment permit shall be obtained and implemented. **Description of Requirement:** A permit shall be obtained from CALTRANS for the improvements to be made within the public right-of-way. A copy of the permit and evidence from the issuing agency that all requirements of the permit have been met shall be submitted to the [DPW, LDR]. **Documentation:** The applicant shall obtain the encroachment permit(s) and provide a copy of the permit, proof of payment, and evidence that all the requirements of the permit have been met, to the [DPW, LDR]. The subdivider shall obtain an encroachment permit from CALTRANS authorizing access onto APN 611-100-06 west of McCain Valley Road. This will allow CALTRANS to set conditions such as sight distance and road improvements. The applicant should contact the CALTRANS Permit Office at (619) 688-6843 for additional details. **Timing:** Prior to the approval of the Parcel Map, the permit shall be obtained. **Monitoring:** The [DPW, LDR] shall review the permit for compliance with this condition and the applicable improvement plans, and implement any conditions of the permit in the County improvement plans.

2. **PAVEMENT CUT POLICY: [DPW, LDR] [GP, CP, BP, UO]**
   Intent: In order to prohibit trench cuts for undergrounding of utilities in all new, reconstructed, or resurfaced paved County-maintained roads for a period of three

years following project surfacing, and to comply with County Policy RO-7 adjacent property owners shall be notified and solicited for their participation in the extension of utilities. **Description of requirement:** All adjacent property owners shall be notified who may be affected by this policy and are considering development of applicable properties, this includes requesting their participation in the extension of utilities to comply with this policy. No trench cuts for undergrounding of utilities in all new, reconstructed, or resurfaced paved County-maintained roads for a period of three years following project surface. **Documentation:** The applicant shall sign a statement that they are aware of the County of San Diego, Department of Public Works, Pavement Cut Policy to the satisfaction of the Department of Public Works (DPW), and submit it to the [*DPW LDR*] for review. **Timing:** Prior to approval of any grading or improvement plan and prior to issuance of any grading or construction permit, and prior to use of the property in reliance of this permit, the letters must be submitted for approval. **Monitoring:** [*DPW, LDR*] shall review the signed letters.

3. **DRAINAGE IMPROVEMENTS: [DPW, LDR] [GP, CP, BP, UO]**
Intent: In order to provide the required drainage improvements for the project and to comply with the County Flood Damage Prevention Ordinance (Title 8, Division 11), County Watershed Protection Ordinance (WPO) No.10096, County Code Section 67.801 et. seq., the County Resource Protection Ordinance (RPO) No. 9842, the drainage improvements shall be completed. **Description of requirement:** Improve or agree to improve and provide security for storm drains and crossings throughout the internal access roads. All drainage plan improvements shall be prepared and completed pursuant to the following ordinances and standards: San Diego County Drainage Design Manual, San Diego County Hydrology Manual, County of San Diego Grading Ordinance, Zoning Ordinance Sections 5300 through 5500, County Resource Protection Ordinance (RPO) No. 9842, and County Flood Damage Protection Ordinance (Title 8, Division 11), Low Impact Development (LID) and Hydromodification requirements and the Land Development Improvement Plan Checking Manual. The improvements shall be completed within 24 months from the approval of the improvement plans, execution of the agreements, and acceptance of the securities. No Building permit can receive final approval or occupancy until these improvements are completed. **Documentation:** The applicant shall complete the following:

a. Process and obtain approval of Improvement Plans to improve the storm drains and crossings throughout the internal access roads.

b. Provide Secured agreements require posting security in accordance with Section 7613 of the Zoning Ordinance.

c. Pay all applicable inspection fees with [*DPW, PDCI*].

d. If the applicant is a representative, then a one of the following is required: a corporate certificate indicating those corporation officers authorized to

sign for the corporation, or a partnership agreement recorded in this County indicating who is authorized to sign for the partnership.

Timing: Prior to issuance of any permit, and prior to use of the premises in reliance of this permit the plans, agreements, and securities shall be approved. **Monitoring:** The [*DPW, LDR*] [DPR, TC, PP] shall review the plans for consistency with this condition and County Standards. Upon approval of the plans [*DPW, LDR*] shall request the required securities and improvement agreements. The securities and improvement agreements shall be approved by the Director of DPW before any work can commence.

4. DRAINAGE SWALES: [DPW, LDR] [GP, CP, BP, UO]

Intent: In order to indicate the drainage swales on the Plot Plan and to comply with the Flood Damage Prevention Ordinance, Section 811.506(a), the drainage swales shall be shown on the Plot Plan. **Description of requirement:** The drainage swale which flows through the property shall be shown and labeled "Drainage Swale" on the Plot Plan. The applicant's Civil Engineer will provide this information by annotating the copy of the Plot Plan. **Documentation:** The applicant shall indicate the drainage swales on the Plot Plan as indicated above. **Timing:** Prior to approval of any plan or issuance of any permit, and prior to use of the premises in reliance of this permit, the drainage swales shall be indicated and labeled on the Plot Plan. **Monitoring:** The [*DPW, LDR*] shall verify that the drainage swales have been indicated pursuant to this condition.

GRADING PERMIT: *(Prior to approval of any grading and or improvement plans and issuance of any Grading or Construction Permits).*

5. TRAFFIC CONTROL PLAN: [DPW, LDR] [GP, IP, UO]

Intent: In order to mitigate below levels of significance for temporary traffic impacts, a traffic control plan shall be prepared and implemented. **Description of Requirement:** A Traffic Control Plan (TCP) shall be prepared that addresses the following, but is not only limited to: haul routes, number of trips per day, and destination.

a. The implementation of the TCP shall be a condition of any grading, construction, or excavation permit issued by the County. The applicant is responsible for the maintenance and repair of any damage caused by them to the on-site and off-site private roads that serve the property either during construction or subsequent operations."

b. The applicant will repair those portions of the route that would be damaged by the heavy loads that loaded trucks place on the route identified. If required by the [*DPW, ESU*], an agreement shall be executed, which will also include (1) a cash deposit for emergency traffic safety repairs; (2) long-term security for expected increased maintenance on the route identified; and (3) possible future asphaltic overlay requirements on the route identified. The specific road is identified as follows: Ribbonwood Road and McCain Valley Road.

Documentation: The applicant shall have the TCP prepared by a licensed Traffic Engineer and submit it to [*DPW, LDR*] for review. If required by the [*DPW, ESU*], the applicant shall also execute a secured agreement for any potential damages caused by heavy trucks on road mentioned above. The agreement and securities shall be approved to the satisfaction of the [*DPW, LDR*]. The applicant is responsible for obtaining any additional permits as identified in the TCP. **Timing:** Prior to approval of any grading and or improvement plans and issuance of any Grading, Construction, or Excavation Permits, a TCP shall be prepared and approved. **Monitoring:** The *[DPW, LDR]* shall review the TCP for compliance with this condition, and require any additional traffic or encroachment permits before any approval of the TCP. The TCP shall be implemented and made a condition of any associated County Construction, Grading or Encroachment Permit.

BUILDING PERMIT: *(Prior to approval of any building plan and the issuance of any building permit).*

6. TRANSPORTATION IMPACT FEE: [DPW, LDR] [DPLU, BD] [BP, UO]

Intent: In order to mitigate potential cumulative traffic impacts to less than significant, and to comply with the Transportation Impact Fee (TIF) Ordinance Number 77.201-77.219, the TIF shall be paid. **Description of requirement:** The Transportation Impact Fee (TIF) shall be paid pursuant to the to County TIF Ordinance number 77.201-77.219 . The fee is calculated pursuant to the ordinance, and will be based on the Average Daily Trips (ADT) generated by this project per the Select Industrial Uses Category for a Power Generation Plant in the Mountain Empire TIF Region. **Documentation:** The applicant shall pay the TIF at the [*DPLU, ZONING]* and provide a copy of the receipt to the *[DPLU, Building Division Technician]* at time of permit issuance. The cost of the fee shall be calculated at time of payment. **Timing:** Prior to approval of any building plan and the issuance of any building permit, or use of the premises in reliance of this permit, the TIF shall be paid. **Monitoring:** The *[DPLU, ZONING]* shall calculate the fee pursuant to the ordinance and provide a receipt of payment for the applicant. *[DPLU, Building Division]* shall verify that the TIF has been paid before the first building permit can be issued. The TIF shall be verified for each subsequent building permit issuance.

7. PRIVATE ROAD IMPROVEMENTS: [DPW, LDR], [BP, UO]

Intent: In order to promote orderly development and to comply with the San Diego County Standards for Private Roads section 3.1(B) , the private road from Ribbonwood Road to McCain Valley Road (within APNs 611-091-09, 611-090-15, 611-090-02, 611-090-04, 611-100-01, 611-100-02, and 611-100-06) shall be improved. **Description of requirement:** The private road from Ribbonwood Road to McCain Valley Road (within APNs 611-091-09, 611-090-15, 611-090-02, 611-090-04, 611-100-01, 611-100-02, and 611-100-06) shall be improved per Section 3.1(B) of the San Diego County Standards for Private Roads for seven

hundred fifty-one (751) to two thousand five hundred (2500) trips to the satisfaction of the San Diego County Fire Authority and *[DPW, LDR].*

All plans and improvements shall be completed pursuant to the County of San Diego County Standards for Private Roads and the DPW Land Development Improvement Plan Checking Manual. The design and construction of all driveways, turnarounds, and private easement road improvements to the satisfaction of the San Diego County Fire Authority and the [*DPW, LDR*].

Documentation: The applicant shall complete the following:

a. Process and obtain approval of Improvement Plans to improve the private road from Ribbonwood Road to McCain Valley Road (within APNs 611-091-09, 611-090-15, 611-090-02, 611-090-04, 611-100-01, 611-100-02, and 611-100-06).

b. Pay all applicable inspection fees with [*DPW, PDCI*].

c. Obtain approval for the design and construction of all driveways, turnarounds, and private easement road improvements to the satisfaction of the San Diego County Fire Authority and the [*DPW, LDR*].

Timing: Prior to approval of any building plan and the issuance of any building permit, the private road and drive improvements shall be completed. **Monitoring:** The [*DPW, LDR*] shall review the plans for consistency with the condition and County Standards.

OCCUPANCY: *(Prior to any occupancy, final grading release, or use of the premises in reliance of this permit).*

8. ACCESS IMPROVEMENTS: [DPW, LDR], [GP, CP, BP, UO]

Intent: In order to promote orderly development and to comply with the Centerline Ordinance Sec. 51.301 et. al., a project driveway shall be improved. **Description of requirement:** Improve or agree to improve and provide security for the following along McCain Valley Road (APN 611-110-01):

a. The project driveway, which shall be designed and constructed to the satisfaction of *[DPW, LDR].*

b. The Pavement taper from the ultimate right-of-way line to the existing edge of pavement, with asphalt concrete to the satisfaction of *[DPW, LDR].*

c. The project entry gate, which shall be designed and constructed to the satisfaction of the San Diego County Fire Authority and *[DPW, LDR].*

All plans and improvements shall be completed pursuant to the County of San Diego Public Road Standards, the DPW Land Development Improvement Plan

Checking Manual and the Community Trails Master Plan. The improvements shall be completed within 24 months from the approval of the improvement plans, execution of the agreements, and acceptance of the securities. **Documentation:** The applicant shall complete the following:

d. Process and obtain approval of Improvement Plans to improve the project driveway and the pavement taper on Old Highway 80 (SC1883)

e. Provide Secured agreements. The required security shall be in accordance with Section 7613 of the Zoning Ordinance.

f. Pay all applicable inspection fees with [*DPW, PDCI*].

g. If the applicant is a representative, then a one of the following is required: a corporate certificate indicating those corporation officers authorized to sign for the corporation, or a partnership agreement recorded in this County indicating who is authorized to sign for the partnership.

h. Obtain approval for the design and construction of all driveways, turnarounds, pathways and private easement road improvements to the satisfaction of the San Diego County Fire Authority and the [*DPW, LDR*].

i. Obtain a Construction Permit for any work within the County road right-of-way. DPW Construction/Road right-of-way Permits Services Section should be contacted at (858) 694-3275 to coordinate departmental requirements. Also, before trimming, removing or planting trees or shrubs in the County Road right-of-way, the applicant must first obtain a permit to remove, plant or trim shrubs or trees from the Permit Services Section.

Timing: Prior to occupancy or use of the premises in reliance of this permit, the plans shall be approved and securities must be provided. **Monitoring:** The [*DPW, LDR*] and [DPR, TC] shall review the plans for consistency with the condition and County Standards and Community Trails Master Plan. Upon approval of the plans [*DPW, LDR*] shall request the required securities and improvement agreements. The securities and improvement agreements shall be approved by the Director of DPW before any work can commence.

9. SIGHT DISTANCE: [DPW, LDR] [UO]

Intent: In order to provide an unobstructed view for safety while exiting the property and accessing a public road from the site, and to comply with the Design Standards of Section 6.1.Table 5 of the County of San Diego Public Road Standards, an unobstructed sight distance shall be verified. **Description of requirement:** A registered civil engineer, a registered traffic engineer, or a licensed land surveyor shall provide a certified signed statement that: “Physically, there is a minimum unobstructed sight distance based upon prevailing traffic speed in both directions along Ribbonwood Road and McCain Valley Road from the project driveway openings.”

a. If the lines of sight fall within the existing public road right-of-way, the engineer or surveyor shall further certify that: "Said lines of sight fall within the existing right-of-way, and a clear space easement is not required."

b. The engineer or surveyor shall further certify that: "Sight distance of adjacent driveways and street openings will not be adversely affected by this project."

Documentation: The applicant shall complete the certifications and submit them to the [*DPW, LDR*] for review. **Timing:** Prior to occupancy of the first structure built in association with this permit, and prior to final grading release, or use of the premises in reliance of this permit, and annually after that until the project is completely built, the sight distance shall be verified. **Monitoring:** The [*DPW, LDR*] shall verify the sight distance certifications.

ONGOING: *(The following conditions shall apply during the term of this permit)*

10. SIGHT DISTANCE: [DPLU, CODES] [OG].
Intent: In order to provide an unobstructed view for safety while exiting the property and accessing a public road from the site, and to comply with the Design Standards of Section 6.1.Table 5 of the County of San Diego Public Road Standards, an unobstructed sight distance shall be maintained for the life of this permit. **Description of Requirement:** There shall be a minimum unobstructed sight distance in both directions along Ribbonwood Road and McCain Valley Road from the project driveway openings for the life of this permit. Documentation: A minimum unobstructed sight shall be maintained. The sight distance of adjacent driveways and street openings shall not be adversely affected by this project at any time. **Timing:** Upon establishment of the use, this condition shall apply for the duration of the term of this permit. **Monitoring:** The *[DPLU, Code Enforcement Division]* is responsible for enforcement of this permit.

ORDINANCE COMPLIANCE NOTIFICATIONS: The project is subject to, but not limited to the following County of San Diego, State of California, and US Federal Government, Ordinances, Permits, and Requirements:

STORMWATER ORDINANCE COMPLIANCE: In order to Comply with all applicable stormwater regulations the activities proposed under this application are subject to enforcement under permits from the San Diego Regional Water Quality Control Board (RWQCB) and County Watershed Protection Ordinance (WPO) No.10096, County Code Section 67.801 et. seq. and all other applicable ordinances and standards for the life of this permit. The project site shall be in compliance with all applicable stormwater regulations referenced above and all other applicable ordinances and standards. This includes compliance with the approved Stormwater Management Plan, all requirements for Low Impact Development (LID), materials and wastes control, erosion control, and sediment control on the project site. Projects that involve areas 1 acre or greater require that the property owner keep additional and updated information onsite concerning stormwater runoff. The property owner and permittee shall comply with the requirements of the stormwater regulations referenced above.

LOW IMPACT DEVELOPMENT NOTICE: On January 24, 2007, the San Diego Regional Water Quality Control Board (SDRWQCB) issued a new Municipal Stormwater Permit under the National Pollutant Discharge Elimination System (NPDES). The requirements of the Municipal Permit were implemented beginning January 25, 2008. *Project design shall be in compliance with the new Municipal Permit regulations*. The Low Impact Development (LID) Best Management Practices (BMP) Requirements of the Municipal Permit can be found at the following link on Page 19, Section D.1.d (4), subsections (a) and (b):

http://www.waterboards.ca.gov/sandiego/water_issues/programs/stormwater/docs/sd_permit/r9_2007_0001/2007_0001final.pdf.

http://www.sdcounty.ca.gov/dplu/docs/LID-Handbook.pdf.

The County has provided a LID Handbook as a source for LID information and is to be utilized by County staff and outside consultants for implementing LID in our region. See link above.

GRADING PERMIT REQUIRED: A grading permit is required prior to commencement of grading when quantities exceed 200 cubic yards of excavation or eight feet (8') of cut/fill per criteria of Section 87.202 (a) of the County Code.

CONSTRUCTION PERMIT REQUIRED: A Construction Permit and/or Encroachment Permit for any and all work within the County road right-of-way. Contact DPW Construction/Road right-of-way Permits Services Section, (858) 694-3275, to coordinate departmental requirements. In addition, before trimming, removing or planting trees or shrubs in the County Road right-of-way, the applicant must first obtain a permit to remove plant or trim shrubs or trees from the Permit Services Section.

ENCROACHMENT PERMIT REQUIRED: An Encroachment Permit from the Department of Public Works for any and all proposed/existing facilities within the County right-of-way. Old Highway 80 (SC 1883) is shown as a Light Collector with Passing Lane (2.2D) Road on the Circulation Element of the County General Plan. At the time of construction of future road improvements, the proposed facilities shall be relocated at no cost to the County, to the satisfaction of the Director of Public Works.

EXCAVATION PERMIT REQUIRED: Obtain an excavation permit from the County Department of Public Works for undergrounding and/or relocation of utilities within the County right-of-way.

If you have any questions regarding these conditions, please contact René Vidales at (858) 694-3246.

EDWIN M. SINSAY, Team Leader
Department of Public Works

EMS: rav

cc: David Sibbet, DPLU Planning Manager (O650)

Attachment D: Example Project Water Demand Assumptions

The following is the anticipated water consumption for both the operational and construction phases of the project, including expansion of the substation.

I. ONGOING WATER CONSUMPTION: The following is the anticipated water usage for the ongoing operations of the proposed solar farm, which includes panel washing and dust suppression for anticipated maintenance for the soil binding agent.

Ongoing After Completion of Construction Phase	
Activity	
Dust Suppression	
Number of gallons/acre (every 2 years)	1,650
Water use/year (in gallons)	288,750
Water use/year (in acre feet)	0.9
Panel Washing	
Washes/year	4.0
Panels/minute	5.0
Gallons per minute	2.5
# of panels	350,000
Total water use/year (in gallons)	700,000
Total water use/year (in acre feet)	2.1
Total water use/year	**988,750 gal (3.03 AF)[1]**

[1] One acre-foot (AF) = 325,851 gallons.

II. TEMPORARY CONSTRUCTION USAGE: A 10-month period is estimated for project construction. Initial construction occurring within the first nine weeks (54 working days) will include brushing/clearing and grading/onsite access road construction. The remainder of the 10-month construction period (an estimated 304 days) will include foundation construction and panel installation, which will involve concrete hydration and application of the non-toxic pervious soil-binding agent. A soil-binding agent will be applied during construction to stabilize the disturbed soils to reduce fugitive dust. Water estimates have been calculated for each of these activities to determine overall water demand for the construction phase. In addition, a detailed estimate for long-term operational activities is also provided below.

Total Estimated Water for Temporary Project Construction		
Activity	**Time Frame**	**Total Estimated Water Demand (gallons and acre-feet)**
Brushing and Clearing	Day 1- 54 (Weeks 1-9)	1,360,000 gallons / (4.17 AF)
Grading and Access Road Construction	Day 1- 54 (Weeks 1-9)	3,210,000 gallons / (9.85 AF)

SAMPLE

Application of Soil Binding Agent	Day 1- 54 (Weeks 1-9)	577,500 gal / (1.8 AF)
Concrete Hydration	Day 54 through day 304 (Weeks 10-44)	18,916 gal / (0.06 AF)
Total Construction Water		**5,166,416 gal (15.88 AF)**

III. CONSTRUCTION WATER USAGE DETAILS: The following provides a detailed explanation as to how water demand for each construction activity was determined.

Brushing and Clearing Day 1- 54 (Weeks 1-9)				
Activity	**Estimated Duration of Activity**	**Gallons of Water Required**	**Project Acreage to be Brushed/Cleared**	**Estimated Water Use**
Brushing and Clearing	54 days[1]	4,000 gal/acre brushed	340	**1,360,000 gal[2] (4.17 AF)**

[1] Assumes an estimated 54 working days for initial improvements (6 working days per week for 9 weeks), with approximately 6.5 acres brushed/cleared per day. Estimate of 6.5 acres brushed/cleared per day is consistent with assumptions made in the *Focused Air Quality Assessment* and *Noise Assessment* prepared by Ldn Consulting, Inc.

Grading and Access Road Construction Day 1- 54 (Weeks 1-9)			
Activity	**Gallons of Water Required**	**Approx. Grading Quantities**	**Estimated Water Use**
Grading and Onsite Access Road Construction	30 gal/cubic yard	107,000 cubic yards	**3,210,000 gal (9.85 AF)**

Application of Soil Binding Agent Day 1- 54 (Weeks 1-9)		
Activity	**Gallons/Acre**	**Total Water Use/Year (in gallons and AF)**
Application of Soil Binding Agent	3,300	577,500 (1.8 AF)

Concrete Hydration Day 54 through day 304 (Weeks 10-44)

SAMPLE

Activity	Inverter Stations	Substations	Fence Posts	Miscellaneous	Total
Quantity	40	10	5,000		
Number of Pilers per Station	10	4			
Total Number of Pilers	400	40	250		
Diameter (feet)	1.0	1.0			
Length (feet)	10.0	12.0			
Volume of Concrete (cubic yards)	465.42	55.85	9.26	100.0	630.5
Volume of Water (gallons)	**13,962.63**	**1,675.52**	**277.78**	**3,000.0**	**18,916 gallons (0.06 AF)**

SAMPLE

LanWest/East Rugged Solar

SOITEC Solar 3992-11-017 and 11-018 (MPA)
Preapplication Scoping Meeting

10/25/2011

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Appendix B

Cumulative List of Plant Species

VASCULAR SPECIES

EUDICOTS

ADOXACEAE—MUSKROOT FAMILY

Sambucus nigra ssp. *caerulea*—blue elderberry

ANACARDIACEAE—SUMAC OR CASHEW FAMILY

Rhus aromatica—basket bush
Rhus ovata—sugarbush

APIACEAE—CARROT FAMILY

Apiastrum angustifolium—mock parsley
* *Apium graveolens*—wild celery
Bowlesia incana—hoary bowlesia
Lomatium dasycarpum ssp. dasycarpum—woollyfruit desertparsley
Lomatium mohavense—Mojave desertparsley
Sanicula tuberosa—turkey pea
Tauschia arguta—southern umbrellawort
Yabea microcarpa—false carrot

APOCYNACEAE—DOGBANE FAMILY

Asclepias fascicularis—Mexican whorled milkweed

ASTERACEAE—SUNFLOWER FAMILY

Acourtia microcephala—sacapellote
Adenophyllum porophylloides—San Felipe dogweed
Ambrosia acanthicarpa—flatspine bur ragweed
Ambrosia confertiflora—weakleaf bur ragweed
Ambrosia psilostachya—western ragweed
Anisocoma acaulis—scalebud
Artemisia dracunculus—wild tarragon
Artemisia tridentata ssp. *tridentata*—basin big sagebrush
Baccharis salicifolia ssp. *salicifolia*—mulefat
Baccharis sergiloides—broom baccharis
Brickellia californica—California brickellbush
Calycoseris parryi—yellow tackstem
Chaenactis fremontii—pincushion flower
Chaenactis glabriuscula var. *glabriuscula*—yellow pincushion
Chaenactis stevioides—Esteve's pincushion
Cirsium occidentale var. *californicum*—cobwebby thistle

* *Corethrogyne filaginifolia*—sand-aster
Deinandra floribunda—Tecate tarplant
Ericameria brachylepis—chaparral goldenbush
Ericameria cuneata var. spathulata—cliff goldenbush
Ericameria linearifolia—narrowleaf goldenbush
Ericameria pinifolia—pinebush
Erigeron canadensis—Canadian horseweed
Erigeron foliosus—leafy fleabane
Eriophyllum confertiflorum var. confertiflorum—golden-yarrow
Eriophyllum wallacei—woolly easterbonnets
Geraea viscida—sticky geraea
Gnaphalium palustre—western marsh cudweed
Gutierrezia sarothrae—broom snakeweed
Hazardia squarrosa var. *grindelioides*—sawtooth bristleweed
* *Hedypnois rhagadioloides*—crete weed
* *Hypochaeris glabra*—smooth cat's ear
Isocoma acradenia—alkali goldenbush
* *Lactuca serriola*—prickly lettuce
Lasthenia gracilis—needle goldfields
Layia glandulosa—whitedaisy tidytips
Leptosyne californica—California tickseed
Lessingia glandulifera var. *glandulifera*—valley lessingia
Logfia filaginoides—California cottonrose
* *Logfia gallica*—narrowleaf cottonrose
Malacothrix californica—California desertdandelion
Malacothrix clevelandii—Cleveland's desertdandelion
* *Matricaria discoidea*—disc mayweed
Malacothrix glabrata—smooth desertdandelion
Pseudognaphalium californicum—ladies' tobacco
Pseudognaphalium canescens—Wright's cudweed
Senecio californicus—California ragwort
Senecio flaccidus var. *douglasii*—Douglas' ragwort
Senecio flaccidus var. *monoensis*—smooth threadleaf ragwort
* *Sonchus asper* ssp. *asper*—spiny sowthistle
Stephanomeria exigua ssp. *deanei*—Deane's wirelettuce
Stephanomeria exigua ssp. *exigua*—small wirelettuce
Stylocline gnaphaloides—mountain neststraw
* *Taraxacum officinale*—common dandelion
Tetradymia canescens—spineless horsebrush
Uropappus lindleyi—Lindley's silverpuffs

BORAGINACEAE—BORAGE FAMILY

Amsinckia intermedia—common fiddleneck
Cryptantha intermedia var. *intermedia* —Clearwater cryptantha
Cryptantha micrantha var. *lepida*—redroot cryptantha
Cryptantha micrantha—redroot cryptantha
Cryptantha pterocarya var. *purpusii*—wingnut cryptantha
Emmenanthe penduliflora var. *penduliflora*—whisperingbells
Eriodictyon trichocalyx var. *lanatum*—hairy yerba santa
Eucrypta chrysanthemifolia var. *bipinnatifida*—spotted hideseed
Heliotropium curassavicum var. *oculatum*—seaside heliotrope
Heliotropium curassavicum—salt heliotrope
Nemophila menziesii var. *integrifolia*—baby blue eyes
Nemophila menziesii var. *menziesii*—baby blue eyes
Pectocarya linearis ssp. *ferocula*—sagebrush combseed
Pectocarya penicillata—sleeping combseed
Pectocarya recurvata—curvenut combseed
Pectocarya setosa—moth combseed
Phacelia distans—distant phacelia
Phacelia imbricata var. *patula*—imbricate phacelia
Phacelia imbricata—imbricate phacelia
Phacelia parryi—Parry's phacelia
Pholistoma membranaceum—white fiestaflower
Plagiobothrys arizonicus—Arizona popcornflower
Plagiobothrys collinus var. *fulvescens*—Cooper's popcornflower
Plagiobothrys sp.—no common name

BRASSICACEAE—MUSTARD FAMILY

Athysanus pusillus—common sandweed
Boechera pulchra—beautiful rockcress
Caulanthus lasiophyllus—California mustard
Caulanthus simulans—Payson's jewelflower
Descurainia pinnata ssp. *brachycarpa*—western tansymustard
Descurainia pinnata ssp. glabra—western tansymustard
* *Descurainia sophia*—herb sophia
Draba sp.—no common name
Erysimum capitatum var. capitatum—sanddune wallflower
* *Hirschfeldia incana*—shortpod mustard
Lepidium lasiocarpum ssp. lasiocarpum—shaggyfruit pepperweed
* *Lepidium virginicum* ssp. *menziesii*—intermediate pepperweed
* *Sisymbrium altissimum*—tall tumblemustard

* *Sisymbrium irio*—London rocket
* *Sisymbrium orientale*—Indian hedgemustard
Thysanocarpus curvipes ssp. *curvipes*—sand fringepod
Thysanocarpus laciniatus—mountain fringepod
Tropidocarpum gracile—dobie pod

CACTACEAE—CACTUS FAMILY
Cylindropuntia californica var. *parkeri*—brownspined pricklypear
Cylindropuntia ganderi—Gander's buckhorn cholla
Echinocereus engelmannii—Engelmann's hedgehog cactus
Opuntia phaeacantha—tulip pricklypear

CAPRIFOLIACEAE—HONEYSUCKLE FAMILY
Lonicera subspicata var. *denudata*—Santa Barbara honeysuckle

CARYOPHYLLACEAE—PINK FAMILY
* *Herniaria hirsuta* var. *cinerea*—hairy rupturewort
Loeflingia squarrosa—spreading pygmyleaf

CHENOPODIACEAE—GOOSEFOOT FAMILY
Atriplex canescens var. *canescens*—fourwing saltbush
* *Bassia hyssopifolia*—fivehorn smotherweed
Chenopodium californicum—California goosefoot
* *Chenopodium murale*—nettleleaf goosefoot
* *Salsola tragus*—prickly Russian thistle

CONVOLVULACEAE—MORNING-GLORY FAMILY
Cuscuta californica—chaparral dodder

CRASSULACEAE—STONECROP FAMILY
Crassula connata—sand pygmyweed
Dudleya abramsii ssp. *abramsii*—Abrams' liveforever
Dudleya pulverulenta—chalk dudleya

CUCURBITACEAE—GOURD FAMILY
Cucurbita foetidissima—Missouri gourd
Marah macrocarpa—Cucamonga manroot

ELATINACEAE—WATERWORT FAMILY
Elatine californica—California waterwort

ERICACEAE—HEATH FAMILY

Arctostaphylos glauca—bigberry manzanita
Arctostaphylos pungens—pointleaf manzanita

EUPHORBIACEAE—SPURGE FAMILY

Croton setigerus—dove weed
Euphorbia albomarginata—whitemargin sandmat
Euphorbia polycarpa—smallseed sandmat

FABACEAE—LEGUME FAMILY

Acmispon argophyllus var. *argophyllus*—silver bird's-foot trefoil
Acmispon glaber var. *brevialatus*—western bird's-foot trefoil
Acmispon heermannii var. *heermannii*—Heermann's bird's-foot trefoil
Acmispon strigosus—strigose bird's-foot trefoil
Astragalus didymocarpus var. *dispermus*—dwarf white milkvetch
Astragalus douglasii var. *parishii*—Parish's milkvetch
Astragalus douglasii var. *perstrictus*—Jacumba milk-vetch
Lathyrus splendens—pride-of-California
Lupinus albifrons var. *albifrons*—silver lupine
Lupinus bicolor—miniature lupine
Lupinus concinnus—bajada lupine
Lupinus truncatus—collared annual lupine
* *Medicago polymorpha*—burclover
* *Melilotus indicus*—annual yellow sweetclover
Senegalia greggii—catclaw acacia
Trifolium gracilentum—pinpoint clover
Trifolium variegatum—white-tip clover
Vicia sp.— vetch

FAGACEAE—OAK FAMILY

Quercus ×*acutidens*—hybrid oak
Quercus agrifolia var. *oxyadenia*—coastal live oak
Quercus cornelius-mulleri—Muller oak
Quercus palmeri—Palmer oak
Quercus wislizeni var. *frutescens*—interior live oak

GARRYACEAE—SILK TASSEL FAMILY

Garrya veatchii—canyon silktassel

GENTIANACEAE—GENTIAN FAMILY

Frasera parryi—Coahuila frasera

GERANIACEAE—GERANIUM FAMILY

* *Erodium cicutarium*—redstem stork's bill

GROSSULARIACEAE—GOOSEBERRY FAMILY

Ribes quercetorum—oak gooseberry

LAMIACEAE—MINT FAMILY

Salvia columbariae—chia

Trichostema parishii—Parish's bluecurls

LOASACEAE—LOASA FAMILY

Mentzelia montana—variegated-bract blazingstar

Mentzelia sp.— blazing star

MONTIACEAE—MONTIA FAMILY

Calandrinia menziesii—red —fringed redmaids

Calyptridium monandrum—common pussypaws

Claytonia parviflora ssp. *parviflora*—streambank springbeauty

Claytonia perfoliata ssp. *perfoliata*—miner's lettuce

NYCTAGINACEAE—FOUR O'CLOCK FAMILY

Mirabilis multiflora var. *pubescens*—Colorado four o'clock

ONAGRACEAE—EVENING PRIMROSE FAMILY

Camissonia strigulosa—sandysoil suncup

Camissoniopsis bistorta—southern suncup

Camissoniopsis confusa—San Bernardino suncup

Camissoniopsis hirtella—Santa Cruz Island suncup

Clarkia purpurea ssp. *quadrivulnera*—winecup clarkia

Epilobium canum ssp. *latifolium*—hummingbird trumpet

Eulobus californicus—California suncup

Oenothera californica ssp. *avita*—California evening primrose

OROBANCHACEAE—BROOM-RAPE FAMILY

Aphyllon californica ssp. *feudgei*—California broomrape

Castilleja affinis ssp. *affinis*—coast Indian paintbrush

Castilleja applegatei—wavyleaf Indian paintbrush

Castilleja foliolosa—Texas Indian paintbrush

Castilleja subinclusa ssp. *subinclusa*—longleaf Indian paintbrush

Cordylanthus rigidus ssp. *setiger*—stiffbranch bird's beak

PAEONIACEAE—PEONY FAMILY

Paeonia californica—California peony

PAPAVERACEAE—POPPY FAMILY

Argemone munita—flatbud pricklypoppy
Eschscholzia californica—California poppy
Platystemon californicus—creamcups

PHRYMACEAE—LOPSEED FAMILY

Diplacus aridus—low bush monkeyflower
Diplacus brevipes—widethroat yellow monkeyflower
Erythranthe cardinalis—scarlet monkeyflower
Erythranthe guttatus—seep monkeyflower
Mimetanthe pilosus—false monkeyflower

PLANTAGINACEAE—PLANTAIN FAMILY

Antirrhinum coulterianum—Coulter's snapdragon
Antirrhinum nuttallianum ssp. *nuttallianum*—violet snapdragon
Collinsia concolor—Chinese houses
Keckiella antirrhinoides—bush penstemon
Keckiella ternata var. *ternata*—scarlet keckiella
Penstemon centranthifolius—scarlet bugler
Penstemon clevelandii var. *clevelandii*—Cleveland's beardtongue
Penstemon spectabilis var. *spectabilis*—showy penstemon
* *Plantago major*—common plantain
* *Veronica anagallis-aquatica*—water speedwell

POLEMONIACEAE—PHLOX FAMILY

Eriastrum densifolium ssp. *elongatum*—giant woollystar
Eriastrum densifolium—giant woollystar
Eriastrum eremicum ssp. *eremicum*—desert woollystar
Eriastrum sapphirinum ssp. *sapphirinum*—sapphire woollystar
Gilia angelensis—chaparral gilia
Gilia capitata ssp. *abrotanifolia*—bluehead gilia
Gilia diegensis—coastal gilia
Leptosiphon lemmonii—Lemmon's linanthus
Leptosiphon parviflorus—variable linanthus
Leptosiphon pygmaeus ssp. *continentalis*—pygmy linanthus
Linanthus bellus—desert beauty
Loeseliastrum schottii—Schott's calico
Navarretia atractyloides—hollyleaf pincushionplant

POLYGONACEAE—BUCKWHEAT FAMILY

Chorizanthe fimbriata var. *laciniata*—fringed spineflower
Chorizanthe leptotheca—Peninsular spineflower
Eriogonum davidsonii—Davidson's buckwheat
Eriogonum elongatum var. *elongatum*—longstem buckwheat
Eriogonum fasciculatum var. *polifolium*—California buckwheat
Eriogonum gracile var. *gracile*—slender woolly buckwheat
Eriogonum gracile var. *incultum*—slender woolly buckwheat
Eriogonum thurberi—Thurber's buckwheat
Eriogonum wrightii var. *membranaceum*—bastardsage
Pterostegia drymarioides—woodland pterostegia
Rumex californicus—toothed willow dock
Sidotheca trilobata—threelobe oxytheca

RANUNCULACEAE—BUTTERCUP FAMILY

Clematis pauciflora—ropevine clematis
Delphinium parishii ssp. *subglobosum*—Colorado Desert larkspur

RHAMNACEAE—BUCKTHORN FAMILY

Ceanothus cuneatus var. *cuneatus*—buckbrush
Ceanothus leucodermis—chaparral whitethorn
Ceanothus perplexans—cup leaf ceanothus
Frangula californica ssp. *tomentella*—California buckthorn
Rhamnus ilicifolia—hollyleaf redberry

ROSACEAE—ROSE FAMILY

Adenostoma fasciculatum—chamise
Adenostoma sparsifolium—redshank
Cercocarpus betuloides var. *betuloides*—birchleaf mountain mahogany
Heteromeles arbutifolia—toyon
Ivesia saxosa—rock mousetail
Prunus fremontii—desert apricot
Prunus ilicifolia ssp. *ilicifolia*—hollyleaf cherry

RUBIACEAE—MADDER FAMILY

Galium andrewsii ssp. *andrewsii*—Andrews' bedstraw
Galium angustifolium ssp. *angustifolium*—narrowleaf bedstraw
Galium aparine—stickywilly

SALICACEAE—WILLOW FAMILY

Populus fremontii ssp. *fremontii*—Fremont cottonwood

Salix exigua—sandbar willow
Salix laevigata—red willow
Salix lasiolepis—arroyo willow

***SAURURACEAE*—LIZARD'S-TAIL FAMILY**

Anemopsis californica—yerba mansa

***SCROPHULARIACEAE*—FIGWORT FAMILY**

Scrophularia californica—California figwort
* *Verbascum thapsus*—common mullein

***SOLANACEAE*—NIGHTSHADE FAMILY**

Datura wrightii—sacred thorn-apple
Nicotiana attenuata—coyote tobacco
Nicotiana clevelandii—Cleveland's tobacco
Physalis hederifolia var. *fendleri*—Fendler's groundcherry
Solanum xanti—chaparral nightshade

***TAMARICACEAE*—TAMARISK FAMILY**

* *Tamarix ramosissima*—tamarisk

***URTICACEAE*—NETTLE FAMILY**

Hesperocnide tenella—western stingingnettle
Urtica dioica ssp. *holosericea*—stinging nettle

***VIOLACEAE*—VIOLET FAMILY**

Viola purpurea ssp. *quercetorum*—goosefoot violet

***VISCACEAE*—MISTLETOE FAMILY**

Phoradendron bolleanum—Bollean mistletoe
Phoradendron leucarpum ssp. *macrophyllum*—oak mistletoe
Phoradendron leucarpum ssp. *tomentosum*—oak mistletoe

FERNS AND FERN ALLIES

***PTERIDACEAE*—BRAKE FAMILY**

Myriopteris clevelandii—Cleveland's lipfern
Pellaea andromedifolia—coffee cliffbrake
Pellaea mucronata var. *mucronata*—birdfoot cliffbrake
Pentagramma triangularis—goldback fern

GYMNOSPERMS AND GNETOPHYTES

CUPRESSACEAE—CYPRESS FAMILY

Juniperus californica—California juniper

EPHEDRACEAE—EPHEDRA FAMILY

Ephedra californica—California jointfir

PINACEAE—PINE FAMILY

* *Pinus halepensis*—aleppo pine

Pinus jeffreyi—Jeffrey pine

Pinus quadrifolia—Parry pinyon

MONOCOTS

AGAVACEAE—AGAVE FAMILY

Hesperoyucca whipplei—chaparral yucca

Yucca schidigera—Mojave yucca

CYPERACEAE—SEDGE FAMILY

Carex praegracilis—clustered field sedge

Schoenoplectus americanus—American bulrush

Schoenoplectus californicus—California bulrush

JUNCACEAE—RUSH FAMILY

Juncus dubius—questionable rush

Juncus macrophyllus—longleaf rush

Juncus mexicanus—Mexican rush

Juncus xiphioides—irisleaf rush

LILIACEAE—LILY FAMILY

Calochortus concolor—goldenbowl mariposa lily

Calochortus splendens—splendid mariposa lily

Calochortus sp.—no common name

POACEAE—GRASS FAMILY

Aristida purpurea—purple three-awn

* *Avena barbata*—slender oat

* *Bromus diandrus*—ripgut brome

* *Bromus hordeaceus*—soft brome

* *Bromus madritensis*—compact brome

* *Bromus tectorum*—cheatgrass

Distichlis spicata—saltgrass

Elymus elymoides var. *brevifolius*—squirreltail

Elymus elymoides—squirreltail
Elymus glaucus ssp. *virescens*—blue wildrye
Elymus glaucus—blue wildrye
* *Elymus hispidus*—intermediate wheatgrass
* *Elymus ponticus*—tall wheatgrass
Festuca microstachys—small fescue
* *Festuca myuros*—rat-tail fescue
Festuca octoflora—sixweeks fescue
* *Festuca perennis*—perennial rye grass
* *Hordeum marinum* ssp. *gussoneanum*—Mediterranean barley
* *Hordeum murinum* ssp. *glaucum*—smooth barley
* *Hordeum murinum*—mouse barley
* *Lamarckia aurea*—goldentop grass
Melica frutescens—woody melicgrass
Melica imperfecta—smallflower melicgrass
Muhlenbergia asperifolia—scratchgrass
Muhlenbergia rigens—deer grass
*
Poa secunda ssp. *secunda*—Sandberg bluegrass
* *Polypogon monspeliensis*—annual rabbitsfoot grass
* *Schismus barbatus*—common Mediterranean grass
Sporobolus airoides—alkali sacaton
Stipa cernua—nodding needlegrass
Stipa coronata—giant ricegrass
Stipa lepida—foothill needlegrass
Stipa speciosa—desert needlegrass

THEMIDACEAE—BRODIAEA FAMILY
Dichelostemma capitatum ssp. *capitatum*—bluedicks

* Signifies introduced (non-native) species

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Appendix C

Cumulative List of Wildlife Species

BIRD

BLACKBIRDS, ORIOLES AND ALLIES

ICTERIDAE—BLACKBIRDS

Agelaius tricolor—Tricolored blackbird
Euphagus cyanocephalus—Brewer's blackbird
Icterus bullockii—Bullock's oriole
Sturnella neglecta—Western meadowlark

BUSHTITS

AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus—Bushtit

FALCONS

FALCONIDAE—CARACARAS AND FALCONS

Falco mexicanus—Prairie falcon
Falco sparverius—American kestrel

FINCHES

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus—House finch
Spinus lawrencei—Lawrence's goldfinch
Spinus psaltria—Lesser goldfinch

FLYCATCHERS

TYRANNIDAE—TYRANT FLYCATCHERS

Contopus sordidulus—western wood-pewee
Myiarchus cinerascens—ash-throated flycatcher
Sayornis saya—Say's phoebe
Tyrannus verticalis—Western kingbird

HAWKS

ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES

Accipiter cooperii—Cooper's hawk
Buteo jamaicensis—Red-tailed hawk
Buteo swainsoni—Swainson's hawk
Circus hudsonius—Northern harrier

HERONS AND BITTERNS

***ARDEIDAE*—HERONS, BITTERNS, AND ALLIES**

Ardea herodias—Great blue heron

HUMMINGBIRDS

***TROCHILIDAE*—HUMMINGBIRDS**

Calypte anna—Anna's hummingbird

JAYS, MAGPIES AND CROWS

***CORVIDAE*—CROWS AND JAYS**

Aphelocoma californica—California scrub-jay

Corvus corax—Common raven

KINGLETS

***REGULIDAE*—KINGLETS**

Regulus calendula—Ruby-crowned kinglet

LARKS

***ALAUDIDAE*—LARKS**

Eremophila alpestris actia—California horned lark

MOCKINGBIRDS AND THRASHERS

***MIMIDAE*—MOCKINGBIRDS AND THRASHERS**

Mimus polyglottos—Northern mockingbird

Toxostoma redivivum—California thrasher

NEW WORLD QUAIL

***ODONTOPHORIDAE*—NEW WORLD QUAIL**

Callipepla californica—California quail

NEW WORLD VULTURES

***CATHARTIDAE*—CARDINALS AND ALLIES**

Cathartes aura—Turkey vulture

OLD WORLD WARBLERS AND GNATCATCHERS

***SYLVIIDAE*—SYLVIID WARBLERS**

Polioptila caerulea—Blue-gray gnatcatcher

Polioptila melanura—Black-tailed gnatcatcher

OWLS

***STRIGIDAE*—TYPICAL OWLS**

Bubo virginianus—Great horned owl

PIGEONS AND DOVES

***COLUMBIDAE*—PIGEONS AND DOVES**

* *Streptopelia decaocto*—Eurasian collared-dove

Zenaida macroura—Mourning dove

ROADRUNNERS AND CUCKOOS

***CUCULIDAE*—CUCKOOS, ROADRUNNERS, AND ANIS**

Geococcyx californianus—Greater roadrunner

SHOREBIRDS

***CHARADRIIDAE*—LAPWINGS AND PLOVERS**

Charadrius vociferus—Killdeer

SHRIKES

***LANIIDAE*—SHRIKES**

Lanius ludovicianus—Loggerhead shrike

SILKY FLYCATCHERS

***PTILOGONATIDAE*—SILKY-FLYCATCHERS**

Phainopepla nitens—phainopepla

STARLINGS AND ALLIES

***STURNIDAE*—STARLINGS**

* *Sturnus vulgaris*—European starling

SWALLOWS

***HIRUNDINIDAE*—SWALLOWS**

Petrochelidon pyrrhonota—Cliff swallow

Stelgidopteryx serripennis—Northern rough-winged swallow

THRUSHES

***TURDIDAE*—THRUSHES**

Catharus ustulatus—Swainson's thrush
Sialia mexicana—Western bluebird
Turdus migratorius—American robin

TITMICE

***PARIDAE*—CHICKADEES AND TITMICE**

Baeolophus inornatus—Oak titmouse

VERDIN

***REMIZIDAE*—PENDULINE TITS & VERDINS**

Auriparus flaviceps—verdin

WOOD WARBLERS AND ALLIES

***PARULIDAE*—WOOD-WARBLERS**

Cardellina pusilla—Wilson's warbler
Oreothlypis celata—Orange-crowned warbler
Oreothlypis ruficapilla—Nashville warbler
Setophaga coronata—Yellow-rumped warbler
Setophaga petechia—Yellow warbler
Setophaga townsendi—Townsend's warbler

WOODPECKERS

***PICIDAE*—WOODPECKERS AND ALLIES**

Colaptes auratus—Northern flicker
Melanerpes formicivorus—Acorn woodpecker

WRENS

***TROGLODYTIDAE*—WRENS**

Catherpes mexicanus—Canyon wren
Thryomanes bewickii—Bewick's wren
Troglodytes aedon—House wren

WRENTITS

***TIMALIIDAE*—BABBLERS**

Chamaea fasciata—Wrentit

NEW WORLD SPARROWS

***PASSERELLIDAE*—NEW WORLD SPARROWS**

Amphispiza bilineata—Black-throated sparrow
Artemisiospiza belli belli —Bell's sage sparrow
Chondestes grammacus—Lark sparrow
Junco hyemalis—Dark-eyed junco
Melozone crissalis—California towhee
Pipilo maculatus—Spotted towhee
Spizella breweri—Brewer's sparrow
Zonotrichia leucophrys—White-crowned sparrow

INVERTEBRATE

BUTTERFLIES

***HESPERIIDAE*—SKIPPERS**

Atalopedes campestris—Sachem
Erynnis brizo—Sleepy duskywing
Erynnis funeralis—Funereal duskywing
Erynnis propertius—Propertius duskywing
Erynnis sp.—no common name
Erynnis tristis—Mournful duskywing
Heliopetes ericetorum—Northern white-skipper
Hesperia juba—Juba skipper
Ochlodes agricola—Rural skipper
Pholisora catullus—Common sootywing
Polites sabuleti—Sandhill skipper
Pyrgus albescens—White checkered-skipper

***LYCAENIDAE*—BLUES, HAIRSTREAKS, AND COPPERS**

Atlides halesus—Great purple hairstreak
Brephidium exile—Western pygmy-blue
Callophrys augustinus—Brown elfin
Callophrys perplexa—Perplexing green hairstreak
Celastrina ladon—Spring azure
Euphilotes battoides—Western square-spotted blue

Everes amyntula—Western tailed-blue
Glaucopsyche piasus—Arrowhead blue
Hemiargus ceraunus gyas—Edward's blue
Icaricia acmon acmon—Acmon blue
Leptotes marina—marine blue
Lycaeides melissa—Melissa blue
Philotes sonorensis—Sonoran blue
Plebejus lupini—Lupine blue
Strymon melinus—gray hairstreak

NYMPHALIDAE—BRUSH-FOOTED BUTTERFLIES

Chlosyne gabbii—Gabb's checkerspot
Danaus plexippus—Monarch
Euphydryas chalcedona—Variable checkerspot
Junonia coenia—Common buckeye
Vanessa annabella—West coast lady
Vanessa atalanta—Red admiral
Vanessa cardui—Painted lady
Vanessa sp.—no common name

PAPILIONIDAE—SWALLOWTAILS

Papilio eurymedon—Pale swallowtail
Papilio polyxenes coloro—Desert black swallowtail
Papilio rutulus—Western tiger swallowtail
Papilio sp.—no common name

PIERIDAE—WHITES AND SULFURS

Anthocharis cethura—Desert orangetip
Anthocharis sara sara—Pacific sara orangetip
Anthocharis sp.—no common name
Colias eurytheme—Orange sulphur
Colias harfordii—Harford's sulphur
Colias philodice—Clouded sulphur
Colias sp.—no common name
Euchloe hyantis lotta—Desert pearly marble
Nathalis iole—Dainty sulphur
Pieris rapae—Cabbage white
Pontia beckerii—Becker's white
Pontia protodice—Checkered white
Pontia sisymbrii—Spring white
Pontia sp.—no common name

***RIODINIDAE*—METALMARKS**

Apodemia mormo virgulti—Behr's metalmark

* *Apodemia mormo*—Mormon metalmark

MOTHS

***SPHINGIDAE*—HAWK MOTHS**

Euproserpinus phaeton—Primrose sphinx moth

***NOCTUIDAE*—OWLET MOTHS**

Autographa californica—Alfalfa looper
Heliothis belladona—no common name
Schinia amarylis—no common name
Schinia aurantiaca—no common name
Stylopoda cephalica—no common name

***CRAMBIDAE*—GRASS MOTHS**

Chrismania pictipennalis—no common name
Loxostege immerens—no common name

***EREBIDAE*—WITCH MOTHS**

Litocola sexsignata—Litocala moth
Drasteria biformata—no common name
Drasteria convergens—no common name
Drasteria divergens—no common name
Drasteria edwardsii—no common name
Drasteria fumosa—no common name
Drasteria ochracae—no common name
Drasteria tejonica—no common name
Leptarctia californica—no common name

MAMMAL

CANIDS

***CANIDAE*—WOLVES AND FOXES**

Canis latrans—Coyote

CATS

***FELIDAE*—CATS**

Lynx rufus—Bobcat
Puma concolor—Cougar

HARES AND RABBITS

***LEPORIDAE*—HARES AND RABBITS**

Lepus californicus bennettii—San Diego black-tailed jackrabbit

Sylvilagus audubonii—Desert cottontail

SQUIRRELS

SCIURIDAE—SQUIRRELS

Ammospermophilus leucurus—white-tailed antelope squirrel

RATS AND MICE

***MURIDAE*—RATS AND MICE**

Neotoma sp.—woodrat

UNGULATES

***CERVIDAE*—DEERS**

Odocoileus hemionus—Mule deer

REPTILE

LIZARDS

***PHRYNOSOMATIDAE*—IGUANID LIZARDS**

Phrynosoma blainvillii—Blainville's horned lizard

Sceloporus orcutti—Granite spiny lizard

Uta stansburiana—common side-blotched lizard

***TEIIDAE*—WHIPTAIL LIZARDS**

Aspidoscelis hyperythra—orange-throated whiptail

Aspidoscelis tigris stejnegeri—San Diegan tiger whiptail

SNAKES

***COLUBRIDAE*—COLUBRID SNAKES**

Coluber lateralis—striped racer

* Signifies introduced (non-native) species

Appendix D

45-Day Quino Checkerspot Butterfly Summary Reports

AECOM
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February 7, 2012

Ms. Susie Tharatt
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

RE: 2011 Rugged Solar Energy Project Quino Checkerspot Butterfly 45-Day Summary Report, Boulevard, California

Dear Ms. Tharatt:

In compliance with the Special Terms and Conditions for Endangered and Threatened Wildlife Species Permit TE-820658-4.6, on behalf of Rugged Solar Farm, LLC, AECOM submits this letter report summarizing the results of focused surveys conducted in 2011 for the federally listed endangered Quino checkerspot butterfly (*Euphydryas editha quino*; Quino) for the Rugged Solar project (Proposed Project or Project) in Boulevard, California. AECOM currently holds an Endangered and Threatened Species Permit issued by the U.S. Fish and Wildlife Service (USFWS) under Section 10(a)(1)(A) of the Federal Endangered Species Act. This permit authorizes AECOM to conduct presence/absence surveys for the Quino and other species.

Project Description

The Proposed Project is a concentrating photovoltaic (CPV) power plant with alternating current (AC) generating capacity of as much as approximately 100 megawatts (MW) AC. The Project will consist of up to approximately 4,375CPV trackers, although the first phase of the Project would be comprised of up to approximately 3,560 trackers grouped into approximately up to 64building blocks with up to 60 trackers and one pair of 630- to 680-kilowatt (kW) inverters each. Each inverter pair is equipped with a small step-up transformer. The AC inverter capacity determines the nameplate capacity of each building block to be 1.26 to 1.36 MW AC. The Project will be constructed on relatively flat to gently sloping land that is currently zoned as agricultural and used for grazing. The Project area is approximately 1.25 miles north of Interstate 8 (I-8), extending roughly 2 miles between Ribbonwood Road and McCain Valley Road. A smaller portion lies east of McCain Valley Road. The Project area lies within the unincorporated area of San Diego County near Boulevard, California (Figures 1, 2). It will interconnect to San Diego Gas & Electric's (SDG&E) local distribution system at the Boulevard Substation via a dedicated or shared 69-kilovolt (kV) tie-line. The Project area totals approximately 888 acres. Portions of the Project area were excluded from the Quino survey area, resulting in approximately 789 acres for the Quino Survey. The details related to acreage exclusion are defined in the survey methodology.

Site Description

The Project area is located in a desert transition zone dominated by chaparral communities, subshrub communities, alkali meadows and seeps, oak woodlands, and wildflower fields.

Elevation within the Project area ranges from approximately 3,500 to 3,670 feet above mean sea level. The Project area has gently sloping hillsides and shallow valleys, with rock outcrops and a few small hills scattered throughout. The 789-acre portion of the Project area surveyed for Quino (the Quino Survey Area) (Figure 3), is located on an active cattle ranch. The vegetation communities found within the Quino Survey Area are listed below. Vegetation was mapped during field surveys using large-plot aerial photographs at a scale of 1 inch = 200 feet. The Holland (1986) classification system for natural communities as modified by Oberbauer et al. (2008) was used for vegetation mapping. The vegetation communities are described below in order of abundance, starting with the most common community. Following the community name is the Holland (1986) classification number in parentheses (i.e., as updated by Oberbauer et al. 2008).

Semi-Desert Chaparral (37400)

Semi-desert chaparral is an open-canopy chaparral community dominated by widely spaced evergreen shrub species within a matrix of subshrubs and succulent desert transition species. This community is more open and is not quite as tall as other chaparral types, and is probably dormant in winter (due to cold temperatures) and in late summer and fall (due to drought) (Holland 1986). Dominant species are scrub oak (*Quercus* x*acutidens*), chamise (*Adenostoma fasciculatum*), holly-leaf cherry (*Prunus illicifolia*), interior flat-topped buckwheat (*Eriogonum fasciculatum* ssp. *polifolium*), foothill buckwheat (*Eriogonum wrightii* var. *membranaceum*), and mountain mahogany (*Cercocarpus betuloides*). Common desert transition species include cholla cactus (*Cylindropuntia californica* var. *parkeri*), Mojave yucca (*Yucca schidigera*), ephedra (*Ephedra californica*), and desert apricot (*Prunus fremontii*).

Alkali Seep (45320)

Alkali seep as defined in Holland (1986) and Oberbauer et al. (2008) is a wetland vegetation type that supports halophytic plant species such as salt grass (*Distichlis spicata*), salt heliotrope (*Heliotropium curassavicum*), Mexican rush (*Juncus mexicanu*s), and alkali sacaton (*Sporobolus airoides*). Within the Quino survey area, this community is consistently dominated by salt grass and salt heliotrope, with presence of the other halophytic species. This community extends throughout the floodplain of Tule Creek, which is generally flat and is subject to extensive cattle and horse grazing.

Big Sagebrush Scrub (35210)

This community is composed of soft-woody shrubs approximately 6 feet tall and is dominated by big sagebrush (*Artemisia tridentata*) with several other associated subshrub and herbaceous species. Big sagebrush scrub can occur on a wide variety of soils and terrain, from rocky well-drained slopes to fine-textured valley soils with a high water table (Holland 1986).

Upper Sonoran Subshrub Scrub (39000)

Upper Sonoran subshrub scrub is a low, open scrub community that is dominated by soft-wooded, summer-dormant, drought-tolerant shrubs. Dominant species include interior flat-topped buckwheat, foothill buckwheat, and interior goldenbush (*Ericameria linearifolia, Ericameria brachylepis*). Inter-shrub spaces are occupied by many annual species, including sun cup (*Camissonia californica*) and California matchweed (*Gutierrezia californica*) (Holland 1986).

Red Shank Chaparral (37300)

Red shank chaparral is similar to chamise chaparral but is generally taller (6.5 to 13 feet) and usually more open. Red shank (*Adenostoma sparsifolium*) is the dominant species and occupies greater than 50% of the vegetative cover. Chamise, scrub oak, and big sagebrush (*Artemisia tridentata*) often occur as co-dominant species. This community is generally restricted to granitic soils, often at higher elevations that have greater precipitation and colder winters. Red shank chaparral occurs in Southern California and is commonly found on interior cismontane slopes (Holland 1986). Other associated species often include Mohave yucca, interior flat-topped buckwheat and foothill buckwheat.

Scrub Oak Chaparral (37900)

Scrub oak chaparral is a dense, tall community that is dominated by scrub oak and, in some areas, Palmer's oak (*Quercus palmeri*), in association with various other chaparral shrub species such as chamise, sugar bush (*Rhus ovata*), silk tassel bush (*Garrya veatchii*), cup-leaf ceanothus (*Ceanothus greggii* var. *perplexens*), and big-berry Manzanita (*Arctostaphylos glauca*). This community occurs on sites that are more mesic than other chaparrals, on soils that are too shallow or xeric for oak woodland communities (Holland 1986).

Chamise Chaparral (37200)

Chamise chaparral is dominated by chamise and generally contains less species diversity than other chaparral communities (Holland 1986). However, several other shrub, subshrub, and herbaceous species are present as co-dominant species on occasion, including scrub oak, interior flat-topped buckwheat, foothill buckwheat, cup-leaf ceanothus, and Mohave yucca.

Nonnative Grassland (42200)

Nonnative grassland generally occurs on fine-textured loam or clay soils that are moist or even waterlogged during the winter rainy season and very dry during the summer and fall. It is characterized by a dense to sparse cover of annual grasses, often with native and nonnative annual forbs (Holland 1986). Typical grasses within the region are cheat grass

(*Bromus tectorum*), ripgut brome (*Bromus diandrus*), red brome (*Bromus madritensis* ssp. *rubens*), soft chess (*Bromus hordeaceus*), wild oats (*Avena* sp.), and rat-tail fescue (*Vulpia myuros*). Nonnative disturbance-related annuals such as filaree (*Erodium* spp.), and short-pod mustard (*Hirschfeldia incana*) are common to this community. Although named as a nonnative community, this community often has significant biological value, since it typically supports native grassland species such as tarweed (*Deinandra* spp.) and California goldfield (*Lasthenia gracilis*), provides foraging habitat for raptors, and often supports other sensitive wildlife species.

Freshwater Seep (45400)

Freshwater seep is a persistent wetland dominated by low-growing, perennial plant species. It occurs in permanently moist or wet soil often associated with grasslands and meadows. This vegetation community is dominated by various wetland plant species, including cluster field sedge (*Carex praegracilis*), rushes (*Juncus* spp.), and yerba mansa (*Anemopsis californica*) (Oberbauer et al. 2008).

Coast Live Oak Woodland (71160)

Coast live oak woodland varies from an open to dense tree community with interior coast live oak (*Quercus agrifolia* var. *oxyadenia*) as the dominant overstory species in the habitat on-site. The shrub understory of these communities may include foothill buckwheat in the more open phase oak woodland, and black elderberry (*Sambucus nigra* spp. *caerulea*) and hybrid scrub oak (*Quercus x acutidens*) in the dense phase (Holland 1986).

Southern Willow Scrub (63320)

Southern willow scrub is a dense, broad-leaved, winter deciduous riparian thicket dominated by several species of willow (*Salix* spp.) in association with mulefat (*Baccharis salicifolia*). Associated species found within this community include mariposa rush (*Juncus dubious*), seep monkeyflower (*Mimulus guttatus*), and hoary nettle (*Urtica dioica-holosericea*), among others. This is an early seral community that requires periodic flooding to prevent succession to riparian forest (Holland 1986).

Wildflower Field (42300)

This community is distributed from montane areas to foothills and valleys of the Californian Floristic Province below about 4,000 to 5,000 feet elevation in San Diego County. The distinguishing feature of wildflower fields is a dominance of native herbaceous species, often with conspicuous displays of annual wildflowers. Dominance varies from site to site and from year to year (Holland 1986). This community type does not apply to desert regions (too dry) or the north coast of California (too wet). Wildflower field is a sensitive habitat because of its unique character and rare occurrence.

Disturbed (11300)

Disturbed areas are those affected by human activities. Vegetation does not usually become reestablished due to frequent disturbances (Holland 1986). Disturbed habitat includes permanent dirt roads and cleared/graded areas surrounding development.

Unvegetated Channel (64200)

This community consists of unvegetated washes that are dominated by sandy substrate and little to no vegetation (Holland 1986). These channels flood with sufficient frequency to exclude vegetation. However, low cover of flood-adapted herbaceous species can be present. Within the Project area, Tecate tarplant (*Deinandra floribunda*), a California Native Plant Society (CNPS) List 1B rare plant species restricted to southern San Diego County and Baja California, was present in some areas of the unvegetated washes.

Background Information

Quino was added to the federal endangered species list by USFWS on January 16, 1997 (USFWS 1997). The species (*E. editha*) has a range extending from British Columbia and Alberta, Canada, south through Colorado and Utah, and west along the coast to northern Baja California. It is divided into at least 29 subspecies, each of which has its own range and biological and morphological characteristics. In California, there are at least 18 described subspecies (Emmel 1998). Three other subspecies of *E. editha* are currently known to occur in Southern California. Quino is the southwesternmost subspecies of *E. editha* (Mattoni et al. 1997).

Quino is known to occur in association with a variety of plant communities, soil types, and elevations (up to 5,000 feet). The plant communities include clay soil meadows, open grasslands, coastal sage scrub, chamise chaparral, red shank chaparral, juniper woodlands, and semi-desert scrub (Ballmer et al. 2001). Quino is also associated with clay soils that possess cryptogamic crusts and vernal pools (USFWS 2002).

Quino is a medium-sized butterfly (approximately 0.8- to 1.1-inch wingspan) belonging to the family Nymphalidae. The adults are primarily orange-red with white and have black markings on the dorsal wing surface. They are active primarily in March and April. This active period may vary depending on weather conditions (Ballmer et al. 2001). The adult butterfly feeds on nectar, which it obtains from spring annuals such as popcorn flower (*Cryptantha* spp.), Layia (*Layia glandulosa*), goldenbush (*Ericameria* spp.), pincushion (*Chaenactis* spp.), fiddleneck (*Amsinckia intermedia*), chia (*Salvia columbariae*), and blue dicks (*Dichelostemma capitatum*), among others. It cannot use flowers that possess deep corolla tubes, such as monkeyflower (*Mimulus* spp.), or those that can be opened by bees, such as snapdragons (*Antirrhinum* spp.) (USFWS 2002). Adult males and virgin females sometimes “hilltop,” or travel to elevated locations to find mates. While waiting for females to arrive, the males will often exhibit “territorial behavior” and will chase other butterflies that approach

them. Frequently, the butterflies are observed in meadows or clearings where their host plants occur (Ballmer et al. 2001).

An adult female may lay 20 to 75 eggs per cluster and may produce up to 1,200 eggs in her lifetime of a couple weeks. The eggs hatch in approximately 10 days under favorable weather conditions, and the young larvae will immediately begin to feed upon a host plant. The feeding larvae use the dot-seed plantain (*Plantago erecta*), Patagonia plantain (*Plantago patagonica*), white snapdragon (*Antirrhinum coulterianum*), and southern Chinese houses (*Collinsia concolor*) as their host plants (Pratt 2010). Dark-tip bird's beak (*Cordylanthus rigidus*) and purple owl's clover (*Castilleja exserta*) are considered secondary hosts (USFWS 2002). New evidence suggests that southern Chinese houses is a primary larval food plant for Quino in the 2,953- to 4,265-foot elevation range (Pratt 2010), which is within the range coincident with the Quino survey area.

After feeding and initial growth, the early instar larvae enter an obligatory aestival diapause (dormant stage), which may be broken after fall or winter rains (Murphy and White 1984; Osborne 1998). If adverse weather conditions occur, the emergent larva may reenter a diapause stage repeatedly, for up to 5 or 6 years, until favorable weather conditions permit sufficient growth of the host plant to allow the larva to complete its development. Quino is known to undergo population fluctuations, with extirpation of local populations and recolonization of new areas characteristic of metapopulation dynamics (Osborne 1998).

Quino was once common in Southern California. It ranged north into Ventura County, west to the Pacific Ocean, east to the desert edge, and south into northern Baja California. Currently, it is known to occur only in a few, probably isolated, colonies in southwestern Riverside County, San Diego County, and northern Baja California.

Reasons for the butterfly's reduction in population are not well understood. Habitat loss due to degradation and fragmentation caused by urban and rural development, agricultural conversion, off-road-vehicular use, the invasion of nonnative plants and insects, fire management practices, overcollecting, and adverse weather conditions have likely contributed to the species' decline (USFWS 1997).

USFWS recommends that focused Quino surveys be conducted a minimum of five times during the adult flight season by biologists possessing a recovery permit for this species pursuant to Section 10(a)(1)(A) of the Endangered Species Act. The Quino flight season within a given area is determined by the activity of known Quino populations, which is monitored annually by USFWS. The Quino survey area is located in eastern San Diego County, and the Jacumba reference site, approximately 4.5 miles to the southeast, is the closest known population of Quino; therefore, surveys coincided with Quino activity at the Jacumba reference site. During the 2011 flight season, the first adult Quino were observed flying at the Jacumba reference site on March 15 (USFWS 2011).

Survey Methodology

In the Project area which totals 888 acres, approximately 99 acres were excluded from Quino surveys because of lack of suitable habitat, overlap with other project sites, and small modifications made to the Project area after the completion of protocol surveys (Figure 3).

One small feature of unsuitable habitat occurs on the northwestern portion of the site: a pond, which covers 0.17 acre. Two other areas of the Project area were excluded due to overlap with another project. This consisted of a construction yard and a construction corridor totaling 75.41 acres.

After Quino surveys were completed in spring 2011, the Project area boundaries shifted very slightly in some areas. One access route was shifted to a new area off of McCain Valley Road and another access route was expanded. These modifications to the Project footprint study area amount to 24.18 acres and contain similar habitat to the adjacent areas surveyed for Quino. These changes are reflected in Figure 3.

Habitat Assessment

In accordance with the *Survey Protocol for the Endangered Quino Checkerspot Butterfly* (*Euphydryas editha quino*) (USFWS 2002), a habitat assessment of the Project area was conducted on March 25, 2011, prior to the first protocol-level survey by permitted biologists (Table 1). Protocol-level surveys for Quino were determined necessary due to the presence of suitable Quino habitat, known occurrences in the region, and the USFWS recommendation for Quino surveys of the area (USFWS 2005). The Project area occurs within Area 1 of the most up-to-date USFWS Quino Recommended Survey Area Map, where capture of Quino is not allowed (USFWS 2005). Potential habitat surveyed for Quino consists of all habitat types onsite except for open water (cattle ponds), developed areas, and other portions of the Project area excluded from the survey. Results of habitat assessments defined all potentially suitable habitats as the Quino survey area (Figure 3). Closed-canopy chaparral, riparian forest, and oak woodland habitats were included in the Quino survey area because these areas were small and adjacent to open patches of habitat with the potential to support Quino.

Table 1
Permitted Biologists Who Conducted Quino Habitat Assessments

AECOM Permitted Biologists
Erin Bergman
Andrew Fisher
Mike Couffer
Subcontracted Permitted Biologists
Antonette Gutierrez
Steve Rink
Adam Behle

Focused Adult Quino Surveys

The start date for focused adult Quino surveys was determined based on conditions at the Jacumba reference site monitored by USFWS (USFWS 2011). The Jacumba reference site population of Quino uses dotseed plantain (*Plantago erecta*) as a host plant (USFWS 2011). This plant species, widespread on clay soils in western San Diego County, is restricted to basalt-derived clay soils in the vicinity of Jacumba Mountain (Osborne 2011), and is not present in the Project area. The Jacumba reference site is closer to the desert and at a slightly lower elevation than the Quino survey area. Due to higher elevations, the presence of granitic soils, the lack of clay soils, and the absence of dotseed plantain in the Quino Survey Area, any Quino population existing on-site would be expected to exhibit ecology similar to other "high" elevation Quino populations in the vicinity, which are typically associated with southern Chinese houses, white snapdragon, and dark-tip bird's beak host plants. Quino populations of higher elevations tend to fly slightly later in the season than those populations at slightly lower elevations. Based on AECOM biologists' experience with Quino in the region, it is expected that any potential Quino population in the vicinity of the Quino Survey Area will have its flight season beginning 1 or 2 weeks later than the population at the Jacumba reference site.

The first adult Quino observed at the Jacumba reference site was detected on March 15, 2011. However, due to out-of-protocol weather for most of March (mean daytime temperatures were predicted to be below protocol survey guideline temperatures), surveys were not initiated until March 30, 2011. Focused presence/absence Quino surveys within the Quino Survey Area occurred from March 30, 2011, to May 4, 2011. Surveys were conducted by permitted AECOM biologists Erin Bergman, Bonnie Hendricks, Andrew Fisher, and Barbra Calantas. Additional AECOM biologists with independent permits also conducted Quino surveys; Table 2 provides a list of all biologists who conducted surveys and their permit numbers.

Table 2
Survey Personnel and TE Permit Numbers

Biologist	Permit Number
Adam Behle	797999-7.2
Andrew Fisher	820658-4
Antonette Gutierrez	797999-7.2
Barbra Calantas	820658-4
Bonnie Hendricks	820658-4
Erin Bergman	820658-4
Ken Osborne	837760-6
Kyle Ince	797999-7.2
Margaret Mulligan	233291-0
Michael Couffer	782703-8
Steve Rink	797999-7.2

Surveys were conducted during optimal periods for detecting Quino when wind, temperature, and other weather conditions were most favorable. If weather conditions did not meet the USFWS protocol for Quino, biologists waited for the weather conditions to improve before proceeding with surveys. Surveys were terminated if sustained winds were more than 15 miles per hour. The survey routes of each permitted biologist were recorded and mapped electronically using Garmin Global Positioning System (GPS) units. Biologists walked meandering transects through all potentially suitable habitat, scanning the ground, surrounding shrubs, and all nectar sources for Quino. Biologists documented any potential Quino host plant populations, all species of flowering plants (potential nectar sources), and all species of butterflies observed. Potential Quino host plants were mapped and recorded during all habitat assessments and focused adult surveys in increments of 1–10, 11–50, 51–100, 101–500, and 500+ individual plants (Figure 3).

The Quino Survey Area was surveyed initially for 5 weeks, which is the recommended minimum duration for focused Quino presence/absence surveys in the current USFWS survey protocol (USFWS 2002). Surveys were extended an additional survey week within selected portions of the Quino Survey Area because potential Quino host plants (dark-tip bird's beak and southern Chinese houses) were present in these areas or nectar resources remained abundant. Although protocol was satisfied with the 5 weeks of survey effort, in the interest of survey rigor, a sixth week of survey was continued within portions of the Quino survey area considered to have the greatest potential to support Quino. Portions of the Quino Survey Area were excluded from this additional survey effort based on the following factors: increased evidence of heavy cattle grazing, a lack of host plant populations, and sparse nectaring resources. Therefore, approximately 559.63 acres within the Project area were surveyed during survey week 6 (Figure 3).

According to USFWS guidelines, habitat with active/in-use grazing and a lack of native vegetation can be excluded from protocol-level surveys. Evidence of cattle grazing was present during weeks 1 through 5, but these areas were still surveyed for 5 weeks given the presence of native vegetation in spite of active grazing. Table 3 provides the survey week, date, survey team, total number of survey days, and the number of permitted biologist days that surveys were conducted.

Results

No Quino were detected during the habitat assessment or the focused adult Quino surveys. The five most abundant butterflies found in the Project area in order of abundance were the Behr's metalmark (*Apodemia mormo*), Sara orangetip (*Anthocharis sara*), desert pearly marble (*Euchloe hyantis*), common buckeye (*Junonia coenia*), and Acmon blue (*Icaria acmon*). A total of 64 butterfly and various moth species were detected within the survey area, with numbers varying across survey weeks. The total abundance of butterfly species ranged across the six surveys, but was highest during survey weeks 3 through 6.

Table 3
Protocol Quino Survey Schedule

Survey Week	Date	Survey Team	# Calendar Days	# Person Days[1]
1	03/29/11 – 04/01/11	Erin Bergman, Barbra Calantas, Mike Couffer, Andrew Fisher, Bonnie Hendricks, Margie Mulligan	4	12
2	04/04/11 – 04/05/11	Barbra Calantas, Mike Couffer, Andrew Fisher, Bonnie Hendricks, Kyle Ince, Margie Mulligan, Stephen Rink, Adam Behle	2	11
3	04/14/11 – 04/15/11	Erin Bergman, Antonette Gutierrez, Bonnie Hendricks, Kyle Ince, Margie Mulligan, Stephen Rink	2	12
4	04/18/11 – 04/20/11	Erin Bergman, Mike Couffer, Antonette Gutierrez, Bonnie Hendricks, Kyle Ince, Margie Mulligan, Ken Osborne, Stephen Rink	4	10
5	04/25/11 – 05/01/11	Mike Couffer, Antonette Gutierrez, Margie Mulligan, Ken Osborne	4	10
6	05/02/11 – 05/05/11	Erin Bergman, Bonnie Hendricks, Margie Mulligan, Ken Osborne	4	11

[1] The number of person days varied depending on weather conditions, as outlined in the USFWS protocol, and included only permitted biologists.

Generally, potential nectar sources increased in diversity and abundance during survey weeks 3 through 6. A summary of weekly butterfly and moth species observations is included in Appendix A. Survey-specific weather conditions and personnel are presented in Appendix B. Field data collected during protocol surveys is included in Appendix C. A list of potential nectaring sources and host plants detected during each survey week is presented in Appendix D. A list of vertebrate wildlife species detected during Quino surveys is presented in Appendix E.

The Quino Survey Area within the Project area was initially part of a larger survey area that was separated into three separate CPV projects (LanWest Solar Farm LLC, LanEast Solar Farm LLC, and Rugged Solar LLC) after the completion of habitat assessments and Quino surveys. LanWest Solar Farm is located near the Proposed Project (on the western boundary of LanEast) and includes habitat approximately 0.5 mile west of McCain Valley Road immediately south of I-8 and north of Old Highway 80. LanEast Solar Farm is located on both sides of McCain Valley Road immediately south of I-8, but not extending all the way south to Old Highway 80. Rugged Solar Farm includes land beginning about one mile north of I-8 and on both sides of McCain Valley Road. All three project sites were surveyed at the same time for Quino (when the sites were considered one large project). Therefore, to provide additional data, some of the appendices include combined data from the now three differentiated projects. Appendix D is the same for all three project sites.

During spring 2011, rare plant surveys were ongoing and concurrent with focused Quino surveys for the Project. Botanists Bonnie Hendricks, Erin Bergman, Fred Sproul, Kyle Harper, Lance Woolley, Margaret Mulligan, John Messina, and Kyle Ince conducted rare plant surveys across 100% of the Quino Survey Area. Botanists mapped all potential Quino larval host plants observed while completing rare plant surveys. All potential host plants that were detected within the Quino Survey Area, including observations made by Quino surveyors during protocol surveys and by botanists during rare plant surveys within the same time frame as the Quino protocol surveys, are provided in Figure 3.

Two potential Quino host plant species were detected within the Quino Survey Area: dark-tip bird's beak and southern Chinese houses (Figure 3). Southern Chinese houses was most abundant in the chaparral communities on gently sloping terrain in the central portion of the Project area. A population of approximately 5,000 individuals was observed in flower during the fifth week of surveys. Chinese houses were starting to set seed in the sixth week of surveys.

Dark-tip bird's beak was observed in small numbers scattered across the Project area. This species was present as a small basal rosette and/or diminutive immature plant in April. Dark-tip bird's beak did not fully mature and bloom on-site until July. The basal rosettes were first observed during the second week of surveys.

Discussion

No Quino were found within the Quino Survey Area, despite the presence of several small discontiguous populations of potential Quino host plants, including southern Chinese houses and dark-tip bird's beak (Figure 3). One relatively larger population of Chinese houses including several thousand individuals was located in the central area of the project site in redshank chaparral. No dot-seed plantain was found within the Quino survey area.

Due to above-average rainfall during the 2010/2011 wet season, host plant population growth, as exhibited at several other locations in the general vicinity of the Project area, was not limited by rainfall (NOAA 2011). Given the ample winter precipitation, abundant wildflowers, springtime butterflies and moths, well coordinated timing of the survey relative to activity of local Quino populations, and extensive experience of the survey biologists, AECOM is confident that the negative survey results for Quino are valid on all portions of the Quino Survey Area.

If you have any questions or comments regarding this letter report, please contact me at (619) 233-1454.

Sincerely,

Andrew Fisher
Wildlife Biologist

Attachments:
- Figure 1 – Regional Map
- Figure 2 – Vicinity Map
- Figure 3 – Quino Habitat Assessment and Larval Host Plants Map
- Appendix A – Summary of Weekly Butterfly and Moth Species Observations During Quino Surveys
- Appendix B – Daily Weather Conditions During Quino Surveys
- Appendix C – Field Data Collected During Quino Surveys
- Appendix D – Potential Nectaring Sources and Host Plants Detected During Quino Surveys
- Appendix E – Vertebrate Wildlife Species Detected During Quino Surveys

Certification

Qualified biologists who conducted Quino surveys for the proposed Rugged Solar LLC project certify that the information in this survey report fully and accurately represents the work performed. Signatures of permitted biologists, as listed in Table 1, who conducted protocol surveys (March 29, 2011, through May 5, 2011) are included below. The results of focused surveys for listed species are typically considered valid for 1 year by the resource agencies.



Erin Bergman
AECOM Biologist



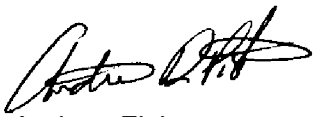
Adam Behle
Subcontracted Biologist



Barbra Calantas
AECOM Biologist



Michael Couffer
AECOM Biologist



Andrew Fisher
AECOM Biologist



Antonette Gutierrez
Subcontracted Biologist



Bonnie Hendricks
AECOM Biologist



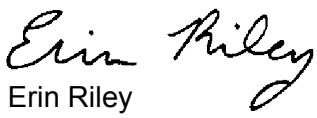
Kyle Ince
Subcontracted Biologist



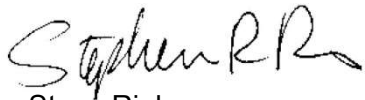
Margaret Mulligan
AECOM Biologist



Ken Osborne
AECOM Biologist



Erin Riley
AECOM Biologist



Steve Rink
Subcontracted Biologist

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FIGURES



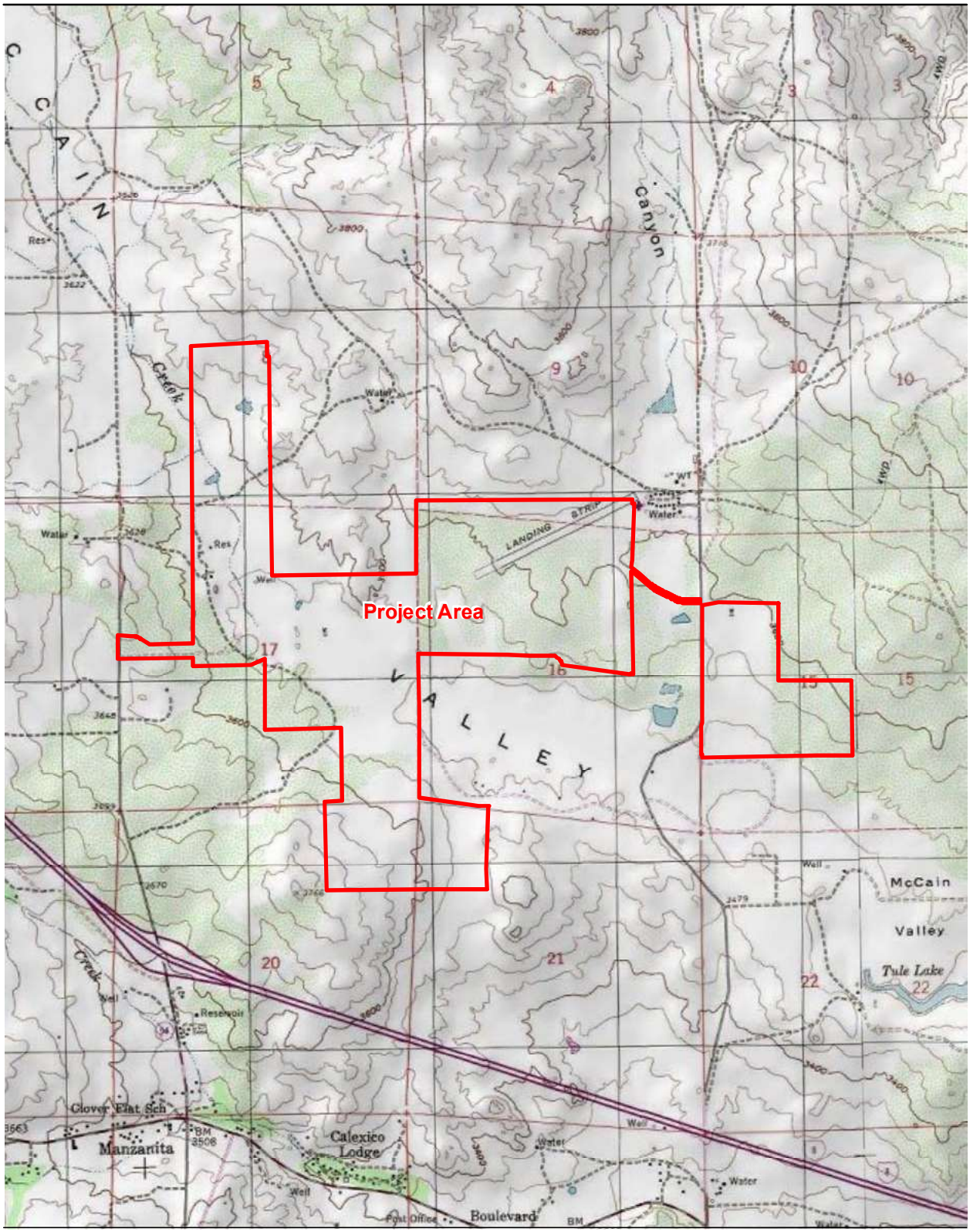
Source: Soitec 2011; AECOM 2011; ESRI 2011

5 2.5 0 5 Miles

Scale: 1 = 316,800; 1 inch = 5 mile(s)

Figure 1
Regional Map

Path: P:\2011\11280175.01_Concentrix_S\06GIS\6.3_Layout\QCB_45DayReport\RuggedSolar\RegionalMap.mxd, 11/29/2011, johnsonaa



Source: Soitec; ESRI; AECOM 2011

Live Oak Springs and Jacumba USGS Quadrangles, San Diego County

0.5 0.25 0 0.5 Miles

1:31,680 1 inch = 0.5 mile(s)

Figure 2
Vicinity Map

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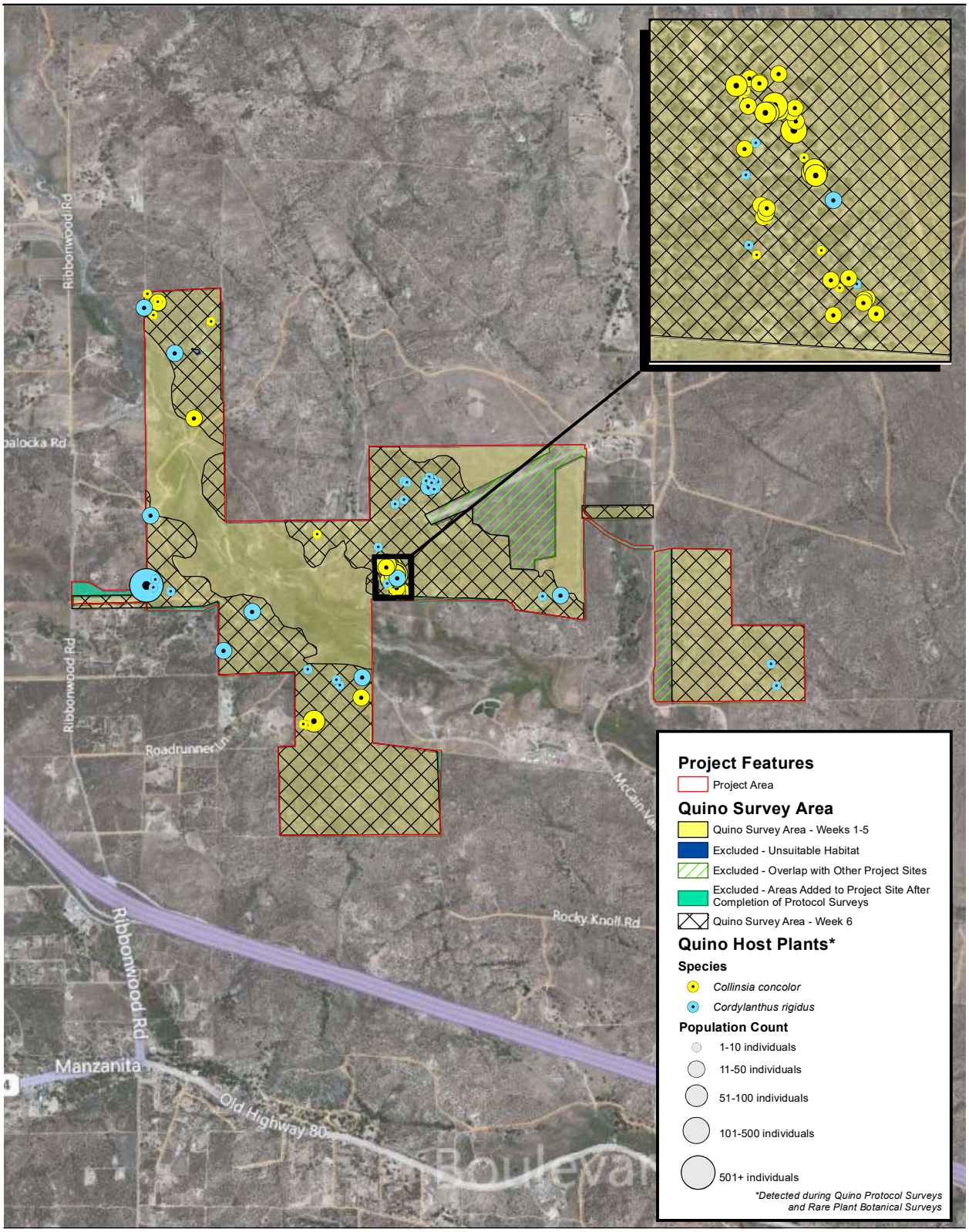

Source: Soitec; ESRI; AECOM 2011

0.5 0.25 0 0.5 Miles

1:31,680 1 inch = 0.5 mile(s)

Figure 3
Quino Habitat Assessment and Larval Host Plants Map

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APPENDIX A
SUMMARY OF WEEKLY BUTTERFLY AND MOTH SPECIES OBSERVATIONS DURING QUINO SURVEYS

APPENDIX A
SUMMARY OF WEEKLY BUTTERFLY AND MOTH SPECIES OBSERVATIONS DURING QUINO SURVEYS

	Survey Week 1	Survey Week 2	Survey Week 3	Survey Week 4	Survey Week 5	Survey Week 6	TOTAL
Nymphalidae (Brushfooted Butterflies)							
Chlosyne gabbii (Gabb's checkerspot)	0	1	0	0	1	1	3
Euphydryas chalcedona (Henne's checkerspot)	2	0	0	0	2	2	6
Junonia coenia (common buckeye)	0	3	39	61	55	45	203
Vanessa annabella (west coast lady)	1	0	2	1	0	0	4
Vanessa atalanta (red admiral)	0	0	0	0	2	1	3
Vanessa cardui (painted lady)	3	4	2	0	3	0	12
Vanessa sp. (lady sp.)	2	5	2	0	0	0	9
Danaidae (Milkweed Butterflies)							
Danaus plexippus (monarch)	0	0	0	0	0	1	1
Pieridae (Whites, Sulphurs)							
Anthocaris sp. (orangetip sp.)	0	9	0	0	0	0	9
Anthocharis cethura (Felder's orangetip)	3	2	0	0	0	0	5
Anthocharis sara (Sara orangetip)	59	78	51	17	10	4	219
Colias eurytheme (Orange sulphur)	7	0	1	7	5	30	50
Colias harfordii (Harford's sulphur)	5	3	6	7	11	54	86
Colias sp. (sulphur sp.)	3	3	4	4	0	0	14
Euchloe hyantis (desert pearly marble)	98	69	25	5	7	0	204
Nathalis iole (dainty sulphur)	3	0	2	0	1	18	24
Pieris rapae (cabbage white)	0	2	0	0	0	0	2
Pontia beckerii (Beker's white)	0	5	2	3	4	1	15
Pontia protodice (common white)	9	16	9	34	22	57	147
Pontia sisymbrii (spring white)	5	0	0	3	1	0	9
Pontia sp. (white sp.)	11	4	0	0	0	0	15
Papilionidae (Swallowtails)							
Papilio eurymedon (pale swallowtail)	0	1	3	1	1	4	10
Papilio polyxenes (desert black swallowtail)	1	1	1	0	0	0	3
Papilio rutulus (western tiger swallowtail)	0	0	0	0	3	0	3
Papilo sp. (swallowtail sp.)	0	1	0	0	0	0	1
Riodiniade (Metalmarks)							
Apodemia mormo (Behr's metalmark)	365	574	679	684	940	439	3,681
Lycaenidae (Hairstreaks and Blues)							
Atlides halesus (great purple hairstreak)	0	0	0	0	2	0	2
Brephidium exile (western pygmy blue)	0	0	0	0	0	2	2
Callophrys augustinus (brown elfin)	4	0	1	2	4	0	11
Callophrys dumetorum (perplexing green hairstreak)	55	20	10	4	1	1	91
Euphilotes battoides	0	0	0	0	0	12	12
Everes amyntula (western-tailed blue)	1	4	5	1	7	32	50
Glaucopsyche lygdamus (southern blue/silvery blue)	0	2	0	0	5	2	9
Glaucopsyche piasus	0	0	0	0	1	0	1
Icaria acmon (acmon blue)	28	52	17	9	25	46	177
Philotes sonorensis (sonoran blue)	0	0	0	2	0	0	2
Plebejus lupine	0	0	0	0	3	3	6

	Survey Week 1	Survey Week 2	Survey Week 3	Survey Week 4	Survey Week 5	Survey Week 6	TOTAL
Hesperiidae (Skippers)							
Atalopedes campestris (sachem)	0	5	0	0	0	0	5
Erynnis brizo (sleepy duskywing)	6	3	1	2	2	4	18
Erynnis funeralis (funereal duskywing)	5	8	3	0	3	0	19
Erynnis propertius (propertius duskywing)	6	14	10	11	12	10	63
Erynnis sp. (duskywing sp.)	12	9	2	1	0	0	24
Erynnis tristis (sad duskywing)	1	1	1	1	4	0	8
Heliopetes ericetorum (northern white skipper)	0	0	0	0	2	2	4
Hesperia juba (juba skipper)	0	2	6	10	8	29	55
Ochlodes agricola	0	0	0	0	1	0	1
Philosora catullus (common sootywing)	0	9	19	14	10	8	60
Polites sabuleti (sandhill skipper)	0	0	1	45	58	23	127
Pyrgus communis (checkered skipper)	0	0	0	1	0	0	1
Moths							
Autographa californica	0	0	1	0	0	0	1
Drasteria biformata	0	0	1	0	0	0	1
Drasteria convergens	0	0	0	0	1	0	1
Drasteria divergens	0	0	1	0	0	0	1
Drasteria fumosa	0	0	1	0	0	0	1
Drasteria ochracae	0	0	0	0	1	3	4
Drasteria tejonica	3	0	0	3	0	0	6
Heliothis belladona	0	0	2	0	0	0	2
Kodiosoma fulva	0	0	0	0	3	1	4
Leptarctia californica	0	0	0	2	0	0	2
Litocola sexsignata	16	1	0	0	0	0	17
Schinia aurantiaca	0	0	0	1	6	3	10
Stylopoda cephalica	0	0	0	0	4	0	4
Unknown moth	0	0	4	2	0	0	6

APPENDIX B
DAILY WEATHER CONDITIONS
DURING QUINO SURVEYS

APPENDIX B
DAILY WEATHER CONDITIONS DURING QUINO SURVEYS

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed range (mph)	Cloud Cover (%)	General Sky Condition
3/29/2011	1	Erin Bergman	0945	68.9	1.4-3.8	0	clear
3/29/2011	1	Erin Bergman	1045	70.1	1.9-2.6	0	clear
3/29/2011	1	Erin Bergman	1145	71.8	1.0-2.6	0	clear
3/29/2011	1	Erin Bergman	1245	76.9	1.9-2.3	0	clear
3/29/2011	1	Erin Bergman	1345	70.0	0.8-2.5	0	clear
3/29/2011	1	Erin Bergman	1445	69.0	0.8-2.5	0	patchy
3/29/2011	1	Erin Bergman	1600	68.0	0.8-2.5	80	patchy
3/29/2011	1	Andrew Fisher	0920	64	1–2 W	0	clear
3/29/2011	1	Andrew Fisher	1130	68	2–3 W	0	clear
3/29/2011	1	Andrew Fisher	1430	73	3 W	5	clear
3/29/2011	1	Andrew Fisher	1530	75	2–3 W	65	patchy
3/29/2011	1	Bonnie Hendricks	0900	66	3.6-7.5	0	clear
3/29/2011	1	Bonnie Hendricks	1000	68	2.7-3.9	0	clear
3/29/2011	1	Bonnie Hendricks	1100	67	1.4-6.0	0	clear
3/29/2011	1	Bonnie Hendricks	1220	71	2.4-7.0	0	clear
3/29/2011	1	Bonnie Hendricks	1345	70	1.9-3	0	clear
3/29/2011	1	Bonnie Hendricks	1500	74	2.4-4.2	50	patchy
3/29/2011	1	Bonnie Hendricks	1600	68	1.2-3.5	80	overcast
3/29/2011	1	Margie Mulligan	0910	68	1–3	0	clear
3/29/2011	1	Margie Mulligan	1200	70	2–3	2	clear
3/29/2011	1	Margie Mulligan	1410	70	1–3	5	clear
3/30/2011	1	Erin Bergman	0930	63	1.5	15	clear
3/30/2011	1	Erin Bergman	1250	72	1.5	0	clear
3/30/2011	1	Erin Bergman	1430	73	6–8	0	clear
3/30/2011	1	Barbra Calantas	0840	64.2	1.5-3.0	0	clear
3/30/2011	1	Barbra Calantas	0940	67.1	2.8-3.5	5	clear
3/30/2011	1	Barbra Calantas	1040	68.5	4.3-5.5	2	clear
3/30/2011	1	Barbra Calantas	1140	71.7	4.5-4.6	2	clear
3/30/2011	1	Barbra Calantas	1240	72.1	10.4-15.1	2	clear
3/30/2011	1	Barbra Calantas	1330	72.0	6.3-8.9	2	clear
3/30/2011	1	Bonnie Hendricks	0850	63.7	1.5-4.3	15	clear
3/30/2011	1	Bonnie Hendricks	1000	69.1	7.1-11.4	2	clear
3/30/2011	1	Bonnie Hendricks	1230	72.1	8.6-13.4	1	clear
3/30/2011	1	Bonnie Hendricks	1330	73.2	6.7-12.2	5	clear
3/30/2011	1	Bonnie Hendricks	1430	75.8	3.2-6	60	patchy
3/30/2011	1	Bonnie Hendricks	1600	75.2	1.3-2.6	80	patchy
3/31/2011	1	Andrew Fisher	1300	85	2–3 W	0	clear
3/31/2011	1	Andrew Fisher	1500	81	2–3 W	0	clear
3/31/2011	1	Andrew Fisher	1726	81	1–2 W	0	clear
4/1/2011	1	Mike Couffer	0830	81	0	0	clear
4/1/2011	1	Mike Couffer	0900	83	0–1	0	clear
4/1/2011	1	Mike Couffer	1000	85	0–3	0	clear
4/1/2011	1	Mike Couffer	1100	85	0–3	0	clear
4/1/2011	1	Mike Couffer	1200	87	1–5	0	clear
4/1/2011	1	Mike Couffer	1300	86	1–4	0	clear
4/1/2011	1	Mike Couffer	1400	86	0	0	clear
4/1/2011	1	Andrew Fisher	0837	75.5	0	0	clear
4/1/2011	1	Andrew Fisher	1347	88	0	0	clear
4/4/2011	2	Adam Behle	0900	62	2-10	0	clear
4/4/2011	2	Adam Behle	1200	73	2-9	0	clear
4/4/2011	2	Adam Behle	1520	-	2-6	0	clear
4/4/2011	2	Erin Bergman	0900	61	1–3	0	clear
4/4/2011	2	Erin Bergman	1100	70	1–5	0	clear

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed range (mph)	Cloud Cover (%)	General Sky Condition
4/4/2011	2	Erin Bergman	1200	69	1–3	0	clear
4/4/2011	2	Erin Bergman	1300	68	1–6	0	clear
4/4/2011	2	Erin Bergman	1400	72	2–6	0	clear
4/4/2011	2	Erin Bergman	1600	73	2–7	0	clear
4/4/2011	2	Margie Mulligan	0915	60	5–8	0	clear
4/4/2011	2	Margie Mulligan	1030	64	2–4	0	clear
4/4/2011	2	Margie Mulligan	1300	71	2–5	0	clear
4/4/2011	2	Margie Mulligan	1420	74	3–6	0	clear
4/4/2011	2	Margie Mulligan	1600	76	3–5	0	clear
4/5/2011	2	Barbra Calantas	0900	60.8	0.7-2.3	12 haze	clear
4/5/2011	2	Barbra Calantas	1000	70.5	1.9–3.7	15 haze	clear
4/5/2011	2	Barbra Calantas	1100	72.3	1.9-2.8	25 haze	clear
4/5/2011	2	Barbra Calantas	1200	79.1	1.1-5.0	40 haze	clear
4/5/2011	2	Barbra Calantas	1300	78.4	1.0-5.4	70 haze	patchy
4/5/2011	2	Mike Couffer	0830	68	0	high clouds	clear
4/5/2011	2	Mike Couffer	0900	70	0–1	high clouds	clear
4/5/2011	2	Mike Couffer	1000	73	0–2	high clouds	clear
4/5/2011	2	Mike Couffer	1100	75	0–4	high clouds	clear
4/5/2011	2	Mike Couffer	1200	77	0–4	high clouds	clear
4/5/2011	2	Mike Couffer	1300	77	2–7	30	patchy
4/5/2011	2	Mike Couffer	1400	79	2–6	50	overcast
4/5/2011	2	Andrew Fisher	1220	80	3–4	50	patchy
4/5/2011	2	Andrew Fisher	1400	78	4-10.0	80	patchy
4/5/2011	2	Andrew Fisher	1515	72	5-10.0	85	patchy
4/5/2011	2	Bonnie Hendricks	0900	69.4	2.2-5.5	10	clear
4/5/2011	2	Bonnie Hendricks	1050	81.2	1.8-3.3	40	clear
4/5/2011	2	Bonnie Hendricks	1130	83.5	2.1-4.5	30	clear
4/5/2011	2	Bonnie Hendricks	1250	76.8	3.2-7.8	50	patchy
4/5/2011	2	Bonnie Hendricks	1320	73.5	5.6-8.7	75	patchy
4/5/2011	2	Bonnie Hendricks	1430	80.6	5.3-8.5	75	patchy
4/5/2011	2	Bonnie Hendricks	1600	72.7	4.1-7.2	80	overcast
4/5/2011	2	Kyle Ince	0915	66	2-3	5	clear
4/5/2011	2	Kyle Ince	1020	66	2-5	10	clear
4/5/2011	2	Kyle Ince	1130	80	5-10	15	patchy
4/5/2011	2	Kyle Ince	1300	76	2-8	25	patchy
4/5/2011	2	Kyle Ince	1430	74	2-8	50	patchy
4/5/2011	2	Kyle Ince	1500	-	5-8	75	overcast
4/5/2011	2	Margie Mulligan	0915	68	2–5	35	patchy
4/5/2011	2	Margie Mulligan	1115	72	3–6	35	patchy
4/5/2011	2	Margie Mulligan	1300	74	3–6	55	patchy
4/5/2011	2	Margie Mulligan	1400	77	6–8	65	patchy
4/5/2011	2	Steve Rink	0800	61	1-2	15	patchy
4/5/2011	2	Steve Rink	1021	70	5-3	15	patchy
4/5/2011	2	Steve Rink	1205	72	5-7	15	patchy
4/5/2011	2	Steve Rink	1420	72	7-12	15	patchy
4/5/2011	2	Steve Rink	1520	70	7-12	15	patchy
4/14/2011	3	Erin Bergman	0900	60	0–3	0	clear
4/14/2011	3	Erin Bergman	1000	63	0–3	0	clear
4/14/2011	3	Erin Bergman	1100	66	0–3	0	clear
4/14/2011	3	Erin Bergman	1200	68	0–3	0	clear
4/14/2011	3	Erin Bergman	1300	72	0–3	0	clear
4/14/2011	3	Erin Bergman	1400	73	0–3	0	clear

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed range (mph)	Cloud Cover (%)	General Sky Condition
4/14/2011	3	Antonette Gutierrez	1000	60	3.2–6	0	clear
4/14/2011	3	Antonette Gutierrez	1100	60	3.2-6	0	clear
4/14/2011	3	Antonette Gutierrez	1200	62	3-8	0	clear
4/14/2011	3	Antonette Gutierrez	1300	62	2-6	0	clear
4/14/2011	3	Antonette Gutierrez	1400	64	2-6	0	clear
4/14/2011	3	Antonette Gutierrez	1500	64	2-6	0	clear
4/14/2011	3	Antonette Gutierrez	1600	64	2-6	0	clear
4/14/2011	3	Bonnie Hendricks	1115	70.6	2.6-5.6	0	clear
4/14/2011	3	Bonnie Hendricks	1200	70.2	3.2-5.9	0	clear
4/14/2011	3	Bonnie Hendricks	1305	67.1	5.3-9.5	0	clear
4/14/2011	3	Bonnie Hendricks	1400	71.5	4.1-7.2	0	clear
4/14/2011	3	Bonnie Hendricks	1500	70.2	4.3-6.4	0	clear
4/14/2011	3	Bonnie Hendricks	1610	69.0	2.9-5.7	0	clear
4/14/2011	3	Kyle Ince	1000	61	2	2	clear
4/14/2011	3	Kyle Ince	1115	65	2	2	clear
4/14/2011	3	Kyle Ince	1230	68	2	0	clear
4/14/2011	3	Kyle Ince	1340	70	2	0	clear
4/14/2011	3	Kyle Ince	1430	70	2	0	clear
4/14/2011	3	Kyle Ince	1545	70	3	0	clear
4/14/2011	3	Margie Mulligan	0845	60	1–5	2	clear
4/14/2011	3	Margie Mulligan	1130	64	3–8	5	clear
4/14/2011	3	Margie Mulligan	1420	68	3–5	5	clear
4/14/2011	3	Margie Mulligan	1600	68	2–5	5	clear
4/14/2011	3	Steve Rink	1000	60	3.2-6	0	clear
4/14/2011	3	Steve Rink	1200	63	1.7-5	0	clear
4/14/2011	3	Steve Rink	1400	64	3-7	0	clear
4/14/2011	3	Steve Rink	1602	63	3-5	0	clear
4/15/2011	3	Mike Couffer	1100	65	4–10	0	clear
4/15/2011	3	Mike Couffer	1200	69	4–10	0	clear
4/15/2011	3	Mike Couffer	1300	72	2–7	0	clear
4/15/2011	3	Mike Couffer	1330	73	1–6	0	clear
4/15/2011	3	Mike Couffer	1400	73	1–4	0	clear
4/15/2011	3	Mike Couffer	1500	74	1–3	0	clear
4/15/2011	3	Mike Couffer	1600	76	0–3	0	clear
4/15/2011	3	Antonette Gutierrez	0930	64	6.2-10	0	clear
4/15/2011	3	Antonette Gutierrez	1030	68	6.4-12	0	clear
4/15/2011	3	Antonette Gutierrez	1130	70	6.4-12	0	clear
4/15/2011	3	Antonette Gutierrez	1230	72	6-12	0	clear
4/15/2011	3	Antonette Gutierrez	1330	74	6.2-12	0	clear
4/15/2011	3	Antonette Gutierrez	1430	74	3.2-8	0	clear
4/15/2011	3	Antonette Gutierrez	1530	74	3.2-6	0	clear
4/15/2011	3	Margie Mulligan	0930	64	2–7	0	clear
4/15/2011	3	Margie Mulligan	1242	73	3–7	0	clear
4/15/2011	3	Margie Mulligan	1520	76	2–5	0	clear
4/15/2011	3	Ken Osborne	1030	69	5.2-7.4	0	clear
4/15/2011	3	Ken Osborne	1145	67	5.7-12.9	0	clear
4/15/2011	3	Ken Osborne	1345	77	5-10	0	clear
4/15/2011	3	Ken Osborne	1600	74	4-6	0	clear
4/15/2011	3	Erin Bergman	1000	60	1–2	0	clear
4/15/2011	3	Erin Bergman	1200	63	1–2	0	clear
4/15/2011	3	Erin Bergman	1400	64	1–2	0	clear
4/15/2011	3	Erin Bergman	1602	63	1–2	0	clear
4/18/2011	4	Erin Bergman	1100	62	1–2	0	clear
4/18/2011	4	Erin Bergman	1400	60	0	0	clear
4/18/2011	4	Antonette Gutierrez	1100	60	1.6-9.2	70	patchy
4/18/2011	4	Antonette Gutierrez	1200	65	3-9.2	15	clear

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed range (mph)	Cloud Cover (%)	General Sky Condition
4/18/2011	4	Antonette Gutierrez	1300	64	6-13	40	patchy
4/18/2011	4	Antonette Gutierrez	1400	60	9-20	75	patchy
4/18/2011	4	Antonette Gutierrez	1420	60	9-20	75	patchy
4/19/2011	4	Mike Couffer	1030	64	5–11	0	clear
4/19/2011	4	Mike Couffer	1100	66	2–6	0	clear
4/19/2011	4	Mike Couffer	1200	70	3–12	0	clear
4/19/2011	4	Mike Couffer	1300	70	2–7	0	clear
4/19/2011	4	Mike Couffer	1400	72	3–11	0	clear
4/19/2011	4	Mike Couffer	1500	73	2–8	0	clear
4/19/2011	4	Margie Mulligan	1030	62	4–11	10	clear
4/19/2011	4	Margie Mulligan	1230	73	6–15	10	clear
4/19/2011	4	Margie Mulligan	1345	63	5–13	5	clear
4/19/2011	4	Margie Mulligan	1600	69	3–6	5	clear
4/19/2011	4	Ken Osborne	1030	69	3-9.5	0	clear
4/19/2011	4	Ken Osborne	1148	71	2.4–8.8	0	clear
4/19/2011	4	Ken Osborne	1432	69	7.4-10	0	clear
4/19/2011	4	Ken Osborne	1600	69	2.5-6.8	0	clear
4/19/2011	4	Steve Rink	1015	63	7-3.5	2–5	patchy
4/19/2011	4	Steve Rink	1210	65	12-6.2	2–5	patchy
4/19/2011	4	Steve Rink	1300	67	16.5-6.5	0	clear
4/19/2011	4	Steve Rink	1545	67	15.8-5.2	0	clear
4/20/2011	4	Mike Couffer	1200	73	7–16	0	clear
4/20/2011	4	Mike Couffer	1300	72	5–11	0	clear
4/20/2011	4	Mike Couffer	1400	71	3–17	0	clear
4/20/2011	4	Mike Couffer	1500	70	10–13	0	clear
4/20/2011	4	Mike Couffer	1600	70	7–12	0	clear
4/20/2011	4	Ken Osborne	0900	63	2-3	0	clear
4/20/2011	4	Ken Osborne	1040	68	2.5-4.9	0	clear
4/20/2011	4	Steve Rink	0938	62	2-7	2–5	patchy
4/20/2011	4	Steve Rink	1105	63	6.2-2.5	2–5	patchy
4/20/2011	4	Steve Rink	1235	64	7.2-16.5	2–5	patchy
4/20/2011	4	Steve Rink	1417	65	12.9-20.8	1–2	clear
4/20/2011	4	Steve Rink	1556	67	9.6-16.8	0	clear
4/21/2011	4	Barbra Calantas	1045	64	6.2-17	5	clear
4/21/2011	4	Barbra Calantas	1145	66.2	5.3-13.8	5	clear
4/21/2011	4	Barbra Calantas	1245	66.8	3.8-9.2	5	clear
4/21/2011	4	Barbra Calantas	1345	67.2	3.9-8.2	10	clear
4/21/2011	4	Barbra Calantas	1445	66.7	10.1-13.8	10	clear
4/21/2011	4	Barbra Calantas	1530	67.1	2.1-8.8	15	clear
4/25/2011	5	Mike Couffer	0900	67	0	0	clear
4/25/2011	5	Mike Couffer	1000	72	0–1	0	clear
4/25/2011	5	Mike Couffer	1100	76	0	0	clear
4/25/2011	5	Mike Couffer	1200	76	3–9	0	clear
4/25/2011	5	Mike Couffer	1300	76	2–9	0	clear
4/25/2011	5	Mike Couffer	1400	76	4–8	0	clear
4/25/2011	5	Mike Couffer	1500	76	4–12	0	clear
4/25/2011	5	Antonette Gutierrez	0900	62	0	15	clear
4/25/2011	5	Antonette Gutierrez	1000	70	0-2.1	15	clear
4/25/2011	5	Antonette Gutierrez	1100	74	0-16.1	15	clear
4/25/2011	5	Antonette Gutierrez	1200	76	2.1-7	15	clear
4/25/2011	5	Antonette Gutierrez	1300	76	6-13	15	clear
4/25/2011	5	Antonette Gutierrez	1400	76	6-13	15	clear
4/25/2011	5	Antonette Gutierrez	1530	74	9.7-15	15	clear
4/25/2011	5	Margie Mulligan	0910	66	1–3	10	clear
4/25/2011	5	Margie Mulligan	1200	74	4–8	10	clear
4/25/2011	5	Margie Mulligan	1530	77	4–9	15	clear

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed range (mph)	Cloud Cover (%)	General Sky Condition
4/25/2011	5	Ken Osborne	0935	73	2-4	0	clear
4/25/2011	5	Ken Osborne	1100	75	calm	0	clear
4/25/2011	5	Ken Osborne	1400	73	7-14.8	0	clear
4/25/2011	5	Ken Osborne	1545	73	10.3-20.9	0	clear
4/25/2011	5	Ken Osborne	1605	73	10.3-20.9	0	clear
4/26/2011	5	Ken Osborne	0935	64	3-5	0	clear
4/26/2011	5	Ken Osborne	1045	67	4-7	0	clear
4/26/2011	5	Ken Osborne	1200	70	1-8	0	clear
4/26/2011	5	Ken Osborne	1345	71	2-5	0	clear
4/26/2011	5	Ken Osborne	1410	72	3.6-5	0	clear
4/26/2011	5	Antonette Gutierrez	0900	62	1.8-6	0	clear
4/26/2011	5	Antonette Gutierrez	1100	71	1.1-5	0	clear
4/26/2011	5	Antonette Gutierrez	1200	75	0-5	0	clear
4/26/2011	5	Antonette Gutierrez	1315	78	2.1-3.6	0	clear
4/26/2011	5	Antonette Gutierrez	1330	76	2.1-8	0	clear
4/26/2011	5	Antonette Gutierrez	1450	76	1.9-7.8	0	clear
4/26/2011	5	Mike Couffer	0900	61	0–1	0	clear
4/26/2011	5	Mike Couffer	1000	68	0–5	0	clear
4/26/2011	5	Mike Couffer	1100	74	0–3	0	clear
4/26/2011	5	Mike Couffer	1200	73	0–7	0	clear
4/26/2011	5	Mike Couffer	1230	76	0–3	0	clear
4/26/2011	5	Mike Couffer	1300	77	0	0	clear
4/26/2011	5	Mike Couffer	1400	80	0–1	0	clear
4/26/2011	5	Mike Couffer	1500	78	2–6	0	clear
4/27/2011	5	Ken Osborne	0834	63	1.5-3	0	clear
4/27/2011	5	Ken Osborne	0930	71	3-6	0	clear
4/27/2011	5	Ken Osborne	1115	75	5-12	0	clear
4/27/2011	5	Ken Osborne	1415	72	6-9	0	clear
4/27/2011	5	Ken Osborne	1500	71	1.8-5	0	clear
4/27/2011	5	Ken Osborne	1600	72	calm	0	clear
4/27/2011	5	Erin Bergman	0830	70	1–4	0	clear
4/27/2011	5	Erin Bergman	0900	72	1–4	0	clear
4/27/2011	5	Erin Bergman	1000	73	1–4	0	clear
4/27/2011	5	Erin Bergman	1100	73	1–4	0	clear
4/27/2011	5	Erin Bergman	1200	77	1–4	0	clear
4/27/2011	5	Erin Bergman	1600	74	1–4	0	clear
5/1/2011	5	Ken Osborne	0930	56	7-14	0	clear
5/1/2011	5	Ken Osborne	1030	62	8-15	0	clear
5/1/2011	5	Ken Osborne	1200	61	8-14	0	clear
5/2/2011	6	Bonnie Hendricks/ Ken Osborne	1050	67	7.2-14.9	0	clear
5/2/2011	6	Bonnie Hendricks/ Ken Osborne	1200	65	8-12	0	clear
5/2/2011	6	Bonnie Hendricks/ Ken Osborne	1300	68	6-11	0	clear
5/2/2011	6	Bonnie Hendricks/ Ken Osborne	1400	70	5-9	0	clear
5/2/2011	6	Bonnie Hendricks/ Ken Osborne	1500	71	11-6	0	clear
5/3/2011	6	Ken Osborne/ Bonnie Hendricks	0925	69	4-6	0	clear
5/3/2011	6	Ken Osborne/ Bonnie Hendricks	1115	75	4-6.2	0	clear
5/3/2011	6	Ken Osborne/ Bonnie Hendricks	1200	75	4-8	0	clear
5/3/2011	6	Ken Osborne/ Bonnie Hendricks	1315	75	7.8-9.8	0	clear

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed range (mph)	Cloud Cover (%)	General Sky Condition
5/3/2011	6	Ken Osborne/ Bonnie Hendricks	1445	75	5-8	0	clear
5/3/2011	6	Ken Osborne/ Bonnie Hendricks	1610	74	calm	0	clear
5/3/2011	6	Margie Mulligan	0900	75	2–5	0	clear
5/3/2011	6	Margie Mulligan	1130	78	3–6	0	clear
5/3/2011	6	Margie Mulligan	1200	80	2–4	0	clear
5/3/2011	6	Margie Mulligan	1500	83	2–4	0	clear
5/4/2011	6	Erin Bergman	1200	85	0	0	clear
5/4/2011	6	Erin Bergman	1630	94	0	0	clear
5/4/2011	6	Ken Osborne	1140	88	4-6	0	clear
5/4/2011	6	Ken Osborne	1550	90	calm	0	clear
5/5/2011	6	Bonnie Hendricks/ Erin Bergman	0945	82	1.9-3.7	0	clear
5/5/2011	6	Bonnie Hendricks/ Erin Bergman	1045	85	2.3-5.1	0	clear
5/5/2011	6	Bonnie Hendricks/ Erin Bergman	1145	88.5	4.6-7.4	0	clear
5/5/2011	6	Bonnie Hendricks/ Erin Bergman	1300	90.5	3-5.6	0	clear
5/5/2011	6	Bonnie Hendricks/ Erin Bergman	1400	90.7	2.2-4.6	0	clear
5/5/2011	6	Bonnie Hendricks/ Erin Bergman	1500	89	1.3-2.1	0	clear
5/5/2011	6	Bonnie Hendricks/ Erin Bergman	1600	87.5	5.6-9.6	0	clear
5/5/2011	6	Margie Mulligan	0930	82	2–6	5	clear
5/5/2011	6	Margie Mulligan	1200	89	2–4	5	clear
5/5/2011	6	Margie Mulligan	1500	91	0–2	0	clear
5/5/2011	6	Margie Mulligan	1600	88	2–6	0	clear
5/5/2011	6	Ken Osborne	0930	85	2-4	0	clear
5/5/2011	6	Ken Osborne	1100	90	calm	0	clear
5/5/2011	6	Ken Osborne	1315	87	1-2	0	clear
5/5/2011	6	Ken Osborne	1445	85	3.3-5.5	0	clear
5/5/2011	6	Ken Osborne	1600	85	3-5	0	clear
5/5/2011	6	Erin Bergman	0950	83	-	0	clear
5/5/2011	6	Erin Bergman	1600	90	-	0	clear

APPENDIX C
FIELD DATA COLLECTED
DURING QUINO SURVEYS

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Erin Bergman Add'l Person: N/A Date: March 29, 11 GPS Unit: 11

Project: Concentrix Solar Project Map #: 2 Survey Sxn: QCB Protocol Survey # 1 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start 9:45	68.9	1.4/3.8	0	(clear) patchy overcast drizzle shower
10:45	70.1	1.9/2.6	0	(clear) patchy overcast drizzle shower
11:45	71.8	1.0/2.0	0	(clear) patchy overcast drizzle shower
12:45	76.9	1.9/2.3	0	(clear) patchy overcast drizzle shower
1:46	70.0	0.8/2.5	0	(clear) patchy overcast drizzle shower
2:45	69.0	.8/1.5	8	clear (patchy) overcast drizzle shower
End 4:00	68°	0.8/2.5	80	clear (patchy) overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing) |	1
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus communis*(Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady)		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady) |	1		
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		White sp. 1	1
Danaidae (Milkweed Butterflies)		Duskywing sp.	1
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip) ||	2		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble) ||||- |	6		
Colias eurytheme (Orange Sulphur) |	1		
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		California quail - at least 45	
Papilio eurymedon (Pale swallowtail)		Scrub jay - at least 15	
Papilio rutulus(Western Tiger Swallowtail)		Common Raven - 1	
Riodiniade (Metalmarks)		Red tailed Hawk - 3	
Apodemia mormo (Behr's Metalmark) ||||- ||||- ||	12	Kestrel - 1	
Lycaenidae (Hairstreaks and Blues)		Spotted towhee - 1	
Celastrina ladon (Spring Azure)		Bush tit - many	
Leptotes marina(Marine Blue)		Western meadowlark - many	
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue) ||||- ||	7		
Philotes sonorensis(Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys dumetorum (Perplexing Green Hairstreak) |||	4		
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

Instructions:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

▶ **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below: Erin Bergman March 29, 11

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

X	*Amsinckia menziesii*	Rancher's Fiddleneck
o	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
o	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
o	*Asclepias fascicularis*	Narrow-leaf Milkweed
o	*Boechera sp.*	Rock Cress
o	*Calandrinia ciliata*	Red Maids
o	*Calochortus concolor*	Golden-bowl Mariposa Lily
o	*Calystegia longipes*	Morning-glory
o	*Camissonia sp.*	Sun Cup
o	***Castilleja exerta***	**Paintbrush**
o	*Caulanthus heterophyllus*	San Diego Jewelflower
X	*Caulanthus simulans*	Payson's Caulanthus
X	*Ceanothus cuneatus*	Buck Brush
X	*Ceanothus greggii*	Cup-leaf-lilac
o	*Ceanothus leucodermis*	Chaparral Whitethorn
o	*Chaenactis artemisiifolia*	White Pincushion
o	*Chaenactis glabriuscula*	Yellow Pincushion
X	*Clematis sp.*	Clematis
o	***Collinsia concolor***	**Southern Chinese Houses**
o	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
o	*Coreopsis californica*	California Coreopsis
o	*Corethrogyne filaginifolia*	Common Sand-aster
X	*Cryptantha sp.*	Cryptantha
o	*Cucurbita foetidissima*	Calabazilla
X	*Descurainia sp.*	Tansy-mustard
o	*Dicentra chrysantha*	Golden Ear-drops
o	*Dichelostemma capitatum*	Blue Dicks
o	*Dudleya sp.*	Dudleya
o	*Emmenanthe pendulifera*	Whispering Bells
o	*Eriastrum sp.*	Woolly-star
X	*Ericameria sp.*	Goldenbush
o	*Erigeron foliosus*	Leafy Daisy
o	*Eriodictyon trichocalyx*	Hairy Yerba Santa
o	*Eriogonum fasciculatum*	Inland California Buckwheat
o	*Eriogonum sp.*	Buckwheat
o	*Eriophyllum sp.*	Long-stem Golden-yarrow
X	*Erodium cicutarium**	Red-stem Storksbill
o	*Erysimum capitatum*	Western Wallflower
X	*Eschscholzia californica*	California Poppy
o	*Eucrypta chrysanthemifolia*	Spotted Hideseed
o	*Euthamia occidentalis*	Western Goldenrod
o	*Garrya veatchii*	Canyon Silk Tassel
o	*Gilia sp.*	Gilia
o	*Gnaphalium*	Cudweed
o	*Guillenia lasiophylla*	California Mustard
o	*Gutierrezia sarothrae*	Broom Matchweed
o	*Heliotropium curassavicum*	Salt Heliotrope
o	*Hirshfeldia incana*	Short-pod Mustard
o	*Lamium amplexicaule*	Henbit
X	*Lasthenia gracilis*	Common Goldfields
o	*Layia glandulosa*	White Layia
o	*Lepidium sp.*	Pepperweed
o	*Linanthus bellus*	Desert Beauty
o	*Linanthus dichotomus*	Evening Snow
o	*Lonicera subspicata*	Johnston's Honeysuckle
o	*Malacothrix californica*	California Dandelion
o	*Malacothrix clevelandii*	Cleveland's Malacothrix
o	*Marah macrocarpus*	Wild-cucumber
o	*Marrubium vulgare**	Horehound
o	*Matricaria matricarioides**	Common Pineapple-weed
o	*Mentzelia veatchiana*	Veatch's Stick-leak
o	*Microsteris gracilis*	Slender Phlox
o	*Mimulus sp.*	Monkeyflower
X	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
o	*Orobanche bulbosa*	Chaparral Broom-rape
o	*Osmadenia tenella*	Osmadenia
o	*Paeonia californica*	California Peony
X	*Pectocarya sp.*	Pectocarya
o	*Phacelia sp.*	Phacelia
o	*Pholistoma membranaceum*	White Fiesta Flower
X	*Plagiobothrys sp.*	Popcornflower
o	***Plantago patagonica***	**Desert Plantain**
o	*Platystemon californicus*	Cream Cups
o	*Prunus ilicifolia*	Holly-leaf Cherry
o	*Rafinesquia neomexicana*	Desert Chicory
o	*Ribes quercetorum*	Oak Gooseberry
o	*Rorripa nasturtium-aquaticum*	Water-cress
o	*Rosa californica*	California Rose
o	*Saltugilia australis*	Southern Gilia
o	*Senecio californicus*	California Butterweed
o	*Senecio flaccidus*	Butterweed
o	*Sidalcea malvaeflora*	Checker-bloom
o	*Sisymbrium sp.*	Tumble Mustard
o	*Solidago californica*	California Goldenrod
o	*Stachys ajugoides*	Hedge-nettle
o	*Stephanomeria sp.*	Wreathplant
o	*Streptanthus campestris*	Southern Jewelflower
o	*Stylocline gnaphalioides*	Everlasting Nest-straw
o	*Tetradymia comosa*	Cotton-thorn
o	*Thysanocarpus sp.*	Fringepod
o	*Trichostemma parishii*	Mountain Bluecurls
o	*Tropidocarpum gracile*	Slender Dobie-pod
o	*Uropappus lindleyi*	Silver Puffs
o	*Viola purpurea*	Oak Yellow Violet

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o **Other Flowering Plants:**

o Plagiobothrys arizonicus

o Cryptantha clevelandii

o Cryptantha intermedia

o Lomatium dasycarpum var dasycarpum

o Lupinus concinna = nectar ? Bee pollinated

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o **Rare Wildlife or Rare Plants:**

o EBCS01 2 plants

o EBbJ01 1 Jackrabbit

o EBbJ02 1 Jackrabbit

o EBad01 1 plant

o EBad02 1 plant

o EBad03 1 plant

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o ad = Astragalus douglasii var perstrictus

o CS = Caulanthus simulans

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Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Andrew Fisher Add'l Person: — Date: 3-29-11 GPS Unit: 2

Project: Concentrix Solar Project Map #: 1 Survey Sxn: 1 QCB Protocol Survey # 1 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	0920	64°F	1-2 W	0	(clear) patchy overcast drizzle shower
	1130	68°F	2-3 W	0	(clear) patchy overcast drizzle shower
	1430	73°F	3 W	5%	(clear) patchy overcast drizzle shower
END:	1530	75°F	2-3 W	65%	clear (patchy) overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End					clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus communis*(Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady)	1	**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)	1		
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		Pontia sp.	5
Danaidae (Milkweed Butterflies)		Erynnis sp.	2
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)	1		
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)	2		
Pontia sisymbrii (Spring White) Pontia sp. IIII	4		
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)	1		
Anthocharis sara (Sara Orangetip) IIII IIII	10	NO Quino!	
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble) IIII	5		
Colias eurytheme (Orange Sulphur) I	1		
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		BUOR HOWR, BTSP, CALT, WSJA	
Papilio eurymedon (Pale swallowtail)		NOFL, WREN, CALT, SPTO	
Papilio rutulus(Western Tiger Swallowtail)		WCSP, CAQU, BUSH, RCKI	
Riodiniade (Metalmarks) IIII IIII IIII		Mule deer tks, BTjackrabbit,	
Apodemia mormo (Behr's Metalmark) IIII IIII IIII I	35	Cottontail, WRVI, GRFL, WEME	
Lycaenidae (Hairstreaks and Blues)		DEJU, HUVI, OCWA, BEWR	
Celastrina ladon (Spring Azure)			
Leptotes marina(Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue) IIII III	8		
Philotes sonorensis(Sonoran Blue)			
Callophrys augustinus (Brown Elfin)		Side-blotched lizard, desert Spiny	
Callophrys dumetorum (Perplexing Green Hairstreak) IIII	4	Lizard, Coast horned Lizard	
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)		Anise Swal, Comma, Ruddy Ag, WO-	
		YNWR, COYE, WEBB, BLPH, EMST	

...tial Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...ctions:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

PLEASE RECORD HOST PLANTS ON GPS See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

o	*Amsinckia menziesii*	Rancher's Fiddleneck
o	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
o	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
o	*Asclepias fascicularis*	Narrow-leaf Milkweed
o	*Boechera sp.*	Rock Cress
o	*Calandrinia ciliata*	Red Maids
o	*Calochortus concolor*	Golden-bowl Mariposa Lily
o	*Calystegia longipes*	Morning-glory
o	*Camissonia sp.*	Sun Cup
o	***Castilleja exerta***	**Paintbrush**
o	*Caulanthus heterophyllus*	San Diego Jewelflower
o	*Caulanthus simulans*	Payson's Caulanthus
o	*Ceanothus cuneatus*	Buck Brush
o	*Ceanothus greggii*	Cup-leaf-lilac
o	*Ceanothus leucodermis*	Chaparral Whitethorn
o	*Chaenactis artemisiifolia*	White Pincushion
o	*Chaenactis glabriuscula*	Yellow Pincushion
o	*Clematis sp.*	Clematis
o	***Collinsia concolor***	**Southern Chinese Houses**
o	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
o	*Coreopsis californica*	California Coreopsis
o	*Corethrogyne filaginifolia*	Common Sand-aster
o	*Cryptantha sp.*	Cryptantha
o	*Cucurbita foetidissima*	Calabazilla
o	*Descurainia sp.*	Tansy-mustard
o	*Dicentra chrysantha*	Golden Ear-drops
o	*Dichelostemma capitatum*	Blue Dicks
o	*Dudleya sp.*	Dudleya
o	*Emmenanthe pendulifera*	Whispering Bells
o	*Eriastrum sp.*	Woolly-star
o	*Ericameria sp.*	Goldenbush
o	*Erigeron foliosus*	Leafy Daisy
o	*Eriodictyon trichocalyx*	Hairy Yerba Santa
o	*Eriogonum fasciculatum*	Inland California Buckwheat
o	*Eriogonum sp.*	Buckwheat
o	*Eriophyllum sp.*	Long-stem Golden-yarrow
o	*Erodium cicutarium**	Red-stem Storksbill
o	*Erysismum capitatum*	Western Wallflower
o	*Eschscholzia californica*	California Poppy
o	*Eucrypta chrysanthemifolia*	Spotted Hideseed
o	*Euthamia occidentalis*	Western Goldenrod
o	*Garrya veatchii*	Canyon Silk Tassel
o	*Gilia sp.*	Gilia
o	*Gnaphalium*	Cudweed
o	*Guillenia lasiophylla*	California Mustard
o	*Gutierrezia sarothrae*	Broom Matchweed
o	*Heliotropium curassavicum*	Salt Heliotrope
o	*Hirshfeldia incana*	Short-pod Mustard
o	*Lamium amplexicaule*	Henbit
o	*Lasthenia gracilis*	Common Goldfields
o	*Layia glandulosa*	White Layia
o	*Lepidium sp.*	Pepperweed
o	*Linanthus bellus*	Desert Beauty
o	*Linanthus dichotomus*	Evening Snow
o	*Lonicera subspicata*	Johnston's Honeysuckle
o	*Malacothrix californica*	California Dandelion
o	*Malacothrix clevelandii*	Cleveland's Malacothrix
o	*Marah macrocarpus*	Wild-cucumber
o	*Marrubium vulgare**	Horehound
o	*Matricaria matricarioides**	Common Pineapple-weed
o	*Mentzelia veatchiana*	Veatch's Stick-leak
o	*Microsteris gracilis*	Slender Phlox
o	*Mimulus sp.*	Monkeyflower
o	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
o	*Orobanche bulbosa*	Chaparral Broom-rape
o	*Osmadenia tenella*	Osmadenia
o	*Paeonia californica*	California Peony
o	*Pectocarya sp.*	Pectocarya
o	*Phacelia sp.*	Phacelia
o	*Pholistoma membranaceum*	White Fiesta Flower
o	*Plagiobothrys sp.*	Popcornflower
o	***Plantago patagonica***	**Desert Plantain**
o	*Platystemon californicus*	Cream Cups
o	*Prunus ilicifolia*	Holly-leaf Cherry
o	*Rafinesquia neomexicana*	Desert Chicory
o	*Ribes quercetorum*	Oak Gooseberry
o	*Rorripa nasturtium-aquaticum*	Water-cress
o	*Rosa californica*	California Rose
o	*Saltugilia australis*	Southern Gilia
o	*Senecio californicus*	California Butterweed
o	*Senecio flaccidus*	Butterweed
o	*Sidalcea malvaeflora*	Checker-bloom
o	*Sisymbrium sp.*	Tumble Mustard
o	*Solidago californica*	California Goldenrod
o	*Stachys ajugoides*	Hedge-nettle
o	*Stephanomeria sp.*	Wreathplant
o	*Streptanthus campestris*	Southern Jewelflower
o	*Stylocline gnaphalioides*	Everlasting Nest-straw
o	*Tetradymia comosa*	Cotton-thorn
o	*Thysanocarpus sp.*	Fringepod
o	*Trichostemma parishii*	Mountain Bluecurls
o	*Tropidocarpum gracile*	Slender Dobie-pod
o	*Uropappus lindleyi*	Silver Puffs
o	*Viola purpurea*	Oak Yellow Violet
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o	**Other Flowering Plants:**	
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o	**Rare Wildlife or Rare Plants:**	
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o	AFBJ01 = 1 BT jackrabbit	
o	AFAL01 = 1 juv. Horned Lizard	
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Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 3-29-11 GPS Unit : 12

Project: Concentrix Solar Project Map #: _____ Survey Sxn: _____ QCB Protocol Survey # _____ of 5

	TIME (24-hour):	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	9:10 am	68	1-3	0	(clear) patchy overcast drizzle shower
	12:00	70	2-3	2	(clear) patchy overcast drizzle shower
	3:10	70	1-3	5	(clear) patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End					clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus communis*(Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		Erynnis sp.	1
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip)	IIII	(8)	
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)	II	(2)	
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	IIII	(9)	
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina(Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)			
Philotes sonorensis(Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys dumetorum (Perplexing Green Hairstreak)	IIII IIII	IIII (18)	
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

Potential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

Instructions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

✂	*Amsinckia menziesii*	Rancher's Fiddleneck
○	***Antirrhinum coulterianum***	**Coulter's Snapdragon**
○	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
○	*Asclepias fascicularis*	Narrow-leaf Milkweed
✂	*Boechera sp.*	Rock Cress
○	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
✂	*Ceanothus cuneatus*	Buck Brush
✂	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
○	*Coreopsis californica*	California Coreopsis
○	*Corethrogyne filaginifolia*	Common Sand-aster
✂	*Cryptantha sp.*	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
✂	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
○	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya sp.*	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
○	*Eriastrum sp.*	Woolly-star
○	*Ericameria sp.*	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum sp.*	Buckwheat
○	*Eriophyllum sp.*	Long-stem Golden-yarrow
✂	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysismum capitatum*	Western Wallflower
○	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
✂	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
○	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
✂	*Lasthenia gracilis*	Common Goldfields
○	*Layia glandulosa*	White Layia
○	*Lepidium sp.*	Pepperweed
✂	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
○	*Malacothrix californica*	California Dandelion
○	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus sp.*	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya sp.*	Pectocarya
○	*Phacelia sp.*	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
✂	*Plagiobothrys sp.*	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
○	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
○	*Sisymbrium sp.*	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria sp.*	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
✂	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus sp.*	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet

Other Flowering Plants:

Lomatium dasycarpum dasycarpum

Lupinus concinnus

Cercocarpus betuloides betuloides

Rare Wildlife or Rare Plants:

Astragalus douglasii perstrictus

MMAD0201

0102

0303

0904

0105

0106

Black Jackrabbit

MMBJ0101

MMBJ0102

0203

Linanthus bellus

MMLB0101

0502

0103

0204

0605

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Bonnie Hendricks Add'l Person: NA Date: 3/29/11 GPS Unit: 10

Project: Concentrix Solar Project Map #: 5 Survey Sxn: 5 QCB Protocol Survey # 1 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	9:00	66°	3.6 / 7.5	0	(clear) patchy overcast (drizzle) shower
	10:00	68°	2.7 / 3.9	0	(clear) patchy overcast drizzle shower
	11:00	67°	1.4 / 6.0	0	(clear) patchy overcast drizzle shower
	12:20	71°	2.4 / 7.0	0	(clear) patchy overcast drizzle shower
	13:45	70°	1.9 / 2.3	0	(clear) patchy overcast drizzle shower
	14:00	74°	2.4 / 4.2	50%	clear (patchy) overcast drizzle shower
End	15:00	68°	1.2 / 3.5	80%	clear patchy (overcast) drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskywing) III (or E. prop.)	3
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus communis* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		Everes amyntula 1 (Western tailed blue)	1
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)		Nectaring on lupine Hostplant: Astragalus douglasii nearby.	
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)		Colorful Moth (orange, cream) + brown	7
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)		Small cream moth IIII	6
Pontia protodice (Common White)		Black Moth w/ large cream spots	1
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)		Sulpher sp.	1
Euchloe hyantis (Desert Pearly Marble)	30		
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		Cattle – Area is heavily grazed.	
Papilio eurymedon (Pale swallowtail)		CORA Deer scat	
Papilio rutulus (Western Tiger Swallowtail)		SCJA	
Riodiniade (Metalmarks)		LASP Wren sp.	
Apodemia mormo (Behr's Metalmark)	30	AMCR, MODO, Sylvilagus audubonii	
Lycaenidae (Hairstreaks and Blues)		pocket gophers, ground squirrel	
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)		*LOSH – Bh | SO1 (see next pg.) Bh | SO2	
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)	1	Honeybee, flies, gnats	
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)		WCSP Uta stansburiana	
Callophrys dumetorum (Perplexing Green Hairstreak) IIII	4	CAQU Sceloporus occidentalis	
Strymon melinus (Gray Hairstreak)		BUSH Abundant Lizards	
Atlides halesus (Great Purple Hairstreak)		VESP OCWA Nemadophorus sp., FL sp. CHSP	
		WREN LCTH ? SPTO	

Bonnie 3/29/11

...ential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix/Solar)

...uctions:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

pg 2
Area 5

PLEASE RECORD HOST PLANTS ON GPS See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

o	*Amsinckia menziesii*	Rancher's Fiddleneck
o	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
o	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
o	*Asclepias fascicularis*	Narrow-leaf Milkweed
o	*Boechera sp.*	Rock Cress
o	*Calandrinia ciliata*	Red Maids
o	*Calochortus concolor*	Golden-bowl Mariposa Lily
o	*Calystegia longipes*	Morning-glory
o	*Camissonia sp.*	Sun Cup
o	***Castilleja exerta***	**Paintbrush**
o	*Caulanthus heterophyllus*	San Diego Jewelflower
o	*Caulanthus simulans*	Payson's Caulanthus
o	*Ceanothus cuneatus*	Buck Brush
X	*Ceanothus greggii*	Cup-leaf-lilac
o	*Ceanothus leucodermis*	Chaparral Whitethorn
o	*Chaenactis artemisiifolia*	White Pincushion
o	*Chaenactis glabriuscula*	Yellow Pincushion
o	*Clematis sp.*	Clematis
o	***Collinsia concolor***	**Southern Chinese Houses**
o	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
o	*Coreopsis californica*	California Coreopsis
o	*Corethrogyne filaginifolia*	Common Sand-aster
X	*Cryptantha sp.*	Cryptantha
o	*Cucurbita foetidissima*	Calabazilla
o	*Descurainia sp.*	Tansy-mustard
o	*Dicentra chrysantha*	Golden Ear-drops
o	*Dichelostemma capitatum*	Blue Dicks
o	*Dudleya sp.*	Dudleya
o	*Emmenanthe pendulifera*	Whispering Bells
o	*Eriastrum sp.*	Woolly-star
X	*Ericameria sp.*	Goldenbush
o	*Erigeron foliosus*	Leafy Daisy
o	*Eriodictyon trichocalyx*	Hairy Yerba Santa
o	*Eriogonum fasciculatum*	Inland California Buckwheat
o	*Eriogonum sp.*	Buckwheat
///	*Eriophyllum sp.*	Long-stem Golden-yarrow
X	*Erodium cicutarium**	Red-stem Storksbill
o	*Erysismum capitatum*	Western Wallflower
X	*Eschscholzia californica*	California Poppy
o	*Eucrypta chrysanthemifolia*	Spotted Hideseed
o	*Euthamia occidentalis*	Western Goldenrod
o	*Garrya veatchii*	Canyon Silk Tassel
o	*Gilia sp.*	Gilia
o	*Gnaphalium*	Cudweed
o	*Guillenia lasiophylla*	California Mustard
o	*Gutierrezia sarothrae*	Broom Matchweed
o	*Heliotropium curassavicum*	Salt Heliotrope
o	*Hirshfeldia incana*	Short-pod Mustard
o	*Lamium amplexicaule*	Henbit
X	*Lasthenia gracilis*	Common Goldfields
o	*Layia glandulosa*	White Layia
o	*Lepidium sp.*	Pepperweed
o	*Linanthus bellus*	Desert Beauty
o	*Linanthus dichotomus*	Evening Snow
o	*Lonicera subspicata*	Johnston's Honeysuckle
o	*Malacothrix californica*	California Dandelion
X	*Malacothrix clevelandii*	Cleveland's Malacothrix
o	*Marah macrocarpus*	Wild-cucumber
o	*Marrubium vulgare**	Horehound
o	*Matricaria matricarioides**	Common Pineapple-weed
o	*Mentzelia veatchiana*	Veatch's Stick-leak
o	*Microsteris gracilis*	Slender Phlox
o	*Mimulus sp.*	Monkeyflower
o	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
o	*Orobanche bulbosa*	Chaparral Broom-rape
o	*Osmadenia tenella*	Osmadenia
o	*Paeonia californica*	California Peony
o	*Pectocarya sp.*	Pectocarya
X	*Phacelia sp.*	Phacelia
o	*Pholistoma membranaceum*	White Fiesta Flower
///	*Plagiobothrys sp.*	Popcornflower
o	***Plantago patagonica***	**Desert Plantain**
o	*Platystemon californicus*	Cream Cups
o	*Prunus ilicifolia*	Holly-leaf Cherry
o	*Rafinesquia neomexicana*	Desert Chicory
o	*Ribes quercetorum*	Oak Gooseberry
o	*Rorripa nasturtium-aquaticum*	Water-cress
o	*Rosa californica*	California Rose
o	*Saltugilia australis*	Southern Gilia
o	*Senecio californicus*	California Butterweed
o	*Senecio flaccidus*	Butterweed
o	*Sidalcea malvaeflora*	Checker-bloom
X	*Sisymbrium sp.*	Tumble Mustard
o	*Solidago californica*	California Goldenrod
o	*Stachys ajugoides*	Hedge-nettle
o	*Stephanomeria sp.*	Wreathplant
o	*Streptanthus campestris*	Southern Jewelflower
o	*Stylocline gnaphalioides*	Everlasting Nest-straw
o	*Tetradymia comosa*	Cotton-thorn
o	*Thysanocarpus sp.*	Fringepod
o	*Trichostemma parishii*	Mountain Bluecurls
o	*Tropidocarpum gracile*	Slender Dobie-pod
o	*Uropappus lindleyi*	Silver Puffs
o	*Viola purpurea*	Oak Yellow Violet

o

o

o **Other Flowering Plants:**

o Arabis pulchra

o Lupinus concinus

o Salvicula

o

o

o

o

o **Rare Wildlife or Rare Plants:**

o

o BhLS01 Loggerhead Shrike carried nest material. Then perched with a lizard hanging out of its bill (feet & body of lizard). Went into bush.

o

o Astragalis douglasii Did not GPS locations.

o

o BhLS02 - LOST perched on oak

o Bhwr01 - Woodrat nest-huge

o Bh wr02 ~~had by~~ huge rat nest rock w/cactus

o Bh wr03 - by boulder-not much cactus

o Bh wr04 on rock

Bh wr05 - rock over w/cactus

Bh wr06 - under rock no cactus

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: BCA Add'l Person: none Date: 03/20/11 GPS Unit: 6

Project: Concentrix Solar Project Map #: 4 Survey Sxn: North & West of fenced SE area QCB Protocol Survey # 1 of 5

TIME (24-hour) Start	Temp (F°):	Wind (avg/max)	% CC	Sky
0840	64.2	1.5/3.0	5	(clear) patchy overcast drizzle shower
0940	67.1	2.8/3.5	2	(clear) patchy overcast drizzle shower
1040	68.5	4.3/5.5	2	(clear) patchy overcast drizzle shower
1140	71.7	4.5/4.6	2	(clear) patchy overcast drizzle shower
1240	72.1	10.4/15.1	2	(clear) patchy overcast drizzle shower
End 1330	72.0	6.3/8.9	2	(clear) patchy overcast drizzle shower

Habitat On-site (circle): (open soils) hilltops, ridges, (rock outcrops), soil crusts, clay soils, (old roads), various (nectar sources)

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing) ||	2
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus communis*(Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White) ||	2		
Anthocharis sara (Sara Orangetip) |	1		
Anthocharis cethura (Felder's Orangetip) ||	3		
Euchloe hyantis (Desert Pearly Marble) ||	3		
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur) |	1		
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		CORA Western fence lizard	
Papilio eurymedon (Pale swallowtail)		RTHA side-blotched "	
Papilio rutulus(Western Tiger Swallowtail)		MODO WEME	
Riodiniade (Metalmarks)		SPTO CATH	
Apodemia mormo (Behr's Metalmark) |||| ||	7	CALT	
Lycaenidae (Hairstreaks and Blues)		cottontail	
Celastrina ladon (Spring Azure)		WEST	
Leptotes marina(Marine Blue)		HOLA - BCHA01	
Brephidium exile (Western Pygmy Blue)		SAPH	
Glaucopsyche lygdamus (Southern Blue/Silvery blue)		DEJU	
Hemiargus ceraunus (Edward's Blue)		OATI	
Icaria acmon (Acmon Blue) |	1	BJ jackrabbit BCBJ01	
Philotes sonorensis(Sonoran Blue)		ACMO	
Callophrys augustinus (Brown Elfin)		CAUU	
Callophrys dumetorum (Perplexing Green Hairstreak) ||	2	S. alligator lizard	
Strymon melinus (Gray Hairstreak)		LASP	
Atlides halesus (Great Purple Hairstreak)		WCSP	
		SD woodrat - BCHL01	

tential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

ructions:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

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○	*Linanthus dichotomus*	Evening Snow
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○	*Rosa californica*	California Rose
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○	*Stephanomeria* sp.	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
○	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus* sp.	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet

Other Flowering Plants:

Lomatium daisycarpum

Rare Wildlife or Rare Plants:

prenausrage

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: BCA Add'l Person: — Date: 3/30/11 GPS Unit: 6

Project: Concentrix Solar Project Map #: 2 Survey Sxn: portion of Erin's map QCB Protocol Survey # 1 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start 1350				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
see Erin Bo, Bonnie's datasheet for weather				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
End 1505				clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing) |	|
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus communis*(Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White) |	1		
Anthocharis sara (Sara Orangetip) |	1		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)		random trailers parked in survey area	
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark)			
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina(Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue) |||	3		
Philotes sonorensis(Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys dumetorum (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

...ntial Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...ctions:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

PLEASE RECORD HOST PLANTS ON GPS See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

Amsinckia menziesii	Rancher's Fiddleneck
Antirrhimum coulterianum	**Coulter's Snapdragon**
Antirrhinum nuttallianum	Nuttall's Snapdragon
Asclepias fascicularis	Narrow-leaf Milkweed
Boechera sp.	Rock Cress
Calandrinia ciliata	Red Maids
Calochortus concolor	Golden-bowl Mariposa Lily
Calystegia longipes	Morning-glory
Camissonia sp.	Sun Cup
Castilleja exerta	**Paintbrush**
Caulanthus heterophyllus	San Diego Jewelflower
Caulanthus simulans	Payson's Caulanthus
Ceanothus cuneatus	Buck Brush
Ceanothus greggii	Cup-leaf-lilac
Ceanothus leucodermis	Chaparral Whitethorn
Chaenactis artemisiifolia	White Pincushion
Chaenactis glabriuscula	Yellow Pincushion
Clematis sp.	Clematis
Collinsia concolor	**Southern Chinese Houses**
Cordylanthus rigidus	**Dark-tip Bird's Beak**
Coreopsis californica	California Coreopsis
Corethrogyne filaginifolia	Common Sand-aster
Cryptantha sp.	Cryptantha
Cucurbita foetidissima	Calabazilla
Descurainia sp.	Tansy-mustard
Dicentra chrysantha	Golden Ear-drops
Dichelostemma capitatum	Blue Dicks
Dudleya sp.	Dudleya
Emmenanthe pendulifera	Whispering Bells
Eriastrum sp.	Woolly-star
Ericameria sp.	Goldenbush
Erigeron foliosus	Leafy Daisy
Eriodictyon trichocalyx	Hairy Yerba Santa
Eriogonum fasciculatum	Inland California Buckwheat
Eriogonum sp.	Buckwheat
Eriophyllum sp.	Long-stem Golden-yarrow
*Erodium cicutarium**	Red-stem Storksbill
Erysimum capitatum	Western Wallflower
Eschscholzia californica	California Poppy
Eucrypta chrysanthemifolia	Spotted Hideseed
Euthamia occidentalis	Western Goldenrod
Garrya veatchii	Canyon Silk Tassel
Gilia sp.	Gilia
Gnaphalium	Cudweed
Guillenia lasiophylla	California Mustard
Gutierrezia sarothrae	Broom Matchweed
Heliotropium curassavicum	Salt Heliotrope
Hirshfeldia incana	Short-pod Mustard
Lamium amplexicaule	Henbit
Lasthenia gracilis	Common Goldfields
Layia glandulosa	White Layia
Lepidium sp.	Pepperweed
Linanthus bellus	Desert Beauty
Linanthus dichotomus	Evening Snow
Lonicera subspicata	Johnston's Honeysuckle
Malacothrix californica	California Dandelion
Malacothrix clevelandii	Cleveland's Malacothrix
Marah macrocarpus	Wild-cucumber
*Marrubium vulgare**	Horehound
*Matricaria matricarioides**	Common Pineapple-weed
Mentzelia veatchiana	Veatch's Stick-leak
Microsteris gracilis	Slender Phlox
Mimulus sp.	Monkeyflower
Nemophila menzeisii	Small-flower Baby Blue Eyes
Orobanche bulbosa	Chaparral Broom-rape
Osmadenia tenella	Osmadenia
Paeonia californica	California Peony
Pectocarya sp.	Pectocarya
Phacelia sp.	Phacelia
Pholistoma membranaceum	White Fiesta Flower
Plagiobothrys sp.	Popcornflower
Plantago patagonica	**Desert Plantain**
Platystemon californicus	Cream Cups
Prunus ilicifolia	Holly-leaf Cherry
Rafinesquia neomexicana	Desert Chicory
Ribes quercetorum	Oak Gooseberry
Rorripa nasturtium-aquaticum	Water-cress
Rosa californica	California Rose
Saltugilia australis	Southern Gilia
Senecio californicus	California Butterweed
Senecio flaccidus	Butterweed
Sidalcea malvaeflora	Checker-bloom
Sisymbrium sp.	Tumble Mustard
Solidago californica	California Goldenrod
Stachys ajugoides	Hedge-nettle
Stephanomeria sp.	Wreathplant
Streptanthus campestris	Southern Jewelflower
Stylocline gnaphalioides	Everlasting Nest-straw
Tetradymia comosa	Cotton-thorn
Thysanocarpus sp.	Fringepod
Trichostemma parishii	Mountain Bluecurls
Tropidocarpum gracile	Slender Dobie-pod
Uropappus lindleyi	Silver Puffs
Viola purpurea	Oak Yellow Violet

Other Flowering Plants:

Rare Wildlife or Rare Plants:

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

4 & 1

Recorder: Bonnie Hendricks Add'l Person: Barbra Calantas Date: 3/30/11 GPS Unit: 2

Project: Concentrix Solar Project Map #: 4 Survey Sxn: on N.E. part of area 4 S.W. Sxn QCB Protocol Survey # 1 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start 8:50	63.7	1.5/4.3	15%	clear patchy overcast drizzle shower
10:00	69.1	7.1/11.4	2%	clear patchy overcast drizzle shower
12:30	72.1	8.6/13.4	1%	clear patchy overcast drizzle shower
1:30	73.2	6.8/12.2	5%	clear patchy overcast drizzle shower
2:30	75.8	3.2/6.0	60%	clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
End 4:00	75.2	1.3/2.6	80%	clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus communis*(Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		Duskeywing sp. I	1
Danaidae (Milkweed Butterflies)		Sulpher sp. II	2
Danaus plexippus (Monarch)		White sp. II	2
Danaus gilippus (Queen)		P. protod. nectaring on Lasthenia	
Satyridae (Satyrs)		Black & White Moth, 1+15	16
Coenonympha californica (Common California Ringlet)		(Litocola sexiguata)	
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White) II	2		
Anthocharis sara (Sara Orangetip) IIII I	6		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble) IIII	4		
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		GL, CLOW, BSS, Wet Meadow, Mix-CHP	
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)		CAQA, WEME, RTHA, CORA	
Riodiniade (Metalmarks)		BTSP, NOFL, WCSP, VRWA	
Apodemia mormo (Behr's Metalmark) IIII IIII II	12	SCJA, BETH, BUSH, BRTO, LEGO	
Lycaenidae (Hairstreaks and Blues)		beehive in old oak tree	
Celastrina ladon (Spring Azure)		gnats	
Leptotes marina(Marine Blue)			
Brephidium exile (Western Pygmy Blue)		Marked fenceline corner because	
Glaucopsyche lygdamus (Southern Blue/Silvery blue)		is outside project boundary,	
Hemiargus ceraunus (Edward's Blue)		but boundary follows fence in	
Icaria acmon (Acmon Blue) I	1	other areas!	
Philotes sonorensis(Sonoran Blue)			
Callophrys augustinus (Brown Elfin)		Deer scat, Cal Gr Sq., Sylv. and, Neot lep.	
...llophrys dumetorum (Perplexing Green Hairstreak) IIII	4	Lepus calif. 2	nests
...n melinus (Gray Hairstreak)			
...esus (Great Purple Hairstreak)			

ntial Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

ctions:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail. 3/30/11

PLEASE RECORD HOST PLANTS ON GPS See Codes Below: Bonnie Hendricks

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

#4+#1

✓	*Amsinckia menziesii*	Rancher's Fiddleneck
○	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
○	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
○	*Asclepias fascicularis*	Narrow-leaf Milkweed
○	*Boechera sp.*	Rock Cress
○	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
✓	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
○	*Coreopsis californica*	California Coreopsis
○	*Corethrogyne filaginifolia*	Common Sand-aster
✓	*Cryptantha sp.*	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
○	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
○	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya* sp.	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
○	*Eriastrum* sp.	Woolly-star
✓	*Ericameria* sp.	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum* sp.	Buckwheat
○	*Eriophyllum* sp.	Long-stem Golden-yarrow
✓	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysimum capitatum*	Western Wallflower
✓	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
✓	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
✓	*Lasthenia gracilis*	Common Goldfields
○	*Layia glandulosa*	White Layia
✓	*Lepidium* sp.	Pepperweed
○	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
○	*Malacothrix californica*	California Dandelion
○	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus* sp.	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya* sp.	Pectocarya
✓	*Phacelia* sp.	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
✓	*Plagiobothrys* sp.	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
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○	*Sidalcea malvaeflora*	Checker-bloom
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○	*Streptanthus campestris*	Southern Jewelflower
○	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus* sp.	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet

Other Flowering Plants:

Taraxacum sp.
Castilleja sp.
Arabis pulchra
Nemophila sp.
Lupinus concinnus

Rare Wildlife or Rare Plants:

Bhn101 - Wood rat midden
Bhn102, 03, 04, 05, 06, 07, 08, 09, 10, 11
Bhh101-50 Horned Lizard
Bhbj01 - B. tailed jackrabbit - saw 2

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Erin Bergman Add'l Person: _____ Date: March 30, 11 GPS Unit: 11

Project: Concentrix Solar Project Map #: _____ Survey Sxn: _____ QCB Protocol Survey # _____ of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	9:30	63	1-2 mph avg 2	15	(clear) patchy overcast drizzle shower
	12:50	72	1-2 max 2	0	clear patchy overcast drizzle shower
	2:30	73	4-8 max 8		clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End					clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
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Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing) |	1
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskywing)	
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Danaidae (Milkweed Butterflies)		Moth	
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)		Drastevia tejonica III	3
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)		White sp. III	3
Pieridae (Whites, Sulphurs)			
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Pontia protodice (Common White) |	1		
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Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble) |||| ||	7		
Colias eurytheme (Orange Sulphur) /	1		
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Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		Meadowlark singing	
Papilio eurymedon (Pale swallowtail)		California Quail	
Papilio rutulus(Western Tiger Swallowtail)		Spotted Towhee	
Riodiniade (Metalmarks)		Red tail	
Apodemia mormo (Behr's Metalmark) ||||| |||| ||| ||| ||	22	Scrub jay	
Lycaenidae (Hairstreaks and Blues)		Raven	
Celastrina ladon (Spring Azure)		Mourning dove	
Leptotes marina(Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
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...uctions:

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Guillenia lasiophylla	California Mustard
Gutierrezia sarothrae	Broom Matchweed
Heliotropium curassavicum	Salt Heliotrope
Hirshfeldia incana	Short-pod Mustard
Lamium amplexicaule	Henbit
Lasthenia gracilis	Common Goldfields
Layia glandulosa	White Layia
Lepidium sp.	Pepperweed
Linanthus bellus	Desert Beauty
Linanthus dichotomus	Evening Snow
Lonicera subspicata	Johnston's Honeysuckle
Malacothrix californica	California Dandelion
Malacothrix clevelandii	Cleveland's Malacothrix
Marah macrocarpus	Wild-cucumber
*Marrubium vulgare**	Horehound
*Matricaria matricarioides**	Common Pineapple-weed
Mentzelia veatchiana	Veatch's Stick-leak
Microsteris gracilis	Slender Phlox
Mimulus sp.	Monkeyflower
Nemophila menzeisii	Small-flower Baby Blue Eyes
Orobanche bulbosa	Chaparral Broom-rape
Osmadenia tenella	Osmadenia
Paeonia californica	California Peony
Pectocarya sp.	Pectocarya
Phacelia sp.	Phacelia
Pholistoma membranaceum	White Fiesta Flower
Plagiobothrys sp.	Popcornflower
Plantago patagonica	**Desert Plantain**
Platystemon californicus	Cream Cups
Prunus ilicifolia	Holly-leaf Cherry
Rafinesquia neomexicana	Desert Chicory
Ribes quercetorum	Oak Gooseberry
Rorripa nasturtium-aquaticum	Water-cress
Rosa californica	California Rose
Saltugilia australis	Southern Gilia
Senecio californicus	California Butterweed
Senecio flaccidus	Butterweed
Sidalcea malvaeflora	Checker-bloom
Sisymbrium sp.	Tumble Mustard
Solidago californica	California Goldenrod
Stachys ajugoides	Hedge-nettle
Stephanomeria sp.	Wreathplant
Streptanthus campestris	Southern Jewelflower
Stylocline gnaphalioides	Everlasting Nest-straw
Tetradymia comosa	Cotton-thorn
Thysanocarpus sp.	Fringepod
Trichostemma parishii	Mountain Bluecurls
Tropidocarpum gracile	Slender Dobie-pod
Uropappus lindleyi	Silver Puffs
Viola purpurea	Oak Yellow Violet

Other Flowering Plants:

Cryptantha lepida

Lupinus concinnus

Lomatium dasycarpum

Rare Wildlife or Rare Plants:

EBAD05 - 1

EBAD06 - 1

EBAD07 - 1

EBAD08 - POP 5

EBAD09 - POP 12

EBAD10 - POP 1

EBBJ10

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 3.30.11 GPS Unit : 12

Project: Concentrix Solar Project Map #: 3 Survey Sxn: _____ QCB Protocol Survey # 1 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start				clear patchy overcast drizzle shower
0830	62°	4-6	0	(clear) patchy overcast drizzle shower
1130	72°	5-8	10	(clear) patchy overcast drizzle shower
1330	75°	4-6	40	clear (patchy) overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
End				clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	1
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	1
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus communis*(Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)	1		
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		[illegible]	4
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip)	III		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)	IIII		
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)	1		
Nathalis iole (Dainty Sulphur)	Sulfur flyby		
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	IIII IIII III	(14)	
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina(Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)			
Philotes sonorensis(Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys dumetorum (Perplexing Green Hairstreak)	IIII IIII	(12)	
[illegible]trymon melinus (Gray Hairstreak)			
[illegible]es halesus (Great Purple Hairstreak)			

...itial Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...ons:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

PLEASE RECORD HOST PLANTS ON GPS See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

✗	*Amsinckia menziesii*	Rancher's Fiddleneck
○	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
○	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
○	*Asclepias fascicularis*	Narrow-leaf Milkweed
○	*Boechera sp.*	Rock Cress
○	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
○	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
○	*Coreopsis californica*	California Coreopsis
○	*Corethrogyne filaginifolia*	Common Sand-aster
✗	*Cryptantha sp.*	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
✗	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
○	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya* sp.	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
○	*Eriastrum* sp.	Woolly-star
○	*Ericameria* sp.	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum* sp.	Buckwheat
○	*Eriophyllum* sp.	Long-stem Golden-yarrow
○	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysismum capitatum*	Western Wallflower
✗	*Eschscholzia californica*	California Poppy
✗	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
✗	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
○	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
✗	*Lasthenia gracilis*	Common Goldfields
✗	*Layia glandulosa*	White Layia
○	*Lepidium* sp.	Pepperweed
✗	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
○	*Malacothrix californica*	California Dandelion
○	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus* sp.	Monkeyflower
✗	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
✗	*Pectocarya* sp.	Pectocarya
✗	*Phacelia* sp. distans	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
✗	*Plagiobothrys* sp.	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
○	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
○	*Sisymbrium* sp.	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides* rigida	Hedge-nettle
○	*Stephanomeria* sp.	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
○	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus* sp.	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
○		
○		
○	**Other Flowering Plants:**	
○	Lupinus (annual)	
○	Corethrogyne betuloides betuloides	
○		
○		
○		
○		
○	**Rare Wildlife or Rare Plants:**	
○	Astragalus douglasii perstrictus	
○	MMAD01-09	
○	[redacted]	
○	[redacted]	
○	[redacted]	
○	Black Jackrabbit	
○	MMBJ01	
○	[redacted]	
○	Horn Lizard	
○	MMHL01	
○	Linanthus bellus	
○	MMLB 01-09	
○		
○		

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Annemarie Fisher Add'l Person: _____ Date: 3-31-2011 GPS Unit: 12

Project: Concentrix Solar Project Map #: 4 Survey Sxn: 4 QCB Protocol Survey # 1 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start			0	clear patchy overcast drizzle shower
1300	85°F	2-3 W	0	clear patchy overcast drizzle shower
1500	81°F	2-3 W	0	clear patchy overcast drizzle shower
End 1726	81°F	1-2 W	0	clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
End				clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot) 1	1	*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus communis*(Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		Erynnis spp. IIII II	7
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)		NO QUINO	
Anthocharis sara (Sara Orangetip) II	2		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble) IIII IIII	10		
Colias eurytheme (Orange Sulphur) II	2		
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)		Birds: CORA, WCSP, SAVH, BTSP	
Papilio rutulus(Western Tiger Swallowtail)		NOLA, LASP, WEME, SVSP	
Riodiniade (Metalmarks)		Side-blotched lizard, striped racer	
Apodemia mormo (Behr's Metalmark) IIII IIII IIII IIII IIII IIII IIII IIII IIII IIII	50	NOMO, DEJU, BUSH, CAQU	
Lycaenidae (Hairstreaks and Blues)		NOFL, BEWR, WSJA, TUVU,	
Celastrina ladon (Spring Azure)		MOMO,	
Leptotes marina(Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)			
Philotes sonorensis(Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys dumetorum (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

...tial Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...tions:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

▶ **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

○	*Amsinckia menziesii*	Rancher's Fiddleneck
○	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
○	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
○	*Asclepias fascicularis*	Narrow-leaf Milkweed
○	*Boechera sp.*	Rock Cress
○	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
○	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
○	*Coreopsis californica*	California Coreopsis
○	*Corethrogyne filaginifolia*	Common Sand-aster
○	*Cryptantha sp.*	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
○	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
○	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya* sp.	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
○	*Eriastrum* sp.	Woolly-star
○	*Ericameria* sp.	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum* sp.	Buckwheat
○	*Eriophyllum* sp.	Long-stem Golden-yarrow
○	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysismum capitatum*	Western Wallflower
○	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
○	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
○	*Lasthenia gracilis*	Common Goldfields
○	*Layia glandulosa*	White Layia
○	*Lepidium* sp.	Pepperweed
○	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
○	*Malacothrix californica*	California Dandelion
○	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus* sp.	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya* sp.	Pectocarya
○	*Phacelia* sp.	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
○	*Plagiobothrys* sp.	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
○	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
○	*Sisymbrium* sp.	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria* sp.	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
○	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus* sp.	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
○		
○		
○	**Other Flowering Plants:**	
○		
○		
○		
○		
○		
○		
○		
○		
○	**Rare Wildlife or Rare Plants:**	
○		
○	AF-CH01: 1♀ Cooper's Hawk	
○	AF-HL01: 1 individual adult horned Lark + 1 pair in vicinity	
○	AF-HL02: 1 pair Horned Lark	
○	AF-HL03: 2 pairs of Horned Lark	
○		
○		
○		
○		
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○		
○		
○

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: Ø Date: 1 APRIL, 2011 GPS Unit: 10

Project: Concentrix Solar Project Map #: 4 Survey Sxn: Ø QCB Protocol Survey # 1 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	0830 HRS	81°F	Ø	Ø	(clear) patchy overcast drizzle shower
	0900 HRS	83°F	Ø -> 1 MPH	Ø	(clear) patchy overcast drizzle shower
	1000 HRS	85°F	Ø -> 3 MPH	Ø	(clear) patchy overcast drizzle shower
	1100 HRS	85°F	Ø -> 3 MPH	Ø	(clear) patchy overcast drizzle shower
	1200 HRS	87°F	1 -> 5 MPH	Ø	(clear) patchy overcast drizzle shower
	1300 HRS	86°F	1 -> 4 MPH	Ø	(clear) patchy overcast drizzle shower
End	1400 HRS	86°F	Ø	Ø	(clear) patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	3
Euphydryas chalcedona (Henne's Checkerspot)	1	*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus communis*(Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		VANESSA SP. (UNIDENTIFIED LADY)	21
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)	5		
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip)	11		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)	7		
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)	3		
Nathalis iole (Dainty Sulphur)	3		
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	111		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina(Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)	7		
Philotes sonorensis(Sonoran Blue)			
Callophrys augustinus (Brown Elfin)	4		
Callophrys dumetorum (Perplexing Green Hairstreak)	4		
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

...tential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...ructions:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

PLEASE RECORD HOST PLANTS ON GPS See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

○	*Amsinckia menziesii*	Rancher's Fiddleneck
○	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
○	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
○	*Asclepias fascicularis*	Narrow-leaf Milkweed
○	*Boechera sp.*	Rock Cress
○	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
○	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
○	*Coreopsis californica*	California Coreopsis
○	*Corethrogyne filaginifolia*	Common Sand-aster
◎	*Cryptantha sp.*	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
○	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
○	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya* sp.	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
○	*Eriastrum* sp.	Woolly-star
○	*Ericameria* sp.	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum* sp.	Buckwheat
○	*Eriophyllum* sp.	Long-stem Golden-yarrow
○	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysismum capitatum*	Western Wallflower
○	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
○	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
○	*Lasthenia gracilis*	Common Goldfields
◎	*Layia glandulosa*	White Layia
○	*Lepidium* sp.	Pepperweed
○	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
○	*Malacothrix californica*	California Dandelion
○	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus* sp.	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya* sp.	Pectocarya
○	*Phacelia* sp.	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
◎	*Plagiobothrys* sp.	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
○	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
○	*Sisymbrium* sp.	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria* sp.	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
○	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus* sp.	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
○		
○		

○ **Other Flowering Plants:**

◎ CEANOTHUS SP.

○

○ NO QUINO HOST PLANTS OBSERVED

○

○

○

○

○

○ **Rare Wildlife or Rare Plants:**

○

○ MCLH01 HORNED LARK

○ MCBJ002 BLACK-TAILED JACKRABBIT

○ MCBJ01 " " "

○ MCHL01 S.D. HORNED LIZARD

○

○

○

○

○

○

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Andrew Fisher Add'l Person: — Date: 4-1-2011 GPS Unit: 12

Project: Concentrix Solar Project Map #: 4 Survey Sxn: 4 QCB Protocol Survey # 1 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start				clear patchy overcast drizzle shower
0837	75.5	Ø	Ø	(clear) patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
End 1347	88	Ø	Ø	(clear) patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing) IIII	5
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus communis*(Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)		BIRDS: OATI, CNSR, BTSP, CAQU, SAPH WSJA, LBWO, DEJU, BUSN, NOFL BEWR, WEME, CALT, CATH	
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)		Striped racer, side-blotch lizard, granite spiny lizard	
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White) II	2		
Anthocharis sara (Sara Orangetip) IIII IIII II	12	NO QUINO	
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble) IIII IIII IIII IIII	20		
Colias eurytheme (Orange Sulphur) II	2		
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail) I	1		
Papilio eurymedon (Pale swallowtail)		AFNL01: 1 adult (COAST) horned lizard	
Papilio rutulus(Western Tiger Swallowtail)		AFNL02: 1 juv. COAST horned Lizard	
Riodiniade (Metalmarks)		AFBTJR01: 1 adult BT jackrabbit	
Apodemia mormo (Behr's Metalmark) IIII IIII IIII IIII IIII IIII IIII IIII IIII IIII	65	AFBTJR02: 2 adult BT jackrabbits	
Lycaenidae (Hairstreaks and Blues) IIII IIII IIII IIII		AFBTJR03: 1 adult BT jackrabbits	
Celastrina ladon (Spring Azure)			
Leptotes marina(Marine Blue)		AFCORANEST01: Common raven nest - active w/ pair in area.	
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)			
Philotes sonorensis(Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys dumetorum (Perplexing Green Hairstreak) III	3		
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

ntial Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

tions:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

PLEASE RECORD HOST PLANTS ON GPS See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

Amsinckia menziesii	Rancher's Fiddleneck
Antirrhimum coulterianum	**Coulter's Snapdragon**
Antirrhinum nuttallianum	Nuttall's Snapdragon
Asclepias fascicularis	Narrow-leaf Milkweed
Boechera sp.	Rock Cress
Calandrinia ciliata	Red Maids
Calochortus concolor	Golden-bowl Mariposa Lily
Calystegia longipes	Morning-glory
Camissonia sp.	Sun Cup
Castilleja exerta	**Paintbrush**
Caulanthus heterophyllus	San Diego Jewelflower
Caulanthus simulans	Payson's Caulanthus
Ceanothus cuneatus	Buck Brush
Ceanothus greggii	Cup-leaf-lilac
Ceanothus leucodermis	Chaparral Whitethorn
Chaenactis artemisiifolia	White Pincushion
Chaenactis glabriuscula	Yellow Pincushion
Clematis sp.	Clematis
Collinsia concolor	**Southern Chinese Houses**
Cordylanthus rigidus	**Dark-tip Bird's Beak**
Coreopsis californica	California Coreopsis
Corethrogyne filaginifolia	Common Sand-aster
Cryptantha sp.	Cryptantha
Cucurbita foetidissima	Calabazilla
Descurainia sp.	Tansy-mustard
Dicentra chrysantha	Golden Ear-drops
Dichelostemma capitatum	Blue Dicks
Dudleya sp.	Dudleya
Emmenanthe pendulifera	Whispering Bells
Eriastrum sp.	Woolly-star
Ericameria sp.	Goldenbush
Erigeron foliosus	Leafy Daisy
Eriodictyon trichocalyx	Hairy Yerba Santa
Eriogonum fasciculatum	Inland California Buckwheat
Eriogonum sp.	Buckwheat
Eriophyllum sp.	Long-stem Golden-yarrow
*Erodium cicutarium**	Red-stem Storksbill
Erysismum capitatum	Western Wallflower
Eschscholzia californica	California Poppy
Eucrypta chrysanthemifolia	Spotted Hideseed
Euthamia occidentalis	Western Goldenrod
Garrya veatchii	Canyon Silk Tassel
Gilia sp.	Gilia
Gnaphalium	Cudweed
Guillenia lasiophylla	California Mustard
Gutierrezia sarothrae	Broom Matchweed
Heliotropium curassavicum	Salt Heliotrope
Hirshfeldia incana	Short-pod Mustard
Lamium amplexicaule	Henbit
Lasthenia gracilis	Common Goldfields
Layia glandulosa	White Layia
Lepidium sp.	Pepperweed
Linanthus bellus	Desert Beauty
Linanthus dichotomus	Evening Snow
Lonicera subspicata	Johnston's Honeysuckle
Malacothrix californica	California Dandelion
Malacothrix clevelandii	Cleveland's Malacothrix
Marah macrocarpus	Wild-cucumber
*Marrubium vulgare**	Horehound
*Matricaria matricarioides**	Common Pineapple-weed
Mentzelia veatchiana	Veatch's Stick-leak
Microsteris gracilis	Slender Phlox
Mimulus sp.	Monkeyflower
Nemophila menzeisii	Small-flower Baby Blue Eyes
Orobanche bulbosa	Chaparral Broom-rape
Osmadenia tenella	Osmadenia
Paeonia californica	California Peony
Pectocarya sp.	Pectocarya
Phacelia sp.	Phacelia
Pholistoma membranaceum	White Fiesta Flower
Plagiobothrys sp.	Popcornflower
Plantago patagonica	**Desert Plantain**
Platystemon californicus	Cream Cups
Prunus ilicifolia	Holly-leaf Cherry
Rafinesquia neomexicana	Desert Chicory
Ribes quercetorum	Oak Gooseberry
Rorripa nasturtium-aquaticum	Water-cress
Rosa californica	California Rose
Saltugilia australis	Southern Gilia
Senecio californicus	California Butterweed
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Sisymbrium sp.	Tumble Mustard
Solidago californica	California Goldenrod
Stachys ajugoides	Hedge-nettle
Stephanomeria sp.	Wreathplant
Streptanthus campestris	Southern Jewelflower
Stylocline gnaphalioides	Everlasting Nest-straw
Tetradymia comosa	Cotton-thorn
Thysanocarpus sp.	Fringepod
Trichostemma parishii	Mountain Bluecurls
Tropidocarpum gracile	Slender Dobie-pod
Uropappus lindleyi	Silver Puffs
Viola purpurea	Oak Yellow Violet
	Miners Lettuce

Other Flowering Plants:

Rare Wildlife or Rare Plants:

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Erin Bergman Add'l Person: NA Date: 4/4/11 GPS Unit: #6

Project: Concentrix Solar Project Map #: 4 Survey Sxn: — QCB Protocol Survey # 2 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start 9:00	61°	1-3	0	(clear) patchy overcast drizzle shower
11:00	70°	1-5	0	(clear) patchy overcast drizzle shower
12:00	69°	1-3	0	(clear) patchy overcast drizzle shower
1:08	68°	1-6	2	(clear) patchy overcast drizzle shower
2:00	72°	2-6	0	(clear) patchy overcast drizzle shower
			0	(clear) patchy overcast drizzle shower
End 4:30	73°	2-7	0	(clear) patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	1
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	1
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus communis*(Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)		Moth III	3
Danaus plexippus (Monarch)		Western-tailed blue IIII	4
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip) IIII IIII	9		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble) IIII IIII IIII IIII I	26		
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		Common raven CORA	
Papilio eurymedon (Pale swallowtail)		W. Scrub jay WEST	
Papilio rutulus(Western Tiger Swallowtail)		California Towhee CAQU	
Riodiniade (Metalmarks)		Anna's hummingbird ANHU	
Apodemia mormo (Behr's Metalmark) IIII IIII IIII IIII

ntial Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

tions:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

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○	*Boechera sp.*	Rock Cress
○	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
✓	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
○	*Coreopsis californica*	California Coreopsis
○	*Corethrogyne filaginifolia*	Common Sand-aster
✓	*Cryptantha sp.*	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
○	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
○	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya sp.*	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
○	*Eriastrum sp.*	Woolly-star
✓	*Ericameria sp.*	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum sp.*	Buckwheat
✓	*Eriophyllum sp.* wallacei	~~Long-stem Golden-yarrow~~ EB
✓	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysimum capitatum*	Western Wallflower
✓	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
○	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
✓	*Lasthenia gracilis*	Common Goldfields
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○	*Lepidium sp.*	Pepperweed
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○	*Linanthus dichotomus*	Evening Snow
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○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus sp.*	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape

AC AR SR

Lepidium perfoliatum

○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya sp.*	Pectocarya
✓	*Phacelia sp.*	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
✓	*Plagiobothrys sp.*	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
✓	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
✓	*Sisymbrium sp.*	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria sp.*	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
○	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus sp.*	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
○	Phacelia distans	
○	Eriophyllum wallacei	

EBAD18-35
EBAD49-35
EBAD50-2
EBAD51-15
EBAD52-7
EBAD53-8
EBAD54-10
EBAD55-20
EBAD56-11
EBAD57-24
EBAD58-2
EBAD59-2
EBAD60-5
EBAD61-16
EBAD62-4
EBAD63-2
EBAD64-4
EBAD65-8
EBAD66-3
EBAD67-2
EBAD68-3
EBAD69-35
EBAD70-1
EBAD102-1

Other Flowering Plants:

Lupinus concinnus, Salvia columbariae/hia
Lupinus bicolor
Lomatium dasycarpum var dasycarpum
Cryptantha intermedia
Cryptantha nevadensis/Lepida

EBGV06-4 EBAD42-1 EBAD45-10
EBGV07-1 EBAD43-25 EBAD46-8
EBGV08-1 EBAD44-16 EBAD47-9

Rare Wildlife or Rare Plants:

○	EBAD01 – 15	plants	in population
○	EBAD02 – 3	plants	EBAD22-1
○	EBAD03 – 3	plants	EBAD24-2
○	EBAD04 – 25	plants	EBAD25-2
○	EBAD05 – 15	plants	EBAD26-3
○	EBAD06 – 35	plants	EBAD27-10
○	EBAD07 – 11	plants	EBAD28-18
○	EBAD08 – 3	plants	EBAD29-5
○	EBAD09 – 5	plants	EBAD30-10
○	EBAD10 – 7	plants	EBAD31-3
○	EBAD11 – 2	plants	EBAD32-3
○	EBAD12 – 5	plants	EBAD33-1
○	EBAD13 – 3	plants	EBAD34-6
○	EBAD14 – 1	plant	EBAD35-4
○	EBAD15 – 3	plants	EBAD36-16
○	EBAD16 – 11	plants	EBAD37-9
○	EBAD17 – 2	plants	EBAD38-2
○	EBGV01 – 1		EBAD39-1
○	EBAD18 – 2	plants	EBAD40-18
○	EBAD19 – 5	plants	EBAD41-1
○	EBAD20 – 3	plants	EBGV01-1
○	EBAD21 – 5	plants	EBGV02-1
	EBAD22 – 12	plants	EBGV03-1
			EBGV04-1
			EBGV05-1

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: ADAM BEHLE Add'l Person: — Date: APRIL 4, 2011 GPS Unit: 5

Project: Concentrix Solar Project Map #: 1 Survey Sxn: QCB Protocol Survey # 2 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start 0900	62°	2/10 MPH	0%	(clear) patchy overcast drizzle shower
1200	73°	2/9 MPH	0%	(clear) patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
End 1520		2/6 MPH	0%	clear patchy overcast drizzle shower

Habitat On-site (circle): (open soils) (hilltops) ridges, rock outcrops, soil crusts, clay soils, (old roads) (various nectar sources)

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing) ||	2
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus communis*(Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White) //	2		
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White) //	2		
Anthocharis sara (Sara Orangetip) //// /	6		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marbie)			
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)		AREAS ON NORTH & EAST HAVE ROUGH	
Papilio rutulus(Western Tiger Swallowtail)		TERRAIN BUT MANY INTERESTING ROCKY	
Riodiniade (Metalmarks)		OUTCROPS AND OPEN SPACES	
Apodemia mormo (Behr's Metalmark) //// //// //// //// //// //// /	36		
Lycaenidae (Hairstreaks and Blues)		BUTTERFLIES MOST ACTIVE FROM	
Celastrina ladon (Spring Azure)		1000 - 1200, WITH SIGNIFICANTLY	
Leptotes marina(Marine Blue)		LESS ACTIVITY AFTER 1200.	
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)		LASTHENIA IS CARPETING LARGE	
Hemiargus ceraunus (Edward's Blue)		PORTIONS OF GROUND IN AREAS.	
Icaria acmon (Acmon Blue)			
Philotes sonorensis(Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys dumetorum (Perplexing Green Hairstreak) //// ///	8		
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

...tial Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...ctions:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

▶ **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

✓	*Amsinckia menziesii*	Rancher's Fiddleneck
○	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
○	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
○	*Asclepias fascicularis*	Narrow-leaf Milkweed
○	*Boechera sp.*	Rock Cress
○	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
○	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
○	*Coreopsis californica*	California Coreopsis
○	*Corethrogyne filaginifolia*	Common Sand-aster
✓	*Cryptantha sp.*	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
○	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
○	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya* sp.	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
○	*Eriastrum* sp.	Woolly-star
○	*Ericameria* sp.	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum* sp.	Buckwheat
○	*Eriophyllum* sp.	Long-stem Golden-yarrow
✓	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysismum capitatum*	Western Wallflower
○	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
○	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
✓	*Lasthenia gracilis*	Common Goldfields
✓	*Layia glandulosa*	White Layia
○	*Lepidium* sp.	Pepperweed
✓	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
○	*Malacothrix californica*	California Dandelion
○	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus sp.*	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya* sp.	Pectocarya
○	*Phacelia sp.*	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
○	*Plagiobothrys sp.*	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
○	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
✓	*Sisymbrium sp.*	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria* sp.	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
○	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus* sp.	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
○		
○		
○	**Other Flowering Plants:**	
○	LOMATIUM DASYCARPUM	
○	RHUS OVATA	
○		
○		
○		
○		
○		
○		
○	**Rare Wildlife or Rare Plants:**	
○	ABNL01 - NEST	
○	ABNL02	
○	03	
○	04	
○	05	
○	06	
○	✓ 07	
○		
○	ABBJ01 - BT JACK RABBIT	
○	02	
○	03	
○	04	
○		
○		
○	ABLB01 - LINANTHUS BELLUS #5	
○	↑ NO SPECIES CODE LISTED.	
○		
○		
○		
○		
○		

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 4-4-11 GPS Unit : 10

Project: Concentrix Solar Project Map #: _____ Survey Sxn: _____ QCB Protocol Survey # _____ of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	0915	60°F	5-8(10)	0	(clear) patchy overcast drizzle shower
	1030	64°F	2-4	0	(clear) patchy overcast drizzle shower
	1300	71°F	2-5(8)	0	(clear) patchy overcast drizzle shower
	1420	74°F	3-6	0	(clear) patchy overcast drizzle shower
	1600	76°F	3-5	0	(clear) patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End					clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	II
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus communis*(Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper) sp. either jubia or colorado	I
Junonia coenia (Common Buckeye)	I	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		Phyllsora catullus Common sootywing	I
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)	III		
Anthocharis sara (Sara Orangetip)	IIII III		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)	IIII-I		
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)	II		
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	IIII IIII IIII

ntial Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

ctions:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

PLEASE RECORD HOST PLANTS ON GPS See Codes Below:

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○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
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○	*Tropidocarpum gracile*	Slender Dobie-pod
✓	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet

Other Flowering Plants:

✓ Lepidium perfoliatum non-native

Rare Wildlife or Rare Plants:

Astragalus douglasii parishii MMAD01-04

Black Jackrabbit MMJ01-03

MMRT01 - RED-TAIL nesting??

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Kyle Ince Add'l Person: Bonnie Hendricks Date: 4/5/11 GPS Unit: 3

Project: Concentrix Solar Project Map #: 3 Survey Sxn: _____ QCB Protocol Survey # 2 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start			5%	(clear) patchy overcast drizzle shower
0915	66°	2/3	5%	clear patchy overcast drizzle shower
1020	66°	2/5	10%	(clear) patchy overcast drizzle shower
1130	80	5/10	15%	clear (patchy) overcast drizzle shower
1300	76	2/8	25%	clear (patchy) overcast drizzle shower
1430	74°	2/8	50%	clear (patchy) overcast drizzle shower
End 1500		5/8	75%	clear patchy (overcast) drizzle shower

Habitat On-site (circle): (open soils), (hilltops), (ridges), rock outcrops, soil crusts, clay soils, old roads, various (nectar sources)

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing) 1	1
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye) 1	1	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		Common Sootywing 1	1
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip) 1111	4		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio ~~eurymedon~~ (~~Pale~~ swallowtail) 1 Papilio sp.	1		
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark) 1111 1111 111	13		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)			
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

...dial Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...ions:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

PLEASE RECORD HOST PLANTS ON GPS See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

○	*Amsinckia menziesii*	Rancher's Fiddleneck
○	***Antirrhinum coulterianum***	**Coulter's Snapdragon**
○	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
○	*Asclepias fascicularis*	Narrow-leaf Milkweed
○	*Boechera sp.*	Rock Cress
○	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
✓	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
○	*Coreopsis californica*	California Coreopsis
○	*Corethrogyne filaginifolia*	Common Sand-aster
✓	*Cryptantha sp.*	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
✓	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
○	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya sp.*	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
✓	*Eriastrum sp.*	Woolly-star
○	*Ericameria sp.*	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
✓	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum sp.*	Buckwheat
○	*Eriophyllum sp.*	Golden-yarrow
○	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysimum capitatum*	Western Wallflower
○	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
○	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
○	*Lasthenia gracilis*	Common Goldfields
○	*Layia glandulosa*	White Layia
○	*Lepidium sp.*	Pepperweed
✓	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
○	*Malacothrix californica*	California Dandelion
○	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
✓	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus sp.*	Monkeyflower
✓	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya sp.*	Pectocarya
✓	*Phacelia sp.*	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
○	*Plagiobothrys sp.*	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
✓	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
○	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
○	*Sisymbrium sp.*	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria sp.*	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
✓	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus sp.*	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
○		
○		
○	**Other Flowering Plants:**	
○	Linanthus harknessii	
○		
○		
○		
○		
○		
○	Gopher Snake	
○		
○	**Rare Wildlife or Rare Plants:**	
○		
○	Ki; GV01 – 7 plants	
○	Ki; Ad 01 – 41 plants	
○	Ki; Ib 01 – 1 plant	
○	Ki; Ib 02 – 1 plant	
○	Ki; Ib 03 – 1 plant	
○	Ki; Ib 04 – 27 plants	
○	Ki; Ad 02 – 4 plants	
○	Ki; Ad 03 – 2 plants	
○	Ki; Ib 05 – 2 plants	
○	Ki; Horn LIZ 01 – 1 juvenile Horned Lizard	
○	Ki; Ib 06 – 2 plants	
○	Ki; Ib 07 – 3 plants	
○	Ki; Ib 08 – 15 plants	
○	Ki; GV 02 – 3 plants	
○	Ki; AD 04 – (12 Ad, 1 Ib, 2 GV)	
○	Ki; HL 02 – 1 Adult Horned Lizard, SLB	
○	Ki; Ad 05 – 1 plant	
○	Ki; HL 03 – 1 Horned Lizard	
○	Ki; Ib 09 – 7 plants	
○	Ki; Ib 10 – 10 plants	
○	Ki; Ib 11 – 2 plants	
○	Ki; Ib 12 – 1 plant	
	Ki; Ib 13 – 14 plants	
	Ki; Ad 06 – 3 plants	
	Ki; Ib 14 – 5 plants	

Kilb15 – 1 plant
KiGV03 – 1 plant
Kilb16 – 11 plants
Kilb17 – 15 plants
Kilb18 – 35 plants

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: BCA Add'l Person: none Date: 04/05/11 GPS Unit: 2

Project: Concentrix Solar Project Map #: 4 Survey Sxn: SDGE PORIM QCB Protocol Survey # 2 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start				clear patchy overcast drizzle shower
0900	60.8	0.7/2.3	12% haze	clear patchy overcast drizzle shower
1000	70.5	1.9/3.7	15% haze	clear patchy overcast drizzle shower
1100	72.3	1.1/2.8	25% haze	clear patchy overcast drizzle shower
1200	79.1	1.1/5.0	40% haze but	clear patchy overcast drizzle shower
1300	78.4	1.0/5.4	70% haze/clear	clear patchy overcast drizzle shower
End 1400	see Margie's temp T7	P 6-8		clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady)		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady) II	2		
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		Erynnis sp. IIII	5
Danaidae (Milkweed Butterflies)		Orange moth: ladylike	1
Danaus plexippus (Monarch)		small gray moth III	3
Danaus gilippus (Queen)		sulphur sp II	2
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White) IIIIII	9		
Anthocharis sara (Sara Orangetip) IIII	6		
Anthocharis cethura (Felder's Orangetip) II	2		
Euchloe hyantis (Desert Pearly Marble) IIII	6		
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur) I			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		MODO Blackrib BCBJ01	
Papilio eurymedon (Pale swallowtail)		CALT LASP	
Papilio rutulus(Western Tiger Swallowtail)		WCSP	
Riodiniade (Metalmarks) IIII IIII I		woodrat sp. nest BCNL01 9:17 am	
Apodemia mormo (Behr's Metalmark) IIII IIII IIII IIII IIII	46	CARU	
Lycaenidae (Hairstreaks and Blues)		CORA	
Celastrina ladon (Spring Azure)		WEST	
Leptotes marina (Marine Blue)		BTSP	
Brephidium exile (Western Pygmy Blue)		western fence lizard	
Glaucopsyche lygdamus (Southern Blue/Silvery blue) II	2	cottontail	
Hemiargus ceraunus (Edward's Blue)		AMAK	
Icaria acmon (Acmon Blue) IIII	4	BCNL02 10:28	
Philotes sonorensis (Sonoran Blue)		SPTO	
Callophrys augustinus (Brown Elfin)		CATH	
Callophrys perplexa (Perplexing Green Hairstreak)		WEME	
Strymon melinus (Gray Hairstreak)		orange throated whiptail BCOW 01 1124	
Atlides halesus (Great Purple Hairstreak)		ATA sp. ms	
		COHA (DOUBT)	

otential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

nstructions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

✓	*Amsinckia menziesii*	Rancher's Fiddleneck
○	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
○	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
○	*Asclepias fascicularis*	Narrow-leaf Milkweed
○	*Boechera sp.*	Rock Cress
○	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
○	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
○	*Coreopsis californica*	California Coreopsis
○	*Corethrogyne filaginifolia*	Common Sand-aster
✓	*Cryptantha sp.*	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
○	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
✓	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya sp.*	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
○	*Eriastrum sp.*	Woolly-star
○	*Ericameria sp.*	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum sp.*	Buckwheat
○	*Eriophyllum sp.*	Golden-yarrow
✓	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysismum capitatum*	Western Wallflower
○	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
○	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
✓	*Lasthenia gracilis*	Common Goldfields
○	*Layia glandulosa*	White Layia
○	*Lepidium sp.*	Pepperweed
✓	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
○	*Malacothrix californica*	California Dandelion
○	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus sp.*	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya sp.*	Pectocarya
✓	*Phacelia sp.*	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
✓	*Plagiobothrys sp.*	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
✓	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
○	*Sisymbrium sp.*	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria sp.*	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
○	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus sp.*	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
○		
○		
○	**Other Flowering Plants:**	
○		
○		
○		
○		
○		
○		
○		
○	**Rare Wildlife or Rare Plants:**	
○	Linanthus bellus ?	BCLB01 ≈50 ind
○		BCLB02 ≈20
○		BCLB03 ≈1
○		BCLB04 ≈1
○		BCLB05 ≈1
○		BCLB06 ≈1
○	took photos of Margie's astragalus	
○		
○	*fenceline not accurate w/ project	
○	boundary on eastern most side	
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Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

No boundary on GPS unit

Recorder: Bonnie Hendricks Add'l Person: Kyle Ince Date: 4/5/11 GPS Unit: 11

Project: Concentrix Solar Project Map #: 3 Survey Sxn: N. + E. QCB Protocol Survey # 2 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	9:00	69.4	2.2/5.5	10%	(clear) patchy overcast drizzle shower
	10:50	81.2	1.8/3.3	40%	(clear) patchy overcast drizzle shower
	11:30	83.5	2.1/4.3	30	(clear) patchy overcast drizzle shower
	12:50	76.8	3.2/7.8	50	clear (patchy) overcast drizzle shower
	1:20	73.5	5.6/8.7	75	clear (patchy) overcast drizzle shower
	2:30	80.6	5.3/8.5	75	clear (patchy) overcast drizzle shower
End	4:00	72.7	4.1/7.2	80	clear patchy (overcast) drizzle shower

Habitat On-site (circle): (open soils), hilltops, ridges, (rock outcrops), (soil crusts), clay soils, (old roads), (various nectar sources) flat, rolling

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	2
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus communis*(Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		Duskywing sp. (beat up) II	2
Danaidae (Milkweed Butterflies)		Orangetip sp. IIII IIII	9
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)		Sulpher sp./ large yellow	1
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)		White sp. IIII	4
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)	1	Six-spotted Moth II	2
Anthocharis sara (Sara Orangetip) IIII II	7	Beige Moth I	1
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble) IIII II	7		
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		Deer tracks, Needle nests	
Papilio eurymedon (Pale swallowtail)		SCJA ; Lepus calif.	
Papilio rutulus(Western Tiger Swallowtail)		COPA ; Sylvilagus	
Riodiniade (Metalmarks)		WCSP	
Apodemia mormo (Behr's Metalmark) IIII IIII IIII IIII IIII II	32	CAQU	
Lycaenidae (Hairstreaks and Blues)		BUSH	
Celastrina ladon (Spring Azure)		CATA	
Leptotes marina(Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue) I	1		
Philotes sonorensis(Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys dumetorum (Perplexing Green Hairstreak) III	3		
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

...itial Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...ions:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail. Bonnie M. 4/5/11

PLEASE RECORD HOST PLANTS ON GPS See Codes Below: Area 3 N. & E.

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

○	*Amsinckia menziesii*	Rancher's Fiddleneck
○	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
○	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
○	*Asclepias fascicularis*	Narrow-leaf Milkweed
○	*Boechera sp.*	Rock Cress
○	*Calandrinia ciliata*	Red Maids
✳	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
✗	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
✗	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
○	*Coreopsis californica*	California Coreopsis
○	*Corethrogyne filaginifolia*	Common Sand-aster
✗	*Cryptantha ~~sp.~~ leptida*	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
○	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
○	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya sp.*	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
○	*Eriastrum sp.*	Woolly-star
○	*Ericameria sp.*	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum sp.*	Buckwheat
○	*Eriophyllum sp.*	Long-stem Golden-yarrow
✗	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysismum capitatum*	Western Wallflower
✗	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
✗	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Helliotropium curassavicum*	Salt Heliotrope
○	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
✗	*Lasthenia gracilis*	Common Goldfields
✗	*Layia glandulosa*	White Layia
○	*Lepidium sp.*	Pepperweed
✗	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
○	*Malacothrix californica*	California Dandelion
○	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus sp.*	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
✗	*Paeonia californica*	California Peony
○	*Pectocarya sp.*	Pectocarya
○	*Phacelia sp.*	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
○	*Plagiobothrys sp.*	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
○	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
✗	*Sisymbrium sp.*	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria sp.*	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
✗	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus sp.*	Fringepod
✗	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet

○

○

○ **Other Flowering Plants:**

○ Lupinus concinnus

○ Arabis pulchra

○ Tauchia arguta

○

○

○

○

○ **Rare Wildlife or Rare Plants:**

○ Bhn101 - woodrat nest Bhn102

○ Bhbj01 - jackrabbit

✗ Bhcc01C - Collinsia concolor 75 vegetative

○ Bhlb01✗ - Linanthus bellus in bud

○ Bhlb02 ~25 5 in bloom

○ 03 ~5 " "

○ 04 few "

○ Bhasd001A 1 plant Astrag. douglasii

○ Bhbj02 - jackrabbit

○ Bhlb05, 06, 07, 08 few at each #

○ Bhasd002B = Astrag. douglasii 13 plants

○ Bh1609C, 10A, 11A, 12A, 13B

○

○

○

○

○

○

○

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Mike Couffer Add'l Person: Ø Date: 5 April, 2011 GPS Unit: 6

Project: Concentrix Solar Project Map #: 4 Survey Sxn: Ø QCB Protocol Survey # 2 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	0830 HRS	68°F	Ø	HIGH CLOUDS	(clear) patchy overcast drizzle shower
	0900	70	Ø -> 1 MPH	"	(clear) patchy overcast drizzle shower
	1000	73	Ø -> 2 MPH	"	(clear) patchy overcast drizzle shower
	1100	75	Ø -> 4 MPH	"	(clear) patchy overcast drizzle shower
	1200	77	Ø -> 4 MPH	"	(clear) patchy overcast drizzle shower
	1300	77	2 -> 7 MPH	30%	clear (patchy) overcast drizzle shower
End	1400	79	2 -> 6 MPH	50%	clear patchy (overcast) drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	3
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	1
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	8
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)	1	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)	2		
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		JUBA SKIPPER	1
Danaidae (Milkweed Butterflies)		SACHEM	5
Danaus plexippus (Monarch)		MOURNFUL DUSKYWING (SEE SAD DUSKYWING)	
Danaus gilippus (Queen)		CALIFORNIA SOOTYWING	5
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)	5		
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip)	8		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)	12		
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)	1		
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)	1	1500 HRS, 76°F, WIND = 1 -> 9 MPH, 70%	
Papilio eurymedon (Pale swallowtail)		1518 HRS, 72°F, WIND = 5 -> 14 MPH, 80% Cover	
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	113		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)	19		
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)	2		
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

Use Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

PLEASE RECORD HOST PLANTS ON GPS See Codes Below:

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○	*Boechera sp.*	Rock Cress
○	*Calandrinia ciliata*	Red Maids
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○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
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○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
○	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
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○	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
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○	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
○	*Dichelostemma capitatum*	Blue Dicks
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○	*Emmenanthe pendulifera*	Whispering Bells
○	*Eriastrum* sp.	Woolly-star
○	*Ericameria* sp.	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum* sp.	Buckwheat
○	*Eriophyllum* sp.	Golden-yarrow
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○	*Erysismum capitatum*	Western Wallflower
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○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
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○	*Hirshfeldia incana*	Short-pod Mustard
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○	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus* sp.	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya* sp.	Pectocarya
○	*Phacelia* sp.	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
○	*Plagiobothrys sp.*	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
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○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
○	*Senecio californicus*	California Butterweed
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○	*Sidalcea malvaeflora*	Checker-bloom
○	*Sisymbrium* sp.	Tumble Mustard
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○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
○		
○		
○	**Other Flowering Plants:**	
○		
○		
○		
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○		
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○		
○	**Rare Wildlife or Rare Plants:**	
○	MCLA01	
○	MCBJ01	
○	MCBJ02	
○	MCBJ03	
○	MCBJ04	
○	MCBJ05	
○	MCCEA	
○		
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○

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 4.5.11 GPS Unit : 12

Project: Concentrix Solar Project Map #: 4 Survey Sxn: _____ QCB Protocol Survey # 2 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start				clear patchy overcast drizzle shower
0915	68°F	2-5	35%	clear patchy overcast drizzle shower
1115	72°F	3-6	35%	clear patchy overcast drizzle shower
1300	74°F	3-6	55%	clear patchy overcast drizzle shower
1400	77°F	6-8	65%	clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
End				clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	1
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	III
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	I
Chlosyne gabbii (Gabb's Checkerspot)	1	*Pyrgus communis*(Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		Common Sootywing	II
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)	1		
Anthocharis sara (Sara Orangetip)	𝍸 𝍸 𝍸 III		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)	𝍸 II		
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
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Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
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○	*Mimulus* sp.	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
✓	*Pectocarya* sp.	Pectocarya
○	*Phacelia* sp.	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
✓	*Plagiobothrys* sp.	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
✓	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
✓	*Sisymbrium* sp.	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria* sp.	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
✓	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus* sp.	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
✓	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet

Other Flowering Plants:

Rhus ovata

Rare Wildlife or Rare Plants:

Astragalus douglasii perstrictus
MMAD01-11

Black Jackrabbit
MMBJ01-03

Geraea viscida
MMGV01

Linanthus bellus
MMLB01

Lathyrus splendens
MMLS01

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Stephen Rink Add'l Person: _____ Date: 4-5-11 GPS Unit: 7

Project: Concentrix Solar Project Map #: 2 Survey Sxn: _____ QCB Protocol Survey # _____ of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start				clear patchy overcast drizzle shower
0800	61	1/2	15	clear patchy overcast drizzle shower
10:21	70	5/3	15	clear patchy overcast drizzle shower
12:05	72	5/7	15	clear patchy overcast drizzle shower
14:20	72	7/12	15	clear patchy overcast drizzle shower
~~[illegible]~~				clear patchy overcast drizzle shower
End 15:20	70	7/12	15	clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing) II	2
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip) ~~IIII~~ ~~IIII~~ II	12		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		A. Axarta = 4 individual plants [illegible]	
Papilio eurymedon (Pale swallowtail)		10' radius of GPS pt	
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark) IIII	4		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue) III	3		
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

Potential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

Instructions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

✓	*Amsinckia menziesii*	Rancher's Fiddleneck
o	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
o	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
o	*Asclepias fascicularis*	Narrow-leaf Milkweed
o	*Boechera sp.*	Rock Cress
o	*Calandrinia ciliata*	Red Maids
o	*Calochortus concolor*	Golden-bowl Mariposa Lily
o	*Calystegia longipes*	Morning-glory
o	*Camissonia sp.*	Sun Cup
VPP	***Castilleja exerta***	**Paintbrush**
o	*Caulanthus heterophyllus*	San Diego Jewelflower
o	*Caulanthus simulans*	Payson's Caulanthus
o	*Ceanothus cuneatus*	Buck Brush
o	*Ceanothus greggii*	Cup-leaf-lilac
o	*Ceanothus leucodermis*	Chaparral Whitethorn
o	*Chaenactis artemisiifolia*	White Pincushion
o	*Chaenactis glabriuscula*	Yellow Pincushion
o	*Clematis sp.*	Clematis
o	***Collinsia concolor***	**Southern Chinese Houses**
o	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
o	*Coreopsis californica*	California Coreopsis
o	*Corethrogyne filaginifolia*	Common Sand-aster
o	*Cryptantha sp.*	Cryptantha
o	*Cucurbita foetidissima*	Calabazilla
o	*Descurainia sp.*	Tansy-mustard
o	*Dicentra chrysantha*	Golden Ear-drops
o	*Dichelostemma capitatum*	Blue Dicks
o	*Dudleya* sp.	Dudleya
o	*Emmenanthe pendulifera*	Whispering Bells
o	*Eriastrum* sp.	Woolly-star
o	*Ericameria* sp.	Goldenbush
o	*Erigeron foliosus*	Leafy Daisy
o	*Eriodictyon trichocalyx*	Hairy Yerba Santa
o	*Eriogonum fasciculatum*	Inland California Buckwheat
o	*Eriogonum* sp.	Buckwheat
o	*Eriophyllum* sp.	Golden-yarrow
✓	*Erodium cicutarium**	Red-stem Storksbill
o	*Erysismum capitatum*	Western Wallflower
o	*Eschscholzia californica*	California Poppy
o	*Eucrypta chrysanthemifolia*	Spotted Hideseed
o	*Euthamia occidentalis*	Western Goldenrod
o	*Garrya veatchii*	Canyon Silk Tassel
o	*Gilia sp.*	Gilia
o	*Gnaphalium*	Cudweed
o	*Guillenia lasiophylla*	California Mustard
o	*Gutierrezia sarothrae*	Broom Matchweed
o	*Heliotropium curassavicum*	Salt Heliotrope
o	*Hirshfeldia incana*	Short-pod Mustard
o	*Lamium amplexicaule*	Henbit
✓	*Lasthenia gracilis*	Common Goldfields
o	*Layia glandulosa*	White Layia
o	*Lepidium* sp.	Pepperweed
o	*Linanthus bellus*	Desert Beauty
o	*Linanthus dichotomus*	Evening Snow
o	*Lonicera subspicata*	Johnston's Honeysuckle
o	*Malacothrix californica*	California Dandelion
o	*Malacothrix clevelandii*	Cleveland's Malacothrix
o	*Marah macrocarpus*	Wild-cucumber
o	*Marrubium vulgare**	Horehound
o	*Matricaria matricarioides**	Common Pineapple-weed
o	*Mentzelia veatchiana*	Veatch's Stick-leak
o	*Microsteris gracilis*	Slender Phlox
o	*Mimulus sp.*	Monkeyflower
o	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
o	*Orobanche bulbosa*	Chaparral Broom-rape
o	*Osmadenia tenella*	Osmadenia
o	*Paeonia californica*	California Peony
o	*Pectocarya* sp.	Pectocarya
o	*Phacelia* sp.	Phacelia
o	*Pholistoma membranaceum*	White Fiesta Flower
✓	*Plagiobothrys* sp.	Popcornflower
o	***Plantago patagonica***	**Desert Plantain**
o	*Platystemon californicus*	Cream Cups
o	*Prunus ilicifolia*	Holly-leaf Cherry
o	*Rafinesquia neomexicana*	Desert Chicory
o	*Ribes quercetorum*	Oak Gooseberry
o	*Rorripa nasturtium-aquaticum*	Water-cress
o	*Rosa californica*	California Rose
o	*Saltugilia australis*	Southern Gilia
o	*Senecio californicus*	California Butterweed
o	*Senecio flaccidus*	Butterweed
o	*Sidalcea malvaeflora*	Checker-bloom
o	*Sisymbrium* sp.	Tumble Mustard
o	*Solidago californica*	California Goldenrod
o	*Stachys ajugoides*	Hedge-nettle
o	*Stephanomeria* sp.	Wreathplant
o	*Streptanthus campestris*	Southern Jewelflower
o	*Stylocline gnaphalioides*	Everlasting Nest-straw
o	*Tetradymia comosa*	Cotton-thorn
o	*Thysanocarpus* sp.	Fringepod
o	*Trichostemma parishii*	Mountain Bluecurls
o	*Tropidocarpum gracile*	Slender Doble-pod
o	*Uropappus lindleyi*	Silver Puffs
o	*Viola purpurea*	Oak Yellow Violet

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o **Other Flowering Plants:**

o Castilleja affinis - 4 individual plants w/in 10' radius of GPS point.

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o **Rare Wildlife or Rare Plants:**

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Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Aaron Rowe Fisher Add'l Person: — Date: 4-5-2011 GPS Unit: 10

Project: Concentrix Solar Project Map #: 4 Survey Sxn: SDG+E QCB Protocol Survey # 2 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	1220	80°F	3-4 W	50%	clear patchy overcast drizzle shower
	1400	78°F	4 W/10 max	80%	clear patchy overcast drizzle shower
End:	1515	72°F	5 W/10 max	85%	clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End					clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady) Lady sp. III =	3	**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble) IIII	5		
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail) I	1	Birds: HOLA, COHA, BTSP, LASP, TUVU	
Papilio rutulus(Western Tiger Swallowtail)		WEME, CRES, CATH,	
Riodiniade (Metalmarks) IIII IIII IIII

...ial Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...ons:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

PLEASE RECORD HOST PLANTS ON GPS See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

✓	*Amsinckia menziesii*	Rancher's Fiddleneck
	Antirrhimum coulterianum	**Coulter's Snapdragon**
	Antirrhinum nuttallianum	Nuttall's Snapdragon
	Asclepias fascicularis	Narrow-leaf Milkweed
✓	*Boechera sp.*	Rock Cress
	Calandrinia ciliata	Red Maids
	Calochortus concolor	Golden-bowl Mariposa Lily
	Calystegia longipes	Morning-glory
	Camissonia sp.	Sun Cup
	Castilleja exerta	**Paintbrush**
	Caulanthus heterophyllus	San Diego Jewelflower
	Caulanthus simulans	Payson's Caulanthus
	Ceanothus cuneatus	Buck Brush
✓	*Ceanothus greggii*	Cup-leaf-lilac
	Ceanothus leucodermis	Chaparral Whitethorn
	Chaenactis artemisiifolia	White Pincushion
	Chaenactis glabriuscula	Yellow Pincushion
	Clematis sp.	Clematis
	Collinsia concolor	**Southern Chinese Houses**
	Cordylanthus rigidus	**Dark-tip Bird's Beak**
	Coreopsis californica	California Coreopsis
	Corethrogyne filaginifolia	Common Sand-aster
✓	*Cryptantha sp.*	Cryptantha
	Cucurbita foetidissima	Calabazilla
✓	*Descurainia sp.*	Tansy-mustard
	Dicentra chrysantha	Golden Ear-drops
	Dichelostemma capitatum	Blue Dicks
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	Guillenia lasiophylla	California Mustard
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✓	*Hirshfeldia incana*	Short-pod Mustard
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	Phacelia sp.	Phacelia
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	Thysanocarpus sp.	Fringepod
	Trichostemma parishii	Mountain Bluecurls
	Tropidocarpum gracile	Slender Dobie-pod
	Uropappus lindleyi	Silver Puffs
	Viola purpurea	Oak Yellow Violet

Other Flowering Plants:

Rare Wildlife or Rare Plants:

AFWWTail01: 1 adult western whiptail

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Erin Bergman Add'l Person: _____ Date: 4/14/11 GPS Unit: _____

Project: Concentrix Solar Project Map #: _____ Survey Sxn: _____ QCB Protocol Survey # 3 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start 9:50	60°	0-3	0	(clear) patchy overcast drizzle shower
10:00	63°	"	0	(clear) patchy overcast drizzle shower
11:00	66°	"	0	(clear) patchy overcast drizzle shower
12:00	68°	"	0	(clear) patchy overcast drizzle shower
1:00	72°	"	0	(clear) patchy overcast drizzle shower
2:50	73°	"	0	(clear) patchy overcast drizzle shower
End				clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
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Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)	1	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
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Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)		White crowned sparrow	
Pieris rapae (Cabbage White)		Cat gnat	
Pontia sisymbrii (Spring White)		Song sparrow	
Pontia beckerii (Beker's White)		Lesser Goldfinch	
Pontia protodice (Common White)		Raven	
Anthocharis sara (Sara Orangetip) IIII III	8	Red tail	
Anthocharis cethura (Felder's Orangetip)		Black throated sparrow	
Euchloe hyantis (Desert Pearly Marble) II	2		
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		EBAD01-1	EBLB06-16 EBLB17-2
Papilio eurymedon (Pale swallowtail)		EBAD02-4	EBDP03-1 EBAD14-1
Papilio rutulus(Western Tiger Swallowtail)		EBNL01-Middle	EBAD12-5 EB
Riodiniade (Metalmarks) IIII IIII IIII

Potential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

Instructions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
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○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
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○	*Caulanthus simulans*	Payson's Caulanthus
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☒	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
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○	*Cucurbita foetidissima*	Calabazilla
○	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
○	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya* sp.	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
☒	*Eriastrum* sp.	Woolly-star
☒	*Ericameria sp.*	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum sp.*	Buckwheat
○	*Eriophyllum* sp.	Golden-yarrow
☒	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysismum capitatum*	Western Wallflower
○	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
○	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
☒	*Lasthenia gracilis*	Common Goldfields
☒	*Layia glandulosa*	White Layia
○	*Lepidium* sp.	Pepperweed
☒	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
○	*Malacothrix californica*	California Dandelion
○	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus sp.*	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya* sp.	Pectocarya
☒	*Phacelia* sp.	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
○	*Plagiobothrys* sp.	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
○	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
○	*Sisymbrium sp.*	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria* sp.	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
○	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus* sp.	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
○		
○		
○	**Other Flowering Plants:**	
○	Phacelia distans	
○	Cryptantha concinna	
○	Lupinus bicolor	
○		
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○	**Rare Wildlife or Rare Plants:**	
○		
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○		
○		
○

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Antonette Gutierrez Add'l Person: None Date: 4/14/11 GPS Unit: 10

Project: Concentrix Solar Project Map #: 2 Survey Sxn: Concentric QCB Protocol Survey # 3 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start 10:00	60	3.2/6	0	clear patchy overcast drizzle shower
11:00	60	3.2/6	0	clear patchy overcast drizzle shower
12:00	62	3/8	0	clear patchy overcast drizzle shower
13:00	62	2/6	0	clear patchy overcast drizzle shower
14:00	64	2/6	0	clear patchy overcast drizzle shower
15:00	64	2/6	0	clear patchy overcast drizzle shower
End 16:00	64	2/6	0	clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, low ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye) IIII	4	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady)		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		Unid Sulphur 1	
Danaidae (Milkweed Butterflies)		Sooty Duskywing 1	
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White) II	2		
Anthocharis sara (Sara Orangetip) II	2		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur) I	1		
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		AGBJ 1	
Papilio eurymedon (Pale swallowtail)		AGAD 1 pop = 75 Astragalis dong.	
Papilio rutulus(Western Tiger Swallowtail)		AGAD 2 pop = 3 " "	
Riodiniade (Metalmarks)		AGAD 3 pop = 4 " "	
Apodemia mormo (Behr's Metalmark) 卌 卌 卌 卌 卌 卌	31	AGAD 4 pop = ~~7~~ 6 " "	
Lycaenidae (Hairstreaks and Blues)		AGRN 1 2 raptor nest Redtailed Hawk	
Celastrina ladon (Spring Azure)		AGAD 5 pop = 4 Astragalis dong	
Leptotes marina (Marine Blue)		AGLS 1 Loggerhead Shrike	
Brephidium exile (Western Pygmy Blue)		AGNL 1 S.D. woodrat nest	
Glaucopsyche lygdamus (Southern Blue/Silvery blue)		AGNL 2	
Hemiargus ceraunus (Edward's Blue)		AGNL 3	
Icaria acmon (Acmon Blue) 卌	5	AGNL 4	
Philotes sonorensis (Sonoran Blue)		AGNL 5	
Callophrys augustinus (Brown Elfin)		AGNL 6	
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)		CORA, CAQU, WESJ, RTHA, TUVU	
Atlides halesus (Great Purple Hairstreak)		WEME, WCSP, OATI, YRWA, ANHU,	
		BUSH, CATH	

sideblotch lizard, fenced lizard

Potential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

Instructions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

○	*Amsinckia menziesii*	Rancher's Fiddleneck
○	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
○	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
○	*Asclepias fascicularis*	Narrow-leaf Milkweed
○	*Boechera sp.*	Rock Cress
○	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
○	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
○	*Coreopsis californica*	California Coreopsis
○	*Corethrogyne filaginifolia*	Common Sand-aster
○	*Cryptantha sp.*	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
○	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
○	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya* sp.	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
○	*Eriastrum* sp.	Woolly-star
○	*Ericameria* sp.	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum* sp.	Buckwheat
○	*Eriophyllum* sp.	Golden-yarrow
●	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysismum capitatum*	Western Wallflower
○	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
●	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
●	*Lasthenia gracilis*	Common Goldfields
○	*Layia glandulosa*	White Layia
○	*Lepidium* sp.	Pepperweed
○	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
●	*Malacothrix californica*	California Dandelion
○	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus* sp.	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya* sp.	Pectocarya
○	*Phacelia* sp.	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
○	*Plagiobothrys* sp.	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
○	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
○	*Sisymbrium* sp.	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria* sp.	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
○	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus* sp.	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
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○	**Other Flowering Plants:**	
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○	**Rare Wildlife or Rare Plants:**	
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Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Bonnie Hendricks Add'l Person: Erin Bergman Date: 4/14/11 GPS Unit: 7

Project: Concentrix Solar Project Map #: ____ Survey Sxn: SDGE QCB Protocol Survey # 3 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	11:15	70.6	2.6/5.6	0	(clear) patchy overcast drizzle shower
	12:00	70.2	3.2/5.9	0	(clear) patchy overcast drizzle shower
	1:05	67.1	5.3/9.5	0	(clear) patchy overcast drizzle shower
					clear patchy overcast drizzle shower
	2:00	71.5	4.1/7.2	0	(clear) patchy overcast drizzle shower
	3:00	70.2	4.3/6.4	0	(clear) patchy overcast drizzle shower
End	4:10	69.0	2.9/5.7	0	(clear) patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing) 1	1
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye) 1	1	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady)		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)		Sulphur sp.	11 2
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)		Colorful Moth (orange hindwings w/ eye spots)	11 2
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)		Beige Moth (w/ 2 partial eye spots on hindwings	11 2
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip) ///	3		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble) //	2		
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)		CAQU	
Papilio rutulus(Western Tiger Swallowtail)		CORA	
Riodiniade (Metalmarks)		MODO	
Apodemia mormo (Behr's Metalmark) //// //// //// //// ///	68	BTSP	
Lycaenidae (Hairstreaks and Blues)		VESP	
Celastrina ladon (Spring Azure)		WCSP	
Leptotes marina (Marine Blue)		TUVU	
Brephidium exile (Western Pygmy Blue)		HOWR	
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)			
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

Potential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

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○	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
X	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
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○	*Ericameria* sp.	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum* sp.	Buckwheat
○	*Eriophyllum* sp.	Golden-yarrow
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○	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
○	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
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○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus* sp.	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya* sp.	Pectocarya
X	*Phacelia* sp.	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
○	*Plagiobothrys* sp.	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
○	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
○	*Sisymbrium* sp.	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria* sp.	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
○	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus* sp.	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
○		
○		
○	**Other Flowering Plants:**	
✱	Lathrys Splendens	
○	Er	
○		
○		
○		
○		
○		
○	**Rare Wildlife or Rare Plants:**	
○		
○	BHADO1A Astrag. doug. pers. 2 plants	
○	Bhlb01A Linanthus bellus few	
○	Bhlb02A " " "	
○	Bhado2A Astrag doug pers. 1	
○	Bhado3A " " 1 large clump	
○	Bhado4A " " "	
○	Bhlb03B Linanthus bellus	
○	" 04C " " "	
○	" 05B " " "	
○	" 06B " " "	
○	Bhn101 Woodrat nest	
○	Bhn102 " "	
○	Bhn103 " "	
○	Bhlasp01 Lathrys splendens 1	
○	Bhlb07B Linanthus bellus on Rhus	
○	Bhdelphinium 1 plant	
○	Bhn104 Woodrat nest	
○		
○		

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Kyle Inse Add'l Person: _____ Date: 4/14/11 GPS Unit: 6

Project: Concentrix Solar Project Map #: _____ Survey Sxn: _____ QCB Protocol Survey # 3 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start				clear patchy overcast drizzle shower
1000	61°	2mph	2%	(clear) patchy overcast drizzle shower
1115	65°	2mph	2%	(clear) patchy overcast drizzle shower
1230	68°	2mph	0%	(clear) patchy overcast drizzle shower
1340	70°	2mph	0%	(clear) patchy overcast drizzle shower
1430	70°	2mph	0%	(clear) patchy overcast drizzle shower
End 1545	70°	3mph	0%	(clear) patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing) I	1
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing) III	3
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye) ~~HHH HHH~~	10	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady)		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip) ~~HHH~~ II	7		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur) I	1		
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		Ki Ad1 Astragalus douglasii N=1	
Papilio eurymedon (Pale swallowtail)		Ki Ad2 N=6	
Papilio rutulus(Western Tiger Swallowtail)		Ki GV02 Gerrea Viscida N=8	
Riodiniade (Metalmarks)		Ki Ib 01 Linanthus bicolor N=4	
Apodemia mormo (Behr's Metalmark) ~~HHH HHH HHH~~ IIII	28	Ki Ih 01 - Horned Lizard N=1	
Lycaenidae (Hairstreaks and Blues) HH II		Ki GV 01 - N=2	
Celastrina ladon (Spring Azure)		Ki Ib 02 - N=36	
Leptotes marina (Marine Blue)		Ki Ib 03 - N=68	
Brephidium exile (Western Pygmy Blue)		Ki Ib 04 - N=55	
Glaucopsyche lygdamus (Southern Blue/Silvery blue)		Ki GV 03 N=2	
Hemiargus ceraunus (Edward's Blue)		Ki GV 04 N=25	
Icaria acmon (Acmon Blue) III	3	Ki Ib 05 N=8	
Philotes sonorensis (Sonoran Blue)		Ki Ib 06 N=60	
Callophrys augustinus (Brown Elfin)		Ki Ib 07 N=90	
Callophrys perplexa (Perplexing Green Hairstreak) I	1	Ki Ad 03 N=1	
Strymon melinus (Gray Hairstreak)		Ki Ad 04 N=4	
Atlides halesus (Great Purple Hairstreak)		Ki Cr 01 - Cordylanthus rigidus - N=	30
		Ki Ib 08 - N=9	
		Ki Ib 09 - N=19	
		Ki Gs 01 Granite Spiny Lizard N=2 →	

Potential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

Instructions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

☒	*Amsinckia menziesii*	Rancher's Fiddleneck
○	***Antirrhinum coulterianum***	**Coulter's Snapdragon**
○	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
○	*Asclepias fascicularis*	Narrow-leaf Milkweed
○	*Boechera sp.*	Rock Cress
○	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
☒	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
☒	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
○	*Coreopsis californica*	California Coreopsis
○	*Corethrogyne filaginifolia*	Common Sand-aster
☒	*Cryptantha sp.*	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
☒	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
○	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya* sp.	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
☒	*Eriastrum* sp.	Woolly-star
☒	*Ericameria* sp.	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
☒	*Eriodictyon trichocalyx*	Hairy Yerba Santa
☒	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum* sp.	Buckwheat
☒	*Eriophyllum* sp.	Golden-yarrow
○	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysimum capitatum*	Western Wallflower
○	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
☒	*Garrya veatchii*	Canyon Silk Tassel
☒	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
○	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
☒	*Lasthenia gracilis*	Common Goldfields
☒	*Layia glandulosa*	White Layia
○	*Lepidium* sp.	Pepperweed
☒	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
☒	*Lonicera subspicata*	Johnston's Honeysuckle
○	*Malacothrix californica*	California Dandelion
○	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus* sp.	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya* sp.	Pectocarya
☒	*Phacelia* sp.	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
○	*Plagiobothrys* sp.	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
☒	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
☒	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
○	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
☒	*Sisymbrium* sp.	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria* sp.	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
☒	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus* sp.	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
☒	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
○		
○		
○	**Other Flowering Plants:**	
○	Amsinckia agarlis	
○		
○		
○		
○		
○		
○		
○	**Rare Wildlife or Rare Plants:**	
○		
○		
○		
○		
○		
○		
○

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 4.14.11 GPS Unit: 3

Project: Concentrix Solar Project Map #: 5 Survey Sxn: _____ QCB Protocol Survey # 3 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start 0845	60°	1-5	2	(clear) patchy overcast drizzle shower
1130	64°	3-6 (8)	5	(clear) patchy overcast drizzle shower
1320	68°	3-5	6	(clear) patchy overcast drizzle shower
1600	68°	2-5	5	(clear) patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
End				clear patchy overcast drizzle shower

Habitat On-site (circle): (open soils), hilltops, ridges, (rock outcrops), soil crusts, clay soils, (old roads), (various nectar sources)

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	1 (1)
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	1 (1)
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)	III (3)	*Polites sabuleti* (Sandhill Skipper) photo	1 (1)
Vanessa annabella (West Coast Lady)		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		common Sootywing	1 (1)
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckeri (Beker's White)			
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip)	IIII (4)		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)	1 (1)		
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)	1 (1)		
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	||||| |||||				

Potential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

Instructions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

X	*Amsinckia menziesii*	Rancher's Fiddleneck
o	***Antirrhinum coulterianum***	**Coulter's Snapdragon**
o	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
o	*Asclepias fascicularis*	Narrow-leaf Milkweed
X	*Boechera sp.*	Rock Cress
o	*Calandrinia ciliata*	Red Maids
o	*Calochortus concolor*	Golden-bowl Mariposa Lily
o	*Calystegia longipes*	Morning-glory
X	*Camissonia sp.* californica	Sun Cup
o	***Castilleja exerta***	**Paintbrush**
o	*Caulanthus heterophyllus*	San Diego Jewelflower
o	*Caulanthus simulans*	Payson's Caulanthus
o	*Ceanothus cuneatus*	Buck Brush
X	*Ceanothus greggii*	Cup-leaf-lilac
o	*Ceanothus leucodermis*	Chaparral Whitethorn
o	*Chaenactis artemisiifolia*	White Pincushion
o	*Chaenactis glabriuscula*	Yellow Pincushion
o	*Clematis sp.*	Clematis
o	***Collinsia concolor***	**Southern Chinese Houses**
o	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
X	*Coreopsis californica*	California Coreopsis
o	*Corethrogyne filaginifolia*	Common Sand-aster
X	*Cryptantha sp.*	Cryptantha
o	*Cucurbita foetidissima*	Calabazilla
X	*Descurainia sp.*	Tansy-mustard
o	*Dicentra chrysantha*	Golden Ear-drops
o	*Dichelostemma capitatum*	Blue Dicks
o	*Dudleya* sp.	Dudleya
o	*Emmenanthe pendulifera*	Whispering Bells
o	*Eriastrum* sp.	Woolly-star
X	*Ericameria* sp. linearifolia	Goldenbush
o	*Erigeron foliosus*	Leafy Daisy
o	*Eriodictyon trichocalyx*	Hairy Yerba Santa
o	*Eriogonum fasciculatum*	Inland California Buckwheat
o	*Eriogonum* sp.	Buckwheat
X	*Eriophyllum* sp. wallacei	Golden-yarrow
X	*Erodium cicutarium**	Red-stem Storksbill
o	*Erysimum capitatum*	Western Wallflower
o	*Eschscholzia californica*	California Poppy
o	*Eucrypta chrysanthemifolia*	Spotted Hideseed
o	*Euthamia occidentalis*	Western Goldenrod
o	*Garrya veatchii*	Canyon Silk Tassel
X	*Gilia sp.*	Gilia
o	*Gnaphalium*	Cudweed
o	*Guillenia lasiophylla*	California Mustard
o	*Gutierrezia sarothrae*	Broom Matchweed
o	*Heliotropium curassavicum*	Salt Heliotrope
X	*Hirshfeldia incana*	Short-pod Mustard
o	*Lamium amplexicaule*	Henbit
X	*Lasthenia gracilis*	Common Goldfields
X	*Layia glandulosa*	White Layia
o	*Lepidium* sp.	Pepperweed
X	*Linanthus bellus*	Desert Beauty
o	*Linanthus dichotomus*	Evening Snow
o	*Lonicera subspicata*	Johnston's Honeysuckle
o	*Malacothrix californica*	California Dandelion
o	*Malacothrix clevelandii*	Cleveland's Malacothrix
o	*Marah macrocarpus*	Wild-cucumber
o	*Marrubium vulgare**	Horehound
o	*Matricaria matricarioides**	Common Pineapple-weed
o	*Mentzelia veatchiana*	Veatch's Stick-leak
o	*Microsteris gracilis*	Slender Phlox
o	*Mimulus* sp.	Monkeyflower
o	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
o	*Orobanche bulbosa*	Chaparral Broom-rape
o	*Osmadenia tenella*	Osmadenia
o	*Paeonia californica*	California Peony
X	*Pectocarya* sp.	Pectocarya
X	*Phacelia* sp. distans	Phacelia
o	*Pholistoma membranaceum*	White Fiesta Flower
X	*Plagiobothrys* sp.	Popcornflower
o	***Plantago patagonica***	**Desert Plantain**
o	*Platystemon californicus*	Cream Cups
o	*Prunus ilicifolia*	Holly-leaf Cherry
o	*Rafinesquia neomexicana*	Desert Chicory
o	*Ribes quercetorum*	Oak Gooseberry
o	*Rorripa nasturtium-aquaticum*	Water-cress
o	*Rosa californica*	California Rose
[redacted]	*Saltugilia australis*	Southern Gilia
X	*Senecio californicus*	California Butterweed
o	*Senecio flaccidus*	Butterweed
o	*Sidalcea malvaeflora*	Checker-bloom
X	*Sisymbrium* sp.	Tumble Mustard
o	*Solidago californica*	California Goldenrod
o	*Stachys ajugoides*	Hedge-nettle
o	*Stephanomeria* sp.	Wreathplant
o	*Streptanthus campestris*	Southern Jewelflower
X	*Stylocline gnaphalioides*	Everlasting Nest-straw
o	*Tetradymia comosa*	Cotton-thorn
X	*Thysanocarpus* sp.	Fringepod
o	*Trichostemma parishii*	Mountain Bluecurls
o	*Tropidocarpum gracile*	Slender Dobie-pod
o	*Uropappus lindleyi*	Silver Puffs
o	*Viola purpurea*	Oak Yellow Violet
o		
o		

o **Other Flowering Plants:**

- Leptosiphon lemmoni
- Rhus ovata

o **Rare Wildlife or Rare Plants:**

- Astragalus douglasii parishii
- MMAD01-06

- Geraea viscida
- MMGV01 – 3 plants
  - 02
  - 03
- Linanthus bellus – 0120 plants
- MMLB01-04
- Delphinium parishii subglobosum
- MMDP01
- Loggerhead Shrike
- MMLH01

HORN LIZARD
MMHL01

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Stephen Rink Add'l Person: _____ Date: 4/14/11 GPS Unit : 2

Project: Concentrix Solar Project Map #: 2 Survey Sxn: _____ QCB Protocol Survey # 3 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start				clear patchy overcast drizzle shower
1000	60	3.2/6	0%	clear patchy overcast drizzle shower
1200	63	1.7/5	0%	clear patchy overcast drizzle shower
1400	64	3/7	0	clear patchy overcast drizzle shower
1602	03	3/5	0	clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
End				clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye) ~~IIII~~ III	8	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady) II	2	**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		Sulpiwer sp. 1	
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White) I(	2		
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark) ~~IIII~~	5		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)			
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak) II	2		
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

Potential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

Instructions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

✓	*Amsinckia menziesii*	Rancher's Fiddleneck
○	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
○	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
○	*Asclepias fascicularis*	Narrow-leaf Milkweed
○	*Boechera sp.*	Rock Cress
○	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
○	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
○	*Coreopsis californica*	California Coreopsis
○	*Corethrogyne filaginifolia*	Common Sand-aster
○	*Cryptantha sp.*	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
○	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
○	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya* sp.	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
○	*Eriastrum* sp.	Woolly-star
○	*Ericameria* sp.	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum* sp.	Buckwheat
○	*Eriophyllum* sp.	Golden-yarrow
✓	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysismum capitatum*	Western Wallflower
○	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
○	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
✓	*Lasthenia gracilis*	Common Goldfields
○	*Layia glandulosa*	White Layia
○	*Lepidium* sp.	Pepperweed
✓	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
○	*Malacothrix californica*	California Dandelion
○	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus sp.*	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya* sp.	Pectocarya
○	*Phacelia* sp.	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
✓	*Plagiobothrys* sp.	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
○	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
○	*Sisymbrium* sp.	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria* sp.	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
○	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus* sp.	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
○		
○		
○	**Other Flowering Plants:**	
○		
○		
○		
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○		
○	**Rare Wildlife or Rare Plants:**	
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○		
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○

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Evan Buxman Add'l Person: _____ Date: 4/15/11 GPS Unit: 10

Project: Concentrix Solar Project Map #: _____ Survey Sxn: _____ QCB Protocol Survey # _____ of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
End				clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady)		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)		Common Sootywing!	1
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)		White crowned sparrow	
Satyridae (Satyrs)		Cal quail	
Coenonympha californica (Common California Ringlet)		Red Tail	
Pieridae (Whites, Sulphurs)		Scrub jay	
Pieris rapae (Cabbage White)		Western blue bird	
Pontia sisymbrii (Spring White)		Raven	
Pontia beckerii (Beker's White)		Meadow Lark	
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip) IIII I	6		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble) IIII	4		
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail) I	1	EBDP01 - 4	
Papilio rutulus(Western Tiger Swallowtail)		EBDP02 - 2	
Riodiniade (Metalmarks)		EBAD01 - 1	
Apodemia mormo (Behr's Metalmark) IIII IIII III + 40	58	EBAD02 - 2	
Lycaenidae (Hairstreaks and Blues)		EBAD03 - 3	
Celastrina ladon (Spring Azure)		EBbl01 - 1	
Leptotes marina (Marine Blue)		EBbl02 - 1	
Brephidium exile (Western Pygmy Blue)		EBcr01 - 20	
Glaucopsyche lygdamus (Southern Blue/Silvery blue)		EBdp01 - 1	
Hemiargus ceraunus (Edward's Blue)		EBdp02 - 1	
Icaria acmon (Acmon Blue)		EBec01 - 1	
Philotes sonorensis (Sonoran Blue)		EBec02 - 1	
Callophrys augustinus (Brown Elfin)		EBav01 - 5	
Callophrys perplexa (Perplexing Green Hairstreak)		EBlb01 - 15	
Strymon melinus (Gray Hairstreak)		EBli02 - 5	
Atlides halesus (Great Purple Hairstreak)		EBLb03 - 15	
		EBNL01 - midday	
		EBNL02 - midday	
		EBNL03 - midday	

Potential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

Instructions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

Amsinckia menziesii	Rancher's Fiddleneck
Antirrhimum coulterianum	**Coulter's Snapdragon**
Antirrhinum nuttallianum	Nuttall's Snapdragon
Asclepias fascicularis	Narrow-leaf Milkweed
Boechera sp.	Rock Cress
Calandrinia ciliata	Red Maids
Calochortus concolor	Golden-bowl Mariposa Lily
Calystegia longipes	Morning-glory
Camissonia sp.	Sun Cup
Castilleja exerta	**Paintbrush**
Caulanthus heterophyllus	San Diego Jewelflower
Caulanthus simulans	Payson's Caulanthus
Ceanothus cuneatus	Buck Brush
Ceanothus greggii	Cup-leaf-lilac
Ceanothus leucodermis	Chaparral Whitethorn
Chaenactis artemisiifolia	White Pincushion
Chaenactis glabriuscula	Yellow Pincushion
Clematis sp.	Clematis
Collinsia concolor	**Southern Chinese Houses**
Cordylanthus rigidus	**Dark-tip Bird's Beak**
Coreopsis californica	California Coreopsis
Corethrogyne filaginifolia	Common Sand-aster
Cryptantha sp.	Cryptantha
Cucurbita foetidissima	Calabazilla
Descurainia sp.	Tansy-mustard
Dicentra chrysantha	Golden Ear-drops
Dichelostemma capitatum	Blue Dicks
Dudleya sp.	Dudleya
Emmenanthe pendulifera	Whispering Bells
Eriastrum sp.	Woolly-star
Ericameria sp.	Goldenbush
Erigeron foliosus	Leafy Daisy
Eriodictyon trichocalyx	Hairy Yerba Santa
Eriogonum fasciculatum	Inland California Buckwheat
Eriogonum sp.	Buckwheat
Eriophyllum sp.	Golden-yarrow
*Erodium cicutarium**	Red-stem Storksbill
Erysismum capitatum	Western Wallflower
Eschscholzia californica	California Poppy
Eucrypta chrysanthemifolia	Spotted Hideseed
Euthamia occidentalis	Western Goldenrod
Garrya veatchii	Canyon Silk Tassel
Gilia sp.	Gilia
Gnaphalium	Cudweed
Guillenia lasiophylla	California Mustard
Gutierrezia sarothrae	Broom Matchweed
Heliotropium curassavicum	Salt Heliotrope
Hirshfeldia incana	Short-pod Mustard
Lamium amplexicaule	Henbit
Lasthenia gracilis	Common Goldfields
Layia glandulosa	White Layia
Lepidium sp.	Pepperweed
Linanthus bellus	Desert Beauty
Linanthus dichotomus	Evening Snow
Lonicera subspicata	Johnston's Honeysuckle
Malacothrix californica	California Dandelion
Malacothrix clevelandii	Cleveland's Malacothrix
Marah macrocarpus	Wild-cucumber
*Marrubium vulgare**	Horehound
*Matricaria matricarioides**	Common Pineapple-weed
Mentzelia veatchiana	Veatch's Stick-leak
Microsteris gracilis	Slender Phlox
Mimulus sp.	Monkeyflower
Nemophila menzeisii	Small-flower Baby Blue Eyes
Orobanche bulbosa	Chaparral Broom-rape
Osmadenia tenella	Osmadenia
Paeonia californica	California Peony
Pectocarya sp.	Pectocarya
Phacelia sp.	Phacelia
Pholistoma membranaceum	White Fiesta Flower
Plagiobothrys sp.	Popcornflower
Plantago patagonica	**Desert Plantain**
Platystemon californicus	Cream Cups
Prunus ilicifolia	Holly-leaf Cherry
Rafinesquia neomexicana	Desert Chicory
Ribes quercetorum	Oak Gooseberry
Rorripa nasturtium-aquaticum	Water-cress
Rosa californica	California Rose
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Sisymbrium sp.	Tumble Mustard
Solidago californica	California Goldenrod
Stachys ajugoides	Hedge-nettle
Stephanomeria sp.	Wreathplant
Streptanthus campestris	Southern Jewelflower
Stylocline gnaphalioides	Everlasting Nest-straw
Tetradymia comosa	Cotton-thorn
Thysanocarpus sp.	Fringepod
Trichostemma parishii	Mountain Bluecurls
Tropidocarpum gracile	Slender Dobie-pod
Uropappus lindleyi	Silver Puffs
Viola purpurea	Oak Yellow Violet

Other Flowering Plants:

Lupinus bicolor

Rare Wildlife or Rare Plants:

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: Ø Date: 15 APRIL 2011 GPS Unit: 6

Project: Concentrix Solar Project Map #: 2 Survey Sxn: Ø QCB Protocol Survey # 3 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	1100 HRS	65	4 -> 10 MPH	Ø	(clear) patchy overcast drizzle shower
	1200 HRS	69	1 -> 5	Ø	(clear) patchy overcast drizzle shower
	1300 HRS	72	2 -> 7	Ø	(clear) patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End					clear patchy overcast drizzle shower

Habitat On-site (circle): (open soils) (hilltops) (ridges) (rock outcrops) soil crusts, clay soils, (old roads) (various nectar sources)

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	1
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)	4	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady)		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		WESTERN TAILED BLUE	1
Danaidae (Milkweed Butterflies)		CALIFORNIA SOOTYWING	11
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip)	1		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)	5		
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		MC HL 01 HORNED LIZARD	
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	59		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)	3		
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

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Thysanocarpus sp.	Fringepod
Trichostemma parishii	Mountain Bluecurls
Tropidocarpum gracile	Slender Dobie-pod
Uropappus lindleyi	Silver Puffs
Viola purpurea	Oak Yellow Violet

Other Flowering Plants:

Rare Wildlife or Rare Plants:

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: Ø Date: 15 APRIL, 2011 GPS Unit: 6

Project: Concentrix Solar Project Map #: 3 Survey Sxn: Ø QCB Protocol Survey # 3 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	1330 HRS	73°	1→6 MPH	Ø	(clear) patchy overcast drizzle shower
	1400 HRS	73	1→4	Ø	(clear) patchy overcast drizzle shower
	1500 HRS	74	1→3	Ø	(clear) patchy overcast drizzle shower
	1600 HRS	76	Ø→3	Ø	(clear) patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End					clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	1
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	1
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	3
Junonia coenia (Common Buckeye)	1	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady)		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		DAINTY SULPHUR	1
Danaidae (Milkweed Butterflies)		VANESSA SP.	1
Danaus plexippus (Monarch)		CALIFORNIA SOOTYWING	3
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)	1		
Anthocharis sara (Sara Orangetip)	3		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)	4		
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)	1		
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		MCBJ03 JACKRABBIT	
Papilio eurymedon (Pale swallowtail)		MCBJ04 "	
Papilio rutulus(Western Tiger Swallowtail)		MCBJ05 "	
Riodiniade (Metalmarks)		MCBJ06 "	
Apodemia mormo (Behr's Metalmark)	55		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)			
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)	1		
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

Potential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

Instructions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

Amsinckia menziesii	Rancher's Fiddleneck
Antirrhimum coulterianum	**Coulter's Snapdragon**
Antirrhinum nuttallianum	Nuttall's Snapdragon
Asclepias fascicularis	Narrow-leaf Milkweed
Boechera sp.	Rock Cress
Calandrinia ciliata	Red Maids
Calochortus concolor	Golden-bowl Mariposa Lily
Calystegia longipes	Morning-glory
Camissonia sp.	Sun Cup
Castilleja exerta	**Paintbrush**
Caulanthus heterophyllus	San Diego Jewelflower
Caulanthus simulans	Payson's Caulanthus
Ceanothus cuneatus	Buck Brush
Ceanothus greggii	Cup-leaf-lilac
Ceanothus leucodermis	Chaparral Whitethorn
Chaenactis artemisiifolia	White Pincushion
Chaenactis glabriuscula	Yellow Pincushion
Clematis sp.	Clematis
Collinsia concolor	**Southern Chinese Houses**
Cordylanthus rigidus	**Dark-tip Bird's Beak**
Coreopsis californica	California Coreopsis
Corethrogyne filaginifolia	Common Sand-aster
Cryptantha sp.	Cryptantha
~~*Cucurbita foetidissima*~~	Calabazilla
Descurainia sp	Tansy-mustard
Dicentra chrysantha	Golden Ear-drops
Dichelostemma capitatum	Blue Dicks
Dudleya sp.	Dudleya
Emmenanthe pendulifera	Whispering Bells
Eriastrum sp.	Woolly-star
Ericameria sp.	Goldenbush
Erigeron foliosus	Leafy Daisy
Eriodictyon trichocalyx	Hairy Yerba Santa
Eriogonum fasciculatum	Inland California Buckwheat
Eriogonum sp.	Buckwheat
Eriophyllum sp.	Golden-yarrow
*Erodium cicutarium**	Red-stem Storksbill
Erysismum capitatum	Western Wallflower
Eschscholzia californica	California Poppy
Eucrypta chrysanthemifolia	Spotted Hideseed
Euthamia occidentalis	Western Goldenrod
Garrya veatchii	Canyon Silk Tassel
Gilia sp	Gilia
Gnaphalium	Cudweed
Guillenia lasiophylla	California Mustard
Gutierrezia sarothrae	Broom Matchweed
Heliotropium curassavicum	Salt Heliotrope
Hirshfeldia incana	Short-pod Mustard
Lamium amplexicaule	Henbit
~~*Lasthenia gracilis*~~	Common Goldfields
Layia glandulosa	White Layia
Lepidium sp.	Pepperweed
Linanthus bellus	Desert Beauty
Linanthus dichotomus	Evening Snow
Lonicera subspicata	Johnston's Honeysuckle
Malacothrix californica	California Dandelion
Malacothrix clevelandii	Cleveland's Malacothrix
Marah macrocarpus	Wild-cucumber
*Marrubium vulgare**	Horehound
*Matricaria matricarioides**	Common Pineapple-weed
Mentzelia veatchiana	Veatch's Stick-leak
Microsteris gracilis	Slender Phlox
Mimulus sp	Monkeyflower
Nemophila menzeisii	Small-flower Baby Blue Eyes
Orobanche bulbosa	Chaparral Broom-rape
Osmadenia tenella	Osmadenia
Paeonia californica	California Peony
Pectocarya sp.	Pectocarya
Phacelia sp.	Phacelia
Pholistoma membranaceum	White Fiesta Flower
Plagiobothrys sp.	Popcornflower
Plantago patagonica	**Desert Plantain**
Platystemon californicus	Cream Cups
Prunus ilicifolia	Holly-leaf Cherry
Rafinesquia neomexicana	Desert Chicory
Ribes quercetorum	Oak Gooseberry
Rorripa nasturtium-aquaticum	Water-cress
Rosa californica	California Rose
Saltugilia australis	Southern Gilia
Senecio californicus	California Butterweed
Senecio flaccidus	Butterweed
Sidalcea malvaeflora	Checker-bloom
Sisymbrium sp.	Tumble Mustard
Solidago californica	California Goldenrod
Stachys ajugoides	Hedge-nettle
Stephanomeria sp.	Wreathplant
Streptanthus campestris	Southern Jewelflower
Stylocline gnaphalioides	Everlasting Nest-straw
Tetradymia comosa	Cotton-thorn
Thysanocarpus sp.	Fringepod
Trichostemma parishii	Mountain Bluecurls
Tropidocarpum gracile	Slender Dobie-pod
Uropappus lindleyi	Silver Puffs
Viola purpurea	Oak Yellow Violet

Other Flowering Plants:

Rare Wildlife or Rare Plants:

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Antonette Gutierrez Add'l Person: None Date: 4-15-11 GPS Unit: 3

Project: Concentrix Solar Project Map #: 3 Survey Sxn: Concentrix QCB Protocol Survey # 3 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	930	64	6.2/10	0	clear patchy overcast drizzle shower
	1030	68	6.4/12	0	clear patchy overcast drizzle shower
	1130	70	6.4/12	0	clear patchy overcast drizzle shower
	1230	72	6/12	0	clear patchy overcast drizzle shower
	1330	74	6.2/12	0	clear patchy overcast drizzle shower
	1430	74	3.2/8	0	clear patchy overcast drizzle shower
End	1530	74	3.2/6	0	clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing) 1	1
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady)		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		Sooty Dusky wing 11	2
Danaidae (Milkweed Butterflies)		Unid Vanessa - flew by 1	1
Danaus plexippus (Monarch)		Unid Duskywing flew by 11	2
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White) 11	2		
Pontia protodice (Common White) 1	1		
Anthocharis sara (Sara Orangetip) 111	3		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur) 1	1		
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		AGBJ 1 - SD Jack Rabbit	
Papilio eurymedon (Pale swallowtail)		AGHL 1 SD Horned Lizard	
Papilio rutulus(Western Tiger Swallowtail)		AGHL 2 SD Horned Lizard	
Riodiniade (Metalmarks)		AGNL 1 SD Desert Woodrat Nest	
Apodemia mormo (Behr's Metalmark) 卌卌卌卌卌卌卌	32	AGNL 2 " " " "	
Lycaenidae (Hairstreaks and Blues)		AGNL 3 " " " "	
Celastrina ladon (Spring Azure)		AGNL 4 " " " "	
Leptotes marina (Marine Blue)		AGNL 5 " " " "	
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)			
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak) 卌 1	6		
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

Potential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

Instructions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

◆	*Amsinckia menziesii*	Rancher's Fiddleneck
○	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
○	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
○	*Asclepias fascicularis*	Narrow-leaf Milkweed
○	*Boechera sp.*	Rock Cress
◆	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
◆	*Camissonia sp.*	Sun Cup
✕	***Castilleja exerta***	**Paintbrush**
◆	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
○	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
○	*Coreopsis californica*	California Coreopsis
○	*Corethrogyne filaginifolia*	Common Sand-aster
◆	*Cryptantha sp.*	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
○	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
○	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya* sp.	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
◆	*Eriastrum* sp.	Woolly-star
○	*Ericameria* sp.	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
◆	*Eriogonum fasciculatum*	Inland California Buckwheat
◆	*Eriogonum* sp.	Buckwheat
○	*Eriophyllum* sp.	Golden-yarrow
○	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysismum capitatum*	Western Wallflower
◆	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
◆	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
○	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
◆	*Lasthenia gracilis*	Common Goldfields
◆	*Layia glandulosa*	White Layia
○	*Lepidium* sp.	Pepperweed
◆	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
○	*Malacothrix californica*	California Dandelion
○	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus* sp.	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya* sp.	Pectocarya
○	*Phacelia* sp.	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
◆	*Plagiobothrys* sp.	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
◆	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
○	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
○	*Sisymbrium* sp.	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria* sp.	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
○	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus* sp.	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
○		
○		
○	**Other Flowering Plants:**	
○		
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○		
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○	**Rare Wildlife or Rare Plants:**	
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Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 4.15.11 GPS Unit: 2

Project: Concentrix Solar Project Map #: 4 Survey Sxn: _____ QCB Protocol Survey # 3 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	0930	64°F	2-4 (7)	0	clear patchy overcast drizzle shower
	1242	73°F	3-6 (7)	0	clear patchy overcast drizzle shower
	1520	76°F	2-5	0	clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End					clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	1
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	3
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady)		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)	1	1	
Anthocharis sara (Sara Orangetip)	5	6	
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)	3	3	
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)	1	1	
Papilio eurymedon (Pale swallowtail)	2	2	
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	42	42	
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)			
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

Potential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

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○	*Asclepias fascicularis*	Narrow-leaf Milkweed
✗	*Boechera sp.*	Rock Cress
○	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
✗	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
✗	*Ceanothus greggii*	Cup-leaf-lilac
✗	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
✗	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
✗	*Coreopsis californica*	California Coreopsis
○	*Corethrogyne filaginifolia*	Common Sand-aster
✗	*Cryptantha sp.*	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
✗	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
○	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya* sp.	Dudleya
✗	*Emmenanthe pendulifera*	Whispering Bells
○	*Eriastrum* sp.	Woolly-star
✗	*Ericameria* sp.	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum* sp.	Buckwheat
✗	*Eriophyllum* sp. wallacei	Golden-yarrow
○	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysismum capitatum*	Western Wallflower
✗	*Eschscholzia californica*	California Poppy
✗	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
✗	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
✗	*Lasthenia gracilis*	Common Goldfields
✗	*Layia glandulosa*	White Layia
✗	*Lepidium* sp. perfoliatum	Pepperweed
✗	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
○	*Malacothrix californica*	California Dandelion
○	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus* sp.	Monkeyflower
✗	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
✗	*Pectocarya* sp.	Pectocarya
✗	*Phacelia* sp. distans	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
✗	*Plagiobothrys* sp.	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
✗	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
✗	*Sisymbrium* sp.	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria* sp.	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
✗	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus* sp.	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
✗	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
○		
○		
○	**Other Flowering Plants:**	
○	Penstemon cleveland;	
○	Leptosiphon lemmonj;	
○	Bowlesia incana	
○	Scrophularia	
○		
○	**Rare Wildlife or Rare Plants:**	
○		
○	MMBO 1 ~30 plants	
○		
○	Linanthus bellus	
○		
○		
○

14742 ea

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: LH Osborne Add'l Person: _____ Date: 4/15/2011 GPS Unit : 7

Project: Concentrix Solar Project Map #: _____ Survey Sxn: 4 & 3 QCB Protocol Survey # _____ of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	1030	69	5.2/7.4		(clear) patchy overcast drizzle shower
	1145	67	5.7/12.9		(clear) patchy overcast drizzle shower
	1345	77	5-/10		(clear) patchy overcast drizzle shower
	1410				clear patchy overcast drizzle shower
	1512 area 4 Lowmaster				(clear) patchy overcast drizzle shower
	1512				(clear) patchy overcast drizzle shower
End	1600	74	4/6		(clear) patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	area 4	area 4	area 3	Total
Nymphalidae (Brushfooted Butterflies)				
Euphydryas editha (Quino Checkerspot)				
Euphydryas chalcedona (Henne's Checkerspot)				
Thessalia leanira (Wright's Checkerspot)				
Chlosyne californica (California Patch)				
Chlosyne gabbii (Gabb's Checkerspot)				
Phyciodes mylitta (Mylitta Crescent)				
Junonia coenia (Common Buckeye) VII				7
Vanessa annabella (West Coast Lady)				
Vanessa atalanta (Red Admiral)				
Vanessa cardui (Painted Lady) II				2
Vanessa virginiensis (Virginia Lady)				
Nymphalis californica (California Tortoiseshell)				
Danaidae (Milkweed Butterflies)				
Danaus plexippus (Monarch)				
Danaus gilippus (Queen)				
Satyridae (Satyrs)				
Coenonympha californica (Common California Ringlet)				
Pieridae (Whites, Sulphurs)				
Pieris rapae (Cabbage White)				
Pontia sisymbrii (Spring White)				
Pontia beckerii (Beker's White)				
Pontia protodice (Common White) I	I			I/I
Anthocharis sara (Sara Orangetip) ~~III~~ II	I			3/I
Anthocharis cethura (Felder's Orangetip)				
Euchloe hyantis (Desert Pearly Marble) II	II			2/2
Colias eurytheme (Orange Sulphur) I				I
Colias harfordii (Harford's Sulphur) I	I			I/I
Nathalis iole (Dainty Sulphur)				
Papilionidae (Swallowtails)				
Papilio polyxenes (Desert Black Swallowtail)				
Papilio eurymedon (Pale swallowtail)				
Papilio rutulus(Western Tiger Swallowtail)				
Riodiniade (Metalmarks)				
Apodemia mormo (Behr's Metalmark) XXXXXX	XX		XX69/20	I/I
Lycaenidae (Hairstreaks and Blues)				
Celastrina ladon (Spring Azure)				
Leptotes marina (Marine Blue)				
Brephidium exile (Western Pygmy Blue)				
Glaucopsyche lygdamus (Southern Blue/Silvery blue)				
Hemiargus ceraunus (Edward's Blue)				
Icaria acmon (Acmon Blue) II				3/I
Philotes sonorensis (Sonoran Blue)				
Callophrys augustinus (Brown Elfin)				
Callophrys perplexa (Perplexing Green Hairstreak)				
Strymon melinus (Gray Hairstreak)				
Atlides halesus (Great Purple Hairstreak)				

	area 4	area 3	Total
Hesperiidae (Skippers)			
Erynnis funeralis (Funereal Duskywing)			
Erynnis tristis (Sad Duskywing)			
Erynnis propertius (Propertius Duskywing) II			2/I
Erynnis brizo (Sleepy Duskeywing)			
Pyrgus albescens (Checkered Skipper)			
Hesperia jubia (Jubia Skipper) II	I		2/I
Polites sabuleti (Sandhill Skipper)			
Megathymidae (Giant Skippers)			
Megathymus yuccae (Yucca Giant Skipper)			
Other Butterflies:			
H. halladona	I	I	I/I
D. fumosa	I		I
D. biformata		I	I

Notes:

KO CR 01 n=2
KO CR 02 n=2
KOCR 03 n≈10 in 10m
KOCR n≈30 in 10m
KOCR05 n=1
KOCR06 n=5
KOCR07 n=2

Potential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

Instructions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

○	*Amsinckia menziesii*	Rancher's Fiddleneck
○	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
○	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
○	*Asclepias fascicularis*	Narrow-leaf Milkweed
○	*Boechera sp.*	Rock Cress
○	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
✓	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
✓	*Coreopsis californica*	California Coreopsis
○	*Corethrogyne filaginifolia*	Common Sand-aster
✓	*Cryptantha sp.*	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
○	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
○	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya* sp.	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
○	*Eriastrum* sp.	Woolly-star
✓	*Ericameria* sp.	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum* sp.	Buckwheat
○	*Eriophyllum* sp.	Golden-yarrow
○	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysismum capitatum*	Western Wallflower
○	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
○	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
✓	*Lasthenia gracilis*	Common Goldfields
✓	*Layia glandulosa*	White Layia
○	*Lepidium* sp.	Pepperweed
○	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
○	*Malacothrix californica*	California Dandelion
○	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus* sp.	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya* sp.	Pectocarya
○	*Phacelia* sp.	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
○	*Plagiobothrys* sp.	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
○	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
○	*Sisymbrium* sp.	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria* sp.	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
○	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus* sp.	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
○		
○		
○	**Other Flowering Plants:**	
○		
○		
○		
○		
○		
○		
○		
○	**Rare Wildlife or Rare Plants:**	
○		
○		
○		
○		
○		
○		
○		
○

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Erin Bergman Add'l Person: _____ Date: 4/18/11 GPS Unit : 3

Project: Concentrix Solar Project Map #: ____ Survey Sxn: _____ QCB Protocol Survey # _____ of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	11:00	62°	1-2	0	clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End	2:00	60		0	clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)	|	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)		Common sootywing 1	
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)	||		
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		Red tail	
Papilio eurymedon (Pale swallowtail)		cotton tail	
Papilio rutulus(Western Tiger Swallowtail)		White crowned sparrow	
Riodiniade (Metalmarks)		California Quail,	
Apodemia mormo (Behr's Metalmark)	|||| |||| |||| |||| |||| |||	scrub jay	
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)			
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

‹ential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

›tructions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

X	*Amsinckia menziesii*	Rancher's Fiddleneck
○	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
○	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
○	*Asclepias fascicularis*	Narrow-leaf Milkweed
X	*Boechera sp.*	Rock Cress
○	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
X	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
X	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
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○	***Collinsia concolor***	**Southern Chinese Houses**
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○	*Coreopsis californica*	California Coreopsis
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○	*Cryptantha sp.*	Cryptantha
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○	*Dicentra chrysantha*	Golden Ear-drops
○	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya* sp.	Dudleya
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○	*Eriastrum* sp.	Woolly-star
X	*Ericameria* sp.	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum* sp.	Buckwheat
○	*Eriophyllum* sp.	Golden-yarrow
X	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysismum capitatum*	Western Wallflower
○	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
X	*Heliotropium curassavicum*	Salt Heliotrope
X	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
X	*Lasthenia gracilis*	Common Goldfields
X	*Layia glandulosa*	White Layia
X	*Lepidium* sp.	Pepperweed
X	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
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○	*Marrubium vulgare**	Horehound
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○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus* sp.	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya* sp.	Pectocarya
○	*Phacelia* sp.	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
○	*Plagiobothrys* sp.	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
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○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
○	*Senecio californicus*	California Butterweed
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○	*Sidalcea malvaeflora*	Checker-bloom
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○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
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○	*Streptanthus campestris*	Southern Jewelflower
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○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus* sp.	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet

○ **Other Flowering Plants:**

○ Phacelia distans — EBad01-1

○ Lupinus bicolor — EBad02-1

○ Lupinus concinnus — EBad03-2, EBad04-2

○

○ EBNL01 - midday — EBBJ01-1

○ EBBJ02-1

○ EBBJ03-1

○ **Rare Wildlife or Rare Plants:**

○

○ EBGV01 - 3	EBGV24-3
○ EBGV02 - 4	EBGV25-3
○ EBGV03 - 8	EBGV26 - 4
○ EBGV04 - 10	EBGV27 - 3
○ EBGV05 - 6	EBGV28 - 8
○ EBGV06 - 3	EBGV29 - 2
○ EBGV07 - 3	EBGV30-3
○ EBGV08 - 2	EBGV31 - 5
○ EBGV09 - 5	EBGV32 - 3
○ EBGV10 - 5	EBGV33 - 2
○ EBGV11 - 5	EBGV34 - 8
○ EBGV12 - 3	EBGV35 - 2
○ EBGV13 - 2	EBGV36 - 1
○ EBGV14 - 5	
○ EBGV15 - 2	
○ EBGV16 - 8	
○ EBGV17 - 5	
○ EBGV18 - 5	
○ EBGV19 - 2	
○ EBGV20 - 1	
○ EBGV21 - 3	
○ EBGV22 - 3	EBLB01-20
○ EBGV23 - 3	

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Antonette Gutierrez Add'l Person: None Date: 4/18/11 GPS Unit: 7

Project: Concentrix Solar Project Map #: 5 Survey Sxn: Concentrix QCB Protocol Survey # 4 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	1100	60	1.6 / 9.2	70	clear (patchy) overcast drizzle shower
	1200	65	3 / 9.2	15	(clear) (patchy) overcast drizzle shower
	1300	64	6 / 13.0	40	clear (patchy) overcast drizzle shower
	1400	60	9 / 20	75	clear (patchy) overcast drizzle shower
	1420	"	"	"	clear patchy overcast drizzle shower
	end survey too windy+cold				clear patchy overcast drizzle shower
End					clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

		Total
Nymphalidae (Brushfooted Butterflies)		
Euphydryas editha (Quino Checkerspot)		
Euphydryas chalcedona (Henne's Checkerspot)		
Thessalia leanira (Wright's Checkerspot)		
Chlosyne californica (California Patch)		
Chlosyne gabbii (Gabb's Checkerspot)		
Phyciodes mylitta (Mylitta Crescent)		
Junonia coenia (Common Buckeye)		
Vanessa annabella (West Coast Lady		
Vanessa atalanta (Red Admiral)		
Vanessa cardui (Painted Lady)		
Vanessa virginiensis (Virginia Lady)		
Nymphalis californica (California Tortoiseshell)		
Danaidae (Milkweed Butterflies)		
Danaus plexippus (Monarch)		
Danaus gilippus (Queen)		
Satyridae (Satyrs)		
Coenonympha californica (Common California Ringlet)		
Pieridae (Whites, Sulphurs)		
Pieris rapae (Cabbage White)		
Pontia sisymbrii (Spring White)		
Pontia beckerii (Beker's White) 111	3	
Pontia protodice (Common White) 11	2	
Anthocharis sara (Sara Orangetip) 1	1	
Anthocharis cethura (Felder's Orangetip)		
Euchloe hyantis (Desert Pearly Marble)		
Colias eurytheme (Orange Sulphur)		
Colias harfordii (Harford's Sulphur) 11	2	
Nathalis iole (Dainty Sulphur)		
Papilionidae (Swallowtails)		
Papilio polyxenes (Desert Black Swallowtail)		
Papilio eurymedon (Pale swallowtail)		
Papilio rutulus(Western Tiger Swallowtail)		
Riodiniade (Metalmarks) 1111 1111 1111 1111 1111		
Apodemia mormo (Behr's Metalmark) 1111 1111 1111 1111 1111	56	
Lycaenidae (Hairstreaks and Blues)		
Celastrina ladon (Spring Azure)		
Leptotes marina (Marine Blue)		
Brephidium exile (Western Pygmy Blue)		
Glaucopsyche lygdamus (Southern Blue/Silvery blue)		
Hemiargus ceraunus (Edward's Blue)		
Icaria acmon (Acmon Blue) 1	1	
Philotes sonorensis (Sonoran Blue)		
Callophrys augustinus (Brown Elfin)		
Callophrys perplexa (Perplexing Green Hairstreak) 11	2	
Strymon melinus (Gray Hairstreak)		
Atlides halesus (Great Purple Hairstreak)		

	Total
Hesperiidae (Skippers)	
Erynnis funeralis (Funereal Duskywing)	
Erynnis tristis (Sad Duskywing)	
Erynnis propertius (Propertius Duskywing)	
Erynnis brizo (Sleepy Duskeywing)	1
Pyrgus albescens (Checkered Skipper)	
Hesperia jubia (Jubia Skipper)	
Polites sabuleti (Sandhill Skipper)	
Megathymidae (Giant Skippers)	
Megathymus yuccae (Yucca Giant Skipper)	
Other Butterflies:	
Unid. Sulphur Flying 20' away	3
Unid Duskywing 1	1
Sooty Duskywing 1111 1	6

Notes:

CORA, TUVU, WCSP, WESJ, CAKI,
cotton tailed rabbit
jack rabbit (already recorded at location)
side blotch lizard
Ca. ground squirrel

active cattle grazing

...cential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...structions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

Amsinckia menziesii	Rancher's Fiddleneck
Antirrhimum coulterianum	**Coulter's Snapdragon**
Antirrhinum nuttallianum	Nuttall's Snapdragon
Asclepias fascicularis	Narrow-leaf Milkweed
Boechera sp.	Rock Cress
Calandrinia ciliata	Red Maids
Calochortus concolor	Golden-bowl Mariposa Lily
Calystegia longipes	Morning-glory
Camissonia sp.	Sun Cup
Castilleja exerta	**Paintbrush**
Caulanthus heterophyllus	San Diego Jewelflower
Caulanthus simulans	Payson's Caulanthus
Ceanothus cuneatus	Buck Brush
Ceanothus greggii	Cup-leaf-lilac
Ceanothus leucodermis	Chaparral Whitethorn
Chaenactis artemisiifolia	White Pincushion
Chaenactis glabriuscula	Yellow Pincushion
Clematis sp.	Clematis
Collinsia concolor	**Southern Chinese Houses**
Cordylanthus rigidus	**Dark-tip Bird's Beak**
Coreopsis californica	California Coreopsis
Corethrogyne filaginifolia	Common Sand-aster
Cryptantha sp.	Cryptantha
Cucurbita foetidissima	Calabazilla
Descurainia sp.	Tansy-mustard
Dicentra chrysantha	Golden Ear-drops
Dichelostemma capitatum	Blue Dicks
Dudleya sp.	Dudleya
Emmenanthe pendulifera	Whispering Bells
Eriastrum sp.	Woolly-star
Ericameria sp.	Goldenbush
Erigeron foliosus	Leafy Daisy
Eriodictyon trichocalyx	Hairy Yerba Santa
Eriogonum fasciculatum	Inland California Buckwheat
Eriogonum sp.	Buckwheat
Eriophyllum sp.	Golden-yarrow
*Erodium cicutarium**	Red-stem Storksbill
Erysismum capitatum	Western Wallflower
Eschscholzia californica	California Poppy
Eucrypta chrysanthemifolia	Spotted Hideseed
Euthamia occidentalis	Western Goldenrod
Garrya veatchii	Canyon Silk Tassel
Gilia sp.	Gilia
Gnaphalium	Cudweed
Guillenia lasiophylla	California Mustard
Gutierrezia sarothrae	Broom Matchweed
Heliotropium curassavicum	Salt Heliotrope
Hirshfeldia incana	Short-pod Mustard
Lamium amplexicaule	Henbit
Lasthenia gracilis	Common Goldfields
Layia glandulosa	White Layia
Lepidium sp.	Pepperweed
Linanthus bellus	Desert Beauty
Linanthus dichotomus	Evening Snow
Lonicera subspicata	Johnston's Honeysuckle
Malacothrix californica	California Dandelion
Malacothrix clevelandii	Cleveland's Malacothrix
Marah macrocarpus	Wild-cucumber
*Marrubium vulgare**	Horehound
*Matricaria matricarioides**	Common Pineapple-weed
Mentzelia veatchiana	Veatch's Stick-leak
Microsteris gracilis	Slender Phlox
Mimulus sp.	Monkeyflower
Nemophila menzeisii	Small-flower Baby Blue Eyes
Orobanche bulbosa	Chaparral Broom-rape
Osmadenia tenella	Osmadenia
Paeonia californica	California Peony
Pectocarya sp.	Pectocarya
Phacelia sp.	Phacelia
Pholistoma membranaceum	White Fiesta Flower
Plagiobothrys sp.	Popcornflower
Plantago patagonica	**Desert Plantain**
Platystemon californicus	Cream Cups
Prunus ilicifolia	Holly-leaf Cherry
Rafinesquia neomexicana	Desert Chicory
Ribes quercetorum	Oak Gooseberry
Rorripa nasturtium-aquaticum	Water-cress
Rosa californica	California Rose
Saltugilia australis	Southern Gilia
Senecio californicus	California Butterweed
Senecio flaccidus	Butterweed
Sidalcea malvaeflora	Checker-bloom
Sisymbrium sp.	Tumble Mustard
Solidago californica	California Goldenrod
Stachys ajugoides	Hedge-nettle
Stephanomeria sp.	Wreathplant
Streptanthus campestris	Southern Jewelflower
Stylocline gnaphalioides	Everlasting Nest-straw
Tetradymia comosa	Cotton-thorn
Thysanocarpus sp.	Fringepod
Trichostemma parishii	Mountain Bluecurls
Tropidocarpum gracile	Slender Dobie-pod
Uropappus lindleyi	Silver Puffs
Viola purpurea	Oak Yellow Violet

Other Flowering Plants:

Rare Wildlife or Rare Plants:

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Mike Couffer Add'l Person: Ø Date: 19 APRIL, 2011 GPS Unit: 6

Project: Concentrix Solar Project Map #: 4 Survey Sxn: Ø QCB Protocol Survey # 4 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	1030 HRS	64°F	5→11 MPH	Ø	(clear) patchy overcast drizzle shower
	1100 HRS	66	2→6	Ø	(clear) patchy overcast drizzle shower
	1200 HRS	70	3→12	Ø	(clear) patchy overcast drizzle shower
	1300 HRS	70	2→7	Ø	(clear) patchy overcast drizzle shower
	1400 HRS	72	3→11	Ø	(clear) patchy overcast drizzle shower
	1500 HRS	73	2→8	Ø	(clear) patchy overcast drizzle shower
End					clear patchy overcast drizzle shower

Habitat On-site (circle): (open soils) (hilltops) ridges, (rock outcrops) soil crusts, clay soils, old roads, (various nectar sources)

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperilidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	1
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	5
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	1
Junonia coenia (Common Buckeye)	9	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		COMMON SOOTYWING (PHOLISORA CATULLUS)	R
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip)	4		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	307		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)	1		
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)	2		
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

Potential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

Instructions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

o	*Amsinckia menziesii*	Rancher's Fiddleneck
o	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
o	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
o	*Asclepias fascicularis*	Narrow-leaf Milkweed
o	*Boechera sp.*	Rock Cress
o	*Calandrinia ciliata*	Red Maids
o	*Calochortus concolor*	Golden-bowl Mariposa Lily
o	*Calystegia longipes*	Morning-glory
o	*Camissonia sp.*	Sun Cup
o	***Castilleja exerta***	**Paintbrush**
o	*Caulanthus heterophyllus*	San Diego Jewelflower
o	*Caulanthus simulans*	Payson's Caulanthus
o	*Ceanothus cuneatus*	Buck Brush
o	*Ceanothus greggii*	Cup-leaf-lilac
o	*Ceanothus leucodermis*	Chaparral Whitethorn
o	*Chaenactis artemisiifolia*	White Pincushion
o	*Chaenactis glabriuscula*	Yellow Pincushion
o	*Clematis sp.*	Clematis
o	***Collinsia concolor***	**Southern Chinese Houses**
o	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
o	*Coreopsis californica*	California Coreopsis
o	*Corethrogyne filaginifolia*	Common Sand-aster
o	*Cryptantha sp.*	Cryptantha
o	*Cucurbita foetidissima*	Calabazilla
o	*Descurainia sp.*	Tansy-mustard
o	*Dicentra chrysantha*	Golden Ear-drops
o	*Dichelostemma capitatum*	Blue Dicks
o	*Dudleya sp.*	Dudleya
o	*Emmenanthe pendulifera*	Whispering Bells
o	*Eriastrum sp.*	Woolly-star
o	*Ericameria sp.*	Goldenbush
o	*Erigeron foliosus*	Leafy Daisy
o	*Eriodictyon trichocalyx*	Hairy Yerba Santa
o	*Eriogonum fasciculatum*	Inland California Buckwheat
o	*Eriogonum sp.*	Buckwheat
o	*Eriophyllum sp.*	Golden-yarrow
o	*Erodium cicutarium**	Red-stem Storksbill
o	*Erysismum capitatum*	Western Wallflower
o	*Eschscholzia californica*	California Poppy
o	*Eucrypta chrysanthemifolia*	Spotted Hideseed
o	*Euthamia occidentalis*	Western Goldenrod
o	*Garrya veatchii*	Canyon Silk Tassel
o	*Gilia sp.*	Gilia
o	*Gnaphalium*	Cudweed
o	*Guillenia lasiophylla*	California Mustard
o	*Gutierrezia sarothrae*	Broom Matchweed
o	*Heliotropium curassavicum*	Salt Heliotrope
o	*Hirshfeldia incana*	Short-pod Mustard
o	*Lamium amplexicaule*	Henbit
o	*Lasthenia gracilis*	Common Goldfields
o	*Layia glandulosa*	White Layia
o	*Lepidium sp.*	Pepperweed
o	*Linanthus bellus*	Desert Beauty
o	*Linanthus dichotomus*	Evening Snow
o	*Lonicera subspicata*	Johnston's Honeysuckle
o	*Malacothrix californica*	California Dandelion
o	*Malacothrix clevelandii*	Cleveland's Malacothrix
o	*Marah macrocarpus*	Wild-cucumber
o	*Marrubium vulgare**	Horehound
o	*Matricaria matricarioides**	Common Pineapple-weed
o	*Mentzelia veatchiana*	Veatch's Stick-leak
o	*Microsteris gracilis*	Slender Phlox
o	*Mimulus sp.*	Monkeyflower
o	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
o	*Orobanche bulbosa*	Chaparral Broom-rape

o	*Osmadenia tenella*	Osmadenia
o	*Paeonia californica*	California Peony
o	*Pectocarya sp.*	Pectocarya
o	*Phacelia sp.*	Phacelia
o	*Pholistoma membranaceum*	White Fiesta Flower
o	*Plagiobothrys sp.*	Popcornflower
o	***Plantago patagonica***	**Desert Plantain**
o	*Platystemon californicus*	Cream Cups
o	*Prunus ilicifolia*	Holly-leaf Cherry
o	*Rafinesquia neomexicana*	Desert Chicory
o	*Ribes quercetorum*	Oak Gooseberry
o	*Rorripa nasturtium-aquaticum*	Water-cress
o	*Rosa californica*	California Rose
o	*Saltugilia australis*	Southern Gilia
o	*Senecio californicus*	California Butterweed
o	*Senecio flaccidus*	Butterweed
o	*Sidalcea malvaeflora*	Checker-bloom
o	*Sisymbrium sp.*	Tumble Mustard
o	*Solidago californica*	California Goldenrod
o	*Stachys ajugoides*	Hedge-nettle
o	*Stephanomeria sp.*	Wreathplant
o	*Streptanthus campestris*	Southern Jewelflower
o	*Stylocline gnaphalioides*	Everlasting Nest-straw
o	*Tetradymia comosa*	Cotton-thorn
o	*Thysanocarpus sp.*	Fringepod
o	*Trichostemma parishii*	Mountain Bluecurls
o	*Tropidocarpum gracile*	Slender Dobie-pod
o	*Uropappus lindleyi*	Silver Puffs
o	*Viola purpurea*	Oak Yellow Violet
o		
o		
o	**Other Flowering Plants:**	
o		
o		
o		
o		
o		
o		
o		
o		
o	**Rare Wildlife or Rare Plants:**	
o	MCH101	HORNED LIZARD
o	MCBJ01	BLACK-TAILED JACKRABBIT
o	MCBJ02	"
o	MCBJ03	"
o	MCBJ04	"
o	MCBJ05	"
o	MCBJ06	"
o	MCBJ07	"
o		
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o	

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 4.19.11 GPS

Project: Concentrix Solar Project Map #: 4 Survey Sxn: _____ QCB Protocol Survey # 4 of ___

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	1030	62	4-8 (11)	10	(clear) patchy overcast drizzle shower
	1230	73	6-8 (15)	10	(clear) patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End					clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	1 (1)
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskywing)	1 (1)
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)	1 (2)	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)	1 (1)		
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)	11 (2)		
Colias eurytheme (Orange Sulphur)	1 photo (1)		
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	𝍸 (29)		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)			
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

ential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

ctions:

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o	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
o	*Asclepias fascicularis*	Narrow-leaf Milkweed
X	*Boechera sp.*	Rock Cress
o	*Calandrinia ciliata*	Red Maids
o	*Calochortus concolor*	Golden-bowl Mariposa Lily
o	*Calystegia longipes*	Morning-glory
X	*Camissonia sp.*	Sun Cup
o	***Castilleja exerta***	**Paintbrush**
o	*Caulanthus heterophyllus*	San Diego Jewelflower
o	*Caulanthus simulans*	Payson's Caulanthus
X	*Ceanothus cuneatus*	Buck Brush
X	*Ceanothus greggii*	Cup-leaf-lilac
o	*Ceanothus leucodermis*	Chaparral Whitethorn
o	*Chaenactis artemisiifolia*	White Pincushion
o	*Chaenactis glabriuscula*	Yellow Pincushion
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o	***Collinsia concolor***	**Southern Chinese Houses**
o	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
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X	*Cryptantha sp.*	Cryptantha
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o	*Eriogonum fasciculatum*	Inland California Buckwheat
o	*Eriogonum sp.*	Buckwheat
✓	*Eriophyllum sp.* wallacei	Golden-yarrow
X	*Erodium cicutarium**	Red-stem Storksbill
o	*Erysimum capitatum*	Western Wallflower
o	*Eschscholzia californica*	California Poppy
o	*Eucrypta chrysanthemifolia*	Spotted Hideseed
o	*Euthamia occidentalis*	Western Goldenrod
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o	*Gutierrezia sarothrae*	Broom Matchweed
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X	*Hirshfeldia incana*	Short-pod Mustard
o	*Lamium amplexicaule*	Henbit
X	*Lasthenia gracilis*	Common Goldfields
X	*Layia glandulosa*	White Layia
o	*Lepidium sp.*	Pepperweed
X	*Linanthus bellus*	Desert Beauty
o	*Linanthus dichotomus*	Evening Snow
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o	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
o	*Orobanche bulbosa*	Chaparral Broom-rape

o	*Osmadenia tenella*	Osmadenia
o	*Paeonia californica*	California Peony
X	*Pectocarya sp.*	Pectocarya
X	*Phacelia sp.* distrw	Phacelia
o	*Pholistoma membranaceum*	White Fiesta Flower
X	*Plagiobothrys sp.*	Popcornflower
o	***Plantago patagonica***	**Desert Plantain**
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o	*Rafinesquia neomexicana*	Desert Chicory
o	*Ribes quercetorum*	Oak Gooseberry
o	*Rorripa nasturtium-aquaticum*	Water-cress
o	*Rosa californica*	California Rose
o	*Saltugilia australis*	Southern Gilia
X	*Senecio californicus*	California Butterweed
o	*Senecio flaccidus*	Butterweed
o	*Sidalcea malvaeflora*	Checker-bloom
o	*Sisymbrium sp.*	Tumble Mustard
o	*Solidago californica*	California Goldenrod
o	*Stachys ajugoides*	Hedge-nettle
o	*Stephanomeria sp.*	Wreathplant
o	*Streptanthus campestris*	Southern Jewelflower
X	*Stylocline gnaphalioides*	Everlasting Nest-straw
o	*Tetradymia comosa*	Cotton-thorn
o	*Thysanocarpus sp.*	Fringepod
o	*Trichostemma parishii*	Mountain Bluecurls
o	*Tropidocarpum gracile*	Slender Dobie-pod
X	*Uropappus lindleyi*	Silver Puffs
o	*Viola purpurea*	Oak Yellow Violet
o		
o		
o	**Other Flowering Plants:**	
o	Aniscaulis acaulis	
o	Calyptridium m	
o	Leptosiphon lemmoni	
o		
o	**Rare Wildlife or Rare Plants:**	
o	Astragalus douglasi parishii	
o	MMAD01-09	
o	Black Jackrabbit	
o	MMBJ01	
o	Cordylanthus rigidus	
o	MMCR01 - 1 plant	
o	Linanthus bellus	
o	MMLB01-08	
o	Woodrat Nest	
o	MMWR01-02	

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 4-19-11 GPS Unit: 7

Project: Concentrix Solar Project Map #: 5 Survey Sxn: _____ QCB Protocol Survey # 4 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start				clear patchy overcast drizzle shower
1345	63°	5-11 (13)	5	clear patchy overcast drizzle shower
1600	69°	3-6	5	clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
End				clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	1
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)	11	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur)	1		
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	𝍸 𝍸 𝍸 𝍸 𝍸 11		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)			
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

Potential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

Instructions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

✓	*Amsinckia menziesii*	Rancher's Fiddleneck
○	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
○	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
○	*Asclepias fascicularis*	Narrow-leaf Milkweed
✓	*Boechera sp.*	Rock Cress
○	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
✓	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
✓	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
✓	*Coreopsis californica*	California Coreopsis
○	*Corethrogyne filaginifolia*	Common Sand-aster
✓	*Cryptantha sp.*	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
✓	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
○	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya* sp.	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
○	*Eriastrum* sp.	Woolly-star
✓	*Ericameria* sp.	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum* sp.	Buckwheat
✓	*Eriophyllum* sp. wallacei	Golden-yarrow
○	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysimum capitatum*	Western Wallflower
✓	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
○	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
✓	*Lasthenia gracilis*	Common Goldfields
✓	*Layia glandulosa*	White Layia
○	*Lepidium* sp.	Pepperweed
✓	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
○	*Malacothrix californica*	California Dandelion
○	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus* sp.	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
✓	*Pectocarya* sp.	Pectocarya
✓	*Phacelia* sp.	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
✓	*Plagiobothrys* sp.	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
✓	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
✓	*Sisymbrium* sp.	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria* sp.	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
✓	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus* sp.	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
✓	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
○		
○		
○	**Other Flowering Plants:**	
○		
○		
○		
○		
○		
○		
○		
○	**Rare Wildlife or Rare Plants:**	
○	Astragalus douglasii pars	
○	MMAD100-104	
○		
○	Delphinium parishii subglobosum	
○	MMDP100-103	
○		
○	Gerea viscida	
○	MMGV100	
○	Linanthus bellus	
○	MMLB[illegible]A008	
○	100-102.	
○		

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Stephen Rinke Add'l Person: _____ Date: 4/19/11 GPS Unit: 11

Project: Concentrix Solar Project Map #: _____ Survey Sxn: 2 QCB Protocol Survey # _____ of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start				clear patchy overcast drizzle shower
1015	63	7/3.5	2-5%	clear patchy overcast drizzle shower
1210	65	12/6.2	2-5	clear patchy overcast drizzle shower
1300	67	10.5/6.5	0	clear patchy overcast drizzle shower
1545	67	15.8/5.0	0	clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
End				clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye) ||||	6	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White) |			
Anthocharis sara (Sara Orangetip) |||	4		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		Sp ad 01: pup = 1	
Papilio eurymedon (Pale swallowtail)		Sp ad 02: pup = 1	
Papilio rutulus(Western Tiger Swallowtail)		Sp ad 03: pup = 1	
Riodiniade (Metalmarks)		Sp ad 04: pup = 4	
Apodemia mormo (Behr's Metalmark) |||| |||| |||| |||| ||	22		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)			
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

...ential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...uctions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

✓	*Amsinckia menziesii*	Rancher's Fiddleneck
	Antirrhimum coulterianum	**Coulter's Snapdragon**
	Antirrhinum nuttallianum	Nuttall's Snapdragon
	Asclepias fascicularis	Narrow-leaf Milkweed
	Boechera sp.	Rock Cress
	Calandrinia ciliata	Red Maids
	Calochortus concolor	Golden-bowl Mariposa Lily
	Calystegia longipes	Morning-glory
	Camissonia sp.	Sun Cup
	Castilleja exerta	**Paintbrush**
	Caulanthus heterophyllus	San Diego Jewelflower
	Caulanthus simulans	Payson's Caulanthus
	Ceanothus cuneatus	Buck Brush
	Ceanothus greggii	Cup-leaf-lilac
	Ceanothus leucodermis	Chaparral Whitethorn
	Chaenactis artemisiifolia	White Pincushion
	Chaenactis glabriuscula	Yellow Pincushion
	Clematis sp.	Clematis
	Collinsia concolor	**Southern Chinese Houses**
	Cordylanthus rigidus	**Dark-tip Bird's Beak**
	Coreopsis californica	California Coreopsis
	Corethrogyne filaginifolia	Common Sand-aster
	Cryptantha sp.	Cryptantha
	Cucurbita foetidissima	Calabazilla
	Descurainia sp.	Tansy-mustard
	Dicentra chrysantha	Golden Ear-drops
	Dichelostemma capitatum	Blue Dicks
	Dudleya sp.	Dudleya
	Emmenanthe pendulifera	Whispering Bells
	Eriastrum sp.	Woolly-star
	Ericameria sp.	Goldenbush
	Erigeron foliosus	Leafy Daisy
	Eriodictyon trichocalyx	Hairy Yerba Santa
	Eriogonum fasciculatum	Inland California Buckwheat
	Eriogonum sp.	Buckwheat
	Eriophyllum sp.	Golden-yarrow
✓	*Erodium cicutarium**	Red-stem Storksbill
	Erysimum capitatum	Western Wallflower
	Eschscholzia californica	California Poppy
	Eucrypta chrysanthemifolia	Spotted Hideseed
	Euthamia occidentalis	Western Goldenrod
	Garrya veatchii	Canyon Silk Tassel
	Gilia sp.	Gilia
	Gnaphalium	Cudweed
	Guillenia lasiophylla	California Mustard
	Gutierrezia sarothrae	Broom Matchweed
	Heliotropium curassavicum	Salt Heliotrope
	Hirshfeldia incana	Short-pod Mustard
	Lamium amplexicaule	Henbit
✓	*Lasthenia gracilis*	Common Goldfields
	Layia glandulosa	White Layia
	Lepidium sp.	Pepperweed
	Linanthus bellus	Desert Beauty
	Linanthus dichotomus	Evening Snow
	Lonicera subspicata	Johnston's Honeysuckle
	Malacothrix californica	California Dandelion
	Malacothrix clevelandii	Cleveland's Malacothrix
	Marah macrocarpus	Wild-cucumber
	*Marrubium vulgare**	Horehound
	*Matricaria matricarioides**	Common Pineapple-weed
	Mentzelia veatchiana	Veatch's Stick-leak
	Microsteris gracilis	Slender Phlox
	Mimulus sp.	Monkeyflower
	Nemophila menzeisii	Small-flower Baby Blue Eyes
	Orobanche bulbosa	Chaparral Broom-rape

	Osmadenia tenella	Osmadenia
	Paeonia californica	California Peony
	Pectocarya sp.	Pectocarya
	Phacelia sp.	Phacelia
	Pholistoma membranaceum	White Fiesta Flower
✓	*Plagiobothrys* sp.	Popcornflower
	Plantago patagonica	**Desert Plantain**
	Platystemon californicus	Cream Cups
	Prunus ilicifolia	Holly-leaf Cherry
	Rafinesquia neomexicana	Desert Chicory
	Ribes quercetorum	Oak Gooseberry
	Rorripa nasturtium-aquaticum	Water-cress
	Rosa californica	California Rose
	Saltugilia australis	Southern Gilia
	Senecio californicus	California Butterweed
	Senecio flaccidus	Butterweed
	Sidalcea malvaeflora	Checker-bloom
	Sisymbrium sp.	Tumble Mustard
	Solidago californica	California Goldenrod
	Stachys ajugoides	Hedge-nettle
	Stephanomeria sp.	Wreathplant
	Streptanthus campestris	Southern Jewelflower
	Stylocline gnaphalioides	Everlasting Nest-straw
	Tetradymia comosa	Cotton-thorn
	Thysanocarpus sp.	Fringepod
	Trichostemma parishii	Mountain Bluecurls
	Tropidocarpum gracile	Slender Dobie-pod
	Uropappus lindleyi	Silver Puffs
	Viola purpurea	Oak Yellow Violet
	Other Flowering Plants:	
	Rare Wildlife or Rare Plants:	

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: KH Osborne Add'l Person: JP Date: 4/19/2011 GPS Unit: 10

Project: Concentrix Solar Project Map #: Survey Sxn: QCB Protocol Survey # of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start 1030	69	3/5.5	0	(clear) patchy overcast drizzle shower
1148	71	2.4/8.8	0	(clear) patchy overcast drizzle shower
232	69	7.4/10	0	(clear) patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
End 400	69	2.5/6.8	0	(clear) patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing) //	2
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper) /	1
Phyciodes mylitta (Mylitta Crescent)		*Hesperia juba* (Juba Skipper) ////	4
Junonia coenia (Common Buckeye) ////	9	*Polites sabuleti* (Sandhill Skipper) //// //// ///	35
Vanessa annabella (West Coast Lady) /	1	**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)			
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Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White) //// //// /	9		
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur) //	2		
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail) /	1	Steady wind all day but many butterflies	
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark) //// //// ////	40	Curdylanthus is 1 to 2" high in SE portion	
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue) //	2		
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			
Everes amyntula	1		

...ntial Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...ctions:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

PLEASE RECORD HOST PLANTS ON GPS See Codes Below:

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Antirrhinum nuttallianum	Nuttall's Snapdragon
Asclepias fascicularis	Narrow-leaf Milkweed
Boechera sp.	Rock Cress
Calandrinia ciliata	Red Maids
Calochortus concolor	Golden-bowl Mariposa Lily
Calystegia longipes	Morning-glory
Camissonia sp.	Sun Cup
Castilleja exerta	**Paintbrush**
Caulanthus heterophyllus	San Diego Jewelflower
Caulanthus simulans	Payson's Caulanthus
Ceanothus cuneatus	Buck Brush
Ceanothus greggii	Cup-leaf-lilac
Ceanothus leucodermis	Chaparral Whitethorn
Chaenactis artemisiifolia	White Pincushion
Chaenactis glabriuscula	Yellow Pincushion
Clematis sp.	Clematis
Collinsia concolor	**Southern Chinese Houses**
Cordylanthus rigidus	**Dark-tip Bird's Beak**
Coreopsis californica	California Coreopsis
Corethrogyne filaginifolia	Common Sand-aster
Cryptantha sp.	Cryptantha
Cucurbita foetidissima	Calabazilla
Descurainia sp.	Tansy-mustard
Dicentra chrysantha	Golden Ear-drops
Dichelostemma capitatum	Blue Dicks
Dudleya sp.	Dudleya
Emmenanthe pendulifera	Whispering Bells
Eriastrum sp.	Woolly-star
Ericameria sp.	Goldenbush
Erigeron foliosus	Leafy Daisy
Eriodictyon trichocalyx	Hairy Yerba Santa
Eriogonum fasciculatum	Inland California Buckwheat
Eriogonum sp.	Buckwheat
Eriophyllum sp.	Golden-yarrow
*Erodium cicutarium**	Red-stem Storksbill
Erysimum capitatum	Western Wallflower
Eschscholzia californica	California Poppy
Eucrypta chrysanthemifolia	Spotted Hideseed
Euthamia occidentalis	Western Goldenrod
Garrya veatchii	Canyon Silk Tassel
Gilia sp.	Gilia
Gnaphalium	Cudweed
Guillenia lasiophylla	California Mustard
Gutierrezia sarothrae	Broom Matchweed
Heliotropium curassavicum	Salt Heliotrope
Hirshfeldia incana	Short-pod Mustard
Lamium amplexicaule	Henbit
Lasthenia gracilis	Common Goldfields
Layia glandulosa	White Layia
Lepidium sp.	Pepperweed
Linanthus bellus	Desert Beauty
Linanthus dichotomus	Evening Snow
Lonicera subspicata	Johnston's Honeysuckle
Malacothrix californica	California Dandelion
Malacothrix clevelandii	Cleveland's Malacothrix
Marah macrocarpus	Wild-cucumber
*Marrubium vulgare**	Horehound
*Matricaria matricarioides**	Common Pineapple-weed
Mentzelia veatchiana	Veatch's Stick-leak
Microsteris gracilis	Slender Phlox
Mimulus sp.	Monkeyflower
Nemophila menzeisii	Small-flower Baby Blue Eyes
Orobanche bulbosa	Chaparral Broom-rape
Osmadenia tenella	Osmadenia
Paeonia californica	California Peony
Pectocarya sp.	Pectocarya
Phacelia sp.	Phacelia
Pholistoma membranaceum	White Fiesta Flower
Plagiobothrys sp.	Popcornflower
Plantago patagonica	**Desert Plantain**
Platystemon californicus	Cream Cups
Prunus ilicifolia	Holly-leaf Cherry
Rafinesquia neomexicana	Desert Chicory
Ribes quercetorum	Oak Gooseberry
Rorripa nasturtium-aquaticum	Water-cress
Rosa californica	California Rose
Saltugilia australis	Southern Gilia
Senecio californicus	California Butterweed
Senecio flaccidus	Butterweed
Sidalcea malvaeflora	Checker-bloom
Sisymbrium sp.	Tumble Mustard
Solidago californica	California Goldenrod
Stachys ajugoides	Hedge-nettle
Stephanomeria sp.	Wreathplant
Streptanthus campestris	Southern Jewelflower
Stylocline gnaphalioides	Everlasting Nest-straw
Tetradymia comosa	Cotton-thorn
Thysanocarpus sp.	Fringepod
Trichostemma parishii	Mountain Bluecurls
Tropidocarpum gracile	Slender Dobie-pod
Uropappus lindleyi	Silver Puffs
Viola purpurea	Oak Yellow Violet

Other Flowering Plants:

Astragalus

Rare Wildlife or Rare Plants:

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Survey 4

Recorder: Erin Bergman Add'l Person: Kyle Harper Date: 4/19/11 GPS Unit: 2

Project: Concentrix Solar Project Map #: Survey Sxn: QCB Protocol Survey # of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
End				clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing) |	|
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip) |	1		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble) ||	2		
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur) |||	3		
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)		See botany sp. list	
Riodiniade (Metalmarks)			
|||| *Apodemia mormo* (Behr's Metalmark) ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~	24	for plants seen today	
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)		I gave to Kyle	
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue) |	1		
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Mike Coulter Add'l Person: Jimmy McMurran Date: 20 April 2011 GPS Unit: 60

Project: Concentrix Solar Project Map #: 4 Survey Sxn: 20 QCB Protocol Survey # 4 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	1200 HRS	73	7 → 16 MPH	0	clear patchy overcast drizzle shower
	1300	72	5 → 11	0	clear patchy overcast drizzle shower
	1400	71	3 → 17	0	clear patchy overcast drizzle shower
	1500	70	10 → 13	0	clear patchy overcast drizzle shower
	1600	70	7 → 12	0	clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End					clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	2
Junonia coenia (Common Buckeye)	18	*Polites sabuleti* (Sandhill Skipper)	1
Vanessa annabella (West Coast Lady)		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)	3		
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur)	2		
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		MCBJ08 BLACK-TAILED JACKRABBIT	
Papilio eurymedon (Pale swallowtail)		MCBJ09	
Papilio rutulus(Western Tiger Swallowtail)		MCBJ10	
Riodiniade (Metalmarks)		MCBJ11	
Apodemia mormo (Behr's Metalmark)	75	MCHL01 HORNED LIZARD	
Lycaenidae (Hairstreaks and Blues)		MCSH01 SWAINSON'S HAWK	
Celastrina ladon (Spring Azure)		MCSG01 SAGE SPARROW	
Leptotes marina (Marine Blue)		MCFA01 PRAIRIE FALCON (OVERFLY)	
Brephidium exile (Western Pygmy Blue)		MCHL02 HORNED LIZARD	
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)	3		
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

...al Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...s:

...ease Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

PLEASE RECORD HOST PLANTS ON GPS See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

o	*Amsinckia menziesii*	Rancher's Fiddleneck
o	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
o	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
o	*Asclepias fascicularis*	Narrow-leaf Milkweed
o	*Boechera sp.*	Rock Cress
o	*Calandrinia ciliata*	Red Maids
o	*Calochortus concolor*	Golden-bowl Mariposa Lily
o	*Calystegia longipes*	Morning-glory
o	*Camissonia sp.*	Sun Cup
o	***Castilleja exerta***	**Paintbrush**
o	*Caulanthus heterophyllus*	San Diego Jewelflower
o	*Caulanthus simulans*	Payson's Caulanthus
o	*Ceanothus cuneatus*	Buck Brush
o	*Ceanothus greggii*	Cup-leaf-lilac
o	*Ceanothus leucodermis*	Chaparral Whitethorn
o	*Chaenactis artemisiifolia*	White Pincushion
o	*Chaenactis glabriuscula*	Yellow Pincushion
o	*Clematis sp.*	Clematis
o	***Collinsia concolor***	**Southern Chinese Houses**
o	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
o	*Coreopsis californica*	California Coreopsis
o	*Corethrogyne filaginifolia*	Common Sand-aster
o	*Cryptantha sp.*	Cryptantha
o	*Cucurbita foetidissima*	Calabazilla
o	*Descurainia sp.*	Tansy-mustard
o	*Dicentra chrysantha*	Golden Ear-drops
o	*Dichelostemma capitatum*	Blue Dicks
o	*Dudleya* sp.	Dudleya
o	*Emmenanthe pendulifera*	Whispering Bells
o	*Eriastrum* sp.	Woolly-star
o	*Ericameria* sp.	Goldenbush
o	*Erigeron foliosus*	Leafy Daisy
o	*Eriodictyon trichocalyx*	Hairy Yerba Santa
o	*Eriogonum fasciculatum*	Inland California Buckwheat
o	*Eriogonum sp.*	Buckwheat
o	*Eriophyllum* sp.	Golden-yarrow
o	*Erodium cicutarium**	Red-stem Storksbill
o	*Erysismum capitatum*	Western Wallflower
o	*Eschscholzia californica*	California Poppy
o	*Eucrypta chrysanthemifolia*	Spotted Hideseed
o	*Euthamia occidentalis*	Western Goldenrod
o	*Garrya veatchii*	Canyon Silk Tassel
o	*Gilia sp.*	Gilia
o	*Gnaphalium*	Cudweed
o	*Guillenia lasiophylla*	California Mustard
o	*Gutierrezia sarothrae*	Broom Matchweed
o	*Heliotropium curassavicum*	Salt Heliotrope
o	*Hirshfeldia incana*	Short-pod Mustard
o	*Lamium amplexicaule*	Henbit
o	*Lasthenia gracilis*	Common Goldfields
o	*Layia glandulosa*	White Layia
o	*Lepidium* sp.	Pepperweed
o	*Linanthus bellus*	Desert Beauty
o	*Linanthus dichotomus*	Evening Snow
o	*Lonicera subspicata*	Johnston's Honeysuckle
o	*Malacothrix californica*	California Dandelion
o	*Malacothrix clevelandii*	Cleveland's Malacothrix
o	*Marah macrocarpus*	Wild-cucumber
o	*Marrubium vulgare**	Horehound
o	*Matricaria matricarioides**	Common Pineapple-weed
o	*Mentzelia veatchiana*	Veatch's Stick-leak
o	*Microsteris gracilis*	Slender Phlox
o	*Mimulus sp.*	Monkeyflower
o	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
o	*Orobanche bulbosa*	Chaparral Broom-rape
o	*Osmadenia tenella*	Osmadenia
o	*Paeonia californica*	California Peony
o	*Pectocarya* sp.	Pectocarya
o	*Phacelia* sp.	Phacelia
o	*Pholistoma membranaceum*	White Fiesta Flower
o	*Plagiobothrys sp.*	Popcornflower
o	***Plantago patagonica***	**Desert Plantain**
o	*Platystemon californicus*	Cream Cups
o	*Prunus ilicifolia*	Holly-leaf Cherry
o	*Rafinesquia neomexicana*	Desert Chicory
o	*Ribes quercetorum*	Oak Gooseberry
o	*Rorripa nasturtium-aquaticum*	Water-cress
o	*Rosa californica*	California Rose
o	*Saltugilia australis*	Southern Gilia
o	*Senecio californicus*	California Butterweed
o	*Senecio flaccidus*	Butterweed
o	*Sidalcea malvaeflora*	Checker-bloom
o	*Sisymbrium sp.*	Tumble Mustard
o	*Solidago californica*	California Goldenrod
o	*Stachys ajugoides*	Hedge-nettle
o	*Stephanomeria* sp.	Wreathplant
o	*Streptanthus campestris*	Southern Jewelflower
o	*Stylocline gnaphalioides*	Everlasting Nest-straw
o	*Tetradymia comosa*	Cotton-thorn
o	*Thysanocarpus* sp.	Fringepod
o	*Trichostemma parishii*	Mountain Bluecurls
o	*Tropidocarpum gracile*	Slender Dobie-pod
o	*Uropappus lindleyi*	Silver Puffs
o	*Viola purpurea*	Oak Yellow Violet

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o **Other Flowering Plants:**

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o RHUS OVATA (Nectar Source)

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o **Rare Wildlife or Rare Plants:**

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Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: KHOSkaare Add'l Person: ~~S~~ Date: 4/20/2011 GPS Unit : 10

Project: Concentrix Solar Project Map #: Survey Sxn: QCB Protocol Survey # of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start 9 00	63	2/3	0	(clear) patchy overcast drizzle shower
1040	68	2.5/4.9	0	(clear) patchy overcast drizzle shower
1200	70	8/13.2	0	(clear) patchy overcast drizzle shower
236	70	9.9/16	0	(clear) patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
End 4.00	69	5/9.8	0	(clear) patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing) /	1
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia juba* (Juba Skipper) H. juba III	3
Junonia coenia (Common Buckeye) /III	5	*Polites sabuleti* (Sandhill Skipper) ~~III~~ III	9
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)		Phil... IHH	5
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)		P. tejonica III /	3
Pieridae (Whites, Sulphurs)		Schinia aurantiaca .	1
Pieris rapae (Cabbage White)		Leptarctia californica II	2
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White) //	2		
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur) /	1		
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark) XXXXXXXXXX	100		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue) /	1		
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak) //	2		
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

Potential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

Instructions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

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o	*Asclepias fascicularis*	Narrow-leaf Milkweed
o	*Boechera sp.*	Rock Cress
o	*Calandrinia ciliata*	Red Maids
o	*Calochortus concolor*	Golden-bowl Mariposa Lily
o	*Calystegia longipes*	Morning-glory
o	*Camissonia sp.*	Sun Cup
o	***Castilleja exerta***	**Paintbrush**
o	*Caulanthus heterophyllus*	San Diego Jewelflower
o	*Caulanthus simulans*	Payson's Caulanthus
o	*Ceanothus cuneatus*	Buck Brush
✓	*Ceanothus greggii*	Cup-leaf-lilac
o	*Ceanothus leucodermis*	Chaparral Whitethorn
o	*Chaenactis artemisiifolia*	White Pincushion
o	*Chaenactis glabriuscula*	Yellow Pincushion
o	*Clematis sp.*	Clematis
o	***Collinsia concolor***	**Southern Chinese Houses**
o	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
o	*Coreopsis californica*	California Coreopsis
o	*Corethrogyne filaginifolia*	Common Sand-aster
✓	*Cryptantha sp.*	Cryptantha
o	*Cucurbita foetidissima*	Calabazilla
o	*Descurainia sp.*	Tansy-mustard
o	*Dicentra chrysantha*	Golden Ear-drops
o	*Dichelostemma capitatum*	Blue Dicks
o	*Dudleya* sp.	Dudleya
o	*Emmenanthe pendulifera*	Whispering Bells
o	*Eriastrum* sp.	Woolly-star
✓	*Ericameria* sp.	Goldenbush
o	*Erigeron foliosus*	Leafy Daisy
o	*Eriodictyon trichocalyx*	Hairy Yerba Santa
o	*Eriogonum fasciculatum*	Inland California Buckwheat
o	*Eriogonum* sp.	Buckwheat
o	*Eriophyllum* sp.	Golden-yarrow
✓	*Erodium cicutarium**	Red-stem Storksbill
o	*Erysimum capitatum*	Western Wallflower
o	*Eschscholzia californica*	California Poppy
o	*Eucrypta chrysanthemifolia*	Spotted Hideseed
o	*Euthamia occidentalis*	Western Goldenrod
o	*Garrya veatchii*	Canyon Silk Tassel
o	*Gilia sp.*	Gilia
o	*Gnaphalium*	Cudweed
o	*Guillenia lasiophylla*	California Mustard
o	*Gutierrezia sarothrae*	Broom Matchweed
o	*Heliotropium curassavicum*	Salt Heliotrope
✓	*Hirshfeldia incana*	Short-pod Mustard
o	*Lamium amplexicaule*	Henbit
✓	*Lasthenia gracilis*	Common Goldfields
✓	*Layia glandulosa*	White Layia
o	*Lepidium* sp.	Pepperweed
o	*Linanthus bellus*	Desert Beauty
o	*Linanthus dichotomus*	Evening Snow
o	*Lonicera subspicata*	Johnston's Honeysuckle
o	*Malacothrix californica*	California Dandelion
o	*Malacothrix clevelandii*	Cleveland's Malacothrix
o	*Marah macrocarpus*	Wild-cucumber
o	*Marrubium vulgare**	Horehound
o	*Matricaria matricarioides**	Common Pineapple-weed
o	*Mentzelia veatchiana*	Veatch's Stick-leak
o	*Microsteris gracilis*	Slender Phlox
o	*Mimulus* sp.	Monkeyflower
o	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
o	*Orobanche bulbosa*	Chaparral Broom-rape

o	*Osmadenia tenella*	Osmadenia
o	*Paeonia californica*	California Peony
o	*Pectocarya* sp.	Pectocarya
✓	*Phacelia* sp.	Phacelia
o	*Pholistoma membranaceum*	White Fiesta Flower
o	*Plagiobothrys* sp.	Popcornflower
o	***Plantago patagonica***	**Desert Plantain**
o	*Platystemon californicus*	Cream Cups
o	*Prunus ilicifolia*	Holly-leaf Cherry
o	*Rafinesquia neomexicana*	Desert Chicory
o	*Ribes quercetorum*	Oak Gooseberry
o	*Rorripa nasturtium-aquaticum*	Water-cress
o	*Rosa californica*	California Rose
o	*Saltugilia australis*	Southern Gilia
o	*Senecio californicus*	California Butterweed
o	*Senecio flaccidus*	Butterweed
o	*Sidalcea malvaeflora*	Checker-bloom
o	*Sisymbrium* sp.	Tumble Mustard
o	*Solidago californica*	California Goldenrod
o	*Stachys ajugoides*	Hedge-nettle
o	*Stephanomeria* sp.	Wreathplant
o	*Streptanthus campestris*	Southern Jewelflower
o	*Stylocline gnaphalioides*	Everlasting Nest-straw
o	*Tetradymia comosa*	Cotton-thorn
o	*Thysanocarpus* sp.	Fringepod
o	*Trichostemma parishii*	Mountain Bluecurls
o	*Tropidocarpum gracile*	Slender Dobie-pod
o	*Uropappus lindleyi*	Silver Puffs
o	*Viola purpurea*	Oak Yellow Violet
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o	**Other Flowering Plants:**	
o	Rhus ovata	
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o	**Rare Wildlife or Rare Plants:**	
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Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Stephen Rinke Add'l Person: _____ Date: 4/20/11 GPS Unit : 12

Project: Concentrix Solar Project Map #: _____ Survey Sxn: _____ QCB Protocol Survey # _____ of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start				clear patchy overcast drizzle shower
0938	62	2/7	2-5	clear patchy overcast drizzle shower
1105	63	6.2/12.5	2-5	clear patchy overcast drizzle shower
1235	64	9.2/16.5	2-5	clear patchy overcast drizzle shower
1417	65	12.4/20.8	1-2	clear patchy overcast drizzle shower
1556	67	9.6/16.8	0	clear patchy overcast drizzle shower
End				clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye) III	3	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		Sulpher sp. 1	
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)	19		
Anthocharis sara (Sara Orangetip)	7		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		SRad01 : pop = 2	
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	63		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue) II	2		
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

Potential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

Instructions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

✓	*Amsinckia menziesii*	Rancher's Fiddleneck
o	***Antirrhinum coulterianum***	**Coulter's Snapdragon**
o	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
o	*Asclepias fascicularis*	Narrow-leaf Milkweed
o	*Boechera sp.*	Rock Cress
o	*Calandrinia ciliata*	Red Maids
o	*Calochortus concolor*	Golden-bowl Mariposa Lily
o	*Calystegia longipes*	Morning-glory
o	*Camissonia sp.*	Sun Cup
o	***Castilleja exerta***	**Paintbrush**
o	*Caulanthus heterophyllus*	San Diego Jewelflower
o	*Caulanthus simulans*	Payson's Caulanthus
o	*Ceanothus cuneatus*	Buck Brush
o	*Ceanothus greggii*	Cup-leaf-lilac
o	*Ceanothus leucodermis*	Chaparral Whitethorn
o	*Chaenactis artemisiifolia*	White Pincushion
o	*Chaenactis glabriuscula*	Yellow Pincushion
o	*Clematis sp.*	Clematis
o	***Collinsia concolor***	**Southern Chinese Houses**
o	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
o	*Coreopsis californica*	California Coreopsis
o	*Corethrogyne filaginifolia*	Common Sand-aster
o	*Cryptantha sp.*	Cryptantha
o	*Cucurbita foetidissima*	Calabazilla
o	*Descurainia sp.*	Tansy-mustard
o	*Dicentra chrysantha*	Golden Ear-drops
o	*Dichelostemma capitatum*	Blue Dicks
o	*Dudleya* sp.	Dudleya
o	*Emmenanthe pendulifera*	Whispering Bells
o	*Eriastrum* sp.	Woolly-star
o	*Ericameria* sp.	Goldenbush
o	*Erigeron foliosus*	Leafy Daisy
o	*Eriodictyon trichocalyx*	Hairy Yerba Santa
o	*Eriogonum fasciculatum*	Inland California Buckwheat
o	*Eriogonum* sp.	Buckwheat
o	*Eriophyllum* sp.	Golden-yarrow
✓	*Erodium cicutarium**	Red-stem Storksbill
o	*Erysimum capitatum*	Western Wallflower
o	*Eschscholzia californica*	California Poppy
o	*Eucrypta chrysanthemifolia*	Spotted Hideseed
o	*Euthamia occidentalis*	Western Goldenrod
o	*Garrya veatchii*	Canyon Silk Tassel
o	*Gilia sp.*	Gilia
o	*Gnaphalium*	Cudweed
o	*Guillenia lasiophylla*	California Mustard
o	*Gutierrezia sarothrae*	Broom Matchweed
o	*Heliotropium curassavicum*	Salt Heliotrope
o	*Hirshfeldia incana*	Short-pod Mustard
o	*Lamium amplexicaule*	Henbit
✓	*Lasthenia gracilis*	Common Goldfields
o	*Layia glandulosa*	White Layia
o	*Lepidium* sp.	Pepperweed
o	*Linanthus bellus*	Desert Beauty
o	*Linanthus dichotomus*	Evening Snow
o	*Lonicera subspicata*	Johnston's Honeysuckle
o	*Malacothrix californica*	California Dandelion
o	*Malacothrix clevelandii*	Cleveland's Malacothrix
o	*Marah macrocarpus*	Wild-cucumber
o	*Marrubium vulgare**	Horehound
o	*Matricaria matricarioides**	Common Pineapple-weed
o	*Mentzelia veatchiana*	Veatch's Stick-leak
o	*Microsteris gracilis*	Slender Phlox
o	*Mimulus sp.*	Monkeyflower
o	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
o	*Orobanche bulbosa*	Chaparral Broom-rape
o	*Osmadenia tenella*	Osmadenia
o	*Paeonia californica*	California Peony
o	*Pectocarya* sp.	Pectocarya
o	*Phacelia* sp.	Phacelia
o	*Pholistoma membranaceum*	White Fiesta Flower
✓	*Plagiobothrys* sp.	Popcornflower
o	***Plantago patagonica***	**Desert Plantain**
o	*Platystemon californicus*	Cream Cups
o	*Prunus ilicifolia*	Holly-leaf Cherry
o	*Rafinesquia neomexicana*	Desert Chicory
o	*Ribes quercetorum*	Oak Gooseberry
o	*Rorripa nasturtium-aquaticum*	Water-cress
o	*Rosa californica*	California Rose
o	*Saltugilia australis*	Southern Gilia
o	*Senecio californicus*	California Butterweed
o	*Senecio flaccidus*	Butterweed
o	*Sidalcea malvaeflora*	Checker-bloom
o	*Sisymbrium* sp.	Tumble Mustard
o	*Solidago californica*	California Goldenrod
o	*Stachys ajugoides*	Hedge-nettle
o	*Stephanomeria* sp.	Wreathplant
o	*Streptanthus campestris*	Southern Jewelflower
o	*Stylocline gnaphalioides*	Everlasting Nest-straw
o	*Tetradymia comosa*	Cotton-thorn
o	*Thysanocarpus* sp.	Fringepod
o	*Trichostemma parishii*	Mountain Bluecurls
o	*Tropidocarpum gracile*	Slender Dobie-pod
o	*Uropappus lindleyi*	Silver Puffs
o	*Viola purpurea*	Oak Yellow Violet
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o	**Other Flowering Plants:**	
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o	**Rare Wildlife or Rare Plants:**	
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Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 4.25.11 GPS Unit : 12

Project: Concentrix Solar Project Map #: 3 Survey Sxn: _____ QCB Protocol Survey # 5 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	0910	66°F	1-3	10	(clear) patchy overcast drizzle shower
	1200	74°F	4-8	10	(clear) patchy overcast drizzle shower
	1530	77°F	4-9	15	(clear) patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End					clear patchy overcast drizzle shower

Habitat On-site (circle): (open soils), (hilltops), ridges, rock outcrops, (soil crusts), clay soils, (old roads), various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)	1 (1)		
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)	11 (2)		
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)	11 (2)		
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		Birds-	
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)		Black-throated Gray Warbler	
Riodiniade (Metalmarks)		Red-tail hawk → 2 flying	
Apodemia mormo (Behr's Metalmark)	𝍸 𝍸 𝍸 , 𝍸 𝍸 𝍸 𝍸 111 (43)		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)	11 (2)		
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)			
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)	1 (1)		
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

...tial Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...ions:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

PLEASE RECORD HOST PLANTS ON GPS See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

X	*Amsinckia menziesii*	Rancher's Fiddleneck
o	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
o	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
o	*Asclepias fascicularis*	Narrow-leaf Milkweed
o	*Boechera sp.*	Rock Cress
o	*Calandrinia ciliata*	Red Maids
o	*Calochortus concolor*	Golden-bowl Mariposa Lily
o	*Calystegia longipes*	Morning-glory
X	*Camissonia sp.*	Sun Cup
o	***Castilleja exerta***	**Paintbrush**
o	*Caulanthus heterophyllus*	San Diego Jewelflower
o	*Caulanthus simulans*	Payson's Caulanthus
o	*Ceanothus cuneatus*	Buck Brush
X	*Ceanothus greggii*	Cup-leaf-lilac
o	*Ceanothus leucodermis*	Chaparral Whitethorn
o	*Chaenactis artemisiifolia*	White Pincushion
o	*Chaenactis glabriuscula*	Yellow Pincushion
o	*Clematis sp.*	Clematis
o	***Collinsia concolor***	**Southern Chinese Houses**
o	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
o	*Coreopsis californica*	California Coreopsis
o	*Corethrogyne filaginifolia*	Common Sand-aster
X	*Cryptantha sp.*	Cryptantha
o	*Cucurbita foetidissima*	Calabazilla
X	*Descurainia sp.*	Tansy-mustard
o	*Dicentra chrysantha*	Golden Ear-drops
o	*Dichelostemma capitatum*	Blue Dicks
o	*Dudleya* sp.	Dudleya
o	*Emmenanthe pendulifera*	Whispering Bells
o	*Eriastrum* sp.	Woolly-star
X	*Ericameria* sp. linearifolia	Goldenbush
o	*Erigeron foliosus*	Leafy Daisy
o	*Eriodictyon trichocalyx*	Hairy Yerba Santa
o	*Eriogonum fasciculatum*	Inland California Buckwheat
o	*Eriogonum* sp.	Buckwheat
o	*Eriophyllum* sp.	Golden-yarrow
X	*Erodium cicutarium**	Red-stem Storksbill
o	*Erysimum capitatum*	Western Wallflower
X	*Eschscholzia californica*	California Poppy
o	*Eucrypta chrysanthemifolia*	Spotted Hideseed
o	*Euthamia occidentalis*	Western Goldenrod
o	*Garrya veatchii*	Canyon Silk Tassel
o	*Gilia sp.*	Gilia
o	*Gnaphalium*	Cudweed
o	*Guillenia lasiophylla*	California Mustard
o	*Gutierrezia sarothrae*	Broom Matchweed
o	*Heliotropium curassavicum*	Salt Heliotrope
X	*Hirshfeldia incana*	Short-pod Mustard
o	*Lamium amplexicaule*	Henbit
X	*Lasthenia gracilis*	Common Goldfields
o	*Layia glandulosa*	White Layia
o	*Lepidium* sp.	Pepperweed
X	*Linanthus bellus*	Desert Beauty
o	*Linanthus dichotomus*	Evening Snow
o	*Lonicera subspicata*	Johnston's Honeysuckle
o	*Malacothrix californica*	California Dandelion
o	*Malacothrix clevelandii*	Cleveland's Malacothrix
X	*Marah macrocarpus*	Wild-cucumber
o	*Marrubium vulgare**	Horehound
o	*Matricaria matricarioides**	Common Pineapple-weed
o	*Mentzelia veatchiana*	Veatch's Stick-leak
o	*Microsteris gracilis*	Slender Phlox
o	*Mimulus* sp.	Monkeyflower
o	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
o	*Orobanche bulbosa*	Chaparral Broom-rape
o	*Osmadenia tenella*	Osmadenia
o	*Paeonia californica*	California Peony
X	*Pectocarya* sp.	Pectocarya
X	*Phacelia* sp. distans	Phacelia
o	*Pholistoma membranaceum*	White Fiesta Flower
X	*Plagiobothrys* sp.	Popcornflower
o	***Plantago patagonica***	**Desert Plantain**
o	*Platystemon californicus*	Cream Cups
o	*Prunus ilicifolia*	Holly-leaf Cherry
o	*Rafinesquia neomexicana*	Desert Chicory
o	*Ribes quercetorum*	Oak Gooseberry
o	*Rorripa nasturtium-aquaticum*	Water-cress
o	*Rosa californica*	California Rose
o	*Saltugilia australis*	Southern Gilia
o	*Senecio californicus*	California Butterweed
o	*Senecio flaccidus*	Butterweed
o	*Sidalcea malvaeflora*	Checker-bloom
X	*Sisymbrium* sp. altissimum	Tumble Mustard
o	*Solidago californica*	California Goldenrod
o	*Stachys ajugoides*	Hedge-nettle
o	*Stephanomeria* sp.	Wreathplant
o	*Streptanthus campestris*	Southern Jewelflower
o	*Stylocline gnaphalioides*	Everlasting Nest-straw
o	*Tetradymia comosa*	Cotton-thorn
o	*Thysanocarpus* sp.	Fringepod
X	*Trichostemma parishii*	Mountain Bluecurls
o	*Tropidocarpum gracile*	Slender Dobie-pod
X	*Uropappus lindleyi*	Silver Puffs
o	*Viola purpurea*	Oak Yellow Violet
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o	**Other Flowering Plants:**	
o	Rhus ovata	
o	Leptosiphon lemmoni	
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o	**Rare Wildlife or Rare Plants:**	
o	Astragalus douglasii perstrictus	
o	MMAD01-05	
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o	BLACKJACKRABBIT	
o	MMBJ01-04	
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o	Delphinium parishii subglobosum	
o	MMDP01	
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o	Gerarea viscida	
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o	MMGV01-03	
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o	Linanthus bellus	
o	MMLB01-50	
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o	Woodrat Midden	
o	MMWR01-04	

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Antoinette Gutierrez Add'l Person: None Date: 25 APR 2011 GPS Unit: 2

Project: Concentrix Solar Project Map #: 5 Survey Sxn: Concentrix QCB Protocol Survey # 5 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	0900	62	0/0	15	clear patchy overcast drizzle shower
	1000	70	0/2.1	15	clear patchy overcast drizzle shower
	1100	74	0/6.1	15	clear patchy overcast drizzle shower
	1200	76	2.1/7.0	15	clear patchy overcast drizzle shower
	1300	76	6.0/10	15	clear patchy overcast drizzle shower
	1400	76	6.0/13	15	clear patchy overcast drizzle shower
End	1530	74	9.7/15	15	clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing) II	2
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady)		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White) I	1		
Pontia protodice (Common White) III	3		
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur) (HH)	6		
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		CORA WESJ CAQU BBWR BUSH ~~[illegible]~~	
Papilio eurymedon (Pale swallowtail)		ATFL, TUVU, RTHA, LEGO	
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks) (HH) (HH) (HH) (HH) (HH) II	~~6~~	Bee Swarm [illegible]	
Apodemia mormo (Behr's Metalmark) (HH) (HH) (HH) (HH) (HH) (HH) (HH)	62	Black tailed Sack Rabbit III 2 recorded	
Lycaenidae (Hairstreaks and Blues)		side blotched hand fenced lizard	
Celastrina ladon (Spring Azure)		~~ca~~ cotton tailed rabbit ca ground squirrel	
Leptotes marina (Marine Blue)		cows - active grazing	
Brephidium exile (Western Pygmy Blue)		gopher snake	
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue) I	1		
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

...ial Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...ons:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

PLEASE RECORD HOST PLANTS ON GPS See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

✓	*Amsinckia menziesii*	Rancher's Fiddleneck
○	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
○	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
○	*Asclepias fascicularis*	Narrow-leaf Milkweed
○	*Boechera sp.*	Rock Cress
✓	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
○	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
○	*Coreopsis californica*	California Coreopsis
○	*Corethrogyne filaginifolia*	Common Sand-aster
○	*Cryptantha sp.*	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
○	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
○	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya* sp.	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
○	*Eriastrum* sp.	Woolly-star
○	*Ericameria* sp.	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
✓	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum* sp.	Buckwheat
○	*Eriophyllum* sp.	Golden-yarrow
✓	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysismum capitatum*	Western Wallflower
✓	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
✓	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
✓	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
○	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
✓	*Lasthenia gracilis*	Common Goldfields
✓	*Layia glandulosa*	White Layia
○	*Lepidium* sp.	Pepperweed
○	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
✓	*Malacothrix californica*	California Dandelion
○	*Malacothrix clevelandii*	Cleveland's Malacothrix
✓	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus* sp.	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya* sp.	Pectocarya
✓	*Phacelia* sp.	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
✓	*Plagiobothrys* sp.	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
✓	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
○	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
○	*Sisymbrium* sp.	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria* sp.	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
○	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus* sp.	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
○		
○		
○	**Other Flowering Plants:**	
○	Cuscuta pacifica?	
○		
○		
○		
○		
○		
○		
○	**Rare Wildlife or Rare Plants:**	
○		AGNL 1 woodrat nest
○	AGNL 2	woodrat nest
○	AGNL 3	woodrat nest
○		
○	AGHL 1	Horned lizard
○		
○	AGDP 1	Delphinium parishii population
○	2	" " 10
○	3	" " 12
○	4	" " 21
○	5	" " 5
○	6	" " 12
○	8	" " 12
○	9	" " 5
○	10	" " 20
○	11	" " 5
○	12	" " 15
○	13	" " 6
○	14	" " 10
○	15	" " 15
○	16	" " 5
○	AGBL 1	Black-tailed Jackrabbit

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Mike Couffer Add'l Person: ∅ Date: 25 April, 2011 GPS Unit: 11

Project: Concentrix Solar Project Map #: 4 Survey Sxn: ∅ QCB Protocol Survey # 5 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	0900 HRS	67°F	∅ MPH	∅	(clear) patchy overcast drizzle shower
	1000 HRS	72°F	∅ → 1 MPH	∅	(clear) patchy overcast drizzle shower
	1100 HRS	76°	∅ MPH	∅	(clear) patchy overcast drizzle shower
	1200 HRS	76°	3 → 9 MPH	∅	(clear) patchy overcast drizzle shower
	1300 HRS	76°	2 → 9 MPH	∅	(clear) patchy overcast drizzle shower
	1400 HRS	76°	4 → 8 MPH	∅	(clear) patchy overcast drizzle shower
End	1500 HRS	76°F	4 → 12 MPH	∅	(clear) patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)	1	*Erynnis tristis* (Sad Duskywing)	1
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	2
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia juba* (Juba Skipper)	
Junonia coenia (Common Buckeye)	4	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady)		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)	2		
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		PHOLISORA CATULLUS (COMMON SOOTYWING)	
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)	1		
Pontia beckerii (Beker's White)	1		
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)	1		
Colias eurytheme (Orange Sulphur)	1		
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		END 1530 HRS, 77°F, WIND: 5 → 11 MPH, CLEAR	
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger. Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	310		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)	3		
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)	4		
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)	2		
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

Potential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

Instructions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

Amsinckia menziesii	Rancher's Fiddleneck
Antirrhimum coulterianum	**Coulter's Snapdragon**
Antirrhinum nuttallianum	Nuttall's Snapdragon
Asclepias fascicularis	Narrow-leaf Milkweed
Boechera sp.	Rock Cress
Calandrinia ciliata	Red Maids
Calochortus concolor	Golden-bowl Mariposa Lily
Calystegia longipes	Morning-glory
Camissonia sp.	Sun Cup
Castilleja exerta	**Paintbrush**
Caulanthus heterophyllus	San Diego Jewelflower
Caulanthus simulans	Payson's Caulanthus
Ceanothus cuneatus	Buck Brush
Ceanothus greggii	Cup-leaf-lilac
Ceanothus leucodermis	Chaparral Whitethorn
Chaenactis artemisiifolia	White Pincushion
Chaenactis glabriuscula	Yellow Pincushion
Clematis sp.	Clematis
Collinsia concolor	**Southern Chinese Houses**
Cordylanthus rigidus	**Dark-tip Bird's Beak**
Coreopsis californica	California Coreopsis
Corethrogyne filaginifolia	Common Sand-aster
Cryptantha sp.	Cryptantha
Cucurbita foetidissima	Calabazilla
Descurainia sp.	Tansy-mustard
Dicentra chrysantha	Golden Ear-drops
Dichelostemma capitatum	Blue Dicks
Dudleya sp.	Dudleya
Emmenanthe pendulifera	Whispering Bells
Eriastrum sp.	Woolly-star
Ericameria sp.	Goldenbush
Erigeron foliosus	Leafy Daisy
Eriodictyon trichocalyx	Hairy Yerba Santa
Eriogonum fasciculatum	Inland California Buckwheat
Eriogonum sp.	Buckwheat
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*Erodium cicutarium**	Red-stem Storksbill
Erysismum capitatum	Western Wallflower
Eschscholzia californica	California Poppy
Eucrypta chrysanthemifolia	Spotted Hideseed
Euthamia occidentalis	Western Goldenrod
Garrya veatchii	Canyon Silk Tassel
Gilia sp.	Gilia
Gnaphalium	Cudweed
Guillenia lasiophylla	California Mustard
Gutierrezia sarothrae	Broom Matchweed
Heliotropium curassavicum	Salt Heliotrope
Hirshfeldia incana	Short-pod Mustard
Lamium amplexicaule	Henbit
Lasthenia gracilis	Common Goldfields
Layia glandulosa	White Layia
Lepidium sp.	Pepperweed
Linanthus bellus	Desert Beauty
Linanthus dichotomus	Evening Snow
Lonicera subspicata	Johnston's Honeysuckle
Malacothrix californica	California Dandelion
Malacothrix clevelandii	Cleveland's Malacothrix
Marah macrocarpus	Wild-cucumber
*Marrubium vulgare**	Horehound
*Matricaria matricarioides**	Common Pineapple-weed
Mentzelia veatchiana	Veatch's Stick-leak
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Mimulus sp.	Monkeyflower
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Osmadenia tenella	Osmadenia
Paeonia californica	California Peony
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Phacelia sp.	Phacelia
Pholistoma membranaceum	White Fiesta Flower
Plagiobothrys sp.	Popcornflower
Plantago patagonica	**Desert Plantain**
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Tetradymia comosa	Cotton-thorn
Thysanocarpus sp.	Fringepod
Trichostemma parishii	Mountain Bluecurls
Tropidocarpum gracile	Slender Dobie-pod
Uropappus lindleyi	Silver Puffs
Viola purpurea	Oak Yellow Violet

Other Flowering Plants:

RHUS OVATA	SUGAR BUSH

Rare Wildlife or Rare Plants:

MCWW01	WESTERN WHIPTAIL
MCWW02	"
MCBJ01	BLACK-TAILED JACKRABBIT
MCBJ02	"
MCBJ03	"
MCCH01B	COLLINSIA CONCOLOR
MCCH02B	"
MCCH03A	"
MCCH04A	"
MCCH05A	"

148360 mi on SJC

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: KH Osborne Add'l Person: [illegible] Date: 4/25/2011 GPS Unit: 3

Project: Concentrix Solar Project Map #: 1 Survey Sxn: 1 QCB Protocol Survey # _____ of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	9 35	73	2/4	0	clear patchy overcast drizzle shower
	11 00	75	calm	0	clear patchy overcast drizzle shower
	2 00	73	7/14.8	0	clear patchy overcast drizzle shower
	winds like this last 2 hrs				clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
	3 45	73	10.3/20.9	0	clear patchy overcast drizzle shower
End	4 05	73	" "	0	clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

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Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing) 1	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing) 11	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing) 1	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper) H. juba 11	
Junonia coenia (Common Buckeye) 17 11		*Polites sabuleti* (Sandhill Skipper) 11	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		Philosora catalus	
Danaidae (Milkweed Butterflies)		Ochlodes agricola	
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)		Moths	
Satyridae (Satyrs)		Drasteria ochraceae	
Coenonympha californica (Common California Ringlet)		Drasteria convergens	
Pieridae (Whites, Sulphurs)		Kodiosoma fulva	
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble) 1			
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Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
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Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche ~~*lygdamus* (Southern Blue/Silvery blue)~~ piasus	1		
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue) 1111			
Philotes sonorensis (Sonoran Blue)			
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Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
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○	*Erysimum capitatum*	Western Wallflower
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○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
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○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
○	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
○	*Lasthenia gracilis* probably	Common Goldfields
○	*Layia glandulosa*	White Layia
○	*Lepidium sp.*	Pepperweed
○	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
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○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya sp.*	Pectocarya
○	*Phacelia sp.*	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
○	*Plagiobothrys sp.*	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
○	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
○	*Sisymbrium sp.*	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria sp.*	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
○	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus sp.*	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
○		
○		
○	**Other Flowering Plants:**	
○		
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○	**Rare Wildlife or Rare Plants:**	
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○		
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○

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Mike Couffer Add'l Person: Ø Date: 26 April GPS Unit: 11

Project: Concentrix Solar Project Map #: Survey Sxn: Ø QCB Protocol Survey # 5 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	0900HRS	61°F	Ø->1 MPH	Ø	(clear) patchy overcast drizzle shower
	1000HRS	68°F	Ø->5	Ø	(clear) patchy overcast drizzle shower
	1100HRS	74°F	Ø->3	Ø	(clear) patchy overcast drizzle shower
	1200HRS	73°F	Ø->7	6	(clear) patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End					clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)	1	*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	1
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia juba* (Juba Skipper)	
Junonia coenia (Common Buckeye)	2	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady)		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		PHOLISORA CATULLUS (Common Sootywing)	
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)	1		
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)	1		
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	145		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)	1		
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)	1		
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

Potential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

Instructions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

Amsinckia menziesii	Rancher's Fiddleneck
Antirrhinum coulterianum	**Coulter's Snapdragon**
Antirrhinum nuttallianum	Nuttall's Snapdragon
Asclepias fascicularis	Narrow-leaf Milkweed
Boechera sp.	Rock Cress
Calandrinia ciliata	Red Maids
Calochortus concolor	Golden-bowl Mariposa Lily
Calystegia longipes	Morning-glory
Camissonia sp.	Sun Cup
Castilleja exerta	**Paintbrush**
Caulanthus heterophyllus	San Diego Jewelflower
Caulanthus simulans	Payson's Caulanthus
Ceanothus cuneatus	Buck Brush
Ceanothus greggii	Cup-leaf-lilac
Ceanothus leucodermis	Chaparral Whitethorn
Chaenactis artemisiifolia	White Pincushion
Chaenactis glabriuscula	Yellow Pincushion
Clematis sp.	Clematis
Collinsia concolor	**Southern Chinese Houses**
Cordylanthus rigidus	**Dark-tip Bird's Beak**
Coreopsis californica	California Coreopsis
Corethrogyne filaginifolia	Common Sand-aster
Cryptantha sp.	Cryptantha
Cucurbita foetidissima	Calabazilla
Descurainia sp.	Tansy-mustard
Dicentra chrysantha	Golden Ear-drops
Dichelostemma capitatum	Blue Dicks
Dudleya sp.	Dudleya
Emmenanthe pendulifera	Whispering Bells
Eriastrum sp.	Woolly-star
Ericameria sp.	Goldenbush
Erigeron foliosus	Leafy Daisy
Eriodictyon trichocalyx	Hairy Yerba Santa
Eriogonum fasciculatum	Inland California Buckwheat
Eriogonum sp.	Buckwheat
Eriophyllum sp.	Golden-yarrow
*Erodium cicutarium**	Red-stem Storksbill
Erysimum capitatum	Western Wallflower
Eschscholzia californica	California Poppy
Eucrypta chrysanthemifolia	Spotted Hideseed
Euthamia occidentalis	Western Goldenrod
Garrya veatchii	Canyon Silk Tassel
Gilia sp.	Gilia
Gnaphalium	Cudweed
Guillenia lasiophylla	California Mustard
Gutierrezia sarothrae	Broom Matchweed
Heliotropium curassavicum	Salt Heliotrope
Hirshfeldia incana	Short-pod Mustard
Lamium amplexicaule	Henbit
Lasthenia gracilis	Common Goldfields
Layia glandulosa	White Layia
Lepidium sp.	Pepperweed
Linanthus bellus	Desert Beauty
Linanthus dichotomus	Evening Snow
Lonicera subspicata	Johnston's Honeysuckle
Malacothrix californica	California Dandelion
Malacothrix clevelandii	Cleveland's Malacothrix
Marah macrocarpus	Wild-cucumber
*Marrubium vulgare**	Horehound
*Matricaria matricarioides**	Common Pineapple-weed
Mentzelia veatchiana	Veatch's Stick-leak
Microsteris gracilis	Slender Phlox
Mimulus sp.	Monkeyflower
Nemophila menzeisii	Small-flower Baby Blue Eyes
Orobanche bulbosa	Chaparral Broom-rape

Osmadenia tenella	Osmadenia
Paeonia californica	California Peony
Pectocarya sp.	Pectocarya
Phacelia sp.	Phacelia
Pholistoma membranaceum	White Fiesta Flower
Plagiobothrys sp.	Popcornflower
Plantago patagonica	Desert Plantain
Platystemon californicus	Cream Cups
Prunus ilicifolia	Holly-leaf Cherry
Rafinesquia neomexicana	Desert Chicory
Ribes quercetorum	Oak Gooseberry
Rorippa nasturtium-aquaticum	Water-cress
Rosa californica	California Rose
Saltugilia australis	Southern Gilia
Senecio californicus	California Butterweed
Senecio flaccidus	Butterweed
Sidalcea malvaeflora	Checker-bloom
Sisymbrium sp.	Tumble Mustard
Solidago californica	California Goldenrod
Stachys ajugoides	Hedge-nettle
Stephanomeria sp.	Wreathplant
Streptanthus campestris	Southern Jewelflower
Stylocline gnaphalioides	Everlasting Nest-straw
Tetradymia comosa	Cotton-thorn
Thysanocarpus sp.	Fringepod
Trichostemma parishii	Mountain Bluecurls
Tropidocarpum gracile	Slender Dobie-pod
Uropappus lindleyi	Silver Puffs
Viola purpurea	Oak Yellow Violet

Other Flowering Plants:

RHUS OVATA — SUGAR BUSH

Rare Wildlife or Rare Plants:

MCBJ01 — BLACK-TAILED JACKRABBIT
MCBJ02 — "
MCBJ03 — "
MCBJ04 — "
MCBJ05 — "

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Antoinette Cisneros Add'l Person: None Date: 26 APR 2011 GPS Unit: 2

Project: Concentrix Solar Project Map #: 2 Survey Sxn: Concentrix QCB Protocol Survey # 5 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	1330	76	2.1/8.0	0	(clear) patchy overcast drizzle shower
	1450	76	1.9/7.8	0	(clear) patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End	1450	76	1.9/7.8	0	(clear) patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	1
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)		*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		Sooty dusky wing	1
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		WESJ, BUSH, RTHA, WCSP, LEGO	
Papilio eurymedon (Pale swallowtail)		CAQU, CORA, ANHU	
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	76	Western fence lizard, side blotch lizard	
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)			
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

...ial Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...ons:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

PLEASE RECORD HOST PLANTS ON GPS See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

	Amsinckia menziesii	Rancher's Fiddleneck
	Antirrhimum coulterianum	**Coulter's Snapdragon**
	Antirrhinum nuttallianum	Nuttall's Snapdragon
	Asclepias fascicularis	Narrow-leaf Milkweed
	Boechera sp.	Rock Cress
	Calandrinia ciliata	Red Maids
	Calochortus concolor	Golden-bowl Mariposa Lily
	Calystegia longipes	Morning-glory
	Camissonia sp.	Sun Cup
	Castilleja exerta	**Paintbrush**
	Caulanthus heterophyllus	San Diego Jewelflower
	Caulanthus simulans	Payson's Caulanthus
	Ceanothus cuneatus	Buck Brush
	Ceanothus greggii	Cup-leaf-lilac
	Ceanothus leucodermis	Chaparral Whitethorn
	Chaenactis artemisiifolia	White Pincushion
	Chaenactis glabriuscula	Yellow Pincushion
	Clematis sp.	Clematis
	Collinsia concolor	**Southern Chinese Houses**
	Cordylanthus rigidus	**Dark-tip Bird's Beak**
	Coreopsis californica	California Coreopsis
	Corethrogyne filaginifolia	Common Sand-aster
	Cryptantha sp.	Cryptantha
	Cucurbita foetidissima	Calabazilla
	Descurainia sp.	Tansy-mustard
	Dicentra chrysantha	Golden Ear-drops
	Dichelostemma capitatum	Blue Dicks
	Dudleya sp.	Dudleya
	Emmenanthe pendulifera	Whispering Bells
	Eriastrum sp.	Woolly-star
	Ericameria sp.	Goldenbush
	Erigeron foliosus	Leafy Daisy
	Eriodictyon trichocalyx	Hairy Yerba Santa
	Eriogonum fasciculatum	Inland California Buckwheat
	Eriogonum sp.	Buckwheat
	Eriophyllum sp.	Golden-yarrow
	*Erodium cicutarium**	Red-stem Storksbill
	Erysismum capitatum	Western Wallflower
	Eschscholzia californica	California Poppy
	Eucrypta chrysanthemifolia	Spotted Hideseed
	Euthamia occidentalis	Western Goldenrod
	Garrya veatchii	Canyon Silk Tassel
	Gilia sp.	Gilia
	Gnaphalium	Cudweed
	Guillenia lasiophylla	California Mustard
	Gutierrezia sarothrae	Broom Matchweed
	Heliotropium curassavicum	Salt Heliotrope
	Hirshfeldia incana	Short-pod Mustard
	Lamium amplexicaule	Henbit
	Lasthenia gracilis	Common Goldfields
	Layia glandulosa	White Layia
	Lepidium sp.	Pepperweed
	Linanthus bellus	Desert Beauty
	Linanthus dichotomus	Evening Snow
	Lonicera subspicata	Johnston's Honeysuckle
	Malacothrix californica	California Dandelion
	Malacothrix clevelandii	Cleveland's Malacothrix
	Marah macrocarpus	Wild-cucumber
	*Marrubium vulgare**	Horehound
	*Matricaria matricarioides**	Common Pineapple-weed
	Mentzelia veatchiana	Veatch's Stick-leak
	Microsteris gracilis	Slender Phlox
	Mimulus sp.	Monkeyflower
	Nemophila menzeisii	Small-flower Baby Blue Eyes
	Orobanche bulbosa	Chaparral Broom-rape
	Osmadenia tenella	Osmadenia
	Paeonia californica	California Peony
	Pectocarya sp.	Pectocarya
	Phacelia sp.	Phacelia
	Pholistoma membranaceum	White Fiesta Flower
	Plagiobothrys sp.	Popcornflower
	Plantago patagonica	**Desert Plantain**
	Platystemon californicus	Cream Cups
	Prunus ilicifolia	Holly-leaf Cherry
	Rafinesquia neomexicana	Desert Chicory
	Ribes quercetorum	Oak Gooseberry
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	Rosa californica	California Rose
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	Senecio flaccidus	Butterweed
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	Sisymbrium sp.	Tumble Mustard
	Solidago californica	California Goldenrod
	Stachys ajugoides	Hedge-nettle
	Stephanomeria sp.	Wreathplant
	Streptanthus campestris	Southern Jewelflower
	Stylocline gnaphalioides	Everlasting Nest-straw
	Tetradymia comosa	Cotton-thorn
	Thysanocarpus sp.	Fringepod
	Trichostemma parishii	Mountain Bluecurls
	Tropidocarpum gracile	Slender Dobie-pod
	Uropappus lindleyi	Silver Puffs
	Viola purpurea	Oak Yellow Violet

Other Flowering Plants:

Rare Wildlife or Rare Plants:

AG LB 1 Linanthus bellus pop=5

AG LB 2 " " pop=65

AG NL 1 woodrat nest

AG DP 1 Delphinium parishii pop=2

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Antonette Gutierrez Add'l Person: None Date: 26 APR 2011 GPS Unit: 2

Project: Concentrix Solar Project Map #: 5 Survey Sxn: Concentrix QCB Protocol Survey # 5 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	0900	62	1.8/6.0	0	(clear) patchy overcast drizzle shower
	1100	71	1.1/5.0	0	(clear) patchy overcast drizzle shower
	1200	75	0/5.3	0	(clear) patchy overcast drizzle shower
	1315	78	2.1/3.6	0	(clear) patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End					clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	1
Junonia coenia (Common Buckeye) IIII III	9	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		Western tail blue IIII	6
Danaidae (Milkweed Butterflies)		sooty dusky wing II	2
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White) I	1		
Pontia protodice (Common White) II	2		
Anthocharis sara (Sara Orangetip) I	1		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		WESJ, ATFL, CAKI, CORA, RTHA, HOLA,	
Papilio eurymedon (Pale swallowtail)		CAQU, TUVU, LEGO, NOMO, WEME, EUST,	
Papilio rutulus(Western Tiger Swallowtail) II	2	BUOR, EATH, COHU, WCSP	
Riodiniade (Metalmarks)		Gopher & nest with 2 nesting ♀	
Apodemia mormo (Behr's Metalmark)	61	in scrub oak	
Lycaenidae (Hairstreaks and Blues)		Western whiptail, western fence lizard,	
Celastrina ladon (Spring Azure)		side blotch lizard,	
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)		Cottontailed rabbit	
Glaucopsyche lygdamus (Southern Blue/Silvery blue)		Ca. ground squirrel	
Hemiargus ceraunus (Edward's Blue)		jack rabbit	
Icaria acmon (Acmon Blue) III	4		
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak) I	1		

ntial Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

Jctions:

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	Antirrhinum nuttallianum	Nuttall's Snapdragon
	Asclepias fascicularis	Narrow-leaf Milkweed
	Boechera sp.	Rock Cress
✓	*Calandrinia ciliata*	Red Maids
	Calochortus concolor	Golden-bowl Mariposa Lily
✓	*Calystegia longipes*	Morning-glory
✓	*Camissonia sp.*	Sun Cup
	Castilleja exerta	**Paintbrush**
✓	*Caulanthus heterophyllus*	San Diego Jewelflower
	Caulanthus simulans	Payson's Caulanthus
	Ceanothus cuneatus	Buck Brush
	Ceanothus greggii	Cup-leaf-lilac
	Ceanothus leucodermis	Chaparral Whitethorn
	Chaenactis artemisiifolia	White Pincushion
	Chaenactis glabriuscula	Yellow Pincushion
✓	*Clematis sp.*	Clematis
	Collinsia concolor	**Southern Chinese Houses**
	Cordylanthus rigidus	**Dark-tip Bird's Beak**
	Coreopsis californica	California Coreopsis
	Corethrogyne filaginifolia	Common Sand-aster
✓	*Cryptantha sp.*	Cryptantha
	Cucurbita foetidissima	Calabazilla
	Descurainia sp.	Tansy-mustard
	Dicentra chrysantha	Golden Ear-drops
	Dichelostemma capitatum	Blue Dicks
	Dudleya sp.	Dudleya
	Emmenanthe pendulifera	Whispering Bells
	Eriastrum sp.	Woolly-star
✓	*Ericameria* sp.	Goldenbush
	Erigeron foliosus	Leafy Daisy
	Eriodictyon trichocalyx	Hairy Yerba Santa
✓	*Eriogonum fasciculatum*	Inland California Buckwheat
✓	*Eriogonum* sp.	Buckwheat
	Eriophyllum sp.	Golden-yarrow
	*Erodium cicutarium**	Red-stem Storksbill
	Erysismum capitatum	Western Wallflower
✓	*Eschscholzia californica*	California Poppy
	Eucrypta chrysanthemifolia	Spotted Hideseed
	Euthamia occidentalis	Western Goldenrod
	Garrya veatchii	Canyon Silk Tassel
✓	*Gilia sp.*	Gilia
	Gnaphalium	Cudweed
✓	*Guillenia lasiophylla*	California Mustard
✓	*Gutierrezia sarothrae*	Broom Matchweed
	Heliotropium curassavicum	Salt Heliotrope
	Hirshfeldia incana	Short-pod Mustard
	Lamium amplexicaule	Henbit
✓	*Lasthenia gracilis*	Common Goldfields
	Layia glandulosa	White Layia
	Lepidium sp.	Pepperweed
	Linanthus bellus	Desert Beauty
	Linanthus dichotomus	Evening Snow
	Lonicera subspicata	Johnston's Honeysuckle
✓	*Malacothrix californica*	California Dandelion
	Malacothrix clevelandii	Cleveland's Malacothrix
✓	*Marah macrocarpus*	Wild-cucumber
	*Marrubium vulgare**	Horehound
	*Matricaria matricarioides**	Common Pineapple-weed
	Mentzelia veatchiana	Veatch's Stick-leak
	Microsteris gracilis	Slender Phlox
	Mimulus sp.	Monkeyflower
	Nemophila menzeisii	Small-flower Baby Blue Eyes
	Orobanche bulbosa	Chaparral Broom-rape
	Osmadenia tenella	Osmadenia
	Paeonia californica	California Peony
	Pectocarya sp.	Pectocarya
	Phacelia sp.	Phacelia
	Pholistoma membranaceum	White Fiesta Flower
✓	*Plagiobothrys* sp.	Popcornflower
	Plantago patagonica	**Desert Plantain**
✓	*Platystemon californicus*	Cream Cups
	Prunus ilicifolia	Holly-leaf Cherry
	Rafinesquia neomexicana	Desert Chicory
	Ribes quercetorum	Oak Gooseberry
	Rorripa nasturtium-aquaticum	Water-cress
	Rosa californica	California Rose
	Saltugilia australis	Southern Gilia
	Senecio californicus	California Butterweed
	Senecio flaccidus	Butterweed
	Sidalcea malvaeflora	Checker-bloom
	Sisymbrium sp.	Tumble Mustard
	Solidago californica	California Goldenrod
	Stachys ajugoides	Hedge-nettle
	Stephanomeria sp.	Wreathplant
	Streptanthus campestris	Southern Jewelflower
	Stylocline gnaphalioides	Everlasting Nest-straw
	Tetradymia comosa	Cotton-thorn
	Thysanocarpus sp.	Fringepod
	Trichostemma parishii	Mountain Bluecurls
	Tropidocarpum gracile	Slender Dobie-pod
	Uropappus lindleyi	Silver Puffs
	Viola purpurea	Oak Yellow Violet

Other Flowering Plants:

Rare Wildlife or Rare Plants:

AGWH 1 western whiptail

AGLA 1 pair HOLA - horned larks

AGLA 2 " " " "

AGWH 2 western whiptail

AGLH 1 loggerhead shrike Nest + pair

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: K.H. Osborne Add'l Person: — Date: 6/26/2011 GPS Unit: 10

Project: Concentrix Solar Project Map #: Survey Sxn: QCB Protocol Survey # of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	935	64	3/5	0	(clear) patchy overcast drizzle shower
Map 3	1045	67	4/7	0	(clear) patchy overcast drizzle shower
	1200	70	1/8	0	clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
Map 6	145	71	2/5	0	(clear) patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End	210	72	3.6/5	0	(clear) patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Map 3	Map 6	Total
Nymphalidae (Brushfooted Butterflies)			
Euphydryas editha (Quino Checkerspot)			
Euphydryas chalcedona (Henne's Checkerspot)			
Thessalia leanira (Wright's Checkerspot)			
Chlosyne californica (California Patch)			
Chlosyne gabbii (Gabb's Checkerspot)			
Phyciodes mylitta (Mylitta Crescent)			
Junonia coenia (Common Buckeye)	HHHH IIII	III	9/3
Vanessa annabella (West Coast Lady			
Vanessa atalanta (Red Admiral)			
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)			
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)	III		4
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)	II		2
Colias eurytheme (Orange Sulphur)	1	1	
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)			
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	XXXXXXXX	XX	80/20
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)	IIII	III	4/3
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)	1	1	

	Map 3	Map 6	Total
Hesperiidae (Skippers)			
Erynnis funeralis (Funereal Duskywing)			
Erynnis tristis (Sad Duskywing)			
Erynnis propertius (Propertius Duskywing)			
Erynnis brizo (Sleepy Duskeywing)			
Pyrgus albescens (Checkered Skipper)			
Hesperia juba (Juba Skipper)	II		2
Polites sabuleti (Sandhill Skipper)			
Megathymidae (Giant Skippers)			
Megathymus yuccae (Yucca Giant Skipper)			
Other Butterflies:			
Plebejus lupini	1		1
Phitosova catallus	III		3
Moths.			
Kodiosoma fulva	II		2
Stylopoda cephalica	II		2
Schinia aurantiaca	V		5
Notes:			
Many agoad acrobatics			
Caenthisca beginning to eat old			
Also Heliothis, Belladonna caruae on Castilleja spinis			

...ential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...structions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

○	*Amsinckia menziesii*	Rancher's Fiddleneck
○	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
○	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
○	*Asclepias fascicularis*	Narrow-leaf Milkweed
○	*Boechera sp.*	Rock Cress
○	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
✓	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
○	*Coreopsis californica*	California Coreopsis
○	*Corethrogyne filaginifolia*	Common Sand-aster
✓	*Cryptantha sp.*	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
○	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
○	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya* sp.	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
○	*Eriastrum* sp.	Woolly-star
✓	*Ericameria* sp.	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum sp.*	Buckwheat
○	*Eriophyllum* sp.	Golden-yarrow
○	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysismum capitatum*	Western Wallflower
○	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
○	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
✓	*Lasthenia gracilis*	Common Goldfields
✓	*Layia glandulosa*	White Layia
○	*Lepidium* sp.	Pepperweed
○	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
○	*Malacothrix californica*	California Dandelion
○	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus sp.*	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape

○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya* sp.	Pectocarya
✓	*Phacelia* sp.	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
○	*Plagiobothrys* sp.	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
○	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
○	*Sisymbrium sp.*	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria* sp.	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
○	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus* sp.	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
○	*Rhus ovata*	
○		
○	**Other Flowering Plants:**	
○		
○		
○		
○		
○		
○		
○		
○	**Rare Wildlife or Rare Plants:**	
○		
○		
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○		
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○		
○

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Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: K. HOsborne Add'l Person: B Date: 4/27/2011 GPS Unit: 11

Project: Concentrix Solar Project Map #: 2 Survey Sxn: 2 QCB Protocol Survey # ____ of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	834	63	~~1.5~~/3	0	(clear) patchy overcast drizzle shower
	930	71	3/6		(clear) patchy overcast drizzle shower
	1115	75	5/12	0	(clear) patchy overcast drizzle shower
	215	72	6/9	0	(clear) patchy overcast drizzle shower
					clear patchy overcast drizzle shower
	300	71° ~~1.8/5~~	1.8/5	0	(clear) patchy overcast drizzle shower
End	400	72	c/l	0	(clear) patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing) //	2
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskywing) /	1
Chlosyne gabbii (Gabb's Checkerspot) /	1	*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia juba* (Jubia Skipper) //	2
Junonia coenia (Common Buckeye) //// ///	8	*Polites sabuleti* (Sandhill Skipper) XXXIX	4-1
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral) /	1	*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady) /	1		
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		Plebejus lupini //	2
Danaidae (Milkweed Butterflies)		Haliapetes ericitorum //	2
Danaus plexippus (Monarch)		Moth: Stylopoda cephalica //	2
Danaus gilippus (Queen)		Schinia aurantiaca /	1
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White) //// /	6		
Anthocharis sara (Sara Orangetip) ///	3		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble) //	2		
Colias eurytheme (Orange Sulphur) ////	4		
Colias harfordii (Harford's Sulphur) ///	3		
Nathalis iole (Dainty Sulphur) /	1		
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail) /	1		
Papilio rutulus(Western Tiger Swallowtail)		KOCR013 ~200 dry stalks and abundant new recruits. photographs taken area circumscribed by tracks.	
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark) XXXXXX	60		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)		KOCR014 ~30 dry stalks ~several new recruits	
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue) ////	4		
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			
Euerys amyntula /	1		

Potential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

Instructions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

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	Antirrhinum nuttallianum	Nuttall's Snapdragon
	Asclepias fascicularis	Narrow-leaf Milkweed
	Boechera sp.	Rock Cress
	Calandrinia ciliata	Red Maids
	Calochortus concolor	Golden-bowl Mariposa Lily
	Calystegia longipes	Morning-glory
✓	*Camissonia sp.*	Sun Cup
	Castilleja exerta	**Paintbrush**
	Caulanthus heterophyllus	San Diego Jewelflower
	Caulanthus simulans	Payson's Caulanthus
✓	*Ceanothus cuneatus*	Buck Brush
✓	*Ceanothus greggii*	Cup-leaf-lilac
	Ceanothus leucodermis	Chaparral Whitethorn
	Chaenactis artemisiifolia	White Pincushion
	Chaenactis glabriuscula	Yellow Pincushion
	Clematis sp.	Clematis
	Collinsia concolor	**Southern Chinese Houses**
	Cordylanthus rigidus	**Dark-tip Bird's Beak**
	Coreopsis californica	California Coreopsis
	Corethrogyne filaginifolia	Common Sand-aster
✓	*Cryptantha sp.*	Cryptantha
	Cucurbita foetidissima	Calabazilla
	Descurainia sp.	Tansy-mustard
	Dicentra chrysantha	Golden Ear-drops
	Dichelostemma capitatum	Blue Dicks
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	Eriogonum sp.	Buckwheat
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	Erysimum capitatum	Western Wallflower
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	Eucrypta chrysanthemifolia	Spotted Hideseed
	Euthamia occidentalis	Western Goldenrod
	Garrya veatchii	Canyon Silk Tassel
	Gilia sp.	Gilia
	Gnaphalium	Cudweed
	Guillenia lasiophylla	California Mustard
	Gutierrezia sarothrae	Broom Matchweed
	Heliotropium curassavicum	Salt Heliotrope
✓	*Hirshfeldia incana*	Short-pod Mustard
	Lamium amplexicaule	Henbit
✓	*Lasthenia gracilis*	Common Goldfields
✓	*Layia glandulosa*	White Layia
	Lepidium sp.	Pepperweed
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	Linanthus dichotomus	Evening Snow
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	Malacothrix clevelandii	Cleveland's Malacothrix
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	Microsteris gracilis	Slender Phlox
	Mimulus sp.	Monkeyflower
	Nemophila menzeisii	Small-flower Baby Blue Eyes
	Orobanche bulbosa	Chaparral Broom-rape
	Osmadenia tenella	Osmadenia
	Paeonia californica	California Peony
	Pectocarya sp.	Pectocarya
✓	*Phacelia sp.*	Phacelia
	Pholistoma membranaceum	White Fiesta Flower
	Plagiobothrys sp.	Popcornflower
	Plantago patagonica	**Desert Plantain**
	Platystemon californicus	Cream Cups
	Prunus ilicifolia	Holly-leaf Cherry
	Rafinesquia neomexicana	Desert Chicory
	Ribes quercetorum	Oak Gooseberry
	Rorripa nasturtium-aquaticum	Water-cress
	Rosa californica	California Rose
	Saltugilia australis	Southern Gilia
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	Stephanomeria sp.	Wreathplant
	Streptanthus campestris	Southern Jewelflower
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	Tetradymia comosa	Cotton-thorn
	Thysanocarpus sp.	Fringepod
	Trichostemma parishii	Mountain Bluecurls
	Tropidocarpum gracile	Slender Doble-pod
	Uropappus lindleyi	Silver Puffs
	Viola purpurea	Oak Yellow Violet
	Other Flowering Plants:	
	Rare Wildlife or Rare Plants:	

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Erin Bergman Add'l Person: _____ Date: 4/27/11 GPS Unit: 3

Project: Concentrix Solar Project Map #: _____ Survey Sxn: _____ QCB Protocol Survey # _____ of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky				
Start	6:30	70°	1-4	0	clear	patchy	overcast	drizzle	shower
	9:00	72°	1-1	0	clear	patchy	overcast	drizzle	shower
	10:00	73°	1-1	0	clear	patchy	overcast	drizzle	shower
	11:00	73°	1-1	0	clear	patchy	overcast	drizzle	shower
	12:00	77°	1-1	0	clear	patchy	overcast	drizzle	shower
End	4:00	74	1-1	0	clear	patchy	overcast	drizzle	shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
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Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing) IIII	7
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye) IIII III	8	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady)		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		Common Sootywing 1	
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip) IIII I	6		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		SBGV01A1	All coded Jag Shrub
Papilio eurymedon (Palè swallowtail)		SBDP01A2	vigrdo2 is dead
Papilio rutulus(Western Tiger Swallowtail)		SBad01A5	remnant
Riodiniade (Metalmarks) IIII IIII IIII IIII IIII II		SBad02A1	Specimens
Apodemia mormo (Behr's Metalmark) IIII IIII IIII IIII IIII III	63	SBbi01	
Lycaenidae (Hairstreaks and Blues)		SBbi02	
Celastrina ladon (Spring Azure)		SBCC01A5 SBCC16B3 SBCC08D8	
Leptotes marina (Marine Blue)		SBCC02A1 SBCC17D5 SBCC31C10	
Brephidium exile (Western Pygmy Blue)		SBCC03A3 SBCC18B3 SBCC01A1	
Glaucopsyche lygdamus (Southern Blue/Silvery blue)		SBCC04A3 SBCC19B1 SBCC02A1	
Hemiargus ceraunus (Edward's Blue)		SBCC05A2 SBCC20B3 SBad01A2	
Icaria acmon (Acmon Blue) III	3	SBCC06A3 SBCC21B1 SBad01A1	
Philotes sonorensis (Sonoran Blue)		SBCC07A5 SBCC22B5 SBGV02A3	
Callophrys augustinus (Brown Elfin)		SBCC08B5 SBCC23D3 SBGV01A1	
Callophrys perplexa (Perplexing Green Hairstreak)		SBCC09B3 SBCC24C2 SBDP01A2	
Strymon melinus (Gray Hairstreak)		SBCC10B2 SBCC25B1 SBbi02A1	
Atlides halesus (Great Purple Hairstreak)		SBCC11B3 SBCC26A2	
		SBCC12B3 SBCC27B1	
		SBCC13B2 SBCC28B5	
		SBCC14B2 SBCC29A2	
		SBCC15B5	

ntial Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

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Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

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Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

☒	*Amsinckia menziesii*	Rancher's Fiddleneck
○	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
○	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
○	*Asclepias fascicularis*	Narrow-leaf Milkweed
☒	*Boechera sp.*	Rock Cress
☒	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
☒	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
☒	***Collinsia concolor*** no flowers	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
☒	*Coreopsis californica*	California Coreopsis
○	*Corethrogyne filaginifolia* not in flower	Common Sand-aster
☒	*Cryptantha sp.* intermedia	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
☒	*Descurainia sp.* pinnata	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
☒	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya* sp.	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
○	*Eriastrum sp.* densifolium	Woolly-star — no flowers
☒	*Ericameria sp.* pinifolia	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum sp.*	Buckwheat
☒	*Eriophyllum sp.* lon leaf foli	Golden-yarrow
☒	*Erodium cicutarium**	Red-stem Storksbill
☒	*Erysimum capitatum*	Western Wallflower
☒	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
☒	*Gutierrezia sarothrae*	Broom Matchweed no flowers
○	*Heliotropium curassavicum*	Salt Heliotrope
☒	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
☒	*Lasthenia gracilis*	Common Goldfields
☒	*Layia glandulosa*	White Layia
○	*Lepidium* sp.	Pepperweed
☒	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
○	*Malacothrix californica*	California Dandelion
○	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus sp.*	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya* sp.	Pectocarya
○	*Phacelia sp.*	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
☒	*Plagiobothrys sp.*	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
☒	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
○	*Sisymbrium sp.*	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria* sp.	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
☒	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus* sp.	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
○		
○		
○	**Other Flowering Plants:**	
○		
○	Lupinus bicolor	
○	Lupinus concinnus	
○	Gilia angelensis	
○		
○		
○		
○	**Rare Wildlife or Rare Plants:**	
○		
○		
○		
○

149161 mw on site

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: KHOsborne Add'l Person: ø Date: 5/1/2011 GPS Unit: 12

Project: Concentrix Solar Project Map #: 4 Survey Sxn: _____ QCB Protocol Survey # _____ of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	930	56	7/14	0	(clear) patchy overcast drizzle shower
	1030	62	8/15	0	(clear) patchy overcast drizzle shower
	1200	61	8/14	0	(clear) patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End	1200				clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	1
Junonia coenia (Common Buckeye)	1	*Polites sabuleti* (Sandhill Skipper)	X
Vanessa annabella (West Coast Lady)		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
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Anthocharis sara (Sara Orangetip)			
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Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	III		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
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Callophrys augustinus (Brown Elfin)			
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Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

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Collinsia concolor	**Southern Chinese Houses**
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Malacothrix clevelandii	Cleveland's Malacothrix
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Other Flowering Plants:

Rare Wildlife or Rare Plants:

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: K. H Osborn Add'l Person: Bonnie Hendrix Date: 5/3/2011 GPS Unit: 12

Project: Concentrix Solar Project Map #: Survey Sxn: 4 QCB Protocol Survey # 5 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
4 area Start	925	69	4/6	0	clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
	1115	75	4/6.2	0	clear patchy overcast drizzle shower
4 area	1135				clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End	115	75	7.8/9.8		clear patchy overcast drizzle shower

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Streptanthus campestris	Southern Jewelflower
Stylocline gnaphalioides	Everlasting Nest-straw
Tetradymia comosa	Cotton-thorn
Thysanocarpus sp.	Fringepod
Trichostemma parishii	Mountain Bluecurls
Tropidocarpum gracile	Slender Dobie-pod
Uropappus lindleyi	Silver Puffs
Viola purpurea	Oak Yellow Violet

Other Flowering Plants:

Rare Wildlife or Rare Plants:

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Bonnie Hendricks Add'l Person: Ken Osborne Date: 5/2/11 GPS Unit: 11/12

Project: Concentrix Solar Project Map #: 4 Survey Sxn: 4 W. QCB Protocol Survey # 5 of 5

Area 2 / Area 1

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	10:50	67°	7.2/14.9	0	(clear) patchy overcast drizzle shower
	12:00	650	8/12	0	(clear) patchy overcast drizzle shower
	1:00	68°	6/11	0	(clear) patchy overcast drizzle shower
	2:00	70°	5/9	0	(clear) patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End	3:00	71	11/16	0	(clear) patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper) ///	3
Junonia coenia (Common Buckeye) /	1	*Polites sabuleti* (Sandhill Skipper) ////	5
Vanessa annabella (West Coast Lady)		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		Philosamia catalus ///	4
Danaidae (Milkweed Butterflies)		~~Hesperia jubia~~	
Danaus plexippus (Monarch)		Plebejus lupinii //	2
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White) //// //	7		
Anthocharis sara (Sara Orangetip) //	2		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur) //	2		
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		BhdpOSA1	
Papilio eurymedon (Pale swallowtail) ///	3	06A1	
Papilio rutulus(Western Tiger Swallowtail)		07A10	
Riodiniade (Metalmarks)		08A10	
Apodemia mormo (Behr's Metalmark) VVIIVX	32	09A1	
Lycaenidae (Hairstreaks and Blues)		10A1	
Celastrina ladon (Spring Azure)		11A1	
Leptotes marina (Marine Blue)		12A7	
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)		X- BhdFE20 Reinflori	
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue) /	1		
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

ntial Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

uctions:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

PLEASE RECORD HOST PLANTS ON GPS See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

Amsinckia menziesii	Rancher's Fiddleneck
Antirrhimum coulterianum	**Coulter's Snapdragon**
Antirrhinum nuttallianum	Nuttall's Snapdragon
Asclepias fascicularis	Narrow-leaf Milkweed
Boechera sp.	Rock Cress
Calandrinia ciliata	Red Maids
Calochortus concolor	Golden-bowl Mariposa Lily
Calystegia longipes	Morning-glory
Camissonia sp.	Sun Cup
Castilleja exerta	**Paintbrush**
Caulanthus heterophyllus	San Diego Jewelflower
Caulanthus simulans	Payson's Caulanthus
Ceanothus cuneatus	Buck Brush
Ceanothus greggii	Cup-leaf-lilac
Ceanothus leucodermis	Chaparral Whitethorn
Chaenactis artemisiifolia	White Pincushion
Chaenactis glabriuscula	Yellow Pincushion
Clematis sp.	Clematis
Collinsia concolor	**Southern Chinese Houses**
Cordylanthus rigidus	**Dark-tip Bird's Beak**
Coreopsis californica	California Coreopsis
Corethrogyne filaginifolia	Common Sand-aster
Cryptantha sp.	Cryptantha
Cucurbita foetidissima	Calabazilla
Descurainia sp.	Tansy-mustard
Dicentra chrysantha	Golden Ear-drops
Dichelostemma capitatum	Blue Dicks
Dudleya sp.	Dudleya
Emmenanthe pendulifera	Whispering Bells
Eriastrum sp.	Woolly-star
Ericameria sp.	Goldenbush
Erigeron foliosus	Leafy Daisy
Eriodictyon trichocalyx	Hairy Yerba Santa
Eriogonum fasciculatum	Inland California Buckwheat
Eriogonum sp.	Buckwheat
Eriophyllum sp.	Golden-yarrow
*Erodium cicutarium**	Red-stem Storksbill
Erysismum capitatum	Western Wallflower
Eschscholzia californica	California Poppy
Eucrypta chrysanthemifolia	Spotted Hideseed
Euthamia occidentalis	Western Goldenrod
Garrya veatchii	Canyon Silk Tassel
Gilia sp.	Gilia
Gnaphalium	Cudweed
Guillenia lasiophylla	California Mustard
Gutierrezia sarothrae	Broom Matchweed
Heliotropium curassavicum	Salt Heliotrope
Hirshfeldia incana	Short-pod Mustard
Lamium amplexicaule	Henbit
Lasthenia gracilis	Common Goldfields
Layia glandulosa	White Layia
Lepidium sp.	Pepperweed
Linanthus bellus	Desert Beauty
Linanthus dichotomus	Evening Snow
Lonicera subspicata	Johnston's Honeysuckle
Malacothrix californica	California Dandelion
Malacothrix clevelandii	Cleveland's Malacothrix
Marah macrocarpus	Wild-cucumber
*Marrubium vulgare**	Horehound
*Matricaria matricarioides**	Common Pineapple-weed
Mentzelia veatchiana	Veatch's Stick-leak
Microsteris gracilis	Slender Phlox
Mimulus sp.	Monkeyflower
Nemophila menzeisii	Small-flower Baby Blue Eyes
Orobanche bulbosa	Chaparral Broom-rape
Osmadenia tenella	Osmadenia
Paeonia californica	California Peony
Pectocarya sp.	Pectocarya
Phacelia sp.	Phacelia
Pholistoma membranaceum	White Fiesta Flower
Plagiobothrys sp.	Popcornflower
Plantago patagonica	**Desert Plantain**
Platystemon californicus	Cream Cups
Prunus ilicifolia	Holly-leaf Cherry
Rafinesquia neomexicana	Desert Chicory
Ribes quercetorum	Oak Gooseberry
Rorripa nasturtium-aquaticum	Water-cress
Rosa californica	California Rose
Saltugilia australis	Southern Gilia
Senecio californicus	California Butterweed
Senecio flaccidus	Butterweed
Sidalcea malvaeflora	Checker-bloom
Sisymbrium sp.	Tumble Mustard
Solidago californica	California Goldenrod
Stachys ajugoides	Hedge-nettle
Stephanomeria sp.	Wreathplant
Streptanthus campestris	Southern Jewelflower
Stylocline gnaphalioides	Everlasting Nest-straw
Tetradymia comosa	Cotton-thorn
Thysanocarpus sp.	Fringepod
Trichostemma parishii	Mountain Bluecurls
Tropidocarpum gracile	Slender Dobie-pod
Uropappus lindleyi	Silver Puffs
Viola purpurea	Oak Yellow Violet
Other Flowering Plants:	
Rare Wildlife or Rare Plants:	

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 5.3.11 GPS Unit: 7

Project: Concentrix Solar Project Map #: 7 Survey Sxn: _____ QCB Protocol Survey # 6 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% cc	Sky
Start	0900	75°	2-5	0	(clear) patchy overcast drizzle shower
	1130	78°	3-6	0	(clear) patchy overcast drizzle shower
	1200	80°	2-4	0	(clear) patchy overcast drizzle shower
	1500	83°	2-4	0	(clear) patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower

Map 1

Habitat On-site (circle): open soils, hilltops, ridges, (rock outcrops), soil crusts, clay soils, (old roads), (various nectar sources)

	Total
Nymphalidae (Brushfooted Butterflies)	
Euphydryas editha (Quino Checkerspot)	
Euphydryas chalcedona (Henne's Checkerspot)	
Thessalia leanira (Wright's Checkerspot)	
Chlosyne californica (California Patch)	
Chlosyne gabbii (Gabb's Checkerspot)	
Phyciodes mylitta (Mylitta Crescent)	
Junonia coenia (Common Buckeye)	
Vanessa annabella (West Coast Lady)	
Vanessa atalanta (Red Admiral)	
Vanessa cardui (Painted Lady)	
Vanessa virginiensis (Virginia Lady)	
Nymphalis californica (California Tortoiseshell)	
Danaidae (Milkweed Butterflies)	
Danaus plexippus (Monarch)	
Danaus gilippus (Queen)	
Satyridae (Satyrs)	
Coenonympha californica (Common California Ringlet)	
Pieridae (Whites, Sulphurs)	
Pieris rapae (Cabbage White)	
Pontia sisymbrii (Spring White)	
Pontia beckerii (Beker's White)	
Pontia protodice (Common White)	#1 |
Anthocharis sara (Sara Orangetip)	
Anthocharis cethura (Felder's Orangetip)	
Euchloe hyantis (Desert Pearly Marble)	
Colias eurytheme (Orange Sulphur)	#7 1 (1)
Colias harfordii (Harford's Sulphur)	
Nathalis iole (Dainty Sulphur)	
Papilionidae (Swallowtails)	
Papilio polyxenes (Desert Black Swallowtail)	
Papilio eurymedon (Pale swallowtail)	
Papilio rutulus(Western Tiger Swallowtail)	
Riodiniade (Metalmarks)	
Apodemia mormo (Behr's Metalmark)	#7 ||||
Lycaenidae (Hairstreaks and Blues)	
Celastrina ladon (Spring Azure)	
Leptotes marina (Marine Blue)	
Brephidium exile (Western Pygmy Blue)	
Glaucopsyche lygdamus (Southern Blue/Silvery blue)	
Hemiargus ceraunus (Edward's Blue)	
Icaria acmon (Acmon Blue)	#7 |||| ||
Philotes sonorensis (Sonoran Blue)	
Callophrys augustinus (Brown Elfin)	
Callophrys perplexa (Perplexing Green Hairstreak)	
Strymon melinus (Gray Hairstreak)	
...des halesus (Great Purple Hairstreak)	
...ane-spotted Blue → *Euphilotes battoides* (bernardino)	#1 |||| 4

Hesperiidae (Skippers)	Total
Erynnis funeralis (Funereal Duskywing)	
Erynnis tristis (Sad Duskywing)	#7
Erynnis propertius (Propertius Duskywing)	1 0
Erynnis brizo (Sleepy Duskeywing)	
Pyrgus albescens (Checkered Skipper)	
Hesperia jubia (Jubia Skipper)	#7 #1
Polites sabuleti (Sandhill Skipper)	|||| (1) || 2
Megathymidae (Giant Skippers)	
Megathymus yuccae (Yucca Giant Skipper)	
Other Butterflies:	

...itial Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...ctions:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

PLEASE RECORD HOST PLANTS ON GPS See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

X	*Amsinckia menziesii*	Rancher's Fiddleneck
o	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
o	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
o	*Asclepias fascicularis*	Narrow-leaf Milkweed
X	*Boechera sp.*	Rock Cress
o	*Calandrinia ciliata*	Red Maids
o	*Calochortus concolor*	Golden-bowl Mariposa Lily
o	*Calystegia longipes*	Morning-glory
X	*Camissonia sp.*	Sun Cup
o	***Castilleja exerta***	**Paintbrush**
o	*Caulanthus heterophyllus*	San Diego Jewelflower
o	*Caulanthus simulans*	Payson's Caulanthus
o	*Ceanothus cuneatus*	Buck Brush
X	*Ceanothus greggii*	Cup-leaf-lilac
o	*Ceanothus leucodermis*	Chaparral Whitethorn
o	*Chaenactis artemisiifolia*	White Pincushion
X	*Chaenactis glabriuscula*	Yellow Pincushion
o	*Clematis sp.*	Clematis
o	***Collinsia concolor***	**Southern Chinese Houses**
o	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
o	*Coreopsis californica*	California Coreopsis
o	*Corethrogyne filaginifolia*	Common Sand-aster
X	*Cryptantha sp.*	Cryptantha
o	*Cucurbita foetidissima*	Calabazilla
X	*Descurainia sp.*	Tansy-mustard
o	*Dicentra chrysantha*	Golden Ear-drops
X	*Dichelostemma capitatum*	Blue Dicks
o	*Dudleya sp.*	Dudleya
o	*Emmenanthe pendulifera*	Whispering Bells
o	*Eriastrum sp.*	Woolly-star
o	*Ericameria sp.*	Goldenbush
o	*Erigeron foliosus*	Leafy Daisy
o	*Eriodictyon trichocalyx*	Hairy Yerba Santa
o	*Eriogonum fasciculatum*	Inland California Buckwheat
o	*Eriogonum sp.*	Buckwheat
X	*Eriophyllum sp.*	Golden-yarrow
X	*Erodium cicutarium**	Red-stem Storksbill
o	*Erysismum capitatum*	Western Wallflower
X	*Eschscholzia californica*	California Poppy
o	*Eucrypta chrysanthemifolia*	Spotted Hideseed
o	*Euthamia occidentalis*	Western Goldenrod
o	*Garrya veatchii*	Canyon Silk Tassel
o	*Gilia sp.*	Gilia
o	*Gnaphalium*	Cudweed
o	*Guillenia lasiophylla*	California Mustard
o	*Gutierrezia sarothrae*	Broom Matchweed
o	*Heliotropium curassavicum*	Salt Heliotrope
X	*Hirshfeldia incana*	Short-pod Mustard
o	*Lamium amplexicaule*	Henbit
X	*Lasthenia gracilis*	Common Goldfields
o	*Layia glandulosa*	White Layia
o	*Lepidium sp.*	Pepperweed
X	*Linanthus bellus*	Desert Beauty
o	*Linanthus dichotomus*	Evening Snow
o	*Lonicera subspicata*	Johnston's Honeysuckle
o	*Malacothrix californica*	California Dandelion
o	*Malacothrix clevelandii*	Cleveland's Malacothrix
o	*Marah macrocarpus*	Wild-cucumber
o	*Marrubium vulgare**	Horehound
o	*Matricaria matricarioides**	Common Pineapple-weed
o	*Mentzelia veatchiana*	Veatch's Stick-leak
o	*Microsteris gracilis*	Slender Phlox
o	*Mimulus sp.*	Monkeyflower
o	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
o	*Orobanche bulbosa*	Chaparral Broom-rape
o	*Osmadenia tenella*	Osmadenia
o	*Paeonia californica*	California Peony
X	*Pectocarya sp.*	Pectocarya
X	*Phacelia sp.*	Phacelia
o	*Pholistoma membranaceum*	White Fiesta Flower
X	*Plagiobothrys sp.*	Popcornflower
o	***Plantago patagonica***	**Desert Plantain**
o	*Platystemon californicus*	Cream Cups
o	*Prunus ilicifolia*	Holly-leaf Cherry
o	*Rafinesquia neomexicana*	Desert Chicory
o	*Ribes quercetorum*	Oak Gooseberry
o	*Rorripa nasturtium-aquaticum*	Water-cress
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o	*Saltugilia australis*	Southern Gilia
o	*Senecio californicus*	California Butterweed
o	*Senecio flaccidus*	Butterweed
o	*Sidalcea malvaeflora*	Checker-bloom
X	*Sisymbrium sp.*	Tumble Mustard
o	*Solidago californica*	California Goldenrod
o	*Stachys ajugoides*	Hedge-nettle
o	*Stephanomeria sp.*	Wreathplant
o	*Streptanthus campestris*	Southern Jewelflower
o	*Stylocline gnaphalioides*	Everlasting Nest-straw
o	*Tetradymia comosa*	Cotton-thorn
X	*Thysanocarpus sp.*	Fringepod
o	*Trichostemma parishii*	Mountain Bluecurls
o	*Tropidocarpum gracile*	Slender Dobie-pod
X	*Uropappus lindleyi*	Silver Puffs
o	*Viola purpurea*	Oak Yellow Violet

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o

o **Other Flowering Plants:**

o Vegetative Brachia actoni

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o Rhus ovata

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o **Rare Wildlife or Rare Plants:**

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Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

149222 mi on car

Recorder: KH Osborne Add'l Person: Bonnie Bonham Date: 5/3/2011 GPS Unit: 2

Project: Concentrix Solar Project Map #: 2 Survey Sxn: 2 QCB Protocol Survey # 6 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	1126	78	4/8	0	~~clear~~ patchy overcast drizzle shower
					clear patchy overcast drizzle shower
	1245	75	5/8	0	~~clear~~ patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End	1410	74	Calm	0	~~clear~~ patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing) //	2
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper) /	1
Junonia coenia (Common Buckeye) ///	3	*Polites sabuleti* (Sandhill Skipper) ///	3
Vanessa annabella (West Coast Lady)		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)		Moths	
Coenonympha californica (Common California Ringlet)		*Brastelia ochraceae*	1
Pieridae (Whites, Sulphurs)		*Schinia sanguinea*	2
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip) /	1		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur) ////	4		
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur) //	2		
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark) //V//XXV	43		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue) //	2		
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue) HT/III	8		
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			
Plebejus lupini /	1		
Evrys amyntula ///	3		

...ential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...uctions:

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Castilleja exerta	**Paintbrush**
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Dicentra chrysantha	Golden Ear-drops
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Dudleya sp.	Dudleya
Emmenanthe pendulifera	Whispering Bells
Eriastrum sp.	Woolly-star
Ericameria sp.	Goldenbush
Erigeron foliosus	Leafy Daisy
Eriodictyon trichocalyx	Hairy Yerba Santa
Eriogonum fasciculatum	Inland California Buckwheat
Eriogonum sp.	Buckwheat
Eriophyllum sp.	Golden-yarrow
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Erysimum capitatum	Western Wallflower
Eschscholzia californica	California Poppy
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Garrya veatchii	Canyon Silk Tassel
Gilia sp.	Gilia
Gnaphalium	Cudweed
Guillenia lasiophylla	California Mustard
Gutierrezia sarothrae	Broom Matchweed
Heliotropium curassavicum	Salt Heliotrope
Hirshfeldia incana	Short-pod Mustard
Lamium amplexicaule	Henbit
Lasthenia gracilis	Common Goldfields
Layia glandulosa	White Layia
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Linanthus dichotomus	Evening Snow
Lonicera subspicata	Johnston's Honeysuckle
Malacothrix californica	California Dandelion
Malacothrix clevelandii	Cleveland's Malacothrix
Marah macrocarpus	Wild-cucumber
*Marrubium vulgare**	Horehound
*Matricaria matricarioides**	Common Pineapple-weed
Mentzelia veatchiana	Veatch's Stick-leak
Microsteris gracilis	Slender Phlox
Mimulus sp.	Monkeyflower
Nemophila menzeisii	Small-flower Baby Blue Eyes
Orobanche bulbosa	Chaparral Broom-rape
Osmadenia tenella	Osmadenia
Paeonia californica	California Peony
Pectocarya sp.	Pectocarya
Phacelia sp.	Phacelia
Pholistoma membranaceum	White Fiesta Flower
Plagiobothrys sp.	Popcornflower
Plantago patagonica	**Desert Plantain**
Platystemon californicus	Cream Cups
Prunus ilicifolia	Holly-leaf Cherry
Rafinesquia neomexicana	Desert Chicory
Ribes quercetorum	Oak Gooseberry
Rorripa nasturtium-aquaticum	Water-cress
Rosa californica	California Rose
Saltugilia australis	Southern Gilia
Senecio californicus	California Butterweed
Senecio flaccidus	Butterweed
Sidalcea malvaeflora	Checker-bloom
Sisymbrium sp.	Tumble Mustard
Solidago californica	California Goldenrod
Stachys ajugoides	Hedge-nettle
Stephanomeria sp.	Wreathplant
Streptanthus campestris	Southern Jewelflower
Stylocline gnaphalioides	Everlasting Nest-straw
Tetradymia comosa	Cotton-thorn
Thysanocarpus sp.	Fringepod
Trichostemma parishii	Mountain Bluecurls
Tropidocarpum gracile	Slender Dobie-pod
Uropappus lindleyi	Silver Puffs
Viola purpurea	Oak Yellow Violet

Other Flowering Plants:

Rare Wildlife or Rare Plants:

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Erin Bergman Add'l Person: Margie site 1 Date: 5/3/11 GPS Unit :

Project: Concentrix Solar Project Map #: Survey Sxn: QCB Protocol Survey # of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
End				clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Area 6	Area 1	Total
Nymphalidae (Brushfooted Butterflies)			
Euphydryas editha (Quino Checkerspot)			
Euphydryas chalcedona (Henne's Checkerspot)			
Thessalia leanira (Wright's Checkerspot)			
Chlosyne californica (California Patch)			
Chlosyne gabbii (Gabb's Checkerspot)			
Phyciodes mylitta (Mylitta Crescent)			
Junonia coenia (Common Buckeye)	~~IIII~~ ~~IIII~~ IIII	III	17
Vanessa annabella (West Coast Lady)			
Vanessa atalanta (Red Admiral)			
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)			
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)			
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur)	I	IIII	6
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)			
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	~~IIII~~ I	~~IIII~~ ~~IIII~~ ~~IIII~~ III	24
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)	I	IIII	5
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
melinus (Gray Hairstreak)			
alesus (Great Purple Hairstreak)			

	Area 6	Area 1	Total
Hesperiidae (Skippers)			
Erynnis funeralis (Funereal Duskywing)			
Erynnis tristis (Sad Duskywing)			
Erynnis propertius (Propertius Duskywing)		I	1
Erynnis brizo (Sleepy Duskeywing)			
Pyrgus albescens (Checkered Skipper)			
Hesperia jubia (Jubia Skipper)		I	1
Polites sabuleti (Sandhill Skipper)	II	I	3
Megathymidae (Giant Skippers)			
Megathymus yuccae (Yucca Giant Skipper)			
Other Butterflies:			
Square spotted blues, Euphilotes bettoides Bernardino.		IIII	4
Notes:			

...ential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix S

...ructions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

X	*Amsinckia menziesii*	Rancher's Fiddleneck
o	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
o	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
o	*Asclepias fascicularis*	Narrow-leaf Milkweed
X	*Boechera sp.*	Rock Cress
o	*Calandrinia ciliata*	Red Maids
o	*Calochortus concolor*	Golden-bowl Mariposa Lily
o	*Calystegia longipes*	Morning-glory
o	*Camissonia sp.*	Sun Cup
o	***Castilleja exerta***	**Paintbrush**
o	*Caulanthus heterophyllus*	San Diego Jewelflower
o	*Caulanthus simulans*	Payson's Caulanthus
o	*Ceanothus cuneatus*	Buck Brush
X	*Ceanothus greggii*	Cup-leaf-lilac
o	*Ceanothus leucodermis*	Chaparral Whitethorn
o	*Chaenactis artemisiifolia*	White Pincushion
X	*Chaenactis glabriuscula*	Yellow Pincushion
X	*Clematis sp.*	Clematis
X	***Collinsia concolor***	**Southern Chinese Houses**
o	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
X	*Coreopsis californica*	California Coreopsis
o	*Corethrogyne filaginifolia*	Common Sand-aster
X	*Cryptantha sp.*	Cryptantha
o	*Cucurbita foetidissima*	Calabazilla
X	*Descurainia sp.*	Tansy-mustard
o	*Dicentra chrysantha*	Golden Ear-drops
X	*Dichelostemma capitatum*	Blue Dicks
X	*Dudleya* sp.	Dudleya
X	*Emmenanthe pendulifera*	Whispering Bells
o	*Eriastrum* sp.	Woolly-star
X	*Ericameria* sp.	Goldenbush
o	*Erigeron foliosus*	Leafy Daisy
X	*Eriodictyon trichocalyx*	Hairy Yerba Santa
X	*Eriogonum fasciculatum*	Inland California Buckwheat
X	*Eriogonum* sp.	Buckwheat
X	*Eriophyllum* sp.	Golden-yarrow
X	*Erodium cicutarium**	Red-stem Storksbill
o	*Erysismum capitatum*	Western Wallflower
X	*Eschscholzia californica*	California Poppy
o	*Eucrypta chrysanthemifolia*	Spotted Hideseed
o	*Euthamia occidentalis*	Western Goldenrod
X	*Garrya veatchii*	Canyon Silk Tassel
X	*Gilia sp.*	Gilia
X	*Gnaphalium*	Cudweed
o	*Guillenia lasiophylla*	California Mustard
X	*Gutierrezia ~~sarothrae~~*	Broom Matchweed
o	*Heliotropium curassavicum*	Salt Heliotrope
X	*Hirshfeldia incana*	Short-pod Mustard
o	*Lamium amplexicaule*	Henbit
X	*Lasthenia gracilis*	Common Goldfields
X	*Layia glandulosa*	White Layia
o	*Lepidium* sp.	Pepperweed
X	*Linanthus bellus*	Desert Beauty
o	*Linanthus dichotomus*	Evening Snow
X	*Lonicera subspicata*	Johnston's Honeysuckle
o	*Malacothrix californica*	California Dandelion
o	*Malacothrix clevelandii*	Cleveland's Malacothrix
o	*Marah macrocarpus*	Wild-cucumber
X	*Marrubium vulgare**	Horehound
o	*Matricaria matricarioides**	Common Pineapple-weed
	...tzelia veatchiana	Veatch's Stick-leak
	...steris gracilis	Slender Phlox
	...s sp.	Monkeyflower
	...hila menzeisii	Small-flower Baby Blue Eyes
	...he bulbosa	Chaparral Broom-rape

o	*Osmadenia tenella*	Osmadenia
o	*Paeonia californica*	California Peony
X	*Pectocarya* sp.	Pectocarya
X	*Phacelia* sp. Distans	Phacelia
o	*Pholistoma membranaceum*	White Fiesta Flower
X	*Plagiobothrys* sp.	Popcornflower
o	***Plantago patagonica***	**Desert Plantain**
o	*Platystemon californicus*	Cream Cups
o	*Prunus ilicifolia*	Holly-leaf Cherry
o	*Rafinesquia neomexicana*	Desert Chicory
X	*Ribes quercetorum*	Oak Gooseberry
o	*Rorripa nasturtium-aquaticum*	Water-cress
o	*Rosa californica*	California Rose
o	*Saltugilia australis*	Southern Gilia
X	*Senecio californicus*	California Butterweed
o	*Senecio flaccidus*	Butterweed
o	*Sidalcea malvaeflora*	Checker-bloom
X	*Sisymbrium* sp.	Tumble Mustard
X	*Solidago californica*	California Goldenrod
o	*Stachys ajugoides*	Hedge-nettle
o	*Stephanomeria* sp.	Wreathplant
o	*Streptanthus campestris*	Southern Jewelflower
X	*Stylocline gnaphalioides*	Everlasting Nest-straw
o	*Tetradymia comosa*	Cotton-thorn
o	*Thysanocarpus* sp.	Fringepod
X	*Trichostemma parishii*	Mountain Bluecurls
o	*Tropidocarpum gracile*	Slender Dobie-pod
o	*Uropappus lindleyi*	Silver Puffs
o	*Viola purpurea*	Oak Yellow Violet
o		
o		
o	**Other Flowering Plants:**	
o		
o		
o		
o		
o		
o		
o		
o	**Rare Wildlife or Rare Plants:**	
o		
o	EBad01A1 SB1602B2	
o	EBad02A2 BB	
o		
o	EBad03A1	
o		
o	EBad04A1	
o		
o	EBbg01	
o		
o	EBCC01A1	
o		
o	EBCC02B5	
o		
o	EBdp01A1	
o		
o	EBdp02B15	
o		
o	EBdp03A1	
o		
o	EBgr01A1	
o		
o	EBlb01A1	

149277 w/ @ end of day

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Ken Osborne Add'l Person: — Date: 5/4/2011 GPS Unit: 3

Project: Concentrix Solar Project Map #: 3 Survey Sxn: 3 QCB Protocol Survey # 6 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	1140	88	4/6	0	(clear) patchy overcast drizzle shower
	1310				clear patchy overcast drizzle shower
	120				clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End	350	90	calm		(clear) patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing) I	1
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper) III	3
Junonia coenia (Common Buckeye) III	3	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady)		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)		Moths	
Danaus gilippus (Queen)			
Satyridae (Satyrs)		(Ludiosoma fulva I	1
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White) II	2		
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur) II	2		
Colias harfordii (Harford's Sulphur) IIII II	7		
Nathalis iole (Dainty Sulphur) IIII	4		
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark) XXX	30		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)		KOCCOI = 50 plants in one M	
Hemiargus ceraunus (Edward's Blue)		KOTWL = tiger whiptail lizard	
Icaria acmon (Acmon Blue) II	2		
Philotes sonorensis (Sonoran Blue)		KOCCOI = 20 plants in one Meter	
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			
Eveiys amyntula III	3		

Potential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

Instructions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

○	*Amsinckia menziesii*	Rancher's Fiddleneck
○	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
○	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
○	*Asclepias fascicularis*	Narrow-leaf Milkweed
○	*Boechera sp.*	Rock Cress
○	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
○	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
✓	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
○	*Coreopsis californica*	California Coreopsis
○	*Corethrogyne filaginifolia*	Common Sand-aster
○	*Cryptantha sp.*	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
○	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
○	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya sp.*	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
○	*Eriastrum sp.*	Woolly-star
○	*Ericameria sp.*	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum sp.*	Buckwheat
○	*Eriophyllum sp.*	Golden-yarrow
○	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysismum capitatum*	Western Wallflower
○	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
○	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
✓	*Lasthenia gracilis*	Common Goldfields
✓	*Layia glandulosa*	White Layia
○	*Lepidium sp.*	Pepperweed
○	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
○	*Malacothrix californica*	California Dandelion
○	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus sp.*	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya sp.*	Pectocarya
✓	*Phacelia sp.*	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
○	*Plagiobothrys sp.*	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
○	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
○	*Sisymbrium sp.*	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria sp.*	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
○	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus sp.*	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
○		
○		
○	**Other Flowering Plants:**	
○		
○		
○		
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○	**Rare Wildlife or Rare Plants:**	
○		
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○

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Erin Bergman Add'l Person: _____ Date: 5/4/11 GPS Unit : 12

Project: Concentrix Solar Project Map #: _____ Survey Sxn: _____ QCB Protocol Survey # _____ of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start 12:00	85			(clear) patchy overcast drizzle shower
				(clear) patchy overcast drizzle shower
				(clear) patchy overcast drizzle shower
				(clear) patchy overcast drizzle shower
				(clear) patchy overcast drizzle shower
	94°			(clear) patchy overcast drizzle shower
End 4:30				(clear) patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)	1	*Polites sabuleti* (Sandhill Skipper)	1
Vanessa annabella (West Coast Lady)		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)		Western tailed blue IIII	6
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)		Sqwar spotted blue I	1
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White) ///	4		
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur) | |	2		
Colias harfordii (Harford's Sulphur) \	1		
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark) IIII IIII IIII IIII IIII	24		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue) IIII \	6		
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

...l Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...ns:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

PLEASE RECORD HOST PLANTS ON GPS See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

○	*Amsinckia menziesii*	Rancher's Fiddleneck
○	***Antirrhinum coulterianum***	**Coulter's Snapdragon**
○	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
○	*Asclepias fascicularis*	Narrow-leaf Milkweed
○	*Boechera sp.*	Rock Cress
○	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
○	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
○	*Coreopsis californica*	California Coreopsis
○	*Corethrogyne filaginifolia*	Common Sand-aster
○	*Cryptantha sp.*	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
○	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
○	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya sp.*	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
○	*Eriastrum sp.*	Woolly-star
○	*Ericameria sp.*	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum sp.*	Buckwheat
○	*Eriophyllum sp.*	Golden-yarrow
○	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysismum capitatum*	Western Wallflower
○	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
○	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
○	*Lasthenia gracilis*	Common Goldfields a b+ done
○	*Layia glandulosa*	White Layia
○	*Lepidium sp.*	Pepperweed
○	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
○	*Malacothrix californica*	California Dandelion
○	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus sp.*	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya sp.*	Pectocarya
○	*Phacelia sp.*	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
○	*Plagiobothrys sp.*	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
○	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
○	*Sisymbrium sp.*	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria sp.*	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
○	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus sp.*	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
○		
○		
○	**Other Flowering Plants:**	
○		
○		
○		
○		
○		
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○		
○	**Rare Wildlife or Rare Plants:**	
○		
○		
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○

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 5.5.11 GPS Unit: 3

Project: Concentrix Solar Project Map #: 4 Survey Sxn: _____ QCB Protocol Survey # 6 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	0930	82°	2-6	5	clear patchy overcast drizzle shower
	1200	89°	2-4	5	clear patchy overcast drizzle shower
	1500	91°	0-2	0	clear patchy overcast drizzle shower
	1600	88°	2-6	0	clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End					clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	1 (1)
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye)	IIII (6)	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady)		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)	I (1)		
Pontia protodice (Common White)	IIII (4)		
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur)	III (3)		
Colias harfordii (Harford's Sulphur)	II (2)		
Nathalis iole (Dainty Sulphur)	II (2)		
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)	I (1)		
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	IIII IIII IIII IIII IIII IIII IIII IIII III (48)		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)	II (2)		
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)	II (2)		
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			
Western-tailed Blue	IIII (4)		
Square-spotted Blue	II (2)		

...dial Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...ons:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

PLEASE RECORD HOST PLANTS ON GPS See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

✗	*Amsinckia menziesii*	Rancher's Fiddleneck
○	***Antirrhinum coulterianum***	**Coulter's Snapdragon**
○	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
○	*Asclepias fascicularis*	Narrow-leaf Milkweed
✗	*Boechera sp.*	Rock Cress
○	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
✗	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
✗	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
✗	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
✗	*Coreopsis californica*	California Coreopsis
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✗	*Cryptantha sp.*	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
✗	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
✗	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya sp.*	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
○	*Eriastrum sp.*	Woolly-star
✗	*Ericameria sp.*	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum sp.*	Buckwheat
✗	*Eriophyllum sp.*	Golden-yarrow
✗	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysismum capitatum*	Western Wallflower
✗	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
✗	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
✗	*Lasthenia gracilis*	Common Goldfields
✗	*Layia glandulosa*	White Layia
○	*Lepidium sp.*	Pepperweed
✗	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
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○	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus sp.*	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
✗	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
✗	*Pectocarya sp.*	Pectocarya
✗	*Phacelia sp.*	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
✗	*Plagiobothrys sp.*	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
✗	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
✗	*Sisymbrium sp.*	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria sp.*	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
○	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus sp.*	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
✗	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
○		
○	**Other Flowering Plants:**	
○	Gilia dregans is	
○		
○		
○		
○		
○		
○	**Rare Wildlife or Rare Plants:**	
•	Astragalus douglasii perstrictus	
○	MMAD01-05	
○		
•	Cordylanthus rigidus	
○	MMCR01-05	
○		
•	Delphinium parishii subglobosum	
○	MMDP01-16	
○		
•	Linanthus bellus	
○	MMLB01-03	
○		
•	Lathyrus splendens	
○	MMLS01-03	
○		
•	Nest egg unknown 1½ inch white on ground	
○		

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Bonnie Hendricks Add'l Person: Erin Bergman Date: 5/5/11 GPS Unit: 13

Project: Concentrix Solar Project Map #: 4.5 Survey Sxn: ~~Middle~~ NWing QCB Protocol Survey # 6 of 5

outside EDGE

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% cc	Sky
Start	9:45	82.0	1.9/3.7	0	(clear) patchy overcast drizzle shower
	10:45	85.0	2.3/5.1	0	(clear) patchy overcast drizzle shower
	11:45	88.5	4.6/7.4	0	(clear) patchy overcast drizzle shower
	1:00	90.5	3.0/5.6	0	(clear) patchy overcast drizzle shower
	2:00	90.7	2.2/4.6	0	(clear) patchy overcast drizzle shower
	3:00	89.0	1.3/2.1	0	(clear) patchy overcast drizzle shower
End	4:00	87.5	5.6/9.6	0	(clear) patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources, Host Plants!

	Area 4	Area 5	Area 2	Total
Nymphalidae (Brushfooted Butterflies)				
Euphydryas editha (Quino Checkerspot)				
Euphydryas chalcedona (Henne's Checkerspot)				
Thessalia leanira (Wright's Checkerspot)				
Chlosyne californica (California Patch)				
Chlosyne gabbii (Gabb's Checkerspot)				
Phyciodes mylitta (Mylitta Crescent)				
Junonia coenia (Common Buckeye)	II	I		3
Vanessa annabella (West Coast Lady)				
Vanessa atalanta (Red Admiral)	I			1
Vanessa cardui (Painted Lady)				
Vanessa virginiensis (Virginia Lady)				
Nymphalis californica (California Tortoiseshell)				
Danaidae (Milkweed Butterflies)				
Danaus plexippus (Monarch)	I			1
Danaus gilippus (Queen)				
Satyridae (Satyrs)				
Coenonympha californica (Common California Ringlet)				
Pieridae (Whites, Sulphurs)				
Pieris rapae (Cabbage White)				
Pontia sisymbrii (Spring White)				
Pontia beckerii (Beker's White)				
Pontia protodice (Common White)	I	IIII IIII	I	12
Anthocharis sara (Sara Orangetip)				
Anthocharis cethura (Felder's Orangetip)				
Euchloe hyantis (Desert Pearly Marble)				
Colias eurytheme (Orange Sulphur)	III			3
Colias harfordii (Harford's Sulphur)	I	IIII		9
Nathalis iole (Dainty Sulphur)		I		1
Papilionidae (Swallowtails)				
Papilio polyxenes (Desert Black Swallowtail)				
Papilio eurymedon (Pale swallowtail)				
Papilio rutulus(Western Tiger Swallowtail)				
Riodiniade (Metalmarks)				
Apodemia mormo (Behr's Metalmark)	VVXV	IIIIV IIIIV IIII		50
Lycaenidae (Hairstreaks and Blues)				
Celastrina ladon (Spring Azure)				
Leptotes marina (Marine Blue)				
Brephidium exile (Western Pygmy Blue)				
Glaucopsyche lygdamus (Southern Blue/Silvery blue)				
Hemiargus ceraunus (Edward's Blue)				
Icaria acmon (Acmon Blue)	I	IIII		5
Philotes sonorensis (Sonoran Blue)				
Callophrys augustinus (Brown Elfin)				
Callophrys perplexa (Perplexing Green Hairstreak)				
Strymon melinus (Gray Hairstreak)				
Atlides halesus (Great Purple Hairstreak)				

	Area 4	Area 5	Area 2	Total
Hesperiidae (Skippers)				
Erynnis funeralis (Funereal Duskywing)				
Erynnis tristis (Sad Duskywing)				
Erynnis propertius (Propertius Duskywing)	I			1
Erynnis brizo (Sleepy Duskeywing)	I	I		2
Pyrgus albescens (Checkered Skipper)			I	1
Hesperia jubia (Jubia Skipper)				
Polites sabuleti (Sandhill Skipper)	I	I		2
Megathymidae (Giant Skippers)				
Megathymus yuccae (Yucca Giant Skipper)				
Other Butterflies:				
Western Tailed blue	I	IIII		6

Notes:

...tial Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...ons:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

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Caulanthus simulans	Payson's Caulanthus
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Ceanothus leucodermis	Chaparral Whitethorn
Chaenactis artemisiifolia	White Pincushion
Chaenactis glabriuscula	Yellow Pincushion
Clematis sp.	Clematis
Collinsia concolor	**Southern Chinese Houses**
Cordylanthus rigidus	**Dark-tip Bird's Beak**
Coreopsis californica	California Coreopsis
Corethrogyne filaginifolia	Common Sand-aster
Cryptantha sp.	Cryptantha
Cucurbita foetidissima	Calabazilla
Descurainia sp.	Tansy-mustard
Dicentra chrysantha	Golden Ear-drops
Dichelostemma capitatum	Blue Dicks
Dudleya sp.	Dudleya
Emmenanthe pendulifera	Whispering Bells
Eriastrum sp.	Woolly-star
Ericameria sp.	Goldenbush
Erigeron foliosus	Leafy Daisy
Eriodictyon trichocalyx	Hairy Yerba Santa
Eriogonum fasciculatum	Inland California Buckwheat
Eriogonum sp.	Buckwheat
Eriophyllum sp.	Golden-yarrow
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Garrya veatchii	Canyon Silk Tassel
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Guillenia lasiophylla	California Mustard
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Pectocarya sp.	Pectocarya
Phacelia sp.	Phacelia
Pholistoma membranaceum	White Fiesta Flower
Plagiobothrys sp.	Popcornflower
Plantago patagonica	**Desert Plantain**
Platystemon californicus	Cream Cups
Prunus ilicifolia	Holly-leaf Cherry
Rafinesquia neomexicana	Desert Chicory
Ribes quercetorum	Oak Gooseberry
Rorripa nasturtium-aquaticum	Water-cress
Rosa californica	California Rose
Saltugilia australis	Southern Gilia
Senecio californicus	California Butterweed
Senecio flaccidus	Butterweed
Sidalcea malvaeflora	Checker-bloom
Sisymbrium sp.	Tumble Mustard
Solidago californica	California Goldenrod
Stachys ajugoides	Hedge-nettle
Stephanomeria sp.	Wreathplant
Streptanthus campestris	Southern Jewelflower
Stylocline gnaphalioides	Everlasting Nest-straw
Tetradymia comosa	Cotton-thorn
Thysanocarpus sp.	Fringepod
Trichostemma parishii	Mountain Bluecurls
Tropidocarpum gracile	Slender Dobie-pod
Uropappus lindleyi	Silver Puffs
Viola purpurea	Oak Yellow Violet

Other Flowering Plants:

Rare Wildlife or Rare Plants:

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: K. H Osborne Add'l Person: — Date: 5/5/2011 GPS Unit: 2

Project: Concentrix Solar Project Map #: 3, 4 Survey Sxn: 3, 4 QCB Protocol Survey # 6 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start 930	85	2/4	0	(clear) patchy overcast drizzle shower
1100	90	calm	0	(clear) patchy overcast drizzle shower
115	87	1/2	0	(clear) patchy overcast drizzle shower
245	85	3.3/5.5	0	(clear) patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
End 400	85	3/5	0	(clear) patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

			Total
Nymphalidae (Brushfooted Butterflies)			
Euphydryas editha (Quino Checkerspot)			
Euphydryas chalcedona (Henne's Checkerspot)	1	1	1/1
Thessalia leanira (Wright's Checkerspot)			
Chlosyne californica (California Patch)			
Chlosyne gabbii (Gabb's Checkerspot)	1	1	
Phyciodes mylitta (Mylitta Crescent)			
Junonia coenia (Common Buckeye)	IIII	III	5/3
Vanessa annabella (West Coast Lady)			
Vanessa atalanta (Red Admiral)			
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)			
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)			
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White)	1	IIII I	1/7
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur)	II		2
Colias harfordii (Harford's Sulphur)	IIIII IV	IIII	11/5
Nathalis iole (Dainty Sulphur)	1	II	1/2
Papilionidae (Swallowtails)			
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	IIII II IX	I XXXIX	19/41
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)	II	1	2/1
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			
Erynnis amintula	IIII II	1	3/1

			Total
Hesperiidae (Skippers)			
Erynnis funeralis (Funereal Duskywing)			
Erynnis tristis (Sad Duskywing)			
Erynnis propertius (Propertius Duskywing)			
Erynnis brizo (Sleepy Duskeywing)			
Pyrgus albescens (Checkered Skipper)			
Hesperia juba (Juba Skipper)		X1	1/11
Polites sabuleti (Sandhill Skipper)			
Megathymidae (Giant Skippers)			
Megathymus yuccae (Yucca Giant Skipper)			
Other Butterflies:			
Heliopetes ericetorum	1	1	1/1
Phiosura catallina		II	1/2

Notes:

GPS unit + watch interrupted by low battery.

otential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

structions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

○	*Amsinckia menziesii*	Rancher's Fiddleneck
○	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
○	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
○	*Asclepias fascicularis*	Narrow-leaf Milkweed
○	*Boechera sp.*	Rock Cress
○	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
○	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
○	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
○	*Coreopsis californica*	California Coreopsis
○	*Corethrogyne filaginifolia*	Common Sand-aster
✓	*Cryptantha sp.*	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
○	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
✓	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya sp.*	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
○	*Eriastrum sp.*	Woolly-star
✓	*Ericameria sp.*	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
✓	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum sp.*	Buckwheat
○	*Eriophyllum sp.*	Golden-yarrow
✓	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysismum capitatum*	Western Wallflower
○	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
○	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
✓	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
✓	*Lasthenia gracilis*	Common Goldfields
○	*Layia glandulosa*	White Layia
○	*Lepidium sp.*	Pepperweed
✓	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
✓	*Malacothrix californica*	California Dandelion
✓	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus sp.*	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape
○	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya sp.*	Pectocarya
✓	*Phacelia sp.*	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
○	*Plagiobothrys sp.*	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Ratinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
○	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
○	*Sisymbrium sp.*	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria sp.*	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
○	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus sp.*	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet
○		
○		
○	**Other Flowering Plants:**	
✓	Astragalus	
✓	Rhus ovata	
○		
○		
○		
○		
○		
○		
○	**Rare Wildlife or Rare Plants:**	
○		
○		
○		
○		
○		
○		
○

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Erin B Add'l Person: _____ Date: 5/6 GPS Unit: 10

Project: Concentrix Solar Project Map #: 4, 2, 5 Survey Sxn: _____ QCB Protocol Survey # _____ of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	9:50	83		0	clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End	4:00	90		0	clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing) I	1
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper) I	1
Junonia coenia (Common Buckeye) HHT III	8	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady)		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)			
Danaidae (Milkweed Butterflies)		Square spotted blue I	1
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)		Western tailed blue II	2
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White) HHT HHT III	14		
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur) HHT HHT	10		
Colias harfordii (Harford's Sulphur) HHT HHT HHT I	16		
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark) HHT HHT HHT HHT I	21		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue) HHT I	6		
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

...ial Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...ctions:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

PLEASE RECORD HOST PLANTS ON GPS See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

Amsinckia menziesii	Rancher's Fiddleneck
Antirrhinum coulterianum	**Coulter's Snapdragon**
Antirrhinum nuttallianum	Nuttall's Snapdragon
Asclepias fascicularis	Narrow-leaf Milkweed
Boechera sp.	Rock Cress
Calandrinia ciliata	Red Maids
Calochortus concolor	Golden-bowl Mariposa Lily
Calystegia longipes	Morning-glory
Camissonia sp.	Sun Cup
Castilleja exerta	**Paintbrush**
Caulanthus heterophyllus	San Diego Jewelflower
Caulanthus simulans	Payson's Caulanthus
Ceanothus cuneatus	Buck Brush
Ceanothus greggii	Cup-leaf-lilac
Ceanothus leucodermis	Chaparral Whitethorn
Chaenactis artemisiifolia	White Pincushion
Chaenactis glabriuscula	Yellow Pincushion
Clematis sp.	Clematis
Collinsia concolor	**Southern Chinese Houses**
Cordylanthus rigidus	**Dark-tip Bird's Beak**
Coreopsis californica	California Coreopsis
Corethrogyne filaginifolia	Common Sand-aster
Cryptantha sp.	Cryptantha
Cucurbita foetidissima	Calabazilla
Descurainia sp.	Tansy-mustard
Dicentra chrysantha	Golden Ear-drops
Dichelostemma capitatum	Blue Dicks
Dudleya sp.	Dudleya
Emmenanthe pendulifera	Whispering Bells
Eriastrum sp.	Woolly-star
Ericameria sp.	Goldenbush
Erigeron foliosus	Leafy Daisy
Eriodictyon trichocalyx	Hairy Yerba Santa
Eriogonum fasciculatum	Inland California Buckwheat
Eriogonum sp.	Buckwheat
Eriophyllum sp.	Golden-yarrow
*Erodium cicutarium**	Red-stem Storksbill
Erysimum capitatum	Western Wallflower
Eschscholzia californica	California Poppy
Eucrypta chrysanthemifolia	Spotted Hideseed
Euthamia occidentalis	Western Goldenrod
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Gilia sp.	Gilia
Gnaphalium	Cudweed
Guillenia lasiophylla	California Mustard
Gutierrezia sarothrae	Broom Matchweed
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Lamium amplexicaule	Henbit
Lasthenia gracilis	Common Goldfields
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Lepidium sp.	Pepperweed
Linanthus bellus	Desert Beauty
Linanthus dichotomus	Evening Snow
Lonicera subspicata	Johnston's Honeysuckle
Malacothrix californica	California Dandelion
Malacothrix clevelandii	Cleveland's Malacothrix
Marah macrocarpus	Wild-cucumber
*Marrubium vulgare**	Horehound
*Matricaria matricarioides**	Common Pineapple-weed
Mentzelia veatchiana	Veatch's Stick-leak
Microsteris gracilis	Slender Phlox
Mimulus sp.	Monkeyflower
Nemophila menzeisii	Small-flower Baby Blue Eyes
Orobanche bulbosa	Chaparral Broom-rape
Osmadenia tenella	Osmadenia
Paeonia californica	California Peony
Pectocarya sp.	Pectocarya
Phacelia sp.	Phacelia
Pholistoma membranaceum	White Fiesta Flower
Plagiobothrys sp.	Popcornflower
Plantago patagonica	**Desert Plantain**
Platystemon californicus	Cream Cups
Prunus ilicifolia	Holly-leaf Cherry
Rafinesquia neomexicana	Desert Chicory
Rorippa nasturtium-aquaticum	Water-cress
Rosa californica	California Rose
Saltugilia australis	Southern Gilia
Senecio californicus	California Butterweed
Senecio flaccidus	Butterweed
Sidalcea malvaeflora	Checker-bloom
Sisymbrium sp.	Tumble Mustard
Solidago californica	California Goldenrod
Stachys ajugoides	Hedge-nettle
Stephanomeria sp.	Wreathplant
Streptanthus campestris	Southern Jewelflower
Stylocline gnaphalioides	Everlasting Nest-straw
Tetradymia comosa	Cotton-thorn
Thysanocarpus sp.	Fringepod
Trichostemma parishii	Mountain Bluecurls
Tropidocarpum gracile	Slender Dobie-pod
Uropappus lindleyi	Silver Puffs
Viola purpurea	Oak Yellow Violet

Other Flowering Plants:

Rare Wildlife or Rare Plants:

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Erin B Add'l Person: _____ Date: 5/6 GPS Unit: 10

Project: Concentrix Solar Project Map #: 4, 2, 5 Survey Sxn: _____ QCB Protocol Survey # _____ of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	9:50	83		0	clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End	4:00	90		0	clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total
Nymphalidae (Brushfooted Butterflies)	
Euphydryas editha (Quino Checkerspot)	
Euphydryas chalcedona (Henne's Checkerspot)	
Thessalia leanira (Wright's Checkerspot)	
Chlosyne californica (California Patch)	
Chlosyne gabbii (Gabb's Checkerspot)	
Phyciodes mylitta (Mylitta Crescent)	
Junonia coenia (Common Buckeye) 𝍸 III	8
Vanessa annabella (West Coast Lady)	
Vanessa atalanta (Red Admiral)	
Vanessa cardui (Painted Lady)	
Vanessa virginiensis (Virginia Lady)	
Nymphalis californica (California Tortoiseshell)	
Danaidae (Milkweed Butterflies)	
Danaus plexippus (Monarch)	
Danaus gilippus (Queen)	
Satyridae (Satyrs)	
Coenonympha californica (Common California Ringlet)	
Pieridae (Whites, Sulphurs)	
Pieris rapae (Cabbage White)	
Pontia sisymbrii (Spring White)	
Pontia beckerii (Beker's White)	
Pontia protodice (Common White) 𝍸 𝍸 III	14
Anthocharis sara (Sara Orangetip)	
Anthocharis cethura (Felder's Orangetip)	
Euchloe hyantis (Desert Pearly Marble)	
Colias eurytheme (Orange Sulphur) 𝍸 𝍸	10
Colias harfordii (Harford's Sulphur) 𝍸 𝍸 𝍸 I	16
Nathalis iole (Dainty Sulphur)	
Papilionidae (Swallowtails)	
Papilio polyxenes (Desert Black Swallowtail)	
Papilio eurymedon (Pale swallowtail)	
Papilio rutulus(Western Tiger Swallowtail)	
Riodiniade (Metalmarks)	
Apodemia mormo (Behr's Metalmark) 𝍸 𝍸 𝍸 𝍸 I	21
Lycaenidae (Hairstreaks and Blues)	
Celastrina ladon (Spring Azure)	
Leptotes marina (Marine Blue)	
Brephidium exile (Western Pygmy Blue)	
Glaucopsyche lygdamus (Southern Blue/Silvery blue)	
Hemiargus ceraunus (Edward's Blue)	
Icaria acmon (Acmon Blue) 𝍸 I	6
Philotes sonorensis (Sonoran Blue)	
Callophrys augustinus (Brown Elfin)	
Callophrys perplexa (Perplexing Green Hairstreak)	
Strymon melinus (Gray Hairstreak)	
Atlides halesus (Great Purple Hairstreak)	

	Total
Hesperiidae (Skippers)	
Erynnis funeralis (Funereal Duskywing)	
Erynnis tristis (Sad Duskywing)	
Erynnis propertius (Propertius Duskywing) I	1
Erynnis brizo (Sleepy Duskeywing)	
Pyrgus albescens (Checkered Skipper)	
Hesperia jubia (Jubia Skipper) I	1
Polites sabuleti (Sandhill Skipper)	
Megathymidae (Giant Skippers)	
Megathymus yuccae (Yucca Giant Skipper)	
Other Butterflies:	
Square spotted blue I	1
Western tailed blue II	2
Notes:	

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Barbra Calantas Add'l Person: — Date: 04/21/2011 GPS Unit: 7

Project: Concentrix Solar Project Map #: 4, 2 Survey Sxn: _____ QCB Protocol Survey # 4 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	1045	64.0	6.2 / 17.0	5	(clear) patchy overcast drizzle shower
	1145	66.2	5.3 / 13.8	5	(clear) patchy overcast drizzle shower
	1245	66.8	3.8 / 9.2	5	(clear) patchy overcast drizzle shower
	1345	67.2	3.9 / 8.2	10	(clear) patchy overcast drizzle shower
	1445	66.7	10.1 / 13.8	10	(clear) patchy overcast drizzle shower
	1530	67.1	2.1 / 8.4	15	(clear) patchy overcast drizzle shower
End					clear patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

	Total		Total
Nymphalidae (Brushfooted Butterflies)		**Hesperiidae (Skippers)**	
Euphydryas editha (Quino Checkerspot)		*Erynnis funeralis* (Funereal Duskywing)	
Euphydryas chalcedona (Henne's Checkerspot)		*Erynnis tristis* (Sad Duskywing)	
Thessalia leanira (Wright's Checkerspot)		*Erynnis propertius* (Propertius Duskywing)	
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskeywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia jubia* (Jubia Skipper)	
Junonia coenia (Common Buckeye) HTT	5	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)		*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		~~cyrotheca~~ (orange moth) II	2
Danaidae (Milkweed Butterflies)		unid	
Danaus plexippus (Monarch)			
Danaus gilippus (Queen)			
Satyridae (Satyrs)			
Coenonympha californica (Common California Ringlet)			
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White) I	1		
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble) I	1		
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		SPTO	
Papilio eurymedon (Pale swallowtail)		LASP	
Papilio rutulus(Western Tiger Swallowtail)		WETJ	
Riodiniade (Metalmarks)		COFA	
Apodemia mormo (Behr's Metalmark) II	2	HOFI	
Lycaenidae (Hairstreaks and Blues)		MODO	
Celastrina ladon (Spring Azure)		WEME	
Leptotes marina (Marine Blue)		CAQU	
Brephidium exile (Western Pygmy Blue)		cottontail	
Glaucopsyche lygdamus (Southern Blue/Silvery blue)		fence lizard	
Hemiargus ceraunus (Edward's Blue)		WEJU	
Icaria acmon (Acmon Blue)			
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

Potential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

Instructions:

- Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.
- **PLEASE RECORD HOST PLANTS ON GPS** See Codes Below:

Antirrhinum coulterianum = AC *Collinsia concolor* = CC *Cordylanthus rigidus* = CR *Plantago patagonica* = PP

✓	*Amsinckia menziesii*	Rancher's Fiddleneck
○	***Antirrhimum coulterianum***	**Coulter's Snapdragon**
○	*Antirrhinum nuttallianum*	Nuttall's Snapdragon
○	*Asclepias fascicularis*	Narrow-leaf Milkweed
○	*Boechera sp.*	Rock Cress
○	*Calandrinia ciliata*	Red Maids
○	*Calochortus concolor*	Golden-bowl Mariposa Lily
○	*Calystegia longipes*	Morning-glory
○	*Camissonia sp.*	Sun Cup
✗	***Castilleja exerta***	**Paintbrush**
○	*Caulanthus heterophyllus*	San Diego Jewelflower
○	*Caulanthus simulans*	Payson's Caulanthus
○	*Ceanothus cuneatus*	Buck Brush
○	*Ceanothus greggii*	Cup-leaf-lilac
○	*Ceanothus leucodermis*	Chaparral Whitethorn
○	*Chaenactis artemisiifolia*	White Pincushion
○	*Chaenactis glabriuscula*	Yellow Pincushion
○	*Clematis sp.*	Clematis
○	***Collinsia concolor***	**Southern Chinese Houses**
○	***Cordylanthus rigidus***	**Dark-tip Bird's Beak**
○	*Coreopsis californica*	California Coreopsis
○	*Corethrogyne filaginifolia*	Common Sand-aster
✓	*Cryptantha sp.*	Cryptantha
○	*Cucurbita foetidissima*	Calabazilla
○	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
○	*Dichelostemma capitatum*	Blue Dicks
○	*Dudleya sp.*	Dudleya
○	*Emmenanthe pendulifera*	Whispering Bells
○	*Eriastrum sp.*	Woolly-star
○	*Ericameria sp*	Goldenbush
○	*Erigeron foliosus*	Leafy Daisy
○	*Eriodictyon trichocalyx*	Hairy Yerba Santa
○	*Eriogonum fasciculatum*	Inland California Buckwheat
○	*Eriogonum sp.*	Buckwheat
✓	*Eriophyllum sp.*	Golden-yarrow
✓	*Erodium cicutarium**	Red-stem Storksbill
○	*Erysismum capitatum*	Western Wallflower
○	*Eschscholzia californica*	California Poppy
○	*Eucrypta chrysanthemifolia*	Spotted Hideseed
○	*Euthamia occidentalis*	Western Goldenrod
○	*Garrya veatchii*	Canyon Silk Tassel
✓	*Gilia sp.*	Gilia
○	*Gnaphalium*	Cudweed
○	*Guillenia lasiophylla*	California Mustard
○	*Gutierrezia sarothrae*	Broom Matchweed
○	*Heliotropium curassavicum*	Salt Heliotrope
○	*Hirshfeldia incana*	Short-pod Mustard
○	*Lamium amplexicaule*	Henbit
✓	*Lasthenia gracilis*	Common Goldfields
✓	*Layia glandulosa*	White Layia
○	*Lepidium sp.*	Pepperweed
✓	*Linanthus bellus*	Desert Beauty
○	*Linanthus dichotomus*	Evening Snow
○	*Lonicera subspicata*	Johnston's Honeysuckle
○	*Malacothrix californica*	California Dandelion
○	*Malacothrix clevelandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricarioides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
✓	*Mimulus sp.*	Monkeyflower
○	*Nemophila menzeisii*	Small-flower Baby Blue Eyes
○	*Orobanche bulbosa*	Chaparral Broom-rape

NONE

✓	*Osmadenia tenella*	Osmadenia
○	*Paeonia californica*	California Peony
○	*Pectocarya sp.*	Pectocarya
✓	*Phacelia sp.*	Phacelia
○	*Pholistoma membranaceum*	White Fiesta Flower
✓	*Plagiobothrys sp.*	Popcornflower
○	***Plantago patagonica***	**Desert Plantain**
○	*Platystemon californicus*	Cream Cups
○	*Prunus ilicifolia*	Holly-leaf Cherry
○	*Rafinesquia neomexicana*	Desert Chicory
○	*Ribes quercetorum*	Oak Gooseberry
○	*Rorripa nasturtium-aquaticum*	Water-cress
○	*Rosa californica*	California Rose
○	*Saltugilia australis*	Southern Gilia
○	*Senecio californicus*	California Butterweed
○	*Senecio flaccidus*	Butterweed
○	*Sidalcea malvaeflora*	Checker-bloom
○	*Sisymbrium sp.*	Tumble Mustard
○	*Solidago californica*	California Goldenrod
○	*Stachys ajugoides*	Hedge-nettle
○	*Stephanomeria sp.*	Wreathplant
○	*Streptanthus campestris*	Southern Jewelflower
○	*Stylocline gnaphalioides*	Everlasting Nest-straw
○	*Tetradymia comosa*	Cotton-thorn
○	*Thysanocarpus sp.*	Fringepod
○	*Trichostemma parishii*	Mountain Bluecurls
○	*Tropidocarpum gracile*	Slender Dobie-pod
○	*Uropappus lindleyi*	Silver Puffs
○	*Viola purpurea*	Oak Yellow Violet

Other Flowering Plants:

Lupin sp. (very small and low growing

Rare Wildlife or Rare Plants:

BCLB01 - Linanthus bellus = 3 ind.
BCLB02 - " " " ~ 20 ind
BCBJ01 - SD blacktailed jackrabbit
BCHL01 - SD wact horned lizard
BCFP01 - prairie falcon - 1 ind, perched
BCBJ02
BCLB03 - 10 ind
BCLB04 - 25 ind

APPENDIX D
POTENTIAL NECTARING SOURCES AND HOST PLANTS DETECTED DURING QUINO SURVEYS

APPENDIX D
POTENTIAL NECTARING SOURCES AND HOST PLANT SPECIES DETECTED DURING QUINO SURVEYS[A]

		Survey Week					
Scientific Name	**Common Name**	**1**	**2**	**3**	**4**	**5**	**6**
Amsinckia menziesii	rancher's fiddleneck	x	x	x	x	x	x
Boechera pulchra	beautiful rock cress	x	x	x	x	x	x
Calandrinia ciliata	red maids			x	x	x	
Calystegia longipes	morning-glory				x	x	
Camissonia sp.	sun cup	x	x	x	x	x	x
Castilleja subinclusa	Indian paintbrush					x	
Caulanthus affinis	Indian paintbrush	x	x				
Caulanthus heterophyllus	San Diego jewelflower			x	x	x	
Caulanthus simulans	Payson's caulanthus	x					
Ceanothus cuneatus	buck brush	x	x		x		
Ceanothus greggii	cup-leaf lilac	x	x	x	x	x	x
Ceanothus leucodermis	chaparral whitethorn		x	x			
Chaenactis glabriuscula	yellow pincushion						x
Clematis sp.	clematis	x		x		x	x
Collinsia concolor	**southern Chinese houses[B]**		x			x	x
Cordylanthus rigidus	**dark-tip bird's beak**			x			
Coreopsis californica	California coreopsis	x	x	x	x	x	x
Corethrogyne filaginifolia	common sand-aster						x
Cryptantha sp.	cryptantha	x	x	x	x	x	x
Descurainia sp.	tansy-mustard	x	x	x	x	x	x
Dichelostemma capitatum	blue dicks		x			x	x
Dudleya sp.	dudleya						x
Emmenanthe pendulifera	whispering bells			x			x
Eriastrum sp.	woolly-stars		x	x			x
Ericameria sp.	goldenbush	x	x	x	x	x	x
Erigeron foliosus	leafy daisy						x
Eriodictyon trichocalyx	hairy yerba santa			x			x
Eriogonum fasciculatum	inland California buckwheat		x	x		x	x
Eriogonum sp.	buckwheat				x	x	x
Eriogonum wrightii	bastardsage			x			
Eriophyllum confertiflorum.	golden-yarrow		x	x	x	x	x
Erodium cicutarium	red-stem storksbill	x	x	x	x	x	x
Erysismum capitatum	western wallflower					x	
Eschscholzia californica	California poppy	x	x	x	x	x	x
Eucrypta chrysanthemifolia	spotted hideseed	x		x			
Garrya veatchii	canyon silk tassel	x	x	x	x		x
Gilia sp.	gilia			x	x	x	x
Gnaphalium sp.	cudweed						x
Guillenia lasiophylla	California mustard	x				x	
Gutierrezia sarothrae	broom matchweed			x	x	x	x
Heliotropium curassavicum	salt heliotrope				x	x	
Hirshfeldia incana	short-pod mustard	x	x	x	x	x	x
Lasthenia gracilis	common goldfields	x	x	x	x	x	x
Layia glandulosa	white layia	x	x	x	x	x	x
Lepidium sp.	pepperweed			x	x	x	x
Linanthus bellus	desert beauty	x	x	x	x	x	x
Lupinus bicolor	miniature lupine					x	

		Survey Week					
Scientific Name	**Common Name**	**1**	**2**	**3**	**4**	**5**	**6**
Lupinus concinnus	bajada lupine			**x**		**x**	
Linanthus dichotomus	evening snow				**x**	**x**	
Lonicera subspicata	Johnston's honeysuckle			**x**			**x**
Malacothrix californica	California dandelion			**x**		**x**	**x**
Marah macrocarpus	wild-cucumber					**x**	
Marrubium vulgare	horehound						**x**
Matricaria matricarioides	common pineapple-weed	**x**					
Mentzelia veatchiana	Veatch's stick-leak						**x**
Mimulus sp.	monkeyflower				**x**		**x**
Nemophila menzeisii	small-flower baby blue eyes	**x**	**x**	**x**		**x**	
Orobanche bulbosa	chaparral broom-rape						**x**
Osmadenia tenella	osmadenia				**x**		
Paeonia californica	California peony		**x**				
Pectocarya sp.	pectocarya	**x**	**x**	**x**	**x**	**x**	**x**
Phacelia sp.	phacelia	**x**	**x**	**x**	**x**	**x**	**x**
Phacelia distans	distant phacelia			**x**			
Pholistoma membranaceum	white fiesta flower						**x**
Plagiobothrys sp.	popcornflower	**x**	**x**	**x**	**x**	**x**	**x**
Rhus ovata	sugar bush		**x**	**x**	**x**	**x**	**x**
Rhus trilobata	skunkbush sumac	**x**					
Platystemon californicus	cream cups			**x**	**x**	**x**	
Prunus ilicifolia	holly-leaf cherry		**x**	**x**			
Ribes quercetorum	oak gooseberry			**x**			**x**
Senecio californicus	California butterweed	**x**	**x**	**x**	**x**	**x**	**x**
Sisymbrium sp.	tumble mustard	**x**	**x**	**x**	**x**	**x**	**x**
Solidago californica	California goldenrod					**x**	**x**
Streptanthus campestris	southern jewelflower			**x**		**x**	
Stylocline gnaphalioides	everlasting nest-straw		**x**	**x**	**x**	**x**	**x**
Thysanocarpus sp.	fringepod	**x**		**x**			**x**
Trichostemma parishii	mountain bluecurls		**x**			**x**	**x**
Uropappus lindleyi	silver puffs		**x**	**x**	**x**		**x**

[A] The Quino checkerspot butterfly survey area (within Rugged Solar) was initially part of a larger survey area that was separated into three separate projects (LanWest Solar Farm, LanEast Solar Farm, and Rugged Solar Farm) after the completion of protocol Quino surveys. LanWest Solar Farm is located adjacent to the proposed project (on the western boundary of LanEast). Rugged Solar Farm is located directly north of Interstate 8. All three project sites were surveyed at the same time for Quino and, therefore, the weekly potential nectaring and host plant species detected list is the same for all three project sites.

[B] This host plant was not found on LanEast, and only found on Rugged Solar.

Bold = potential Quino larval host plant species.

APPENDIX E
VERTEBRATE WILDIFE SPECIES DETECTED DURING QUINO SURVEYS

APPENDIX E
VERTEBRATE WILDLIFE SPECIES DETECTED DURING QUINO SURVEYS[A]

Scientific Name		Common Name
REPTILES		
Order Squamata		Lizards and Snakes
	Family Phrynosomatidae	
	Uta stansburiana	side-blotched lizard
	Sceloporus occidentalis	western fence lizard
	Sceloporus orcutti	granite spiny lizard
	Phrynosoma coronatum blainvillii[B]	coast horned lizard
	Family Teiidae	
	Aspidoscelis hyperthya beldingi[B]	Belding's orange-throated whiptail
	Cnemidophorus tigris	western whiptail
	Family Anguidae	
	Elgaria multicarinata	southern alligator lizard
	Family Colubridae	
	Pituophis catenifer	gopher snake
	Masticophis lateralis	striped racer
BIRDS		
Order Ciconiiformes		Herons, Storks, Ibises, and Relatives
	Family Cathartidae	
	Cathartes aura	turkey vulture
Order Falconiformes		Diurnal Birds of Prey
	Family Accipitridae	
	Accipiter cooperii[C]	Cooper's hawk
	Buteo jamaicensis	red-tailed hawk
	Buteo swainsoni[D]	Swainson's hawk
	Falco mexicanus[C]	prairie falcon
	Falco sparverius	American kestrel
Order Galliformes		Magapodes, Curassows, Pheasants, and Relatives
	Family Odontophoridae	
	Callipepla californica	California quail
Order Charadriiformes		Shorebirds, Gulls, and Relatives
	Family Charadriidae	
	Charadrius vociferus	killdeer
Order Columbiformes		Pigeons and Doves
	Family Columbidae	
	Zenaida macroura	mourning dove
Order Apodiformes		Hummingbirds and Swifts
	Family Trochilidae	
	Calypte anna	Anna's hummingbird
	Calypte costae	Costa's hummingbird
Order Piciformes		Woodpeckers
	Family Picidae	
	Melanerpes formicivorus	acorn woodpecker
	Picoides scalaris	ladder-backed woodpecker
	Colaptes auratus	northern flicker
Order Passeriformes		Song birds
	Family Tyrannidae	
	Myiarchus cinerascens	ash-throated flycatcher
	Sayornis nigricans	black phoebe
	Sayornis saya	Say's phoebe
	Tyrannus verticalis	western kingbird
	Tyrannus vociferans	Cassin's kingbird
	Empidonax hammondii	Hammond's flycatcher

Scientific Name		Common Name
	Family Laniidae	
	Lanus ludovicianus [B]	loggerhead shrike
	Family Vireonidae	
	Vireo huttoni	Hutton's vireo
	Vireo gilvus	warbling vireo
	Family Corvidae	
	Aphelocoma californica	western scrub jay
	Corvus corax	common raven
	Family Paridae	
	Baeolophus inornatus	oak titmouse
	Family Alaudidae	
	Eremophila alpestris	horned lark
	Family Aegithalidae	
	Psaltriparus minimus	bushtit
	Family Troglodytidae	
	Thryomanes bewickii	Bewick's wren
	Troglodytes aedon	house wren
	Family Sylviidae	
	Polioptila caerulea obscura	blue-gray gnatcatcher
	Family Turdidae	
	Sialia mexicana	western bluebird
	Family Timaliidae	
	Chamaea fasciata	wrentit
	Family Regulidae	
	Regulus calendula	ruby-crowned kinglet
	Family Mimidae	
	Toxostoma redivivum	California thrasher
	Family Sturnidae	
	Sturnus vularis	European starling
	Family Parulidae	
	Dendroica coronata	yellow-rumped warbler
	Dendroica nigrescens	black-throated gray warbler
	Vermivora celata	orange-crowned warbler
	Family Emberizidae	
	Chondestes grammacus	lark sparrow
	Passerculus sandwichensis	savannah sparrow
	Amphispiza belli	sage sparrow
	Amphispiza bilineata	black-throated sparrow
	Spizella passerina	chipping sparrow
	Spizella breweri	Brewer's sparrow
	Pipilo crissalis	California towhee
	Pipilo maculates	spotted towhee
	Junco hyemalis	dark-eyed junco
	Zonotrichia leucophrys	white-crowned sparrow
	Pooecetes gramineus	vesper sparrow
	Family Icteridae	
	Sturnella neglecta	western meadowlark
	Icterus bullockii	Bullock's oriole
	Family Fringillidae	
	Spinus psaltria	lesser goldfinch
MAMMALS		
Order Lagomorpha		Rabbits, Hares, and Pikas
	Family Leporidae	
	Sylvilagus audubonii	Audobon's cottontail
	Lepus californica bennettii [B]	San Diego black-tailed jackrabbit

Scientific Name		Common Name
Order Rodentia		Rodents
	Family Scuiridae	
	Spermophilus beecheyi	California ground squirrel
	Family Muridae	
	Neotoma sp.	woodrat (house)
Order Carnivora		Carnivores
	Family Canidae	
Order Artiodactyla		Even-toed Ungulates
	Family Cervidae	
	Odocoileus hemionus	mule deer

[A] The Quino checkerspot butterfly (*Euphydryas editha quino*) survey area (within the Rugged Solar project site) was initially part of a larger survey area that was separated into three separate projects (LanWest Solar Farm, LanEast Solar Farm, and Rugged Solar Farm) after the completion of protocol Quino surveys. Rugged Solar Farm is located directly north of Interstate 8. LanEast Solar Farm is located adjacent to LanWest (on the eastern boundary of LanWest). All three sites were surveyed for Quino at the same time. This list of vertebrate wildlife species detected represents species detected for the Rugged Solar Project.

[B] State species of special concern (State of California 2011)

[C] State special animal (State of California 2011)

[D] State threatened or endangered species

DUDEK

MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 T 800.450.1818 F 760.632.0164

June 6, 2013 7122

U.S. Fish and Wildlife Service
Attention: Recovery Permit Coordinator
6010 Hidden Valley Road
Carlsbad, California 92011

Subject: ***2013 Focused Quino Checkerspot Butterfly Survey Report for Off-Site Access Roads Proposed for the Rugged Solar Energy Project, San Diego County, California***

Dear Recovery Permit Coordinator:

This letter report documents the spring 2013 results of a focused survey conducted by Dudek for the federally listed endangered Quino checkerspot butterfly (*Euphydryas editha quino*; QCB). This survey was conducted for off-site access roads proposed for the Rugged Solar Energy Project, a planned solar energy development project in the southeastern portion of the County of San Diego, California. This report is intended to satisfy reporting requirements for the following QCB-permitted biologists: Jeff D. Priest (TE840619-2), Paul M. Lemons (TE051248-4), and Vipul R. Joshi (TE019949-0).

PROJECT LOCATION AND EXISTING CONDITIONS

The study area encompasses two proposed new access roads (hereafter referred to as off-site access roads), including a portion of McCain Valley Road, that extends beyond the limits of the current Rugged Solar Energy Project boundary. QCB surveys were conducted in 2012 for the Rugged Solar Energy Project; however, these off-site access roads were not included as part of the 2012 surveys. Therefore, these access roads (including a 100-foot-wide area to either side of the edge of the roadway) are the focal point of 2013 QCB survey efforts.

The off-site access roads proposed for the Rugged Solar Energy Project, Assessor's Parcel Numbers 611-070-030, 611-100-060, 611-100-070, 611-110-040, and 611-120-090, are located north of the unincorporated community of Boulevard in Southeast San Diego County. The 21.31-acre study area is located approximately 1.75 miles north of Interstate 8 (I-8), 1.5 miles northwest of Tule Lake, and 260 feet southeast of an air field in Eastern San Diego County, California (see Figure 1, Regional Map). The study area lies within the Live Oak Spring, U.S. Geological Survey 7.5-minute quadrangle, Township 17 South, Range 7 East, Section 9, 10, 15, and 16.

The 21.31-acre study area includes a proposed northern and southern access road, as well as a 100-foot-wide area to either side of the edge of the roadway. The two access roads are designed to extend west of McCain Valley Road. The northern access road is approximately 0.5 mile long (1.42 acres) and includes a 0.25-mile portion of paved McCain Valley Road (1.75 miles north of I-8). The southern access road is proposed to connect with McCain Valley Road and extend west for approximately 0.25 mile (2.15 acres) (see Figure 2, Vicinity Map). These two off-site access roads are projected to provide connectivity to the Rugged Solar Energy Project's building blocks along the central and eastern portions of the Solar Project.

The project area features relatively flat to gently sloping hills with elevations ranging between approximately 3,500–3,670 feet above mean sea level (amsl). The project area is generally within the Peninsular Range and has a warm, dry climate consistent with the San Diego high-desert transition area. Average temperatures range from approximately 34–94°Fahrenheit (F), with an average rainfall of less than 15 inches per year (as measured from the Campo measuring station) (Western Regional Climate Center 2013).

According to the U.S. Department of Agriculture (USDA) (2013), there are two soil types found in the project area; descriptions of these soil types, based on Bowman (1973) and the Web Soil Survey (USDA) (2012), appear below.

The La Posta series has grayish brown and brown, slightly acid and neutral, loamy coarse sand A horizons grading to weathered acid igneous rock at a depth of 29 inches. These soils occur in hilly mountainous areas that are moderately sloping to very steep. The La Posta soil inclusion within the project area is the La Posta rocky loamy coarse sand, 5–30% slopes, eroded (LcE2). Rock outcrop covers 5–10% of the surface with soils moderately sloping to moderately steep. The soils formed in residuum weathered from granitic rocks at elevations of 2,000–4,500 feet. La Posta soils are somewhat excessively drained with medium or rapid runoff and rapid permeability, and native vegetation expected on this soil type in the project area is mainly annual grasses and forbs, chamise (*Adenostoma fasciculatum*), red shank (*Adenostoma sparsifolia*), manzanita (*Arctostaphylos* spp.), scrub oak (*Quercus* spp.), and a few scattered oak trees (*Quercus agrifolia*) along drainages.

The Mottsville series consists of very deep excessively drained soils that formed in alluvium derived from granitic rocks. Mottsville soils occur on gently sloping (0–15%) alluvial fans, fan remnants, and fan aprons. The Mottsville soil inclusion within the project area is Mottsville loamy coarse sand, 2–9% slopes (MvC). Mottsville soils occur at elevations of 4,500–5,300 feet. Mottsville soils have negligible or very low surface runoff, rapid or very

rapid permeability, and high-saturated hydraulic conductivity. Native vegetation expected on this soil type within the project area is mainly big sagebrush (*Artemisia tridentata*), other desert transition shrubs, and needlegrasses (*Stipa* spp.).

VEGETATION COMMUNITIES

Eleven plant communities and land cover types were mapped within the focused QCB survey area, including alkali meadow, big sagebrush scrub, coast live oak woodland, disturbed land, granitic chamise chaparral, montane buckwheat scrub, non-native grassland, semi-desert chaparral, disturbed southern willow scrub, unvegetated channel, and urban/developed. The acreages of each community type within the project site are shown in Table 1, Vegetation Communities within the Focused Quino Checkerspot Butterfly Survey Area for Off-Site Access Roads Proposed for the Rugged Energy Solar Project. Descriptions of each vegetation community (with Holland numeric codes) are provided following Table 1. Holland (1986) and Oberbauer et al. (2008) were used to describe vegetation communities on site. The *Manual of California Vegetation* (2nd edition) (Sawyer et al. 2009) was utilized as an additional reference to help determine characteristics (such as percentage of species cover) of various classifications.

Table 1
Vegetation Communities within the Focused Quino Checkerspot Butterfly Survey Area for Off-Site Access Roads Proposed for the Rugged Solar Energy Project

Vegetation Community or Land Cover	Code	Acres
Alkali Meadow	45300	1.33
Big Sagebrush Scrub	35210	1.54
Coast Live Oak Woodland	71160	0.02
Disturbed Land	11300	1.31
Granitic Chamise Chaparral	37210	1.60
Montane Buckwheat Scrub	37K00	6.03
Non-Native Grassland	42200	5.43
Non-Vegetated Channel	64200	0.06
Semi-Desert Chaparral	37400	2.62
Disturbed Southern Willow Scrub	63320	0.15
Urban/Developed	12000	1.22
	Total	**21.31**

Alkali Meadow (45300)

Alkali meadow is a low-growing, dense or open association of grasses, sedges, and rushes on moist, alkaline soils. This community may intergrade with marsh communities in wetter settings or Great Basin scrub or non-native grassland in drier settings.

On site, alkali meadow is dominated by Mexican rush (*Juncus mexicanus*) with cover typically between 75–100% cover, but also includes salt grass (*Distichlis spicata*), Mediterranean barley *(Hordeum marinum* ssp. *gussoneanum),* and seaside heliotrope (*Heliotropium curassavicum*). This community type totals 1.33 acres along the proposed southern access road.

Big Sagebrush Scrub (35210)

Big sagebrush scrub is characterized as being a moderately open shrubland consisting predominantly (greater than 50% absolute cover) of big sagebrush (*Artemisia tridentata* ssp. *tridentata*). It often occurs in or adjacent to the floodplain in the sandy transition to chaparral.

This scrub community is relatively common on site, although it occurs in smaller, distinct patches. Some areas mapped as big sagebrush scrub include California buckwheat (*Eriogonum fasciculatum* var. *polifolium*) but at less than 15% absolute cover. Big sagebrush is found in one small location along the proposed northern access road, and a larger area exists along the proposed southern access road (Figure 3, Biological Resources).

Coast Live Oak Woodland (71161)

Coast live oak woodland is an evergreen woodland dominated by coast live oak (*Quercus agrifolia* var. *oxyadenia*). The understory is typically made up of grassland, scrub, or chaparral species, and the community often intergrades with coastal sage scrub or mixed chaparral (Holland 1986).

On-site, coast live oak woodland is comprised of open woodland, with generally less than 40% cover of coast live oak. The understory is dominated by non-native grasses and annual forbs (see non-native grassland). One approximately 0.02-acre patch of coast live oak woodland occurs within the study area. This community occurs within one small area immediately west of an existing graded road that runs perpendicular to the proposed southern access road (Figure 3, Biological Resources).

Disturbed Land (11300)

Disturbed land refers to areas that have been permanently altered by previous human activity that has eliminated all future biological value of the land for most species. The native or naturalized vegetation is no longer present, and the land lacks habitat value for sensitive wildlife, including potential raptor foraging.

Disturbed land on site consists of highly disturbed areas dominated by tumbleweed/Russian thistle (*Salsola tragus*) or tall tumblemustard (*Sisymbrium altissimum*) and red-stem filaree (*Erodium cicutarium*), which are exotic, invasive species. Brome grasses (*Bromus* sp.) are also found in limited proportions throughout these areas. Disturbed land makes up approximately 1.31 acres of the survey area (Figure 3).

Granitic Chamise Chaparral (37210)

According to Holland (1986), chamise chaparral is strongly dominated by chamise and is adapted to repeated fire by stump sprouting. The herb layer is usually very sparse (Holland 1986).

On site, granitic chamise chaparral is dominated by chamise (50–75% absolute cover). Other woody shrubs include Zaca Lake manzanita (*Arctostaphylos glandulosa* ssp. *zacaensi*s), point-leaf manzanita (*Arctostaphylos pungens*), and cupleaf ceanothus (*Ceanothus perplexans*), which collectively comprise less than 15% absolute cover. Granitic chamise chaparral occurs within a 1.60-acre area along the western side of the proposed southern access road (Figure 3).

Montane Buckwheat Scrub (37K00)

Montane buckwheat scrub is not described by Holland, but is included in Oberbauer et al. (2008). Montane buckwheat scrub is characterized by a nearly monoculture community of flat-topped buckwheat found at higher elevations in San Diego County.

On site, areas mapped as montane buckwheat scrub is almost exclusively dominated by California buckwheat (approximately 25–50% absolute cover) and a well-developed herb layer composed of annual brome grasses (25– 50% absolute cover). Red-stem filaree is prominent, indicating past disturbance in this area, likely long-term cattle grazing. Other associated species include California matchweed (*Gutierrezia californica*), deerweed (*Acmispon glaber*), interior goldenbush (*Ericameria linearifolia*), and non-native cover species (*Bromus* spp., *Brassica* sp.). Montane buckwheat scrub is the dominant vegetation community within the survey area. This community occurs in large blocks (totaling 6.03 acres) throughout the survey area, primarily along the proposed northern access road (Figure 3).

Non-Native Grassland (42220)

According to Holland (1986), non-native grasslands include a dense to sparse cover of annual grasses that die during the summer months, persisting as seeds. On site, non-native grasslands include ripgut grass (*Bromus diandrus*), foxtail chess (*Bromus madritensis*), and Mediterranean barley and are heavily disturbed by long-term cattle grazing. Other species found throughout this community include Tumble or tall tumblemustard and red-stem filaree. Two large patches of non-native grassland (totaling 5.43 acres) occur along the proposed northern access road (Figure 3).

Non-Vegetated Channel (64200)

Non-vegetated channel refers to ephemeral stream channels that are barren or sparsely vegetated but do exhibit an Ordinary High Water Mark. The lack of vegetation may be due to the scouring effects of floods or man-caused vegetation removal for flood control, access, sand mining, or other purposes. One non-vegetated channel flows from north to south through the study area. This non-vegetated channel makes up 0.06 acre of the proposed southern access roads (Figure 3).

Semi-Desert Chaparral (37400)

According to Holland (1986), semi-desert chaparral is very similar to northern mixed chaparral (37110) but is more open and not quite as tall (1.5–3 meters) (4.9–10 feet). Dominant taxa include *Juniperus* sp*., Eriogonum* sp., and *Opuntia* sp. But characteristic species include chamise, *Arctostaphylos* sp., *Ceanothus* sp., *Quercus* sp., and a variety of other shrubs and subshrubs. It is most common from 2,000–5,000 feet in elevation and includes the Peninsular Ranges bordering the Colorado Desert, which are consistent with the elevation range and geographic location of the project area.

On site, areas mapped as semi-desert chaparral are very diverse, but no *Juniperus* species were observed. Dominant species include chamise, point-leaf manzanita, California buckwheat, and cholla (*Cylindropuntia* spp.). Other associated species within semi-desert chaparral on site include cupleaf ceanothus, big sagebrush (*Artemisia tridentata*), our Lord's candle (*Yucca whipplei*), Muller oak (*Quercus cornelius-mulleri*), cholla, birch-leaf mountain mahogany (*Cercocarpus betuloides* var. *betuloides*), interior goldenbush, sugar bush, bromes, and red-stem filaree. Bare ground was observed at roughly 5–15% absolute cover. Semi-desert chaparral is the dominant community (2.62 acres) along the proposed southern access road (Figure 3).

Disturbed Southern Willow Scrub (63320)

According to Holland (1986), southern willow scrub has been described as a dense, broad-leafed, winter-deciduous riparian thicket dominated by several species of willow (*Salix* spp.). On site, there is a small patch of willows (*Salix lasiolepis*) and tamarisk (*Tamarix* sp.) growing near the proposed northern access road. This patch is approximately 0.15 acre and is considered disturbed southern willow scrub due to the abundance of tamarisk in the area (Figure 3).

Urban/Developed (12000)

Urban/developed land refers to areas that have been constructed upon or disturbed so severely that native vegetation is no longer supported. Developed land includes areas with permanent or semi-permanent structures, pavement or hardscape, landscaped areas, and areas with a large amount of debris or other materials (Oberbauer et al. 2008). Urban/developed areas on site consist of McCain Valley Road (an existing paved road), which runs adjacent to the Rugged Solar Energy Project. Approximately 1.22 acres of urban/developed areas occur within the study area (Figure 3).

QUINO CHECKERSPOT BUTTERFLY SURVEY

Methods

Focused QCB surveys for the entire 21.31-acre site were conducted over five visits within a 5-week period between March 22 and April 24, 2011. Surveys were conducted by QCB-permitted biologists Jeff D. Priest (TE840619-2), Paul M. Lemons (TE051248-2), Vipul R. Joshi (TE019949-0), and Patricia C. Schuyler (independent investigator) in accordance with current U.S. Fish and Wildlife Service (USFWS) protocol (USFWS 2002; 67 FR 18355–18395).

The site was surveyed by Dudek's permitted biologists and independent investigators in accordance with USFWS protocol. The biologists were provided with 200-scale (1 inch = 200 feet) aerial photographs of each survey polygon. These photographs were used for mapping host plant populations. Binoculars were used to aid in detecting and identifying butterfly and other wildlife species. GPS units also were available for recording locations of host plant populations.

The survey methods consisted of slowly walking roughly parallel transects throughout all potential habitats within the survey area (i.e., all areas that are not excluded per the survey protocol, generally including sage scrub, open chaparral, grasslands, open or sparsely vegetated areas, rocky outcrops, trails, and dirt roads). Survey routes were arranged to thoroughly cover the

survey area at a rate of no more than 10–15 acres per hour. All wildlife species were recorded and are included in Appendix A.

Surveys were conducted only during acceptable weather conditions (i.e., surveys were not conducted during fog, drizzle, or rain; sustained winds greater than 15 miles per hour measured 4 to 6 feet above ground level; temperature in the shade at ground level less than 60°F on a clear, sunny day; or temperature in the shade at ground level less than 70°F on an overcast or cloudy day). Survey times, personnel, and conditions during the QCB survey are shown in Table 2, Schedule of Focused Quino Checkerspot Butterfly Surveys and Environmental Conditions. Photocopies of the surveyor's field notes are included as Appendix B.

Table 2
Schedule of Focused Quino Checkerspot Butterfly Surveys and Environmental Conditions

Week	Date	Time	Range of Conditions			Personnel
			Temperature Range (°F)	*Percent Cloud Cover (% cc)*	*Wind (miles per hour (mph))*	
1	3/22/13	11:00–13:00	65–72	0–0	0–4; gusts to 8	VRJ
2	3/29/13	08:45–10:35	75–76	50–80	1–5 to 3–7	PML
3	4/4/13	09:00–10:00	62–70	60–70	0–2 to 2–5	PML
4	4/12/13	08:30–9:45	63–69	10–10	1–4 to 3–6	PML, PCS
5	4/24/13	09:00–11:00	75–78	90–80	1–3 to 5–10; gusts 10-15	JDP

JDP = Jeffrey D. Priest (TE-840619-2)
PML = Paul M. Lemons (TE-051248-4)
VRJ = Vipul R. Joshi (TE-019949-0)
PCS = Patricia C. Schuyler

RESULTS

No QCB were observed during the 2013 focused survey. Eight butterfly species were observed during the surveys. The weeks in which these butterflies were observed are shown in Table 3, Butterflies Observed on Site.

Table 3
Butterflies Observed on Site

Scientific Name	Common Name	Week				
		1	*2*	*3*	*4*	*5*
Hesperiidae – Skippers						
Erynnis funeralis	Funeral duskywing	X	—	—	—	—
Nymphalidae – Brush-footed Butterflies						
Vanessa cardui	Painted lady	—	—	—	X	—
Lycaenidae – Blues and Hairstreaks						
Callophrys perplexa	Perplexing (green) hairstreak	—	X	X	X	—
Papilionidae – Swallowtails						
Papilio eurymedon	Pale swallowtail	—	X	—	—	—
Peiridae – Whites and Sulfurs						
Anthocharis sara	Sara orangetip	X	—	—	—	—
Pieris rapae	European cabbage white	—	X	—	—	—
Pontia protodice	Common white	X	—	X	—	X
Riodinidae – Metalmarks						
Apodemia virgulti	Behr's metalmark	—	X	—	—	X

No QCB larval host plants were observed within the study area during focused surveys. Table 5, QCB Larval Food and Adult Nectar Plants, includes the known and observed adult QCB nectar plants (according to Mattoni et al. 1997; USFWS 2002, 2003; 67 FR 18355–18395). Larval host plants are also included in Table 4 and are in bold print.

Table 4
QCB Larval Food and Adult Nectar Plants[1]

Scientific Name	Common Name	Observed During Focused Survey
Apiaceae – Carrot Family		
Lomatium dasycarpum ssp. *dasycarpum*	woolly-fruit lomatium	—
Lomatium utriculatum	common lomatium	—
Asteraceae – Sunflower Family		
Achillea millefolium	yarrow, milfoil	—
Lasthenia californica	common goldfields	X
Lasthenia coronaria	southern goldfields	—
Layia platyglossa	common tidy tips	—
Boraginaceae – Borage Family		
Amsinckia menziesii	rancher's fireweed	—

Table 4
QCB Larval Food and Adult Nectar Plants[1]

Scientific Name	Common Name	Observed During Focused Survey
Amsinckia menziesii var. *intermedia*	rancher's fiddleneck	—
Amsinckia menziesii var. *menziesii*	rigid fiddleneck	—
Cryptantha spp. or *Plagiobothrys* spp.	popcorn flower	X
Fabaceae – Pea Family		
Lotus spp.	deerweed, spanishclover, lotus	X
Hydrophyllaceae – Waterleaf Family		
Eriodictyon crassifolium var. *crassifolium*	thickleaf yerba santa	—
Eriodictyon trichocalyx var. *trichocalyx*	hairy yerba santa	—
Phacelia distans	wild-heliotrope	—
Lamiaceae – Mint Family		
Salvia columbariae	chia	—
Plantaginaceae – Plantain Family		
Plantago erecta[2]	**dot-seed plantain**	**—**
Plantago patagonica	**woolly plantain**	**—**
Polemoniaceae – Phlox Family		
Gilia angelensis	grassland gilia	—
Gilia capitata ssp. *abrotanifolia*	ball gilia	—
Linanthus spp.	ground pink	—
Polygonaceae – Buckwheat Family		
Eriogonum fasciculatum var. *foliolosum*	California buckwheat	X
Scrophulariaceae – Figwort Family		
Antirrhinum coulterianum	**Coulter's snapdragon**	**—**
Castilleja exserta	**common owl's clover**	**—**
***Collinsia* sp.**	**Chinese houses**	**—**
Cordylanthus rigidus* ssp. *setiger	**dark-tipped bird's beak**	**—**
Keckiella antirrhinoides var. *antirrhinoides*	yellow bush penstemon	—
Keckiella cordifolia	climbing bush penstemon	—
Liliaceae – Lily Family		
Allium haematochiton	red-skin onion	—
Allium peninsulare	red-flower onion	—
Allium praecox	early onion	—
Dichelostemma capitatum	blue dicks	—
Muilla clevelandii	San Diego goldenstar	—
Muilla maritima	common muilla	—

[1] List derived from Mattoni et al. 1997; USFWS 2002, 2003; 67 FR 18355–18395 (for *Euphydryas editha*).
[2] Plants listed in **bold** print are known QCB larval host plant species.

Dudek certifies that the information in this survey report and attached exhibits fully and accurately represents the work conducted by the QCB-permitted biologists who conducted this focused survey.

Please feel free to contact me at 760.479.4254 or bortega@dudek.com if you have any questions regarding the contents of this report.

Sincerely,

Paul M. Lemons	Jeffrey D. Priest	Vipul R. Joshi
Permit #TE051248-4	Permit #TE840619-2	Permit # TE019949-0

Att: Figure 1, Regional Map
Figure 2, Vicinity Map
Figure 3, Biological Resources
Appendix A – List of Wildlife Species Observed during the 2013 Rugged Solar Energy Project QCB Survey
Appendix B – 2013 Rugged Solar Energy Project QCB Survey Field Notes

cc: David Hochart, Dudek

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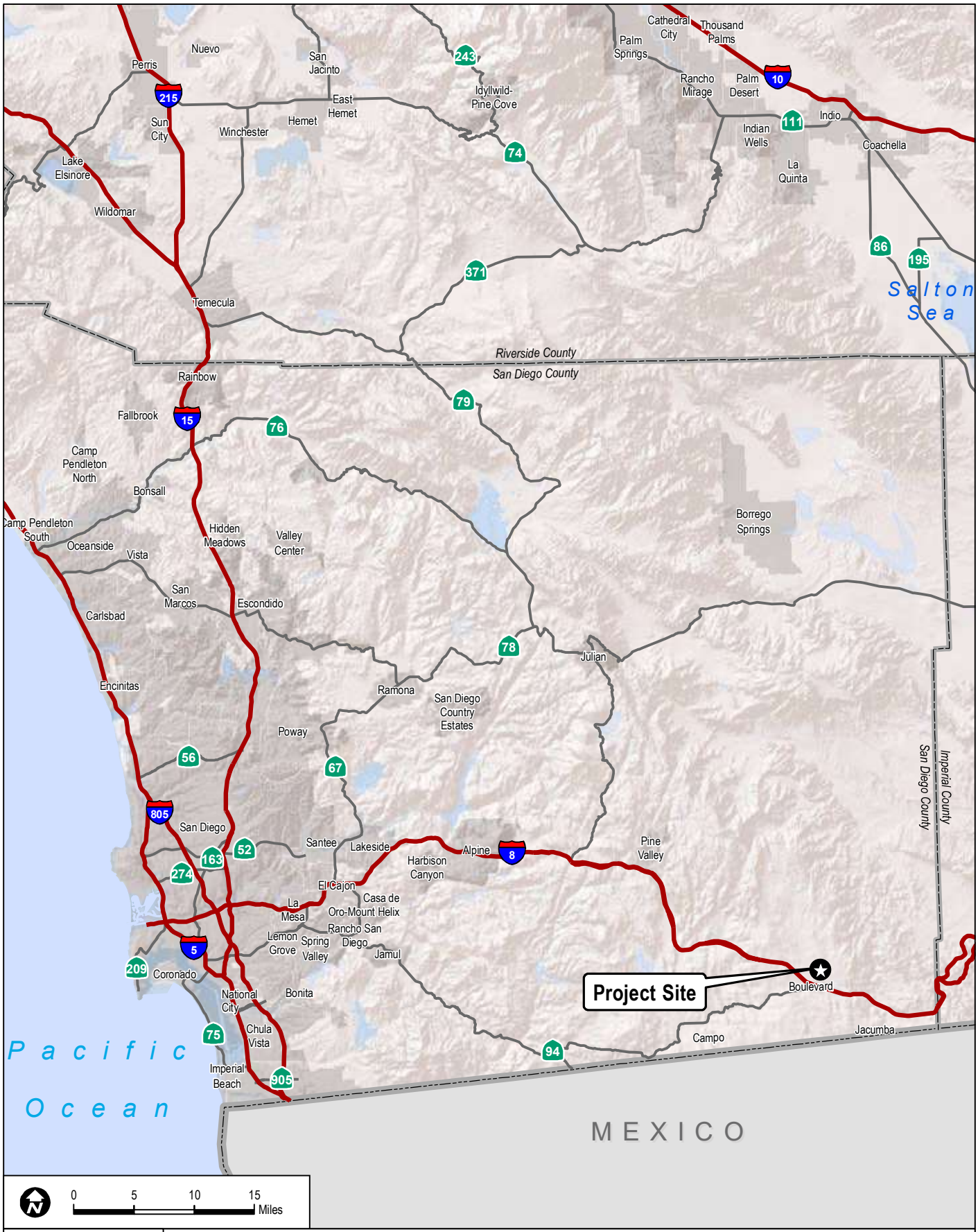

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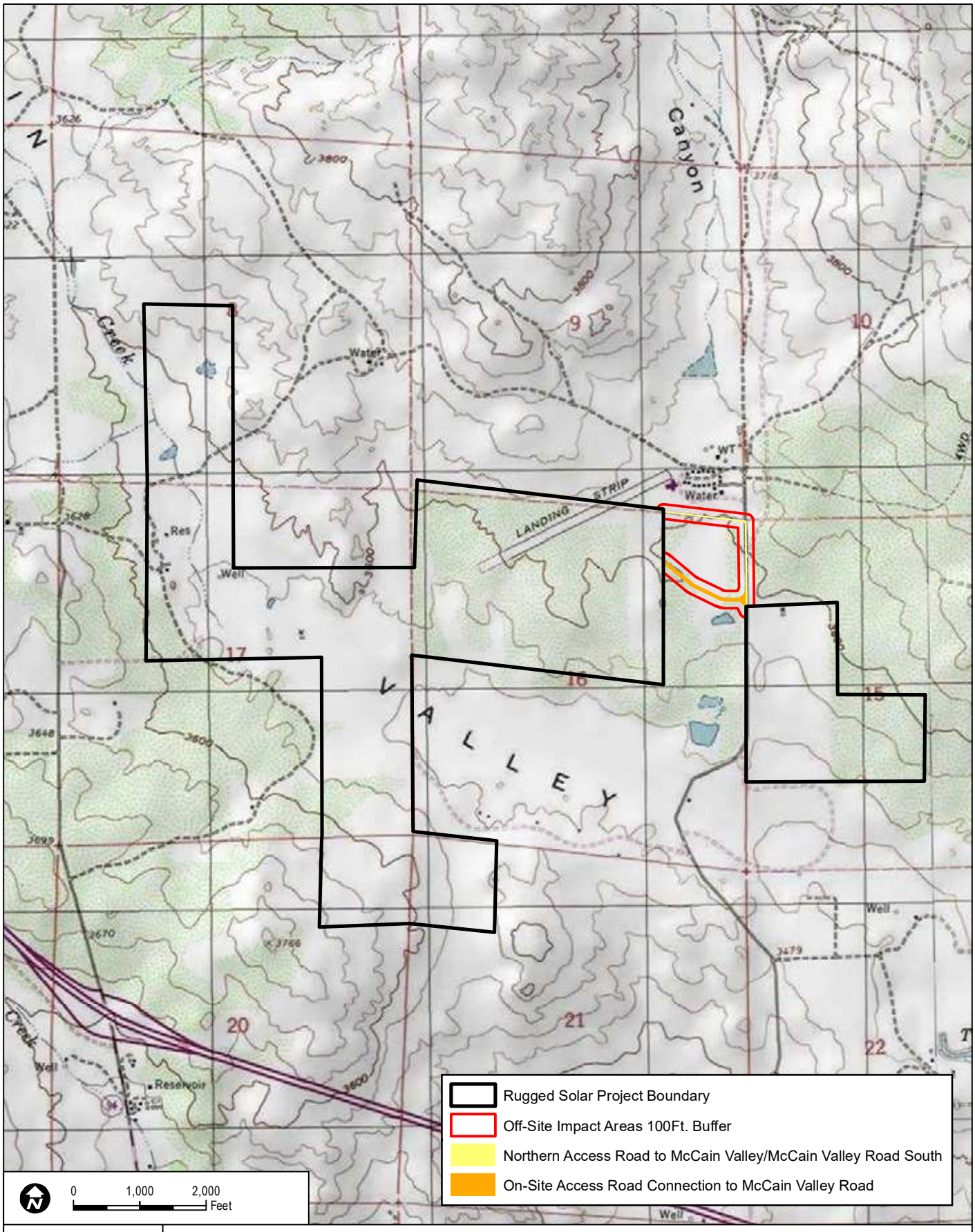
FIGURE 1

Regional Map

OFF-SITE ACCESS ROADS FOR THE RUGGED SOLAR ENERGY PROJECT



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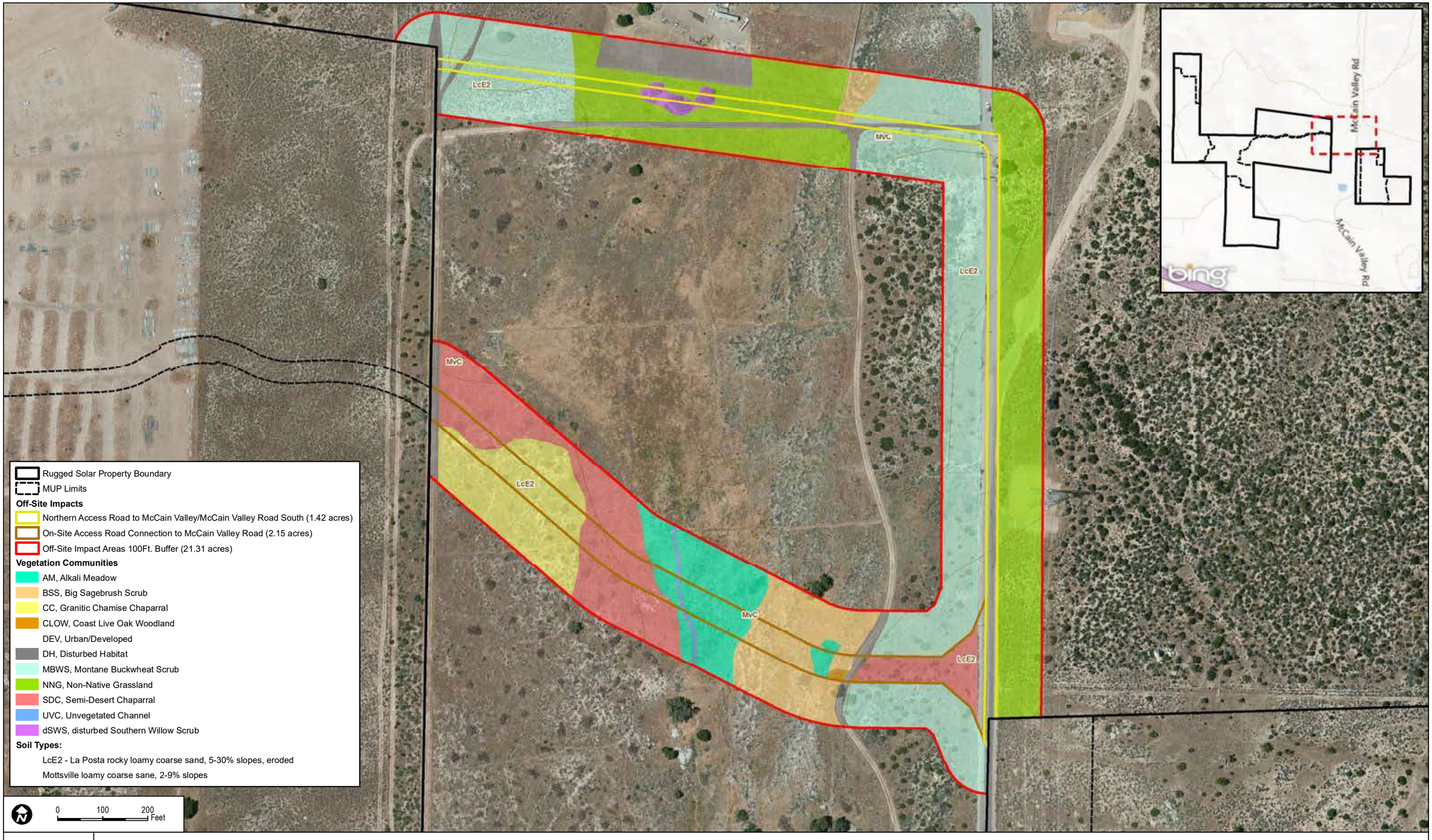
SOURCE: USGS 7.5-Minute Series Live Oak Springs Quadrangle.

FIGURE 2

Vicinity Map

OFF-SITE ACCESS ROADS FOR THE RUGGED SOLAR ENERGY PROJECT



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SOURCE: AECOM 2012, 2013; SanGIS 2012; Bing Maps

FIGURE 3

Off-Site Impacts - Biological Resources

OFF-SITE ACCESS ROADS FOR THE RUGGED SOLAR ENERGY PROJECT

APPENDIX A

List of Wildlife Species Observed during the 2013 Rugged Solar Energy Project QCB Survey

APPENDIX A
List of Wildlife Species Observed during the 2013 Rugged Solar Energy Project QCB Survey

WILDLIFE SPECIES – VERTEBRATES

REPTILES

***IGUANIDAE* – IGUANID LIZARDS**

Sceloporus occidentalis – western fence lizard

BIRDS

***ACCIPITRIDAE* – HAWKS**

Buteo jamaicensis – red-tailed hawk

***COLUMBIDAE* – PIGEONS AND DOVES**

Zenaida macroura – mourning dove

***CORVIDAE* – JAYS AND CROWS**

Aphelocoma californica – western scrub-jay
Corvus corax – common raven

***EMBERIZIDAE* – BUNTINGS AND SPARROWS**

Chondestes grammacus – lark sparrow
Pipilo crissalis – California towhee
Pipilo maculatus – spotted towhee
Spizella passerina – chipping sparrow
Zonotrichia leucophrys – white-crowned sparrow

***FRINGILLIDAE* – FINCHES**

Carpodacus mexicanus – house finch
Carduelis psaltria – lesser goldfinch

***ICTERIDAE* – BLACKBIRDS AND ORIOLES**

Icterus bullockii – Bullock's oriole
Sturnella neglecta – western meadowlark

***ODONTOPHORIDAE* – NEW WORLD QUAIL**

Callipepla californica – California quail

***PARULIDAE* – WOOD WARBLERS**

Setophaga nigrescens – black-throated gray warbler

***STURNIDAE* – STARLINGS**

* *Sturnus vulgaris* – European starling

***TIMALIIDAE* – LAUGHINGTHRUSH AND WRENTIT**

Chamaea fasciata – wrentit

***TROCHILIDAE* – HUMMINGBIRDS**

Calypte anna – Anna's hummingbird

***TROGLODYTIDAE* – WRENS**

Campylorhynchus brunneicapillus – Cactus wren
Thryomanes bewickii – Bewick's wren

***TURDIDAE* – THRUSHES AND BABBLERS**

Sialia mexicana – western bluebird

***TYRANNIDAE* – TYRANT FLYCATCHERS**

Myiarchus cinerascens – ash-throated flycatcher
Tyrannus vociferans – Cassin's kingbird

MAMMALS

***CANIDAE* – WOLVES AND FOXES**

Canis latrans – coyote

***CERVIDAE* – DEERS**

Odocoileus hemionus – mule deer

***GEOMYIDAE* – POCKET GOPHERS**

Thomomys bottae – Botta's pocket gopher

***LEPORIDAE* – HARES AND RABBITS**

Lepus californicus – black-tailed jackrabbit
Sylvilagus bachmani – brush rabbit
Sylvilagus audubonii – desert cottontail

***SCIURIDAE* – SQUIRRELS**

Spermophilus beecheyi – California ground squirrel
Tamias sp. – chipmunk

WILDLIFE SPECIES – INVERTEBRATES

BUTTERFLIES AND MOTHS

***HESPERIIDAE* – SKIPPERS**

Erynnis funeralis – funereal duskywing

***LYCAENIDAE* – BLUES, HAIRSTREAKS, AND COPPERS**

Callophrys dumetorum perplexa – perplexing (green) hairstreak

***NYMPHALIDAE* – BRUSH-FOOTED BUTTERFLIES**

Vanessa cardui – painted lady

***PAPILIONIDAE* – SWALLOWTAILS**

Papilio eurymedon – pale swallowtail

***PIERIDAE* – WHITES AND SULFURS**

Anthocharis sara – Sara orangetip
Pieris rapae – European cabbage white
Pontia protodice – Common white

***RIODINIDAE* – METALMARKS**

Apodemia mormo virgulti – Behr's metalmark

* Signifies introduced (non-native) species

INTENTIONALLY LEFT BLANK

APPENDIX B

2013 Rugged Solar Energy Project QCB Survey
Field Notes

4/24/13 Rugged QCB JDP
0730-1125 (4hr) miles: ~~76~~
@ Site: 0900 - 1100
ENV: 78°F. air; 90% CC; W1-3; Ground 80°F; 0900

END: W 5-10 mph, gusts 10-15; 80% CC; 75°F. air
Ground 80°F

Bheis mm :	B-CORA ; B-WEME	yellow (f) sp.
Com. w. :	B-WREN ; B-HOFI	Goldfields (f)
	B-RTHA ; M-B. po. go. (no)	Erodium (f)
	M-chipmunk ; M-D. cottontail	Mustard (f)
	B-CAQU ; B-ATFL	Tamarisk (f)
	B-CAGS ; M-Coyote (pr)	Rattlesnake eyes (f)
	M-MUDE (pr) ; B-WSJA	Sugarbush (ffr)
	M-BTJR	Willow (f)
		daisy sp.? (f)
		Lupin (f)
		Oak (f)
		CHP pea (f)
		Yucca (f)
		nightshade (f)

Col. del Norte

meadow GPS

21 March 13
@ 1300 - 1500

RAR QCB week 1
offsite road for Rugged Solar

22 Mar 13

1100	1300	
65°	72°	
0-4	0-4, occ. 6 gts to 8	
0%	0%	

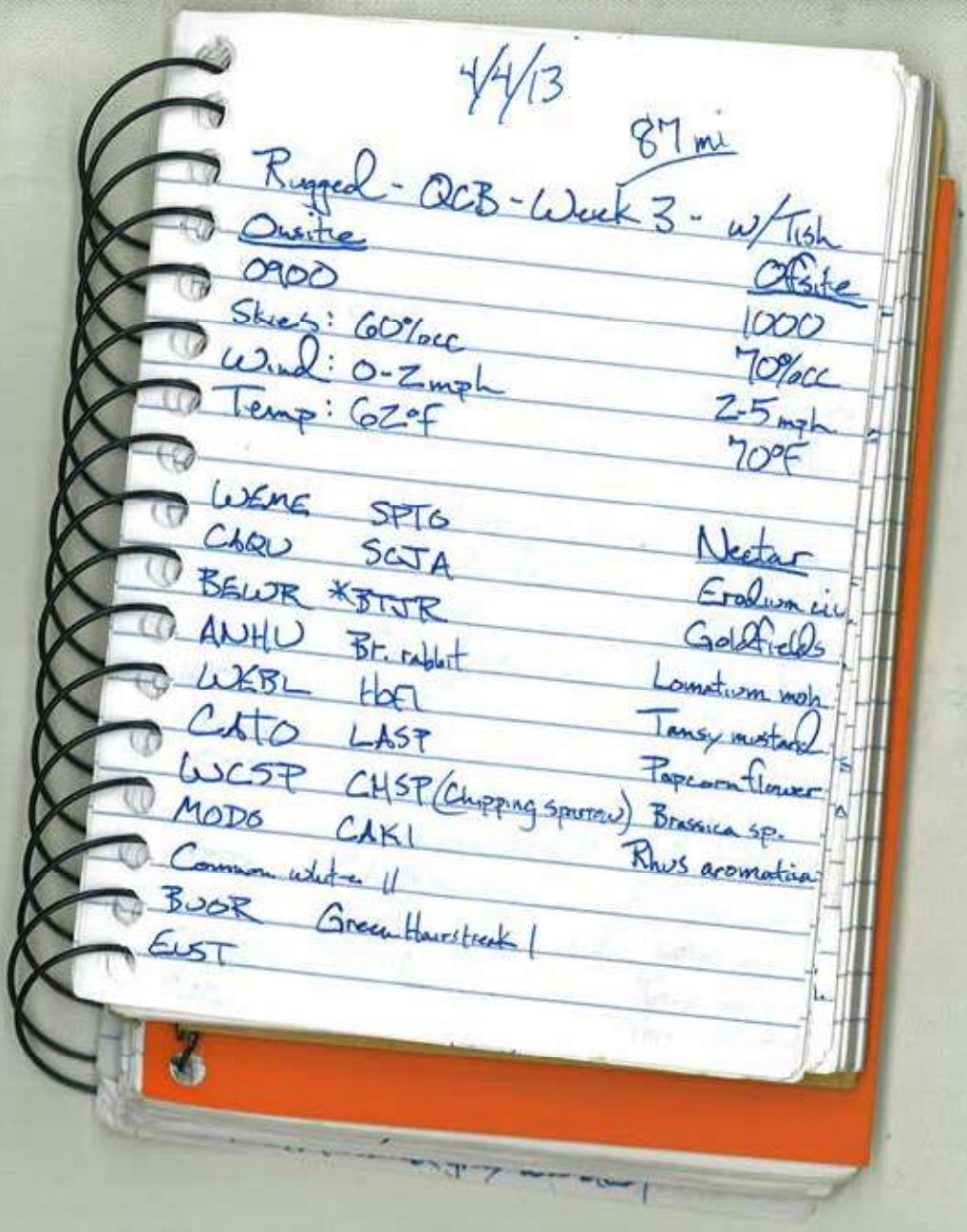
funeral stipper - 11
Sara's orangetip - 111
checkered white - ~~++++~~ 1111

RAR Linear. bel. ref check.

1400 - 1600

3 - pop's checked
no lin. bel. detected

Las. cal @ ~ 10% in bloom

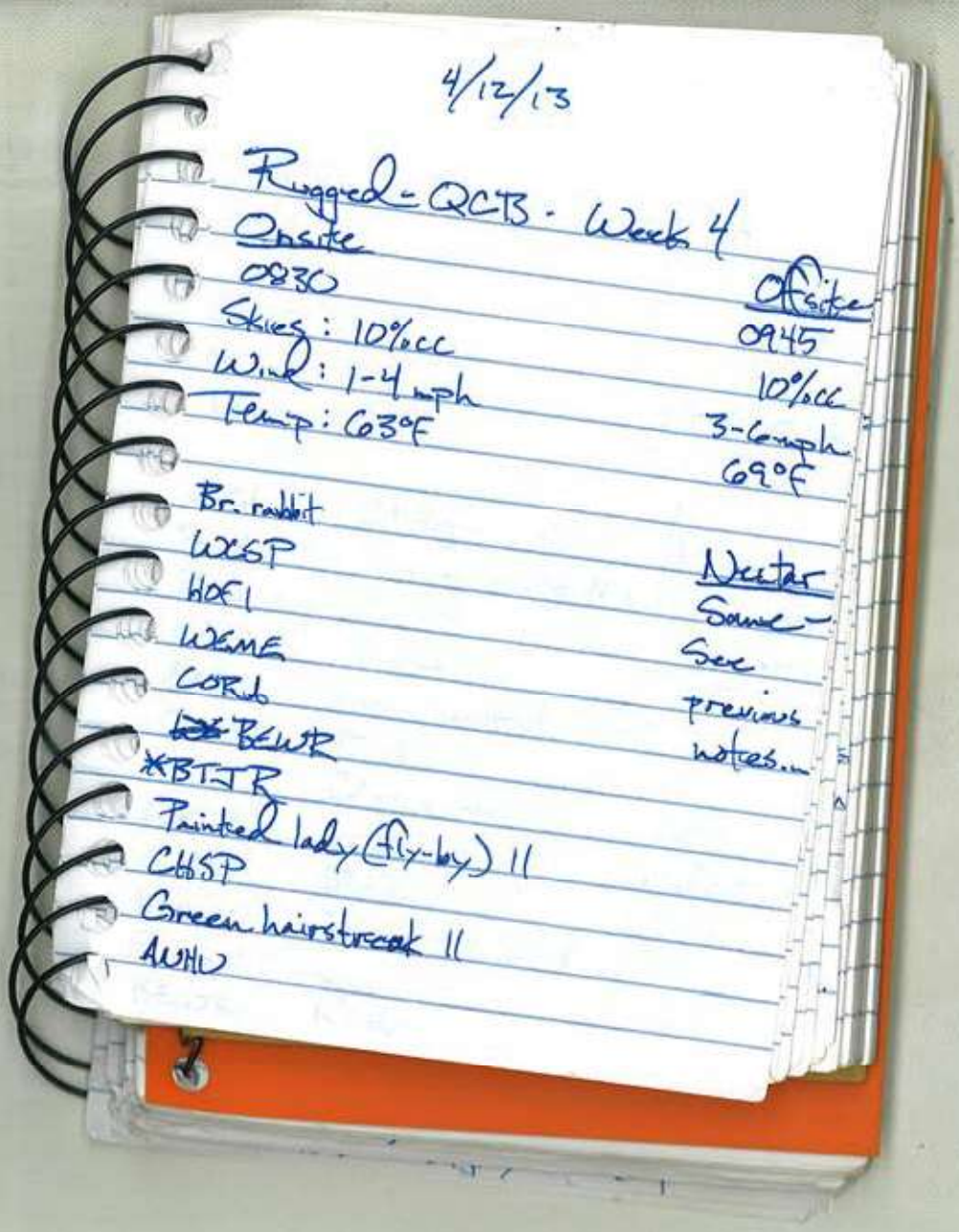


4/4/13

87 mi

Rugged - QCB - Week 3 - w/Tish

Onsite		Offsite
0900		1000
Skies: 60%cc		70%cc
Wind: 0-2mph		2-5mph
Temp: 62°F		70°F
WEME	SPTO	Nectar
CAQU	SCJA	Erodium cic
BEWR	*BTJR	Goldfields
ANHU	Br. rabbit	Lomatium moh
WEBL	HOFI	Tansy mustard
CATO	LASP	Popcorn flower
WCSP	CHSP (Chipping sparrow)	Brassica sp.
MODO	CAKI	Rhus aromatica
Common white 11		
BUOR	Green Hairstreak 1	
EUST		


4/12/13

Rugged - QCTB - Week 4

Onsite
0830
Skies: 10% cc
Wind: 1-4 mph
Temp: 63°F

Br. rabbit
WCSP
HOFI
WEME
CORA
~~BCWR~~ BEWR
*RBTJR
Painted lady (fly-by) 11
CBSP
Green hairstreak 11
AMHU

Offsite
0945
10% cc
3-6 mph
69°F

Nectar
Same -
See
previous
notes...

M122-02 3/29/13

Rugged - QCB - Week 2

Onsite
0845
Skies: 50% cc haze
Wind: 1-5 mph
Temp: 75°F

Offsite
1035
80% cc (haze)
3-7 mph
76°F

*CAWR	Br rabbit	Nectar
SCTA	EUST	Goldfields
CAQU	Euro cabbage	Erodium cic.
Behr's metal	LASP	Lomatium
WCSP	*BTJ Rabbit	mohavensis
Pale swallowtail		Tansy mustard
LEGO	Fence liz.	Popcorn flower
WEME	Perplexing Hairstreak	Brassica sp.
CORA		
RTHA		
BTGW		

↳ Black-throated gray warbler

BLACKHAWK Environmental

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June 2, 2020

Jean-Paul La Marche
Development Director
Greenskies Clean Energy
jean-paul.lamarche@cleanfocus.us
http://www.cleanfocus.com
(720)638-6553

Quino Checkerspot Butterfly Survey Results 45-Day Report
McCain Valley Solar Project
San Diego County, California

Dear Mr. La Marche:

Blackhawk Environmental, Inc. (Blackhawk) was contracted by Greenskies Clean Energy to conduct United States Fish & Wildlife Service (USFWS) protocol surveys for the federally endangered Quino Checkerspot Butterfly (*Euphydryas editha quino*; QCB) on the proposed McCain Valley Solar Project (Project) in McCain Valley near the unincorporated community of Boulevard, in eastern San Diego County, California. This Project is alternately referred to as the "Rugged Solar" project.

A QCB habitat assessment was conducted on February 20, 2020, and 12 focused QCB surveys were conducted from February 20, 2020 to May 8, 2020. A few scattered low- to medium-density populations of two QCB larval host plant species, dark-tipped bird's beak (*Cordylanthus rigidus*) and Chinese houses (*Collinsia heterophylla*), were documented on site, but no observations of QCB adults or larvae were made during the surveys.

PROJECT LOCATION & BACKGROUND

The Project is located on undeveloped natural lands within the Rough Acres facility in McCain Valley, just north of the unincorporated community of Boulevard, in San Diego County, California (Attachment A, Figures 1, 2 and 3). The Project involves the construction, operations and maintenance of a new solar array system that would convert 393.3 acres of rural, undeveloped land into a functional solar facility on five Areas (A, B, C, D and E; herein referred to singularly as an "Area" or collectively as the "Areas") [Attachment A, Exhibit A (Michael Baker International 2019), and Figures 2 and 3]. The Project is under the purview of the County of San Diego's Major Use Permit Modification process, under permit numbers PDS 2017-MUP-12-0007W1 and PDS 2017-MUP-12-007TE.

The survey area included 416 acres within the fenced perimeters of the proposed solar fields, plus a 100-foot buffer surrounding the proposed fence lines (Attachment A, Figures 2 and 3). Elevations

ranged from approximately 3,500 feet above mean sea level (ft. amsl) at the southwestern corner of Area A to 3,700 ft. amsl at the southwestern corner of Area E. The topography within the proposed Project site consisted mostly of flat to gently sloping, undeveloped uplands punctuated by scattered, very modest hilltops in the desert transitional zone of eastern San Diego County. Several ephemeral drainage features and wide meadows occurred within and/or adjacent to portions of the Areas. Vegetation communities, listed in approximate order of prevalence, within the Project site and its survey area included: granitic chamise chaparral, montane buckwheat scrub, semi-desert chaparral, scrub oak chaparral, non-native grassland, redshank chaparral, big sagebrush scrub, disturbed montane buckwheat scrub, disturbed habitat, coast live oak woodland, tamarisk scrub, alkali meadow and disturbed alkali meadow [Attachment A, Figure 4 (Dudek 2019)].

QCB Natural History

The Quino Checkerspot Butterfly became federally listed as endangered in 1997 by USFWS under the Endangered Species Act (USFWS 2014). It is one of the 26 subspecies of the Edith's Checkerspot (*Euphydryas editha*), a member of the brush-footed family Nymphalidae, and is the most southwesterly distributed of the Edith's subspecies (Mattoni et al. 1997). QCB has been extirpated from more than 75 percent of its historical distribution, with limited areas remaining in western Riverside County and southern San Diego County. QCB habitat degradation has primarily occurred from human impacts such as suburbanization, agriculture, wildfires and invasive species (USFWS 2003). Due to these factors, it is now estimated that QCB populations have been reduced by approximately 95 percent (USFWS 2003).

The adult QCB on average has a 1.5-inch wingspan and has a dorsal maculation of black, red and cream scaling on the wings with the ventral side displaying only red and cream. The abdomen is dark with rows of orange-red stripes between segments. QCB has one flight period per year, ranging approximately four to six weeks, between late January and mid-May. Flight emergence is thought to be largely influenced by environmental conditions such as annual precipitation levels. Adult females typically mate only once and lay one to two egg masses, consisting of 100 or more eggs, per day on primary larval host plants with an estimated total egg production of 400-800 during their lifespan (Mattoni et al. 1997). Mating interactions occur when males and females innately seek topographic summits, also known as "hilltopping." Larvae hatch from eggs within two weeks, and success rate to maturity is dependent on host plant health, density, and diversity capabilities to support the necessary instar (molts) stages (Pratt & Emmel 2009). QCB can undergo a period of diapause (dormancy) multiple times through development prior to pupation until environmental conditions are favorable for flight emergence (USFWS 2003).

QCB habitat components can vary widely but have been identified as areas that contain extensive populations of primary host plants among grassland and coastal scrub vegetation communities that dominate open spaces. These primary host plant populations should, to some degree, be in proximity to secondary host plants and suitable nectar sources. It is estimated that there are not many remaining locations in San Diego County that meet these criteria. (Longcore, Murphy, Deutschman, Redak, & Fisher 2003).

Dot-seed plantain (*Plantago erecta*) has been identified as QCB's primary host plant; however, there are additional larval food plants known to support QCB development at various larval stages. These species include purple owl's clover (*Castilleja exserta),* dark-tipped bird's beak (*Cordylanthus rigidus*), Chinese houses (*Collinsia heterophylla*), Coulter's snapdragon (*Antirrhinum coulterianum*), and woolly plantain (*Plantago patagonica*) (Pratt & Pierce 2009).

METHODS

A 15-day QCB survey notification was submitted to USFWS on February 18, 2020. Per USFWS protocol, a QCB site assessment of the survey area was conducted to map areas of QCB-suitable habitat to be included in the surveys, as well as areas of QCB-unsuitable habitat that could be excluded from the surveys. Due to timing constraints in fitting in the assessment and the initial survey pass in week one of the QCB protocol survey season, the assessments were conducted during the initial survey pass. Therefore, QCB assessments were conducted on February 19 and 20, 2020. Excluded areas were mapped directly onto the ESRI ArcGIS Collector app that the QCB biologists utilized for navigation during the surveys, and the results were interpolated for presentation in this report (Attachment A, Figures 5 and 6). QCB host plant populations, where found, were recorded in the field on the Collector app and included in this report (Attachment A, Figure 5 and 6). The QCB biologists also recorded potential nectar sources and all observed butterfly species in their daily field notes; these notes were then compiled for complete compendiums in this report (Attachments B and C). The field notes were transferred to survey forms utilizing the Survey123 app and are included as Attachment D.

QCB host plant populations observed during the assessments were collected in the field on the Collector app as polygons of low or moderate density, and mapped onto a USGS 7.5' (1:24,000) topo quadrangle map enlarged 200% (Attachment A, Figure 6).

All QCB site assessments and surveys were led and/or conducted by current USFWS QCB permittees. In total, five QCB-permitted biologists were utilized during the assessments, surveys, host plant and nectar source documentation for this Project, including Kris Alberts, Seth Reimers, Ian Maunsell, Ryan Quilley and Garrett Huffman (Table 1). Blackhawk Staff Biologist Lorena Bernal also assisted with the surveys under the supervision of the QCB-permitted biologists.

Table 1. USFWS Permitted QCB Biologists

Biologist	USFWS Permit Number
Kris Alberts	TE-039640-5
Seth Reimers	TE-80703A-2
Ian Maunsell	TE-42833A-4
Ryan Quilley	TE-92462A-2
Garrett Huffman	TE-20186A-2.1

Survey methods followed the condition parameters of the latest USFWS QCB protocol (December 15, 2014), with an allowance made on one occasion by the USFWS to conduct surveys on consecutive days due to survey time being previously lost to weather conditions that consistently remained too

cool, precipitous and/or windy to facilitate protocol level QCB surveys (Attachment E). QCB surveys were conducted during favorable weather conditions in the mid-morning to late afternoon hours of February 19, 20, 27 and 28; March 4, 5, and 30; April 3, 15, 16, 19, 21, 22, 24, 29 and 30; and May 6 and 8, 2020. The surveys were conducted slowly and on foot, with the aid of binoculars, butterfly nets and/or binoculars, while constantly looking for presence/absence of flying adult QCB; care was taken on each step to examine the ground before setting foot in order to minimize or avoid the chance of accidentally stepping on larvae. On each survey pass, potential QCB nectar sources, host plant populations, and all butterfly species and their numbers were detailed in the field notes of the biologists and/or the Collector app before being transferred to Survey123 forms. Representative photographs were collected as necessary (Attachment F). A list of all documented nectar sources can be seen in Attachment B, and all butterfly species detected can be seen in Attachment C. All butterfly taxonomy used during QCB surveys referenced Kojiro Shiraiwa's 2010 book, *Butterflies of San Diego County*. Weather data were recorded in the field using digital anemometers and thermometers and are included in the survey conditions presented in Table 2.

Table 2. Survey Conditions

Biologist(s)	Survey Areas	Pass Number	Date	Start/End Time	Start/End Temperature (°F)	Start/End Wind Speed (mph)	Start/End Cloud Cover (%)	Start/End Precip.
Kris Alberts	E	1	2/19/20	1010-1555	63-67	0-2/2-9	2/0	None
Kris Alberts	B	1	2/20/20	1000-1550	60-65	2-8/1-6	40/75	None
Ian Maunsell	A	1	2/20/20	0909-1400	60-65	5-8/4-12	10/50	None
Seth Reimers	C, D	1	2/20/20	0905-1400	62-66	1-5/2-7	15/40	None
Kris Alberts	C, D	2	2/27/20	1015-1515	63-65	3-14/1-8	80/90	None
Garrett Huffman	A	2	2/27/20	1000-1553	60-66	5-10/3-10	30/50	None
Kris Alberts Lorena Bernal	E	2	2/28/20	1015-1500	64-70	3-8/2-8	70/60	None
Seth Reimers Ian Maunsell	B	2	2/28/20	0928-1531	63-71	2-6/1-5	40/20	None
Ian Maunsell	B	3	3/4/20	0840-1520	63-66	1-4/4-8	0/0	None
Kris Alberts	E	3	3/4/20	1005-1620	67-65	1-6/1-4	5/15	None
Ian Maunsell	A	3	3/5/20	0833-1410	61-69	3-9/5-14	20/25	None
Kris Alberts	C, D	3	3/5/20	1010-1520	63-64	1-6/2-8	15/80	None
Ian Maunsell	A	4	3/30/20	1017-1532	60-66	5-9/3--11	0/0	None

Ryan Quilley	C, D	4	3/30/30	1110-1631	62-71	5-9/3-6	0/5	None
Seth Reimers Lorena Bernal	B	4	3/30/20	1045-1630	60-64	2-8/3-6	0/0	None
Kris Alberts	E	4	3/30/20	1055-1700	60-66	1-4/1-4	0/10	None
Ian Maunsell	A	5	4/3/20	1021-1454	60-65	4-8/8-16	0/0	None
Ryan Quilley Lorena Bernal	C, D	5	4/3/20	1105-1626	64-68	4-7/4-8	0/5	None
Seth Reimers	B	5	4/3/20	1020-1627	60-68	3-10/4-9	0/5	None
Kris Alberts	E	5	4/3/20	1100-1700	60-63	3-9/3-11	0/3	None
Ian Maunsell	A	6	4/15/20	0935-1440	61-74	4-9/1-4	0/0	None
Ryan Quilley	C, D	6	4/15/20	0950-1617	64-76	3-6/2-6	0/0	None
Seth Reimers	B	6	4/15/20	0930-1616	62-72	1-5/5-11	0/0	None
Kris Alberts	E	6	4/15/20	1050-1715	64-71	1-4/2-8	0/0	None
Ian Maunsell	A	7	4/16/20	0915-1415	60-71	2-9/7-14	0/0	None
Ryan Quilley	C, D	7	4/16/20	0920-1602	62-71	1-5/4-13	0/0	None
Seth Reimers	B	7	4/16/20	0924-1627	61-68	5-11/7-15	0/0	None
Kris Alberts	E	7	4/16/20	1010-1630	62-68	2-9/2-11	0/0	None
Ian Maunsell	A	8	4/19/20	1045-1600	63-64	7-9/4-10	5/30	None
Ryan Quilley	C, D	8	4/19/20	1010-1555	63-71	7-9/7-12	10/30	None
Garrett Huffman	B	8	4/19/20	1130-1725	65-67	2-4/3-7	20/20	None
Kris Alberts	E	8	4/19/20	1135-1725	63-64	1-4/4-10	20/30	None
Ryan Quilley Ian Maunsell	A, C, D	9	4/21/20	1045-1745	64-76	4-9/4-10	0/0	None
Seth Reimers Kris Alberts	B, E	9	4/22/20	0855-1640	68-86	2-7/1-6	0/3	None
Ryan Quilley Ian Maunsell	A, C, D	10	4/24/20	0839-1600	73-85	3-8/4-6	0/0	None

Seth Reimers Kris Alberts Lorena Bernal	B, E	10	4/24/20	0900-1535	75-82	2-8/1-8	0/0	None
Ryan Quilley Ian Maunsell	A, C, D	11	4/29/20	0715-1515	68-82	0-1/5-8	0/40	None
Seth Reimers Kris Alberts Lorena Bernal	B, E	11	4/30/20	0920-1640	73-79	0-2/6-13	95/30	None
Ryan Quilley	C, D	12	5/6/20	1049-1645	88-92	1-5/6-11	10/0	None
Ian Maunsell	A	12	5/8/20	0851-1348	79-91	0-1/2-8	0/0	None
Seth Reimers Kris Alberts Lorena Bernal	B, E	12	5/8/20	0800-1555	67-88	0/5-12	10/5	None

RESULTS

A complete suite of 12 survey passes was conducted throughout the included portions of the Project and its survey area. Included portions with potential QCB nectar sources consisted of several chaparral and scrub habitat types where nectar sources tended to occur on decomposed granitic soils in the openings between shrubs. Most of the included survey area exhibited a variety of potential QCB nectar sources that increased in abundance and diversity as the QCB season progressed. Though the beginning of the QCB survey season yielded few nectar sources in low abundance, all Areas ultimately contained abundant sources of nectar by the close of the season. However, few larval host plant populations were documented. A total of 500 acres were surveyed as included habitat. Excluded portions included several stands of closed canopy shrubs and/or trees adjacent to the included portions. A total of 11.96 acres were deemed excluded habitat.

Two QCB larval host plant species, dark-tipped bird's beak and Chinese houses, were documented on site, occurring in several scattered locations in Areas B, C, D and E of low to medium density patches (Attachment A, Figures 5 and 6). Despite the limited occurrence of these host plants onsite, dark-tipped bird's beak is not known to be a primary QCB larval host plant, and its occurrences were primarily limited to the shaded driplines and canopies of large shrubs, away from sunny openings on hilltops that QCB tends to prefer. Chinese houses were found in even fewer locations, with only four small patches mapped on the shaded, north sides of scrub oaks (*Quercus berberdifolia*),

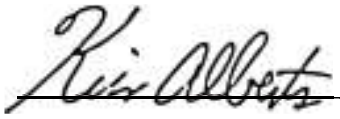
A total of 45 butterfly species were documented in the survey area throughout the season, but no QCB adults or larvae were observed during the surveys. In addition, the numbers of butterflies observed were generally low, with few species seen in relative abundance. Most often, only one to 10 individuals of any one species were seen during any of the surveys, with the exceptions of painted lady (*Vanessa cardui*) that was observed in the low hundreds flying north during peak migration, Behr's metalmark (*Apodemia virgulti virgulti*) that was also observed onsite in the low hundreds during the April surveys and acmon blue (*Plebejus acmon*) that was seen onsite by the dozens during the February and March surveys.

CONCLUSION

Due to the paucity of primary QCB larval host plants occurring in shaded areas only, the limited presence of birds beak also mainly relegated to shaded areas near large shrubs, and no QCB detections in 2020, QCB appear to have low potential to occupy the proposed Project and the survey area, as there were few QCB larval host plants that could support all QCB natural history functions in the survey area. Despite this, it remains more plausible that QCB could disperse through the Project site between nearby breeding areas. However, when considering the proposed Project activities, flying adults in dispersal can reasonably be expected to avoid Project-related impacts by simply flying away from Project activities, should Project construction coincide with the QCB flight season. Therefore, no mitigation measures are proposed regarding potential impacts to QCB as a result of the construction phase or operations and maintenance phase of the Project.

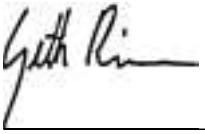
CERTIFICATION

All biologists working under Blackhawk Environmental, Inc. for the 2020 McCain Valley Solar Project QCB Surveys certify by signature below that the information in this report and attached figures completely and accurately represent the work of each individual permittee.



6-2-20

Kris Alberts — Date



6-2-20

Seth Reimers — Date



6-2-20

Ian Maunsell — Date



6-2-20

Garrett Huffman — Date



6-2-20

Ryan Quilley — Date

Please feel free to contact me by phone (619-972-8714) or e-mail (kris@blackhawkenv.com) with any questions regarding the contents of this report.

Sincerely,

Kris Alberts
Blackhawk Environmental, Inc.
Principal Biologist
USFWS Permit TE 039640-5.1

ATTACHMENTS

A: Figures and Exhibit A

B: Potential Nectar Sources List

C: Butterfly Species List

D: Survey Data Sheets

E: USFWS Correspondence

F: Photo Pages

REFERENCES

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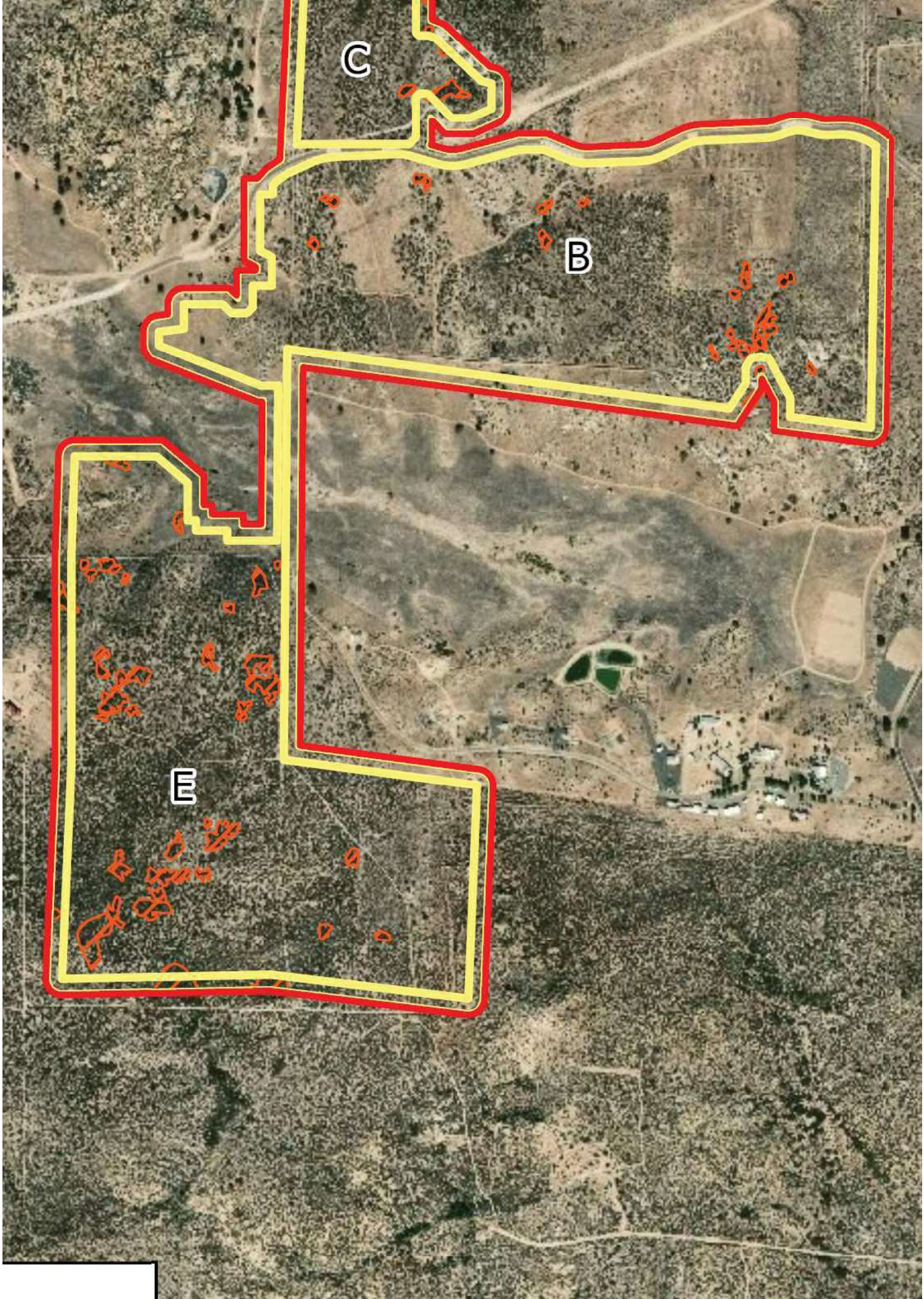
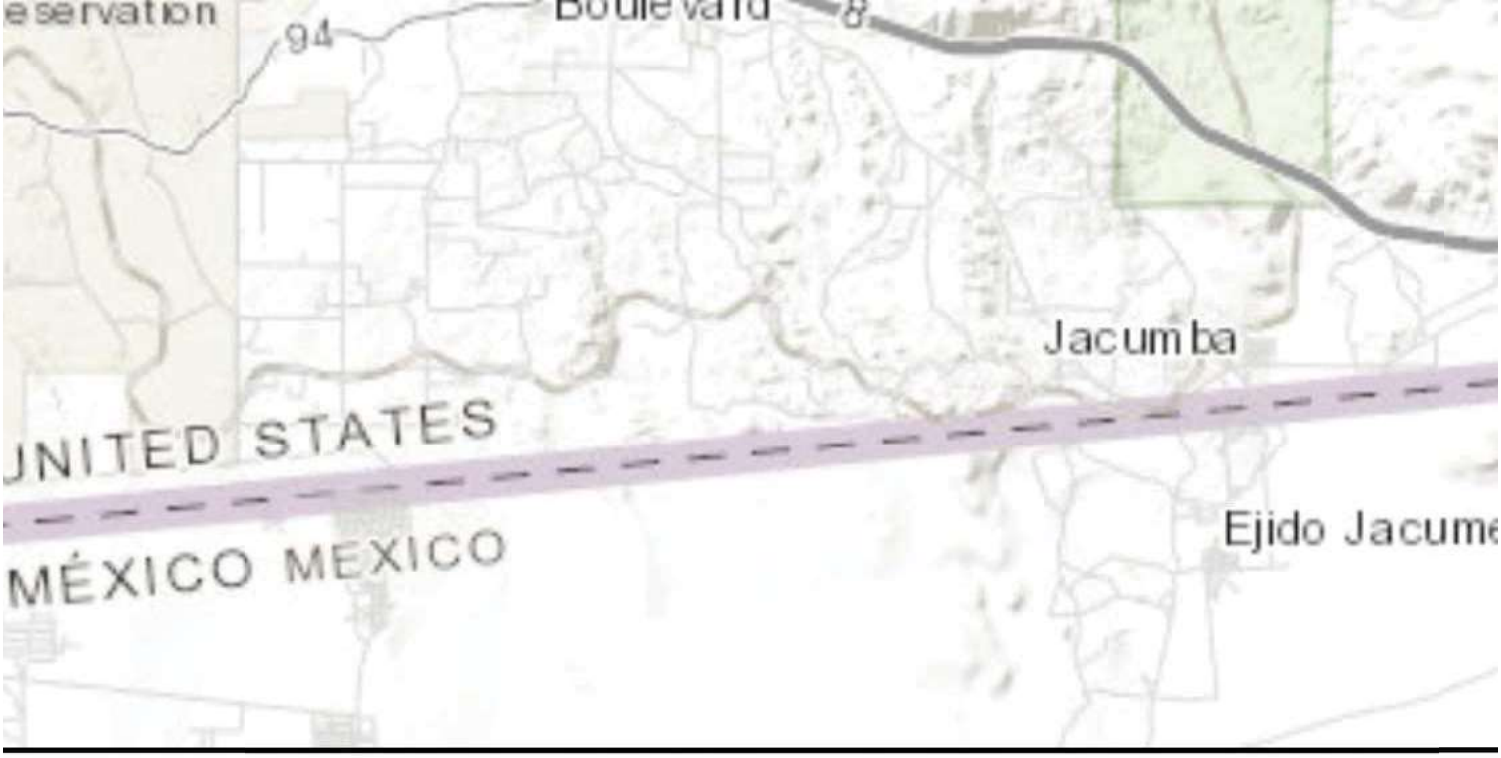
ATTACHMENT A

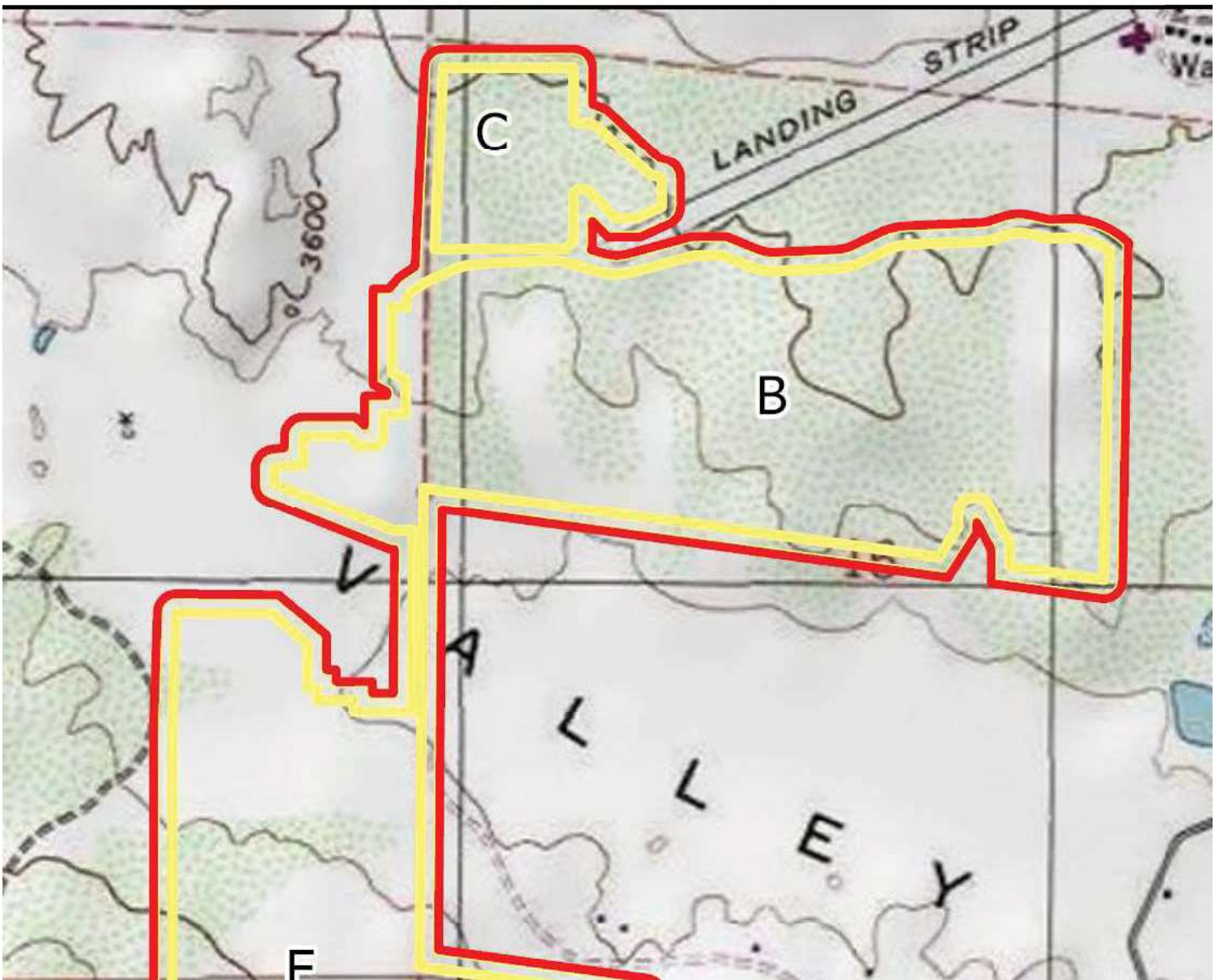
Figures and Exhibit A

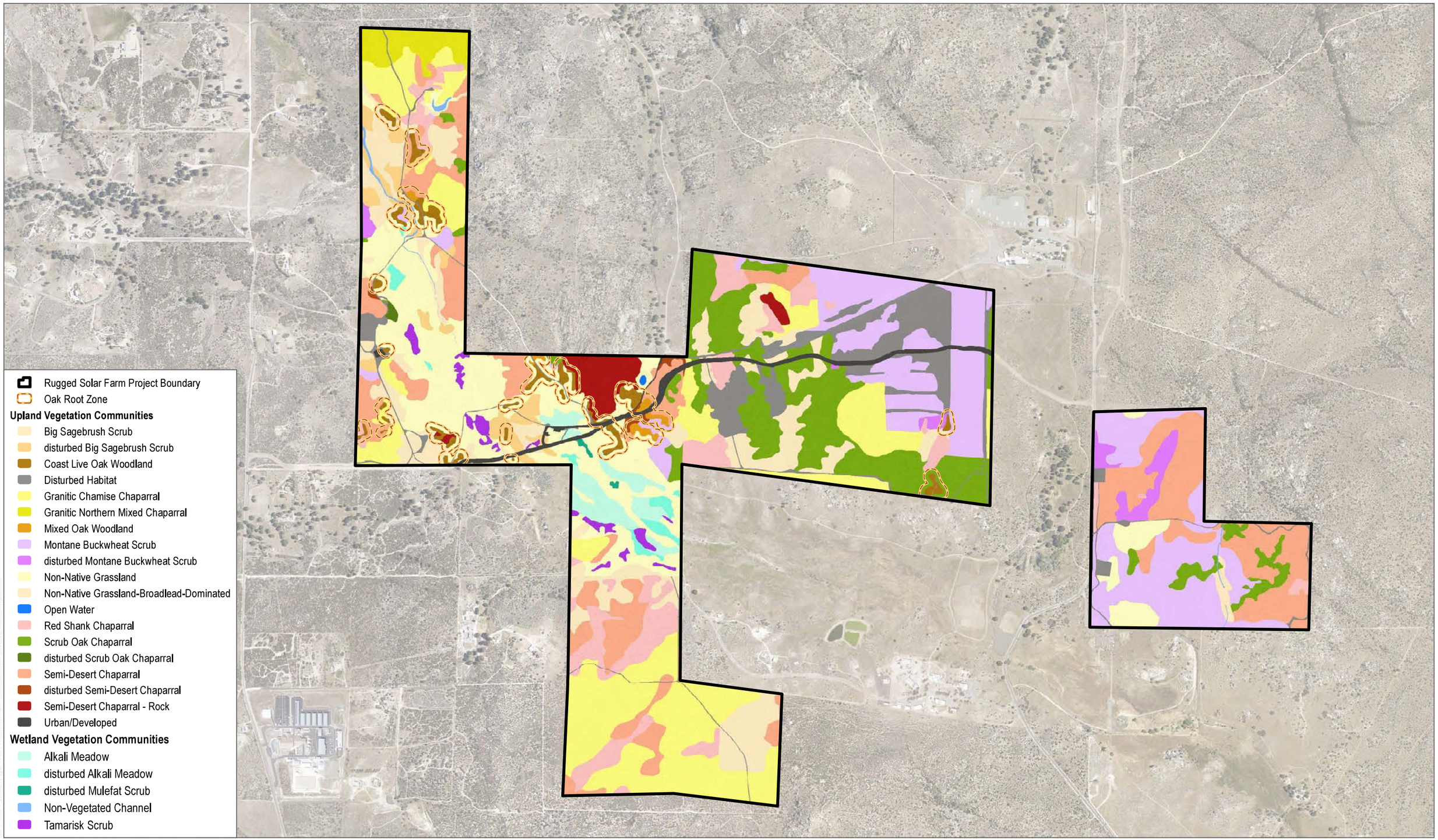
Blackhawk Environmental


National Monument
Salton Sea
86
Anza-Borrego
Desert
State Park
San
Diego
San Diego
6500 ft
LAGUNA MOUNTAINS
US Naval
Reservation
Santee
Kumeyaay Hwy
El Cajon
Cleveland
National
Forest
Project
Location
8
Vista
UNITED STATES
MEXICO
Tecate
2D
1856 m
Carretera Ensenada-Tijuana


C
B
E


Boulevard
94
Jacumba
UNITED STATES
MÉXICO MEXICO
Ejido Jacume


C
LANDING STRIP
3600
B
VALLEY
E



SOURCE: Michael Baker 2019; SANGIS 2017

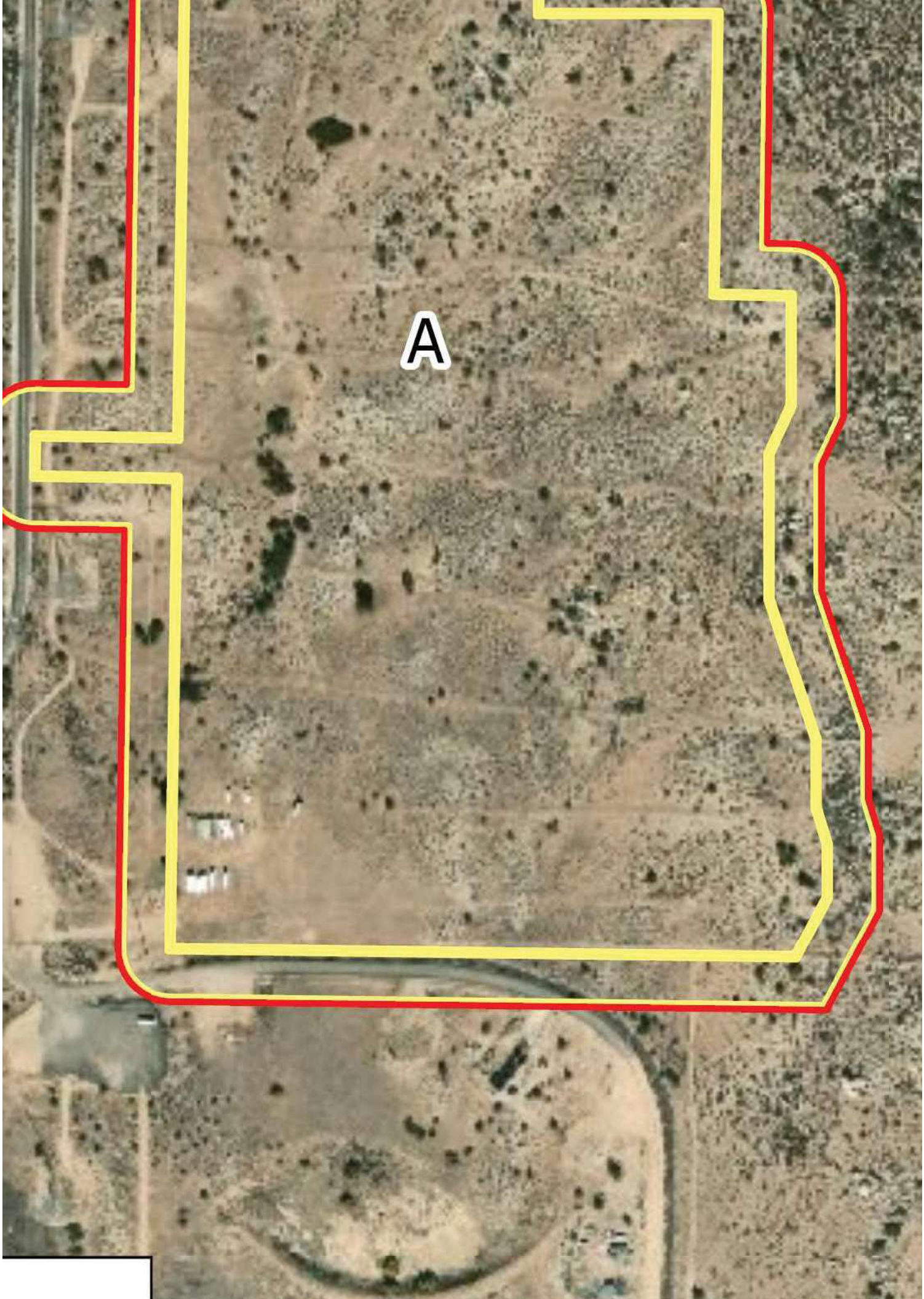
DUDEK

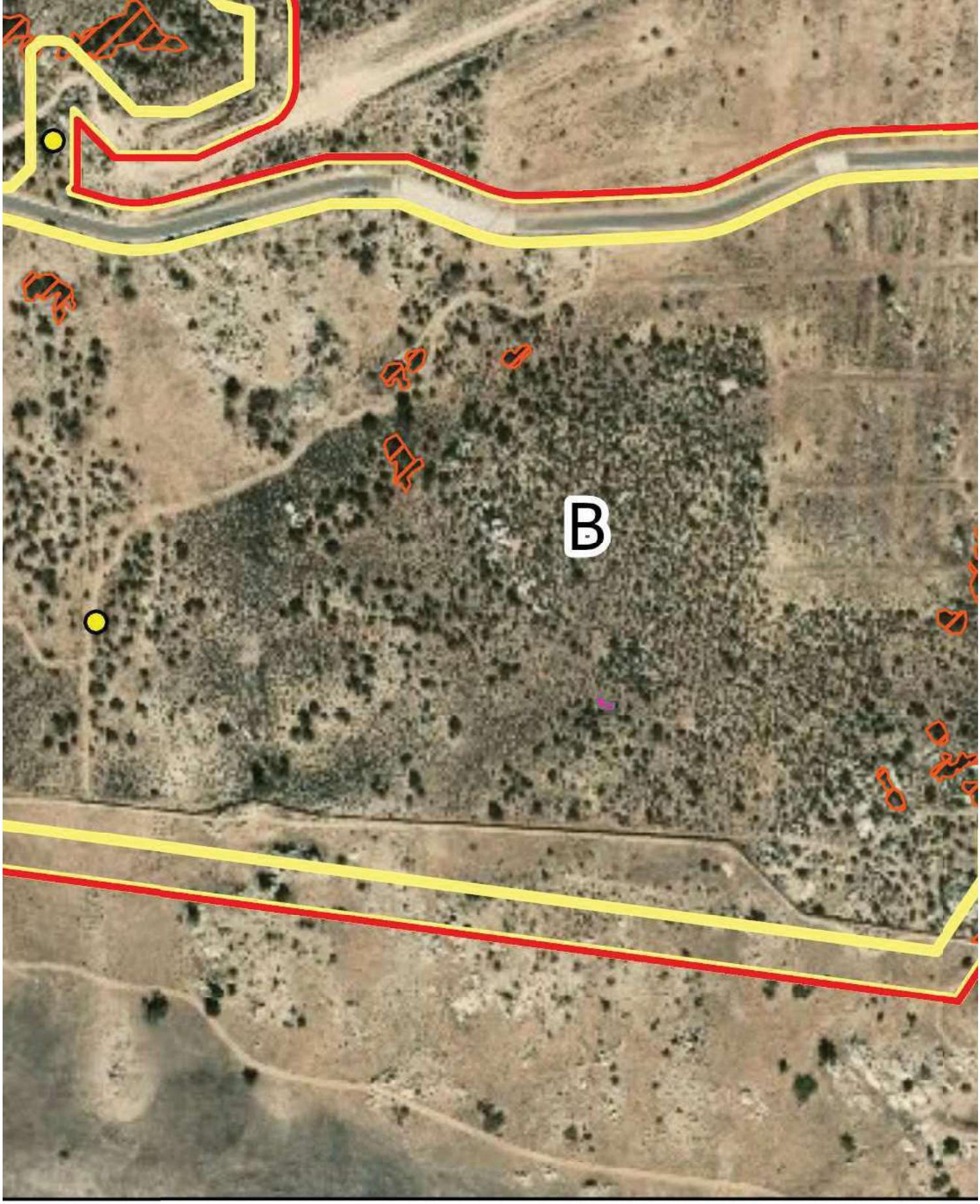
0 500 1,000 Feet

FIGURE 4

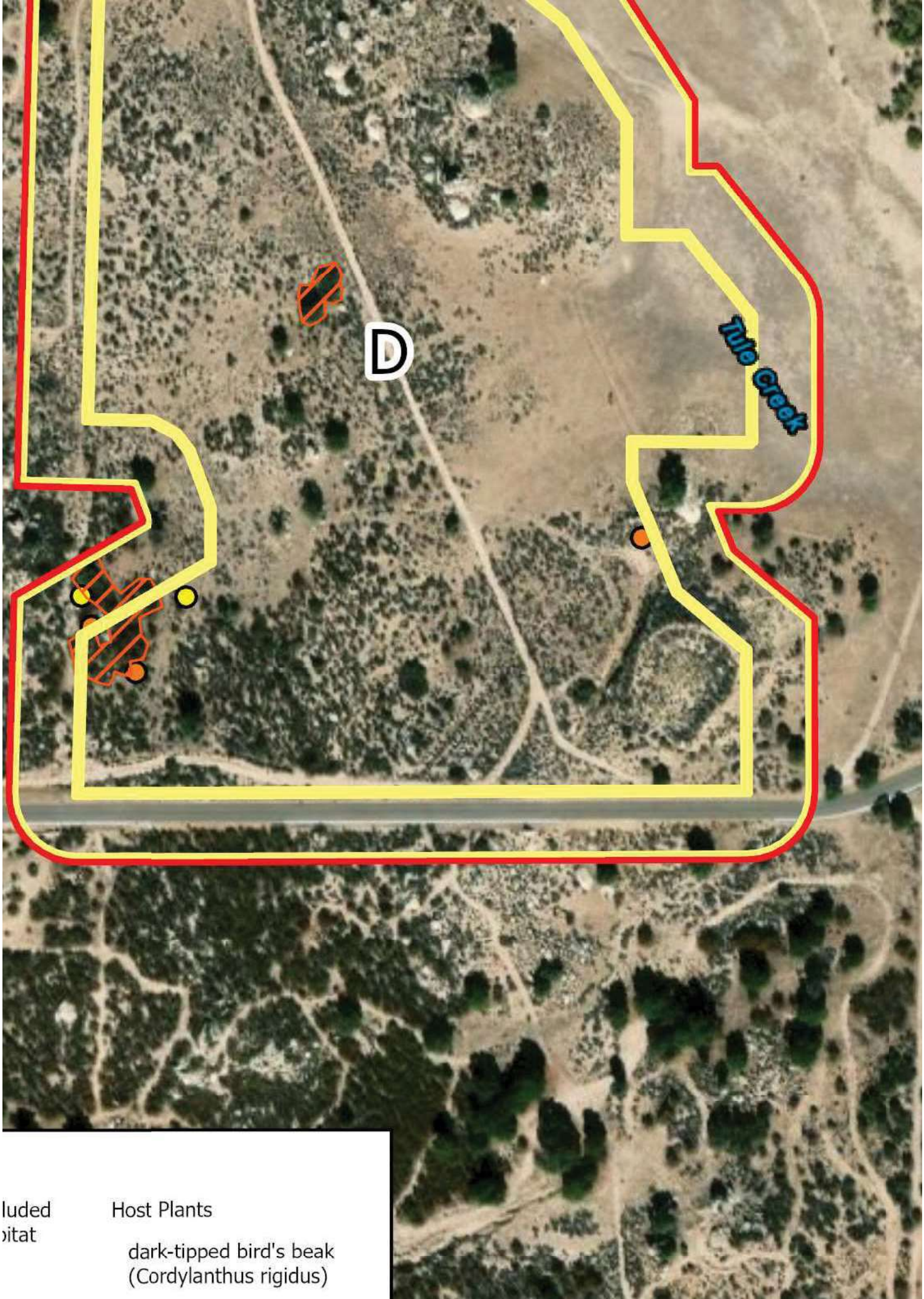
Biological Resources - Vegetation Communities

Biological Resources Report - Rugged Solar Farm


A



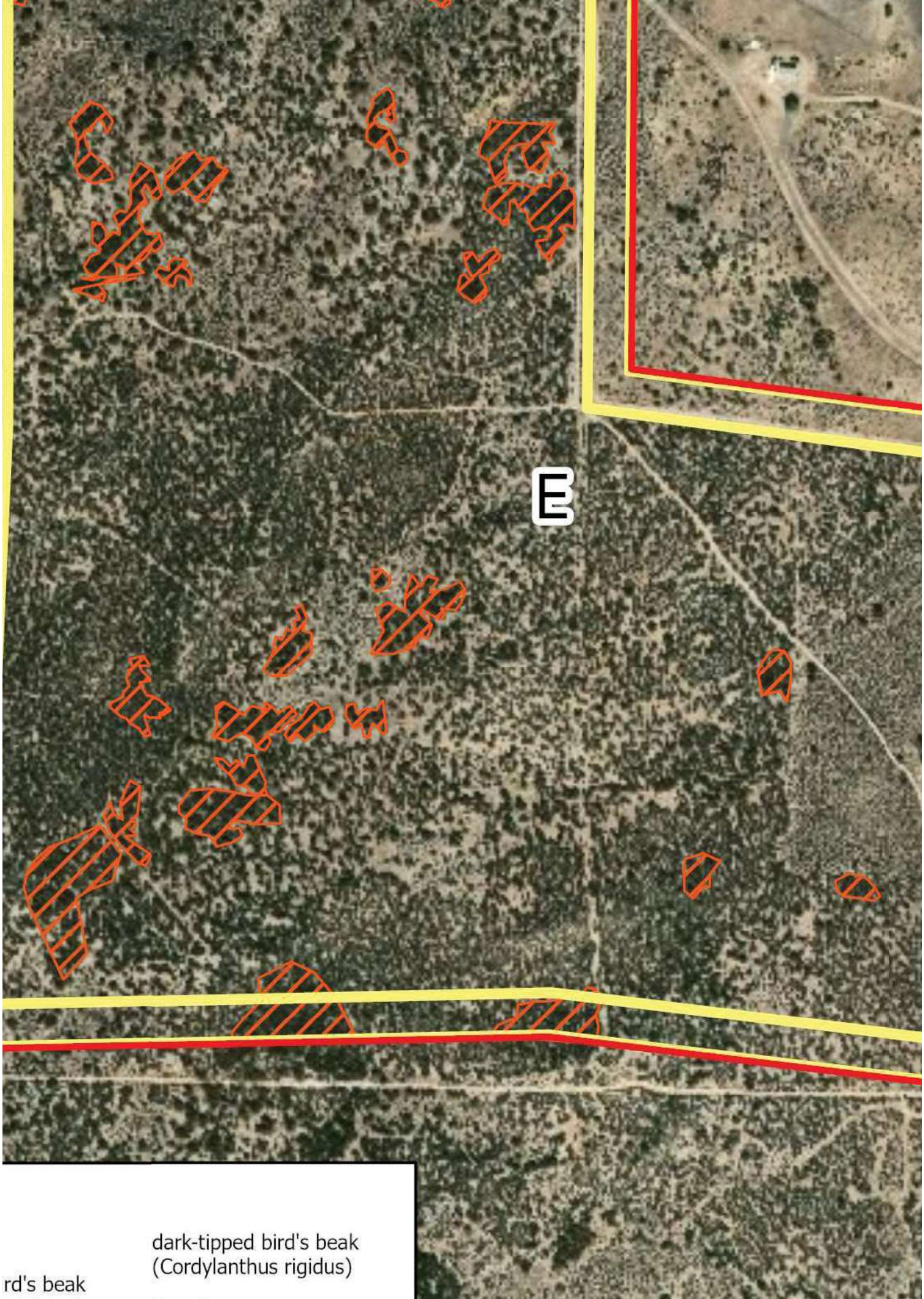
Area	Host Plants	dark-tipped bird's beak (Cordylanthus rigidus)	Chinese houses (Collinsia heterophylla)	C h
	dark-tipped bird's beak (Cordylanthus rigidus)	Density	Density	D



luded
bitat

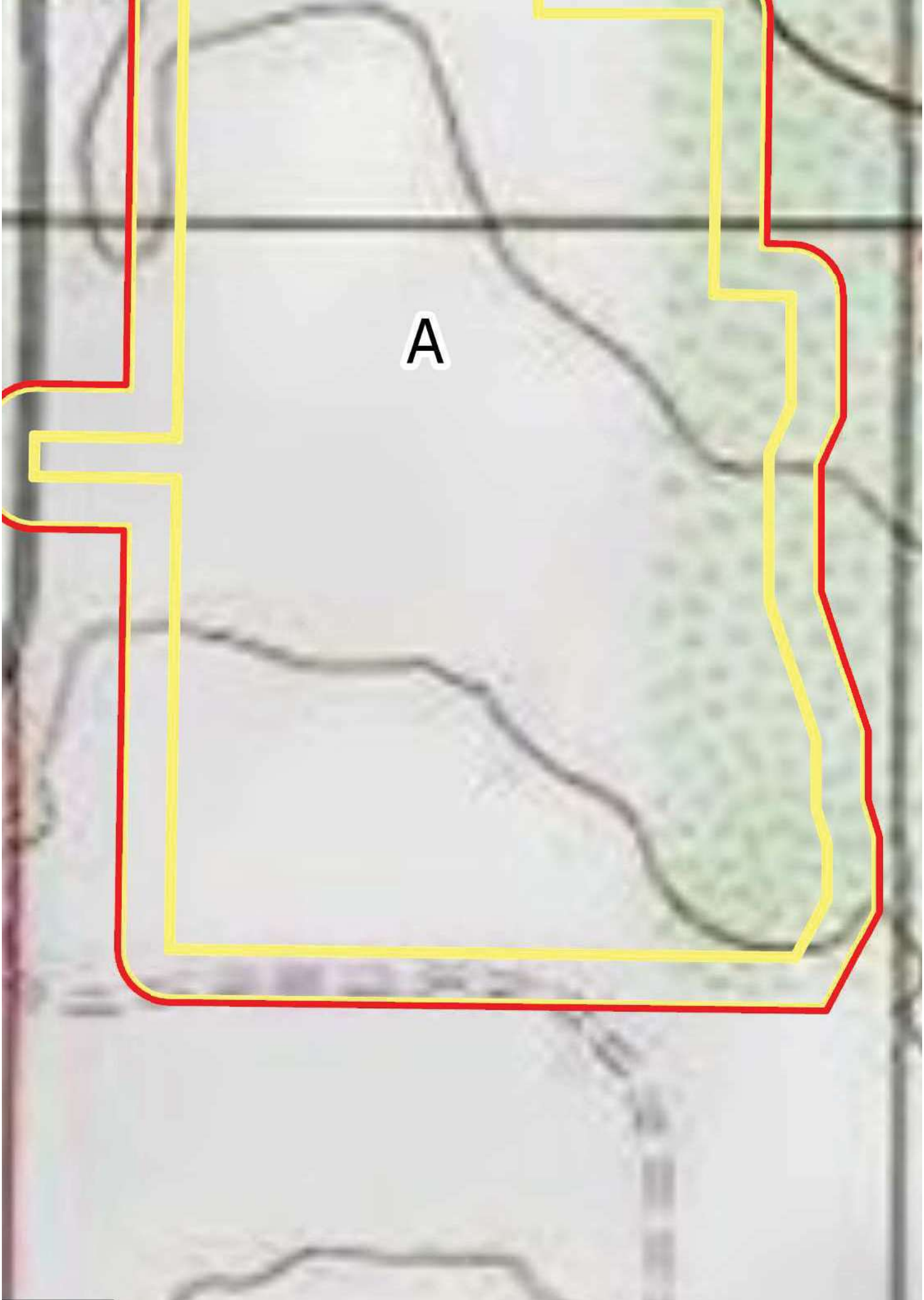
Host Plants

dark-tipped bird's beak
(Cordylanthus rigidus)



dark-tipped bird's beak
(Cordylanthus rigidus)

rd's beak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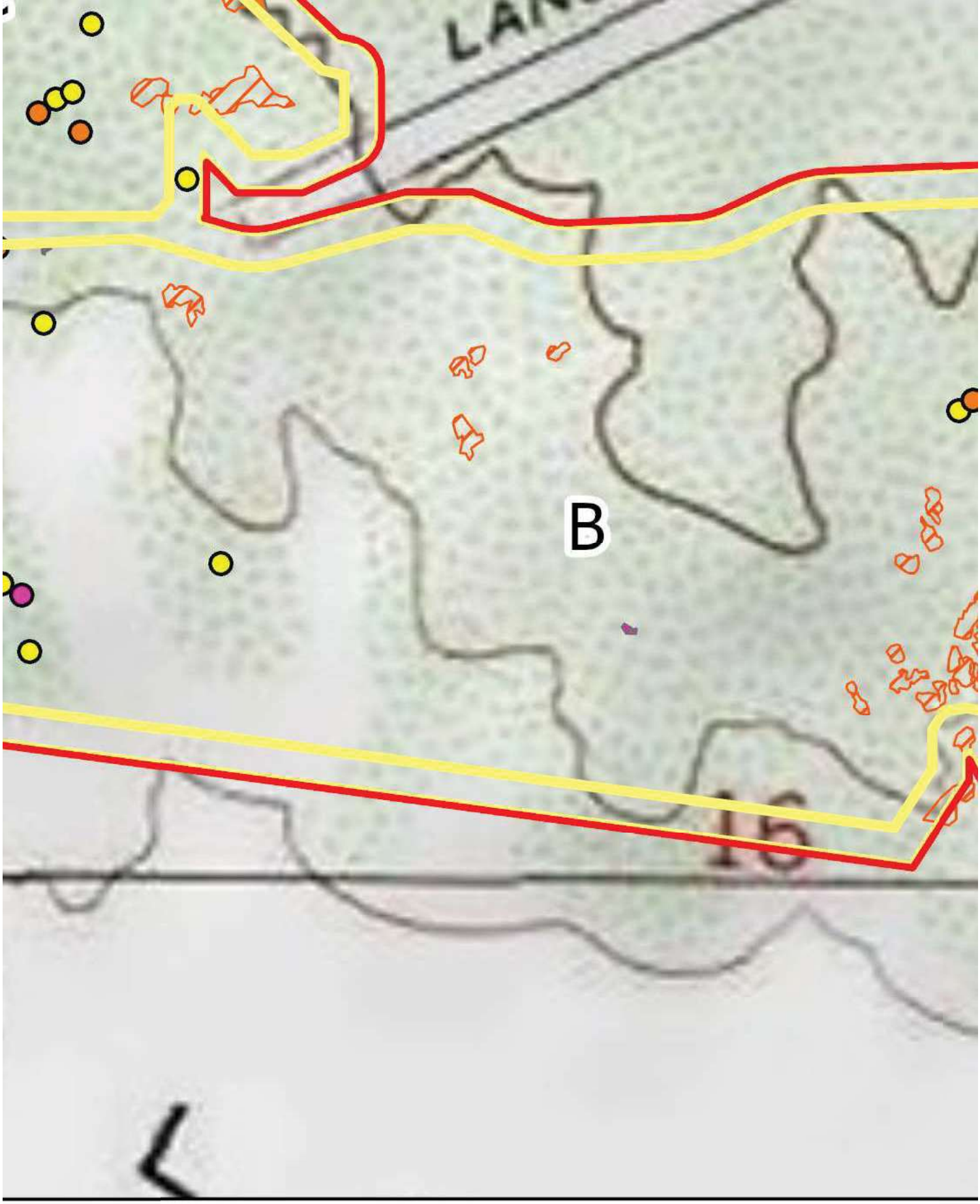


Area

Host Plants

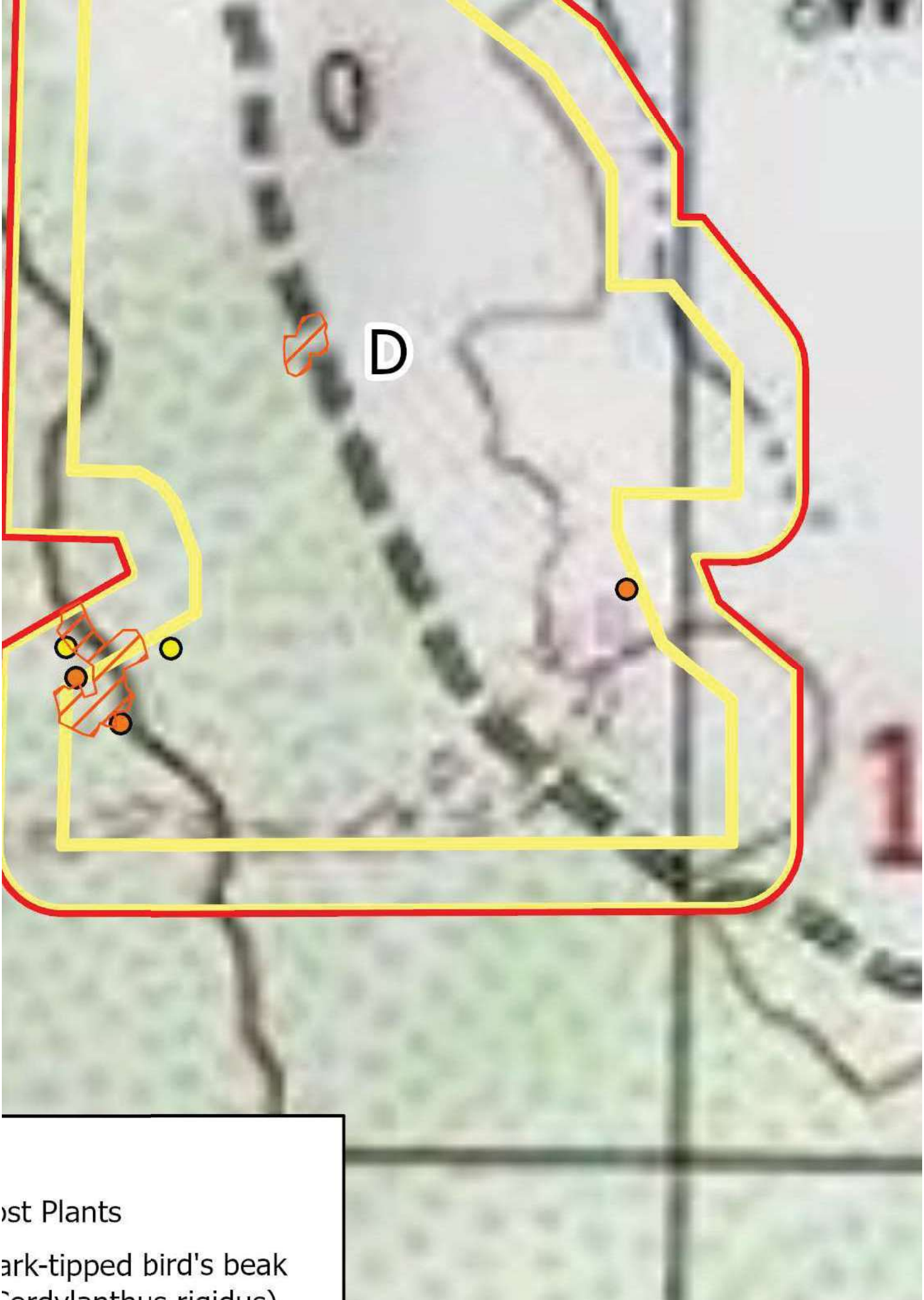
dark-tipped bird's beak (Cordylanthus rigidus)

dark-tipped bird's beak (Cordylanthus rigidus)

Density

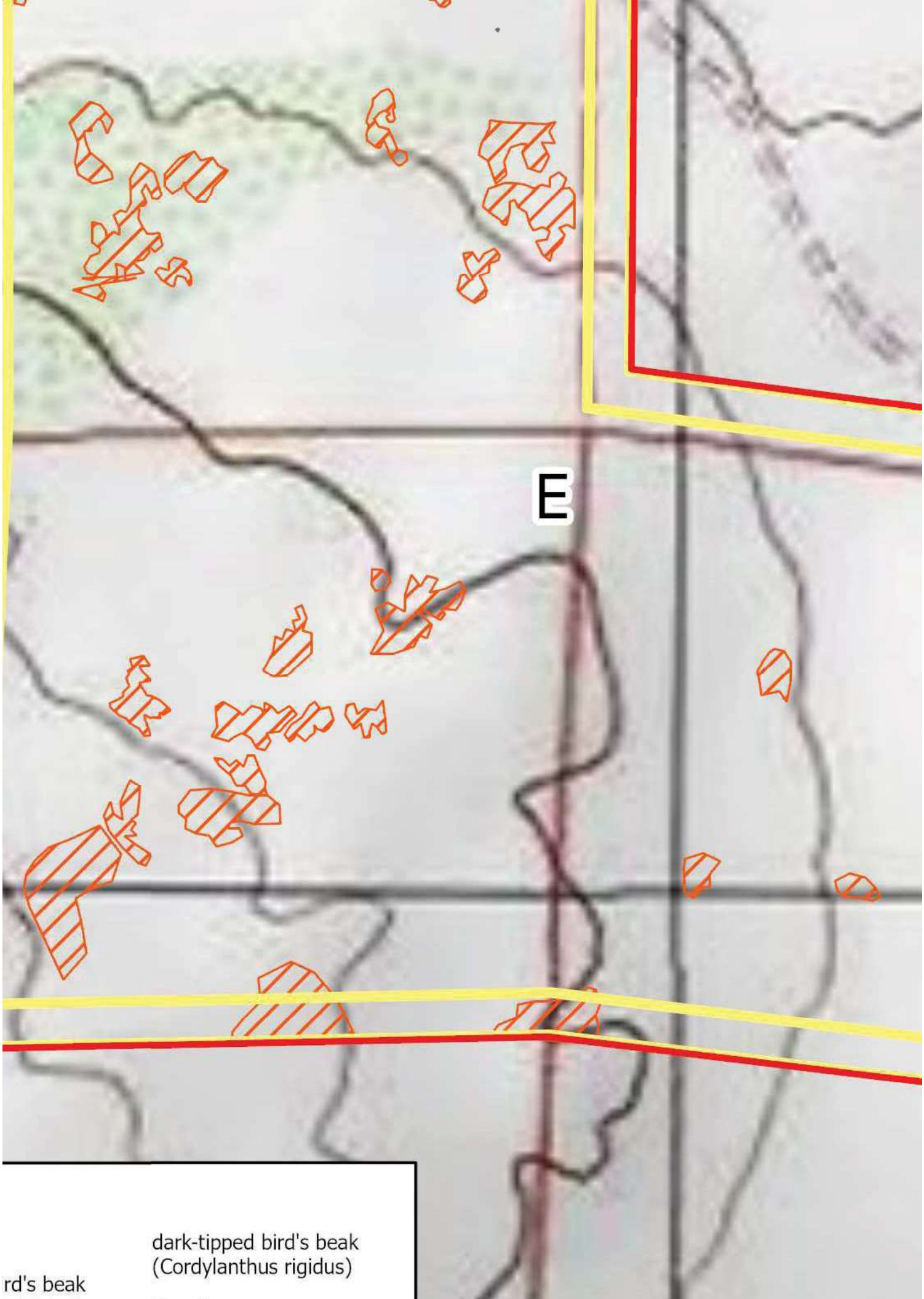
Chinese houses (Collinsia heterophylla)

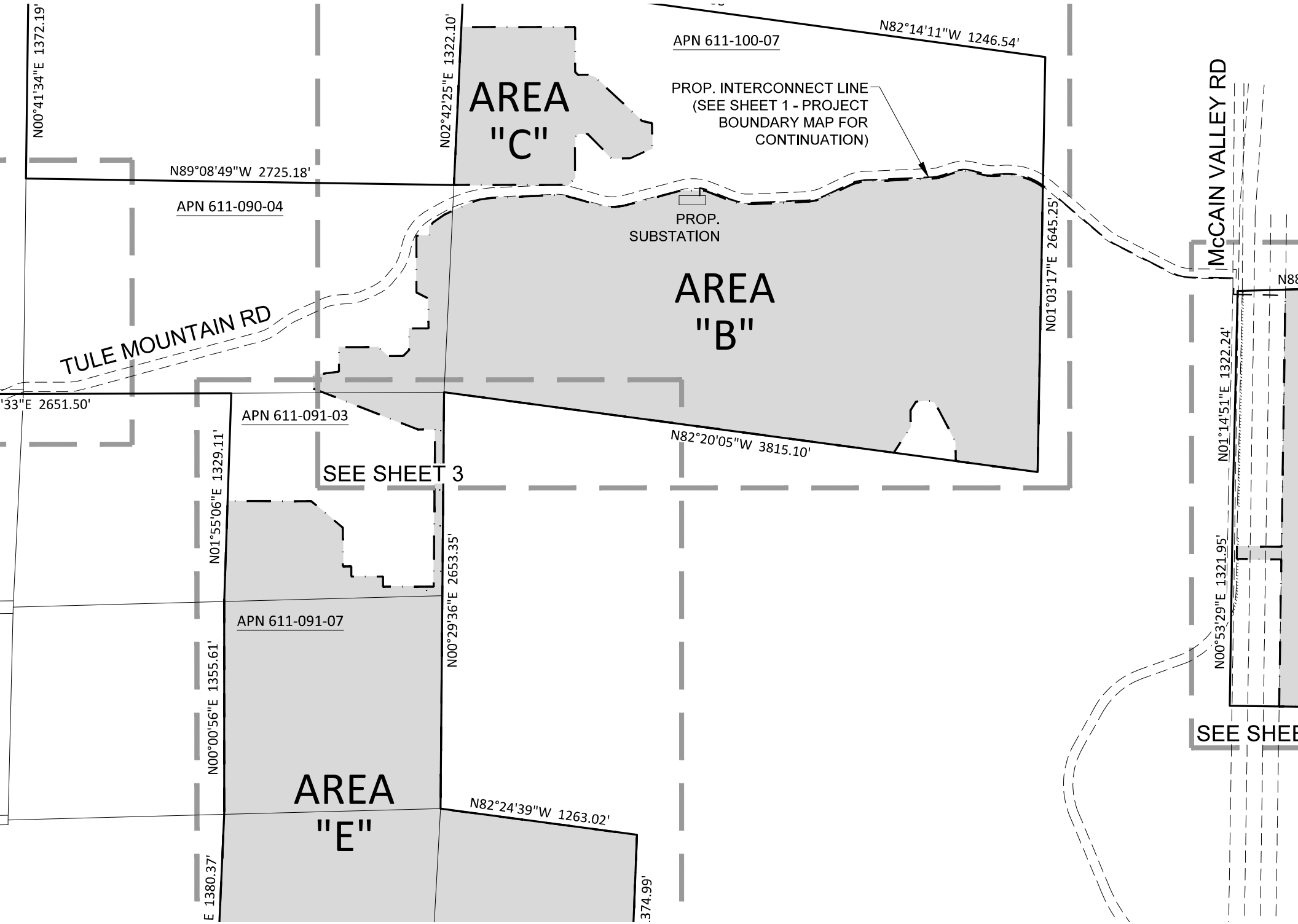
Density

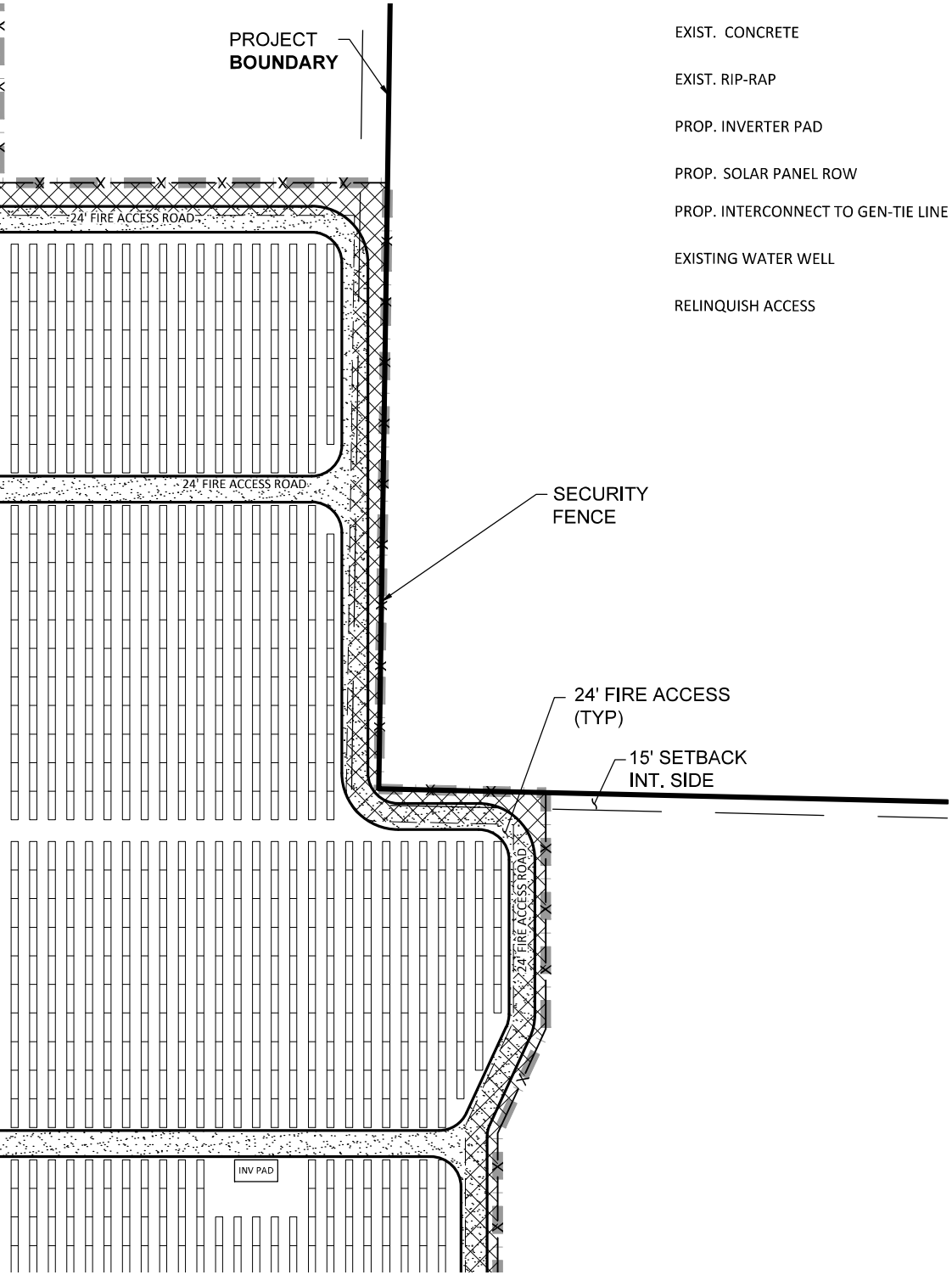


ost Plants

ark-tipped bird's beak


E
dark-tipped bird's beak
(Cordylanthus rigidus)
rd's beak


N00°41'34"E 1372.19'
N02°42'25"E 1322.10'
AREA "C"
APN 611-100-07
N82°14'11"W 1246.54'
PROP. INTERCONNECT LINE (SEE SHEET 1 - PROJECT BOUNDARY MAP FOR CONTINUATION)
N89°08'49"W 2725.18'
APN 611-090-04
PROP. SUBSTATION
AREA "B"
McCAIN VALLEY RD
N01°03'17"E 2645.25'
TULE MOUNTAIN RD
'33"E 2651.50'
APN 611-091-03
N82°20'05"W 3815.10'
N01°14'51"E 1322.24'
SEE SHEET 3
N01°55'06"E 1329.11'
N00°29'36"E 2653.35'
APN 611-091-07
N00°00'56"E 1355.61'
N00°53'29"E 1321.95'
AREA "E"
N82°24'39"W 1263.02'
E 1380.37'
374.99'
SEE SHEE



EXIST. CONCRETE

EXIST. RIP-RAP

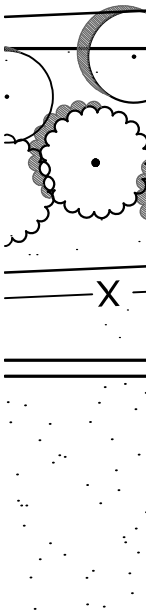
PROP. INVERTER PAD — INV PAD

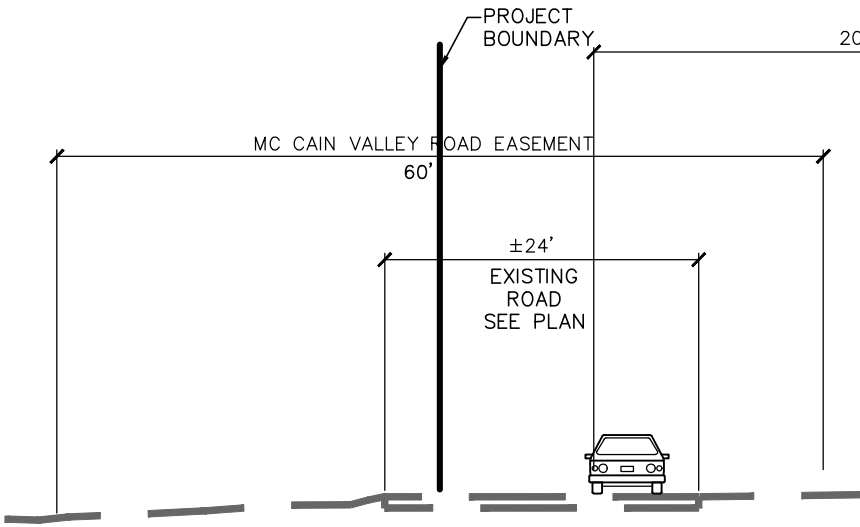
PROP. SOLAR PANEL ROW — 8-390w PV PANELS

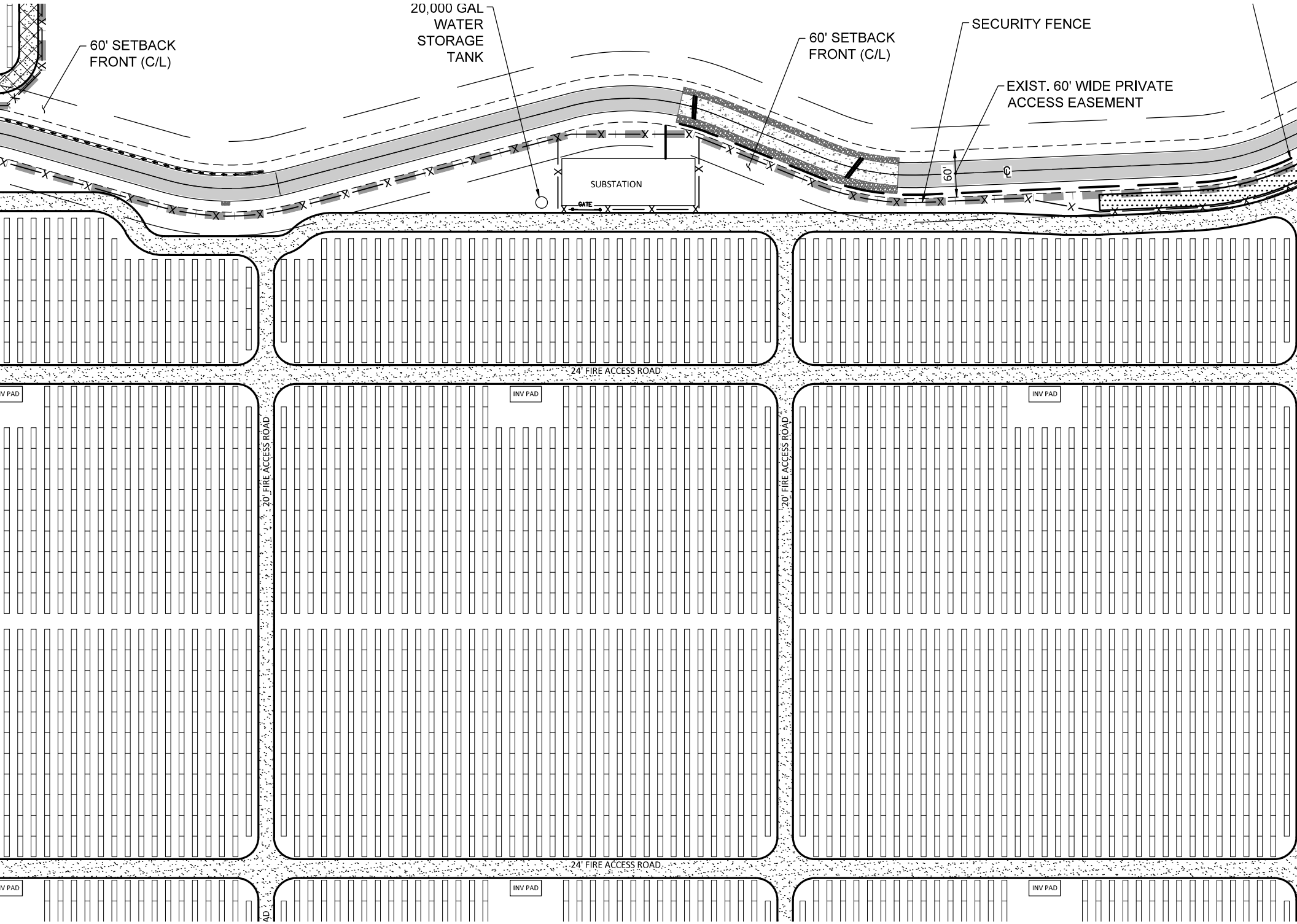
PROP. INTERCONNECT TO GEN-TIE LINE

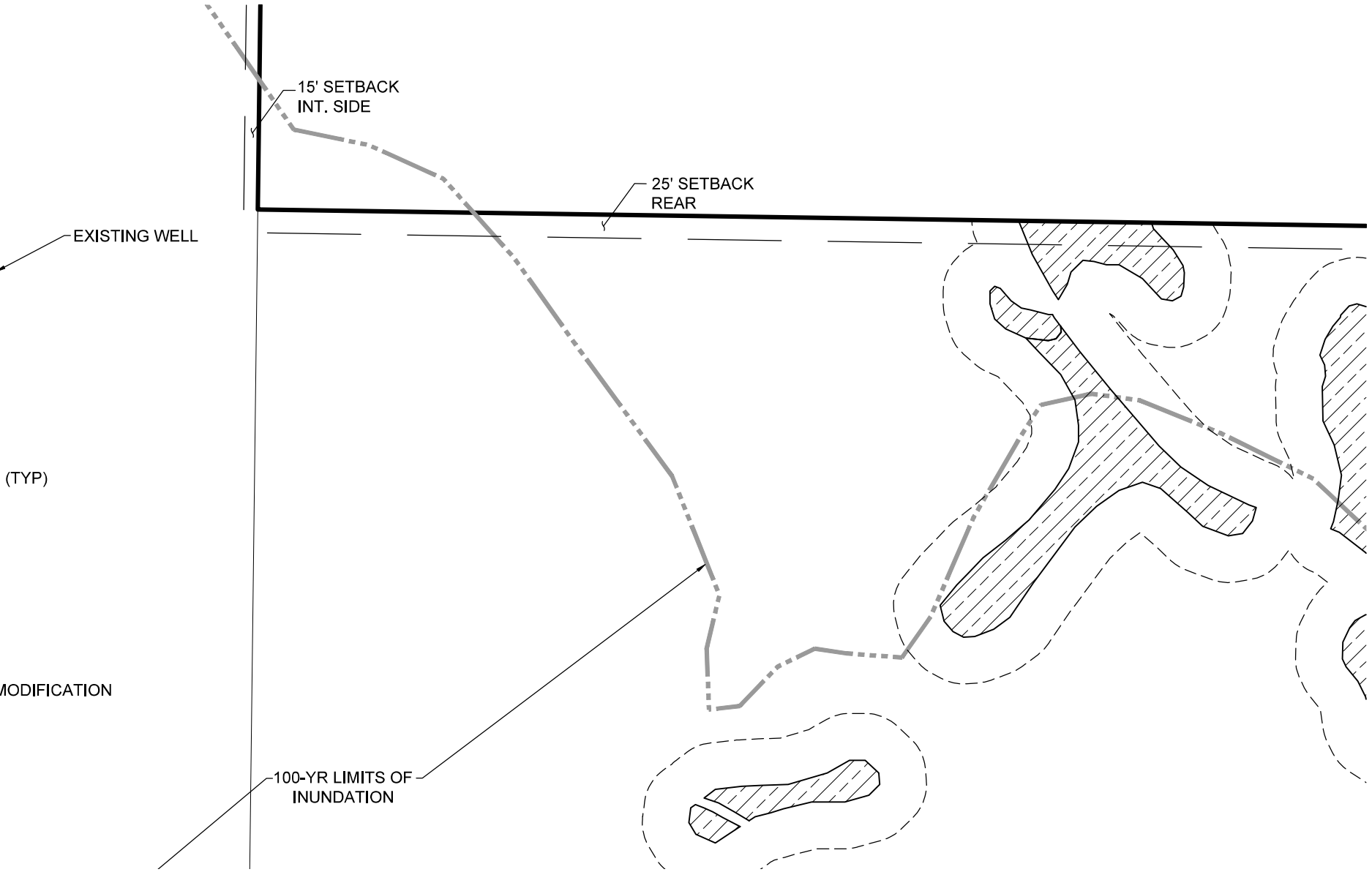
EXISTING WATER WELL — (W)

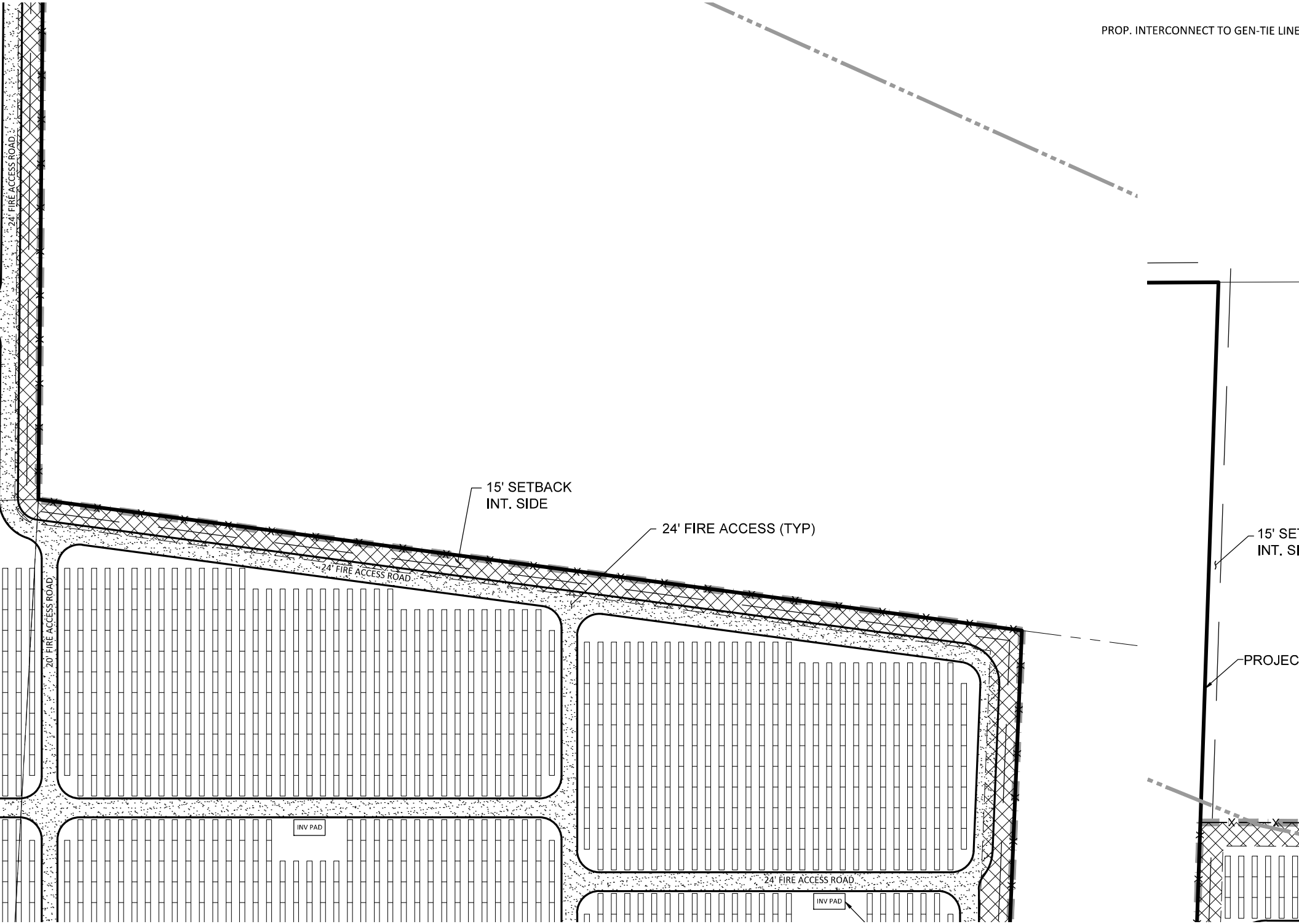
RELINQUISH ACCESS






20,000 GAL
WATER
STORAGE
TANK
60' SETBACK
FRONT (C/L)
60' SETBACK
FRONT (C/L)
SECURITY FENCE
EXIST. 60' WIDE PRIVATE
ACCESS EASEMENT
SUBSTATION
GATE
60'
℄
24' FIRE ACCESS ROAD
20' FIRE ACCESS ROAD
20' FIRE ACCESS ROAD
24' FIRE ACCESS ROAD
INV PAD
INV PAD
INV PAD
INV PAD
INV PAD
INV PAD


15' SETBACK
INT. SIDE
25' SETBACK
REAR
EXISTING WELL
(TYP)
MODIFICATION
100-YR LIMITS OF
INUNDATION


PROP. INTERCONNECT TO GEN-TIE LINE
24' FIRE ACCESS ROAD
15' SETBACK
INT. SIDE
24' FIRE ACCESS (TYP)
24' FIRE ACCESS ROAD
20' FIRE ACCESS ROAD
INV PAD
24' FIRE ACCESS ROAD
INV PAD
15' SE
INT. SI
PROJEC

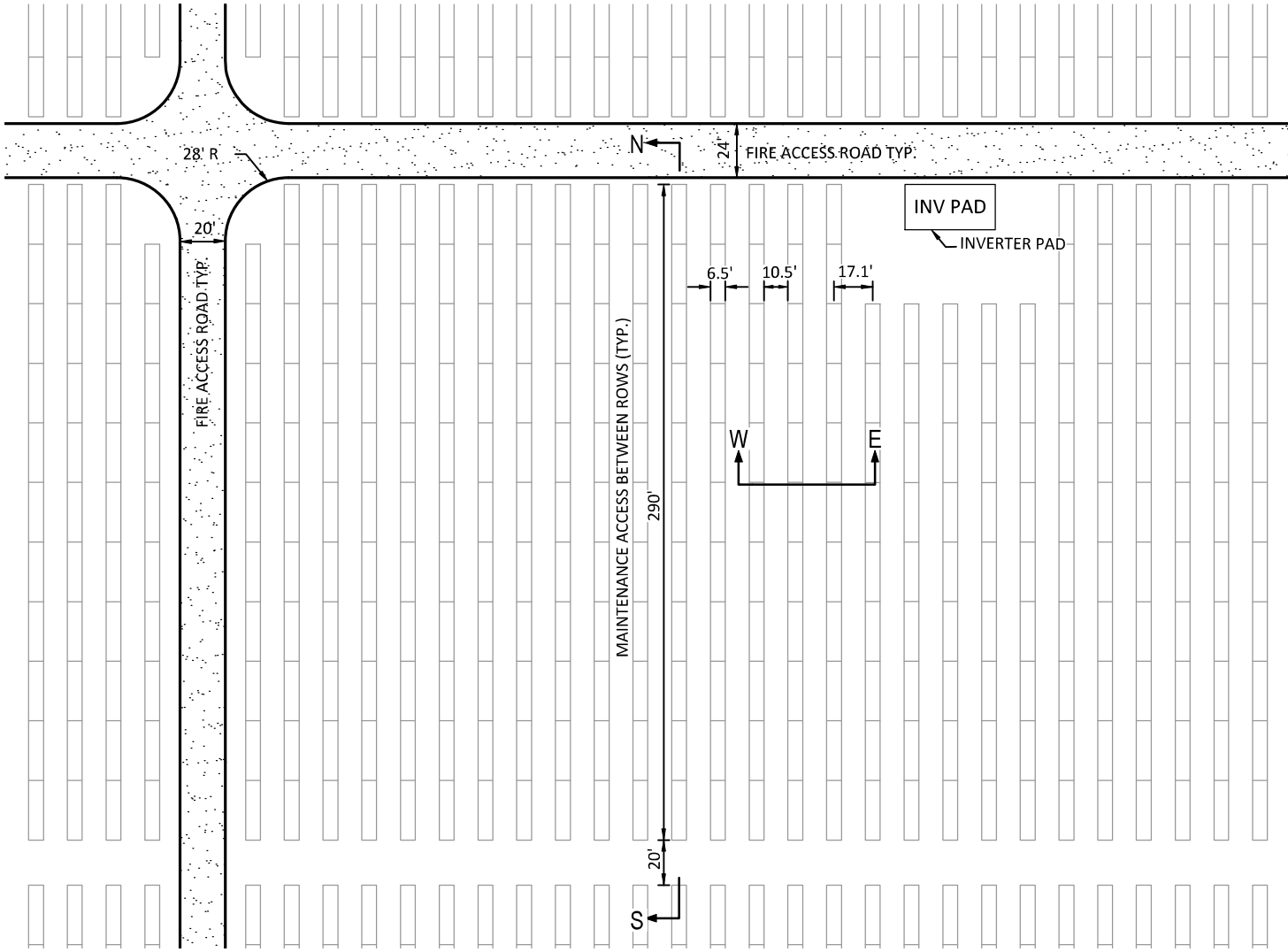
- DRIVEN PILE FOOTING MAY BE H-PILES OR PIPE COLU
- DEPTH / TYPE OF FOOTING TO BE DETERMINED BY S
- ALL SOLAR PANELS (AT MAXIMUM TILT) SHALL BE EL HORIZONTAL STRUCTURAL MEMBER IS AT LEAST ON ELEVATION (BFE) PER PRELIMINARY DRAINAGE STUD

AGE WERE SECURITY FASTED TO LINE
CLIPS SHALL BE NO.11 GAGE
S CROWNED AT GROUND LEVEL.
SISTANT MESH FABRIC, COLOR PER

ALONG PERIMETER.

TRACKER ELEVATION N-S

N.T.S.



ATTACHMENT B

Potential Nectar Sources List

Blackhawk Environmental

POTENTIAL NECTAR SOURCES LIST

Scientific Name	**Common Name**
Acmispon argophyllus	Silver birds foot trefoil
Acmispon strigosus	Strigose lotus
Amsinckia menziesii	Small-flowered fiddleneck
Arctostaphylos glandulosa ssp. *zacaensis*	Zaca Lake manzanita
Brassica nigra	Black mustard
Calandrinia ciliata	Red maids
Camissonia micrantha	Miniature sun cup
Camissonia strigulosa	Strigose sun cup
Camissoniopsis bistorta	California sun cup
Camissoniopsis hirtella	Hairy sun cup
Castilleja affinis	Coast paintbrush
Caulanthus lasiophyllus	California mustard
Ceanothus greggii	Desert ceanothus
Cercocarpus minutiflorus	San Diego mountain-mahogany
Chaenactis artemisifolia	Artemisia pincushion
Chaenactis glabriuscula var. glabriuscula	Yellow pincushion
Chamaesyce albomarginata	Rattlesnake weed
Chenopodium californicum	California goosefoot
Cirsium occidentale	California thistle
Claytonia perfoliata	Miner's lettuce
Clematis pauciflora	Ropevine
Collinsia heterophylla	Chinese houses
Cryptantha sp.	Cryptantha
Cryptantha micromeres	Minute flower
Cryptantha intermedia	Common cryptantha
Delphinium parryi	Blue larkspur
Descurainia pinnata	Yellow tansy mustard
Dichelostemma capitatum	Blue dicks
Ericameria linearifolia	Interior goldenbush
Eriogonum fasciculatum	California buckwheat
Eriophyllum confertiflorum	Golden yarrow
Erodium cicutarium	Red-Stem Filaree/Storksbill
Eschscholzia californica	California poppy
Eucrypta chrysanthemifolia	Common eucrypta
Euphorbia peplus	Petty spurge
Gilia angelensis	Grassland gilia
Gutierrezia californica	California mtchweed
Hirschfeldia incana	Short-pod mustard
Lasthenia gracilis	California goldfields
Layia platyglossa	Tidy tips
Lepidium perfoliatum	Clasping pepperweed
Linanthus bellus	Desert beauty

Lobularia maritima	Sweet alyssum
Lomatium dasycarpum	Woolly-fruit lomatium
Lupinus bicolor	Miniature lupine
Lupinus concinnus	Bajada lupine
Marah macrocarpus	Wild cucumber
Melilotus indicus	Annual yellow sweetclover
Mimulus guttatus	Seep monkeyflower
Nemophila menziesii	Baby blue eyes
Pectocarya linearis	Sagebrush combseed
Phacelia cicutariq	Caterpillar phacelia
Phacelia distans	Wild heliotrope
Phacelia imbricata	Imbricate phacelia
Plagiobothrys sp.	Popcorn flower
Quercus agrifolia	Coast live oak
Quercus berberidifolia	Scrub oak
Rhus ovata	Sugar bush
Salvia columbariae	Chia
Sanicula arguta	Sharp-tooth sanicle
Scrophularia californica	California bee plant
Senecio vulgaris	Common groundsel
Silene gallica	Windmill pink
Sisymbrium altissimum	Tumble mustard
Sisymbrium irio	London rocket
Solanum parishii	Parish's nightshade
Solanum xanti	Chaparral nightshade
Spergularia arvensis	Sand spurrey
Stylocline gnaphalioides	Everlasting nest-straw
Tamarix ramosissima	Salt cedar
Uropappus lindleyi	Silver puffs
Viola pedunculata	Johnny jump-up

ATTACHMENT C

Butterfly Species List

Blackhawk Environmental

BUTTERFLY SPECIES LIST

Scientific Name	**Common Name**
Adelphia californica	California sister
Anthocharis cethura cethura	Desert orangetip
Anthocharis sara sara	Sara orangetip
Apodemia virgulti virgulti	Behr's metalmark
Atlides halesus corcorani	Western great purple hairstreak
Brephidium exilis exilis	Western pygmy blue
Callophrys augustinus iroides	Western elfin
Callophrys dumetorum dumetorum	Bramble hairstreak
Celastrina echo echo	Echo azure
Chlosyne californica	California patch
Colias eurytheme	Orange sulphur
Colias harfordi	Harford's sulphur
Cupido amyntula amyntula	Western tailed blue
Danaus gilippus thersippus	Striated queen
Danaus plexippus	Monarch
Erynnis brizo lacustra	Lacustra duskywing
Erynnis funeralis	Funereal duskywing
Erynnis propertius	Propertius duskywing
Euchloe hyantis near *hyantis*	California marble
Euphilotes bernardino bernardino	San Bernardino blue
Euphydryas chalcedona chalcedona	Chalcedon checkerspot
Glaucopsyche lygdamus australis	Southern silvery blue
Hemiargus ceraunus gyas	Edward's blue
Hylephila phyleus phyleus	Fiery skipper
Junonia coenia grisea	Gray buckeye
Leptotes marina	Marine blue
Nathalis iole	Dainty sulphur
Nymphalis antiopa antiopa	Mourning cloak
Nymphalis californica	California tortoiseshell
Papilio eurymedon	Pale swallowtail
Papilio polyxenes coloro	Desert swallowtail
Pholisora catullus	Common sootywing
Phyciodes mylitta mylitta	Mylitta crescent
Pieris rapae rapae	Cabbage white
Plebejus acmon	Acmon blue
Plebejus lupini moniticola	Clemence's blue
Pontia beckerii	Becker's white
Pontia protodice	Checkered white
Pontia sisymbrii sisymbrii	Spring white
Pyrgus albescens	White checkered skipper
Strymon melinus pudica	Common gray hairstreak
Vanessa annabella	West Coast lady

Vanessa atalanta rubria	American red admiral
Vanessa cardui	Painted lady
Zerene eurydice	California dogface

ATTACHMENT D

Survey Data Sheets



Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Ian Maunsell

Trainee: NA

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
1	Feb 20, 2020	1	09:09	09:26	60	65	5-8	4-12	10	50

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Acmon Blue (Plebejus acmon)

Sara Orangetip (Anthocharis sara sara)

Spring White (Pontia sisymbrii sisymbrii)

Desert Orangetip (Anthocharis cethura cethura)

Painted Lady (Vanessa cardui)

Nectar Observations

Other Observations:

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Kris Alberts

Trainee: N/A

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
1	Feb 19, 2020	5	10:10	15:55	63	67	0-2	2-9	2	0

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Acmon Blue (Plebejus acmon)

Checkered White (Pontia protodice)

Sara Orangetip (Anthocharis sara sara)

Painted Lady (Vanessa cardui)

Perplexing Hairstreak (Callophrys perplexa perplexa)

Orange Sulphur (Colias eurytheme)

Behr's Metalmark (Apodemia virgulti virgulti)

Chalcedon Checkerspot (Euphydryas chalcedona chalcedona)

Nectar Observations

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

Short-pod Mustard (Hirschfeldia incana) Non-native

Sisymbrium irio

Zaca Lake Manzanita (Arctostaphylos glandulosa ssp.zacaensis) Native

Slender Pectocarya (Pectocarya linearis) Native

Other Observations:

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Kris Alberts

Trainee: N/A

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
1	Feb 20, 2020	2	10:00	15:50	60	65	2-8	1-6	40	75

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Acmon Blue (Plebejus acmon)

Desert Orangetip (Anthocharis cethura cethura)

Orange Sulphur (Colias eurytheme)

Sara Orangetip (Anthocharis sara sara)

Funereal Duskywing (Erynnis funeralis)

Chalcedon Checkerspot (Euphydryas chalcedona chalcedona)

Painted Lady (Vanessa cardui)

Nectar Observations

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

Rancher's Fiddleneck (Amsinckia menziesii) Native

Zaca Lake Manzanita (Arctostaphylos glandulosa ssp.zacaensis) Native

Slender Pectocarya (Pectocarya linearis) Native

Short-pod Mustard (Hirschfeldia incana) Non-native

Sisymbrium irio

Acmispon argophyllus

Other Observations:

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Seth Reimers

Trainee: None

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
1	Feb 20, 2020	3, 4	09:05	14:00	62	66	1-5	2-7	15	40

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Orange Sulphur (Colias eurytheme)

Desert Orangetip (Anthocharis cethura cethura)

Acmon Blue (Plebejus acmon)

Sara Orangetip (Anthocharis sara sara)

West Coast Lady (Vanessa annabella)

Spring White (Pontia sisymbrii sisymbrii)

Nectar Observations

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

Rancher's Fiddleneck (Amsinckia menziesii) Native

Short-pod Mustard (Hirschfeldia incana) Non-native

Other Observations:

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Garrett Huffman

Trainee: NA

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
2	Feb 27, 2020	A	10:00	15:53	60	66	5-10	3-10	30	50

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Painted Lady (Vanessa cardui)

Checkered White (Pontia protodice)

Acmon Blue (Plebejus acmon)

Clemence's Blue (Plebejus lupini monticola)

Harford's Sulphur (Colias harfordii)

Sara Orangetip (Anthocharis sara sara)

Nectar Observations

Black Mustard (Brassica nigra) Non-native, Invasive

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

California Goldfields (Lasthenia gracilis) Native

Rancher's Fiddleneck (Amsinckia menziesii) Native

Other Observations:

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Kris Alberts

Trainee: N/A

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
2	Feb 27, 2020	3, 4	10:15	15:15	63	65	3-14	1-8	80	90

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Sara Orangetip (Anthocharis sara sara)

Checkered White (Pontia protodice)

Funereal Duskywing (Erynnis funeralis)

Acmon Blue (Plebejus acmon)

Common Gray Hairstreak (Strymon melinus pudica)

Orange Sulphur (Colias eurytheme)

Spring White (Pontia sisymbrii sisymbrii)

Perplexing Hairstreak (Callophrys perplexa perplexa)

Painted Lady (Vanessa cardui)

Nectar Observations

Non-native mustards

Rancher's Fiddleneck (Amsinckia menziesii) Native

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

Short-pod Mustard (Hirschfeldia incana) Non-native

Zaca Lake Manzanita (Arctostaphylos glandulosa ssp.zacaensis) Native

California Goldfields (Lasthenia gracilis) Native

Plagiobothrys sp.

Slender Pectocarya (Pectocarya linearis) Native

Other Observations:

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Seth Reimers, Ian Maunsell

Trainee: NA

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
2	Feb 28, 2020	2	09:28	15:31	63	71	2-6	1-5	40	20

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Orange Sulphur (Colias eurytheme)

Acmon Blue (Plebejus acmon)

Checkered White (Pontia protodice)

Sara Orangetip (Anthocharis sara sara)

Painted Lady (Vanessa cardui)

Behr's Metalmark (Apodemia virgulti virgulti)

Funereal Duskywing (Erynnis funeralis)

California Tortoiseshell (Nymphalis californica)

Nectar Observations

Other Observations:

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Kris Alberts

Trainee: Lorena Bernal

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
2	Feb 28, 2020	5	10:15	15:00	64	70	3-8	2-8	70	60

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Checkered White (Pontia protodice)

Sara Orangetip (Anthocharis sara sara)

Orange Sulphur (Colias eurytheme)

Acmon Blue (Plebejus acmon)

Chalcedon Checkerspot (Euphydryas chalcedona chalcedona)

Western Elfin (Callophrys augustinus iroides)

Funereal Duskywing (Erynnis funeralis)

Perplexing Hairstreak (Callophrys perplexa perplexa)

Painted Lady (Vanessa cardui)

Western Great Purple Hairstreak (Atlides halesus corcorani)

Behr's Metalmark (Apodemia virgulti virgulti)

Spring White (Pontia sisymbrii sisymbrii)

Western Tailed Blue (Cupido amyntula amyntula)

Echo Azure (Celastrina echo echo)

Nectar Observations

Rancher's Fiddleneck (Amsinckia menziesii) Native

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

Short-pod Mustard (Hirschfeldia incana) Non-native

Plagiobothrys sp.

Slender Pectocarya (Pectocarya linearis) Native

Artemisia Pinchushion (Chaenactis artemisiifolia) Native

Sharp-tooth Sanicle (Sanicula arguta) Native

Wild Cucumber (Marah macrocarpus) Native

San Diego Mountain-mahogany (Cercocarpus minutiflorus) Native

Red Maids (Calandrinia ciliata) Native

California Goldfields (Lasthenia gracilis) Native

Sisymbrium irio

Chia (Salvia columbariae) Native

Other Observations:

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Ian Maunsell

Trainee: Lorena Bernal

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
3	Mar 5, 2020	1	08:33	14:10	61	69	3-9	5-14	20	25

Quino Checkerspot Butterfly Observed:	No

Butterfly Observations

Checkered White (Pontia protodice)

Sara Orangetip (Anthocharis sara sara)

California Marble (Euchloe hyantis near hyantis)

Acmon Blue (Plebejus acmon)

Orange Sulphur (Colias eurytheme)

Painted Lady (Vanessa cardui)

Behr's Metalmark (Apodemia virgulti virgulti)

Desert Orangetip (Anthocharis cethura cethura)

Western Great Purple Hairstreak (Atlides halesus corcorani)

Funereal Duskywing (Erynnis funeralis)

Nectar Observations

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

California Goldfields (Lasthenia gracilis) Native

Short-pod Mustard (Hirschfeldia incana) Non-native

Sweet Alyssum (Lobularia maritima) Non-native

Cryptantha sp.

Rancher's Fiddleneck (Amsinckia menziesii) Native

Plagiobothrys sp.

Slender Pectocarya (Pectocarya linearis) Native

Other Observations:

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Ian Maunsell

Trainee: None

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
3	Mar 4, 2020	2	08:40	15:20	63	66	1-4	4-8	0	0

Quino Checkerspot Butterfly Observed:	No

Butterfly Observations

Checkered White (Pontia protodice)

Sara Orangetip (Anthocharis sara sara)

California Marble (Euchloe hyantis near hyantis)

Acmon Blue (Plebejus acmon)

Orange Sulphur (Colias eurytheme)

Painted Lady (Vanessa cardui)

Behr's Metalmark (Apodemia virgulti virgulti)

Mournful Duskywing (Erynnis tristis tristis)

Acmon Blue (Plebejus acmon)

Spring White (Pontia sisymbrii sisymbrii)

Nectar Observations

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

California Goldfields (Lasthenia gracilis) Native

Short-pod Mustard (Hirschfeldia incana) Non-native

Sweet Alyssum (Lobularia maritima) Non-native

Cryptantha sp.

Rancher's Fiddleneck (Amsinckia menziesii) Native

Sisymbrium irio

Plagiobothrys sp.

Slender Pectocarya (Pectocarya linearis) Native

Other Observations:

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Kris Alberts

Trainee: N/A

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
3	Mar 5, 2020	3,4	10:10	15:20	63	64	1-6	2-8	15	80

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Sara Orangetip (Anthocharis sara sara)

Checkered White (Pontia protodice)

Western Great Purple Hairstreak (Atlides halesus corcorani)

Western Elfin (Callophrys augustinus iroides)

Acmon Blue (Plebejus acmon)

Behr's Metalmark (Apodemia virgulti virgulti)

Orange Sulphur (Colias eurytheme)

Funereal Duskywing (Erynnis funeralis)

Perplexing Hairstreak (Callophrys perplexa perplexa)

Painted Lady (Vanessa cardui)

Nectar Observations

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

Rancher's Fiddleneck (Amsinckia menziesii) Native

Cryptantha sp.

Slender Pectocarya (Pectocarya linearis) Native

Zaca Lake Manzanita (Arctostaphylos glandulosa ssp.zacaensis) Native

Sisymbrium irio

California Goldfields (Lasthenia gracilis) Native

Short-pod Mustard (Hirschfeldia incana) Non-native

Artemisia Pinchushion (Chaenactis artemisiifolia) Native

Nievitas Cryptantha (Cryptantha intermedia) Native

Camissoniopsis sp.

Nemophila menziesii

Ceanothus greggii

Other Observations:

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Kris Alberts

Trainee: N/A

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
3	Mar 4, 2020	5	10:05	16:20	67	65	1-6	1-4	5	15

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Sara Orangetip (Anthocharis sara sara)

Behr's Metalmark (Apodemia virgulti virgulti)

Funereal Duskywing (Erynnis funeralis)

Desert Orangetip (Anthocharis cethura cethura)

Acmon Blue (Plebejus acmon)

Painted Lady (Vanessa cardui)

Checkered White (Pontia protodice)

Chalcedon Checkerspot (Euphydryas chalcedona chalcedona)

Orange Sulphur (Colias eurytheme)

Western Elfin (Callophrys augustinus iroides)

Perplexing Hairstreak (Callophrys perplexa perplexa)

Common Gray Hairstreak (Strymon melinus pudica)

Nectar Observations

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

Rancher's Fiddleneck (Amsinckia menziesii) Native

California Goldfields (Lasthenia gracilis) Native

Short-pod Mustard (Hirschfeldia incana) Non-native

Slender Pectocarya (Pectocarya linearis) Native

Wild Cucumber (Marah macrocarpus) Native

Cryptantha sp.

Nievitas Cryptantha (Cryptantha intermedia) Native

Zaca Lake Manzanita (Arctostaphylos glandulosa ssp.zacaensis) Native

Artemisia Pinchushion (Chaenactis artemisiifolia) Native

San Diego Mountain-mahogany (Cercocarpus minutiflorus) Native

Other Observations:

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Ian Maunsell

Trainee: None

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
4	Mar 30, 2020	1	10:17	15:32	60	66	5-9	3-11	0	0

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Spring White (Pontia sisymbrii sisymbrii)

Checkered White (Pontia protodice)

Sara Orangetip (Anthocharis sara sara)

California Marble (Euchloe hyantis near hyantis)

Acmon Blue (Plebejus acmon)

Harford's Sulphur (Colias harfordii)

Orange Sulphur (Colias eurytheme)

Painted Lady (Vanessa cardui)

Behr's Metalmark (Apodemia virgulti virgulti)

Perplexing Hairstreak (Callophrys perplexa perplexa)

White Checkered Skipper (Pyrgus albescens)

Perplexing Hairstreak (Callophrys perplexa perplexa)

Nectar Observations

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

California Goldfields (Lasthenia gracilis) Native

Short-pod Mustard (Hirschfeldia incana) Non-native

Nemophila menziesii

Sweet Alyssum (Lobularia maritima) Non-native

Cryptantha sp.

Rancher's Fiddleneck (Amsinckia menziesii) Native

Sisymbrium irio

Plagiobothrys sp.

Slender Pectocarya (Pectocarya linearis) Native

Other Observations:

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Seth Reimers

Trainee: Lorena Bernal

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
4	Mar 30, 2020	2	10:45	16:30	60	64	2-8	3-6	0	0

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Orange Sulphur (Colias eurytheme)

Painted Lady (Vanessa cardui)

Behr's Metalmark (Apodemia virgulti virgulti)

Sara Orangetip (Anthocharis sara sara)

Perplexing Hairstreak (Callophrys perplexa perplexa)

Checkered White (Pontia protodice)

Acmon Blue (Plebejus acmon)

Striated Queen (Danaus gilippus thersippus)

California Marble (Euchloe hyantis near hyantis)

Western Elfin (Callophrys augustinus iroides)

Nectar Observations

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

California Goldfields (Lasthenia gracilis) Native

Sisymbrium altissimum

Coast Paintbrush (Castilleja affinis) Native

Caterpillar Phacelia (Phacelia cicutaria var.) Native

Rancher's Fiddleneck (Amsinckia menziesii) Native

Nemophila sp.

Short-pod Mustard (Hirschfeldia incana) Non-native

Slender Pectocarya (Pectocarya linearis) Native

Sisymbrium irio

Ceanothus greggii

Ericameria linearifolia

Tidy Tips (Layia platyglossa) Native

	Acmispon sp.

Other Observations: None

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Kris Alberts

Trainee: N/A

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
4	Mar 30, 2020	5	10:55	17:00	60	66	1-4	1-4	0	10

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Painted Lady (Vanessa cardui)

Checkered White (Pontia protodice)

Sara Orangetip (Anthocharis sara sara)

Behr's Metalmark (Apodemia virgulti virgulti)

Harford's Sulphur (Colias harfordii)

Perplexing Hairstreak (Callophrys perplexa perplexa)

Funereal Duskywing (Erynnis funeralis)

California Tortoiseshell (Nymphalis californica)

Pale Swallowtail (Papilio eurymedon)

California Marble (Euchloe hyantis near hyantis)

Southern Silvery Blue (Glaucopsyche lygdamus australis)

Acmon Blue (Plebejus acmon)

Nectar Observations

Rancher's Fiddleneck (Amsinckia menziesii) Native

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

California Goldfields (Lasthenia gracilis) Native

Sisymbrium irio

Nemophila menziesii

Artemisia Pinchushion (Chaenactis artemisiifolia) Native

Plagiobothrys sp.

Slender Pectocarya (Pectocarya linearis) Native

Common Groundsel (Senecio vulgaris) Non-native

Cryptantha sp.

Short-pod Mustard (Hirschfeldia incana) Non-native

Ceanothus greggii

Ericameria linearifolia

	San Diego Mountain-mahogany (Cercocarpus minutiflorus) Native Bajada Lupine (Lupinus concinnus) Native Chia (Salvia columbariae) Native Wild Heliotrope (Phacelia distans) Native
Other Observations:	

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Ryan Quilley

Trainee: None

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
4	Mar 30, 2020	3, 4	11:10	16:31	62	71	5-9	3-6	0	5

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Behr's Metalmark (Apodemia virgulti virgulti)

Painted Lady (Vanessa cardui)

Checkered White (Pontia protodice)

Orange Sulphur (Colias eurytheme)

Desert Orangetip (Anthocharis cethura cethura)

Sara Orangetip (Anthocharis sara sara)

Perplexing Hairstreak (Callophrys perplexa perplexa)

Desert Orangetip (Anthocharis cethura cethura)

Echo Azure (Celastrina echo echo)

California Marble (Euchloe hyantis near hyantis)

Acmon Blue (Plebejus acmon)

Nectar Observations

California Goldfields (Lasthenia gracilis) Native

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

Plagiobothrys sp.

Non-native mustards

Gutierrezia californica

Rancher's Fiddleneck (Amsinckia menziesii) Native

Miner's Lettuce (Claytonia perfoliata) Native

Nemophila sp.

Other Observations: Unknown fritillary

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Ian Maunsell

Trainee: None

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
5	Apr 3, 2020	1	10:21	14:54	60	65	4-8	8-16	0	0

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Painted Lady (Vanessa cardui)

Acmon Blue (Plebejus acmon)

Behr's Metalmark (Apodemia virgulti virgulti)

West Coast Lady (Vanessa annabella)

California Marble (Euchloe hyantis near hyantis)

Spring White (Pontia sisymbrii sisymbrii)

Sara Orangetip (Anthocharis sara sara)

Orange Sulphur (Colias eurytheme)

White Checkered Skipper (Pyrgus albescens)

Propertius Duskywing (Erynnis propertius)

Funereal Duskywing (Erynnis funeralis)

California Tortoiseshell (Nymphalis californica)

Nectar Observations

California Goldfields (Lasthenia gracilis) Native

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

Short-pod Mustard (Hirschfeldia incana) Non-native

Slender Pectocarya (Pectocarya linearis) Native

Rancher's Fiddleneck (Amsinckia menziesii) Native

Cryptantha sp.

Acmispon sp.

Plagiobothrys sp.

Woolly-fruit Lomatium (Lomatium dasycarpum) Native

Ceanothus greggii

Nemophila menziesii

Ericameria linearifolia

Other Observations:

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Seth Reimers

Trainee: None

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
5	Apr 3, 2020	2	10:20	16:27	60	68	3-10	4-9	0	5

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Orange Sulphur (Colias eurytheme)

Painted Lady (Vanessa cardui)

Behr's Metalmark (Apodemia virgulti virgulti)

Sara Orangetip (Anthocharis sara sara)

West Coast Lady (Vanessa annabella)

Checkered White (Pontia protodice)

Acmon Blue (Plebejus acmon)

Western Great Purple Hairstreak (Atlides halesus corcorani)

Propertius Duskywing (Erynnis propertius)

California Tortoiseshell (Nymphalis californica)

Funereal Duskywing (Erynnis funeralis)

Nectar Observations

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

California Goldfields (Lasthenia gracilis) Native

Sisymbrium altissimum

Coast Paintbrush (Castilleja affinis) Native

Caterpillar Phacelia (Phacelia cicutaria var.) Native

Rancher's Fiddleneck (Amsinckia menziesii) Native

Nemophila sp.

Short-pod Mustard (Hirschfeldia incana) Non-native

Slender Pectocarya (Pectocarya linearis) Native

Sisymbrium irio

Ceanothus greggii

Ericameria linearifolia

Tidy Tips (Layia platyglossa) Native

	Acmispon sp. Cryptantha sp. Rattlesnake Weed (Chamaesyce albomarginata) Native Johnny Jump-up (Viola pedunculata) Native California Poppy (Eschscholzia california) Native Chia (Salvia columbariae) Native Miner's Lettuce (Claytonia perfoliata) Native
Other Observations: None	

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Kris Alberts

Trainee: N/A

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
5	Apr 3, 2020	5	11:00	17:00	60	63	3-9	3-11	0	3

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Painted Lady (Vanessa cardui)

Checkered White (Pontia protodice)

Sara Orangetip (Anthocharis sara sara)

Behr's Metalmark (Apodemia virgulti virgulti)

Harford's Sulphur (Colias harfordii)

Perplexing Hairstreak (Callophrys perplexa perplexa)

Funereal Duskywing (Erynnis funeralis)

California Tortoiseshell (Nymphalis californica)

California Marble (Euchloe hyantis near hyantis)

Southern Silvery Blue (Glaucopsyche lygdamus australis)

Acmon Blue (Plebejus acmon)

Orange Sulphur (Colias eurytheme)

Mylitta Crescent (Phyciodes mylitta mylitta)

Propertius Duskywing (Erynnis propertius)

California Patch (Chlosyne californica)

Nectar Observations

Rancher's Fiddleneck (Amsinckia menziesii) Native

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

California Goldfields (Lasthenia gracilis) Native

Sisymbrium irio

Spurry, Stickwort (Spergula arvensis) Non-native

Nemophila menziesii

Artemisia Pinchushion (Chaenactis artemisiifolia) Native

Plagiobothrys sp.

Slender Pectocarya (Pectocarya linearis) Native

Common Groundsel (Senecio vulgaris) Non-native

Cryptantha sp.

Short-pod Mustard (Hirschfeldia incana) Non-native

Ceanothus greggii

West Coast Lady (Vanessa annabella)	Ericameria linearifolia San Diego Mountain-mahogany (Cercocarpus minutiflorus) Native Bajada Lupine (Lupinus concinnus) Native Chia (Salvia columbariae) Native Wild Heliotrope (Phacelia distans) Native Nievitas Cryptantha (Cryptantha intermedia) Native California Poppy (Eschscholzia california) Native Farinose Ground Pink (Linanthus dianthiflorus) Native Common Eucrypta (Eucrypta chrysanthemifolia) Native Wild Cucumber (Marah macrocarpus) Native Camissoniopsis sp.
Other Observations:	

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Ryan Quilley

Trainee: Lorena Bernal

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
5	Apr 3, 2020	3, 4	11:05	16:26	64	68	4-7	4-8	0	5

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Funereal Duskywing (Erynnis funeralis)

Behr's Metalmark (Apodemia virgulti virgulti)

Painted Lady (Vanessa cardui)

California Marble (Euchloe hyantis near hyantis)

Sara Orangetip (Anthocharis sara sara)

Perplexing Hairstreak (Callophrys perplexa perplexa)

Harford's Sulphur (Colias harfordii)

Acmon Blue (Plebejus acmon)

Western Elfin (Callophrys augustinus iroides)

Nectar Observations

Bajada Lupine (Lupinus concinnus) Native

California Goldfields (Lasthenia gracilis) Native

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

Plagiobothrys sp.

Acmispon argophyllus

Rancher's Fiddleneck (Amsinckia menziesii) Native

Miner's Lettuce (Claytonia perfoliata) Native

Nemophila sp.

Other Observations:

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Ian Maunsell

Trainee: None

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
6	Apr 15, 2020	1	09:35	14:40	61	74	4-9	1-4	0	0

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Painted Lady (Vanessa cardui)

Behr's Metalmark (Apodemia virgulti virgulti)

Sara Orangetip (Anthocharis sara sara)

Dainty Sulphur (Nathalis iole)

California Marble (Euchloe hyantis near hyantis)

California Tortoiseshell (Nymphalis californica)

Harford's Sulphur (Colias harfordii)

Acmon Blue (Plebejus acmon)

Nectar Observations

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

California Goldfields (Lasthenia gracilis) Native

Bajada Lupine (Lupinus concinnus) Native

Miniature Lupine (Lupinus bicolor) Native

Rancher's Fiddleneck (Amsinckia menziesii) Native

Short-pod Mustard (Hirschfeldia incana) Non-native

Sisymbrium irio

Cryptantha sp.

Woolly-fruit Lomatium (Lomatium dasycarpum) Native

Slender Pectocarya (Pectocarya linearis) Native

Ericameria linearifolia

Ceanothus greggii

Nemophila menziesii

	Tidy Tips (Layia platyglossa) Native Caterpillar Phacelia (Phacelia cicutaria var.) Native Acmispon sp. Plagiobothrys sp.
Other Observations:	

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Seth Reimers

Trainee: None

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
6	Apr 15, 2020	2	09:30	16:16	62	72	1-5	5-11	0	0

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Orange Sulphur (Colias eurytheme)

Painted Lady (Vanessa cardui)

Behr's Metalmark (Apodemia virgulti virgulti)

Sara Orangetip (Anthocharis sara sara)

Propertius Duskywing (Erynnis propertius)

California Tortoiseshell (Nymphalis californica)

California Marble (Euchloe hyantis near hyantis)

Echo Azure (Celastrina echo echo)

Perplexing Hairstreak (Callophrys perplexa perplexa)

Nectar Observations

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

California Goldfields (Lasthenia gracilis) Native

Caterpillar Phacelia (Phacelia cicutaria var.) Native

Rancher's Fiddleneck (Amsinckia menziesii) Native

Nemophila sp.

Short-pod Mustard (Hirschfeldia incana) Non-native

Slender Pectocarya (Pectocarya linearis) Native

Sisymbrium irio

Ceanothus greggii

Ericameria linearifolia

Tidy Tips (Layia platyglossa) Native

Cryptantha sp.

Chia (Salvia columbariae) Native

	Miner's Lettuce (Claytonia perfoliata) Native Bajada Lupine (Lupinus concinnus) Native Farinose Ground Pink (Linanthus dianthiflorus) Native Acmispon argophyllus Sugar Bush (Rhus ovata) Native San Diego Mountain-mahogany (Cercocarpus minutiflorus) Native
Other Observations: None	

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Ian Maunsell

Trainee: None

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
7	Apr 16, 2020	1	09:15	14:15	60	71	2-9	7-14	0	0

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Painted Lady (Vanessa cardui)

Behr's Metalmark (Apodemia virgulti virgulti)

Checkered White (Pontia protodice)

West Coast Lady (Vanessa annabella)

California Marble (Euchloe hyantis near hyantis)

California Tortoiseshell (Nymphalis californica)

Harford's Sulphur (Colias harfordii)

Acmon Blue (Plebejus acmon)

Western Elfin (Callophrys augustinus iroides)

Lacustra Duskywing (Erynnis brizo lacustra)

Funereal Duskywing (Erynnis funeralis)

Gray Buckeye (Junonia coenia grisea)

Nectar Observations

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

California Goldfields (Lasthenia gracilis) Native

Bajada Lupine (Lupinus concinnus) Native

Miniature Lupine (Lupinus bicolor) Native

Rancher's Fiddleneck (Amsinckia menziesii) Native

Short-pod Mustard (Hirschfeldia incana) Non-native

Sisymbrium irio

Cryptantha sp.

Woolly-fruit Lomatium (Lomatium dasycarpum) Native

Slender Pectocarya (Pectocarya linearis) Native

Ericameria linearifolia

Ceanothus greggii

Nemophila menziesii

	Tidy Tips (Layia platyglossa) Native Caterpillar Phacelia (Phacelia cicutaria var.) Native Acmispon sp. Plagiobothrys sp. Chia (Salvia columbariae) Native Petty Spurge (Euphorbia peplus) Non-native
Other Observations:	

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Seth Reimers

Trainee: None

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
7	Apr 16, 2020	2	09:24	16:27	61	68	5-11	7-15	0	0

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Orange Sulphur (Colias eurytheme)

Painted Lady (Vanessa cardui)

Behr's Metalmark (Apodemia virgulti virgulti)

California Marble (Euchloe hyantis near hyantis)

Acmon Blue (Plebejus acmon)

West Coast Lady (Vanessa annabella)

Checkered White (Pontia protodice)

Nectar Observations

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

California Goldfields (Lasthenia gracilis) Native

Caterpillar Phacelia (Phacelia cicutaria var.) Native

Rancher's Fiddleneck (Amsinckia menziesii) Native

Nemophila sp.

Short-pod Mustard (Hirschfeldia incana) Non-native

Slender Pectocarya (Pectocarya linearis) Native

Sisymbrium irio

Ceanothus greggii

Ericameria linearifolia

Tidy Tips (Layia platyglossa) Native

Cryptantha sp.

Chia (Salvia columbariae) Native

	Miner's Lettuce (Claytonia perfoliata) Native Bajada Lupine (Lupinus concinnus) Native Acmispon argophyllus Sugar Bush (Rhus ovata) Native San Diego Mountain-mahogany (Cercocarpus minutiflorus) Native Silver Puffs (Uropappus lindleyi) Native
Other Observations: None	

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Garrett Huffman

Trainee: N/A

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
8	Apr 19, 2020	2	11:30	17:25	65	67	2-4	3-7	20	20

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Behr's Metalmark (Apodemia virgulti virgulti)

Sara Orangetip (Anthocharis sara sara)

Desert Orangetip (Anthocharis cethura cethura)

Painted Lady (Vanessa cardui)

Checkered White (Pontia protodice)

Funereal Duskywing (Erynnis funeralis)

Acmon Blue (Plebejus acmon)

California Marble (Euchloe hyantis near hyantis)

Harford's Sulphur (Colias harfordii)

Nectar Observations

California Goldfields (Lasthenia gracilis) Native

Plagiobothrys sp.

Short-pod Mustard (Hirschfeldia incana) Non-native

Sugar Bush (Rhus ovata) Native

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

Rancher's Fiddleneck (Amsinckia menziesii) Native

Caterpillar Phacelia (Phacelia cicutaria var.) Native

Black Mustard (Brassica nigra) Non-native, Invasive

Coast Paintbrush (Castilleja affinis) Native

Farinose Ground Pink (Linanthus dianthiflorus) Native

Chia (Salvia columbariae) Native

Other Observations:

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Ryan Quilley

Trainee:

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
6	Apr 15, 2020	3, 4	09:50	04:17	64	76	3-6	2-6	0	0

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Behr's Metalmark (Apodemia virgulti virgulti)

Painted Lady (Vanessa cardui)

California Marble (Euchloe hyantis near hyantis)

Sara Orangetip (Anthocharis sara sara)

Perplexing Hairstreak (Callophrys perplexa perplexa)

Western Tailed Blue (Cupido amyntula amyntula)

Acmon Blue (Plebejus acmon)

Pale Swallowtail (Papilio eurymedon)

Propertius Duskywing (Erynnis propertius)

Nectar Observations

Bajada Lupine (Lupinus concinnus) Native

Ericameria linearifolia

California Goldfields (Lasthenia gracilis) Native

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

Plagiobothrys sp.

Acmispon argophyllus

Rancher's Fiddleneck (Amsinckia menziesii) Native

Miner's Lettuce (Claytonia perfoliata) Native

Nemophila sp.

Tidy Tips (Layia platyglossa) Native

Caulanthus lasiophyllus

Camissonia strigulosa

Other Observations:

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Ryan Quilley

Trainee: N/A

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
7	Apr 16, 2020	3, 4	09:20	16:02	62	71	1-5	4-13	0	0

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Behr's Metalmark (Apodemia virgulti virgulti)

Painted Lady (Vanessa cardui)

California Marble (Euchloe hyantis near hyantis)

Sara Orangetip (Anthocharis sara sara)

Perplexing Hairstreak (Callophrys perplexa perplexa)

Western Tailed Blue (Cupido amyntula amyntula)

Acmon Blue (Plebejus acmon)

White Checkered Skipper (Pyrgus albescens)

Propertius Duskywing (Erynnis propertius)

Funereal Duskywing (Erynnis funeralis)

Harford's Sulphur (Colias harfordii)

Western Great Purple Hairstreak (Atlides halesus corcorani)

Gray Buckeye (Junonia coenia grisea)

Nectar Observations

Bajada Lupine (Lupinus concinnus) Native

Ericameria linearifolia

California Goldfields (Lasthenia gracilis) Native

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

Plagiobothrys sp.

Acmispon argophyllus

Rancher's Fiddleneck (Amsinckia menziesii) Native

Miner's Lettuce (Claytonia perfoliata) Native

Nemophila sp.

Tidy Tips (Layia platyglossa) Native

Caulanthus lasiophyllus

Camissonia strigulosa

Chia (Salvia columbariae) Native

	California Poppy (Eschscholzia california) Native Ropevine (Clematis pauciflora) Native
Other Observations:	

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Ryan Quilley

Trainee: N/A

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
8	Apr 19, 2020	3, 4	10:10	15:55	63	71	7-9	7-12	10	30

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Behr's Metalmark (Apodemia virgulti virgulti)

Painted Lady (Vanessa cardui)

California Marble (Euchloe hyantis near hyantis)

Sara Orangetip (Anthocharis sara sara)

Acmon Blue (Plebejus acmon)

White Checkered Skipper (Pyrgus albescens)

Gray Buckeye (Junonia coenia grisea)

Lacustra Duskywing (Erynnis brizo lacustra)

Checkered White (Pontia protodice)

Nectar Observations

Bajada Lupine (Lupinus concinnus) Native

Ericameria linearifolia

California Goldfields (Lasthenia gracilis) Native

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

Plagiobothrys sp.

Acmispon argophyllus

Rancher's Fiddleneck (Amsinckia menziesii) Native

Miner's Lettuce (Claytonia perfoliata) Native

Nemophila sp.

Tidy Tips (Layia platyglossa) Native

Caulanthus lasiophyllus

Camissonia strigulosa

Chia (Salvia columbariae) Native

	California Poppy (Eschscholzia california) Native Ropevine (Clematis pauciflora) Native
Other Observations:	

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Ian Maunsell

Trainee: None

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
8	Apr 19, 2020	1	10:45	16:00	63	64	7-9	4-10	5	30

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Painted Lady (Vanessa cardui)

Behr's Metalmark (Apodemia virgulti virgulti)

Checkered White (Pontia protodice)

Clemence's Blue (Plebejus lupini monticola)

California Marble (Euchloe hyantis near hyantis)

California Tortoiseshell (Nymphalis californica)

Harford's Sulphur (Colias harfordii)

Acmon Blue (Plebejus acmon)

Lacustra Duskywing (Erynnis brizo lacustra)

Funereal Duskywing (Erynnis funeralis)

Propertius Duskywing (Erynnis propertius)

Nectar Observations

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

California Goldfields (Lasthenia gracilis) Native

Bajada Lupine (Lupinus concinnus) Native

Miniature Lupine (Lupinus bicolor) Native

Rancher's Fiddleneck (Amsinckia menziesii) Native

Short-pod Mustard (Hirschfeldia incana) Non-native

Sisymbrium irio

Cryptantha sp.

Woolly-fruit Lomatium (Lomatium dasycarpum) Native

Slender Pectocarya (Pectocarya linearis) Native

Ericameria linearifolia

Ceanothus greggii

Nemophila menziesii

	Tidy Tips (Layia platyglossa) Native Caterpillar Phacelia (Phacelia cicutaria var.) Native Acmispon sp. Plagiobothrys sp. Chia (Salvia columbariae) Native Petty Spurge (Euphorbia peplus) Non-native
Other Observations:	

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Kris Alberts

Trainee: N/A

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
6	Apr 15, 2020	5	10:50	17:15	64	71	1-4	2-8	0	0

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Painted Lady (Vanessa cardui)

Checkered White (Pontia protodice)

Sara Orangetip (Anthocharis sara sara)

Behr's Metalmark (Apodemia virgulti virgulti)

Harford's Sulphur (Colias harfordii)

Funereal Duskywing (Erynnis funeralis)

California Tortoiseshell (Nymphalis californica)

California Marble (Euchloe hyantis near hyantis)

Acmon Blue (Plebejus acmon)

Gray Buckeye (Junonia coenia grisea)

Nectar Observations

Rancher's Fiddleneck (Amsinckia menziesii) Native

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

California Goldfields (Lasthenia gracilis) Native

Sisymbrium irio

Spurry, Stickwort (Spergula arvensis) Non-nativev

Nemophila menziesii

Artemisia Pinchushion (Chaenactis artemisiifolia) Native

Plagiobothrys sp.

Slender Pectocarya (Pectocarya linearis) Native

Cryptantha sp.

Short-pod Mustard (Hirschfeldia incana) Non-native

Ceanothus greggii

Ericameria linearifolia

	San Diego Mountain-mahogany (Cercocarpus minutiflorus) Native Bajada Lupine (Lupinus concinnus) Native Chia (Salvia columbariae) Native Wild Heliotrope (Phacelia distans) Native Nievitas Cryptantha (Cryptantha intermedia) Native California Poppy (Eschscholzia california) Native Farinose Ground Pink (Linanthus dianthiflorus) Native Common Eucrypta (Eucrypta chrysanthemifolia) Native Wild Cucumber (Marah macrocarpus) Native Camissoniopsis sp. Sisymbrium altissimum Minute-flower Cryptantha (Cryptantha micromeres) Native Sugar Bush (Rhus ovata) Native Miniature Lupine (Lupinus bicolor) Native Bajada Lupine (Lupinus concinnus) Native
Other Observations:	

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Kris Alberts

Trainee: N/A

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
7	Apr 16, 2020	5	10:10	16:30	62	68	2-9	2-11	0	0

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Painted Lady (Vanessa cardui)

Checkered White (Pontia protodice)

Sara Orangetip (Anthocharis sara sara)

Behr's Metalmark (Apodemia virgulti virgulti)

Harford's Sulphur (Colias harfordii)

California Tortoiseshell (Nymphalis californica)

California Marble (Euchloe hyantis near hyantis)

Acmon Blue (Plebejus acmon)

West Coast Lady (Vanessa annabella)

Nectar Observations

Rancher's Fiddleneck (Amsinckia menziesii) Native

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

California Goldfields (Lasthenia gracilis) Native

Sisymbrium irio

Spurry, Stickwort (Spergula arvensis) Non-nativev

Nemophila menziesii

Artemisia Pinchushion (Chaenactis artemisiifolia) Native

Plagiobothrys sp.

Slender Pectocarya (Pectocarya linearis) Native

Cryptantha sp.

Short-pod Mustard (Hirschfeldia incana) Non-native

Ceanothus greggii

Ericameria linearifolia

	San Diego Mountain-mahogany (Cercocarpus minutiflorus) Native Bajada Lupine (Lupinus concinnus) Native Chia (Salvia columbariae) Native Wild Heliotrope (Phacelia distans) Native Nievitas Cryptantha (Cryptantha intermedia) Native California Poppy (Eschscholzia california) Native Farinose Ground Pink (Linanthus dianthiflorus) Native Common Eucrypta (Eucrypta chrysanthemifolia) Native Wild Cucumber (Marah macrocarpus) Native Camissoniopsis sp. Sisymbrium altissimum Minute-flower Cryptantha (Cryptantha micromeres) Native Sugar Bush (Rhus ovata) Native Miniature Lupine (Lupinus bicolor) Native Bajada Lupine (Lupinus concinnus) Native Coast Paintbrush (Castilleja affinis) Native Common Catchfly (Silene gallica) Non-native
Other Observations:	

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Kris Alberts

Trainee: N/A

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
8	Apr 19, 2020	5	11:35	17:25	63	64	1-4	4-10	20	30

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Painted Lady (Vanessa cardui)

Checkered White (Pontia protodice)

Behr's Metalmark (Apodemia virgulti virgulti)

Harford's Sulphur (Colias harfordii)

California Tortoiseshell (Nymphalis californica)

California Marble (Euchloe hyantis near hyantis)

Perplexing Hairstreak (Callophrys perplexa perplexa)

Southern Silvery Blue (Glaucopsyche lygdamus australis)

Propertius Duskywing (Erynnis propertius)

Lacustra Duskywing (Erynnis brizo lacustra)

Nectar Observations

Rancher's Fiddleneck (Amsinckia menziesii) Native

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

California Goldfields (Lasthenia gracilis) Native

Sisymbrium irio

Spurry, Stickwort (Spergula arvensis) Non-nativev

Nemophila menziesii

Artemisia Pinchushion (Chaenactis artemisiifolia) Native

Plagiobothrys sp.

Slender Pectocarya (Pectocarya linearis) Native

Cryptantha sp.

Short-pod Mustard (Hirschfeldia incana) Non-native

Ceanothus greggii

Ericameria linearifolia

	San Diego Mountain-mahogany (Cercocarpus minutiflorus) Native Bajada Lupine (Lupinus concinnus) Native Chia (Salvia columbariae) Native Wild Heliotrope (Phacelia distans) Native Nievitas Cryptantha (Cryptantha intermedia) Native California Poppy (Eschscholzia california) Native Farinose Ground Pink (Linanthus dianthiflorus) Native Common Eucrypta (Eucrypta chrysanthemifolia) Native Wild Cucumber (Marah macrocarpus) Native Camissoniopsis sp. Sisymbrium altissimum Minute-flower Cryptantha (Cryptantha micromeres) Native Sugar Bush (Rhus ovata) Native Miniature Lupine (Lupinus bicolor) Native Bajada Lupine (Lupinus concinnus) Native Coast Paintbrush (Castilleja affinis) Native Common Catchfly (Silene gallica) Non-native California Goosefoot (Chenopodium californicum) Native
Other Observations:	

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Seth Reimers, Kris Alberts

Trainee: None

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
9	Apr 22, 2020	2, 5	08:55	04:40	68	86	2-7	1-6	0	3

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Orange Sulphur (Colias eurytheme)

Painted Lady (Vanessa cardui)

Behr's Metalmark (Apodemia virgulti virgulti)

California Marble (Euchloe hyantis near hyantis)

Acmon Blue (Plebejus acmon)

Clemence's Blue (Plebejus lupini monticola)

Checkered White (Pontia protodice)

Sara Orangetip (Anthocharis sara sara)

California Tortoiseshell (Nymphalis californica)

Pale Swallowtail (Papilio eurymedon)

Harford's Sulphur (Colias harfordii)

Funereal Duskywing (Erynnis funeralis)

Southern Silvery Blue (Glaucopsyche lygdamus australis)

Nectar Observations

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

California Goldfields (Lasthenia gracilis) Native

Caterpillar Phacelia (Phacelia cicutaria var.) Native

Rancher's Fiddleneck (Amsinckia menziesii) Native

Nemophila sp.

Short-pod Mustard (Hirschfeldia incana) Non-native

Slender Pectocarya (Pectocarya linearis) Native

Sisymbrium irio

Ceanothus greggii

Ericameria linearifolia

Tidy Tips (Layia platyglossa) Native

Cryptantha sp.

Miner's Lettuce (Claytonia perfoliata) Native

	Bajada Lupine (Lupinus concinnus) Native Acmispon argophyllus Sugar Bush (Rhus ovata) Native San Diego Mountain-mahogany (Cercocarpus minutiflorus) Native Silver Puffs (Uropappus lindleyi) Native Seep Monkey Flower (Mimulus guttatus) Native Miniature Lupine (Lupinus bicolor) Native California Poppy (Eschscholzia california) Native California Sun Cup (Camissonia bistorta) Native Miniature Sun Cup (Camissonia micrantha) Native Sisymbrium altissimum Grassland Gilia (Gilia angelensis) Native Rattlesnake Weed (Chamaesyce albomarginata) Native Wild Cucumber (Marah macrocarpus) Native Minute-flower Cryptantha (Cryptantha micromeres) Native Ropevine (Clematis pauciflora) Native

Other Observations: None

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Ryan Quilley, Ian Maunsell

Trainee: None

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
9	Apr 21, 2020	1, 3, 4	10:45	17:45	64	76	4-9	4-10	0	0

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Behr's Metalmark (Apodemia virgulti virgulti)

Painted Lady (Vanessa cardui)

California Marble (Euchloe hyantis near hyantis)

Sara Orangetip (Anthocharis sara sara)

Western Tailed Blue (Cupido amyntula amyntula)

Acmon Blue (Plebejus acmon)

Funereal Duskywing (Erynnis funeralis)

Harford's Sulphur (Colias harfordii)

Gray Buckeye (Junonia coenia grisea)

Orange Sulphur (Colias eurytheme)

Checkered White (Pontia protodice)

Clemence's Blue (Plebejus lupini monticola)

Nectar Observations

Bajada Lupine (Lupinus concinnus) Native

Ericameria linearifolia

California Goldfields (Lasthenia gracilis) Native

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

Plagiobothrys sp.

Acmispon argophyllus

Rancher's Fiddleneck (Amsinckia menziesii) Native

Miner's Lettuce (Claytonia perfoliata) Native

Nemophila sp.

Tidy Tips (Layia platyglossa) Native

Caulanthus lasiophyllus

Camissonia strigulosa

Chia (Salvia columbariae) Native

	California Poppy (Eschscholzia california) Native Ropevine (Clematis pauciflora) Native
Other Observations:	

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Seth Reimers, Kris Alberts

Trainee: Lorena Bernal

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
10	Apr 24, 2020	2, 5	09:00	15:35	75	82	2-8	1-8	0	0

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

West Coast Lady (Vanessa annabella)

Painted Lady (Vanessa cardui)

Behr's Metalmark (Apodemia virgulti virgulti)

California Marble (Euchloe hyantis near hyantis)

Acmon Blue (Plebejus acmon)

Clemence's Blue (Plebejus lupini monticola)

Checkered White (Pontia protodice)

Sara Orangetip (Anthocharis sara sara)

California Tortoiseshell (Nymphalis californica)

Pale Swallowtail (Papilio eurymedon)

Harford's Sulphur (Colias harfordii)

Funereal Duskywing (Erynnis funeralis)

Gray Buckeye (Junonia coenia grisea)

Propertius Duskywing (Erynnis propertius)

Nectar Observations

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

California Goldfields (Lasthenia gracilis) Native

Caterpillar Phacelia (Phacelia cicutaria var.) Native

Rancher's Fiddleneck (Amsinckia menziesii) Native

Nemophila sp.

Short-pod Mustard (Hirschfeldia incana) Non-native

Slender Pectocarya (Pectocarya linearis) Native

Sisymbrium irio

Ceanothus greggii

Ericameria linearifolia

Tidy Tips (Layia platyglossa) Native

Cryptantha sp.

Miner's Lettuce (Claytonia perfoliata) Native

	Bajada Lupine (Lupinus concinnus) Native Acmispon argophyllus Sugar Bush (Rhus ovata) Native San Diego Mountain-mahogany (Cercocarpus minutiflorus) Native Silver Puffs (Uropappus lindleyi) Native Seep Monkey Flower (Mimulus guttatus) Native Miniature Lupine (Lupinus bicolor) Native California Poppy (Eschscholzia california) Native California Sun Cup (Camissonia bistorta) Native Miniature Sun Cup (Camissonia micrantha) Native Sisymbrium altissimum Grassland Gilia (Gilia angelensis) Native Rattlesnake Weed (Chamaesyce albomarginata) Native Wild Cucumber (Marah macrocarpus) Native Minute-flower Cryptantha (Cryptantha micromeres) Native Ropevine (Clematis pauciflora) Native California Sun Cup (Camissonia bistorta) Native Camissonia hirtella Parish's Nightshade (Solanum parishii) Native
Other Observations: None	

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Ryan Quilley, Ian Maunsell

Trainee: None

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
10	Apr 24, 2020	1, 3, 4	08:39	16:00	73	85	3-8	4-6	0	0

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Behr's Metalmark (Apodemia virgulti virgulti)

Painted Lady (Vanessa cardui)

California Marble (Euchloe hyantis near hyantis)

Sara Orangetip (Anthocharis sara sara)

Acmon Blue (Plebejus acmon)

Funereal Duskywing (Erynnis funeralis)

Checkered White (Pontia protodice)

Clemence's Blue (Plebejus lupini monticola)

Mourning Cloak (Nymphalis antiopa antiopa)

White Checkered Skipper (Pyrgus albescens)

Propertius Duskywing (Erynnis propertius)

Lacustra Duskywing (Erynnis brizo lacustra)

Nectar Observations

Bajada Lupine (Lupinus concinnus) Native

Ericameria linearifolia

California Goldfields (Lasthenia gracilis) Native

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

Plagiobothrys sp.

Acmispon argophyllus

Rancher's Fiddleneck (Amsinckia menziesii) Native

Miner's Lettuce (Claytonia perfoliata) Native

Nemophila sp.

Tidy Tips (Layia platyglossa) Native

Caulanthus lasiophyllus

Camissonia strigulosa

Chia (Salvia columbariae) Native

	California Poppy (Eschscholzia california) Native Ropevine (Clematis pauciflora) Native Coast Live Oak (Quercus agrifolia) Native Scrub Oak (Quercus berberidifolia) Native Short-pod Mustard (Hirschfeldia incana) Non-native Silver Puffs (Uropappus lindleyi) Native Blue Dicks (Dichelostemma capitatum) Native Sugar Bush (Rhus ovata) Native Yellow Pincushion (Chaenactis glabriuscula var. glabriuscula) Native Chaparral Nightshade (Solanum xanti) Native
Other Observations:	

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Ryan Quilley, Ian Maunsell

Trainee: None

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
11	Apr 29, 2020	1, 3, 4	07:15	15:15	68	82	0-1	5-8	0	40

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Behr's Metalmark (Apodemia virgulti virgulti)

Painted Lady (Vanessa cardui)

California Marble (Euchloe hyantis near hyantis)

Sara Orangetip (Anthocharis sara sara)

Acmon Blue (Plebejus acmon)

Funereal Duskywing (Erynnis funeralis)

Checkered White (Pontia protodice)

Clemence's Blue (Plebejus lupini monticola)

Propertius Duskywing (Erynnis propertius)

Western Tailed Blue (Cupido amyntula amyntula)

Becker's White (Pontia beckerii)

Edwards' Blue (Hemiargus ceraunus gyas)

Orange Sulphur (Colias eurytheme)

Pale Swallowtail (Papilio eurymedon)

Perplexing Hairstreak (Callophrys perplexa perplexa)

Nectar Observations

Bajada Lupine (Lupinus concinnus) Native

Ericameria linearifolia

California Goldfields (Lasthenia gracilis) Native

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

Plagiobothrys sp.

Acmispon argophyllus

Rancher's Fiddleneck (Amsinckia menziesii) Native

Miner's Lettuce (Claytonia perfoliata) Native

Nemophila sp.

Tidy Tips (Layia platyglossa) Native

Caulanthus lasiophyllus

Camissonia strigulosa

Chia (Salvia columbariae) Native

Common Gray Hairstreak (Strymon melinus pudica) Western Great Purple Hairstreak (Atlides halesus corcorani) Common Sootywing (Pholisora catullus) Harford's Sulphur (Colias harfordii)	California Poppy (Eschscholzia california) Native Ropevine (Clematis pauciflora) Native Coast Live Oak (Quercus agrifolia) Native Scrub Oak (Quercus berberidifolia) Native Short-pod Mustard (Hirschfeldia incana) Non-native Silver Puffs (Uropappus lindleyi) Native Blue Dicks (Dichelostemma capitatum) Native Sugar Bush (Rhus ovata) Native Yellow Pincushion (Chaenactis glabriuscula var. glabriuscula) Native Chaparral Nightshade (Solanum xanti) Native
Other Observations:	

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Seth Reimers, Kris Alberts

Trainee: Lorena Bernal

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
11	Apr 30, 2020	2, 5	09:20	16:40	73	79	0-2	6-13	95	30

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

West Coast Lady (Vanessa annabella)

Painted Lady (Vanessa cardui)

Behr's Metalmark (Apodemia virgulti virgulti)

California Marble (Euchloe hyantis near hyantis)

Acmon Blue (Plebejus acmon)

Clemence's Blue (Plebejus lupini monticola)

Checkered White (Pontia protodice)

Sara Orangetip (Anthocharis sara sara)

Pale Swallowtail (Papilio eurymedon)

Harford's Sulphur (Colias harfordii)

Funereal Duskywing (Erynnis funeralis)

Gray Buckeye (Junonia coenia grisea)

Propertius Duskywing (Erynnis propertius)

Western Tailed Blue (Cupido amyntula amyntula)

Edwards' Blue (Hemiargus ceraunus gyas)

Nectar Observations

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

California Goldfields (Lasthenia gracilis) Native

Caterpillar Phacelia (Phacelia cicutaria var.) Native

Rancher's Fiddleneck (Amsinckia menziesii) Native

Nemophila sp.

Short-pod Mustard (Hirschfeldia incana) Non-native

Slender Pectocarya (Pectocarya linearis) Native

Sisymbrium irio

Ceanothus greggii

Ericameria linearifolia

Tidy Tips (Layia platyglossa) Native

Cryptantha sp.

Miner's Lettuce (Claytonia perfoliata) Native

Common Sootywing (Pholisora catullus)	Bajada Lupine (Lupinus concinnus) Native
Lacustra Duskywing (Erynnis brizo lacustra)	Acmispon argophyllus
Becker's White (Pontia beckerii)	Sugar Bush (Rhus ovata) Native
Common Gray Hairstreak (Strymon melinus pudica)	San Diego Mountain-mahogany (Cercocarpus minutiflorus) Native
White Checkered Skipper (Pyrgus albescens)	Silver Puffs (Uropappus lindleyi) Native
Orange Sulphur (Colias eurytheme)	Seep Monkey Flower (Mimulus guttatus) Native
	Miniature Lupine (Lupinus bicolor) Native
	California Poppy (Eschscholzia california) Native
	California Sun Cup (Camissonia bistorta) Native
	Miniature Sun Cup (Camissonia micrantha) Native
	Sisymbrium altissimum
	Grassland Gilia (Gilia angelensis) Native
	Rattlesnake Weed (Chamaesyce albomarginata) Native
	Wild Cucumber (Marah macrocarpus) Native
	Minute-flower Cryptantha (Cryptantha micromeres) Native
	Ropevine (Clematis pauciflora) Native
	California Sun Cup (Camissonia bistorta) Native
	Camissonia hirtella
	Parish's Nightshade (Solanum parishii) Native
	Blue Dicks (Dichelostemma capitatum) Native
	Parry's Larkspur (Delphinium parryi) Native
	Scrub Oak (Quercus berberidifolia) Native
	Coast Live Oak (Quercus agrifolia) Native

	Golden Yarrow (Eriophyllum confertiflorum) Native
Other Observations: None	

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Ian Maunsell

Trainee: None

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
12	May 8, 2020	1	08:51	13:48	79	91	0-1	2-8	0	0

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Painted Lady (Vanessa cardui)

Behr's Metalmark (Apodemia virgulti virgulti)

Checkered White (Pontia protodice)

Clemence's Blue (Plebejus lupini monticola)

Perplexing Hairstreak (Callophrys perplexa perplexa)

Orange Sulphur (Colias eurytheme)

Harford's Sulphur (Colias harfordii)

Acmon Blue (Plebejus acmon)

Western Tailed Blue (Cupido amyntula amyntula)

Common Gray Hairstreak (Strymon melinus pudica)

Gray Buckeye (Junonia coenia grisea)

Funereal Duskywing (Erynnis funeralis)

Becker's White (Pontia beckerii)

Nectar Observations

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

California Goldfields (Lasthenia gracilis) Native

Bajada Lupine (Lupinus concinnus) Native

Miniature Lupine (Lupinus bicolor) Native

Rancher's Fiddleneck (Amsinckia menziesii) Native

Short-pod Mustard (Hirschfeldia incana) Non-native

Caulanthus lasiophyllus

Cryptantha sp.

Acmispon sp.

Slender Pectocarya (Pectocarya linearis) Native

Ericameria linearifolia

Parry's Larkspur (Delphinium parryi) Native

Nemophila menziesii

	Tidy Tips (Layia platyglossa) Native Caterpillar Phacelia (Phacelia cicutaria var.) Native Chia (Salvia columbariae) Native Golden Yarrow (Eriophyllum confertiflorum) Native Petty Spurge (Euphorbia peplus) Non-native Blue Dicks (Dichelostemma capitatum) Native
Other Observations:	

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Seth Reimers, Kris Alberts

Trainee: Lorena Bernal

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
12	May 8, 2020	2, 5	08:00	15:55	67	88	0	5-12	10	5

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

West Coast Lady (Vanessa annabella)

Painted Lady (Vanessa cardui)

Behr's Metalmark (Apodemia virgulti virgulti)

California Marble (Euchloe hyantis near hyantis)

Acmon Blue (Plebejus acmon)

Clemence's Blue (Plebejus lupini monticola)

Checkered White (Pontia protodice)

Sara Orangetip (Anthocharis sara sara)

Pale Swallowtail (Papilio eurymedon)

Harford's Sulphur (Colias harfordii)

Funereal Duskywing (Erynnis funeralis)

Gray Buckeye (Junonia coenia grisea)

Propertius Duskywing (Erynnis propertius)

Western Tailed Blue (Cupido amyntula amyntula)

Edwards' Blue (Hemiargus ceraunus gyas)

Nectar Observations

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

California Goldfields (Lasthenia gracilis) Native

Caterpillar Phacelia (Phacelia cicutaria var.) Native

Rancher's Fiddleneck (Amsinckia menziesii) Native

Nemophila sp.

Short-pod Mustard (Hirschfeldia incana) Non-native

Slender Pectocarya (Pectocarya linearis) Native

Sisymbrium irio

Ceanothus greggii

Ericameria linearifolia

Tidy Tips (Layia platyglossa) Native

Cryptantha sp.

Miner's Lettuce (Claytonia perfoliata) Native

Becker's White (Pontia beckerii)	Bajada Lupine (Lupinus concinnus) Native
Common Gray Hairstreak (Strymon melinus pudica)	Acmispon argophyllus
White Checkered Skipper (Pyrgus albescens)	Sugar Bush (Rhus ovata) Native
Orange Sulphur (Colias eurytheme)	San Diego Mountain-mahogany (Cercocarpus minutiflorus) Native
Marine Blue (Leptotes marina)	Silver Puffs (Uropappus lindleyi) Native
Mourning Cloak (Nymphalis antiopa antiopa)	Seep Monkey Flower (Mimulus guttatus) Native
California Sister (Adelpha californica)	Miniature Lupine (Lupinus bicolor) Native
Perplexing Hairstreak (Callophrys perplexa perplexa)	California Poppy (Eschscholzia california) Native
Western Elfin (Callophrys augustinus iroides)	California Sun Cup (Camissonia bistorta) Native
San Bernardino Blue (Euphilotes bernardino bernardino)	Miniature Sun Cup (Camissonia micrantha) Native
Desert Swallowtail (Papilio polyxenes coloro)	Sisymbrium altissimum
	Grassland Gilia (Gilia angelensis) Native
	Rattlesnake Weed (Chamaesyce albomarginata) Native
	Wild Cucumber (Marah macrocarpus) Native
	Minute-flower Cryptantha (Cryptantha micromeres) Native
	Ropevine (Clematis pauciflora) Native
	California Sun Cup (Camissonia bistorta) Native
	Camissonia hirtella
	Parish's Nightshade (Solanum parishii) Native
	Blue Dicks (Dichelostemma capitatum) Native
	Parry's Larkspur (Delphinium parryi) Native
	Scrub Oak (Quercus berberidifolia) Native
	Coast Live Oak (Quercus agrifolia) Native

	Golden Yarrow (Eriophyllum confertiflorum) Native Everlasting Nest-Straw (Stylocline gnaphaloides) Native Tamerisk, Salt Cedar (Tamarix species) Non-native, Invasive California Thistle (Cirsium occidentale) Native Chia (Salvia columbariae) Native Indian Sweetclover (Melilotus indica) Non-native
Other Observations: None	

Survey Type: Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey

Project Name: McCain Valley Solar Project

Surveyor: Ryan Quilley

Trainee: None

Survey Week	Date	Survey Block	Time		Temp (F°)		Wind (mph)		Cloud Cover (%)	
			Start	End	Start	End	Start	End	Start	End
12	May 6, 2020	3, 4	10:49	16:45	88	92	1-5	6-11	10	0

Quino Checkerspot Butterfly Observed:	No 0: 0

Butterfly Observations

Behr's Metalmark (Apodemia virgulti virgulti)

Painted Lady (Vanessa cardui)

California Marble (Euchloe hyantis near hyantis)

Sara Orangetip (Anthocharis sara sara)

Acmon Blue (Plebejus acmon)

Funereal Duskywing (Erynnis funeralis)

Checkered White (Pontia protodice)

Clemence's Blue (Plebejus lupini monticola)

Propertius Duskywing (Erynnis propertius)

Becker's White (Pontia beckerii)

Pale Swallowtail (Papilio eurymedon)

Common Sootywing (Pholisora catullus)

Harford's Sulphur (Colias harfordii)

Gray Buckeye (Junonia coenia grisea)

White Checkered Skipper (Pyrgus albescens)

Nectar Observations

Bajada Lupine (Lupinus concinnus) Native

Ericameria linearifolia

California Goldfields (Lasthenia gracilis) Native

Red-stem Filaree (Erodium cicutarium) Non-native, Invasive

Plagiobothrys sp.

Acmispon argophyllus

Rancher's Fiddleneck (Amsinckia menziesii) Native

Miner's Lettuce (Claytonia perfoliata) Native

Nemophila sp.

Tidy Tips (Layia platyglossa) Native

Caulanthus lasiophyllus

Camissonia strigulosa

Chia (Salvia columbariae) Native

Lacustra Duskywing (Erynnis brizo lacustra)	Ropevine (Clematis pauciflora) Native
Echo Azure (Celastrina echo echo)	Coast Live Oak (Quercus agrifolia) Native
	Scrub Oak (Quercus berberidifolia) Native
	Short-pod Mustard (Hirschfeldia incana) Non-native
	Silver Puffs (Uropappus lindleyi) Native
	Blue Dicks (Dichelostemma capitatum) Native
	Sugar Bush (Rhus ovata) Native
	Yellow Pincushion (Chaenactis glabriuscula var. glabriuscula) Native
	Chaparral Nightshade (Solanum xanti) Native
	Parry's Larkspur (Delphinium parryi) Native
	Golden Yarrow (Eriophyllum confertiflorum) Native
	Sugar Bush (Rhus ovata) Native

Other Observations:

ATTACHMENT E

USFWS Correspondence

Blackhawk Environmental

ATTACHMENT F

Photo Pages

Blackhawk Environmental



Photograph 1: Representative early season photo of open buckwheat scrub in Area E.



Photograph 2: Representative early season photo of open big sagebrush scrub in Area B



Photograph 3: Representative early season photo of a meadow and tamarisk in Area E.



Photograph 4: Representative early season photo of open chaparral in Area B.



Photograph 5: Representative early season photo of disturbed open buckwheat scrub in Area B.



Photograph 6: Representative early season photo of open semi-desert chaparral in Area C.



Photograph 7: Representative early season photo of disturbed habitat in Area B.



Photograph 8: Overview of Area E showing chamise and redshank chaparral in late season.



Photograph 9: Excluded closed canopy chaparral in Area E, shown in early season.



Photograph 10: Representative modest hilltop in Area A, shown in early season.



Photograph 11: Representative photo of disturbed open buckwheat scrub in Area A, shown in mid-season.



Photograph 12: Representative photo of abundant goldfields in Area A, shown in late season.



Photograph 13: Representative photo of abundant goldfields in Area D, shown in late season.



Photograph 14: Phot depicts open scrub habitat adjacent to short-pod mustard-choked disturbed habitat in Area D, shown in late season.



Photograph 15: Germinating bird's beak in Area D, shown in mid-season.



Photograph 16: Germinating bird's beak in Area B, shown in the shade of a large shrub representative of where this species was mostly observed.



Photograph 17: Chinese houses in Area B, shown in late season.



Photograph 18: Representative photo depicts Chinese houses concentrated on the northern, shaded side of a scrub oak in Area B, shown in late season.

Appendix E

Data Station Forms

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Rough Acres Ranch | City/County: Boulevard/San Diego County | Sampling Date: 6/10/08

Applicant/Owner: Hamann Companies | State: CA | Sampling Point: 1

Investigator(s): Mike Howard/Travis Smith | Section, Township, Range: Live Oak Springs, 16E/17S/7

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 32°41' 33N | Long: 116° 116' 59W | Datum:

Soil Map Unit Name: Loamy Alluvial Land | NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Sample is in the middle of the wetland. It is dry currently but has potential to be inundated.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *n/a*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *n/a*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Distichlis spicata*	5	No	FAC
2. *Juncus mexicanus*	85	Yes	FACW
3. *Erodium cicutarium*	1	No	UPL
4. *Sisymbrium altissimum*	1	No	FACU
5.			
6.			
7.			
8.			
Total Cover:	92 %		
Woody Vine Stratum			
1. *n/a*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 5 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	85	x 2 =	170
FAC species	5	x 3 =	15
FACU species	1	x 4 =	4
UPL species	1	x 5 =	5
Column Totals:	92 (A)		194 (B)

Prevalence Index = B/A = 2.11

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-18	7.5 YR 4/1	98	7.5 YR 4/6	2	C	RC	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Rough Acres Ranch | City/County: Boulevard/San Diego County | Sampling Date: 6/10/08

Applicant/Owner: Hamann Companies | State: CA | Sampling Point: 2

Investigator(s): Mike Howard/Travis Smith | Section, Township, Range: Live Oak Springs, 16E/17S/2

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 32° 41' 33N | Long: 116°116' 59W | Datum:

Soil Map Unit Name: Loamy Alluvial Land | NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *n/a*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *n/a*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Distichlis spicata*	2	No	FAC
2. *Juncus mexicanus*	65	Yes	FACW
3. *Erodium cicutarium*	5	No	UPL
4. *Sisymbrium altissimum*	10	No	FACU
5. *Ambrosia psilostachya*	2	Yes	FACU
6. *Heliotropium curassavicum*	5	No	FACU
7. *Melilotus indicus*	1	No	FACU
8. *Hordeum murinum ssp. glaucum*	5	No	UPL
Total Cover:	95 %		
Woody Vine Stratum			
1. *n/a*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 5 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	65	x 2 =	130
FAC species	2	x 3 =	6
FACU species	18	x 4 =	72
UPL species	10	x 5 =	50
Column Totals:	95 (A)		258 (B)

Prevalence Index = B/A = 2.72

Hydrophytic Vegetation Indicators:

- [ ] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-16	7.5 YR 4/1	88	7.5 YR 4/6	2	C	RC	Sandy loam	
	7.5 YR 4/2	10						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Rough Acres Ranch | City/County: Boulevard/San Diego County | Sampling Date: 6/10/08

Applicant/Owner: Hamann Companies | State: CA | Sampling Point: 3

Investigator(s): Mike Howard/Travis Smith | Section, Township, Range: Live Oak Springs, 16E/17S/7

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 32° 41' 33N | Long: 116° 116' 59W | Datum:

Soil Map Unit Name: Loamy Alluvial Land | NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Although soils and hydrology are present, the area is functionally a grassland and not a wetland. The area has negligible biological function or value as wetlands and does not support wetland dependent sensitive species. Therefore the area does not meet CDFG or County wetland criteria.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Distichlis spicata*	5	No	FAC
2. *Juncus mexicanus*	5	No	FACW
3. *Erodium cicutarium*	15	Yes	UPL
4. *Sisymbrium altissimum*	15	Yes	FACU
5. *Brassica nigra*	2	No	UPL
6. *Heliotropium curassavicum*	2	No	FACU
7. *Melilotus indicus*	3	No	FACU
8. *Hordeum murinum ssp. glaucum*	7	No	UPL
Total Cover:	54 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 45 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	5	x 2 =	10
FAC species	5	x 3 =	15
FACU species	20	x 4 =	80
UPL species	24	x 5 =	120
Column Totals:	54 (A)		225 (B)

Prevalence Index = B/A = 4.17

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-20	7.5 YR 4/1	97	7.5 YR 4/6	3	C	RC	Loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Rough Acres Ranch | City/County: Boulevard/San Diego County | Sampling Date: 6/10/08

Applicant/Owner: Hamann Companies | State: CA | Sampling Point: 4

Investigator(s): Mike Howard/Travis Smith | Section, Township, Range: Live Oak Springs, 16E/17S/7

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 32° 41' 33N | Long: 116°116' 59W | Datum:

Soil Map Unit Name: Loamy Alluvial Land | NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Only sampled vegetation to verify edge of wetland.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Distichlis spicata*	2	No	FAC
2. *Juncus mexicanus*	80	Yes	FACW
3. *Erodium cicutarium*	2	No	UPL
4. *Sisymbrium altissimum*	5	No	FACU
5. *Hordeum murinum ssp. glaucum*	10	No	UPL
6.			
7.			
8.			
Total Cover:	99 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 5 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	80	x 2 =	160
FAC species	2	x 3 =	6
FACU species	5	x 4 =	20
UPL species	12	x 5 =	60
Column Totals:	99 (A)		246 (B)

Prevalence Index = B/A = 2.48

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: Not assessed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Not assessed.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Rough Acres Ranch | City/County: Boulevard/San Diego County | Sampling Date: 6/10/08

Applicant/Owner: Hamann Companies | State: CA | Sampling Point: 5

Investigator(s): Mike Howard/Travis Smith | Section, Township, Range: Live Oak Springs, 16E/17S/7

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 32° 41' 33N | Long: 116°116' 59W | Datum:

Soil Map Unit Name: Loamy Alluvial Land | NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	50	Yes	FAC
2. *Artemisia tridentata*	5	No	UPL
3.			
4.			
5.			
Total Cover:	55 %		
Herb Stratum			
1. *Brassica nigra*	10	Yes	UPL
2. *Juncus mexicanus*	2	No	FACW
3. *Erodium cicutarium*	15	Yes	UPL
4. *Sisymbrium altissimum*	5	No	FACU
5.			
6.			
7.			
8.			
Total Cover:	32 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 70 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	2	x 2 =	4
FAC species	50	x 3 =	150
FACU species	5	x 4 =	20
UPL species	30	x 5 =	150
Column Totals:	87 (A)		324 (B)

Prevalence Index = B/A = 3.72

Hydrophytic Vegetation Indicators:

- [ ] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks: Area subject to grazing.

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-11	7.5 YR 5/3	100					Sand	
11-12	7.5 YR 4/2	80	5 YR 4/6	2	C	RC	Silty Loam	Bedded
	7.5 YR 3/1	18						
12-23	7.5 YR 4/2	98	7.5 YR 4/6	2	C	RC	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: The 11-12 inch layer is bedded showing evidence of standing or flowing water.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Rough Acres Ranch | City/County: Boulevard/San Diego County | Sampling Date: 3/28/12

Applicant/Owner: Hamann Companies | State: CA | Sampling Point: 6

Investigator(s): Callie Ford and Patricia Schuyler | Section, Township, Range: Live Oak Springs, 16E/17S/7

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 32° 41' 33N | Long: 116°116' 59W | Datum:

Soil Map Unit Name: Loamy Alluvial Land | NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: DS taken ~20' from UVC in Juncus mexicanus (dist.)

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Hordeum marinum ssp. gussoneanum*	70	Yes	UPL
2. *Erodium cicutarium*	50	Yes	UPL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	120%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 5 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	120	x 5 =	600
Column Totals:	120 (A)		600 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

- [ ] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks: This is based on using H. hystrix as a synonym whereas H. geniculatum is also a synonym which is listed as NI. Jepson lists H. hystrix as occurring from "dry to moist" sites.

SOIL

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-16	7.5 Y 3/2	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Hard Surface

Depth (inches): 10"

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Rough Acres Ranch | City/County: Boulevard/San Diego County | Sampling Date: 3/22/12

Applicant/Owner: Hamann Companies | State: CA | Sampling Point: 7

Investigator(s): Callie Ford and Patricia Schuyler | Section, Township, Range: Live Oak Springs, 16E/17S/7

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 32° 41' 33N | Long: 116°116' 59W | Datum:

Soil Map Unit Name: Loamy Alluvial Land | NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: DS taken ~20' from UVC in Juncus mexicanus (dist.)

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Hordeum marinum ssp. gussoneanum*	78	Yes	FAC
2. *Juncus mexicanus*	68	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	146%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	68	x 2 =	136
FAC species	78	x 3 =	234
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	146 (A)		370 (B)

Prevalence Index = B/A = 2.53

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: This is based on using H. hystrix as a synonym whereas H. geniculatum is also a synonym which is listed as NI. Jepson lists H. hystrix as occurring from "dry to moist" sites.

SOIL

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-3	2.5 Y 4/2	100					Sandy loam	
3-10	2.5 Y 3/2	100	7.5 YR 4/6	1	C	PL	Sandy loam	PL/M

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Hard Surface

Depth (inches): 10"

Hydric Soil Present? Yes ○ No ◉

Remarks: Some concentrations in pore lining and very little if any in matrix, not enough to qualify as hydric.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: About 1% evidence of oxidized rhizopheres (C3) but doesn't meet manual standard.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Rough Acres Ranch | City/County: Boulevard/San Diego County | Sampling Date: 3/22/12

Applicant/Owner: Hamann Companies | State: CA | Sampling Point: 8

Investigator(s): Callie Ford and Patricia Schuyler | Section, Township, Range: Live Oak Springs, 16E/17S/7

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 32°41' 33N | Long: 116°116' 59W | Datum:

Soil Map Unit Name: Loamy Alluvial Land | NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Hordeum marinum ssp. gussoneanum*	40	Yes	FAC
2. *Juncus mexicanus*	5	No	FACW
3. *Erodium cicutarium*	20	Yes	UPL
4. *Brassica sp. (dead)*	N/A		
5.			
6.			
7.			
8.			
Total Cover:	65 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 35 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	5	x 2 =	10
FAC species	40	x 3 =	120
FACU species		x 4 =	0
UPL species	20	x 5 =	100
Column Totals:	65 (A)		230 (B)

Prevalence Index = B/A = 3.54

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks: This is based on using H. hystrix as a synonym whereas H. geniculatum is also a synonym which is listed as NI. Jepson lists H. hystrix as occurring from "dry to moist" sites.

SOIL

Sampling Point: 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-16	10 YR 5/1	40					Sand	plant material
0-16	10 YR 5/2	40					Sand	
0-2	10 YR 3/2	20					Sandy loam	plant material

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: No redox features present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Rough Acres Ranch | City/County: Boulevard/San Diego County | Sampling Date: 3/28/12

Applicant/Owner: Hamann Companies | State: CA | Sampling Point: 9

Investigator(s): Callie Ford and Patricia Schuyler | Section, Township, Range: Live Oak Springs, 16E/17S/7

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 32° 41' 33N | Long: 116° 116' 59W | Datum:

Soil Map Unit Name: Loamy Alluvial Land | NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tamarix sp.*	15	Yes	FAC
2.			
3.			
4.			
Total Cover:	15 %		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Hordeum marinum ssp. gussoneanum*	15	No	FAC
2. *Juncus mexicanus*	75	Yes	FACW
3. *Erodium cicutarium*	10	No	UPL
4. *Hordeum vulgare*	20	Yes	UPL
5.			
6.			
7.			
8.			
Total Cover:	120 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	75	x 2 =	150
FAC species	30	x 3 =	90
FACU species		x 4 =	0
UPL species	30	x 5 =	150
Column Totals:	135 (A)		390 (B)

Prevalence Index = B/A = 2.89

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: This is based on using H. hystrix as a synonym whereas H. geniculatum is also a synonym which is listed as NI. Jepson lists H. hystrix as occurring from "dry to moist" sites.

SOIL

Sampling Point: 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-4	10 YR 3/2	100					Sandy	
4-16	10 YR 4/2	74	10 YR 5/8	4	C	PL	Sandy loam	
4-16	10 YR 3/2	20					Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Iron redox features present along small roots.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Rough Acres Ranch | City/County: Boulevard/San Diego County | Sampling Date: 3/28/12

Applicant/Owner: Hamann Companies | State: CA | Sampling Point: 10

Investigator(s): Callie Ford and Patricia Schuyler | Section, Township, Range: Live Oak Springs, 16E/17S/7

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 32° 41' 33N | Long: 116°116' 59W | Datum:

Soil Map Unit Name: Loamy Alluvial Land | NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Hordeum marinum ssp. gussoneanum*	5	No	FAC
2. *Juncus mexicanus*	75	Yes	FACW
3. *Erodium cicutarium*	10	No	UPL
4. *Hordeum vulgare*	10	No	UPL
5. *Oxalis pes-caprae*	10	No	UPL
6.			
7.			
8.			
Total Cover:	110%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	75	x 2 =	150
FAC species	5	x 3 =	15
FACU species		x 4 =	0
UPL species	30	x 5 =	150
Column Totals:	110 (A)		315 (B)

Prevalence Index = B/A = 2.86

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: This is based on using H. hystrix as a synonym whereas H. geniculatum is also a synonym which is listed as NI. Jepson lists H. hystrix as occurring from "dry to moist" sites.

SOIL

Sampling Point: 10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-14	10 YR 5/3	30					Sandy	
0-14	7 Y 5/1	60	10 YR 5/6	8	C	M	Sandy loam	
0-14			10 YR 5/6	2	C	PL	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Lots of roots in soil. Sandy inclusions. Lots of redox in soil, not as much in pore lining.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Some oxidized rhizopheres along small roots.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Rough Acres Ranch | City/County: Boulevard/San Diego County | Sampling Date: 3/28/12

Applicant/Owner: Hamann Companies | State: CA | Sampling Point: 11

Investigator(s): Callie Ford and Patricia Schuyler | Section, Township, Range: Live Oak Springs, 16E/17S/7

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 32° 41' 33N | Long: 116°116' 59W | Datum:

Soil Map Unit Name: Loamy Alluvial Land | NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes ( ) No (●)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Although hydrophytic vegetation is present, the area is functionally a grassland and not a wetland. The area has negligible biological function or value as wetlands and does not support wetland dependent sensitive species. Therefore the area does not meet CDFG or County wetland criteria.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Hordeum marinum ssp. gussoneanum*	80	Yes	FAC
2. *Juncus mexicanus*	10	No	FACW
3. *Erodium cicutarium*	5	No	UPL
4.			
5.			
6.			
7.			
8.			
Total Cover:	95 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 20 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	10	x 2 =	20
FAC species	80	x 3 =	240
FACU species		x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	95 (A)		285 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: This is based on using H. hystrix as a synonym whereas H. geniculatum is also a synonym which is listed as NI. Jepson lists H. hystrix as occurring from "dry to moist" sites.

SOIL

Sampling Point: 11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-16	10 YR 3/1	99	5 YR 4/4	1	C	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: No redox features except near small sand inclusions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Rough Acres Ranch | City/County: Boulevard/San Diego County | Sampling Date: 3/28/12

Applicant/Owner: Hamann Companies | State: CA | Sampling Point: 12

Investigator(s): Callie Ford and Patricia Schuyler | Section, Township, Range: Live Oak Springs, 16E/17S/7

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 32° 41' 33N | Long: 116°116' 59W | Datum:

Soil Map Unit Name: Loamy Alluvial Land | NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Isocoma menziesii*	5		FAC
2.			
3.			
4.			
5.			
Total Cover:	5 %		
Herb Stratum			
1. *Bromus madritensis*	30		UPL
2. *Hordeum marinum ssp. gussoneanum*	40		FAC
3. *Erodium cicutarium*	50		UPL
4.			
5.			
6.			
7.			
8.			
Total Cover:	120%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 5 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	45	x 3 =	135
FACU species		x 4 =	0
UPL species	80	x 5 =	400
Column Totals:	125 (A)		535 (B)

Prevalence Index = B/A = 4.28

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks: This is based on using H. hystrix as a synonym whereas H. geniculatum is also a synonym which is listed as NI. Jepson lists H. hystrix as occurring from "dry to moist" sites.

SOIL

Sampling Point: 12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-16	7.5 YR 3/2	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Rough Acres Ranch | City/County: Boulevard/San Diego County | Sampling Date: 3/28/12

Applicant/Owner: Hamann Companies | State: CA | Sampling Point: 13

Investigator(s): Callie Ford and Patricia Schuyler | Section, Township, Range: Live Oak Springs, 16E/17S/7

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 32° 41' 33N | Long: 116° 116' 59W | Datum:

Soil Map Unit Name: Loamy Alluvial Land | NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (•)	No ( )	
Hydric Soil Present?	Yes (•)	No ( )	**Is the Sampled Area within a Wetland?** Yes (•) No ( )
Wetland Hydrology Present?	Yes (•)	No ( )	

Remarks: Thick Juncus mexicanus

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Brassica sp.*			
2. *Juncus mexicanus*	100	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	100	x 2 =	200
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (•) No ( )

Remarks:

SOIL

Sampling Point: 13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-2								plant material
2-10	10 YR 3/2	97	5 YR 4/8	3	C	PL	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches): 10

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: 5 YR 4/8 oxidized rhizospheres

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Rough Acres Ranch | City/County: Boulevard/San Diego County | Sampling Date: 11/26/13

Applicant/Owner: Hamann Companies | State: CA | Sampling Point: 14

Investigator(s): Thomas Liddicoat | Section, Township, Range: Live Oak Springs, 16E/17S/7

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): None | Slope (%):

Subregion (LRR): C - Mediterranean California | Lat: | Long: | Datum:

Soil Map Unit Name: | NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks: Pit within mapped Tamarisk Scrub. Area is a pasture for grazing cattle.
Depleted matrix found throughout floodplain both within areas supporting non-native grassland and alkali meadow; hydric soil indicator is not used to define jurisdictional wetland boundaries.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tamarisk sp.*	15	Yes	FAC
2.			
3.			
4.			
Total Cover:	15 %		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Hordeum vulgare*	15	Yes	UPL
2. *Brassica sp.*	5	No	UPL
3. *Erodium cicutarium*	20	Yes	UPL
4. *Sisymbrium altissimum*	15	Yes	FACU
5.			
6.			
7.			
8.			
Total Cover:	55 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 40 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	15	x 3 =	45
FACU species	15	x 4 =	60
UPL species	40	x 5 =	200
Column Totals:	70 (A)		305 (B)

Prevalence Index = B/A = 4.36

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

SOIL

Sampling Point: 14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-4	7.5 YR 3/2	100					Sandy Loam	living roots present
4-13	10 YR 3/1	85	5 YR 3/4	15	C	PL	Silt Loam	
13+	10 YR 4/2	100					Loamy Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Rough Acres Ranch | City/County: Boulevard/San Diego County | Sampling Date: 11/26/13

Applicant/Owner: Hamann Companies | State: CA | Sampling Point: 15

Investigator(s): Thomas Liddicoat | Section, Township, Range: Live Oak Springs, 16E/17S/7

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): None | Slope (%):

Subregion (LRR): C - Mediterranean California | Lat: | Long: | Datum:

Soil Map Unit Name: | NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☒ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks: Pit within mapped Tamarisk Scrub. Area is a pasture for grazing cattle.
Depleted matrix found throughout floodplain both within areas supporting non-native grassland and alkali meadow; hydric soil indicator is not used to define jurisdictional wetland boundaries.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tamarisk sp.*	50	Yes	FAC
2.			
3.			
4.			
Total Cover:	50 %		
Sapling/Shrub Stratum			
1. *Artemisia tridentata*	3	Yes	UPL
2. *unk A*	2	Yes	UPL
3.			
4.			
5.			
Total Cover:	5 %		
Herb Stratum			
1. *Hordeum vulgare*	10	No	UPL
2. *Bromus madritensis*	20	Yes	Not Listed
3. *Erodium cicutarium*	25	Yes	UPL
4. *Sisymbrium altissimum*	10	No	FACU
5. *Brassica sp.*	5	No	UPL
6.			
7.			
8.			
Total Cover:	70 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 25 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	50	x 3 =	150
FACU species	10	x 4 =	40
UPL species	65	x 5 =	325
Column Totals:	125 (A)		515 (B)

Prevalence Index = B/A = 4.12

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

SOIL

Sampling Point: 15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-4	10 YR 3/2	100					Sandy Loam	living roots present
4-13	10 YR 5/2	95	?	5	C	M	Loamy Sand	redox on coated sand grains

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: redox features were covered and/or coated sand grains. unable to use munsell for color.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☒ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☒ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: redox features were observed as horizontal thin layers along the pit wall. these layers were covered sand grains.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Rough Acres Ranch | City/County: Boulevard/San Diego County | Sampling Date: 11/26/13

Applicant/Owner: Hamann Companies | State: CA | Sampling Point: 16

Investigator(s): Thomas Liddicoat | Section, Township, Range: Live Oak Springs, 16E/17S/7

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): None | Slope (%):

Subregion (LRR): C - Mediterranean California | Lat: | Long: | Datum:

Soil Map Unit Name: | NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☒ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks: Pit within mapped Tamarisk Scrub. Area is a pasture for grazing cattle.
Depleted matrix found throughout floodplain both within areas supporting non-native grassland and alkali meadow; hydric soil indicator is not used to define jurisdictional wetland boundaries.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tamarisk sp.*	20	Yes	FAC
2.			
3.			
4.			
Total Cover:	20 %		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Brassica sp.*	10	No	UPL
2. *Bromus madritensis*	20	Yes	UPL
3. *Erodium cicutarium*	15	Yes	UPL
4. *Sisymbrium altissimum*	20	Yes	FACU
5.			
6.			
7.			
8.			
Total Cover:	65 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 25 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	20	x 3 =	60
FACU species	20	x 4 =	80
UPL species	45	x 5 =	225
Column Totals:	85 (A)		365 (B)

Prevalence Index = B/A = 4.29

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

SOIL

Sampling Point: 16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-4	7.5 YR 3/1	100					Silty Clay Loam	living roots present
4-8	10 YR 5/1	100					Loamy Sand	living roots present
8-13	10 YR 5/1	100					Loamy Sand	coarse sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Rough Acres Ranch | City/County: Boulevard/San Diego County | Sampling Date: 11/26/13

Applicant/Owner: Hamann Companies | State: CA | Sampling Point: 17

Investigator(s): Thomas Liddicoat | Section, Township, Range: Live Oak Springs, 16E/17S/7

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): None | Slope (%):

Subregion (LRR): C - Mediterranean California | Lat: | Long: | Datum:

Soil Map Unit Name: | NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [X] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Pit within mapped Tamarisk Scrub. Area is a pasture for grazing cattle.
Depleted matrix found throughout floodplain both within areas supporting non-native grassland and alkali meadow; hydric soil indicator is not used to define jurisdictional wetland boundaries.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tamarisk sp.*	60	Yes	FAC
2.			
3.			
4.			
Total Cover:	60 %		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Brassica sp.*	20	Yes	UPL
2. *Juncus mexicanus*	5	No	FACW
3. *Erodium cicutarium*	15	Yes	UPL
4. *Distichlis spicata*	25	Yes	FACU
5.			
6.			
7.			
8.			
Total Cover:	65 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 30 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	5	x 2 =	10
FAC species	60	x 3 =	180
FACU species	25	x 4 =	100
UPL species	35	x 5 =	175
Column Totals:	125 (A)		465 (B)

Prevalence Index = B/A = 3.72

Hydrophytic Vegetation Indicators:

- [ ] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: 17

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-14	10 YR 5/2	100					Loamy Sand	living roots present in upper 8"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Rough Acres Ranch | City/County: Boulevard/San Diego County | Sampling Date: 11/26/13

Applicant/Owner: Hamann Companies | State: CA | Sampling Point: 18

Investigator(s): Thomas Liddicoat | Section, Township, Range: Live Oak Springs, 16E/17S/7

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): None | Slope (%):

Subregion (LRR): C - Mediterranean California | Lat: | Long: | Datum:

Soil Map Unit Name: | NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks: Pit within mapped Tamarisk Scrub. Area is a pasture for grazing cattle.
Depleted matrix found throughout floodplain both within areas supporting non-native grassland and alkali meadow; hydric soil indicator is not used to define jurisdictional wetland boundaries.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tamarisk sp.*	50	Yes	FAC
2.			
3.			
4.			
Total Cover:	50 %		
Sapling/Shrub Stratum			
1. *Ambrosia psilostochya*	1	No	FACU
2. *Artemisia tridentata*	1	No	UPL
3.			
4.			
5.			
Total Cover:	2 %		
Herb Stratum			
1. *Brassica sp.*	10	No	FAC
2. *Juncus mexicanus*	15	No	FACW
3. *Erodium cicutarium*	40	Yes	UPL
4. *Sisymbrium altissimum*	20	Yes	FACU
5. *Bromus madritensis*	10	No	UPL
6.			
7.			
8.			
Total Cover:	95 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 2 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	15	x 2 =	30
FAC species	60	x 3 =	180
FACU species	21	x 4 =	84
UPL species	51	x 5 =	255
Column Totals:	147 (A)		549 (B)

Prevalence Index = B/A = 3.73

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

SOIL

Sampling Point: 18

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-3	7.5 YR 3/1	100					Sandy Clay Loam	living roots present
3-12	10 YR 3/2	100					Loamy Sand	few roots

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

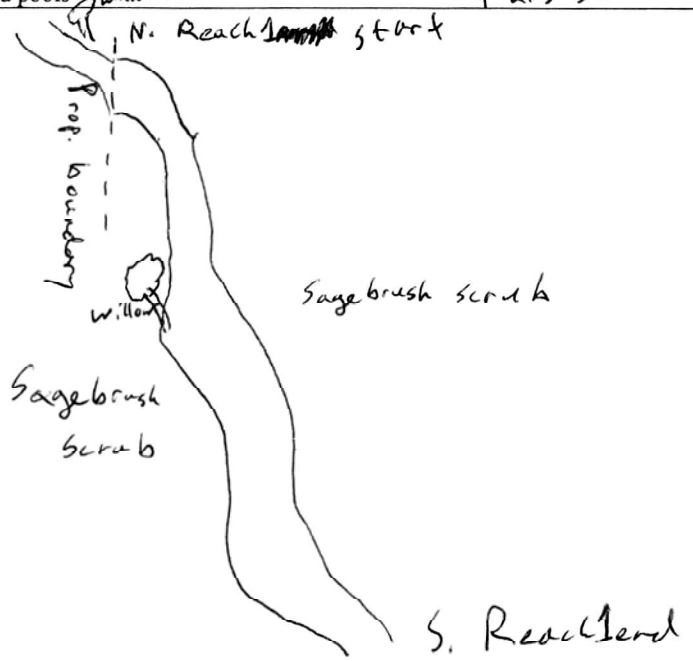
Remarks:

Beta Arid West Streamflow Duration Assessment Method

General site information

Project name or number: Rugged Solar (11927)		
Site code or identifier:	Assessor(s): Cody Schaaf	
Waterway name: Tule Creek – Reach 1		Visit date: 4/12/21
Current weather conditions (check one) ☐ Storm/heavy rain ☐ Steady rain ☐ Intermittent rain ☐ Snowing ☐ Cloudy (___ % cover) ☒ Clear/Sunny	Notes on current or recent weather conditions (e.g., precipitation in previous week): No precip. in past few (1-2) weeks. Below avg. precip. year.	Coordinates at downstream end (decimal degrees): Lat (N): 32.701446° N Long (W): 116.288400° W Datum: [redacted] WGS84
Surrounding land-use within 100 m (check one or two): ☐ Urban/industrial/residential ☒ Agricultural (farmland, crops, vineyards, pasture) ☐ Developed open-space (e.g., golf course) ☐ Forested ☒ Other natural ☐ Other: _____	Describe reach boundaries: Northern portion of westernmost channel on project site. Channel continues upstream (offsite) to NW at northern reach end.	
Mean channel width (m): 10	Reach length (m): 40x width; min 40 m; max 200 m. 200	Enter photo ID, or check if completed Top down: ✓ Mid down: ✓ Mid up: ✓ Bottom up: _____
Disturbed or difficult conditions (check all that apply): ☐ Recent flood or debris flow ☐ Stream modifications (e.g., channelization) ☐ Diversions ☐ Discharges ☒ Drought ☐ Vegetation removal/limitations ☐ Other (explain in notes) ☐ None	Notes on disturbances or difficult site conditions: Drought developing in SoCal after drier than normal winter. Site visit conducted in spring when intermittent/perennial hydrology should be observeable.	
Observed hydrology: 0 % of reach with surface flow 0 % of reach with sub-surface or surface flow 0 # of isolated pools	Comments on observed hydrology: No recent hydrology observed. No evidence of surface flow this season.	

Site sketch:



1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: ☐ No vegetation in assessment area ☐ No hydrophytes in assessment area

Species	Odd distribution?	Notes	Photo ID
Salix laevigata	Yes	Dal, 1 tree (less than 2% of reach)	5

Notes on hydrophytic vegetation: No other hydrophytes aside from Salix laevigata.

2 and 3. Aquatic invertebrates

2. How many aquatic invertebrates are quantified in a 15-minute search?

Number of individuals quantified: ☑ None ☐ 1 to 19 ☐ 20 +

(Do not count mosquitos)

Photo ID:_____

3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?

Yes / (No)



Ephemeroptera larva
Image credit: Dieter Tracey



Plecoptera larva
Tracey Saxby



Trichoptera larva
Tracey Saxby

Notes on aquatic invertebrates: Channel not suitable for aquatic inverts. No evidence of recent flow or ponding.

4. Algal Cover

Are algae found on the streambed? ☐ Check if *all* observed algae appear to be deposited from an upstream source.	☑ Not detected ☐ Yes, < 10% cover ☐ Yes, ≥ 10% (check Yes in single indicator below)	Notes on algae cover:	Photo ID:

5. Are single indicators observed?

Indicator	Present	Notes	Photo ID
Fish	☐ Yes ☑ No, no fish ☐ No, only non-native mosquitofish		
Algae cover ≥ 10%	☐ Yes ☑ No		

Supplemental information E.g., aquatic or semi-aquatic amphibians, snakes, or turtles; iron-oxidizing bacteria and fungi; etc.

N/A → no aquatic flora or fauna observed.

Photo log

Indicate if any other photos taken during the assessment

Photo ID	Description
1	Showing offsite willows at N. end of Reach 1 (upstream)
2	Downstream photo of sagebrush and channel at N. end of Reach 1
3	Mid reach upstream
4	Mid reach downstream
5	Willow in lower portion of Reach 1
6	Lower reach upstream

Additional notes about the assessment:

No surface hydrology evidence - no cracking, scour, etc. in channel bottom. Unlikely that channel was subject to surface flow this year. Annual herbaceous species growing in coarse sand in main portion of channel.

Subsurface hydrology not present when tested w/ shovel / pit.

Classification: Need More Information

1. Hydrophytic plant species	2. Aquatic invertebrates	3. EPT taxa	4. Algae	5. Single indicators • fish present • algae cover ≥ 10%	Classification
None	None	Absent	Absent	Absent	**Ephemeral**
				Present	**At least intermittent**
			Present	Absent	**Need more information**
				Present	**At least intermittent**
	Few (1-19)	Absent	Absent	Absent	**Need more information**
				Present	**At least intermittent**
			Present	Absent	**Need more information**
				Present	**At least intermittent**
		Present			**At least intermittent**
	Many (20+)	Absent	Absent	Absent	**Need more information**
				Present	**At least intermittent**
			Present	Absent	**Need more information**
				Present	**At least intermittent**
		Present			**At least intermittent**
Few (1-2)	None	Absent	Absent	Absent	**Need more information**
				Present	**At least intermittent**
			Present		**At least intermittent**
	Few (1-19)	Absent	Absent		**Intermittent**
			Present		**At least intermittent**
		Present			**At least intermittent**
	Many (20+)	Absent	Absent		**Intermittent**
			Present		**At least intermittent**
		Present	Absent		**At least intermittent**
			Present		**Intermittent**
Many (3+)	None	Absent	Absent	Absent	**Need more information**
				Present	**At least intermittent**
			Present		**At least intermittent**
	Few (1-19)	Absent			**At least intermittent**
		Present			**Perennial**
	Many (20+)	Absent			**At least intermittent**
		Present			**Perennial**

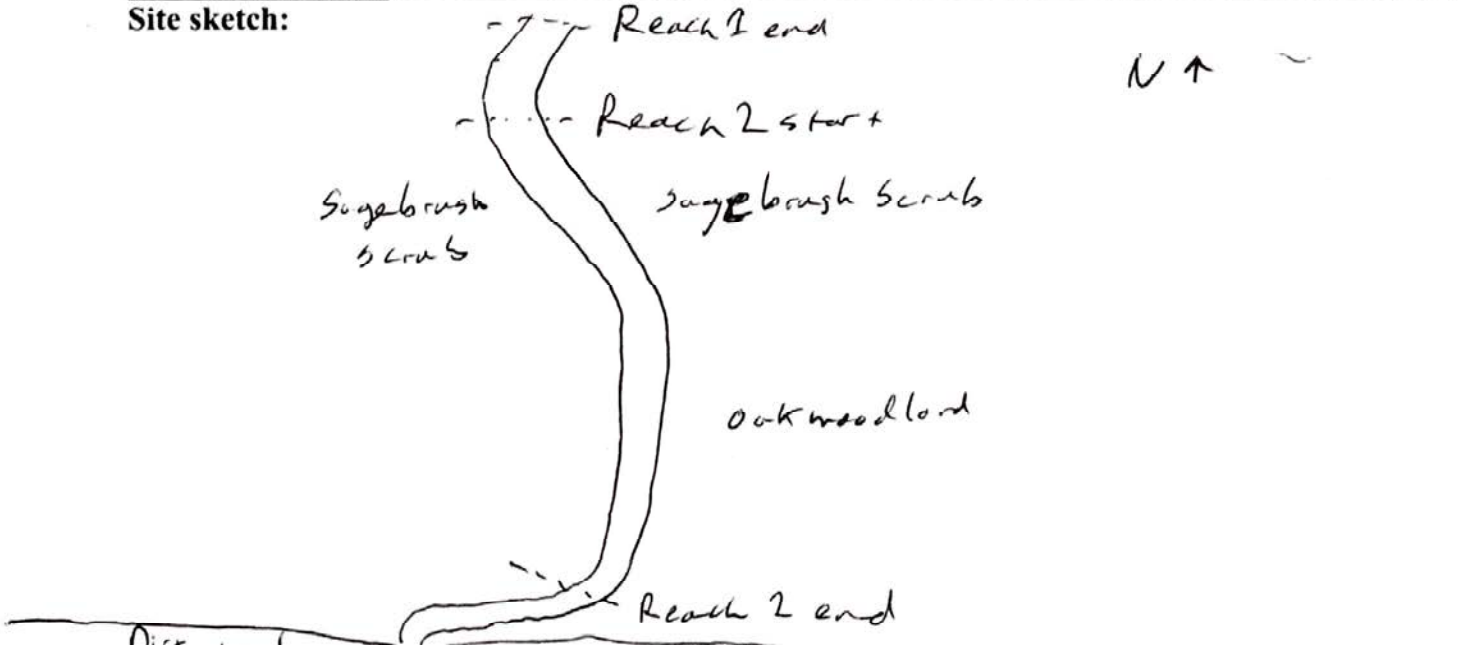
Shading provided to enhance readability by increasing the contrast between neighboring cells; empty cells indicate the classification will not change with additional information however it is recommended that all five indicators be measured and recorded during every assessment.

Beta Arid West Streamflow Duration Assessment Method

General site information

Project name or number: Rugged Solar (11927)		
Site code or identifier:	Assessor(s): Cody Schaaf	
Waterway name: Tule Creek – Reach 2		Visit date: 4/12/21
Current weather conditions (check one) ☐ Storm/heavy rain ☐ Steady rain ☐ Intermittent rain ☐ Snowing ☐ Cloudy (___ % cover) ☑ Clear/Sunny	Notes on current or recent weather conditions (e.g., precipitation in previous week): No precip in last 1-2 weeks	Coordinates at downstream end (decimal degrees): Lat (N): 32.699553° N Long (W): 116.286803° W Datum: WGS84
Surrounding land-use within 100 m (check one or two): ☐ Urban/industrial/residential ☑ Agricultural (farmland, crops, vineyards, pasture) ☐ Developed open-space (e.g., golf course) ☐ Forested ☑ Other natural ☐ Other: _____	Describe reach boundaries: Below Reach 1. Reach 2 extends to dirt road area where channel banks become less defined. No culvert at road – only sheet flow over.	
Mean channel width (m): 5	Reach length (m): 40x width: min 40 m; max 200 m. approx 200 m	Enter photo ID, or check if completed Top down: ✓ Mid down: ✓ Mid up: ✓ Bottom up: ✓
Disturbed or difficult conditions (check all that apply): ☐ Recent flood or debris flow ☐ Stream modifications (e.g., channelization) ☐ Diversions ☐ Discharges ☑ Drought ☐ Vegetation removal/limitations ☐ Other (explain in notes) ☐ None	Notes on disturbances or difficult site conditions: SoCal. entering drought after dry winter.	
Observed hydrology: 0 % of reach with surface flow 0 % of reach with sub-surface or surface flow 0 # of isolated pools	Comments on observed hydrology: See Reach 1 comments – Same – no surface or subsurface hydro.	

Site sketch:



1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: ☐ No vegetation in assessment area ☒ No hydrophytes in assessment area

Species	Odd distribution?	Notes	Photo ID

Notes on hydrophytic vegetation:

2 and 3. Aquatic invertebrates

2. How many aquatic invertebrates are quantified in a 15-minute search?

Number of individuals quantified: ☒ None ☐ 1 to 19 ☐ 20 +

(Do not count mosquitos)

Photo ID: _____

3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?

Yes / (No)



Ephemeroptera larva
Image credit: Dieter Tracey



Plecoptera larva
Tracey Saxby



Trichoptera larva
Tracey Saxby

Notes on aquatic invertebrates: Channel not suitable for aquatic inverts. No evidence of recent flow or ponding.

4. Algal Cover

Are algae found on the streambed? ☐ Check if *all* observed algae appear to be deposited from an upstream source.	☒ Not detected ☐ Yes, < 10% cover ☐ Yes, ≥ 10% (check Yes in single indicator below)	Notes on algae cover:	Photo ID:

5. Are single indicators observed?

Indicator	Present	Notes	Photo ID
Fish	☐ Yes ☒ No, no fish ☐ No, only non-native mosquitofish		
Algae cover ≥ 10%	☐ Yes ☒ No		

Supplemental information E.g., aquatic or semi-aquatic amphibians, snakes, or turtles; iron-oxidizing bacteria and fungi; etc.

N/A - none of above observed

Photo log

Indicate if any other photos taken during the assessment

Photo ID	Description
7	Upper reach looking down
8	mid up
9	mid down
10	Bottom of reach looking up

Additional notes about the assessment:

See comments from Reach 1. No evidence of surface flow/ hydrology along reach. Subsurface hydrology not present when tested with shovel/ pit.

Classification: Ephemeral

1. Hydrophytic plant species	2. Aquatic invertebrates	3. EPT taxa	4. Algae	5. Single indicators • fish present • algae cover ≥ 10%	Classification
None	None	Absent	Absent	Absent	**Ephemeral**
				Present	**At least intermittent**
			Present	Absent	**Need more information**
				Present	**At least intermittent**
	Few (1-19)	Absent	Absent	Absent	**Need more information**
				Present	**At least intermittent**
			Present	Absent	**Need more information**
				Present	**At least intermittent**
		Present			**At least intermittent**
	Many (20+)	Absent	Absent	Absent	**Need more information**
				Present	**At least intermittent**
			Present	Absent	**Need more information**
				Present	**At least intermittent**
		Present			**At least intermittent**
Few (1-2)	None	Absent	Absent	Absent	**Need more information**
				Present	**At least intermittent**
			Present		**At least intermittent**
	Few (1-19)	Absent	Absent		**Intermittent**
			Present		**At least intermittent**
		Present			**At least intermittent**
	Many (20+)	Absent	Absent		**Intermittent**
			Present		**At least intermittent**
		Present	Absent		**At least intermittent**
			Present		**Intermittent**
Many (3+)	None	Absent	Absent	Absent	**Need more information**
				Present	**At least intermittent**
			Present		**At least intermittent**
	Few (1-19)	Absent			**At least intermittent**
		Present			**Perennial**
	Many (20+)	Absent			**At least intermittent**
		Present			**Perennial**

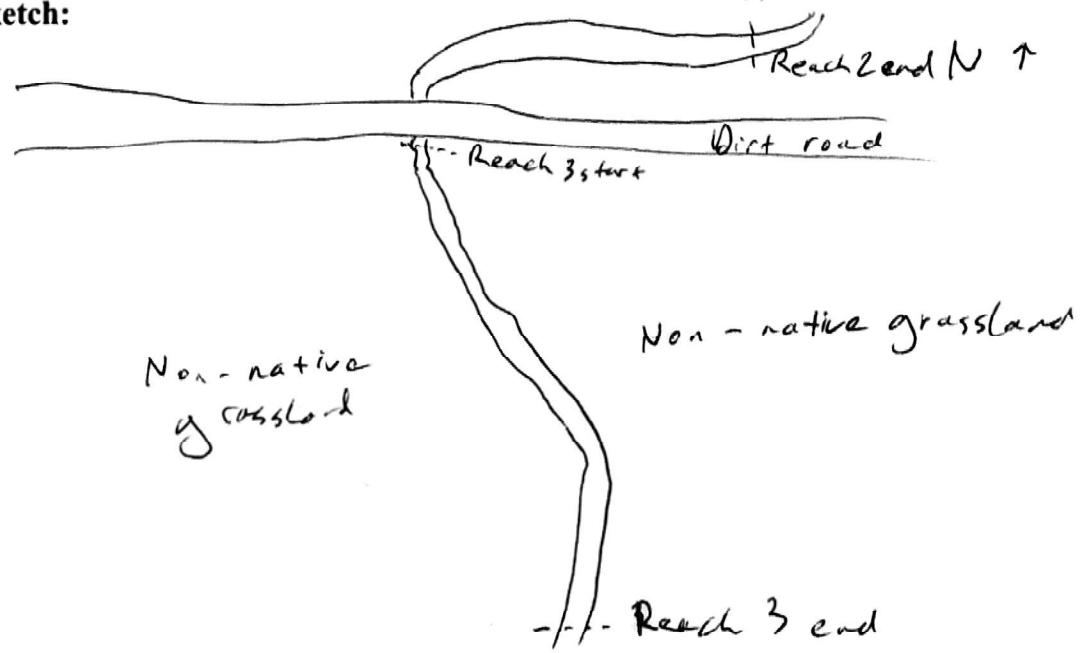
Shading provided to enhance readability by increasing the contrast between neighboring cells; empty cells indicate the classification will not change with additional information however it is recommended that all five indicators be measured and recorded during every assessment.

Beta Arid West Streamflow Duration Assessment Method

General site information

Project name or number: Rugged Solar (11927)		
Site code or identifier:	Assessor(s): Cody Schaaf	
Waterway name: Tule Creek Reach 3		Visit date: 4/12/21
Current weather conditions (check one) ☐ Storm/heavy rain ☐ Steady rain ☐ Intermittent rain ☐ Snowing ☐ Cloudy (___ % cover) ☑ Clear/Sunny	Notes on current or recent weather conditions (e.g., precipitation in previous week): No precip in last 1-2 weeks	Coordinates at downstream end (decimal degrees): Lat (N): 32.697385° N Long (W): 116.286063° W Datum: WGS84
Surrounding land-use within 100 m (check one or two): ☐ Urban/industrial/residential ☑ Agricultural (farmland, crops, vineyards, pasture) ☐ Developed open-space (e.g., golf course) ☐ Forested ☑ Other natural ☐ Other: _____	Describe reach boundaries: Below dirt road crossing, downstream of Reach 2. Begins just S of road crossing	
Mean channel width (m): 3	Reach length (m): 40x width; min 40 m; max 200 m. Approx 200 m	Enter photo ID, or check if completed Top down: ✓ Mid down: ✓ Mid up: ✓ Bottom up: ✓
Disturbed or difficult conditions (check all that apply): ☐ Recent flood or debris flow ☐ Stream modifications (e.g., channelization) ☐ Diversions ☐ Discharges ☑ Drought ☐ Vegetation removal/limitations ☐ Other (explain in notes) ☐ None	Notes on disturbances or difficult site conditions: So. Cal entering drought after drier than normal year.	
Observed hydrology: 0 % of reach with surface flow 0 % of reach with sub-surface or surface flow 0 # of isolated pools	Comments on observed hydrology: No surface or subsurface hydrology observed	

Site sketch:



1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: ☐ No vegetation in assessment area ☑ No hydrophytes in assessment area

Species	Odd distribution?	Notes	Photo ID

Notes on hydrophytic vegetation:

2 and 3. Aquatic invertebrates

2. How many aquatic invertebrates are quantified in a 15-minute search?

Number of individuals quantified: ☑ None ☐ 1 to 19 ☐ 20 +

(Do not count mosquitos)

Photo ID: _____

3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?

Yes / (No)



Ephemeroptera larva
Image credit: Dieter Tracey



Plecoptera larva
Tracey Saxby



Trichoptera larva
Tracey Saxby

Notes on aquatic invertebrates: Channel not suitable for aquatic inverts. No evidence of recent flow or ponding.

4. Algal Cover

Are algae found on the streambed?		Notes on algae cover:	Photo ID:
☐ Check if *all* observed algae appear to be deposited from an upstream source.	☑ Not detected ☐ Yes, < 10% cover ☐ Yes, ≥ 10% (check Yes in single indicator below)		

5. Are single indicators observed?

Indicator	Present	Notes	Photo ID
Fish	☐ Yes		
	☑ No, no fish		
	☐ No, only non-native mosquitofish		
Algae cover ≥ 10%	☐ Yes		
	☑ No		

Supplemental information E.g., aquatic or semi-aquatic amphibians, snakes, or turtles; iron-oxidizing bacteria and fungi; etc.

N/A - None of above observed

Photo log

Indicate if any other photos taken during the assessment

Photo ID	Description
11	Reach 3 start looking downstream
12	mid-reach looking up
13	mid-reach looking down
14	Reach 3 end looking upstream

Additional notes about the assessment:

No hydrology or evidence of recent hydrology observed. Many annuals growing in channel; no scour or wracking. Surface flow likely very rare. Subsurface hydrology not present when tested with shovel/pit.

Classification: Ephemeral

1. Hydrophytic plant species	2. Aquatic invertebrates	3. EPT taxa	4. Algae	5. Single indicators • fish present • algae cover ≥ 10%	Classification
None	None	Absent	Absent	Absent	**Ephemeral**
				Present	**At least intermittent**
			Present	Absent	**Need more information**
				Present	**At least intermittent**
	Few (1-19)	Absent	Absent	Absent	**Need more information**
				Present	**At least intermittent**
			Present	Absent	**Need more information**
				Present	**At least intermittent**
		Present			**At least intermittent**
	Many (20+)	Absent	Absent	Absent	**Need more information**
				Present	**At least intermittent**
			Present	Absent	**Need more information**
				Present	**At least intermittent**
		Present			**At least intermittent**
Few (1-2)	None	Absent	Absent	Absent	**Need more information**
				Present	**At least intermittent**
			Present		**At least intermittent**
	Few (1-19)	Absent	Absent		**Intermittent**
			Present		**At least intermittent**
		Present			**At least intermittent**
	Many (20+)	Absent	Absent		**Intermittent**
			Present		**At least intermittent**
		Present	Absent		**At least intermittent**
			Present		**Intermittent**
Many (3+)	None	Absent	Absent	Absent	**Need more information**
				Present	**At least intermittent**
			Present		**At least intermittent**
	Few (1-19)	Absent			**At least intermittent**
		Present			**Perennial**
	Many (20+)	Absent			**At least intermittent**
		Present			**Perennial**

Shading provided to enhance readability by increasing the contrast between neighboring cells; empty cells indicate the classification will not change with additional information however it is recommended that all five indicators be measured and recorded during every assessment.

Beta Arid West Streamflow Duration Assessment Method

General site information

Project name or number: Rugged Solar (11927)		
Site code or identifier:	Assessor(s): Cody Schaaf	
Waterway name: Trib. to Tule Creek - Unnamed ephem. drainage Reach 4		Visit date: 4/12/21
Current weather conditions (check one) ☐ Storm/heavy rain ☐ Steady rain ☐ Intermittent rain ☐ Snowing ☐ Cloudy (___ % cover) ☑ Clear/Sunny	Notes on current or recent weather conditions (e.g., precipitation in previous week): No precip. in past 2 weeks	Coordinates at downstream end (decimal degrees): Lat (N): 32.690746° N Long (W): 116.266226° W Datum: WGS84
Surrounding land-use within 100 m (check one or two): ☐ Urban/industrial/residential ☐ Agricultural (farmland, crops, vineyards, pasture) ☐ Developed open-space (e.g., golf course) ☐ Forested ☑ Other natural ☐ Other: _____	Describe reach boundaries: Small ephem. channel on SE portion of main proj. site. Reach ends where channel goes off site to S. Starts where channel is first mapped	
Mean channel width (m): 2	Reach length (m): 40x width; min 40 m; max 200 m. 150	Enter photo ID, or check if completed Top down: ✓ Mid down: ✓ Mid up: ✓ Bottom up: ✓
Disturbed or difficult conditions (check all that apply): ☐ Recent flood or debris flow ☐ Stream modifications (e.g., channelization) ☐ Diversions ☐ Discharges ☑ Drought ☐ Vegetation removal/limitations ☐ Other (explain in notes) ☐ None	Notes on disturbances or difficult site conditions: Drought developing across SoCal.	
Observed hydrology: 0 % of reach with surface flow 0 % of reach with sub-surface or surface flow 0 # of isolated pools	Comments on observed hydrology: No surface or subsurface hydro. Very small ephem. channel.	

Site sketch:



1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: ☐ No vegetation in assessment area ☑ No hydrophytes in assessment area

Species	Odd distribution?	Notes	Photo ID

Notes on hydrophytic vegetation:

2 and 3. Aquatic invertebrates

2. How many aquatic invertebrates are quantified in a 15-minute search?

Number of individuals quantified: ☑ None ☐ 1 to 19 ☐ 20 +

(Do not count mosquitos)

Photo ID:_____

3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?

Yes / (No)



Ephemeroptera larva
Image credit: Dieter Tracey



Plecoptera larva
Tracey Saxby



Trichoptera larva
Tracey Saxby

Notes on aquatic invertebrates: Not suitable for aquatic inverts.

4. Algal Cover

Are algae found on the streambed?		Notes on algae cover:	Photo ID:
☐ Check if *all* observed algae appear to be deposited from an upstream source.	☑ Not detected ☐ Yes, < 10% cover ☐ Yes, ≥ 10% (check Yes in single indicator below)		

5. Are single indicators observed?

Indicator	Present	Notes	Photo ID
Fish	☐ Yes ☑ No, no fish ☐ No, only non-native mosquitofish		
Algae cover ≥ 10%	☐ Yes ☑ No		

Supplemental information E.g., aquatic or semi-aquatic amphibians, snakes, or turtles; iron-oxidizing bacteria and fungi; etc.

N/A - None observed

Photo log

Indicate if any other photos taken during the assessment

Photo ID	Description
15	Reach start facing down
16	mid facing up
17	mid down
18	Reach end facing up

Additional notes about the assessment:

Minor ephemeral channel - no hydrology (flowing/pond) evidence observed except for small bed/bank

Classification: Ephemeral

1. Hydrophytic plant species	2. Aquatic invertebrates	3. EPT taxa	4. Algae	5. Single indicators • fish present • algae cover ≥ 10%	Classification
None	None	Absent	Absent	Absent	**Ephemeral** ←
				Present	**At least intermittent**
			Present	Absent	**Need more information**
				Present	**At least intermittent**
	Few (1-19)	Absent	Absent	Absent	**Need more information**
				Present	**At least intermittent**
			Present	Absent	**Need more information**
				Present	**At least intermittent**
		Present			**At least intermittent**
	Many (20+)	Absent	Absent	Absent	**Need more information**
				Present	**At least intermittent**
			Present	Absent	**Need more information**
				Present	**At least intermittent**
		Present			**At least intermittent**
Few (1-2)	None	Absent	Absent	Absent	**Need more information**
				Present	**At least intermittent**
			Present		**At least intermittent**
	Few (1-19)	Absent	Absent		**Intermittent**
			Present		**At least intermittent**
		Present			**At least intermittent**
	Many (20+)	Absent	Absent		**Intermittent**
			Present		**At least intermittent**
		Present	Absent		**At least intermittent**
			Present		**Intermittent**
Many (3+)	None	Absent	Absent	Absent	**Need more information**
				Present	**At least intermittent**
			Present		**At least intermittent**
	Few (1-19)	Absent			**At least intermittent**
		Present			**Perennial**
	Many (20+)	Absent			**At least intermittent**
		Present			**Perennial**

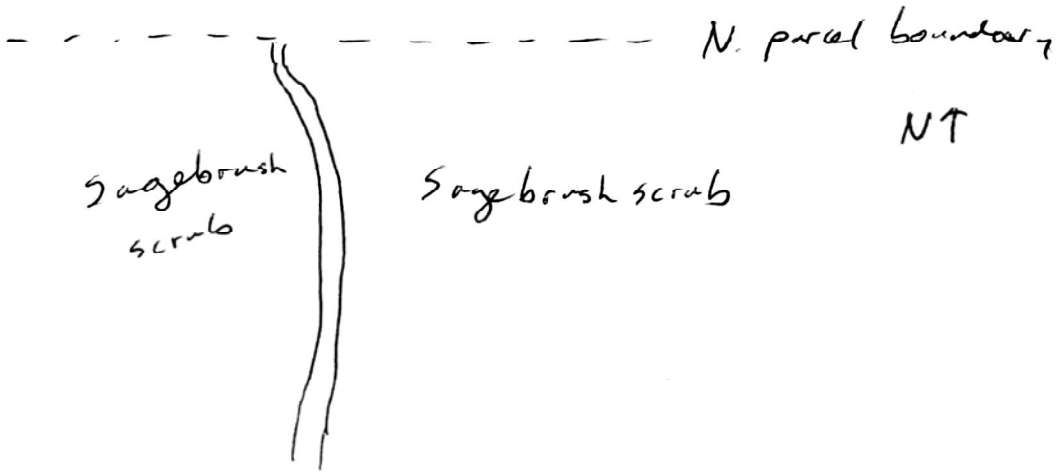
Shading provided to enhance readability by increasing the contrast between neighboring cells; empty cells indicate the classification will not change with additional information however it is recommended that all five indicators be measured and recorded during every assessment.

Beta Arid West Streamflow Duration Assessment Method

General site information

Project name or number: Rugged Solar 11927		
Site code or identifier:	Assessor(s): Cody Schaaf	
Waterway name: Trib to Tule Creek - Unnamed ephem. channel Reach 5		Visit date: 4/12/21
Current weather conditions (check one) ☐ Storm/heavy rain ☐ Steady rain ☐ Intermittent rain ☐ Snowing ☐ Cloudy (___ % cover) ☑ Clear/Sunny	Notes on current or recent weather conditions (e.g., precipitation in previous week): No precip. past 2 weeks	Coordinates at downstream end (decimal degrees): Lat (N): 32.688968°N Long (W): 116.254772°W Datum: WGS84
Surrounding land-use within 100 m (check one or two): ☐ Urban/industrial/residential ☐ Agricultural (farmland, crops, vineyards, pasture) ☐ Developed open-space (e.g., golf course) ☐ Forested ☑ Other natural ☐ Other: _____	Describe reach boundaries: On eastern project parcel. Top of reach is N parcel boundary and extends down through sagebrush scrub.	
Mean channel width (m): 2	Reach length (m): 40x width; min 40 m; max 200 m. 80 (approx.)	Enter photo ID, or check if completed Top down: ✓ Mid down: ✓ Mid up: ✓ Bottom up: ✓
Disturbed or difficult conditions (check all that apply): ☐ Recent flood or debris flow ☐ Stream modifications (e.g., channelization) ☐ Diversions ☐ Discharges ☑ Drought ☐ Vegetation removal/limitations ☐ Other (explain in notes) ☐ None	Notes on disturbances or difficult site conditions: Drought developing in SoCal.	
Observed hydrology: 0 % of reach with surface flow 0 % of reach with sub-surface or surface flow 0 # of isolated pools	Comments on observed hydrology: No hydrology (surface or subsurface) - See Reach 4 notes - same situation	

Site sketch:



1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: ☐ No vegetation in assessment area ☑ No hydrophytes in assessment area

Species	Odd distribution?	Notes	Photo ID

Notes on hydrophytic vegetation:

2 and 3. Aquatic invertebrates

2. How many aquatic invertebrates are quantified in a 15-minute search?

Number of individuals quantified: ☑ None ☐ 1 to 19 ☐ 20 +

(Do not count mosquitos)

Photo ID:_____

3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?

Yes / ~~No~~



Ephemeroptera larva
Image credit: Dieter Tracey



Plecoptera larva
Tracey Saxby



Trichoptera larva
Tracey Saxby

Notes on aquatic invertebrates: Not suitable

4. Algal Cover

Are algae found on the streambed? ☐ Check if *all* observed algae appear to be deposited from an upstream source.	☑ Not detected ☐ Yes, < 10% cover ☐ Yes, ≥ 10% (check Yes in single indicator below)	Notes on algae cover:	Photo ID:

5. Are single indicators observed?

Indicator	Present	Notes	Photo ID
Fish	☐ Yes		
	☑ No, no fish		
	☐ No, only non-native mosquitofish		
Algae cover ≥ 10%	☐ Yes		
	☑ No		

Supplemental information E.g., aquatic or semi-aquatic amphibians, snakes, or turtles; iron-oxidizing bacteria and fungi; etc.

N/A - None of above observed

Photo log

Indicate if any other photos taken during the assessment

Photo ID	Description
19	Top reach facing downstream
20	mid reach up
21	mid reach down
22	Bottom reach up

Additional notes about the assessment: See notes from Reach 4 - similar channel here.

Classification: Ephemeral

1. Hydrophytic plant species	2. Aquatic invertebrates	3. EPT taxa	4. Algae	5. Single indicators • fish present • algae cover ≥ 10%	Classification
None	None	Absent	Absent	Absent	**Ephemeral** ←
				Present	**At least intermittent**
			Present	Absent	**Need more information**
				Present	**At least intermittent**
	Few (1-19)	Absent	Absent	Absent	**Need more information**
				Present	**At least intermittent**
			Present	Absent	**Need more information**
				Present	**At least intermittent**
		Present			**At least intermittent**
	Many (20+)	Absent	Absent	Absent	**Need more information**
				Present	**At least intermittent**
			Present	Absent	**Need more information**
				Present	**At least intermittent**
		Present			**At least intermittent**
Few (1-2)	None	Absent	Absent	Absent	**Need more information**
				Present	**At least intermittent**
			Present		**At least intermittent**
	Few (1-19)	Absent	Absent		**Intermittent**
			Present		**At least intermittent**
		Present			**At least intermittent**
	Many (20+)	Absent	Absent		**Intermittent**
			Present		**At least intermittent**
		Present	Absent		**At least intermittent**
			Present		**Intermittent**
Many (3+)	None	Absent	Absent	Absent	**Need more information**
				Present	**At least intermittent**
			Present		**At least intermittent**
	Few (1-19)	Absent			**At least intermittent**
		Present			**Perennial**
	Many (20+)	Absent			**At least intermittent**
		Present			**Perennial**

Shading provided to enhance readability by increasing the contrast between neighboring cells; empty cells indicate the classification will not change with additional information however it is recommended that all five indicators be measured and recorded during every assessment.

Appendix F

Special-Status Plant Species Documented in the Project Region but Not Observed on the Project Site

Table 1. Special-Status Plant Species Documented in the Project Region but Not Observed on the Project Site

Scientific Name Common Name	Sensitivity Code & Status (Federal/State/ County/CRPR)[1]	Habitat Requirements/ Life Form/ Blooming Period/ Elevational Range	Verified on Site (direct/ indirect evidence)	Potential to Occur on Site	Factual Basis for Determination
Acmispon haydonii Pygmy lotus	None/None/List A, MSCP/1B.3	Pinyon and juniper woodland, Sonoran desert scrub; rocky/perennial herb/January–June/1,706 to 3,937 feet	No	Not Expected	This species is known to occur in the Sonoran desert (Jepson Flora Project 2012b; CDFW 2019b). The project site is not within the known geographic range of the species and would have been observed during surveys.
Asplenium vespertinum western spleenwort	None/None/4.2/ List D	Chaparral, Cismontane woodland, Coastal scrub; rocky/perennial rhizomatous herb/Feb–June/590–3280	No	Not Expected	Project site is outside of the species' known elevation range and would have been observed during surveys.
Astragalus insularis var. *harwoodii* Harwood's milkvetch	None/None/List B, MSCP/2B.2	Desert dunes, Mojavean desert scrub; sandy or gravelly/annual herb/January–May/0 to 2,329 feet	No	Not Expected	This species is known to occur in the Sonoran desert (Jepson Flora Project 2012b; CDFW 2019c) at elevations below that of the project site. The project site is not within the known geographic or elevational range of the species.
Astragalus oocarpus San Diego milk-vetch	None/None/List A, MSCP/1B.2	Chaparral (openings), Cismontane woodland/perennial herb/May–Aug/1000–5000	No	Not Expected	Project site within known elevational range of species and vegetation on site is suitable habitat for species. However, project site is approximately 16 miles from known occurrences (CDFW 2019a), and a comprehensive floristic survey was conducted on site during this species' blooming period; therefore, this species is not expected to occur.
Ayenia compacta California ayenia	None/None/List B/2B.3	Mojavean desert scrub, Sonoran desert scrub; rocky/perennial herb/March–April/492 to 3,593 feet	No	Not Expected	This species is known to occur in the Sonoran desert (Jepson Flora Project 2012b; CDFW 2019c). The project site is not within the known geographic range of the species and would have been observed during surveys.

Table 1. Special-Status Plant Species Documented in the Project Region but Not Observed on the Project Site

Scientific Name Common Name	Sensitivity Code & Status (Federal/State/ County/CRPR)[1]	Habitat Requirements/ Life Form/ Blooming Period/ Elevational Range	Verified on Site (direct/ indirect evidence)	Potential to Occur on Site	Factual Basis for Determination
Berberis fremontii Fremont barberry	None/None/List C/2B.3	Chaparral , Joshua tree "woodland", pinyon and juniper woodland; rocky/evergreen shrub/April–June/2,756 to 6,070 feet	No	Not Expected	Species known to occur nearby, less than 2 miles from project site (CCH 2019). Additionally, the project site is within the known elevational range with suitable vegetation communities present on site. However, this is a conspicuous tree that is easily detected and no *Berberis* species were observed on site during surveys (AECOM 2012b). Therefore, due to the comprehensive floristic surveys conducted on site, this species is not expected to occur.
Berberis higginsiae Higgins' barberry	None/None/MSC P/3.2	Chaparral, Sonoran desert scrub; Rocky, sometimes granitic/perennial shrub/Mar–Apr/2620–3495	No	Not Expected	The closest CNDDB occurrence overlaps the central portion of the project area (CDFW 2019a). Additionally, the project site is within the known elevational range with suitable vegetation communities present on site. However, this perennial shrub would have been detected. Therefore, due to the comprehensive floristic surveys conducted on site, this species is not expected to occur.
Brodiaea orcuttii Orcutt's brodiaea	None/None/List A, MSCP/1B.1	Closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools; mesic, clay, sometimes serpentine/bulbiferous herb/May–July/98 to 5,551 feet	No	Not Expected	Project site within known elevational range of species and vegetation on site is suitable habitat for species. However, project site is approximately 17 miles from known occurrences (CDFW 2019a), and a comprehensive floristic survey was conducted on site during this species' blooming period; therefore, this species is not expected to occur.

Table 1. Special-Status Plant Species Documented in the Project Region but Not Observed on the Project Site

Scientific Name Common Name	Sensitivity Code & Status (Federal/State/ County/CRPR)[1]	Habitat Requirements/ Life Form/ Blooming Period/ Elevational Range	Verified on Site (direct/ indirect evidence)	Potential to Occur on Site	Factual Basis for Determination
Bursera microphylla Little-leaf elephant tree	None/None/List B, MSCP/2B.3	Sonoran desert scrub; rocky/deciduous tree/June–July/656 to 2,297 feet	No	Not Expected	This easily observable large shrub species is restricted to the Sonoran desert (Jepson Flora Project 2012b) and known to occur at elevations below that of the project site within the low desert. This distinctive species would have been observed during comprehensive floristic surveys.
Calochortus dunnii Dunn's mariposa lily	None/SR/List A, MSCP/1B.2	Closed-cone coniferous forest, chaparral, valley and foothill grassland; gabbroic or metavolcanic, rocky/bulbiferous herb/April–June/607 to 6,004 feet	No	Not Expected	Project site within known elevation range of species and vegetation on site is suitable habitat for species. However, project site is approximately 18 miles from known occurrences (CDFW 2019a) and a comprehensive floristic survey was conducted on site during this species blooming period; therefore, this species is not expected to occur.
Carlowrightia arizonica Arizona carlowrightia	None/None/List B, MSCP/2B.2	Sonoran desert scrub (sandy, granitic alluvium)/perennial deciduous shrub/Mar–May/935–1410	No	Not Expected	Project site is outside of the species' known elevation range and there is no suitable vegetation present. Arizona carlowrightia occurs in rocky washes of the low desert not present in on the project site.
Ceanothus otayensis Otay Mountain ceanothus	None/None/None /1B.2	Chaparral (metavolcanic or gabbroic)/perennial evergreen shrub/Jan–Apr/1965–3610	No	Not Expected	Project site within known elevational range of species and vegetation on site is suitable habitat for species. However, project site is approximately 16 miles from known occurrences (CDFW 2019a), and a comprehensive floristic survey was conducted on site and this perennial evergreen shrub would have been detected this species which generally occurs near Otay mountain;therefore, this species is not expected to occur.

Table 1. Special-Status Plant Species Documented in the Project Region but Not Observed on the Project Site

Scientific Name Common Name	Sensitivity Code & Status (Federal/State/ County/CRPR)[1]	Habitat Requirements/ Life Form/ Blooming Period/ Elevational Range	Verified on Site (direct/ indirect evidence)	Potential to Occur on Site	Factual Basis for Determination
Ceanothus verrucosus Wart-stemmed ceanothus	None/None/List B/2B.2	Chaparral/evergreen shrub/December–May/3.3 to 1,247 feet	No	Not Expected	Species is known to occur at elevations below that of the project site. Specifically, wart-stemmed ceanothus occurs along the coastline within sandy soils.. Additionally, this evergreen shrub would have been observed during comprehensive floristic surveys.
Chaenactis parishii Parish's chaenactis	None/None/List A, MSCP/1B.3	Chaparral; rocky/perennial herb /May–July/4,265 to 8,202 feet	No	No Expected	Known occurrences closest to project within the Laguna and Cuyamaca Mountains (CDFW 2019a), approximately 20 miles northwest of project site. Species known to occur at elevations above (i.e., approximately 600 feet) that of the project site. In addition, because this species was not observed on site during surveys, it is not expected to occur on site.
Chamaebatia australis southern mountain misery	None/None/List D, MSCP/4.2	Chaparral (gabbroic or metavolcanic)/perennial evergreen shrub/Nov–May/980–3345	No	Not Expected	Project site is outside of the species' known elevation range. Because this evergreen shrub was not observed on site during surveys, it is not expected to occur on site.
Chorizanthe polygonoides var. *longispina* long-spined spineflower	None/None/List A, MSCP/1B.2	Chaparral, Coastal scrub, Meadows and seeps, Valley and foothill grassland, Vernal pools; often clay/annual herb/Apr–July/95–5020	No	Low	Known occurrences, from 2013, closest to project, approximately 4 to 10 miles south of the project site (CDFW 2019a). Project site within known elevation range of species, and vegetation o site is suitable habitat for species. Because the project site lies within the known elevational range with suitable vegetation communities present on site, is known to occur near the project site, and this species can be difficult to detect (i.e., annual herb), the potential to occur on site is low versus not expected.

Table 1. Special-Status Plant Species Documented in the Project Region but Not Observed on the Project Site

Scientific Name Common Name	Sensitivity Code & Status (Federal/State/ County/CRPR)[1]	Habitat Requirements/ Life Form/ Blooming Period/ Elevational Range	Verified on Site (direct/ indirect evidence)	Potential to Occur on Site	Factual Basis for Determination
Clarkia delicata delicate clarkia	None/None/List A, MSCP/1B.2	Chaparral, Cismontane woodland; often gabbroic/annual herb/Apr–June/770–3280	No	Not Expected	Project site is outside of the species' known elevation range. Delicate clarkia occurs in the understory of oak woodland habitat or within heavily shaded areas of chaparral.. This species was not observed during a comprehensive floristic survey was conducted on site during this species' blooming period; therefore, this species is not expected to occur.
Cylindropuntia fosbergii Pink teddy-bear cholla	None/None/MSCP/1B.3	Sonoran desert scrub/stem succulent/March–May/279 to 2,789 feet	No	Not Expected	This easily observable species is restricted to the Sonoran desert (Jepson Flora Project 2012b) and known to occur at elevations below that of the project site. Additionally, it is a conspicuous succulent that, if present on site, would have been easily observed during rare plant surveys.
Cylindropuntia wolfii Wolf's cholla	None/None/List D, MSCP/4.3	Sonoran desert scrub/perennial stem succulent/Mar–May/325–3935	No	Not Expected	This easily observable species is restricted to the Sonoran desert (Jepson Flora Project 2012b) and known to occur at elevations below that of the project site. Additionally, it is a conspicuous succulent that, if present on site, would have been easily observed during rare plant surveys.

Table 1. Special-Status Plant Species Documented in the Project Region but Not Observed on the Project Site

Scientific Name Common Name	Sensitivity Code & Status (Federal/State/ County/CRPR)[1]	Habitat Requirements/ Life Form/ Blooming Period/ Elevational Range	Verified on Site (direct/ indirect evidence)	Potential to Occur on Site	Factual Basis for Determination
Delphinium hesperium ssp. *cuyamacae* Cuyamaca larkspur	None/SR/None/1 B.2	Lower montane coniferous forest, meadows and seeps, vernal pools; mesic areas/perennial herb/May–July/4,003 to 5,351 feet	No	Not Expected	Within San Diego County, the southernmost known occurrence of this species is in the northern portion of the Laguna Mountains, 16 miles north of the project site, and extends north to the Cuyamaca and Palomar Mountains (CDFW 2019a). Species known to occur at elevations just above (i.e., 330 feet) that of the project site. Species not observed during comprehensive floristic surveys; therefore, not expected to occur.
Dieteria asteroides var. *lagunensis* Mt. Laguna aster	None/SR/List B/2B.1	Cismontane woodland, lower montane coniferous forest/perennial herb/July–August/2,625 to 7,874 feet	No	Low	The majority of the known occurrences are located in the Laguna Mountains. There is one record of the species from 2015 that is located approximately 4 miles southeast of the project site; however, more field work needs to be done to verify presence of this occurrence, as noted in the CNDDB occurrence record (CDFW 2019a). Because the project site lies within the known elevational range with suitable vegetation communities present on site, is known to occur near the project site, albeit an old record. This species would have been easily observed during the 2019 late season rare plant survey. Reference checks were performed and Mt. Laguna aster was in full bloom. Therefore, this species is not expected to occur.

Table 1. Special-Status Plant Species Documented in the Project Region but Not Observed on the Project Site

Scientific Name Common Name	Sensitivity Code & Status (Federal/State/ County/CRPR)[1]	Habitat Requirements/ Life Form/ Blooming Period/ Elevational Range	Verified on Site (direct/ indirect evidence)	Potential to Occur on Site	Factual Basis for Determination
Ericameria cuneata var. macrocephala Laguna Mountains goldenbush	None/None/List A, MSCP/1B.3	Chaparral; granitic/shrub/ September–December/3,921 to 6,070 feet	No	Not Expected	Known occurrences of species restricted within or near the Laguna Mountains (CDFW 2019a). Species known to occur at elevations just above (i.e., 250 feet) that of the project site. Easily detectable species not observed during comprehensive floristic surveys. *Ericamerica cuneata* var. *spathulata* which is another variety of this species was observed throughout the site in large rocky outcrops in full bloom.
Erythranthe diffusa Palomar monkeyflower	None/None/List D, MSCP/4.3	Chaparral, Lower montane coniferous forest; sandy or gravelly/annual herb/Apr–June/4000–6005	No	Not Expected	Project site is outside of the species' known elevation range. This species was not observed during a comprehensive floristic survey was conducted on site during this species' blooming period; therefore, this species is not expected to occur.
Eucnide rupestris Annual rock nettle	None/None/List B/2B.2	Sonoran desert scrub/annual herb/December–April/1,640 to 1,969 feet	No	Not Expected	This species is known to occur in the Sonoran desert (Jepson Flora Project 2012b; CDFW 2019c) at elevations below that of the project site. The project site is not within the known geographic or elevational range of the species. Additionally, this species was not observed during comprehensive floristic surveys.
Euphorbia abramsiana Abrams' spurge	None/None/None /2B.2	Mojavean desert scrub, Sonoran desert scrub; sandy/annual herb/(Aug)Sep–Nov/-15–4300	No	Not Expected	Project site lacks suitable vegetation. Closest CNDDB occurrence is approximately 20 miles east of the project area (CDFW 2019a). This species was not observed during a comprehensive floristic survey was conducted on site during this species' blooming period; therefore, this species is not expected to occur.

Table 1. Special-Status Plant Species Documented in the Project Region but Not Observed on the Project Site

Scientific Name Common Name	Sensitivity Code & Status (Federal/State/ County/CRPR)[1]	Habitat Requirements/ Life Form/ Blooming Period/ Elevational Range	Verified on Site (direct/ indirect evidence)	Potential to Occur on Site	Factual Basis for Determination
Euphorbia arizonica Arizona spurge	None/None/List B/2B.3	Sonoran desert scrub (sandy)/perennial herb/Mar–Apr/160–985	No	Not Expected	Project site is outside of the species' known elevation range and project site lacks suitable vegetation. Closest known occurrence, from 1997, is approximately 10 miles southeast of the project area (CDFW). This perennial herb would have been observed during surveys if present; therefore, this species is not expected to occur.
Galium angustifolium ssp. *borregoense* Borrego bedstraw	None/SR/List A, MSCP/1B.3	Sonoran desert scrub (rocky)/perennial herb/Mar(May)/1145–4100	No	Not Expected	Project lacks suitable vegetation. Known occurrences, from 2004 and 2015, are approximately 5 to 8 miles east of the project area (CDFW 2019a). This species was not observed during a comprehensive floristic survey was conducted on site during this species' blooming period; therefore, this species is not expected to occur.
Galium angustifolium ssp. *jacinticum* San Jacinto Mountains bedstraw	None/None/List A/1B.3	Lower montane coniferous forest/perennial herb/June–August/4,429 to 6,890 feet	No	Low	Known occurrence approximately 2 miles northeast of the project site (CDFW 2019a); recorded in the Laguna Mountains, Volcan Mountain, and near Boulevard (CDFW 2019a). While the species is known to occur at elevations above that of the project site and no lower montane coniferous forest is present on site, this species closely resembles the more common subspecies *Galium angustifolium* ssp. *angustifolium* which was observed on site. Therefore, the potential to occur on site is low versus not expected.

Table 1. Special-Status Plant Species Documented in the Project Region but Not Observed on the Project Site

Scientific Name Common Name	Sensitivity Code & Status (Federal/State/ County/CRPR)[1]	Habitat Requirements/ Life Form/ Blooming Period/ Elevational Range	Verified on Site (direct/ indirect evidence)	Potential to Occur on Site	Factual Basis for Determination
Gentiana fremontii Fremont's gentian	None/None/None /List 2B.3	Meadows and seeps, upper montane coniferous forest/annual herb/June–August/7,874 to 8,858 feet	No	Not Expected	The known occurrences of this species are within the San Bernardino Mountains (Jepson Flora Project 2012b), over 100 miles away from the project, and the known elevation range is well over that of project site (i.e., approximately 4,200 feet). Not expected to occur because the project is outside of the known elevational and geographic range of the species and would have been detected during surveys if present.
Grindelia hallii San Diego gumplant	None/None/List A/1B.2	Chaparral, lower montane coniferous forest, meadows and seeps, valley and foothill grassland/perennial herb/July–October/607 to 5,725 feet	No	Not Expected	Project site within known elevation range of species and vegetation on site consists of suitable habitat for species. A reference check was performed for numerous species including San Diego gum plant and it was in full bloom prior to starting surveys (Aug 2019 late season surveys). The reference check was conducted approximately 12 miles from the site. San Diego gumball plant would have easily been observed during late season rare plant surveys if it was present.
Harpagonella palmeri Palmer's grapplinghook	None/None/List D, MSCP/4.2	Chaparral, Coastal scrub, Valley and foothill grassland; Clay; open grassy areas within shrubland/annual herb/Mar–May/65–3135	No	Not Expected	Closest occurrences are approximately 5 miles east on hilltops in Jacumba Hot Springs (CCH 2019). Palmer's grapplinghook would have been observed if present during the spring season rare plant surveys as it is an easy annual to detect and usually more than one plant is found when it is discovered.

Table 1. Special-Status Plant Species Documented in the Project Region but Not Observed on the Project Site

Scientific Name Common Name	Sensitivity Code & Status (Federal/State/ County/CRPR)[1]	Habitat Requirements/ Life Form/ Blooming Period/ Elevational Range	Verified on Site (direct/ indirect evidence)	Potential to Occur on Site	Factual Basis for Determination
Hesperocyparisforbesii Tecate cypress	None/None/List A, MSCP/1B.1	Closed-cone coniferous forest, chaparral; clay, gabbroic or metavolcanic/evergreen tree/NA/263 to 4,921 feet	No	Not Expected	Project site within known elevation range of species, and vegetation on site is suitable habitat for species. However, the closest known occurrence is approximately 20 miles from the project site (CDFW 2019a), and the species would have been observed if present on site, since this species is a conspicuous evergreen tree.
Heuchera brevistaminea Laguna Mountains alumroot	None/None/List A, MSCP /1B.3	Broadleafed upland forest, chaparral, cismontane woodland, riparian forest; rocky/rhizomatous herb/April–July/4,495 to 6,562 feet	No	Not Expected	Known occurrences within the Laguna and Cuyamaca Mountains (CDFW 2019a), approximately 12 miles northwest of project site. Species known to occur at elevations above (i.e., approximately 800 feet) that of the project site. In addition, because this species was not observed on site during comprehensive floristic surveys, it is not expected to occur on site.
Horsfordia newberryi Newberry's velvet-mallow	None/None/List D/4.3	Sonoran desert scrub (rocky)/perennial shrub/Feb,Apr,Nov,Dec/5–2625	No	Not Expected	Project site is outside of the species' known elevation range and project lacks suitable vegetation. This perennial shrub would have been observed during surveys if present; therefore, this species is not expected to occur.

Table 1. Special-Status Plant Species Documented in the Project Region but Not Observed on the Project Site

Scientific Name Common Name	Sensitivity Code & Status (Federal/State/ County/CRPR)[1]	Habitat Requirements/ Life Form/ Blooming Period/ Elevational Range	Verified on Site (direct/ indirect evidence)	Potential to Occur on Site	Factual Basis for Determination
Hulsea californica San Diego sunflower	None/None/List A, MSCP/1B.3	Chaparral, lower montane coniferous forest, upper montane coniferous forest; openings and burned areas/perennial herb/April–June/3,002 to 9,564	No	Low	Known occurrences approximately 10 miles from project site. Project site is within the known elevation range of species, and vegetation on site is suitable habitat for species. Because the project site lies within the known elevational range with suitable vegetation communities present on site, is known to occur near the project site and this species can be difficult to detect (i.e., herb), the potential to occur on site is low versus not expected.
Hulsea mexicana Mexican hulsea	None/None/List B, MSCP/2B.3	Chaparral (volcanic, often on burns or disturbed areas)/annual-perennial herb/April–June/approximately 3,937 feet	No	Not Expected	Species known to occur on Table Mountain near Jacumba. Species known to occur at elevations above (i.e., approximately 550 feet) that of the project site (CDFW 2019a). Because the project site lies outside of the known elevational range and the species was not observed during comprehensive floristic surveys, it is not expected to occur on site.
Ipomopsis tenuifolia Slender-leaved ipomopsis	None/None/List B/2B.3	Chaparral, pinyon and juniper woodland, Sonoran desert scrub; gravelly or rocky/perennial herb/March–May/328 to 3,937 feet	No	Not Expected	Species known to occur less than 4 miles east of project (CDFW 2019a). Project site is within the known elevation range of species, and vegetation on site is suitable habitat for species. However, species is easily detectable (i.e., has bright red showy flowers) and was not observed during comprehensive floristic surveys; therefore, not expected to occur.

Table 1. Special-Status Plant Species Documented in the Project Region but Not Observed on the Project Site

Scientific Name Common Name	Sensitivity Code & Status (Federal/State/ County/CRPR)[1]	Habitat Requirements/ Life Form/ Blooming Period/ Elevational Range	Verified on Site (direct/ indirect evidence)	Potential to Occur on Site	Factual Basis for Determination
Isocoma menziesii var. *decumbens* decumbent goldenbush	None/None/List A/1B.2	Chaparral, Coastal scrub (sandy, often in disturbed areas)/perennial shrub/Apr–Nov/30–445	No	Not Expected	Project site is outside of the species' known elevation range. Closest species occurrence, from 1916, is less than 1 mile south of project (CDFW 2019a). Additionally, the species is easily detectable (i.e., perennial) and was not observed during comprehensive floristic surveys; therefore, not expected to occur.
Juncus acutus var. *leopoldii* Southwestern spiny rush	None/None/List D/4.2	Coastal dunes (mesic), meadows and seeps (alkaline seeps), coastal saltwater marsh/rhizomatous herb/May–June/10 to 2,953 feet	No	Not Expected	Species is known to occur less than 3 miles southeast of project (CCH 2019). However, the project site is not within the known elevational range of the species. Additionally, the species is easily detectable (i.e., perennial, rigid stem with stiff, sharp, sheath appendages on leaves (Jepson Flora Project 2012b) and was not observed during comprehensive floristic surveys; therefore, not expected to occur.
Lepidium virginicum var. *robinsonii* Robinson's pepper-grass	None/None/List A/4.3	Chaparral, coastal scrub/annual herb/January–July/3 to 2,904 feet	No	Not Expected	Species known to occur approximately 16 miles west of project site (CCH 2019). Species known to occur at elevations below that of the project site. The project site is not within the known elevational or geographical range of the species; therefore, this species is not expected to occur.

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Scientific Name Common Name	Sensitivity Code & Status (Federal/State/ County/CRPR)[1]	Habitat Requirements/ Life Form/ Blooming Period/ Elevational Range	Verified on Site (direct/ indirect evidence)	Potential to Occur on Site	Factual Basis for Determination
Limnanthes alba ssp. *parishii* Parish's meadowfoam	None/SE/List A, MSCP/1B.2	Lower montane coniferous forest, meadows and seeps, vernal pools; vernally mesic/annual herb/April–June/1,869 to 6,562 feet	No	Not Expected	Project site within known elevational range of species, and vegetation on site is suitable habitat for species. However, project site is 16 miles from known occurrence in the Laguna Mountains (CDFW 2019a). Because the project site is not within the known geographic range of the species and species was not observed during comprehensive floristic surveys, it is not expected to occur on site.
Linanthus maculatus ssp. *emaculatus* Jacumba Mountains linanthus	None/None/None /1B.1	Desert dunes (edges), Sonoran desert scrub; Sandy or course, opaque-white, decomposed granite soils of washes and on flats near wash margins/annual herb/(Mar)Apr(May)/1295–1920	No	Not Expected	Project site is outside of the species' known elevation range and Project lacks suitable vegetation. Because the project site is not within the known elevation range of the species and species was not observed during comprehensive floristic surveys, it is not expected to occur on site.
Linanthus orcuttii Orcutt's linanthus	None/None/List A, MSCP/1B.3	Chaparral, Lower montane coniferous forest, Pinyon and juniper woodland; openings/annual herb/May–June/3000–7035	No	Not Expected	Project site within known elevational range of species and vegetation on site is suitable habitat for species. However, project site is approximately 20 miles from known occurrences (CDFW 2019a), and a comprehensive floristic survey was conducted on site during this species' blooming period; therefore, this species is not expected to occur.

Table 1. Special-Status Plant Species Documented in the Project Region but Not Observed on the Project Site

Scientific Name Common Name	Sensitivity Code & Status (Federal/State/ County/CRPR)[1]	Habitat Requirements/ Life Form/ Blooming Period/ Elevational Range	Verified on Site (direct/ indirect evidence)	Potential to Occur on Site	Factual Basis for Determination
Lupinus excubitus var. *medius* Mountain Springs bush lupine	None/None/List A, MSCP/1B.3	Pinyon and juniper woodland, Sonoran desert scrub/shrub/March–May/1,394 to 4,495 feet	No	Not Expected	Species known to occur nearby, less than 2 miles from project site (CCH 2019). Additionally, the project site is within the known elevational range with suitable vegetation communities present on site. However, this is a shrub that is easily detected and no *Lupinus excubitus* were observed on site during surveys (AECOM 2012b). Therefore, due to the comprehensive floristic surveys conducted on site, this species is not expected to occur. Additionally, no other varieties of Lupinus excubitus were observed within the project site.
Lycium parishii Parish's desert-thorn	None/None/List B, MSCP/2B.3	Coastal scrub, Sonoran desert scrub/shrub/March–April/1,001 to 3,281 feet	No	Not Expected	Within San Diego County, this species is known to occur in the Sonoran desert (Jepson Flora Project 2012b; CDFW 2019a). The project site is not within the known geographic range of the species. Additionally, this shrub is easily detected, and therefore, due to the comprehensive floristic surveys conducted on site, this species is not expected to occur.
Malperia tenuis Brown turbans	None/None/List B/2B.3	Sonoran desert scrub; sandy, gravelly/annual herb/March–April/49 to 1,099 feet	No	Not Expected	This species is known to occur in the Sonoran desert (Jepson Flora Project 2012b; CDFW 2019a) at elevations below that of the project site. The project site is not within the known geographic or elevational range of the species.
Matelea parvifolia spearleaf	None/None/List B/2B.3	Mojavean desert scrub, Sonoran desert scrub; rocky/perennial herb/Mar–May(July)/1440–3595	No	Not Expected	Project lacks suitable vegetation. Closest CNDDB occurrences, from 2015 and 2018, are approximately 10 miles from the project (CDFW 2019a). However, this perennial herb would have been detected during surveys; therefore, this species is not expected to occur.

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Scientific Name Common Name	Sensitivity Code & Status (Federal/State/ County/CRPR)[1]	Habitat Requirements/ Life Form/ Blooming Period/ Elevational Range	Verified on Site (direct/ indirect evidence)	Potential to Occur on Site	Factual Basis for Determination
Mentzelia hirsutissima Hairy stickleaf	None/None/List B/2B.3	Sonoran desert scrub; rocky/annual herb/March–May/0 to 2,297 feet	No	Not Expected	This species is known to occur in the Sonoran desert (Jepson Flora Project 2012b; CDFW 2019a) at elevations below that of the project site. The project site is not within the known geographic or elevational range of the species.
Mirabilis tenuiloba slender-lobed four o'clock	None/None/List D/4.3	Sonoran desert scrub/perennial herb/(Feb)Mar–May/750–3595	No	Not Expected	Project lacks suitable vegetation. Closest occurrences, from 2005, are approximately 7 miles from the Project (CCH 2019). However, this perennial herb would have been detected during surveys; therefore, this species is not expected to occur.
Monardella nana ssp. *leptosiphon* San Felipe monardella	None/None/List A, MSCP/1B.2	Chaparral, lower montane coniferous forest/rhizomatous herb/June–July/3,937 to 6,086 feet	No	Not Expected	The known occurrence closest to the site is near the Cuyamaca Mountains, approximately 40 miles north of the project site (CDFW 2019a). Species known to occur at elevations above (i.e., 400 feet above) that of the project site). Species is not expected to occur because it is outside of the known elevational and geographic range of the species and was not observed during floristic surveys.
Pentachaeta aurea ssp. *aurea* Golden-rayed pentachaeta	None/None/List D/4.2	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland, valley and foothill grassland/annual herb/March–July/262 to 6,070 feet	No	Not Expected	Project site within known elevational range of species, and vegetation on site is suitable habitat for species. However, project site is 14 miles from known occurrence (CCH 2019). Because the project site is not within the known geographic range of the species and it was not observed during comprehensive floristic surveys, this species is not expected to occur on site.

Table 1. Special-Status Plant Species Documented in the Project Region but Not Observed on the Project Site

Scientific Name Common Name	Sensitivity Code & Status (Federal/State/ County/CRPR)[1]	Habitat Requirements/ Life Form/ Blooming Period/ Elevational Range	Verified on Site (direct/ indirect evidence)	Potential to Occur on Site	Factual Basis for Determination
Pholistoma auritum var. arizonicum Arizona pholistoma	None/None/MSCP/2B.3	Mojavean desert scrub/annual herb/March/902 to 2,740 feet	No	Not Expected	Species known to occur at elevations below that of the project. However, there is a known occurrence less than 4 miles southeast of the project site (CDFW 2019a). Because the project site is not within the known elevational range of the species and it was not observed during comprehensive floristic surveys, this species is not expected to occur on site.
Pilostyles thurberi Thurber's pilostyles	None/None/List D/4.3	Sonoran desert scrub/perennial herb parasitic/January/0 to 1,198 feet	No	Not Expected	This species is known to occur in the Sonoran desert (Jepson Flora Project 2012b; CDFW 2019a) at elevations below that of the project site. The project site is not within the known geographic or elevational range of the species. Additionally, this species is parasitic to *Psorothamnus* species (Baldwin et al. 2002), which does not occur on site and is only found in the low desert.
Poa atropurpurea San Bernardino blue grass	FE/None/List A, MSCP/1B.2	Meadows and seeps; mesic/rhizomatous herb/May–July/4,492 to 8,054 feet	No	Not Expected	Known occurrences closest to project approximately 16 miles northwest of project site (CDFW 2019a). Species known to occur at elevations above (i.e., approximately 960 feet) that of the project site. In addition, San Bernardino blue grass occurs in particularly wet meadow habitat like that of Lake Laguna which was not present within the project site. The project site is not within the known elevational range of the species and was not observed on site during floristic surveys; therefore, it is not expected to occur on site.

Table 1. Special-Status Plant Species Documented in the Project Region but Not Observed on the Project Site

Scientific Name Common Name	Sensitivity Code & Status (Federal/State/ County/CRPR)[1]	Habitat Requirements/ Life Form/ Blooming Period/ Elevational Range	Verified on Site (direct/ indirect evidence)	Potential to Occur on Site	Factual Basis for Determination
Proboscidea althaeifolia desert unicorn-plant	None/None/List D/4.3	Sonoran desert scrub; gently sloping sandy flats and washes, sometimes roadsides/perennial herb/May–Sep(Oct)/275–3280	No	Not Expected	Project site is outside of the species' known elevation range as desert unicorn plant only occurs within the low desert region. Theproject lacks suitable vegetation. Desert unicorn plant was not observed on site during floristic surveys; therefore, it is not expected to occur on site.
Ribes canthariforme Moreno currant	None/None/List A, MSCP/1B.3	Chaparral, riparian scrub/deciduous shrub/February–April/1,115 to 3,937 feet	No	Not Expected	Project site is approximately 17 miles from known occurrences (CDFW 2019a). The project site is within the known elevational range with suitable vegetation communities present on site. However, this species is a shrub that would have been detected, and no unidentified *Ribes* species were observed on site during the comprehensive floristic surveys conducted on site; therefore, this species is not expected to occur.
Rupertia rigida Parish's rupertia	None/None/List D, MSCP/4.3	Chaparral, Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Pebble (Pavement) plain, Valley and foothill grassland/perennial herb/June–Aug/2295–8200	No	Not Expected.	Project site is approximately 16 miles from known occurrences (CCH 2019). Additionally, project site is within known elevation range of species, and vegetation on site is suitable habitat for species. However, this perennial herb would have been detected during surveys; therefore, this species is not expected to occur on site.

Table 1. Special-Status Plant Species Documented in the Project Region but Not Observed on the Project Site

Scientific Name Common Name	Sensitivity Code & Status (Federal/State/ County/CRPR)[1]	Habitat Requirements/ Life Form/ Blooming Period/ Elevational Range	Verified on Site (direct/ indirect evidence)	Potential to Occur on Site	Factual Basis for Determination
Saltugilia caruifolia Caraway-leaved gilia	None/None/List D/4.3	Chaparral, lower montane coniferous forest; sandy, openings/annual herb/May–August/2,756 to 7,546 feet	No	Low	Project site is approximately 3 miles from known occurrences (CCH 2019). Additionally, project site is within known elevational range of species, and vegetation on site is suitable habitat for species. A reference check for this species was performed and numerous plants were found in bloom just before surveys were conducted. Because the project site lies within the known elevational range with suitable vegetation communities present on site, and the species is known to occur near the project site, the potential to occur on site is low versus not expected.
Scutellaria bolanderi ssp. *austromontana* Southern mountains skullcap	None/None/List A/1B.2	Chaparral, cismontane woodland, lower montane coniferous forest; mesic/rhizomatous herb/June–August/1,394 to 6,562 feet	No	Not Expected	Project site is within known elevational range of species, and vegetation on site is suitable habitat for species. However, the project site is 13 miles from known occurrence (CDFW 2019a). A reference check for this species was performed and numerous plants were found in bloom just before surveys were conducted. Because the project site is not within the known geographic range of the species and it was not observed during comprehensive floristic surveys, this species is not expected to occur on site.

Table 1. Special-Status Plant Species Documented in the Project Region but Not Observed on the Project Site

Scientific Name Common Name	Sensitivity Code & Status (Federal/State/ County/CRPR)[1]	Habitat Requirements/ Life Form/ Blooming Period/ Elevational Range	Verified on Site (direct/ indirect evidence)	Potential to Occur on Site	Factual Basis for Determination
Selaginella eremophila Desert spike-moss	None/None/List B/2B.2	Chaparral, Sonoran desert scrub; gravelly or rocky/rhizomatous herb/June/656 to 2,953 feet	No	Not Expected	The majority of the known occurrences are in the Sonoran desert (Jepson Flora Project 2012b; CDFW 2019a). There is one record approximately 3 miles from the project site at the Walker Canyon Ecological Reserve (CDFW 2019a). This species occurs at elevations below that of the project site. Because the species is known to occur at elevations below that of the project site and was not observed during comprehensive floristic surveys, this species is not expected to occur.
Senecio aphanactis Chaparral ragwort	None/None/List B/2B.2	Chaparral, cismontane woodland, coastal scrub; sometimes alkaline/annual herb/January–April/49 to 262 feet	No	Not Expected	Known occurrence approximately 5 miles from project site; however, the majority of the occurrences are much farther west (i.e., over 30 miles) (CDFW 2019a). Because the species is known to occur at elevations below that of the project site and it was not observed during comprehensive floristic surveys, this species is not expected to occur.
Streptanthus bernardinus Laguna Mountains jewelflower	None/None/List D/4.3	Chaparral, lower montane coniferous forest/perennial herb/May–August/2,198 to 8,202 feet	No	Not Expected	Project site is within known elevational range of species, and vegetation on site is suitable habitat for species. However, project site is 14 miles from known occurrence in the Laguna Mountains (CDFW 2019a). Because the project site is not within the known geographic range of the species and it was not observed during comprehensive floristic surveys, this species is not expected to occur on site.

Table 1. Special-Status Plant Species Documented in the Project Region but Not Observed on the Project Site

Scientific Name Common Name	Sensitivity Code & Status (Federal/State/ County/CRPR)[1]	Habitat Requirements/ Life Form/ Blooming Period/ Elevational Range	Verified on Site (direct/ indirect evidence)	Potential to Occur on Site	Factual Basis for Determination
Streptanthus campestris Southern jewelflower	None/None/List A/1B.3	Chaparral, lower montane coniferous forest, pinyon and juniper woodland; rocky/perennial herb/May–July/2,953 to 7,546 feet	No	Low	Project site is close to known occurrences (i.e., approximately 1 mile from the site) (CDFG 2012c); there is another record approximately 3 miles from the project site at the Walker Canyon Ecological Reserve (SDNHM 2012a). Project site is within known elevational range of the species, and vegetation on site is suitable habitat for species. Because the project site lies within the known elevational range with suitable vegetation communities present on site, the species is known to occur near the project site Potential to occur on site is low versus not expected. Southern jewelflower would have been observed during rare plant surveys.
Symphyotrichum defoliatum San Bernardino aster	None/None/None /1B.2	Cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, and valley and foothill grassland; vernally mesic; near ditches, streams, and springs/rhizomatous herb/July–November/7 to 6,693 feet	No	Low	Project site is close to known occurrences (i.e., less than 1 mile from the site) (CDFW 2019a); there is another record near Boulevard (CDFW 2019a). Project site is within known elevational range of the species, and vegetation on site is suitable habitat for species. Because the project site lies within the known elevational range with suitable vegetation communities present on site, the species is known to occur near the project site and can be difficult to detect (i.e., herb), potential to occur on site is low versus not expected.

Table 1. Special-Status Plant Species Documented in the Project Region but Not Observed on the Project Site

Scientific Name Common Name	Sensitivity Code & Status (Federal/State/ County/CRPR)[1]	Habitat Requirements/ Life Form/ Blooming Period/ Elevational Range	Verified on Site (direct/ indirect evidence)	Potential to Occur on Site	Factual Basis for Determination
Tetracoccus dioicus Parry's tetracoccus	None/None/List A/1B.2	Chaparral, coastal sage scrub/deciduous shrub/April–May/541 to 3,281 feet	No	Not Expected	Species is known to occur at elevations below that of the project site (CDFW 2019a). Additionally, this evergreen shrub would have been observed during comprehensive floristic surveys; therefore, this species is not expected to occur on site.
Thermopsis californica var. *semota* Velvety false lupine	None/None/List A, MSCP/1B.2	Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland/rhizomatous herb/March–June/3,281 to 6,135 feet	No	Not Expected	Closest known occurrence of this species is in the Laguna Mountains, 17 miles north of the project site (CDFW 2019a). The project site is within the known elevational range with suitable vegetation communities present on site. However, while this species is an herb, it is fairly large (0.98 to 1.6 feet) and has bright, showy yellow flowers (Jepson Flora Project 2012b), making it easily detected. Additionally, no *Thermopsis* species were observed on site during surveys (AECOM 2012b). Therefore, due to the comprehensive floristic surveys conducted on site, this species is not expected to occur.
Thysanocarpus rigidus Rigid fringepod	None/None/None /1B.2	Pinyon and juniper woodland, dry rocky slopes/annual herb/Feb–May/1,968.5 to 7,218 feet	No	Not Expected	Closest known occurrence of this species is in the Laguna Mountains, 17 miles north of the project site (CDFW 2019a). The project site is within the known elevational range, but there is no pinyon and juniper woodland on the project site. The project site is not within the geographical range of the species and lacks suitable habitat, and it was not observed during comprehensive floristic surveys; therefore, this species is not expected to occur.

Table 1. Special-Status Plant Species Documented in the Project Region but Not Observed on the Project Site

Scientific Name Common Name	Sensitivity Code & Status (Federal/State/ County/CRPR)[1]	Habitat Requirements/ Life Form/ Blooming Period/ Elevational Range	Verified on Site (direct/ indirect evidence)	Potential to Occur on Site	Factual Basis for Determination
Viguiera laciniata San Diego County viguiera	None/None/List D/4.3	Chaparral, Coastal scrub/perennial shrub/Feb–June(Aug)/195–2460	No	Not Expected	Project site is outside of the species' known elevation range. Additionally, this perennial shrub would have been detected during comprehensive floristic surveys conducted on site; therefore, this species is not expected to occur.
Xylorhiza orcuttii Orcutt's woody-aster	None/None/List A, MSCP/1B.2	Sonoran desert scrub/perennial herb/March–April/0 to 1,197.5 feet	No	Not Expected	All but one known occurrence of this species is within the Sonoran desert (Jepson Flora Project 2012b; CDFW 2019a). There is one occurrence from the 1920s mapped in the Peninsular ranges on the edge of the Sonoran desert, along Banner Grade near Julian. Orcutt' woody aster occurs in deep washes of the desert. This habitat does not occur within the project site. The project site is not within the known geographic or elevational range of the species, and it would have been observed during surveys.

[1] Legend
FE: Federally listed as endangered
FT: Federally listed as threatened
FC: Federal Candidate
MSCP: Draft Covered Species under the ECMSCP
SE: State listed as endangered
ST: State listed as threatened
SR: State listed as rare

Bold indicates species that were identified in the County's Pre-Application Summary Letter (County 2011).

Appendix G

Special-Status Plant Species Observed On-Site

Table 1. Special-Status Plant Species Observed On Site

Scientific Name Common Name	Sensitivity Code & Status (Federal/State/County/CRPR)[1]	Habitat Requirements/Life Form/Blooming Period/Elevational Range	Verified on Site (direct/indirect evidence)	Potential to Occur on Site	Factual Basis for Determination
Astragalus douglasii var. *perstrictus* Jacumba milk-vetch	None/None/List A, MSCP/1B.2	Chaparral, cismontane woodland, pinyon and juniper woodland, riparian scrub, valley and foothill grassland; rocky/perennial herb/April–June/2,953 to 4,495 feet	Observed	Not Applicable (N/A)	Observed on site in numerous locations within open scrub and chaparral habitats (AECOM 2012b). Observed during focused surveys in 2019.
Caulanthus simulans Payson's jewelflower	None/None/List D, MSCP/4.2	Chaparral, coastal scrub; sandy and granitic/annual herb/March–May/295 to 7,218 feet	Observed	N/A	Observed in one location on site within semidesert chaparral with rock outcrops (AECOM 2012b). No observation in 2019 due to timing of survey. Payson's jewel flower was blooming in early march this season.
Chorizanthe leptotheca Peninsular spineflower	None/None/List D/4.2	Chaparral, coastal scrub, lower montane conifer forest; alluvial fan, granitic/annual herb/May–August/1,309 to 6,234 feet	Observed	N/A	Known occurrences, from 1941, closest to project, approximately 5 to 10 miles southwest of the project site (CCH 2019). Project site within the known elevation range of species, and vegetation on site is suitable habitat for species. Observed during focused surveys in 2019.
Deinandra floribunda Tecate tarplant	None/None/List A, MSCP/1B.2	Chaparral, coastal scrub/annual herb/August–October/230 to 4,003 feet	Observed	N/A	Observed on site within sandy washes and dry ponds (AECOM 2012b). Observed during focused surveys in 2019.
Delphinium parishii ssp. *subglobosum* Colorado desert larkspur	None/None/List D/4.3	Chaparral, cismontane woodland, pinyon and juniper woodland, Sonoran desert scrub/perennial herb/March–June/1,969 to 5,906 feet	Observed	N/A	Observed throughout the site in chaparral and scrub habitats (AECOM 2012b). Observed during focused surveys in 2019.

Table 1. Special-Status Plant Species Observed On Site

Scientific Name Common Name	Sensitivity Code & Status (Federal/State/County/CRPR)[1]	Habitat Requirements/Life Form/Blooming Period/Elevational Range	Verified on Site (direct/indirect evidence)	Potential to Occur on Site	Factual Basis for Determination
Geraea viscida Sticky geraea	None/None/List B, MSCP/2B.2	Chaparral (often disturbed)/perennial herb/May–June/1,476 to 5,577 feet	Observed	N/A	Observed on site in various open scrub and chaparral habitats (AECOM 2012b). Observed during focused surveys in 2019.
Lathyrus splendens Pride-of-California	None/None/List D, MSCP/4.3	Chaparral/perennial herb/March–June/656 to 5,003	Observed	N/A	Observed on site in several locations within chaparral habitats (AECOM 2012b). Observed during focused surveys in 2019.
Linanthus bellus Desert beauty	None/None/List B, MSCP/2B.1	Chaparral; sandy/annual herb/April–May/3,281 to 4,593 feet	Observed	N/A	Observed on site in gravelly granitic openings of chaparral and scrub habitats (AECOM 2012b). Observed during focused surveys in 2019.
Diplacus aridus Low bush monkeyflower	None/None/List D/4.3	Chaparral, rocky; Sonoran desert scrub/evergreen shrub/April–July/2,461 to 3,937 feet	Observed	N/A	Observed on site in rocky outcrops of semidesert chaparral (AECOM 2012b).

[1] Legend
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FT: Federally listed as threatened
FC: Federal Candidate
MSCP: Draft Covered Species under the ECMSCP
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Bold indicates species that were identified in the County's Pre-Application Summary Letter (County 2011).

Appendix H

Special-Status Wildlife Species Detected or Potentially Occurring in Project Area

Table 1. Special-Status Wildlife Species Detected or Potentially Occurring in the Project Area

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Amphibians					
Ensatina eschscholtzii klauberi Large-blotched salamander	None/WL/ Group 1, MSCP	Moist, shaded evergreen and deciduous forests; oak woodlands, under rocks, logs, debris, especially peeled off bark. Found in peninsular ranges of Southern California and eastern San Bernardino Mountains, approx. 5,003 feet (1).	No	Moderate	Some suitable habitat is present within the project area in the oak woodland habitat and rocky area; however, the site lacks large shaded areas. The project area is located within the known range (Nafis 2012). The closest CNNDB record of this species is from 2005 and is located approximately 12 miles northwest of the project area (CDFW 2019a).
Spea hammondi Western spadefoot	None/SSC/ Group 2, MSCP	Sandy/gravelly soils within mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, foothills, mountains, and other habitats. Breed in rainpools that do not have bullfrogs, fish, or crayfish. Found throughout Great Valley and foothills south of Redding, throughout South Coast Ranges in Southern California south of Transverse Mountains and west of Peninsular Mountains, 0 to 4,478 feet (1).	No	High	There is suitable habitat in the project area, and spadefoot tadpoles were observed on the nearby Tule site. The closest CNDDB record for this species is from 2017 and overlaps the central portion of the project area (CDFW 2019a). However, this species was not observed during surveys in 2019. This species was observed just north of the project area during surveys for the Tule Wind Project (HDR 2010).
Reptiles					
Anniella stebbinsi southern California legless lizard	None/SSC/ Group 2	Loose soils (sand, loam, humus) in coastal dune, coastal sage scrub, woodlands, and riparian habitats (1).	No	Moderate	Suitable habitat is present within the project area. The closest CNDDB records for this species are from 2011 and 2017 and overlaps the central protion of the project area (CDFW 2019a). However, this species was not observed during surveys in 2019. While suitable soils may exist, the species is typically fouind in more sandy soils and closer to the coast.

Table 1. Special-Status Wildlife Species Detected or Potentially Occurring in the Project Area

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Arizona elegans occidentalis California glossy snake	None/SSC/ None	Commonly occurs in desert regions throughout southern California. Prefers open sandy areas with scattered brush. Also found in rocky areas.	No	Moderate	Suitable habitat is present within the project area. The closest CNDDB record for this species is from 1975 and overlaps the eastern portion of the project area (CDFW 2019a).
Aspidoscelis hyperythra orange-throated whiptail	None/WL/ Group 2, MSCP	Coastal sage scrub, chamise-redshank chaparral, mixed chaparral, valley-foothill hardwood especially in area with summer fog. Found from Santa Ana River and near Colton in San Bernardino County, west of Peninsular Ranges, south throughout Baja California, 0 to 2,001 feet (1, 2).	Observed	N/A	One occurrence recorded from the project area in semi-desert chaparral (AECOM 2012). Suitable habitat is present within the project area. Although the site does not conform to typical habitat preferences, they were observed. The closest CNDDB records for this species is from 1930 and is located approximately 12 miles southwest of the project area (CDFW 2019a).
Aspidoscelis tigris stejnegeri San Diegan tiger whiptail	None/SSC/ Group 2	Hot and dry open area with sparse foliage, chaparral, woodland, riparian area. Found in coastal Southern California, west of Peninsular Ranges and south of Transverse Ranges, north to Ventura County, 0 to 6,988 feet (1, 2).	Observed	N/A	Scattered occurrences recorded within montane buckwheat scrub, granitic chamise chaparral and semi-desert chaparral (AECOM 2012). Five individuals were observed during 381 person-hours of wildlife surveys in 2011/2012. Additionally, this species was observed during surveys in 2019. The closest CNNDB record for this species is from 1993 and is located approximately 2 miles southwest of the project area (CDFW 2019a).
Coleonyx variegatus abbotti San Diego banded gecko	None/None/ Group 1	Cismontane chaparral, coastal sage scrub, desert scrub; granite outcrops.	No	Moderate	Suitable habitat is present in the project area. The nearest CNDDB occurrence data were recorded in 20047, approximately 31 miles west of the project area (CDFW 2019a).
Crotalus ruber ruber	**None/SSC/ Group 2, MSCP**	**Chaparral, oak and pine woodland, arid desert, rocky grassland habitats in rocky area and dense vegetation; rocky desert**	**No**	**High**	**Suitable habitat for the northern red-diamond rattlesnake is present within the rocky outcrops observed within the semi-desert**

Table 1. Special-Status Wildlife Species Detected or Potentially Occurring in the Project Area

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Northern red-diamond rattlesnake		flats on desert slopes of mountains; Morongo Valley (1).			chaparral habitat. Also, any area with dense vegetation provides suitable habitat, including chaparral, scrub, and woodland habitats. The closest CNNDB record is from 2011 and occurs approximately 3 miles south of the project area (CDFW 2019a).
Diadophis punctatus similis San Diego ringneck snake	None/None/ Group 2	Moist habitats, wet meadows; rocky hillsides; open habitats such as farmland, grassland, chaparral; and mixed coniferous forests and woodlands. San Diego County, along coast and Peninsular Range, southwestern San Bernardino County (1).	No	High	Suitable chaparral and woodland habitat with rock outcroppings present on site. The three closest CNDDB records, from 1999 and 2006, are approximately 45 miles west of the project area (CDFW 2019a).
Phrynosoma blainvillii Blainville's horned lizard	None/SSC/ Group 2, MSCP	Area of sandy soil and low vegetation in valleys, foothills, and semiarid mountains. Annual grassland, chaparral, woodland, coniferous forest, sandy area, frequently near ant hills. Foothills and coastal plains from Los Angeles to northern Baja California (1, 3).	Observed	N/A	Scattered occurrences recorded from scrub and chaparral habitats within the project area in 2011 (AECOM 2012b). This species was also observed just north of the project area during surveys for the Tule Wind Project (HDR 2010). Twenty-six individuals were observed during 381 person-hours of wildlife surveys in 2011/2012. Additionally, this species was observed during surveys in 2019.
Plestiodon skiltonianus interparietalis Coronado skink	None/WL/ Group 2, MSCP	Grassland, woodlands, pine forests, chaparral, especially open sunny areas, such as clearings and edges of creeks, and rocky areas near streams with lots of vegetation; in litter, rotting logs, under flat stones. Found in coastal ranges and Sierra Nevada and foothills, 0 to 8,300 feet (1, 2).	No	High	Suitable habitat is present within the project area. The two closest CNDDB records, from 1995 and 1996, are approximately 28 miles west and west of the project area (CDFW 2019a).

Table 1. Special-Status Wildlife Species Detected or Potentially Occurring in the Project Area

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Lichanura trivirgata Rosy boa	None/None/ Group 2	Rocky chaparral hillsides and canyons, scrub flats with good cover, common in riparian area but does not require permanent water. Found in extreme Southern California within Tijuana River and Otay watersheds (1, 2).	No	High	Suitable scrub habitat with rock outcroppings present on site. The species has previously been documented approximately 2 miles southwest of the project area (CDFW 2019a). This species was also observed approximately 3 miles north of the project area during surveys for the Tule Wind Project (HDR 2010).
Salvadora hexalepis virgultea Coast patch-nosed snake	None/SSC/ Group 2, MSCP	Semi-arid, brushy area and chaparral in canyons, rocky hillsides, plains from northern Carrizo Plains south through coastal zone, south and west of the deserts into coastal northern Baja California, at elevations below sea level to 6,988 feet (1).	No	High	Suitable habitat is present within the project area. The closest CNDDB occurrence record, from 1996, is approximately 32 miles northwest of the project area (CDFW 2019a).
Thamnophis hammondii Two-striped garter snake	None/SSC/ Group 1, MSCP	Permanent or semipermanent bodies of water bordered by dense vegetation in rocky area, oak woodland, chaparral, brushland, coniferous forest. Found on Diablo Range, South Coast and Transverse Ranges, and Santa Catalina Island (1, 2).	No	High	Suitable habitat is present the project area. The closest CNDDB occurrence records, from 1999 and 2001, are located approximately 12 to 13 miles east and southeast of the project area (CDFW 2019a).

Table 1. Special-Status Wildlife Species Detected or Potentially Occurring in the Project Area

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Birds					
Accipiter cooperii Cooper's hawk (nesting)	None/WL/ Group 1, MSCP	Dense stands of live oak, riparian deciduous, forest habitats near water. Breeds in southern Sierra Nevada foothills, New York Mountains., Owens Valley, and other local area in Southern California, 0 to 8,858 feet (2).	Observed	N/A	Two occurrences observed within the project area and several occurrences adjacent to the project area (AECOM 2012b). Eight species points were recorded during 381 person-hours of wildlife surveys in 2011/2012. This species was also observed approximately 7 miles northwest of the project area during surveys for the Tule Wind Project (HDR 2010). This species was recorded in the vicinity[2].
Agelaius tricolor Tricolored blackbird	BCC/SSC/ Group 1, MSCP	Breeds in emergent wetland with tall, dense cattails or tules; willow, blackberry, tall herb thickets. Feeds in grassland and cropland habitats. Found throughout Central Valley and coastal area south of Sonoma County (2).	No	High potential to forage on site; not expected to nest on site	A flock was observed flying overhead south of the project area in 2011 (AECOM 2012b). Known nesting colonies are found nearby in Jacumba, Campo, and Tule Lake. Wildflower field, seep, and non-native grassland habitat on site provides suitable foraging habitat. This species was recorded in the vicinity[2]. There are no cattails or other suitable nesting habitat on site.
Aimophila ruficeps canescens Southern California rufous-crowned sparrow	None/WL/ Group 1, MSCP	Sparse mixed chaparral and coastal scrub habitats (especially coastal sage) in Southern California on slopes of Transverse and Coastal Ranges, north to Los Angeles County, and northwestern Baja California. Found on steep, rocky hillsides with grass and forb patches, and grassy slopes without shrubs, if rock outcrops are present (2, 4).	No	High	Suitable habitat is present within the project area. This species was recorded in the vicinity[2].

Table 1. Special-Status Wildlife Species Detected or Potentially Occurring in the Project Area

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Amphispiza belli belli Bell's sage sparrow	BCC / WL/, Group 1, MSCP	Low, dense stands of shrubs; chaparral dominated by chamise; coastal scrub dominated by sage. Coast Ranges from northern California to northwestern Baja California, western slope of Sierra Nevada (2, 4).	Observed	N/A	One occurrence recorded within big sagebrush scrub (AECOM 2012b).
***Aquila chrysaetos* Golden eagle (nesting and wintering)**	**BCC/FP, WL/ Group 1, MSCP**	**Rolling foothills, mountain area, sage-juniper flats, and desert throughout California (2).**	**No**	**High potential to forage on site; low potential to nest on site**	**Suitable foraging habitat is present within most of the project area; however, low potential for nesting due to lack of rocky cliffs and large stands of mature trees. Recorded nesting sites are located in the region, but off site. There are numerous nesting locations within 10 miles as observed during surveys for the Tule Wind Project (HDR 2010). This species was recorded in the vicinity[2].**
Ardea herodias Great blue heron (nesting colony)	None/None/ Group 2	Variety of habitats, but primarily shallow estuaries and fresh and saline emergent wetlands; lakes, rivers, marshes, mudflats, estuaries, saltmarsh, riparian habitats. Found throughout most of California. Few rookeries in Southern California; more numerous in Northern California (2).	Observed	Low colonial nesting potential; foraging individuals observed	This species was observed (AECOM 2012b). There are no rookeries present on site, and the site lacks suitable nesting habitat. This species is not expected to nest on site. This species was recorded in the vicinity[2].
Asio otus Long-eared owl (nesting)	None/SSC/ Group 1, MSCP	Riparian, live oak thickets; other dense stands of tree. Uncommon winter visitor in Southern California deserts and Central Valley; uncommon resident throughout the rest of the state (2).	No	Moderate	Suitable habitat is present within all of the project area. May use the project area for nesting, foraging, and/or wintering. This species was recorded in the vicinity[2].

Table 1. Special-Status Wildlife Species Detected or Potentially Occurring in the Project Area

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Athene cunicularia Burrowing owl	BCC/SSC/ Group 1, MSCP	Open, dry grassland and desert habitats; grass, forb, and open shrub stages of pinyon-juniper and ponderosa pine habitats throughout the state, 0 to 5,249 feet (2).	No	Moderate	May nest and/or winter within the project area. No records exist for this species in the project area; however, it was observed during surveys for the Tule Wind Project (HDR 2010). Typically found at lower elevations.
Baeolophus inornatus (nesting) Oak titmouse	BCC/None/None	Nests and forages in oak woodlands; also open pine forest, pinyon woodland, and riparian and chaparral with oak	Observed	High	This species was observed during surveys in 2019. This species has potential to nest and forage on site.
Branta canadensis Canada goose	None/None/ Group 2	Lakes, fresh emergent wetlands' moist grasslands, croplands, pastures, and meadows. Winter migrant throughout Central Valley, Salton Sea, northeastern California, also along Colorado River (2).	No	Moderate potential to occur during the winter	Marginal suitable habitat is present within all of the project area. This species may inhabit the project area as stopover or during the winter. This species was recorded in the vicinity[2].
***Buteo lineatus* Red-shouldered hawk**	**None/None/ Group 1**	**Riparian and woodland habitats interspersed with swamps and wetlands found along coast, southern deserts, and in Central Valley, 0 to 4,921 feet (2).**	**No**	**High**	**Suitable habitat is present within the project area. May use the project area for nesting and foraging. This species was recorded in the vicinity[2].**
Buteo regalis Ferruginous hawk (wintering)	BCC/WL/ Group 1, MSCP	Open, grasslands, sagebrush flats, desert scrub, low foothills surrounding valleys, fringes of pinyon-juniper habitats. Uncommon winter resident at low elevations and open grasslands of Modoc Plateau, Central Valley, Coast Ranges. Common winter resident in southwestern California (2).	No	Moderate potential to occur during winter	Suitable habitat is present within the project area. May use the project area to forage during the winter. Project area is outside the recorded breeding range for this species. This species was recorded in the vicinity[2].
Buteo swainsoni Swainson's hawk	BCC/ST/ Group 1, MSCP	Forages in grasslands or suitable grain or alfalfa fields or livestock pastures; breeds in stands with few trees in	Observed	N/A	One occurrence recorded flying over the site (AECOM 2012b) over 381 person-hours of wildlife surveys in 2011/2012. Expected

Table 1. Special-Status Wildlife Species Detected or Potentially Occurring in the Project Area

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
		juniper-sage flats, riparian area, and in oak savannah in Central Valley (2).			only as occasional, temporary visitor during migration. Species not known to nest or winter in San Diego County. This species was recorded in the vicinity[2].
Carduelis lawrencei Lawrence's Goldfinch (nesting)	BCC/None/ None	Breeds in open oak or other arid woodland and chaparral, near water. Typical habitats include valley foothill hardwood, valley foothill hardwood-conifer, and in Southern California, as well as desert riparian, palm oasis, pinyon-juniper, and lower montane habitats.	No	Moderate	There is some suitable nesting habitat in oak woodland and chaparral; however, the project area lacks perennial water sources. This species was recorded in the vicinity[2].
Cathartes aura Turkey vulture	**None/None/ Group 1, MSCP**	**Rangeland, agriculture, grassland; uses cliffs and large trees for roosting, nesting, and resting throughout most of California during breeding season (2).**	**Observed**	**N/A**	**This species was observed (AECOM 2012b). Additionally, this species was observed during surveys in 2019. Suitable open foraging habitat present on site. Suitable nesting habitat not present on site. This species was recorded in the vicinity[2].**
Circus cyaneus Northern harrier (nesting)	None/SSC/ Group 1, MSCP	Open wetlands (nesting), pasture, old fields, dry uplands, grasslands, rangelands, coastal sage scrub. Resident of northeastern plateau and coastal area; less common resident in Central Valley. Breeds at marsh edge in shrubby vegetation in Central Valley and Sierra Nevada (0 to 5,577 feet), and northeastern California (up to 2,625 feet (2).	Observed	Low nesting potential; observed during non-nesting period	Documented southeast of the project area during 2011 surveys (AECOM 2012b). However, the species is only expected as a winter visitor in grassland and alkali meadow habitat and the more open area of scrub and chaparral communities on site; based on lack of observations during the breeding season, this species probably is not breeding in the project area. This species was recorded in the vicinity[2].
Dendroica petechia brewsteri	BCC/SCC/ Group 2, MSCP	Nests in lowland and foothill riparian woodlands; montane chaparral, open ponderosa pine, mixed conifer habitats	Observed	N/A	Mature riparian woodlands are not present on site. However, the species was documented southeast of the project area, south of I-8,

Table 1. Special-Status Wildlife Species Detected or Potentially Occurring in the Project Area

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Yellow warbler		up to 8202 feet; winters in a variety of habitats. Breeds from coast range in Del Norte County, east to Modoc plateau, south to Santa Barbara and Ventura Counties, and western slope of Sierra Nevada south to Kern County; also breeds in ranges in San Diego County (2).			during 2011 surveys (AECOM 2012b). Therefore, there is moderate potential for the species to move through and temporarily occupy the project area. This species was recorded in the vicinity[2]. This species was observed during surveys in 2019.
Eremophila alpestris actia California horned lark	None/WL/ Group 2, MSCP	Open habitats, grassland, rangeland, shortgrass prairie, montane meadows, coastal plains, fallow grain fields south of Humboldt County in Coast Ranges, in San Joaquin Valley, except extreme southern end (2, 4).	Observed	N/A	Scattered occurrences recorded primarily within montane buckwheat scrub with other observations in non-native grassland (AECOM 2012b). Seven individuals were observed during 381 person-hours of wildlife surveys in 2011/2012. This species was also recorded in the vicinity[2].
Falco columbarius Merlin (wintering)	None/WL/ Group 2	Coastlines, open grasslands, savannahs, woodlands, lakes, wetlands, montane hardwood-conifer habitats, ponderosa pine. Found throughout western half of state below 4,921 feet (1).	No	Moderate potential to occur during the winter	Suitable foraging habitat is present within the project area. However, the project area is outside the breeding range for this species (i.e., does not nest in California). This species was recorded in the vicinity[2].
Falco mexicanus Prairie falcon (nesting)	BCC/WL/ Group 1	Grassland, savannas, rangeland, agriculture, desert scrub, alpine meadows; nest on cliffs or bluffs. Southeastern deserts northwest through Central Valley and along inner Coast Ranges and Sierra Nevada (2).	Observed	Not expected to nest on site; High potential to forage on site	One occurrence recorded on site over 381 person-hours of wildlife surveys in 2011/2012. (AECOM 2012b). There is no suitable nesting habitat (i.e., cliffs or bluffs) in the project area; however, there is suitable foraging habitat. This species was recorded in the vicinity[2].

Table 1. Special-Status Wildlife Species Detected or Potentially Occurring in the Project Area

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Falco peregrinus anatum American peregrine falcon (nesting)	FD, BCC/SD, FP/Group 1	Nests in woodland, forest, coastal habitats along coast north of Santa Barbara and in Sierra Nevada, and other mountains of Northern California. Winters in Central Valley, and is found in other riparian area and coastal/inland wetlands (2).	No	Not expected to nest on site; Moderate potential to forage on site	Suitable foraging habitat is present within all of the project area. However, no suitable nesting cliffs are present in the project area.
Lanius ludovicianus Loggerhead shrike (nesting)	BCC/SSC/ Group 1, MSCP	Open habitats with scattered shrubs, trees, or other perches; highest density in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. Found in foothills and lowlands throughout California (2).	Observed	N/A	One occurrence recorded in semidesert chaparral habitat over 381 person-hours of wildlife surveys in 2011/2012 (AECOM 2012b). Additionally, this species was observed during surveys in 2019. There is suitable nesting habitat in the project area. This species was recorded in the vicinity[2].
Melanerpes lewis Lewis' woodpecker	BCC/None/ Group 1	Open oak savannahs, broken deciduous, and coniferous habitats. Eastern slopes of Coast Ranges south to San Luis Obispo County; winters in Central Valley, Modoc Plateau, and Transverse and other ranges in Southern California. Breeds eastern slopes of Coast Ranges, Sierra Nevada, and Cascade Range (2).	No	Moderate potential to occur during migration or winter	Potentially suitable foraging and roosting habitats present. Breeding is not expected since this species is only found in San Diego County during migration and winter. This species was recorded in the vicinity[2].
Oreortyx pictus eremophila Mountain quail	None/None/ Group 2	Dense montane chaparral and brushy area within coniferous forest, pinyon-juniper-yucca associations; uses shrubs, brush stands, and trees on steep slopes for cover in most major montane habitats of the state (2).	No	Low to Moderate	Habitat typically used by this species is not present. However, mountain quail are found within the vicinity of the project area. This species was recorded in the vicinity[2] and can be locally abundant. Lack of detections during survey effort makes presence on site less likely.

Table 1. Special-Status Wildlife Species Detected or Potentially Occurring in the Project Area

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Parabuteo unicinctus Harris' Hawk (nesting)	None/WL/ None	River woods, mesquite, brush, and cactus deserts	No	Low potential to nest; Moderate potential to forage occasion ally	This species was recorded in the vicinity[2]. A pair nested in McCain Valley, but has not been observed since 2002 (Unitt 2004). Other individuals are anecdotally observed in the vicinity during most recent years. There is suitable habitat in the project area.
Polioptila melanura Black-tailed gnatcatcher	None/WL/No ne	Nests and forages in wooded desert wash and desert scrub	Observed	N/A	This species was observed during surveys in 2011 (AECOM 2012b), however the location was not mapped. There is suitable foraging habitat on site.
Sialia mexicana Western bluebird	None/None/ Group 2	Open forests of deciduous, coniferous, or mixed trees; savanna, edges of riparian woodland. Common throughout California excluding higher mountains and eastern deserts (2).	Observed	N/A	This species was observed during surveys in 2019. Oak woodlands and non-native grassland on site provides suitable nesting and foraging habitat. This species was recorded in the vicinity[2] (SDNHM 2012b).
Spizella breweri (nesting) Brewer's sparrow	BCC/None/N one	Nests in treeless shrub habitat with moderate canopy, especially sagebrush; winters in open desert scrub and croplands in southern Mojave and Colorado Deserts	Observed	N/A	This species was observed during surveys in 2011 (AECOM 2012b), however the location was not mapped. There is suitable foraging habitat on site.
Tyto alba Barn owl	None/None/ Group 2	Open habitats including grassland, chaparral, riparian, and other wetlands throughout the state, 0 to 5,512 feet (2).	No	High	Suitable habitat is present within all of the project area.
Vireo vicinior Gray vireo (nesting)	BCC/SSC/ Group 1, MSCP	Summer resident in arid pinyon-juniper, juniper, and chamise-redshank chaparral habitats in mountains of Southern California, 1,969 to 6,562 feet (2).	No	Moderate	Suitable nesting habitat is present within all of the project area and it has moderate potential to nest on site. This species was recorded in the vicinity[2].

Table 1. Special-Status Wildlife Species Detected or Potentially Occurring in the Project Area

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Mammals					
Antrozous pallidus Pallid bat	None/SSC/ Group 2, WBWG:H	Grasslands, shrublands, woodlands, forests; most common in open dry habitats with rocky outcrops for roosting. Found throughout low elevations of California, except for high Sierra Nevada and northwestern corner of the state south to Mendocino County (2).	No	Moderate	Potentially suitable foraging and roosting habitat (limited rock outcrops and oaks) present. The closest CNDDB occurrence record, from 2002, is located approximately 7.5 miles southeast of the project area (CDFW 2019a).
Bassariscus astutus Ringtail	None/FP/ Group 2, MSCP	Mixed forests and shrublands near rocky area or riparian habitats. Forages near water and is seldom found more than .62 mile from a water source; it is widely distributed throughout California (2).	No	Moderate	Suitable habitat is present in the form of rock outcrops and trees, and water resources are present nearby. Usually not found more than 0.6 mile from permanent water (AECOM 2012). Nearest natural permanent water source approximately 0.75 mile from the eastern edge of the project area (Tule Lake), but there may be other man-made features present (e.g., cattle guzzlers). Suitable den sites present (rock outcrops and oak woodland). This species is not tracked in the CNDDB (CDFW 2019b).
Chaetodipus californicus femoralis Dulzura (California) pocket mouse	None/SSC/ Group 2	Open habitat, coastal sage scrub, chaparral, oak woodland, chamise chaparral, mixed conifer habitats; disturbance specialist; 0 to 3,000 feet (6, 7).	No	High	Suitable habitat for this species exists within the oak woodland and chaparral habitats within the project area. The species has previously been documented 1 mile northwest of the project area (CDFW 2019a). However, this occurrence was recorded in 1958 (CDFW 2019).
Chaetodipus fallax fallax	None/SSC/ Group 2	Coastal sage scrub, grassland, sage scrub-grassland ecotones, sparse mixed and chamise chaparral; rocky	No	High	Suitable habitat present and within species range. The closest CNDDB occurrence record,

Table 1. Special-Status Wildlife Species Detected or Potentially Occurring in the Project Area

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Northwestern San Diego pocket mouse		and gravelly area with yucca overstory, 500 to 3,000 feet (3).			from 2001, is located approximately 17 miles southeast of the project area (CDFW 2019).
Chaetodipus fallax pallidus **Pallid San Diego pocket mouse**	**None/SSC/ Group 2**	**Coastal scrub, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon-juniper, and annual grassland. Along southern margins of Mojave Desert, along northern slopes of San Bernardino Mountains, western edge of Colorado Desert, and south to Baja California (5).**	**No**	**Moderate**	**Suitable habitat is present within all of the project area. Project area is within potential range of both special-status subspecies *C. f. fallax* and *C. f. pallidus*, but latter is most likely to occur in the project area. The closest CNDDB records for this species, from 1938 and 2002, are located 8 to 10 miles southeast of the project area (CDFW 2019a).**
Choeronycteris mexicana Mexican long-tongued bat	None/SSC/ Group 2, WBWG: H	Desert and montane riparian, desert succulent scrub, desert scrub, and pinyon-juniper woodland. Roosts in caves, mines, and buildings. Summer resident in San Diego County (2).	No	High	Suitable foraging habitat is present within the project area. Potential roosting areas are within the mountains east of the project area, but are not present on site. The closest CNDDB record, from 1996, is approximately 46 miles northwest of the project area (CDFW 2019a).
Corynorhinus townsendii **Townsend's big-eared bat**	**None/SSC/ Group 2, MSCP, WBWG:H**	**Mesic habitats; gleans from brush or trees, or feeds along habitat edges. Found in all habitats but subalpine and alpine throughout California (2).**	**No**	**High**	**Suitable foraging habitat is present within the project area. Potential roosting areas are within the mountains east of the project area, but the site lacks caves for roosting. There are two occurrence records, from 2009, located approximately 10 miles northwest of the project area (CDFW 2019a).**
Euderma maculatum Spotted bat	None/SSC/ Group 2, WBWG:H	Foothills, mountains, desert regions of Southern California, including arid deserts, grasslands, and mixed conifer forests. Roosts in rock crevices and cliffs. Feeds over water and along washes (2).	No	High	Suitable foraging habitat is present within the project area and roosting in the rock crevices on site. Additional potential roosting areas are within the mountains east of the project area. The closest occurrence data for this species, from 1955, is located approximately 66 miles northwest of the project area (CDFW 2019).

Table 1. Special-Status Wildlife Species Detected or Potentially Occurring in the Project Area

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Eumops perotis californicus Western mastiff bat	None/SSC/ Group 2, MSCP, WBWG:H	Roosts in small colonies in cracks and small holes, seeming to prefer man-made structures. All subalpine and alpine habitats; 50 to 10,000 feet (3).	No	High	Suitable foraging habitat is present within the project area and roosting in the rock crevices on site. Potential roosting areas are within the mountains east of the project area. There are two known occurrences records, from 2002 and 2016, within approximately 13 miles northwest of the project area (CDFW 2019a).
Lasiurus blossevillii Western red bat	None/SSC/ Group 2, WBWG:H	Prefers edges with trees for roosting and open areas for foraging. Roosts in woodlands and forests. Forages over grasslands, shrublands, woodlands, forests, and croplands. Found south of Shasta County to Mexican border, and west of the Sierra Nevada/Cascade Crest. In winter, occupies coastal regions and lowlands south of San Francisco Bay (2).	No	High	Suitable foraging habitat is present within the project area. Potential roosting areas are within the mountains east of the project area and woodlands on site. The closest known occurrence record, from 2002, is within approximately 20 miles northwest of the project area (CDFW 2019a).
Lepus californicus bennettii San Diego black-tailed jackrabbit	None/SSC/ Group 2, MSCP	Arid habitats with open ground; grasslands, coastal sage scrub, agriculture, disturbed area, and rangelands in Southern California (2, 4).	Observed	N/A	Numerous observations of this species were recorded within the project area, primarily within scrub and chaparral habitats (AECOM 2012b). Seventy-four individuals were observed during 381 person-hours of wildlife surveys in 2011/2012. Additionally, this species was observed during surveys in 2019.
Macrotus californicus California leaf-nosed bat	None/SSC/ Group 2, WBWG:H	Desert riparian, desert wash, desert scrub, desert succulent shrub, alkali desert scrub, and palm oasis. Found from Riverside, Imperial, San Diego, and San Bernardino Counties, south to Mexican border; fairly common along parts of Colorado River, elevation approximately 1,969 feet (2).	No	Low	Suitable foraging and roosting habitat is present within the project area. The closest CNDDB occurrence, from 1998, is located approximately 13 miles northeast of the project area (CDFW 2019a).

Table 1. Special-Status Wildlife Species Detected or Potentially Occurring in the Project Area

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Neotoma lepida intermedia San Diego desert woodrat	None/SSC/ Group 2	Joshua tree, pinyon-juniper, mixed and chamise-redshank chaparral, sagebrush, and most desert habitats. Found south of San Luis Obispo County to San Diego County and San Bernardino and Riverside Counties, 0 to 8,530 feet (2, 4).	No	High	Presence of *Neotoma* sp. was observed within the project area in the form of woodrat middens detected in 2011 and 2019. Suitable habitat for this species is present within scrub and chaparral habitats. The species has previously been documented at two locations, from 1993, approximately 2 miles north of the project area (CDFW 2019a).
Nyctinomops femorosaccus Pocketed free-tailed bat	None/SSC/ Group 2, WBWG:M	Rocky desert area with high cliffs or rock outcrops. Pinyon-juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, palm oasis in Riverside, San Diego, and Imperial Counties (2).	No	Moderate	Suitable foraging and roosting habitat is present within the project area. The closest CNDDB occurrence, from 2002, is located approximately 13 miles northwest of the project area (CDFW 2019a).
Nyctinomops macrotis Big free-tailed bat	None/SSC/ WBWG:MH, Group 2	Rugged, rocky canyons in Riverside, Los Angeles, and San Diego Counties, but scattered records across California to Oakland (2, 5).	No	Moderate	Suitable foraging habitat is present within the project area and in rock outcrops on site. Additional potential roosting areas within the mountains east of the project area. The closest CNDDB occurrence, from 2002, is located approximately 17 miles northwest of the project area (CDFW 2019a).
Odocoileus hemionus Mule deer	None/None/ Group 2	Coastal sage scrub, chaparral, riparian, woodlands, forest; often browses in open area adjacent to cover throughout California, except deserts and intensely farmed area (2).	Observed	N/A	Mule deer tracks were observed in the northeastern portion of the project area, along an access road in semi-desert chaparral habitat in 2011/2012 (AECOM 2012b). Three species points were documented over 381 person-days of wildlife surveys in 2011/2012. Additionally, this species was observed during surveys in 2019. Suitable habitat occurs throughout the site.

Table 1. Special-Status Wildlife Species Detected or Potentially Occurring in the Project Area

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Onychomys torridus ramona Southern grasshopper mouse	None/SSC/ Group 2, MSCP	Alkali desert scrub and other desert scrub habitats, sparse coastal scrub, especially with friable soils for digging in Mojave Desert and southern Central Valley (2).	No	Moderate	Suitable habitat for this species exists within non-native grassland, wildflower fields, scrub, and open chaparral habitats. The species has previously been documented less than 1 mile northwest of the project area; however, this occurrence is from 1958 (CDFW 2019a).
Puma [=Felis] concolor Mountain lion	None/None/ Group 2	Coastal sage scrub, chaparral, riparian, woodlands, forest; rests in rocky area, and on cliffs and ledges that provide cover. Most abundant in riparian area and brushy stages of most habitats throughout California except deserts (2).	No	High	Mountain lion scat was observed <1 mile southeast of the project area, south of I-8, during 2011 surveys (AECOM 2012b). Suitable habitat present on site.
Taxidea taxus American badger	None/SSC/ Group 2, MSCP	Dry, open, treeless area; grasslands and coastal sage scrub, especially with friable soils, throughout California (2).	No	Moderate	Potentially suitable habitat present. The closest CNDDB occurrence data for this species, from 1969, is located approximately 22 miles northeast of the project area (CDFW 2019a).
Invertebrates					
Danaus plexippus Monarch butterfly (wintering sites)	None/None/ Group 2	Overwinters in eucalyptus groves from San Francisco south to northern Baja California (4).	Observed	Low potential for wintering sites, but high potential for individuals	Documented during 2011 focused Quino surveys, east of McCain Valley Road in scrub and chaparral habitats (AECOM 2012b). There are no suitable wintering groves of trees on site.

Table 1. Special-Status Wildlife Species Detected or Potentially Occurring in the Project Area

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Euphydryas editha quino Quino checkerspot butterfly	FE/None/ Group 1, MSCP	Sparsely vegetated hilltops, ridgelines, occasionally rocky outcrops; host plant Plantago erecta and nectar plants must be present, San Diego and Riverside Counties (4).	No	Moderate	Although two potential Quino host plant species (dark-tip bird's beak [*Cordylanthus rigidus*] and southern Chinese houses [*Collinsia concolor*]) were found in the project area, Quino was not detected during 2011 protocol-level focused surveys (AECOM 2012c). The nearest USFWS occurrence is located approximately 2.5 miles southwest of the project area (USFWS 2012b). This species was also observed approximately 6 miles north of the project area during surveys for the Tule Wind Project (HDR 2010). Two host plants, thread-leaved bird's beak and white snapdragon, were documented during surveys in 2019.

[1] **Status Designations:**

Federal

BCC	U.S. Fish and Wildlife Service: Birds of Conservation Concern
FC	Candidate for federal listing as threatened or endangered
(FD)	Federally delisted; monitored for five years
FE	Federally listed Endangered
FT	Federally listed as Threatened
WBWG:	H Western Bat Working Group: High Priority
WBWG:	LM Western Bat Working Group: Low-Medium Priority
WBWG:	M Western Bat Working Group: Medium Priority
WBWG:	MH Western Bat Working Group: Medium-High Priority

State Designations:

SSC	California Special Concern Species
FP	California Department of Fish and Game Fully Protected Species
WL	California Department of Fish and Game Watch List Species
SE	State listed as Endangered
ST	State listed as Threatened

SC State Candidate for Endangered

County Designations:

MSCP Draft East County MSCP covered species

References

1 Nafis 2012
2 Zeiner et al. 1988, 1990a–b
3 SDNHM 2012c
4 NatureServe 2012
5 CDFW 2019a
6 CDFW 2019b
7 Brehme et al 2011
8 Hall 1981

Notes:

2Vicinity refers to the Live Oak Springs, Campo, Tierra del Sol, Jacumba, Mount Laguna, Sweeny Pass, Cameron Corners, and Sombrero Peak USGS 7.5 minute quadrangles (CDFW 2019a).

Bold indicates species that were identified in the County's Pre-Application Summary Letter (County 2011).

Appendix I

Special-Status Wildlife Species Not Expected or Rarely Occurring in the Project Area

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Amphibians					
Anaxyrus californicus Arroyo toad	FE/SSC/ Group 1, MSCP	Washes, arroyos, sandy riverbanks, and riparian area with willows, sycamores, oaks, cottonwoods. Requires exposed sandy streamsides with stable terraces to burrow with scattered vegetation and calm pools with sandy/gravel bottoms for breeding. Found west of desert in coastal area from upper Salinas River in San Luis Obispo County to northwestern Baja California, sea level to 2,653 feet (1).	No	Very low	Not observed during surveys. Arroyo toads are not known from this area and have not been documented in the Live Oak Springs quadrangle (CDFW 2019a). The project area lacks suitable habitat for this species. In addition, focused arroyo toad surveys on the nearby Tule site were negative. The closest USFWS occurrence is approximately 12 miles south of the project area (USFWS 2012b). The closest CNDDB location is approximately 14 miles northwest of the project area (CDFW 2019a).
Taricha torosa torosa Coast Range newt (Monterey Co. south only)	None/SSC/ Group 2, MSCP	Valley-foothill hardwood, valley-foothill hardwood-conifer, coastal scrub, mixed chaparral, annual grassland, mixed conifer; in Southern California inhabits drier chaparral, oak woodland, and grasslands. Found along Coast Ranges south of Monterey County to northern San Diego County, Peninsular Ranges south to Boulder Creek, Sierra Nevada foothills, Shasta Reservoir, Central Valley floor, 0 to 6,006 feet (1, 2).	No	Low	Although suitable habitat is present within the project area, its known range is west of the project area (Nafis 2012). The closest CNDDB record for this species is from 2001 and is located approximately 33 miles northwest of the project area (CDFW 2019a).

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Reptiles					
Coleonyx switaki Switak's banded gecko	None/ST/ Group 2, MSCP	Arid rocky area at the heads of canyons with large boulders and rock outcrops, sparse vegetation. Found on arid desert slopes of eastern side of Peninsular Ranges near Borrego Springs, south to Baja California. Isolated population found in Coyote Mountains of Imperial County. Elevations 0 to 2,297 feet (1, 2).	No	Very Low	The project lacks suitable habitat and is outside of known elevation range. Not observed during surveys; no CNDDB records within Live Oak Springs quadrangle (CDFW 2019a). The closest record for this species is located approximately 9 miles east of the project area and was recorded in 1976 (CDFW 2019a).
Gambelia copeii Cope's leopard lizard	None/SSC/MSCP	Coastal sage scrub, chaparral, oak woodland; prefers flat areas with open space and avoids densely vegetated areas	No	Very Low	This species is found in open areas and the project area is outside of the species' known geographic range. This species is not recorded in the Live Oak Springs quadrangle (CDFW 2019a). The closest CNDDB record, from 2003, is located approximately 11 miles southwest of the project area (CDFW 2019a).
Lampropeltis zonata pulchra (San Diego population) San Diego mountain kingsnake	None/WL/ Group 2, MSCP	Valley-foothill hardwood, hardwood-conifer, mixed and montane chaparral, valley-foothill riparian, coniferous forests, wet meadows in central San Diego County Peninsular Ranges: Laguna, Palomar, Volcan, and Hot Springs Mountains, Santa Ana Mountains, and in Hollywood Hills and Santa Monica Mountains, 0 to 6,499 feet (1).	No	Low	While there is some suitable habitat in the denser chaparral and woodlands, this species is typically found at higher elevations, where denser and moister woodland and forests occur. This species is not recorded in the Live Oak Springs quadrangle (CDFW 2019a). The closest CNDDB record, from 2004, is located approximately 17 miles northwest of the project area (CDFW 2019a).

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Masticophis fuliginosus Baja California coachwhip	None/SSC/None	In California restricted to southern San Diego County, where it is known from grassland and coastal sage scrub. Open areas in grassland and coastal sage scrub.	No	Very Low	The project lacks suitable habitat and is outside of the species' known geographic range. This species is not recorded in the Live Oak Springs quadrangle (CDFW 2019a). The closest CNDDB record, from 1998, is located approximately 8 miles southwest of the project area (CDFW 2019a).
Phrynosoma mcallii Flat-tailed horned lizard	BLMS/SSC/ Group 1, MSCP	Fine sand and sparse vegetation in desert washes and desert flats. It is probably most abundant in area of creosote bush and is found in desert scrub, wash, succulent shrub, and alkali scrub habitats. Common in area with high density of harvester ants and fine windblown sand; rarely occurs on dunes. Found in central Riverside, eastern San Diego and Imperial Counties, 0 to 590 feet (1, 2).	No	Very Low	This species is found in desert habitats and the project area is outside of this species' elevation range. The closest CNDDB occurrence record, from 1912, is located approximately 6 miles northeast of the project area (CDFW 2019a).
Sceloporus graciosus vandenburgianis Southern sagebrush lizard	None/None/ Group 2	Montane chaparral, manzanita, ceanothus; open pine and Douglas fir forests in mountains; found in area with scattered low bushes, abundant sun. Transverse and Peninsular Ranges of Southern California, Sierra San Pedro Mártir of northern Baja California, 4,498 to 9,599 feet (1).	No	Very Low	Species typically found at higher elevations (4,500 to 9,600 feet).
Thamnophis sirtalis ssp. South Coast garter snake	None/SSC/ Group 2	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools. Coastal plain from Ventura to San Diego Counties, 0 to 2,789 feet (2).	No	Low	Marginal suitable habitat is present; however, this subspecies is not known to occur in the region. The closest CNDDB occurrence record, from 2001, is located approximately 52 miles northwest of the project area (CDFW 2019a).

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Birds					
Accipiter striatus Sharp-shinned hawk (nesting)	None/WL/ Group 1	Nests in coniferous forests, ponderosa pine, black oak, riparian deciduous, mixed conifer, Jeffrey pine; winters in lowland woodlands and other habitats. Common migrant and winter resident throughout California. Probably breeds south in Coast Ranges and at scattered locations in Transverse and Peninsular Ranges (2).	No	Very low potential to nest; High potential to occur during the winter	Potentially suitable foraging habitat present. Species does not breed in San Diego County; considered an uncommon winter visitor. This species was recorded in the vicinity[2].
Ammodramus savannarum Grasshopper sparrow	None/SSC/ Group 1, MSCP	Dry, dense grasslands, especially with a variety of grasses and tall forbs, scattered shrubs for singing perches. Summer resident and breeder in foothills and lowlands west of Cascade–Sierra Nevada Crest from Mendocino and Trinity Counties south to San Diego County. In Southern California, occurs on hillsides and mesas in coastal area, breeds up to 4,921 feet (2).	No	Low	The breeding and winter records for grasshopper sparrow are concentrated along the coastal ranges. Winter records are very rare in eastern San Diego County (Unitt 2004). Although there is suitable grassland habitat within the project area, it is unlikely to occur. This species was recorded in the vicinity[2].
Anas strepera Gadwall	None/None/ Group 2	Interior valleys, wetlands, ponds, and streams. Feeds and rests in freshwater lacustrine and emergent habitats, and to a lesser extent, estuarine and saline emergent habitats, and nests in nearby herbaceous and cropland habitats. Common in Central Valley and less common in Coast Range foothills of Central and Southern California. Locally common in Imperial Valley and along Colorado River, October to March. Breeds on northeastern plateau and east of Sierra Nevada (2).	No	Low	No potential to nest. Lack of suitable habitat within the project area. This species was recorded in the vicinity[2].

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Asio flammeus Short-eared owl (nesting)	None/SSC/ Group 2	Open area with few trees, such as grasslands, prairies, dunes, meadows, irrigated lands, and saline and fresh emergent wetlands. Breeds in coastal area in Del Norte and Humboldt Counties, San Francisco Bay Delta, northeastern Modoc plateau, east side of Sierra from Lake Tahoe south to Inyo County, and San Joaquin Valley. Uncommon winter migrant in Southern California, and widespread during winter in Central Valley and coastline (2).	No	Low	Although some suitable habitat is present within all of the project area, the project area is outside of the typical winter range for this species, where it occurs near the coastline (Zeiner et al. 1990a), and it was not recorded in the vicinity[2].
Aythya americana Redhead	None/SSC/ Group 2	Lacustrine waters, foothills and coastal lowlands, and along the coast and Colorado River. Nests in fresh emergent wetland bordering open water. Found south of Modoc County to Mono County, Central Valley, Monterey County south to Ventura County; breeds in Central Valley, eastern Kern County, coastal Southern California, and Salton Sea (2).	No	Not expected	This species was recorded in the vicinity[2]; however, the project area lacks suitable nesting and open water required by this species.
Butorides virescens Green heron	None/None/ Group 2	Nests and roosts in valley foothill and desert riparian habitats; feeds in fresh emergent wetland, lacustrine, slow-moving riverine habitats. Resident in foothills and lowlands throughout California; common August to March in southern coastal ranges, in summer along Colorado River, and found all year at Salton Sea (2).	No	Not expected	Lack of suitable freshwater habitat. May use the marginal habitat within portions of the project area as stopover or during the winter. This species was recorded in the vicinity[2].

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Chaetura vauxi Vaux's Swift (nesting)	None/SSC/ None	Breeds in Northern California in redwood and Douglas fir habitats; prefers hollow tree cavities for nest sites. Migrant throughout state, and irregular winter resident in Southern California (2).	No	Low potential to winter	This species does not nest in Southern California, but it was recorded in the vicinity[2] and has low potential to use the site during migration or winter.
Elanus leucurus White-tailed kite (nesting)	None/FP/ Group 1, MSCP	Open grasslands, savanna-like habitats, agriculture, wetlands, oak woodlands, riparian, herbaceous and open stages of most habitats in cismontane California, near agricultural area. Found in coastal and valley lowlands of California (2).	No	Low	Project location is generally too high and nesting habitat marginal. This species was recorded in the vicinity[2].
Empidonax traillii Willow Flycatcher	BCC/SE/ None	Inhabits extensive thickets of low, dense willows on edge of wet meadows, ponds, or backwaters; 2,000 to 8,000 feet in elevation.	No	Not expected	This species was recorded in the vicinity[2]; however, there is no suitable habitat in the project area and this species is not expected to occur.
Falco peregrinus anatum American peregrine falcon (nesting)	FD, BCC/SD, FP/Group 1	Nests in woodland, forest, coastal habitats along coast north of Santa Barbara and in Sierra Nevada, and other mountains of Northern California. Winters in Central Valley and is found in other riparian area and coastal/inland wetlands (2).	No	Not expected to nest on site; Moderate potential to forage on site	Suitable foraging habitat is present within all of the project area. However, no suitable nesting cliffs are present in the project area.
Haliaeetus leucocephalus Bald Eagle (nesting and wintering)	FD, BCC/SE, FP/Group 1	Large bodies of water and flowing rivers with abundant fish, with adjacent snags or other perches; breeds in Northern California and is found during winter at few locations throughout Southern California (2).	No	Not expected	There are very few winter records for this species in the vicinity (Unitt 2004), and there are no lakes in the project area. This species is not expected to occur. This species was recorded in the vicinity[2].

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Larus californicus California gull (nesting colony)	None/WL/ Group 2	Along the coast: sandy beaches, mudflats, rocky intertidal and pelagic area of marine and estuarine habitats, fresh and saline emergent wetlands. Inland: lacustrine, riverine, and cropland habitats; landfill dumps; and open lawns in cities. Nests in alkali and freshwater lacustrine habitats; adults roost along shorelines, landfills, pastures, and on islands. Nest along northeastern plateau region and at Mono Lake (2).	No	Not expected	There are no bodies of water or landfills to host this species on site. A migrant could pass over the site, but it is unlikely that it would stop.
Numenius americanus Long-billed Curlew (non-breeding)	BCC/WL/ Group 2	Nests in upland shortgrass prairies and wet meadows in northeast California; winters in coastal estuaries, open grasslands and croplands along California coast, and in Central and Imperial Valleys (2).	No	Not expected	This species was recorded in the vicinity[2]; however, there are very few winter records (Unitt 2004), and this species is more commonly found along the coast.
Pandion haliaetus Osprey	None/WL/ Group 1	Large waters (lakes, reservoirs, rivers) supporting fish; usually near forest habitats (primarily ponderosa pine through mixed conifer), but widely observed along the coast. Breeds from Cascade Ranges south to Lake Tahoe and along the northwest coast. Uncommon breeder along southern Colorado River. Uncommon along coast of Southern California (2).	No	Not expected	This species was recorded in the vicinity[2]; however, it is not expected to occur in the project area due to lack of suitable foraging and nesting habitat.

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Phalacrocorax auritus Double-crested Cormorant	None/None/ Group 2	Lakes, rivers, reservoirs, estuaries, ocean; nests in tall trees, rock ledges on cliffs, rugged slopes. Resident along coast and inland waters. Common August to May at Salton Sea and Colorado River reservoirs; also found south of San Luis Obispo County and Central Valley (2).	No	Not expected	This species was recorded in the vicinity[2]; however, there is no suitable habitat in the project area.
Piranga rubra Summer tanager (nesting)	None/SSC/ Group 2	Nests in desert riparian woodland dominated by cottonwoods and willows; winter habitats include parks and residential area. Found along lower Colorado River and locally in Southern California deserts (2).	No	Very low	Lack of suitable habitat within the project area and outside of the recorded breeding range for this species. This species was recorded in the vicinity[2].
Plegadis chihi White-faced ibis	None/WL/ Group 1	Nests in marsh; winter foraging in shallow lacustrine waters, muddy ground of wet meadows, marshes, ponds, lakes, rivers, flooded fields, and estuaries. Uncommon summer resident in areas of Southern California (esp. Salton Sea area); rare visitor to Central Valley (2).	No	Not expected; no nesting habitat	This species was recorded in the vicinity[2].
Progne subis Purple martin (nesting)	None/SSC/ Group 1, MSCP	Nests in tall sycamores, pines, oak woodlands, and coniferous forest; forages over riparian, forest, and woodland. Found throughout the state in wooded, low-elevation habitats. Rare and local breeder in the south in mountain ranges and along the coast (2).	No	Not expected	Habitat typical for supporting this species is not present on site. Individuals could be detected during migration, but there is low potential for that. This species was recorded in the vicinity[2].

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Pyrocephalus rubinus Vermilion flycatcher (nesting)	None/SSC/ Group 1, MSCP	Nesters inhabit cottonwood, willow, mesquite, and other vegetation in desert riparian habitat adjacent to irrigated fields, irrigation ditches, pastures, and other open, mesic areas in isolated patches. Found along Colorado River, especially near Blythe, Riverside County (2).	No	Low	There is limited riparian habitat in the project area and no confirmed breeding in the area (Unitt 2004). This species was recorded in the vicinity[2].
Selasphorus sasin Allen's hummingbird (nesting)	BCC/None/ None	Breeds most commonly in coastal scrub, valley foothill hardwood, and valley foothill riparian habitats, but also common in closed-cone pine-cypress, urban, and redwood habitats. Occurs in a variety of woodland and scrub habitats as a migrant.	No	Low nesting potential; High potential to occur during migration	Potential to occur during migration. Not known to breed in project area. This species was recorded in the vicinity[2].
Strix occidentalis occidentalis California spotted owl		Dense, old-growth, multi-layered mixed conifer, redwood and Douglas-fir habitats in northern California; oak and oak-conifer habitats in southern California; 0 to 7,546 feet (2).		Not expected	No suitable habitat and this species is recorded nesting at higher elevations (Unitt 2004).This species was recorded in the vicinity[2].
Toxostoma lecontei Le Conte's thrasher	BCC/SSC/ Group 2, MSCP	Open desert wash, creosote scrub, alkali desert scrub, desert succulent scrub.	No	Not expected	No suitable habitat. Occurs in desert habitats at lower elevations. This species was recorded in the vicinity[2].
Vireo bellii pusillus Least Bell's vireo (nesting)	FE, WLBCC/ SE/ Group 1, MSCP	Willows and low, dense valley foothill riparian habitat and lower portions of canyons; along western edge of deserts in desert riparian habitat, 0 to 1,969 feet. Found in San Benito and Monterey Counties, and coastal Southern California from Santa Barbara County south (2).	No	Not expected	USFWS occurrence data approximately 8 miles north of project area (USFWS 2012b). The full species (V. bellii) was recorded in the vicinity[2], but the project area lacks suitable habitat for this species, and it is not expected to occur.

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Xanthocephalus xanthocephalus Yellow-headed blackbird (nesting)	None/ SSC/ MSCP	Nests in freshwater emergent wetlands with dense vegetation and deep water; often along the borders of lakes or ponds.	No	Very Low	This species was not observed during surveys, and the project area probably doesn't flood enough to support nesting habitat. This species was recorded in the vicinity[2]. Observed nesting at Tule Lake in 2000 (Unitt 2004).
Mammals					
Lasiurus xanthinus Western yellow bat	None/SSC/ WBWG: H	Desert and montane riparian, desert succulent scrub, desert scrub, and pinyon-juniper woodland.	No.	Not expected	This species is found in desert habitats, and the project area does not support suitable habitat. The closest CNDDB occurrence, from 1998, is located approximately 13 miles northeast of the project area (CDFW 2019a).
Myotis ciliolabrum Small-footed myotis	None/None/ Group 2, WBWG:M	Deserts, chaparral, riparian zones, western coniferous forest; most common above pinyon-juniper forest. Roost in caves, old mines, abandoned buildings (3).	No	Low	Potentially suitable foraging and habitat present, though site is lower than typical. The closest CNDDB occurrence, from 2003, is located approximately 11 miles northwest of the project area (CDFW 2019a).
Myotis evotis Long-eared myotis	None/None/ Group 2, WBWG:M	Roosts in buildings, crevices, under bark, and snags. Caves are used as night roosts. Feeds along habitat edges, in open habitats, and over water. Occurs primarily along entire coast and in Sierra Nevada, Cascades, Great Basin, and 0 to 8,858 feet (2).	No	Low	Potentially suitable foraging and roosting habitat present, although not typical range. The closest CNDDB occurrence, from 2003, is located approximately 11 miles northwest of the project area (CDFG 2012d).

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Myotis thysanodes Fringed myotis	None/None/ Group 2, WBWG:H	Pinyon-juniper, valley foothill hardwood, hardwood-conifer habitats. Roosts in caves, mines, buildings, or crevices. Forges over open habitats, early successional stages, streams, lakes, and ponds. Found throughout California except Central Valley and Colorado and Mojave Deserts (2).	No	Low	Potentially suitable foraging habitat present, although not typical habitat. There are two known occurrences, from 2002 and 2003, located approximately 13 miles northwest of the project area (CDFW 2019a).
Myotis volans Long-legged myotis	None/None/ Group 2, WBWG:H	Occupies woodland and forest habitats over 3,937 feet. Feeds over open water and over open habitats such as chaparral and coastal scrub, using denser woodlands and forests for cover and reproduction. Roosts in rock crevices, buildings, under tree bark, in snags, mines, caves. Found in coastal ranges, Cascade/Sierra Nevada ranges, Great Basin, and ranges in Mojave Desert (2).	No	Not expected	Suitable habitat is not present, and the project area is below the elevation range for this species. The closest CNDDB occurrence, from 1998, is located approximately 13 miles northeast of the project area (CDFW 2019a).
Myotis yumanensis Yuma myotis	None/None/, Group 2, WBWG:LM	Closely tied to open water, which is used for foraging; open forests and woodlands are optimal habitat throughout California, 0 to 10,827 feet (2).	No	Low	Potentially suitable foraging habitat present, but no open water. The closest CNDDB occurrence, from 2003, is located approximately 11 miles northwest of the project area (CDFW 2019a).
Ovis canadensis nelsoni Peninsular bighorn sheep	FE/ST, FP/ Group 1, MSCP	Alpine dwarf-shrub, low sage, sagebrush, bitterbrush, pinyon-juniper, palm oasis, desert riparian, desert succulent shrub, desert scrub, subalpine conifer, perennial grassland, montane chaparral, and montane riparian from San Jacinto and Santa Rosa Ranges south to Mexico (2).	No.	Not expected	There are no suitable western-ranging open rocky mountain areas within or adjacent to the project area to support these species. The project area is located approximately 1.5 mile west of federal critical habitat for this species, and the closest CNDDB occurrence data is approximately 67 miles northeast (USFWS 2012, CDFW 2019a).

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Perognathus longimembris internationalis Jacumba pocket mouse	None/SSC/ Group 2, MSCP	Desert riparian, desert scrub, desert wash, coastal scrub, and sagebrush in San Diego and Riverside Counties (2, 5).	No	Low	Suitable habitat is present within all of the project area. The closest CNDDB occurrence record is from 1993 and is located approximately 37 miles northwest of the project area (CDFW 2019a). Probably south of their range.
Invertebrates					
Branchinecta sandiegonensis San Diego fairy shrimp	FE/None/ Group 1	Small, shallow vernal pools, occasionally ditches and road ruts.	No	Low	Some potential to occur due to presence of ponded water. However, the area is east of their known range, and the soils do not support typical natural vernal pool topography or botanical species. The nearest USFWS and CNDDB occurrence is approximately 30 miles southwest of the project area (USFWS 2012b; CDFW 2019a).
Lycaena hermes Hermes copper butterfly	None/None/ Group 1, MSCP	Coastal sage scrub, southern mixed chaparral supporting at least 5% cover of host plant Rhamnus crocea. Adults visit Eriogonum fasciculatum and Helianthus gracilentus. On well-drained hillsides and canyon bottoms, coastal San Diego Co. south to Santo Tomas, Baja California (4).	No	Very low	Low potential based on location, and Rhamnus crocea was not documented on site. The two closest CNDDB occurrences for this species, from 2005, are located approximately 29 miles northwest of the project area (CDFW 2019a).
Papilio multicaudata Two-tailed swallowtail	None/None/ Group 1	Semi-arid canyon land, mid-level mountains, canyon bottoms; groves, parks, roadsides (4).	No	Low	Suitable habitat is present within all of the project area. However, this species was not detected during 2011 butterfly surveys (AECOM 2012c).

Scientific Name/ Common Name	Status (Federal/ State/ County)[1]	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
Streptocephalus woottoni Riverside fairy shrimp	FE/None/ Group 1	Deep, long-lived vernal pools, vernal pool-like seasonal ponds, stock ponds; warm water pools that have low to moderate dissolved solids.	No	Low potential	Marginal suitable habitat in the form of occasional standing water pools, although these are atypical and no vernal pool formations occur. Site is outside of known range for species. The nearest USFWS and CNDDB occurrence is located approximately 38 miles southwest of the project area (USFWS 2012b and CDFW 2019a).

[1] **Status Designations:**

Federal

BCC U.S. Fish and Wildlife Service: Birds of Conservation Concern
FC Candidate for federal listing as threatened or endangered
(FD) Federally delisted; monitored for 5 years
FE Federally listed Endangered
FT Federally listed as Threatened
WBWG: H Western Bat Working Group: High Priority
WBWG: LM Western Bat Working Group: Low-Medium Priority
WBWG: M Western Bat Working Group: Medium Priority
WBWG: MH Western Bat Working Group: Medium-High Priority

State Designations:

SSC California Special Concern Species
FP California Department of Fish and Game Fully Protected Species
WL California Department of Fish and Game Watch List Species
SE State listed as Endangered
ST State listed as Threatened

County Designations:

MSCP Draft East County MSCP covered species

References

Nafis 2012
Zeiner et al. 1988, 1990–a-b
SDNHM 2012c
NatureServe 2012
CDFW 2019a.

Notes:

[2] Vicinity refers to the Live Oak Springs, Campo, Tierra del Sol, Jacumba, Mount Laguna, Sweeny Pass, Cameron Corners, and Sombrero Peak USGS 7.5 minute quadrangles (CDFW 2019a).

Bold species indicate species that were identified in the County's Pre-Application Summary Letter (County 2011)

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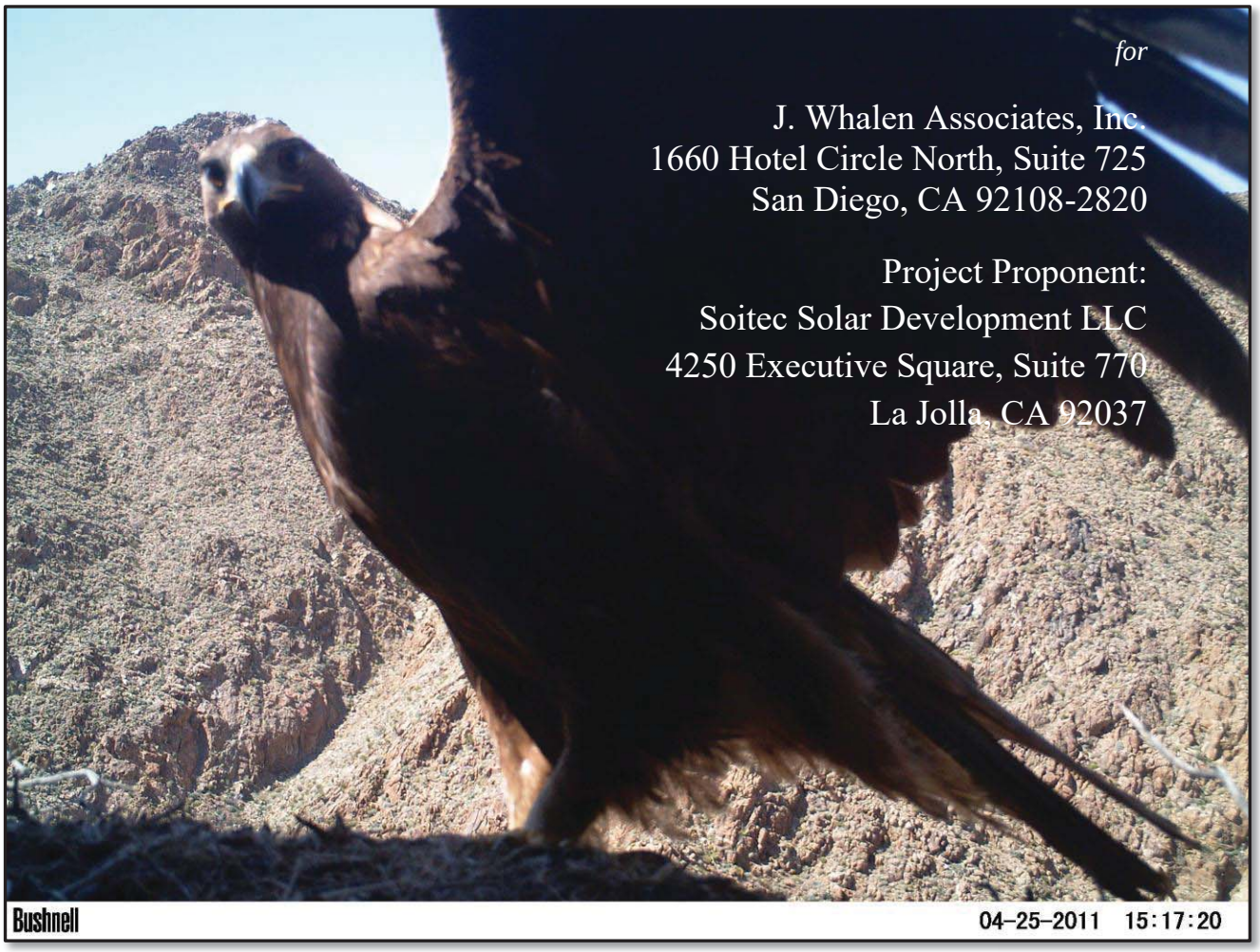
Appendix J

Golden Eagles and the Rugged LLC, LanEast LLC, LanWest LLC, and Tierra del Sol Solar Farm LLC Projects in San Diego County, California

Final Report

Golden Eagles and the Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC Projects in San Diego County, California



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April 11, 2013

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CONFIDENTIALITY STATEMENT

The Wildlife Research Institute, Inc. (WRI) cares deeply about the fate of the population of golden eagles in San Diego County. That is why this report is marked "Confidential." Documentation of the reported territories is part of the WRI research database on golden eagles that includes data for the longest studied golden eagle population in the Western Hemisphere.

Golden eagles are a top predator and survive today only by nesting in remote, inaccessible places where they are subject to minimal human disturbance. Currently, new green energy projects are being proposed for areas that were formerly considered remote and inaccessible by most people. New roads that facilitate frequent access will further challenge the eagles in the future. Golden eagles often have to flee from humans if they are to survive; they are most sensitive to the presence of humans around their nest sites. The presence of humans within 400 meters (quarter mile) of a nesting pair imposes significant impacts on several aspects of golden eagle nesting behavior, and a distance of 800 meters (half mile) may still be insufficient to safeguard some nests from disturbance (Steidl *et al.* 1993). Golden eagles exhibit greater sensitivity to pedestrian stimuli compared to other raptors by flushing when pedestrian stimuli are at farther distances than the trigger distances of other raptors (Holmes *et al.* 1993). Therefore, releasing the enclosed information to the public or to persons who might use the information to visit the nests for climbing, photography or curiosity could cause the nest to fail during breeding season.

Human disturbance is one of the main factors negatively affecting golden eagles. WRI offers this report with detailed information about golden eagles and their nest sites for the sole purpose of protecting existing or potential breeding pairs from human-derived encroachment and development in and near these golden eagle territories. We hope and trust that the agencies and developers that use and share this information will be sensitive to the confidential nature of the following data and work toward the common goal of protecting golden eagles near Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC Project Areas and elsewhere.

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GOLDEN EAGLE INFORMATION

Generally, habitat changes in Southern California have been dramatic over time due to extensive urbanization (Bittner and Oakley 1998). The clear and compelling evidence is that man has caused a 55% reduction in the San Diego County golden eagle population since the 1800s, as the population has dropped from 104 breeding pairs in the late 1800s to 47 breeding pairs in 2011 (Bittner *et al.* 2011). A reduction of over 41% has been documented in this population over the last 61 years and the rate has increased 3-fold in the last 15 years from 0.5% per year to 1.5% per year (Bittner *et al.* 2011). Golden eagles' behaviors and their ability to survive and produce young, factors that contribute to the overall success of the species itself, are being directly affected. Habitat losses are increasing throughout the Western United States, and associated pressures on golden eagle populations are expected to increase if human activity and development continue to increase (Good *et al.* 2007).

In general, tolerance of human activity is not being adopted by the eagles, and the effects of the incompatibility are distinct. There is an inverse correlation between land development and golden eagle productivity, one that is not isolated to San Diego County or California (WRI unpub. data). Clear spatial overlaps were identified between new forests and abandoned golden eagle territories in Scotland (Whitfield *et al.* 2007). Prey abundance is one of the primary factors supporting the reproductive success of raptors, and available foraging habitat is one of the contributing factors that encourage overall health of golden eagles (Newton 1979, Krebs *et al.* 2001). The golden eagle is a meaningful umbrella species and their success, or lack thereof, reflects the health of many other species that occupy the same territories but are often harder to monitor. When we lose golden eagles, the reason is often that we are degrading the habitat to such a great extent that we are also affecting hundreds of other species.

WRI research of golden eagles via satellite telemetry indicates the constraining effects human encroachment is having on golden eagles in their territories. Golden eagle flight paths tracked by satellite are distributed to areas void of human disturbance, areas that are becoming less and less available with increases in development. Territories that are becoming formally listed as extirpated are most commonly due to human impact within territorial or foraging boundaries. There is the possibility that gradual and strategically-timed introduction of human activity may potentially desensitize wildlife, namely golden eagles, conditioning them to tolerate disturbance (WRI unpublished data). However, ensuring that lands used by golden eagles for foraging and nesting remain unaltered is the most effective way to avoid extirpation. This report is an attempt to recognize the significance of historical and current golden eagle activity in and around the Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC Project Areas.

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EXECUTIVE SUMMARY

WRI documented an extirpated golden eagle territory, referred to by WRI as the [Redacted] golden eagle territory, [Redacted] the project footprint. All other golden eagle territories in this report lie outside of or partially overlap the [Redacted] buffer recommended by San Diego County for nest site disturbance on the [Redacted] of the project footprint.

[Redacted] golden eagle territory has been monitored consistently by WRI since 1990. Historical records at Table Mountain date back to 1920. Photos were taken of the [Redacted] golden eagles in 1920 by John Colton. Prior to his death, John Colton communicated details and data about this territory to John Oakley and Dave Bittner. Numerous other biologists and the Bureau of Land Management (BLM), who manage the land on which the eagles nest, have also recognized the longevity of the [Redacted] territory. In the 1990s, WRI reported to the BLM that shooting at the [Redacted] by target shooters was killing nesting golden eagles. The BLM shut off the [Redacted] to shooting in 1995 and began closer monitoring. This stopped the [Redacted] However, [Redacted] activity has increased over the past 15 years and the Department of Homeland Security now has a great deal of activity on [Redacted] that may now be a contributing factor in the failed attempts of this pair to nest and raise young. Although the pair continues to be seen on territory, production of young at [Redacted] has been negligible since 1997.

The golden eagle territory in [Redacted] (historically known as [Redacted] is a well-established territory also with a long history of activity. Golden eagles were seen in [Redacted] by WRI volunteers in 1990 and the first nest site documented by WRI volunteer, Randy West, was occupied by a single young golden eagle chick in 1994. Data for [Redacted] are limited due to [Redacted] of the core nesting area, which is [Redacted] . However, most nests found by WRI since the initial documentation of the [Redacted] have revealed the likelihood of a long history of activity and occupancy far beyond the scope of the oldest available recorded data. Recently, golden eagles in [Redacted] produced chicks in 2011 and 2012, and WRI has documented nesting activity within this territory recently via remote, motion-activated nest cameras.

[Redacted] golden eagle territory is [Redacted] of the project. This pair has been sporadically productive over the years of observation. Human disturbance and nest cliff instability have been factors documented by WRI. In at least two separate years, mortality of young eagles while still in the nest has been an issue impacting this pair's productivity.

Additionally, WRI research identified a pair of breeding golden eagles, [Redacted] . This pair may

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forage near or within the proposed project area for Tierra del Sol Solar Farm LLC. [Redacted]

The cumulative project area is identified by WRI as a potential golden eagle flyway. Straight trajectory paths between GPS points collected via satellite telemetry estimate flight paths of golden eagles that fledged from other territories in San Diego County that are not adjacent to the cumulative project footprint. Six individual golden eagles' estimated flight paths were documented via satellite telemetry over the cumulative project footprint from 2007-2012; [Redacted] flight paths were estimated over the Rugged LLC project area, [Redacted] over the LanEast LLC project area, [Redacted] over the LanWest LLC project area and [Redacted] over the Tierra del Sol Solar Farm LLC project area. Flight paths of [Redacted] golden eagles were estimated via satellite telemetry to have traversed over multiple project areas and two golden eagles were documented flying within the Rugged LLC [Redacted] zone as well as just outside of the project area by WRI ground observers.

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BACKGROUND

In 1987, a group of eight biologists gathered at the home of Dan Brimm to discuss the obvious decline of the golden eagle population in San Diego County. Tom Scott and John Oakley were among those eight. In subsequent years, efforts turned to fully documenting the entire San Diego population after an initial survey of old golden eagle nest sites to determine if they were extirpated or active. The Golden Eagle Project, co-directed by Dave Bittner and John Oakley, funded mainly by Dave Bittner and maintained purely by volunteer efforts, became active in this undertaking in 1988 and subsequently, in 1992, assumed full responsibility for the project. As many as 50 volunteers and biologists each year have helped observe, document and band nesting pairs of golden eagles in San Diego and neighboring counties. In 1996, the Wildlife Research Institute, Inc. became incorporated as a self-funded, non-profit research institute and further expanded the Golden Eagle Project's study of the San Diego golden eagle population.

WRI has spent a great deal of effort training volunteers and new biologists extensively because identifying golden eagles is not an innate or common skill. Training is accomplished by taking each individual into the field with one or more of our experienced Golden Eagle Biologists numerous times during their first year. Most new WRI biologists also undergo an intensive 4-week training regimen during golden eagle migration in Montana. All WRI volunteers sign a non-disclosure agreement that binds them to not reveal any of the information they obtain from our work. This is to protect the information and prevent disturbance of golden eagle nest sites.

WRI has gained copious insight about behavioral adaptations exhibited by golden eagles. WRI Senior Biologist and Executive Director, Dave Bittner, has over 48 years of research experience with golden eagles and WRI staff have been studying San Diego's golden eagle population including [Redacted] [Redacted] for over 24 years. Thousands of hours of ground and aerial surveys have allowed WRI to anticipate certain circumstances from which outcomes can be extrapolated. Furthermore, interpretation of data collected using satellite and VHF transmitter technology has provided WRI with information on the flight and nesting behavior of golden eagles of all ages; data that can be compared to the terrain, weather patterns and areas of development. Data from satellite transmitters have demonstrated a broad picture of flight patterns adopted by golden eagles that can be generalized at least across the local population.

WRI's research of San Diego County's golden eagles has incorporated present-day analysis of data collected historically and more recently. Data from field observations and historical egg collections (Dixon 1937*)* help estimate productivity (ability to produce young) and activity within each territory. Data from James Dixon's 41-year study in the early 1900s and Tom Scott's analysis in the early 1980s (Scott 1985) have allowed WRI biologists to accurately determine the decline in the breeding golden eagle population of Northwestern San Diego County. These data were subsequently compiled with research performed by WRI for the most comprehensive dataset available for golden eagles in San Diego County.

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Objectives of This Report

1. To provide information necessary for understanding significant historical and current golden eagle activity near Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC Project Areas.
2. To provide a statement of facts that can be used to identify impacts and mitigation strategies to better manage golden eagle activity near Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC Project Areas.
3. Identify any constraints on the project due to golden eagle use within the buffered landscape.

Objectives of WRI's Long-Term Study of Golden Eagles

1. To document past and present golden eagle nests and their territories.
2. To provide documentation on the primary foraging areas that may be critical to the success of future golden eagle pairs.
3. To monitor, over successive years, the use of nesting territories, cliffs, trees, etc., that may be central to territories and their success.
4. To monitor and document the pairs of golden eagles, their life history, and other data that may help evaluate the future success, or lack thereof, of the species in San Diego County and environs.
5. To track, with bands and telemetry, as many golden eagles as possible to determine movements, migration, pair exchanges and feeding areas for each pair.
6. To provide baseline data for city, county, state, federal and private land planners to help evaluate the merit of construction permitting in certain areas.
7. To provide statements of facts that will assist in mitigating land development that might destroy nesting territories in the future.
8. To document the level of adaptation of golden eagles to human encroachment so that eagles can be saved before the entire population, or a significant portion, of golden eagles in San Diego County become extirpated.
9. To determine by regular documentation the fledging success of golden eagles over time and the varying weather conditions that affect that success.
10. To determine golden eagle nesting history by documenting chronological information over extended time periods.
11. To determine the effects of major fires on the golden eagle; both short and long term.

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METHODS

Historical Data

Historical information for [Redacted] territories comes from a compilation of museum records made by oologists who collected and traded eggs dating back to the late 1800s. Historical data was also collected from the Western Museum of Vertebrate Zoology, Los Angeles, California and university researchers and educators with an interest in eagles. WRI also interviewed some of the few remaining egg collectors (now deceased) and their young assistants who did the climbing into the nests. Most of the personal interviews were about nests and eggs collected from 1895 to the 1940s. John Oakley, Professor Emeritus, met and spoke with J. B. Dixon, a well-known egg collector, who collected golden eagle eggs from 1895 to 1936, and also spoke with and befriended several of the young assistants. Dave Bittner and John Oakley also met with Ray Quigley, who donated many of his records to WRI upon his death. John Oakley started studying golden eagles in San Diego County in the 1930s and has been associated with WRI's golden eagle research efforts since 1988. Contributors on record from private collections pertaining to the territories in question include early egg collectors and researchers like Randy West (volunteer and falconer), Tom Scott (professor and eagle researcher in the late 1970s and early 1980s), John Oakley (professor and eagle researcher from the 1930s thru 2012), Ray Quigley and many others. WRI has an established team of Golden Eagle Biologists and volunteer observers that has been active since 1988; WRI's ongoing golden eagle studies have been added to the above-mentioned historical records to assemble the most comprehensive database of golden eagle data in San Diego County, California.

Ground Surveys

Ground observations highlight behaviors otherwise missed during the short duration of an aerial survey of a single nest. Ground surveys provided an opportunity to make observations in a territory for long durations to gain information about the feeding areas and habits of golden eagles. Data from these types of surveys allowed WRI to infer what types of activities could disrupt incubation and/or disturb the adults. WRI observers spent approximately 4 hours in each territory on each visit. Observers visited a core nest area once a week until they could confirm incubation and, later, hatching and fledging. All flight paths of the eagles observed were documented and transcribed onto a map.

Field surveys were conducted from December through May of each year of study. Ground observers used at least 8x42-zoom binoculars and 20x60-zoom scopes to make observations. WRI's protocol disallows making ground observations that require approaching a golden eagle nest any closer than half a mile during incubation or the first 4 weeks after hatching. All eagle bandings are scheduled when the eagles are at least 5 weeks and before 8 weeks of age.

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Data

The following data are specifically collected and are on file at WRI. Hand-drawn maps documenting flight paths, nests and perched eagles accompany datasets pertaining to golden eagle observations:

- Species and quantity observed
- Number of nests/alternative nests observed
- Condition of each nest, if possible, and whether or not it was active
- Nest aspect and elevation
- Approximate nest GPS coordinates and azimuth from observation point
- Nest substrate (cliff, transmission tower, etc.)
- Age class of golden eagles and other species observed, if determinable
- Behavior of species observed.

Aerial Surveys

WRI began using helicopters to supplement ground surveys in 1996 to determine the productivity of golden eagles in California. Using helicopters allowed nest site areas to be checked efficiently and allowed our biologists a unique vantage point from which new nests may be located that would most likely be missed from a ground position. Furthermore, due to the unobstructed downward view into the nests, we could document the age and number of young that facilitated the scheduling of subsequent banding and helped document nesting success. Twenty to thirty territories can be surveyed in a day from a helicopter, whereas a comparable survey via ground would take a month or more and could produce less exact nesting and productivity data.

Our methods have been adopted by the US Fish and Wildlife Service (USFWS) and integrated into the USFWS Interim Golden Eagle Guidance for surveying golden eagle territories (Pagel *et al.* 2010). WRI utilizes aerial survey opportunities via helicopter and pays out-of-pocket to add onto contracted routes in an effort to obtain information via aerial surveys on territories that exist but are not part of a specific project outline. Hughes 500 helicopters are used for these surveys because they are safe, small, stable and very maneuverable. Their stability allows a close approach (to within 20 to 30 meters of the cliff side) thereby making counts of young or eggs possible using stabilizing binoculars and high resolution, digital cameras equipped with long-focal-length, optically-stabilized lenses. These photos allow us to maintain an efficient 10- to 20-second hover period at each nest and to subsequently evaluate the details, such as nest contents, age of young and any other information, more carefully once we return to headquarters.

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WRI data support golden eagles' indifference to helicopters. Most eagles will stand or sit in the nest undeterred from their usual behavior of preening or feeding. In over 700 golden eagle nests we have checked with a helicopter, we have flushed only one adult eagle off young and never off eggs. However, the eagle that flushed with a 4-week old chick in its nest may not have flown as a result of the helicopter, but may have coincidentally been ready to depart as we approached. We have actually observed adult eagles flying under the hovering helicopter and landing on their nest to deliver food or sticks to the nest while we documented activity and took pictures of the young. Similar results with helicopters have been documented at over 500 nest visits by other golden eagle researchers such as Carol McIntyre of Alaska, Mike Kochert of Idaho and in a recent focused study (Grubb *et al.* 2010, Kochert *et al.* 2007, McIntyre 2006). While monitoring golden eagles during the construction of a power line in 2011, WRI documented 24 helicopter flights within 30 minutes immediately above a golden eagle that was perched within 300 feet of its nest. The eagle only took brief glances in the direction of the helicopters as they first appeared in its field of vision then immediately resumed looking about its territory. In contrast, a person on foot within 400 meters (quarter mile) of a nesting pair imposes significant impacts on several aspects of golden eagle nesting behavior, and a distance of 800 meters (half mile) may still be insufficient to safeguard some nests from disturbance by pedestrians (Steidl *et al.* 1993).

According to the USFWS guidance (Pagel *et al*. 2010), all nest sites within a breeding territory are deemed occupied while raptors are demonstrating pair bonding activities and developing affinity to a given area. A golden eagle territory may be determined to be "active" (or more specifically "occupied") for the current breeding season if either of the following observations is made: (1) one or both of a golden eagle pair is explicitly observed demonstrating pair bonding activity, such as nest building or courtship behavior (deemed active with confirmed occupancy) or (2) if *evidence* of pair bonding activities is observed, such as observing a decorated nest, (deemed active with implied occupancy). A golden eagle territory is determined to be inactive if occupancy or breeding cannot be confirmed. This occurs if no pair bonding or evidence of nest building is observed for the current breeding season during the surveys. Territories that are inactive may subsequently become active again; golden eagles sometimes take a year or two hiatus from breeding and may continue to occupy the territory even in the absence of breeding.

Based on experience, WRI protocol requires that five years pass from the last recorded breeding and/or sighting of the bonded pair or single adult eagle on the territory in order to make the determination that the territory is "extirpated." Two examples depict why we wait at least five years: first, the [Redacted] golden eagle pair in San Diego, California, which hadn't successfully raised a single young in 11 years (1997 to 2008) due to constant human disturbance by climbers and hikers during breeding season, remained on territory and in 2008 began to breed again. This may have been a result of fires opening up additional foraging habitat which supported reproduction, but coincided more directly with climbing and hiking restrictions in the area. In this case, the [Redacted] pair had to rely on a change in habitat and a change in

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human behavior to compensate for imposed human disturbance. Second, the [Redacted] golden eagle territory, also in San Diego County, was listed as extirpated in 2005 and became active in 2007 when the [Redacted] pair subsumed the [Redacted] nest and foraging area. This shift to [Redacted] was a result of continuous disturbance by illegal immigrants within the core nesting territory at [Redacted] and the loss of a breeding bird due to electrocution. The net result was a reactivation of one territory and the loss of another.

Aerial survey routes were recorded and reported using a GPS system. During the surveys, significant incidental wildlife are recorded and reported including other sensitive species (i.e., peregrine falcons, prairie falcons, bighorn sheep). Golden eagle nests and their associated territories were documented. The activity status of all golden eagle nests were defined during the survey, if possible, and/or confirmed later upon review of photographs. Even in the absence of incubating females, observations of nest decoration such as fresh yucca or leafy green branches, as well as new nest sticks built into and above old nest material helped assess activity at the nest site for the current breeding season.

We surveyed previously documented core nesting areas and looked for new and/or alternate nest sites by concentrating on any area with suitable golden eagle nesting habitat. Nesting substrate included cliffs with geological features such as flat ledges or shallow cavities/caves that could allow for safe nest construction and that were high enough to provide protection from ground-dwelling predators. Cliffs were approached by helicopter systematically from the front and surveys were flown at speeds of approximately 20 to 30 knots; hovering near a specific nest site was periodically required to collect specific nest details or take photographs but usually did not exceed 10 to 20 seconds. Golden eagle nests can also be found with trees as the substrate. Tree-nesting golden eagles were harder to find because a good view of the substrate was often blocked by foliage. Therefore tree nesting areas were surveyed with a greater amount of helicopter time and supplemental ground surveys to determine the core nesting area. Helicopter surveys early in the nesting season would sometimes identify activity areas by direct observation of the adults sitting on dead trees or other open perch sites. This perch behavior is part of establishing and selecting a suitable nesting site; further detailed examination of the area generally revealed the actual nest.

Survey

Aerial surveys have been conducted in various years for [Redacted] golden eagle territories. The most recent initial Phase 1 occupancy surveys in [Redacted] golden eagle territories were conducted on February 22, 2012, with follow up Phase 2 productivity surveys conducted on April 24, 2012. [Redacted] was surveyed in 2010 by air and 2012 via ground. Surveys were conducted for the target species, golden eagle, and other raptor species. We used a Hughes-500 helicopter for the aerial surveys that provided seating for 3 Wildlife Biologists (including at least 2 Golden Eagle Biologists) and the pilot. Observer 1 (front right seat) was a Golden Eagle

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Biologist who served as the primary observer for the right side of the helicopter as well as the navigator for the survey, observer 2 (back left seat) was a Golden Eagle Biologist who served as the primary observer for the left side of the helicopter and observer 3 (back right seat) was the primary note taker and secondary observer for the right side of the helicopter. The pilot used by WRI for these surveys also had extensive experience flying mountainous habitat for golden eagles and other cliff-dwelling raptors; the pilot was not responsible for survey observations.

GPS

Nest site and other location-specific data were determined and documented using hand-held GPS units (Garmin Map60GSx). A sequential number was assigned to each observation that corresponded to the GPS waypoint. Waypoints were recorded using the UTM grid in the NAD 83 Datum. GPS were also used to track our survey routes. Handwritten notes were taken on field forms that documented species, detailed observations and corresponding GPS waypoints.

Photography

Photographs were taken with Nikon equipment with GPS units attached so that latitude and longitude could be automatically recorded on each digital picture. Two high-resolution cameras were used; one for recording wide-angle shots (18-200mm optically-stabilized zoom lens) and another for recording close-ups (200-400mm optically-stabilized zoom lens). The 400mm zoom lens plus the ability to enlarge the digital photographs allowed accurate and detailed records to be captured with minimal disturbance to wildlife. This was also important because it allowed for thorough review and confirmation of our observations later in an environment that was more stable than the cockpit of a helicopter.

Data

We photographed all active golden eagle nests, some other raptor nests, representations of numerous inactive golden eagle nest sites and significant other wildlife species observed. The following data were also specifically collected and are on file at WRI:

- Species and quantity observed
- Number of nests/alternative nests observed
- Condition of each nest and whether or not it was active
- Nest aspect and elevation
- Nest GPS coordinates represented by a corresponding waypoint number
- Nest substrate (cliff, transmission tower, etc.)
- Age class of golden eagles and other species observed, if determinable
- Behavior of species observed.

It should be noted that red-tailed hawks in particular, as well as other raptors such as prairie falcons, sometimes utilize golden eagle nests for their own nesting. During surveys, these nests

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were attributed to the current occupant (i.e., hawk or falcon), however the original nest builder (i.e., golden eagle) is recorded in the "Notes" section of the transect data sheet. These old golden eagle nests, when viewed along with more current nests, often help define the history and core nesting area/territory of a particular pair of eagles and were therefore included in the total count of golden eagle nests for the surveys.

Satellite Telemetry

WRI has affixed 22 satellite transmitters to golden eagles since 2007 in Southern California (model type: PTT-100, 70 gram unit from Microwave Telemetry, Inc.). The units were all attached via Teflon© ribbon harness backpack mount prepared and applied by WRI biologists. Marking/ telemetry was applied to nestlings in the nest via bio-climbing, whereas trapping of hatch-year, sub-adults and adults was via bow nets baited with live (vest-protected) pigeons or carcasses.

Return data were analyzed regularly and prepared via Google Earth Pro and ArcGIS and provided a spatial display of general flight paths by connecting GPS data points. Data were also analyzed for behavioral analysis. The data fields provided the location, and the time and date of a golden eagle at a given location, which could then be compared to topographical terrain maps, other golden eagle flight paths and behaviors, as well as development project sites in order to achieve all objectives.

GPS location data were the only explicit data recorded via satellite telemetry, whereas the flight paths displayed on the maps that follow were generalized as a straight trajectory represented by a straight line between two successive GPS points.

Data

- GPS coordinates
- Date
- Time
- Altitude
- Speed
- Course

Nest Cameras

Golden eagle nests at [Redacted] were affixed with motion-triggered remote field cameras (Bushnell Trophy Camera Camo, Model # 119446) by WRI biologists in 2012. Cameras were placed near the nests in the summer or fall, prior to nesting, and the cards

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were retrieved after fledging. Photographs were reviewed and behaviors and activity were analyzed by WRI biologists upon retrieval of the memory cards.

Data

- Photograph
- Date
- Time
- Temperature
- Photograph number

Constraints

Data were limited for some years when no observations were recorded. Funding resources and/or limited personnel yielded missed opportunities for data collection by WRI. Historical data were a compilation of personal collections, museum records and personal communications and were often not researched systematically on an annual basis.

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RESULTS

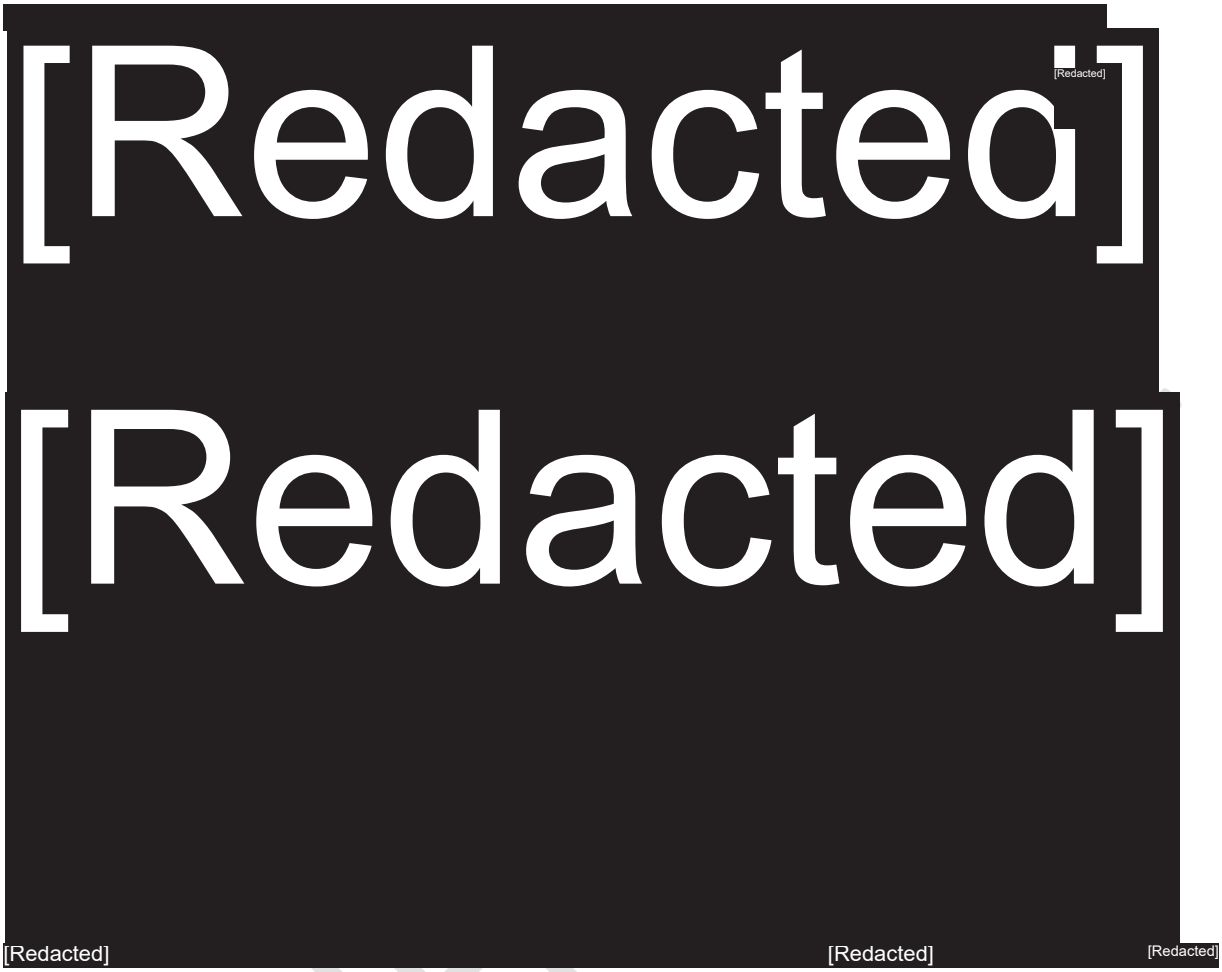
Although site-specific studies have not been conducted for any projects in the cumulative project area of Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC Project Areas, WRI has conducted aerial and ground surveys in neighboring areas since 1988 and aerial surveys since 1996 (Figure 2). WRI's Senior Golden Eagle Biologists have used this accumulated data to create a best estimate of the breeding territories of golden eagles in the area surrounding Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC Project Areas. The 4,000-foot buffer for nest site disturbance recommended by San Diego County was used as the criteria for determining potential impacts. The cumulative footprint of all project areas is located in an historical golden eagle territory that is currently extirpated and no current breeding or adult eagles are using this extirpated territory. WRI biologists have confirmed recent golden eagle breeding activity in [redacted] territories surrounding the cumulative project footprint, [Redacted] (Figure 1).

Figure 1. Estimated Golden Eagle Territory Outlines* near the Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC Project Areas



[Redacted]

[Redacted]



WRI biologists observed 2 golden eagles flying between the [Redacted] of Rugged LLC Project Area and its [Redacted] on April 5, 2011, from 13:31 to 13:42 PST. On the same day from 13:47 to 13:56 PST, 1 golden eagle was observed flying from the [Redacted] (Figure 3). Although some assumptions can be made, neither physical markings nor tracking equipment were observed distinguishing the identity of the golden eagles, therefore it cannot be confirmed that they were the same individual golden eagles seen on both occasions.

[Redacted]



[Redacte golden eagles from territories within San Diego County have transmitted GPS points near the project areas as documented via WRI satellite telemetry (Figure 4). The exact flight paths between each bird's GPS locations are unknown; however the short time duration between points and the altitude recordings (averaging 1000 meters above ground level [AGL]) suggest trajectories roughly consistent with that displayed in Figure 4. One of these 6 eagles still returns active data and continues to be tracked by WRI's ongoing satellite telemetry research team on a regular basis.

[Redacted]

[Redacted]



[Redacted]

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[Redacted] Golden Eagle Territory

WRI collected data pertaining to the nesting golden eagles on [Redacted] per personal communications with Randy West, a falconer and WRI volunteer since 1988 and a lifetime resident of Boulevard, CA. Randy West is the only living biologist that remembers active breeding golden eagles in the [Redacted] territory. He toured the territory with Dave Bittner in 1992 and identified locations of his observations of golden eagles and their nests. One nest, above [Redacted] still exists but is active with breeding red-tailed hawks.

[Redacted]

[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

[redacted]



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[Redacted] Golden Eagle Territory

WRI collected data pertaining to the nesting golden eagles on [Redacted] from 1990 to 2012 via ground and/or aerial surveys (Table 2).

[Redacted]

[Redacted]

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Figure 6. [Redacted] Golden Eagle Productivity as a Function of Number of Young Produced Each Year (1990-2012).



* Data included only for confirmed numbers of young; gaps in data represent years for which number of young was unconfirmed.

Table 3. Frequency of Confirmed Number of Golden Eagle Young Produced at [Redacted] Golden Eagle Territory (1990-2012).

Number of Young in a Year	Frequency of Number of Young
0	11
1	7
2	2
Total	**20**

[Redacted]



[Redacted] Golden Eagle Territory

WRI collected data pertaining to the nesting golden eagles in [Redacted] from 1994 to 2012 via ground and/or aerial surveys (Table 4).

[Redacted]

[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
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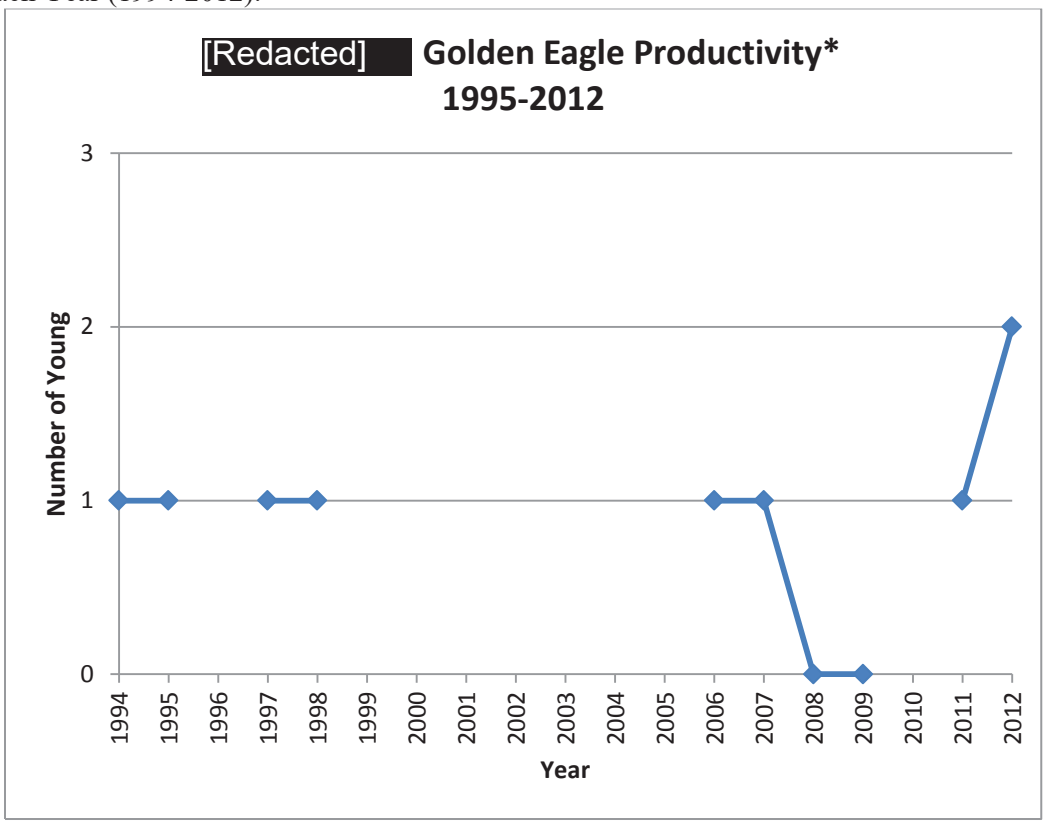
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

[Redacted]

Figure 8. [Redacted] Golden Eagle Productivity as a Function of Number of Young Produced Each Year (1994-2012).



* Data included only for confirmed numbers of young; gaps in data represent years for which number of young was unconfirmed.

Table 5. Frequency of Confirmed Number of Golden Eagle Young Produced at [Redacted] Golden Eagle Territory (1994-2012).

Number of Young in a Year	Frequency of Number of Young
0	2
1	4
2	1
Total	**7**

[Redacted]

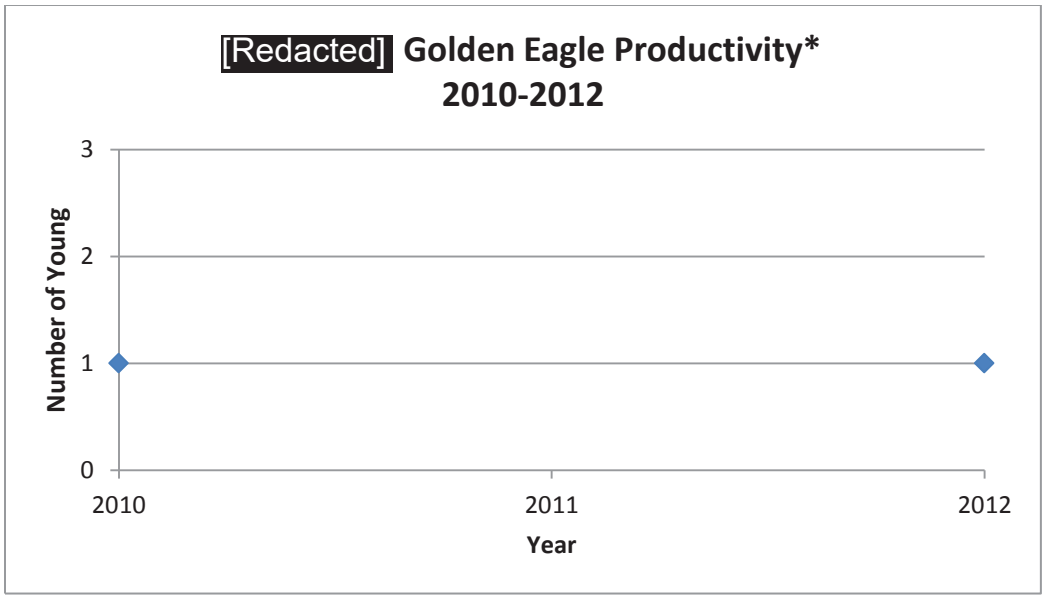


[Redacted] East Golden Eagle Territory

WRI collected data pertaining to the nesting golden eagles in [Redacted] from 2010 to 2012 via aerial surveys (Table 6).



Figure 10. [Redacted] Golden Eagle Productivity as a Function of Number of Young Produced Each Year (2010-2012).



* Data included only for confirmed numbers of young; gaps in data represent years for which number of young was unconfirmed.

Table 7. Frequency of Confirmed Number of Golden Eagle Young Produced at [Redacted] Golden Eagle Territory (2010-2012).

Number of Young in a Year	Frequency of Number of Young
1	2
Total	**2**

[Redacted] Golden Eagle Territory

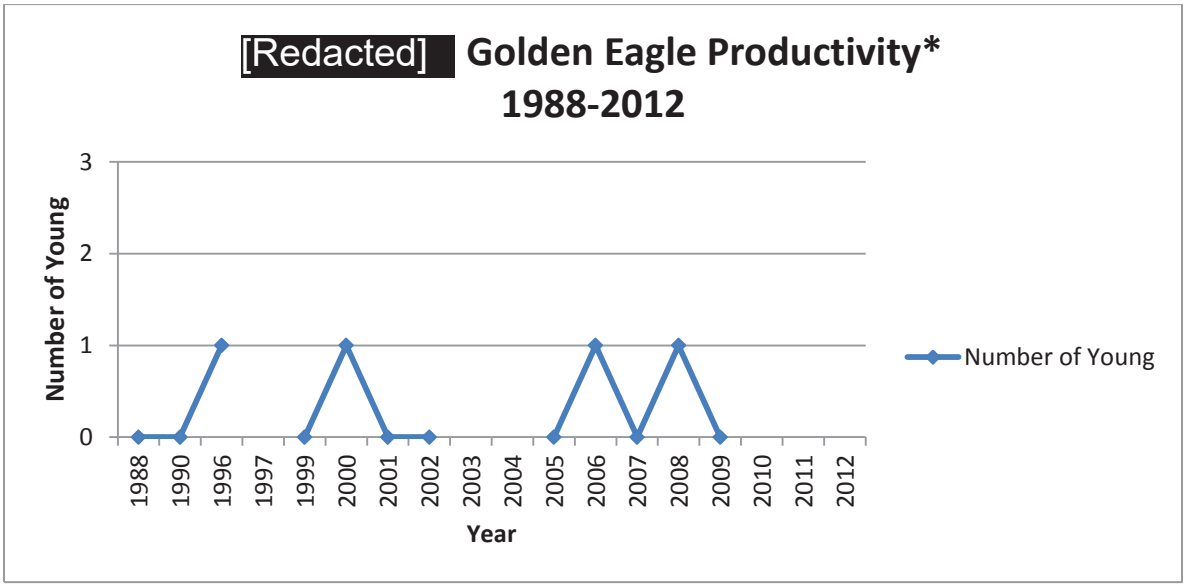
WRI collected data pertaining to the nesting golden eagles in [Redacted] from 1988 to 2012 via ground and/or aerial surveys (Table 8).

[Redacted]

[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted] [Redacte

[redacted]

Figure 11. [Redacted] Golden Eagle Productivity as a Function of Number of Young Produced Each Year (1988-2012).



* Data included only for confirmed numbers of young; gaps in data represent years for which number of young was unconfirmed.

Table 9. Frequency of Confirmed Number of Golden Eagle Young Produced at [Redacted] Golden Eagle Territory (1988-2012).

Number of Young in a Year	Frequency of Number of Young
0	7
1	4
Total	**11**

[Redacted]



DISCUSSION

Based on historical data and the results of WRI research in Southern California over the past 25 years, several golden eagle pairs have changed territory usage as human activity and development encroached on their established territories. Golden eagles are more likely than other grassland raptors to flush from their nests due to human disturbance (Holmes *et al.* 1993). After a single instance of disturbance by humans, golden eagles will return to their nests after people leave the area, but their return might be in vain if the weather is cool or rainy because the eggs will have been chilled or the young will have died from exposure or predation, often by ravens or red-tailed hawks. Given the incredible investment of time and energy that is required to successfully produce even one young, disturbance is a serious impact on the eagle population.

Nature also plays a role in impacting golden eagle populations. The [Redacted] pair raised young almost every year from 1990 to 1996 (Table 2). The [Redacted] pair raised young almost every year from 1994 to 1998 (Table 4). However, reproduction has been much lower for both territories since the ongoing drought that started in 1998. This is consistent with all other desert-associated golden eagle breeding pairs. Along the desert margins and within the desert habitat of San Diego County, territories have been established by [Redacted] of golden eagles. Since 1998, only one or two of these [Redacted] have successfully fledged young each year. This likely coincides with low jackrabbit populations, a dietary component that desert-nesting eagles depend upon for feeding young; golden eagle reproduction was documented as being limited by black-tailed jackrabbit scarcity during a 23-year study (Kochert *et al.* 2007).

The cumulative project area is located in a potential golden eagle flyway zone, especially for golden eagles in territories established in [Redacted]. Years of research shows that eagles move great distances in a very short period of time (Bittner *et al.* 2011). Results from WRI's satellite telemetry research documented [Redacted] individual golden eagles flying near all project areas with estimated flight paths within every project's 4,000-ft buffer zone (Figure 4). For example, golden eagles tracked via satellite telemetry with GPS locations on either side of Tierra del Sol Solar Farm LLC with altitudes recorded 1000 meters AGL indicate the golden eagles were in transit when in that area. Golden eagles equipped with telemetry are a small sample size of the local population; many other unmarked golden eagles could have traversed the area near or within project areas. Therefore we cannot say with certainty that eagles do not use the area around or within the project footprint although there are other nearby open areas in addition to those apportioned for Rugged LLC, LanEast LLC, LanWest LLC or Tierra del Sol Solar Farm LLC that are suitable for golden eagle foraging activity. For example, WRI has been observing adult and juvenile golden eagles foraging in the open valley and oak grassland savannah areas around [Redacted] California, for many years. In their current states, the project areas would not be conducive to good eagle foraging, however one fire would open it up and create a suitable golden eagle foraging habitat from 2 years to at least up to 8 years post fire. Work involving road access construction for solar panel placement might also open up hunting territory. These are

unknowns but need to be considered when evaluating the overall potential impacts to golden eagles.

Over the past three years, WRI has had biologists studying golden eagles in the area just north of the proposed solar projects. During these studies, several non-resident hatch-year golden eagles have been observed flying north from Mexico. Although the natal origin of each of those birds has not been confirmed, WRI has records of more than [Redacted] pairs of golden eagles in northern Baja California Norte, Mexico, and these transient eagles may be from breeding territories immediately south of the border.

Rugged LLC, LanEast LLC and LanWest Project Areas

Golden eagles at [Redacted] use land apportioned in the Rugged LLC and LanEast LLC Project Areas as part of their territories; these territorial boundary data are based on ground observations and 25 years of monitoring (Figure 1). The Rugged LLC, LanEast LLC and LanWest LLC project footprints are located at the [Redacted] [Redacted] golden eagle territories; therefore usage at the project site is expected to be less than that in their core nesting areas. However, eagles will fly several miles to acquire food or water; Tule Lake, located just east of the project footprint is an area that the [Redacted] golden eagles frequent to drink, bathe or hunt for waterfowl based on visual observations by WRI Senior Golden Eagle Biologist Dave Bittner and Randy West, BLM Biologist (pers. comm.).Golden eagles in the [Redacted] territories have not been equipped with satellite transmitter backpacks but a VHF transmitter was placed on one young golden eagle from the [Redacted] pair in 2007. This bird flew to Altamont Pass near Livermore, California, and was killed by collision with a wind turbine blade in the Altamont Wind Resource Center. During his first 6 months of life, he frequented the McCain Valley site on a number of occasions and always returned to [Redacted] to roost.

Tierra del Sol Solar Farm LLC Project Area

Although the core nesting area has been documented, the complete boundary of the [Redacted] golden eagle foraging territory is currently unknown. Based on best available information, an approximation is provided in Figure 1 from criteria that are documented in WRI's database of golden eagle information. WRI recommends that territory analyses be undertaken to determine the current status and activity within [Redacted] golden eagle territory. Options for territory analysis include marking via satellite telemetry or ground surveys during an entire breeding season to determine the territory size and shape.

[Redacted] Golden Eagle Territory

An extirpated golden eagle territory, [Redacted] edacted] the Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC project footprints (Figure 1). This void allows for subsumation of this territory by other golden eagles.

However, this territory has been considered extirpated since the 1980s. No resident golden eagles have been seen breeding in this territory for over 40 years. However, subsumation of habitat and extension of territories by neighboring golden eagles has been documented when a territory has become extirpated. Therefore, it would be possible for neighboring adult eagles to occasionally be seen in the old [Redacted] territory.

[Redacted] Golden Eagle Territory

The [Redacted] pair of golden eagles has a long history of occupancy. The nest site was known and documented as early as 1920, although annual data only became available when WRI resumed observations at a later date. WRI began banding and monitoring the annual nesting and reproduction of this pair starting in 1990. Due to vehicle access to the area from [Redacted], disturbance of the nesting pair has been occurring since monitoring began at the site in 1990. WRI worked with BLM during the 1990s in an effort to stop target shooting activities that occurred near the nesting cliffs. During this period, [Redacted] with signs that designated the area as a no shooting zone. Also at this time a young banded golden eagle was documented by WRI to have been shot in the nest prior to fledging.

[Redacted]

[Redacted] Golden Eagle Territory

[Redacted] golden eagle territory has been monitored consistently by WRI from 1990 to 2012. [Redacted]

[Redacted] Through empirical nest evidence, WRI senior biologists established that this territory has likely existed throughout at least the last century. The same pair of golden eagles was found to be nesting in a second canyon within the [Redacted] This second nesting canyon is part of the core nesting area and has obviously been active for many years prior to being discovered by our biologists. [Redac] have been identified and some show signs of usage over multiple years.

During ground surveys conducted by WRI in 2011, this pair of golden eagles has been documented foraging and flying out of [Redacted] near the area that is now the proposed Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC Project Sites (Figure 3). WRI is also monitoring this territory via motion-activated nest cameras installed in active and inactive nests, data that are currently in process of review (Photo 7 and Photo 8).

[Redacted] Golden Eagle Territory

In 2010, WRI located the core nesting area in a golden eagle territory [Redacted] with an active breeding pair of golden eagles who have successfully produced young in 2010 and 2012. Nest productivity was not checked by WRI in 2011. This pair of eagles has likely been established for some time prior to its discovery by WRI in 2010 due to [Redacted] WRI Senior Golden Eagle Biologists deduce that the primary hunting portion of the [Redacted] territory of these golden eagles is east of their core nesting area. [Redacted] The core nest area is within [Re][Redacted] west of the project. The hunting area has not been specifically confirmed so the use of the area by golden eagles near or within the Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC project footprints is not well defined by WRI Biologists. The exact territory boundary of this pair of golden eagles is currently unknown but WRI has provided our best estimate based on field observations (Figure 1).

[Redacted] Golden Eagle Territory

WRI worked with the [Redacted] to identify and define this golden eagle territory. WRI had identified the only known nest of the pair by 1990. Another nest site exists although the exact location has not been identified. Young golden eagles

have been seen on territory in years when the known nest site was not used. This type of observation suggests productivity and rearing of young is occurring at an unknown nest site. The territory covers [Redacted] limiting access to thoroughly search all locations within the territory for the active nest site.

[Redacted] [Redacted]
[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

ACKNOWLEDGEMENTS

Many individuals, including those egg collectors like Dixon, who contributed their egg collections and notes to research institutions, helped make this project a success. Historical data was kindly shared by the Western Museum of Vertebrate Zoology, Los Angeles, California, university researchers, and educators with an interest in eagles, egg collectors and their helpers still living and other WRI Golden Eagle studies. Contributors on record for our comprehensive report of Golden Eagle history from private collections include early egg collectors J. B. Dixon, A.M. Ingersoll, Harry L. Heaton, Raymond Quigley, E.E. SeChrist, Maurice Burns, N. K. and B.P. Carpenter, and Ed N. Harrison.

In addition to current WRI observers, the following observers and contributors deserve special recognition for their recent efforts:

John Oakley, John gave graciously of his time, field experience and money for over 40 years to help us and others learn about the San Diego County Golden Eagles

Dr. Tom Scott, Professor, UC Riverside. Tom conducted research on Golden Eagles in San Diego County from 1978-1982 for a Masters' Thesis. Tom has continued to help on this project and is on WRI's Board of Advisors.

We would also like to thank all the kind people who allowed us access to their property or provided keys to their locked gates so that we could drive instead of walk all those miles. Since "time" is our most valuable commodity during breeding season surveys, every saved step contributes to the success of a project like this one. The Bureau of Land Management, California State Parks, City of San Diego Water District, US Fish and Wildlife Refuges, Miramar Marine Air Station, Camp Pendleton, San Diego Parks and Recreation Department, and many private ranchers helped by allowing access to their lands for the surveys necessary to retrieve data for our comprehensive database.

Without the help of the above individuals and organizations, and at least 100 other volunteers, who for over 24 years have helped WRI gather the data necessary to present this report, we could not have presented so much information or as complete a report. To them we extend a very special "Thank you."

WRI, through its members and private donations contributed over $1,450,000 and thousands of volunteer hours, toward the gathering of the data used in this report. Without their contributions, this project could not have been undertaken.

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Appendix K

Conceptual Resource Management Plan for the Rugged Solar Farm Project

Off-Site Conceptual Resource Management Plan for the Rugged Solar Farm Project Prepared for the County of San Diego

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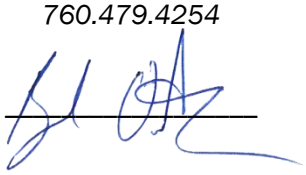

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1 Introduction

This off-site Conceptual Resource Management Plan (CRMP) has been prepared for the proposed Rugged Solar Farm Project (project) in accordance with the mitigation requirements identified in the draft Biological Resources Report for the Rugged Solar Farm Project (Dudek 2022). This document is consistent with the format and content requirements of the County of San Diego Report Format and Content Requirements: Conceptual Biological Resources Management Plan attachment (County of San Diego 2010a). This CRMP covers the management of the habitats to remain as part of the off-site biological open space within Soitec Mitigation Site, which occurs within the vicinity of the project site (Figure 1, Soitec Mitigation Site within Project Vicinity).

Approximately 18.92 acres of upland habitat (i.e., scrub, chaparral, and oak woodland communities) within the Soitec Mitigation Site and generally consistent with the assemblage of vegetation communities impacted by the proposed project will be included as the Rugged Solar off-site Open Space Preserve. This CRMP includes a description of management tasks for the off-site Open Space Preserve.

1.1 Purpose of Biological Resources Management Plan

The purpose of this CRMP is to provide guidance to ensure preservation and long-term management of the off-site Open Space Preserve. The objectives of this CRMP are as follows:

1. Guide management of vegetation communities/habitats, plant and animal species, cultural resources, and programs described herein to protect and, where appropriate, enhance biological and cultural values
2. Serve as a descriptive inventory of vegetation communities, habitats, and plant and animal species that occur on or use this property
3. Serve as a descriptive inventory of archaeological and/or historic resources that occur on this property
4. Establish the baseline conditions from which adaptive management will be determined and success will be measured
5. Provide an overview of the operation, maintenance, administrative, and personnel requirements to implement management goals and serve as a budget planning aid

The details of this CRMP may be modified when the Final Resource Management Plan (RMP) is prepared and submitted to the County of San Diego (County) for approval. The County will review the Final RMP to ensure that it meets the specified purpose and objectives.

A resource analysis is provided in the Biological Resources Technical Report for the proposed project (Dudek 2022). These reports include (1) a description of the existing biological resources on the project site, including vegetation communities and land covers, jurisdictional resources, plants, wildlife, and wildlife corridors; (2) a discussion of the potential impacts to biological resources that would result from development of the property and the biological significance of these impacts in the context of federal, state, and local laws and policies; and (3) recommended mitigation measures for reducing identified significant impacts to biological resources to less than significant. Mitigation recommendations follow federal, state, and local rules and regulations, including the California Environmental Quality Act (CEQA), the County's Guidelines for Determining Significance and Report Format and Content Requirements (County of San Diego 2010b), and the County's Resource Protection Ordinance (County of San Diego 2012).

1.1.1 Conditions and/or Mitigation Measures that Require an RMP

A CRMP is required for projects in San Diego County when a planned project proposes open space preservation that would significantly benefit from active management and/or monitoring of biological and/or cultural resources. A CRMP is always required when a project proposes open space totaling more than 50 acres or more, regardless of the presence or absence of sensitive species. In the case of the Rugged Solar off-site Open Space Preserve, only the first of these parameters apply.

The details of this CRMP may be modified when the Final RMP is prepared and submitted to the County for approval. The County will review the Final RMP to ensure that it meets the specified purpose and objectives.

The project would impact 370.51 acres, including 369.52 acres of upland vegetation communities and 0.99 acres of jurisdictional resources, all of which require mitigation. A total of 352.57 acres of mitigation is required, composed of 349.63 acres of non-jurisdictional habitat, 6.71 acres of oak protection zone, 0.58 acres of Resource Protection Ordinance (RPO) wetland buffer, and an additional 2.94 acres of jurisdictional resources. It should be noted that the oak protection zone and RPO wetland buffer acreages are an overlay and should not be included in the mitigation total. The project proposes to meet this mitigation obligation through the on-site preservation of 308.03 acres of non-jurisdictional habitat and 25.61 acres of jurisdictional resources within the Rugged Solar Open Space Preserve and through conservation of an additional 18.92 acres that would be provided off site within the Soitec Mitigation Site. Table 1 shows the impacts and required mitigation based on the County's mitigation ratios (County of San Diego 2010b, Table 5).

Table 1. Summary of Impacts and Mitigation for Vegetation Communities and Jurisdictional Areas

Habitat Types/Vegetation Communities	Existing Acreage	Total Impacts (Acres)	Mitigation Ratio	Mitigation Required (Acres)	On-Site Open Space (Acres)[2]	Mitigation Excess/Deficit (Acres)[3]
Upland Scrub and Chaparral						
Big Sagebrush Scrub*	75.93	49.68	2:1	99.36	26.14	73.22
Disturbed Big Sagebrush Scrub*	14.25	0.67	2:1	1.34	13.58	12.25
Montane Buckwheat Scrub*	102.39	57.83 (11.30[1])	1:1	46.53	44.56	1.97
Disturbed Montane Buckwheat Scrub*	9.64	6.78 (0.47[1])	1:1	6.31	2.86	3.44
Granitic Chamise Chaparral*	116.83	95.19	0.5:1	47.59	21.56	26.04
Granitic Northern Mixed Chaparral*	11.30	—	0.5:1	—	11.30	11.30
Red Shank Chaparral*	42.89	32.78	1:1	32.78	9.99	22.79
Scrub Oak Chaparral*	73.65	57.96	1:1	57.96	15.54	42.42
Disturbed Scrub Oak Chaparral*	0.54	—	1:1	—	0.54	0.54
Semi-Desert Chaparral*	102.55	45.07	1:1	45.07	57.49	12.42
Semi-Desert Chaparral – Rock*	12.39	0.11	1:1	0.11	12.28	12.17
Disturbed Semi-Desert Chaparral*	1.56	0.02	1:1	0.02	1.54	1.52
Subtotal[4]	*563.92*	*346.07*	—	*337.05*	*217.39*	*119.67*
Upland Woodland and Savannah						
Coast Live Oak Woodland*	9.38	0.54	3:1	1.61	8.84	7.23
Mixed Oak Woodland*	2.19	—	3:1	—	2.19	2.19
Subtotal[4]	*11.56*	*0.54*	—	*1.61*	*11.03*	*9.42*
Non-Native Communities and Land Covers						
Non-Native Grassland*	101.38	21.93	0.5:1	10.96	79.46	68.49
Non-Native Grassland: Broadleaf-Dominated*	0.16	—	0.5:1	—	0.16	0.16
Subtotal[4]	*101.54*	*21.93*	—	*10.96*	*79.62*	*68.65*
RWQCB/CDFW						
Non-Vegetated Channel[6]	1.64	0.01	1:1	0.01	1.63	1.61

Table 1. Summary of Impacts and Mitigation for Vegetation Communities and Jurisdictional Areas

Habitat Types/Vegetation Communities	Existing Acreage	Total Impacts (Acres)	Mitigation Ratio	Mitigation Required (Acres)	On-Site Open Space (Acres)[2]	Mitigation Excess/Deficit (Acres)[3]
RWQCB/CDFW/County of San Diego						
Alkali Meadow*	14.27	0.05	3:1	0.16	14.22	14.06
Disturbed Alkali Meadow*	3.48	0.16	3:1	0.48	3.32	2.83
Tamarisk Scrub*	0.79	–	3:1	–	0.79	0.79
Subtotal[4]	*18.54*	*0.21*	–	*0.64*	*18.32*	*17.68*
CDFW/County of San Diego						
Disturbed Alkali Meadow*	1.13	–	3:1	–	1.13	1.13
Disturbed Mulefat Scrub*	0.50	–	3:1	–	0.50	0.50
Tamarisk Scrub*	0.28	–	3:1	–	0.28	0.28
Subtotal[4]	1.91	–	–	–	1.91	1.91
CDFW Only						
Tamarisk Scrub*	4.51	0.76	3:1	2.28	3.75	1.47
Total Summary						
Total Vegetation Communities[4]	**677.03**	**369.52**	**–**	**348.96**	**308.03**	**41.60**
Oak Root Zone[3]	**26.22**	**2.24**	**3:1**	**6.71**	**23.99**	**17.28**
Jurisdictional Waters and Wetlands Total[2]	**26.60**	**0.99**	**–**	**2.94**	**25.61**	**22.68**
RPO Wetland Buffer[3]	**36.35**	**0.58**	**1:1**	**0.58**	**34.86**	**33.37**
	Total	**370.51**	**–**	**352.57**	**333.64**	**18.92**

RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife; RPO = Resource Protection Ordinance

* Considered special status by the County of San Diego (2010b).

1 The portion of the SDG&E construction yard that overlaps the development footprint has been removed from impact total due to previous mitigation through the environmental analysis prepared for the Sunrise Powerlink Project.

2 Open Space does not include impact neutral acreages, which will not be counted toward mitigation.

3 Mitigation for each vegetation community will be provided in-kind within the Open Space Preserve, where possible. If additional needs are still required, mitigation will be provided through out-of-kind, but biologically similar in function communities within the Open Space Preserve.

4 Totals may not add due to rounding.

5 Oak root zone and RPO Wetland Buffer are an overlay to the vegetation community layer and are not counted toward the total existing acreage.

6 Due to lack of evidence of surface hydrology and annual herbaceous species at greater than 10% cover, these non-vegetated channels do not conform to classifications in Oberbauer et al. 2008. Therefore, the mitigation ratio for impacts to these features is 1:1.

1.1.2 Agency Review and Coordination

This document requires collaboration with the County of San Diego and Rugged Solar LLC. The management of the open space, as detailed in this CRMP, does not interfere with mitigation and monitoring requirements mandated by the California Department of Fish and Wildlife (CDFW), U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers, Regional Water Quality Control Board, or by any other permitting agency.

1.2 Implementation

1.2.1 Resource Manager Qualifications and Responsible Parties

The Soitec Mitigation Site is currently owned by the following entity:

Empire II, LLC
12302 Exposition Boulevard
Los Angeles, California 90064

The following entity shall purchase a portion of the Soitec Mitigation Site to fulfill the project's mitigation requirements:

Rugged Solar, LLC
4250 Executive Square, Suite 770
San Diego, California 92037

A resource manager must be designated to be responsible for the long-term management and maintenance of the off-site Open Space Preserve. The resource manager shall be one of the following:

- Conservancy group
- Natural resource land manager (e.g., Center for Natural Lands Management, San Diego Habitat Conservancy)
- Natural resource consultant
- County Department of Park and Recreation (DPR)
- County Department of Public Works
- Federal or state wildlife agency (USFWS, CDFW)
- Federal land manager, such as the Bureau of Land Management

If the developer desires DPR to manage the land, the following criteria must be met:

- The land must be located inside a Pre-Approved Mitigation Area or proposed Pre-Approved Mitigation Area, or otherwise deemed acceptable by DPR.
- The land must allow for public access.
- The land must allow for passive recreational opportunities such as a trails system.

The resource manager shall be approved in writing by the Director of Planning & Development Services, the Director of Public Works, or the DPR. Any change in the designated resource manager shall also be approved in writing by the director of the County department that originally approved the resource manager. Appropriate qualifications for the resource manager include the following:

- Ability to carry out habitat monitoring or mitigation activities.
- Fiscal stability, including preparation of an operational budget (using an appropriate analysis technique) for the management of this CRMP.
- Have at least one staff member with a biological, ecological, or wildlife management degree from an accredited college or university or have a Memorandum of Understanding with a qualified person with such a degree.
- If cultural sites are present, have a cultural resource professional on staff or a Memorandum of Understanding with a cultural consultant.
- Experience with habitat and cultural resource management in Southern California.

Proposed Land Owner

Fee title of separate open space lots may be held by the land/resource manager or another appropriate landowner (e.g., land trust, conservancy, or public agency), depending on the particular circumstance.

Proposed Easement Holder

If the land is transferred in fee title to a non-governmental entity, a Biological Open Space Easement or Conservation Easement must be recorded. This easement should be dedicated to the County, but it may also include other appropriate agencies as a grantee or third-party beneficiary. If the title to the land is transferred to the County or other public conservation entity, no easement is necessary.

Restoration Entity

Management responsibility for the revegetation/restoration area will remain with the restoration entity until restoration/revegetation has been completed. Upon County/agency acceptance of the revegetated/restored area, management responsibility for the revegetation/restoration area will be transferred to the resource manager.

1.2.2 Financial Responsibility and Mechanism

Acceptable financial mechanisms include the following:

- **Special District.** Formation of a Lighting and Landscape District or Zone or Community Facility District as determined appropriate by the Director of the Department of Planning & Development Services, Director of Public Works, or DPR.
- **Endowment.** A one-time, non-wasting endowment that is tied to the property and intended to be used by the resource manager to implement the RMP.
- **Alternatives.** Other acceptable types of mechanisms, including annual fees to be approved by the Director of Planning & Development Services, Director of Public Works, or DPR.
- **Transfer.** Transfer of ownership to existing entity for management.

The project applicant is responsible for all RMP funding requirements, including direct funds to support the RMP start-up tasks, as well as an ongoing funding source for annual tasks, which is tied to the property to fund long-term RMP implementation. Start-up tasks include sign installation around the off-site Open Space Preserve (where appropriate) and database compilation. Long-term tasks involve the management and maintenance of the off-site Open Space Preserve in perpetuity, including habitat monitoring and mapping, exotic species control (if needed), and general monitoring and reporting. These habitat management tasks commence immediately upon initiation of long-term management by the resource manager.

1.2.3 Conceptual Cost Estimate

An initial Property Analysis Record (PAR) will be prepared based on the biological resource management tasks identified in this CRMP. Table 2 includes the biological resource management tasks that are planned for the off-site Open Space Preserve. A final PAR and cost estimate will be prepared for the off-site Open Space Preserve when a resource manager has been selected and approved by the County.

Table 2. Resource Management Tasks

Check if Applies	Tasks	Frequency (times per year)	Hours Required Per Year
Biological Tasks			
✔	Baseline inventory of resources (if original inventory is over 5 years old)	One time	TBD
✔	Update biological mapping	Once every 5 years	TBD (XX hours every 5 years)
✔	Update aerial photography	Once every 5 years	Based on PAR
✔	Removal of invasive species	Quarterly	TBD
✔	Predator control	TBD	TBD
✔	Habitat restoration/installation	Installation	
✔	Habitat restoration/monitoring and management	Monthly/Quarterly	
	Poaching control	—	—
✔	**Species Surveys (include a separate line for each species):** 1. TBD	1.Once every 5 years	TBD (XX hours every 5 years)
✔	Species Management **(include a separate line for each species):** 1. TBD	As needed	TBD
	Noise management, if required	—	—
	For lands within the MSCP and outside PAMA, consult Table 3-5 of the MSCP Plan for required biological resource monitoring	—	—
✔	Monitoring	Monthly	TBD
Operations, Maintenance, and Administration Tasks			
✔	Establish and maintain database and analysis of data	Annually	TBD
✔	Write and submit annual report to County	Annually	TBD
✔	Submit review fees for County review of annual report	Annually	Based on PAR

Table 2. Resource Management Tasks

Check if Applies	Tasks	Frequency (times per year)	Hours Required Per Year
✓	Review and, if necessary, update Management Plan	Every 5 years	TBD (XX hours every 5 years)
✓	Construct permanent signs	One Time	XX signs/TBD
✓	Replace signs	As needed, estimate 5 signs a year	TBD
✓	Construct permanent fencing/gates	One time	TBD
✓	Maintain permanent fencing/gates	As needed	TBD
✓	Remove trash and debris	Quarterly	TBD
✓	Coordinate with Department of Environmental Health (DEH) and Sheriff	Annually/As needed	—
✓	Maintain access road	TBD	TBD
	Install stormwater BMPs	—	—
	Maintain stormwater BMPs	—	—
	Restore built structure	—	—
	Maintain built structure	—	—
	Maintain regular office hours	—	—
	Inspect and service heavy equipment and vehicles	—	—
	Inspect and repair buildings, residences, and structures	—	—
	Inspect and maintain fuel tanks	—	—
✓	Coordinate with utility providers and easement holders (San Diego County Water Authority, SDG&E, and State of California)	Annually/As needed	TBD
✓	Manage hydrology (as required)	As-needed (budgeted every 10 years)	Based on PAR
✓	Coordinate with law enforcement and emergency services (e.g., fire)	Annually/As needed	Included in "Coordinate with utility providers and easement holders" task
	Coordinate with adjacent land managers	—	—
✓	Remove graffiti and repair vandalism	Quarterly	This task is combined with the "Monitoring visits" task
Public Use Tasks			
	Construct trail(s)	—	—
	Monitor, maintain/repair trails (unless a trail easement has been granted to the County)	—	—
✓	Control public access	Quarterly	TBD
✓	Provide ranger patrol	Monthly	This task is combined with the "Monitoring visits" task
	Manage fishing and/or hunting program (if one is allowed)	—	—
	Provide Neighbor Education – Community Partnership	—	—
	Coordinate volunteer services	—	—
✓	Provide emergency services access/response planning	Annually	Included in "Coordinate with utility providers and easement holders" task

Table 2. Resource Management Tasks

Check if Applies	Tasks	Frequency (times per year)	Hours Required Per Year
Fire Management Tasks			
✓	Coordinate with applicable fire agencies and access (gate keys, etc.) for these agencies	Annually/As needed	TBD
✓	Plan fire evacuation for public use areas	TBD	TBD
✓	Protect areas with high biological importance	Every 5 years	This will be covered with the adaptive management for special-status species.
✓	Hand-clear vegetation	TBD	TBD
✓	Mow vegetation	TBD	TBD
Post-Fire Tasks			
✓	Control post-fire erosion	Every 15 years	TBD/Assumes lump sum budget of $XX every 15 years
✓	Remove post-fire sediment	Every 15 years	Included with erosion task
✓	Reseed after fire	Every 15 years	TBD/Assumes that there will be a fire every 15 years that will require a response that may include XX acres of revegetation every 15 years ($XX lump sum)
✓	Replant after fire	Every 15 years	Included with reseed after fire

Notes: TBD = to be determined; MSCP = Multiple Species Conservation Program; PAMA = Pre-Approved Mitigation Area; BMP = best management practice; PAR = Property Analysis Record
Hours are estimated and may fluctuate based on on-the-ground conditions.

1.2.4 Reporting Requirements

An RMP Annual Report will be submitted to the County (and resource agencies, as applicable), along with the submittal fee to cover County staff review time. The annual report will discuss the previous year's management and monitoring activities, as well as management/monitoring activities anticipated in the upcoming year.

The annual report will provide a concise but complete summary of management and monitoring methods, identify any new management issues, and address the success or failure of management approaches (based on monitoring). The report will include a summary of changes from baseline or previous year conditions for species and habitats and address any monitoring and management limitations, including weather (e.g., drought). The report will also address any management (changes) resulting from previous monitoring results, and provide methods for measuring the success of adaptive management.

For new sensitive species observations or significant changes to previously reported species, the annual report will include copies of completed California Natural Diversity Database forms with evidence that they have been submitted to the state. The report will also include copies of invasive plant species forms submitted to the state or County.

A fee will be collected by Planning & Development Services upon submittal of the annual report for staff review time. The RMP may also be subject to an ongoing deposit account for staff to address management challenges as they arise. Deposit accounts, if applicable, are replenished to a defined level as necessary.

1.2.5 Resource Management Plan Agreement

The County will require an agreement with the applicant when an RMP is required. The RMP Agreement will be executed when the County accepts the Final RMP. The agreement will obligate the applicant to implement the RMP and provide a source of funding to pay the cost to implement the RMP in perpetuity. The agreement will also provide a mechanism for the funds to be transferred to the County if the resource manager fails to meet the goals of the RMP.

The agreement will specify that RMP funding or a funding mechanism be established prior to the following milestones:

- For permits, prior to the approval of any plan, issuance of any permit, and prior to occupancy or use of the premises in reliance of this permit.

This agreement will be provided once the County approves the final RMP.

1.3 Limitations and Constraints

Specific internal or external management constraints that may affect meeting RMP goals have not been identified for this CRMP. Examples of potential constraints that may be applicable include, but are not limited to, the following:

- Environmental factors, such as the influence of local water availability (either surface or subsurface waters), introduction or spread of non-native species, presence of threatened or endangered species, fire, flood, drought, erosion, air pollution, and hazardous waste materials.
- Legal, political, or social factors that influence or mandate certain types of management, special permitting requirements (e.g., U.S. Army Corps of Engineers, USFWS, archeological sites), County ordinances (e.g., nuisance abatement), Memoranda of Understanding, or other special agreements with private or public entities, water, timber, or mineral rights for the area.
- Financial factors, such as the source of funding to be used for operation and maintenance, personnel requirements, and overall management of the area (fund source may dictate management direction).

At this time, no legal, political, or financial constraints are known.

2 Property Description

2.1 Location

The 18.92-acre Rugged Solar off-site Open Space Preserve will occur within the Soitec Mitigation Site, which is located south of where State Route 94 merges with Interstate 8 and immediately north of the Mexico border within the unincorporated community of Boulevard, California (Figure 1). The approximate centroid of the Soitec Mitigation Site is 33°37'26" north latitude, 116˚17'19" west longitude on the U.S. Geological Survey 7.5-minute Live Oaks Springs and Tierra Del Sol quadrangles. The Assessor's Parcel Numbers on site are 659-010-15-00, 659-020-01-00, 659-090-04-00, 659-080-05-00, 659-140-01-00, 659-020-05-00, 659-080-04-00, 659-090-01-00, 659-080-01-00, 659-090-05-00, 659-140-02-00, 659-090-06-00, 659-020-02-00, 659-020-06-00, 659-090-07-00, 659-080-02-00, 659-130-03-00, 659-090-10-00, 659-080-03-00, 659-020-23-00, 659-150-02-00, 659-080-06-00, 659-020-07-00, and 659-070-16-00.

Based on vegetation mapping, elevation ranges, soils, and proximity to the proposed project site, as described in the sections below, it has been determined that the Soitec Mitigation Site provides suitable habitat to compensate for the loss of vegetation communities and special-status plant and wildlife species within the proposed Rugged Solar Project site.

2.2 Environmental Setting

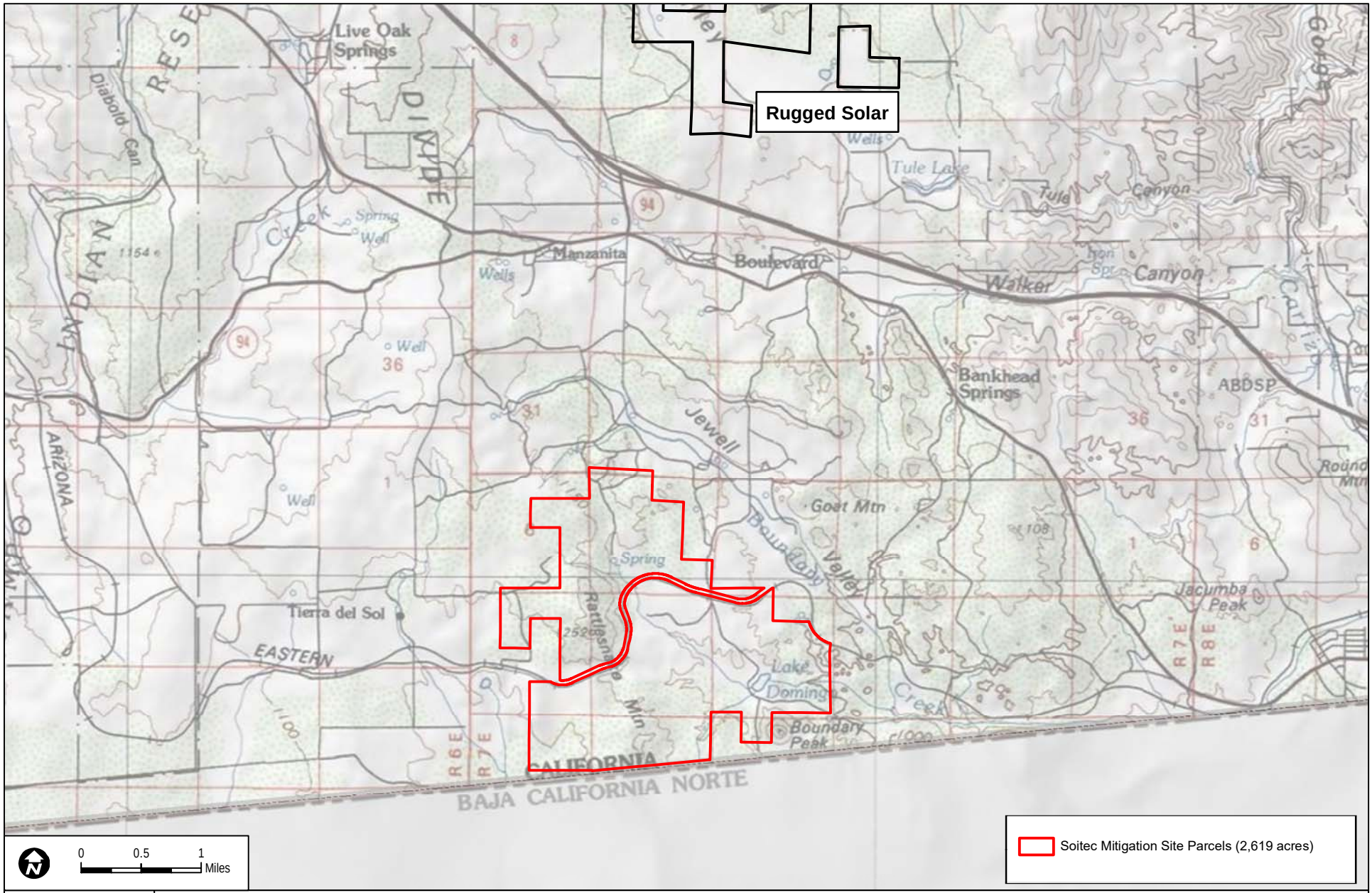
The Soitec Mitigation Site is located within the future East County Multiple Species Conservation Program (MSCP) Plan Area, which is subject to evaluation of consistency with the East County MSCP Planning Agreement (County of San Diego 2008). Although the Soitec Mitigation Site will be analyzed in accordance with the San Diego County General Plan, the East County MSCP has not yet been adopted; therefore, the Soitec Mitigation Site will not be analyzed under the East County MSCP.

The following is summarized from the Evaluation of Biological Resources for the Soitec Mitigation Site (Dudek 2014). The Soitec Mitigation Site is situated between approximately 3,240 to 4,080 feet above mean sea level in elevation. The mitigation site is generally within the Peninsular Range in a transitional area between the coast and the desert. It is in a dry climate with average temperatures near the community of Campo ranging from approximately 34–94°F. This community generally receives an average rainfall of less than 15 inches per year (Western Regional Climate Center 2013). According to the U.S. Department of Agriculture (USDA 2019), there are four soil types, composed of six soils series, occurring within the Soitec Mitigation Site: acid igneous rock; La Posta loamy coarse sand, 5% to 30% slopes, eroded; La Posta rocky loamy coarse sand, 5% to 30% slopes, eroded; Mottsville loamy coarse sand, 2% to 9% slopes; Tollhouse rocky, coarse sandy loam, 30–65% slopes; and Tollhouse rocky, coarse sandy loam, 5% to 30% slopes, eroded.

2.3 Land Use

As summarized in Dudek 2014, land use on the Soitec Mitigation Site, and in the surrounding areas, is a mixture of open space and rural residential areas. A portion of the Soitec Mitigation Site borders Mexico and is separated by the border fence. The site is bisected by railroad tracks that are no longer in use. The western portion of the mitigation lands, just north of the train tracks, contains a large rock outcrop that is the highest peak of the property

and contains limited vegetation. The remaining portions of the Soitec Mitigation Site contain gently rolling hills with several low points that indicate signs of water flow (i.e., potential drainages). Several of the larger potential drainages have artificial impoundments (e.g., berms and basins). During the site visits conducted in 2013, two areas contained water: a small area located within the center of the site, just south of the railroad tracks, and Lake Domingo, which is located in the southeastern corner of the Soitec Mitigation Site.



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SOURCE: USGS 7.5' Live Oak Springs and Tierra del Sol Quadrangles

FIGURE 1

Soitec Mitigation Site within Project Vicinity

OFF-SITE CONCEPTUAL RESOURCE MANAGEMENT PLAN FOR THE RUGGED SOLAR FARM PROJECT

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3 Biological Resources Description

This section is based on the biological data collected for Soitec Mitigation Site, as described in the Evaluation of Biological Resources for the Soitec Mitigation Site (Dudek 2014). This section discusses the entire Soitec Mitigation Site as a whole and not specifically the 18.92-acre portion that would fulfil the off-site mitigation requirement for the proposed project.

3.1 Vegetation Communities/Habitat Types

Twenty vegetation communities or land covers were mapped by Dudek within the Soitec Mitigation Site. Native vegetation communities on site include big sagebrush scrub, granitic chamise chaparral, montane buckwheat scrub, red shank chaparral (including disturbed), red shank chaparral-rock, red shank chaparral/montane buckwheat scrub, granitic northern mixed chaparral, granitic northern mixed chaparral-rock, granitic northern mixed chaparral/montane buckwheat scrub, scrub oak chaparral, coast live oak woodland, southern coast live oak riparian forest, riparian habitat, and alkali meadow. One non-native vegetation community, non-native grassland, and four land cover types (non-vegetated areas), open water, rock outcrops disturbed land, and urban/developed also occur within the mitigation site. These vegetation communities and land cover types are described below, their acreages are presented in Table 3, and their spatial distributions are presented in Figure 2, Biological Resources at the Soitec Mitigation Site.

Table 3. Vegetation Communities and Land Cover Types

Habitat Types/Vegetation Communities	Code[1]	Existing Acreage Within Soitec Mitigation Site
Upland Scrub and Chaparral		
Big Sagebrush Scrub*	35210	46.2
Granitic Chamise Chaparral*	37210	165.2
Montane Buckwheat Scrub*	37K00	69.6
Red Shank Chaparral*	37300	932.8
Red Shank Chaparral-disturbed*	37300	1.6
Red Shank Chaparral-Rock*	37300	4.9
Red Shank Chaparral/Montane Buckwheat Scrub*	37300/37K00	8.9
Granitic Northern Mixed Chaparral*	37131	984.0
Granitic Northern Mixed Chaparral-Rock*	37131	244.1
Granitic Northern Mixed Chaparral/Montane Buckwheat Scrub*	37131/37K00	6.0
Scrub Oak Chaparral*	37900	0.3
	Subtotal	*2,463.6*
Upland Woodland and Savannah		
Coast Live Oak Woodland*	71160	17.1
Riparian and Bottomland Habitat		
Southern Coast Live Oak Riparian Forest*	61310	6.8
Riparian Habitat*	63000	9.8
	Subtotal	*16.6*

Table 3. Vegetation Communities and Land Cover Types

Habitat Types/Vegetation Communities	Code[1]	Existing Acreage Within Soitec Mitigation Site
Riparian Herb		
Alkali Meadow*	45300	2.2
Unvegetated Areas		
Open Water	64100	*9.9*
Rock Outcrops	N/A	*4.0*
	Subtotal	*13.9*
Non-Native Communities and Land Covers		
Non-Native Grassland	42200	50.6
Disturbed Land	11300	35.8
Urban/Developed	12000	0.066
	Subtotal	*86.5*
	Total	**2,601.2**

Notes: Totals may not sum due to rounding. N/A = not appliable, these non-vegetated channels do not conform to classifications in Oberbauer et al. 2008.

[1] Holland (1986) as modified by Oberbauer et al. (2008).

* Considered special-status by the County of San Diego (2010b).

3.1.1 Big Sagebrush Scrub (35210)

Big sagebrush scrub is characterized as being a moderately open shrubland consisting predominantly (greater than 50% absolute cover) of big sagebrush (*Artemisia tridentata* ssp. *tridentata*). It often occurs in or adjacent to the floodplain in the sandy transition to chaparral (Oberbauer et al. 2008). This scrub community is relatively common on site, although it occurs in smaller, distinct patches. Some areas mapped as big sagebrush scrub include California buckwheat (*Eriogonum fasciculatum* var. *polifolium*), but at less than 15% absolute cover.

Big sagebrush scrub (including disturbed) is considered special status based on mitigation recommendations of the County (County of San Diego 2010a).

3.1.2 Granitic Chamise Chaparral (37210)

Chamise chaparral is strongly dominated by chamise (*Adenostoma fasciculatum*) and is adapted to repeated fire by stump sprouting. Granitic chamise chaparral is a 1- to 3-meter tall community and consists of granitic soil. Associated species provide nominal cover to the vegetation community (Oberbauer et al. 2008). On site, chamise was observed at approximately 50%–75% absolute cover, with a sparse herb layer of annual forbs comprising 5%–15% absolute cover. Other woody shrubs include manzanita and cupleaf ceanothus (*Ceanothus perplexans*), which collectively comprise less than 15% absolute cover.

Granitic chamise chaparral is considered special status based on mitigation recommendations of the County (County of San Diego 2010b).

Soitec Mitigation Site Parcels (2,619 acres)

Special-Status Plant Observations

- Jacumba milk-vetch
- Tacate tarplant
- desert beauty
- sticky geraea

Vegetation Communities

- AM, Alkali Meadow
- BSS, Big Sagebrush Scrub
- CC, Granitic Chamise Chaparral
- CLO/RF, Coast Love Oak Woodland/Riparian Forest
- CLOW, Coast Live Oak Woodland
- DEV, Developed - Train Tracks
- DL, Disturbed Land
- MBS, Montane Buckwheat Scrub
- NMX, Northern Mixed Chaparral
- NMX-r, Northern Mixed Chaparral/Rock
- NMX/MBS, Northern Mixed Chaparral/Montane Buckwheat
- NNG, Non-native Grassland
- OW, Open Water
- RH, Riparian Habitat
- ROCK, Rock
- RSC, Red Shank Chaparral
- RSC/MBS, Red Shank Chaparral/Montane Buckwheat Scrub
- RSC/ROCK, Red Shank Chaparral/Rock
- SOC, Scrub Oak Chaparral
- dRSC, disturbed Red Shank Chaparral

SOURCE: SANGIS 2022; Bing Maps

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0 1,000 2,000 Feet

FIGURE 2

Biological Resources at the Soitec Mitigation Site

Off-site Conceptual Resource Management Plan for the Rugged Solar Farm Project

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3.1.3 Montane Buckwheat Scrub (37K00)

Montane buckwheat scrub is characterized by a nearly monoculture community of buckwheat (*Eriogonum* sp.) species found at higher elevations in San Diego County. Characteristic species in this community can include several varieties of California buckwheat (*Eriogonum fasciculatum* var. *polifolium*) and bastard sage (*Eriogonum wrightii* var *membranaceum*). Montane buckwheat usually occurs on sandy soils near near mountane meadows (Oberbauer et al. 2008). On site, areas mapped as montane buckwheat scrub are almost exclusively dominated by Eastern Mojave buckwheat (*Eriogonum fasciculatum* var. *polifolium*), which occurs at approximately 25%–50% absolute cover, and has a well-developed herb layer composed of annual brome grasses and herbs at approximately 25%–50% absolute cover.

Montane buckwheat scrub is not included in the Habitat Mitigation Ratios in the County Significance Guidelines (County of San Diego 2010b, Table 5); however, it was originally classified together with California buckwheat scrub, which is considered special status based on mitigation recommendations of the County (County of San Diego 2010b).

3.1.4 Red Shank Chaparral (37300)

Red shank chaparral is composed of nearly pure stands of red shank (*Adenostoma sparsifolium*) (at least 50% absolute cover). Red shank chaparral is similar to chamise chaparral but typically taller (2 to 4 meters) and more open. Red shank flowers mid-summer when compared with chamise, which flowers in spring. In the winter, at higher elevations redshank is likely dormant. On site, red shank chaparral intergrades with chamise chaparral (37200) and scrub oak chaparral (37900). Red shank comprises approximately 50%—75% absolute cover, with chamise occasionally present at less than 15% absolute cover. Like chamise chaparral, the herb layer in red shank chaparral is sparse. This vegetation community was found throughout the site. Red shank chaparral – rock was mapped in areas that supported a high percentage of large boulders within the vegetation. Areas mapped as disturbed red shank chaparral were located along a dirt access road and contained fewer shrubs and more annual grasses than pure stands of red shank chaparral.

Red shank chaparral is considered special status based on mitigation recommendations of the County (County of San Diego 2010b).

3.1.5 Montane Buckwheat Scrub/ Red Shank Chaparral/ (37K00/37300)

Montane buckwheat scrub/red shank chaparral is not described by Holland (1986) or Oberbauer et al. (2008). This community is co-dominated by Eastern Mojave buckwheat and red shank. On site, areas mapped as montane buckwheat scrub/red shank chaparral are dominated by buckwheat and red shank, but also include species such as chamise and chaparral yucca (*Hesperoyucca whipplei*).

Montane buckwheat and red shank chaparral are considered special status based on mitigation recommendations of the County (County of San Diego 2010b).

3.1.6 Granitic Northern Mixed Chaparral (37121)

Granitic northern mixed chaparral consists of broad-leaved sclerophyll shrubs that range from 2 to 4 meters (7 to 13 feet) in height and that form dense stands dominated by chamise, red shank, manzanita (*Arctostaphylos* spp.), and ceanothus (*Ceanothus* spp.). This community occurs inland of southern mixed chaparral in San Diego County and is indicated by cupleaf ceanothus (*Ceanothus perplexans*) and other codominants (chamise, scrub oak [*Quercus berberidifolia*], and other oak hybrids). Granitic northern mixed chaparral is underlain by granitic soils (Figure 2).

Granitic northern mixed chaparral is considered special status based on mitigation recommendations of the County (County of San Diego 2010b).

3.1.7 Granitic Northern Mixed Chaparral/Montane Buckwheat Scrub (37121)

Granitic northern mixed chaparral/montane buckwheat scrub is not described by Holland (1986) or Oberbauer et al. (2008). This community is co-dominated by broad-leaved sclerophyll shrubs, such as chamise, redshank, ceanothus, and Eastern Mojave buckwheat.

Granitic northern mixed chaparral/montane buckwheat is considered special status based on mitigation recommendations of the County (County of San Diego 2010b).

3.1.8 Scrub Oak Chaparral (37900)

Scrub oak chaparral is a dense, evergreen chaparral up to 20 feet tall. Scrub oak chaparral is described as being dominated by scrub oak and considerable numbers of mountain mahogany (*Cercocarpus betuloides*) (Oberbauer et al. 2008). On site, scrub oak chaparral is dominated by scrub oak at between 50%–75% absolute cover. Red shank is commonly associated with this vegetation community, but occurs at less than 15% absolute cover. The herb layer is similar to that of chamise and red shank chaparral communities.

Scrub oak chaparral is considered special status based on mitigation recommendations of the County (County of San Diego 2010b).

3.1.9 Coast Live Oak Woodland (71160)

Coast live oak woodland is an evergreen woodland dominated by interior coast live oak (*Quercus agrifolia* var. *oxyadenia*). The understory is typically made up of grassland, scrub, or chaparral species, and the community often intergrades with coastal sage scrub or mixed chaparral (Oberbauer et al. 2008). On site, coast live oak woodland is an open woodland, with generally less than 40% cover of coast live oak. The understory is dominated by non-native grasses and annual forbs.

Coast live oak woodland is considered special status based on mitigation recommendations of the County (County of San Diego 2010b).

3.1.10 Southern Coast Live Oak Riparian Forest (61310)

Southern coast live oak riparian forest is a dense riparian forest dominated by evergreen sclerophyllous trees (oaks) with a closed, or nearly closed, canopy. Within the mitigation site, this vegetation community is dominated by coast live oaks and riparian species, such as willows, mulefat (*Baccharis salicifolia*), and tamarisk (*Tamarix* spp.), and is associated with a channel that drains into Domingo Lake.

Southern coast live oak riparian forest is considered special status based on mitigation recommendations of the County (County of San Diego 2010b).

3.1.11 Riparian Habitat (6000)

Areas mapped as riparian habitat encompass all areas that have a potential to contain riparian species and are associated with open water or stream channels. Willow species (*Salix* sp.) were observed in some of these areas; however, due to the timing of the survey, willow species and tamarisk were not easily distinguishable.

Riparian habitat is considered special status based on mitigation recommendations of the County (County of San Diego 2010b).

3.1.12 Alkali Meadow (45300)

Alkali meadow is a low-growing, dense or open association of grasses, sedges, and rushes on moist, alkaline soils. This community may intergrade with marsh communities in wetter settings or Great Basin scrub or non-native grassland in drier settings. On site, alkali meadow includes Mexican rush (*Juncus mexicanus*), salt grass (*Distichlis spicata*), Mediterranean barley *(Hordeum marinum* ssp. *gussoneanum),* alkali sacaton *(Sporobolis airoides*), and seaside heliotrope (*Heliotropium curassavicum*).

Alkali meadow (including disturbed) is typically mapped under the jurisdiction of the U.S. Army Corps of Engineers, the Regional Water Quality Control Board, and CDFW. Alkali meadow is considered special status by the County (County of San Diego 2010b) based in its qualification as an RPO wetland and the County's recommended mitigation ratio for this vegetation community.

3.1.13 Open Water (64100)

Typically, open water is considered an RPO wetland and jurisdictional waters (County of San Diego 2010b). The RPO provides an exemption for areas that have wetland attributes solely due to human-built structures (e.g., culverts, ditches, road crossings, or agricultural ponds), provided that they (i) have negligible biological function or value as wetlands; (ii) are small and geographically isolated from other wetland systems; (iii) are not being a vernal pool; and, (iv) do not have substantial or locally important populations of wetland dependent sensitive species (County of San Diego 2012). There are two areas on the mitigation site that were mapped as open water: a small area located within the center of the site, just south of the railroad tracks, and Lake Domingo, which is located in the southeastern corner of the site. These open water areas were formed along the downstream end of dammed stream channels, creating reservoirs and/or detention basins, which are typically dry most of the year.

3.1.14 Rock Outcrops

Although not a vegetation community according to Oberbauer et al. (2008) and not considered special status by the County (County of San Diego 2010b), rock outcrops can provide suitable breeding and shelter habitat for plant and wildlife species. One large rock outcrop was mapped within the Soitec Mitigation Site. This area is located in the western part of the site, just north of the railroad tracks.

3.1.15 Non-Native Grassland (42220)

Non-native grasslands include a dense to sparse cover of annual grasses that die during the summer months, persisting as seeds. Often non-native grassland is associated with numerous species of showy-flowered annual forbs especially in years with favorable rainfall. Typically, in San Diego County the presence of annual grasses like wild oat (*Avena* spp.) and annual brome (*Bromus* spp.) are typical of the non-native grassland community. Stork's bill (*Erodium* spp.) and mustards (*Brassica* spp.) are also common indicators of non-native grasslands. Germination in this community follows the onset of late fall rains (Oberbauer et al. 2008). Some of the areas mapped as non-native grassland within the Soitec Mitigation Site may actually contain alkali meadow species. These areas will need to be refined during future surveys.

Because non-native grassland can provide habitat for a variety of species, the County requires mitigation for impacts to it; therefore, it is considered special status by the County (County of San Diego 2010b).

3.1.16 Disturbed Habitat (11300)

Disturbed land refers to areas that have been permanently altered by previous human activity that has eliminated all future biological value of the land for most species. The native or naturalized vegetation is no longer present, and the land lacks habitat value for sensitive wildlife, including potential raptor foraging. Disturbed habitat on site consists of unpaved roads and some areas immediately adjacent to dirt roads. These roads are graded periodically, and no native vegetation remains.

Disturbed habitat is not considered special status by the County (County of San Diego 2010b).

3.1.17 Urban/Developed (12000)

Urban/developed land refers to areas that have been constructed upon or disturbed so severely that native vegetation is no longer supported. Developed land includes areas with permanent or semi-permanent structures, pavement or hardscape, landscaped areas, and areas with a large amount of debris or other materials (Oberbauer et al. 2008). Urban/developed areas in the mitigation lands are associated with historically used train tracks that bisect the mitigation lands.

Urban/developed is not considered special status by the County (County of San Diego 2010b).

3.2 Jurisdictional Wetlands and Waters

A formal jurisdictional delineation has not been conducted at the Soitec Mitigation Site. Potential jurisdictional areas would be determined for the off-site Open Space Preserve once the site within the Soitec Mitigation Site is selected.

3.3 Special-Status Plant Species

Four special-status plant species, Jacumba milkvetch (*Astragalus douglasii* var. *perstrictus*), Tecate tarplant (*Deinandra floribunda*), desert beauty (*Linanthus bellus*), and sticky geraea (*Geraea viscida*), were detected within the overall Soitec Mitigation Site. These species are described below and their locations within the overall Soitec Mitigation Site are shown in Figure 2. Special-status plant species occurring within the Rugged Solar off-site Open Space Preserve would be determined once a particular site is selected.

Jacumba Milk-Vetch *(Astragalus douglasii* var. *perstrictus)*, List A

Jacumba milk-vetch is a California Rare Plant Rank (CRPR) List 1B.2 (CNPS 2019) and County List A species (County of San Diego 2010a). This perennial herb in the pea or bean family (Fabaceae) blooms from April through June. It occurs in chaparral, cismontane woodland, pinyon and juniper woodland, riparian scrub, valley and foothill grassland, and rocky communities at elevations of 2,953 to 4,495 feet (CNPS 2019). Within the Soitec Mitigation Site, there are approximately 225–672 occurrences, concentrated in the north-central, southeast, and southwest portions of the site (Figure 2).

Tecate Tarplant (*Deinandra floribunda*), List A

Tecate tarplant is a CRPR List 1B.2 (CNPS 2019) and a County List A species (County of San Diego 2010a). A member of the sunflower (Asteraceae) family, this species blooms from August through October in chaparral and coastal scrub habitats. Tecate tarplant is an annual herb that occurs at elevations of 230 to 4,003 feet (CNPS 20192). On the Soitec Mitigation Site approximately 2,455–8,285 occurrences of Tecate tarplant have been identified (Figure 2). Most occurrences within the Soitec Mitigation Site were documented within sandy drainages and roadsides.

Sticky Geraea (*Geraea viscida*), List B

Sticky geraea is a CRPR List 2B.3 (CNPS 2019) and a County List B species (County of San Diego 2010a). A member of the sunflower (Asteraceae) family, this perennial herb blooms from May through June in chaparral habitats and occurs at elevations between 1,476 to and 5,557 feet (CNPS 2019). Approximately 356–1,333 individuals were observed during the June 2013 survey pass (Figure 2). Most of the observations were in northern mixed chaparral or redshank chaparral in the northern area of the Soitec Mitigation Site, and in areas southeast of the railroad tracks.

Desert Beauty (*Linanthus bellus*), List B

Desert beauty is a CRPR List 2B.1 (CNPS 2019) and a County List B species (County of San Diego 2010a). A member of the phlox (*Polemoniaceae*) family, this annual herb blooms from April through May in chaparral habitats. This species typically occurs at elevations of 3,281 to 5,493 feet (CNPS 2019). On the Soitec Mitigation Site, approximately 811–2,790 occurrences of desert beauty have been identified (Figure 2). Most occurrences were documented in the north-central portion of the Soitec Mitigation Site within open sandy areas in red shank chaparral. Few occurrences were documented within granitic chamise chaparral, as well.

3.4 Special-Status Wildlife Species

Based on the Evaluation of Biological Resources for the Soitec Mitigation Site (Dudek 2014), the overall Soitec Mitigation Site provides suitable habitat for the same wildlife species known to occur with the Rugged Solar Project

site. Special-status wildlife will generally use all of the habitats described in Section 3.1 indiscriminately, provided there is suitable cover, habitat connectivity, and water and food resources. Special-status wildlife species occurring within the Rugged Solar off-site Open Space Preserve would be determined once a particular site is selected.

3.5 Habitat Connectivity and Wildlife Corridors

The entire Soitec Mitigation Site currently functions as a block of habitat. The off-site Open Space Preserve within the Soitec Mitigation Site will not be fenced, which will allow for a variety of wildlife movement opportunities throughout the entire mitigation lands and through the region. Additionally, wildlife species will benefit from the consolidated nature of the proposed mitigation lands (i.e., the off-site Open Space Preserve would occur within a larger preserve area) through reduced edge effects and enhanced regional connectivity.

3.6 Overall Biological Value

As described in the sections above, the Soitec Mitigation Site supports a variety of native vegetation communities and special-status plants and wildlife species, and would allow for wildlife movement. The off-site Open Space Preserve would be adjacent to contiguous areas of undeveloped habitat within the overall Soitec Mitigation Site, providing habitat connectivity. This design helps establish large blocks of habitat to reduce edge effects and to connect to adjacent open space areas; provide habitat connectivity extending from the Mexico border, which could function as a wildlife corridor and habitat linkage; and conserve a variety of upland and riparian habitats for use by multiple plant and wildlife species.

3.7 Enhancement and Restoration Opportunities

Enhancement and restoration opportunities within the off-site Open Space Preserve would be determined once a particular site within the overall Soitec Mitigation Site is selected.

4 Biological Resource Management

This CRMP identifies activities to manage and preserve the sensitive biological resources within the off-site Open Space Preserve. The main goal is to preserve the native vegetation communities and the plant and wildlife species they support.

4.1 Management Goals

Goal: To preserve and manage lands to the benefit of the flora, fauna, and native ecosystem functions reflected in the natural communities occurring within the off-site Open Space Preserve.

A baseline inventory was collected for the overall Soitec Mitigation Site in 2013 (Dudek 2014). Once a site within the Soitec Mitigation Site is determined for the off-site Open Space Preserve, a baseline inventory would be conducted. Ongoing species and habitat monitoring will occur in accordance with County and regional standards. These standards typically include vegetation mapping every 5 years. Habitat maintenance may be required if vegetation mapping indicates habitat conversion that is detrimental to the preservation of native ecosystem functions. Specific management tasks are described in Section 4.2, Biological Management Tasks.

Goal 2: To manage land for the benefit of sensitive species, multiple species conservation plan (MSCP)–covered species, and existing natural communities occurring within the CRMP land.

An assessment of threats to special-status species, proposed East County MSCP covered species, and native communities will be developed, and specific measures, such as predator control, invasive species removals, and management of public use, will be implemented to manage lands to the benefit of these biological resources. Effectiveness monitoring will be implemented to determine the effects of management activities on species and habitats of concern.

Goal 3: To reduce, control, and, where feasible, eradicate non-native, invasive flora and/or fauna known to be detrimental to native species and/or the local ecosystem.

Specific locations of non-native, invasive plants or animals will be identified and targeted for eradication as needed. This will be accomplished prior to development of the PAR and the final RMP. Mapping and eradication efforts will be focused on perennial, non-native species that have a rating of moderate or high by California Invasive Plant Council (Cal-IPC 2022).

4.2 Biological Management Tasks

The biological management tasks associated with the off-site Open Space Preserve are outlined in Table 2 of this report. This section includes a description of each of the tasks required for management of the open space.

4.2.1 Update Biological Mapping and Aerial Photography

Every 5 years, the resource manager will update the vegetation map on a current aerial photograph of the site. This task includes mapping vegetation over the entire off-site Open Space Preserve and updating the aerial photography.

4.2.2 Removal of Invasive Species

The resource manager will map occurrences of perennial, non-native species that have a rating of moderate or high by the California Invasive Plant Council. Weed control measures will be implemented, as necessary, to prevent expansion of existing or establishment of new exotic species in the off-site Open Space Preserve.

If the use of herbicide is deemed necessary, application will be minimal and may only occur in compliance with all federal and state laws. Use of chemical herbicides should be determined in coordination with the County Department of Environmental Health (DEH). All herbicide use will be applied by backpack sprayers or stump painting directly on target weeds and will involve short-duration, biodegradable chemicals. This task includes quarterly removal of invasive species.

4.2.3 Predator/Pest Control

The resource manager will evaluate the need for predator/pest control and identify appropriate measures (e.g., pesticides, traps) to reduce/eliminate the problem. In general, predator control will be conducted as-needed based on adaptive measures for special-status species (described in Section 4.2.5, Species Management). If significant predator/pest eradication actions are determined to be necessary, the resource manager will notify the appropriate regulatory oversight agencies. This task includes annual evaluation and set up of traps, if necessary, for feral cats and/or other predators that are determined by the resource manager to have a detrimental effect on managed species.

4.2.4 Species Surveys

Several special-status species were documented throughout the Soitec Mitigation Site. Special-status plant populations documented include Jacumba milkvetch, Tecate tarplant, desert beauty, and sticky geraea. Numerous special-status wildlife species were documented to have high potential to occur within the Soitec Mitigation Site (Dudek 2014). Protective measures to monitor and manage these species will be implemented, as necessary, to help ensure the persistence of preserved biological resources in the open space. The following surveys will be conducted every 5 years for special-status plant species:

- **Rare plant surveys.** Rare plant surveys will be conducted within open space, with emphasis on surveying the known locations of rare plants. Additional locations of plants that are state- or federally listed, have a CRPR 1B and 2, and/or are County lists A–D will be recorded. All special-status species locations will be mapped and the population estimated.

4.2.5 Species Management

Based on the species surveys described earlier, management tasks for the rare plant populations and special-status wildlife species may be required. This includes weed control and predator control. Predator control is not anticipated at this time; however, if predators, such as feral cats, raccoons, or other species, cause nest failure or other detrimental effects on wildlife species, trapping or other predator control methods may be used.

4.2.6 Monitoring

The County requires monthly monitoring of the off-site Open Space Preserve. The resource manager will visit the off-site Open Space Preserve each month to monitor the overall conditions of the off-site Open Space Preserve and determine if any management tasks are required.

4.3 Adaptive Management

The resource manager is responsible for interpreting the results of site monitoring to determine the ongoing success of the RMP. If it is necessary to modify the plan between regularly scheduled updates, plan changes will be submitted to the County and wildlife agencies for approval, as required.

4.4 Operations, Maintenance, and Administrative Tasks

Table 2 describes a list of tasks, such as vegetation mapping and regular visits, to be conducted by the resource manager. Regular visits will occur monthly and annually.

4.4.1 Goals

Goal: To manage, maintain, and administer the proposed project in an ongoing setting to ensure the integrity of the preserved Open Space Preserve.

4.4.2 Tasks

The general operations, maintenance, and administrative tasks to be conducted by the resource manager will include the tasks provided below.

4.4.2.1 Annual Monitoring Reports

An annual report will be submitted to the County that will summarize the overall condition of vegetation communities and sensitive species in the off-site Open Space Preserve, outline proposed management tasks for the following year, and provide results of management activities proposed in the previous report. Submitted annually by the end of January, this annual report will compare the most recent data with those collected in previous years, evaluate sensitive species status and local wildlife corridor use, and outline appropriate remedial measures, per County guidelines. The annual report will also address any adaptive management (changes) resulting from previous monitoring results, and provide a methodology for measuring the success of adaptive management. Copies of California Natural Diversity Database forms submitted to the state for any new sensitive species observations or significant changes to species previously reported will be included, as will copies of invasive plant species forms submitted to the state or County. Fees for County review will also be included with submittal of the annual report.

The results of all updated vegetation mapping (every 5th year) and sensitive species monitoring will be included in the appropriate annual reports.

4.4.2.2 Management Plan Review

This RMP will be reviewed every 5 years to determine the need for revisions or updates. Due to changing conditions within the off-site Open Space Preserve, it may be necessary to revise the tasks outlined in the RMP to ensure continued success of the stated goals.

4.4.2.3 Access Control

To prevent human-induced degradation of the off-site Open Space Preserve due to illegal occupancy, trespassing (especially off-highway-vehicle activity), removal of resources, or dumping of trash or debris, the resource manager will restrict public access to the off-site Open Space Preserve. Permanent signage will be posted consistent with California Penal Code requirements at locations of unauthorized trails entering the off-site Open Space Preserve, and will be maintained by the resource manager. Open space signage will be installed where open space is adjacent to roadways and recreational areas, and will be corrosion resistant, a minimum of 6 inches by 9 inches, on posts not less than 3 feet in height from the ground surface, and must state the following:

Sensitive Environmental Resources
Area Restricted by Easement
Entry without express written permission from the County of San Diego
is prohibited. To report a violation or for more information about easement
restrictions and exceptions, contact the County of San Diego,
Planning & Development Services
Reference: (PDS2017-MUP-12-007W1)

Proposed sign locations will be placed strategically along the perimeter and locations will be determined once a site within the overall Soitec Mitigation Site is selected.

4.4.2.4 Fencing/Barriers

Because the off-site Open Space Preserve is located adjacent to other undeveloped land, perimeter fencing around the Open Space Preserve is not planned. However, some barriers may be constructed at select areas along the Preserve boundary to prevent access to certain areas of the Open Space Preserve. These barriers may consist of large boulders, K-Rail, fencing, or similar material that will prevent off-highway-vehicle use. Fencing will be completed by the project applicant.

4.4.2.5 Illegal Occupancy

The resource manager will survey the off-site Open Space Preserve for evidence of illegal access concurrently with other site management activities and file a report with the local sheriff and/or Border Protection, if necessary, to ensure the off-site Open Space Preserve remains free of human occupancy.

4.4.2.6 Removal of Resources

Removal of any plants, animals, rocks, minerals, or other natural resources from the off-site Open Space Preserve is prohibited unless determined to be beneficial to the management of the off-site Open Space Preserve and allowed by the wildlife agencies. The resource manager will maintain a log of illegal collecting and may report individuals caught removing natural resources from the Open Space Preserve to the USFWS, CDFW, County, and/or sheriff's office. The resource manager may allow and supervise seed collection and plant cuttings as part of

revegetation efforts within the off-site Open Space Preserve and/or in nearby areas. Any such collected plant materials will be limited to such that is necessary and in accordance with state law to ensure successful revegetation while not adversely affecting local plant populations.

4.4.2.7 Trash Removal and Vandalism Repair

The resource manager will also conduct general trash removal within the off-site Open Space Preserve during regular management site visits. Additionally, damage caused by vandalism will be repaired. Small trash removal and vandalism repair will occur as needed during regular site visits every month. Large trash removal will be conducted quarterly. Upon initiation of the off-site Open Space Preserve, existing trash will be removed to provide for a clean baseline.

4.4.2.8 Flood Management

As a component of general monitoring responsibilities, and especially following severe storms, fires, floods, or other significant disturbance events, the resource manager will inspect the Preserve for erosion problems. For the purposes of this RMP, significant unnatural erosion is erosion that affects an area that is greater than 100 square feet and over 6 inches in depth, and/or erosion that may affect water quality and wetland resources or lead to instability of slopes or the loss/conversion of habitat. Should significant erosion be detected, the resource manager will evaluate the need for repair; the resource manager's investigation will include an attempt to identify the cause(s) and means by which the damage has occurred. The PAR provides a lump sum budget to address potential post-fire erosion issues in the event of a wildfire. In the event of severe erosion with potentially costly remedies not anticipated by the RMP or PAR, funding to implement erosion control will not be derived from annual management funds. In this case, the resource manager will consult with the County to determine a plan of action that will include the identification of funding sources. Minor incidents of erosion (e.g., the formation of rivulets through upland areas) will be left untreated unless it is perceived that the erosion will cause the loss of sensitive habitat and/or create a hazardous situation that would constitute a threat to human health and safety.

The degree of urgency to remediate erosion problems within the Preserve will depend on the severity of the erosion, how quickly it is progressing, and what will happen until it is remediated. Erosion that undercuts riparian vegetation will need to be addressed as soon as possible, that is, soon enough to prevent the problem from worsening and under no circumstances later than 60 days from identification.

In the event that erosion becomes a recurring problem or periodic but severe, the resource manager will develop an erosion control plan. The plan will address (1) erosion causes and (2) the type and placement of physical features to counteract or stem erosive forces, and (3) may include preparation of a conceptual plan to revegetate affected areas with native seed. If the source of an erosion problem within the Preserve lies outside of the Preserve, the cause will be identified and the responsible party or parties made accountable.

4.4.2.9 Utilities

The resource manager will coordinate with SDG&E and other utility services as needed to conduct management activities within the Preserve.

4.5 Public Use Tasks

The off-site Open Space Preserve is intended to serve primarily as a habitat preserve and as such is not compatible with most public use activities. However, the resource manager may selectively make the Preserve available to

responsible public groups for educational purposes or volunteer clean-up events, as deemed appropriate. The primary purpose for establishment of the Preserve is the conservation of its biological and natural resources. Limited educational and scientific research activities may be authorized at the Preserve. These activities will be planned to have a neutral or beneficial effect on the Preserve's natural resources. All studies or volunteer events authorized on Preserve property will be driven by the goal to conserve and/or enhance its biological value. The resource manager will consult with the County for each proposed new use of the Preserve.

Activities that will be specifically prohibited include the following:

- Use of herbicides (except to remove non-native species, as necessary), pesticides, rodenticides, biocides, fertilizers, or other agricultural chemicals
- Use of off-highway vehicles and any other motorized vehicles except in the execution of management duties
- Grazing or other agricultural activity of any kind
- Recreational activities including, but not limited to, horseback riding would only be acceptable on specified multi-use trails, biking, target shooting, hunting, or fishing
- Commercial or industrial uses
- Construction, reconstruction, or placement of any building or other improvement, billboard, or sign
- Depositing or accumulation of soil, trash, ashes, refuse, waste, bio-solids or any other material
- Planting, introduction, or dispersal of non-native or exotic plant or animal species
- Altering the general topography of the Open Space Preserve, including but not limited to building of roads and flood control work
- Removing, destroying, or cutting of trees, shrubs, or other vegetation, except as required by federal, state, or local law or by governmental order for (1) emergency fire breaks, (2) maintenance of existing roads, (3) prevention or treatment of disease, or (4) required mitigation programs
- Manipulating, impounding, or altering any natural watercourse, body of water, or water circulation on the open space, except as specified for restoration activities, and activities or uses detrimental to water quality, including but not limited to degradation or pollution of any surface or subsurface waters

4.6 Fire Management Element

Fire is a natural ecological component of the Mediterranean-type climate of San Diego County. The resource manager will coordinate with the fire department on an annual basis to plan for fire prevention and control. If areas within the Preserve burn, they will be permitted to recover on their own, with no initial reseeding of areas. The resource manager will decide if reseeding is necessary if the natural revegetation process is deemed unsatisfactory. During the vegetation recovery period, the burned areas will be monitored by Preserve management staff to control non-native invasive weed species. Weed control measures will be initiated as necessary to prevent these species from replacing native vegetation.

This task includes post-fire erosion and sediment removal activities and revegetation in the event that these activities are necessary. If reseeding of areas is required, the resource manager will coordinate and perform this activity. The post-fire tasks will be outlined within the final RMP.

5 Management Constraints

This CRMP has been written to satisfy the requirements of the County and attempts to identify possible issues in the future; however, unforeseeable changes may occur that are out of the control of the resource manager. For example, changes in rainfall patterns may affect the populations of sensitive plant and animal species within the off-site Open Space Preserve. Likewise, changes in other environmental factors such as air pollution, hazardous waste runoff, and erosion could have detrimental effects on the habitat within the management areas. An adaptive management approach will be taken to provide the flexibility to address unforeseen conditions.

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Appendix L

Restoration Plan for Special-Status Plants

Restoration Plan for Special-Status Plants for the Rugged Solar Farm Project County of San Diego, California

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1 Introduction

1.1 Project Location and Description

The Rugged Solar Farm Project (Project) is located in the unincorporated community of Boulevard in southeast San Diego County. The Project is located north of Interstate 8 within private lands in eastern San Diego County, California (Figures 1 and 2). The Project area features relatively flat to gently sloping hills and is located at an elevation ranging from approximately 3,500 to 3,670 feet above mean sea level. The Project site is currently undeveloped, with the exception of the northeast portion which was disturbed and fenced as a staging area for the Sunrise Powerlink Project and has historically been used for grazing cattle and horses. Portions of the Project site are enclosed with barbed wire fencing. Existing dirt access roads and a paved road traverse portions of the site and provide access to the majority of the site. The primary hydrologic feature within the Project area is Tule Creek, which is a subsurface (or near surface) riverine feature that daylights during rain events. Tule Creek bisects the entire Project area and flows in a northwest to southeast orientation.

The Project site is located on the eastern side of McCain Valley and the In-Ko-Pah Mountains and consists of 11 parcels of Rough Acres Ranch, which is located north of Interstate 8, along McCain Valley Road, and north of the unincorporated community of Boulevard. Set Free Rough Acres, a drug rehabilitation center that occupies the site and previously served as the former San Diego Chargers training camp, is located immediately north of the Project site along McCain Valley Road. The McCain Valley Conservation Camp is located at 2550 McCain Valley Road, immediately south of the Project site's central development subarea and immediately east of the southern development subarea.

The Rugged Solar Farm Project is one of four individual solar energy Projects analyzed in the Soitec Solar Development Program Environmental Impact Report (EIR) (PDS2012-3910-120005 [ER], SCH NO. 2012121018), which was certified by the County Board of Supervisors on February 4, 2015. The Rugged Solar Farm Project would utilize photovoltaic electric generation system technology to produce solar energy at the utility-scale and would produce up to 74 megawatts alternating current of solar energy. Photovoltaic modules are designed to absorb sunlight and therefore reduce glare by design.

Of the 765 acres of the Project site, approximately 391.2 acres would be permanently disturbed with Project facilities. One County List A and two County List B plant species would be directly impacted by the proposed Project: Jacumba milkvetch (*Astragalus douglasii* var. *perstrictus*), sticky geraea (*Geraea viscida*), and desert beauty (*Linanthus bellus*). In accordance with the Biological Resources Report for the Rugged Solar Farm Project (Dudek 2021), impacts to County List A and B species would be mitigated through the preservation of suitable habitat for and populations of each species per County requirements (**M-BI-PP~~M~~-1**). Impacts to County List A species will be mitigated at a 2:1 mitigation to impact ratio, whereas County List B species will be mitigated at a 1:1 ratio.

1.2 Purpose of the Report

The primary purpose of this Restoration Plan for Special-Status Plants (RPSP) is to identify how Rugged Solar LLC will comply with the restoration and related mitigation requirements that apply to the Project's effects on the three identified special-status plant species: Jacumba milkvetch (CRPR 1B.2, County List A), sticky geraea (CRPR 2B.3, County List B), and desert beauty (CRPR 2B.1, County List B).

As worded in M-BI-PP~~M~~-1 of the Biological Resources Report:

> **(c) Revegetation Plan**. To mitigate for impacts to special-status plants, a Restoration Plan for Special-Status Plants (RPSP) has been prepared and shall be implemented. See Appendix L for details. The final RPSP shall address mitigation for permanent impacts to County List A and B plant species through the preservation of populations of each species per County requirements. County List A plant species will be mitigated at a 2:1 ratio, List B species are mitigated at a 1:1 ratio, and impacts to List D species are not mitigated based on a ratio basis but will be mitigated through the preservation of suitable habitat. Therefore, mitigation for the loss of special-status plant species as summarized in Table 3-1, shall be as follows: 2:1 mitigation ratio for a total of 2,112 Jacumba milk vetch individuals, 1:1 ratio for a total of 138 sticky geraea individuals, and 1:1 ratio for a total of 190 desert beauty individuals. It should be noted that the assessment of the number of individuals of these species supported within the impact and mitigation areas shall be conducted in comparable survey years to appropriately account for potential annual variation in the number of individuals.

This RPSP addresses the requirements above as they apply to the 3 non-listed CNPS List 1 and 2 and County Listed sensitive species that occur within the Project impact areas as detected during rare plant surveys conducted in 2011 and 2019.

1.3 Roles and Responsibilities

1.3.1 Owner

The Owner will be responsible for all management and financial costs associated with implementation, maintenance, and biological monitoring proposed for this Restoration Project.

The property is currently owned by the following entity: Rugged Solar, LLC. 4250 Executive Square, Suite 770, San Diego, California 92037. The Owner and their designated construction management team will coordinate access to the restoration areas for the County, applicable wildlife agency representatives, contractors, and biological personnel throughout implementation and the maintenance and monitoring period.

1.3.2 Restoration Ecologist

The Owner will contract with a qualified restoration consultant (Restoration Ecologist) to monitor and report on restoration work described in this RPSP. The Restoration Ecologist must have knowledge and understanding of the special-status plant species as well as native desert and exotic plant species and natural plant communities present within all work areas described in this RPSP. Training and previous experience in habitat restoration Projects in Southern California are required.

The Restoration Ecologist will oversee and coordinate implementation of the proposed restoration, interpretation of the restoration plan and regulatory requirements, monitor the work of the Restoration Contractor, and conduct biological monitoring and reporting during installation and throughout the maintenance and monitoring period. The Restoration Ecologist shall also determine whether any additional measures are necessary for site protection, or to promote successful Project completion. The Restoration Ecologist must hold a Pest Control Adviser license to make specific pest control recommendations.

1.3.3 Restoration Contractor

The Owner will hire a Project installation contractor and/or maintenance contractor (Restoration Contractor). The Restoration Contractor will be a qualified, licensed company, with experience in special-status plant and native desert vegetation restoration establishment and maintenance. During the installation phase, the Restoration Contractor will be responsible for performing implementation tasks during installation, including initial site clearing (trash and non-native vegetation), seeding, planting, and perimeter control. During the post-installation monitoring and maintenance phase, the Restoration Contractor will be responsible for weed control, perimeter control, trash removal, and if necessary, replanting, reseeding, and supplemental watering. In addition to tasks listed above and described in this RPSP, the Restoration Contractor shall be responsible for implementation of all tasks required to promote success of the restoration Project, as directed by the Restoration Ecologist and the Owner.

Use of herbicides requires the contractor or hired subcontractor to possess a current Qualified Applicator License or Qualified Applicator Certificate to perform chemical control.

1.3.4 County of San Diego

The County of San Diego (County) is the sole permitting agency for this Project and will have the authority to review the status of restoration efforts and enforce the established performance standards. The County will review annual reports and will make final determinations regarding the progress and completion of the restoration. Any modifications to this RPSP will require approval from the County prior to implementation.

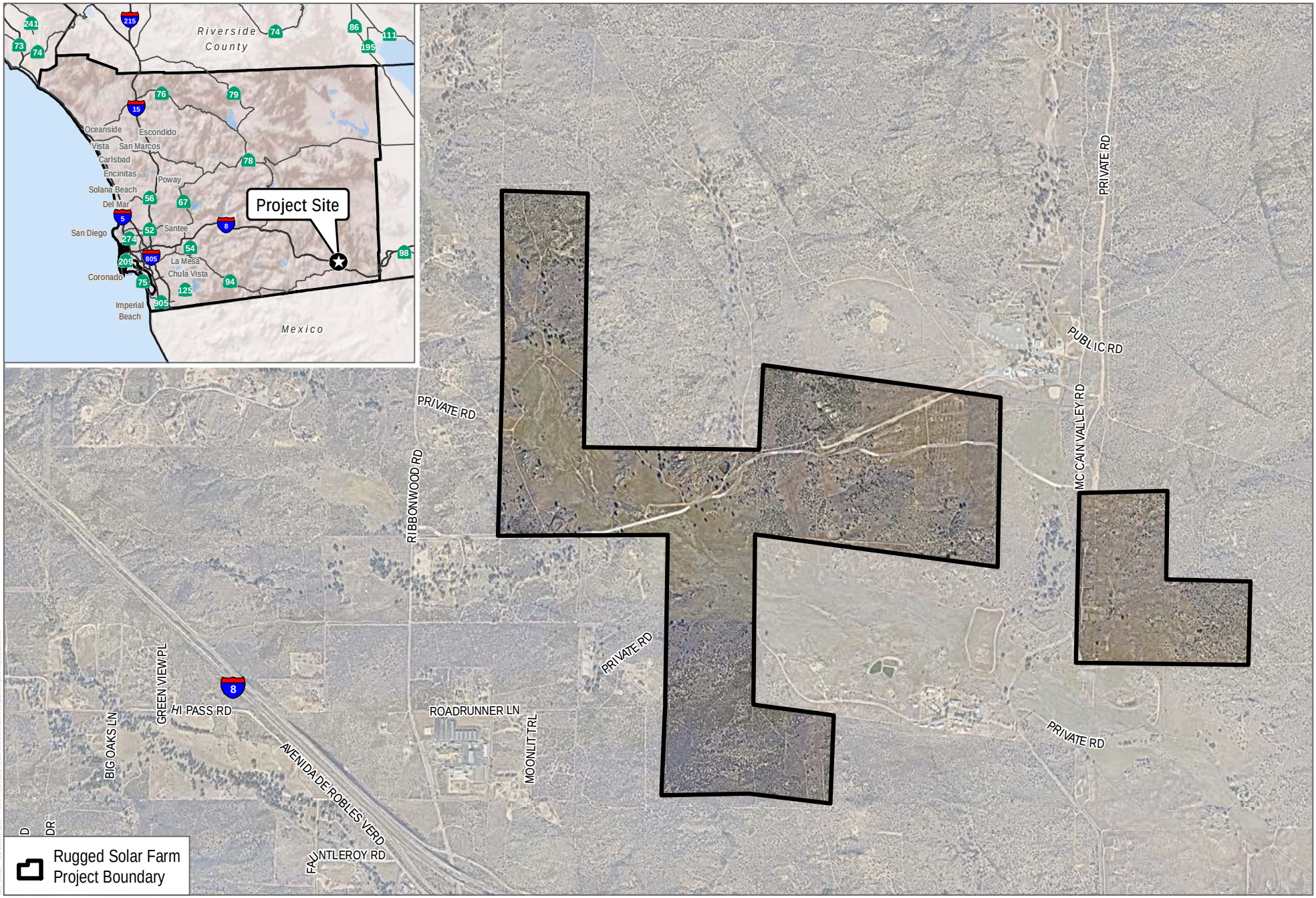
1.4 Restoration Goals

Mitigation for permanent impacts to Jacumba milkvetch, sticky geraea, and desert beauty requires restoration within the Rugged Solar on-site Open Space Preserve. As part of accomplishing the restoration, the primary goal is to establish populations within the Open Space Preserve in suitable physical conditions (e.g., soil type, vegetation communities, and slope aspect). Restoration will be achieved through a process of site-specific selection within the Open Space Preserve, collection of seed within the permanent impact locations, collection of topsoil where special-status species are present within the permanent impact locations, and potential salvage of whole plants within the permanent impact locations.

As part of establishing restoration goals, data were collected and analyzed for each plant within the permanent impact area and the Open Space Preserve. Collection of site data for special-status plants can only be conducted during the times of year when these species are present and with an understanding that annual plant species fluctuate greatly from one year to the next based on weather conditions and other environmental factors. The pre-activity site assessment data and Open Space Preserve data were evaluated to develop restoration goals and success standards. The success standards are included in Section 7. The restoration program, including installation, maintenance, and monitoring, will be implemented with a 5-year program including restoration goals and success standards based on the growth and establishment over the 5 years.

1.5 Native Seed Collection

As part of restoring special-status plants, a native seed collection program ~~will be~~was implemented for the Project within the permanent impact area. The collection ~~will begin~~began in May 2021 and continued through July 2021, with seed storage until fall 2022[WK3][CA4], to ensure adequate seed supplies for all Project restoration activities, including potential remedial seeding. Seed collection ~~will b~~was~~e~~ conducted by Dudek Restoration Specialists with all seed collection locations documented. Seed collection occurred on May 14, May 21, and July 1 of 2021. Application of seed from locally adapted populations for each species is expected to result in better germination, establishment, and persistence of these species.



SOURCE: Michael Baker 2019; SANGIS 2020, 2021

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0 1,000 2,000 Feet

FIGURE 1

Project Location

Restoration Plan for Special-Status Plants for the Rugged Solar Farm Project

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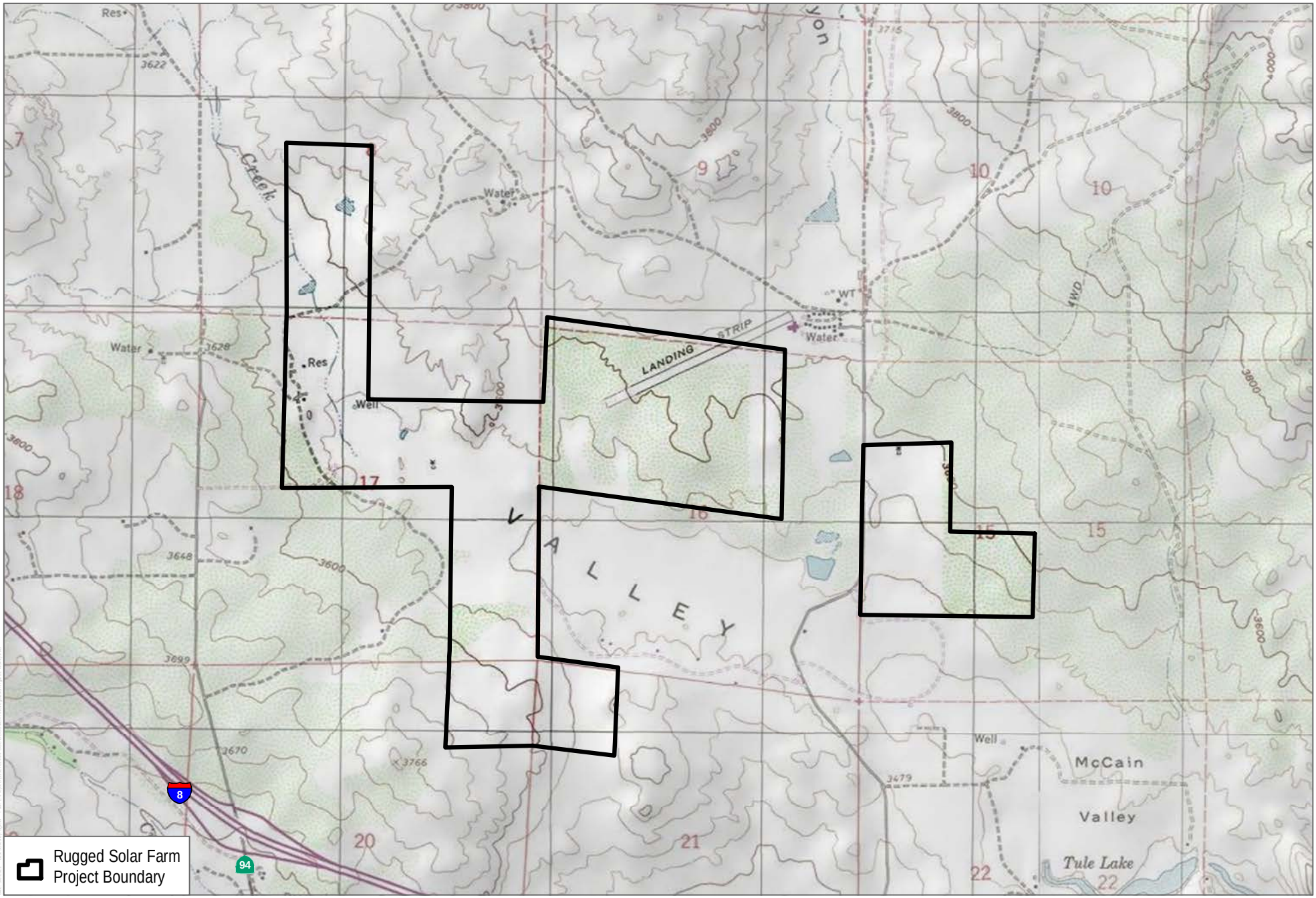

SOURCE: Michael Baker 2019; USGS 7.5-Minute Series Live Oak Springs Quadrangle

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0 1,000 2,000 Feet

FIGURE 2

Vicinity Map

Restoration Plan for Special-Status Plants for the Rugged Solar Farm Project

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2 RPSP Species and Measures

This section provides information about the characteristics and occurrences of the three special-status plants and identifies the RPSP measures that will be implemented for each species. Guidelines for implementing the RPSP measures are provided in Section 3.

2.1 Species Occurrence and Estimated Impacts

Impacts to the three species will be mitigated through the following RPSP measures:

1. Conservation (i.e., permanent preservation and ongoing management) of known populations of the species within the Open Space Preserve; and
2. Restoration within the Open Space Preserve.

For each of the three species, the goal is to restore and/or conserve twice as many County List A plants and as many County List B plants as will be affected by the Project and contribute to the persistence of the species within the Project area. A summary of special-status plant occurrences and RPSP measures is provided in Table 1.

Table 1. Summary of Direct Impacts to County List A and B Species and Significance Prior to Mitigation

Species	Regulatory Status: Federal/State/CRPR	Mitigation Ratio	Individuals within Preserve	Individuals Impacted	Percent of Individuals Impacted	Remaining Requirement
County List A						
Jacumba milkvetch	None/None/1B.2	2:1	308	1,210	80%	2,112
County List B						
Sticky geraea	None/None/2B.3	1:1	406	544	57%	138
Desert beauty	None/None/2B.1	1:1	13	203	94%	190

CRPR: California Rare Plant Rank
1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
Threat Rank
0.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
0.2 – Moderately threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)
0.3 – Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

Restoration within the Open Space Preserve is the primary form of mitigation for impacts to all three species: Jacumba milkvetch, sticky geraea, and desert beauty. Restoration for Jacumba milkvetch, sticky geraea, and desert beauty will occur within the Open Space Preserve where the plant occurs or in locations with suitable conditions (e.g., soil, slope, vegetation, associated plant species, and minimal weed cover) for the species, provided that the restoration goal of 2:1 for County List A species and 1:1 for County List B species can be achieved within the Open Space Preserve.

2.1.1 Jacumba Milkvetch

2.1.1.1 Species Profile

Jacumba milkvetch is a CRPR List 1B.2 (CNPS 2019) and County List A species (County of San Diego 2010a). This perennial herb in the pea or bean family (*Fabaceae*) blooms from April through June. It occurs in chaparral, cismontane woodland, pinyon and juniper woodland, riparian scrub, valley and foothill grassland, and rocky communities at elevations of 2,953–4,495 feet (CNPS 2019). It has been recorded in San Diego County and Baja California, Mexico (CNPS 2019). The Jepson bioregional range for Jacumba milkvetch is based on the elevation range restrictions, which shows its potential range along the foothills of the Peninsular Ranges, San Jacinto Mountain, and Santa Ana Mountain (Jepson Flora Project 2019a). Specimen records include Boulevard, Jacumba, La Posta, Tierra del Sol, Live Oak Springs, Kitchen Creek, and Julian (Jepson Flora Project 2019a). This species is relatively common in upland habitats and roadsides in this region. Based on observations throughout eastern San Diego County along with the results of the Project plant surveys, Jacumba milkvetch is known to be tolerant of disturbances including cattle grazing, soil disturbance (abundant on old dirt roads) and fire. Past restoration efforts for this species have demonstrated that Jacumba milkvetch will successfully reproduce in restoration efforts (collecting seeds and propagating).

2.1.1.2 Occurrence and Estimated Impacts

Approximately 1,518 Jacumba milkvetch individuals were observed during the 2019 focused surveys. Each Jacumba milkvetch was counted individually, and polygon areas were mapped for each location. Populations were scattered throughout the entire Project area in upland habitat and especially concentrated on old dirt roads, disturbed soils, areas where cattle congregate to graze and in areas that had burned previously. Approximately 1,~~204~~ 210 (~~79~~80%) individual Jacumba milkvetch will be impacted by the Project.

2.1.1.3 RPSP Measures

Impacts to Jacumba milkvetch will be mitigated through restoration and monitoring within the Open Space Preserve.

Restoration will occur primarily within the northern and eastern portions of the Open Space Preserve, where Jacumba milkvetch was detected and suitable conditions occur (e.g., soil, slope, vegetation, associated plant species, and minimal weed cover). Restoration will be planned in conjunction with and implemented as part of the site-specific vegetation restoration plans and the designated Open Space Preserve under the RPSP. Methods for obtaining material for Jacumba milkvetch restoration include, but are not limited to, collection of seed within permanent impact locations, collection of seed within the Open Space Preserve, and potential salvage of whole plants within permanent impact locations.

In addition to restoration in the Open Space Preserve, populations of this species within the undisturbed portion of the Project will be enhanced, maintained, and monitored at locations identified by the Plant Restoration Program Manager. The enhancement measures will focus on the removal and control of weeds in and around existing populations. Depending on the supply of seed available during seed collection, some seeding in the Open Space Preserve also may occur. Maintenance and monitoring of enhancement sites will continue until the success criteria at the Open Space Preserve restoration sites are met for Jacumba milkvetch.

2.1.2 Sticky Geraea

2.1.2.1 Species Profile

Sticky geraea is a CRPR List 2B.3 (CNPS 2019) and a County List B species (County of San Diego 2010a). A member of the sunflower (*Asteraceae*) family, this perennial herb blooms from May through June in chaparral habitats and occurs at elevations of 1,476–5,557 feet (CNPS 2019). It has been recorded in San Diego County, Imperial County, and Baja California, Mexico (CNPS 2019). The Jepson bioregional range for sticky geraea is based on the elevation range restrictions, which shows its potential range throughout inland San Diego County, a portion of southern Riverside County, and parts of Orange County (Jepson Flora Project 2019b). Specimen records are primarily from Campo to the Ocotillo area (Jepson Flora Project 2019b). In the more eastern portion of its range, including Jacumba, this species is often found within openings in upland habitats. In the western portions of its range, including Boulevard, sticky geraea is usually found within the shade of other shrubs where undisturbed granitic soils occur. Numerous populations were found under redshank chaparral throughout the Boulevard area by Dudek biologists in granitic sandy undisturbed soils based on the results of plant surveys in the area and experience in eastern San Diego County.

2.1.2.2 Occurrences and Estimated Impacts

Approximately 950 sticky geraea individuals were observed during the 2019 focused surveys. Each sticky geraea was counted individually, and polygon areas were mapped for each location. Populations were scattered throughout the entire Project area in upland habitat and especially concentrated under redshank chaparral or individual redshank plants in other upland vegetation communities. Soils were undisturbed, and cattle grazing was limited in areas where sticky geraea was observed. Approximately 544 (57%) individual sticky geraea will be impacted by the Project.

2.1.2.3 RPSP Measures

Impacts to sticky geraea will be mitigated through restoration and monitoring within the Open Space Preserve.

Restoration will occur within the northern and eastern portions of the Open Space Preserve where sticky geraea was detected and suitable conditions occur (e.g., soil, slope, vegetation, associated plant species, and minimal weed cover). Restoration will be planned in conjunction with and implemented as part of the site-specific vegetation restoration plans and the designated Open Space Preserve under the RPSP. Methods for obtaining materials for sticky geraea restoration include, but are not limited to, collection of seed within permanent impact locations, collection of seed within the Open Space Preserve, collection of topsoil where sticky geraea is present within permanent impact locations, salvage whole plants within permanent and temporary impact locations, and limit grading activities within temporary impact areas so that the underground rootstock remains intact for re-sprouting.

In addition to restoration in the Open Space Preserve, populations of this species within the undisturbed portion of the Project will be enhanced, maintained, and monitored at locations identified by the Plant Restoration Program Manager. The enhancement measures will focus on the removal and control of weeds in and around existing populations. Depending on the supply of seed available during seed collection, some seeding in the Open Space Preserve also may occur. Maintenance and monitoring of enhancement sites will continue until the success criteria at the Open Space Preserve restoration sites are met for sticky geraea.

2.1.3 Desert Beauty

2.1.3.1 Species Profile

Desert beauty is a CRPR List 2B.1 (CNPS 2019) and a County List B species (County of San Diego 2010a). A member of the phlox (*Polemoniaceae*) family, this annual herb blooms from April through May in chaparral habitats. This species typically occurs at elevations of 3,281–5,493 feet (CNPS 2019). It has been recorded in San Diego County and Baja California, Mexico (CNPS 2019). The Jepson bioregional range for desert beauty is based on the elevation range restrictions, which shows its potential range along the foothills of the Peninsular Ranges, San Jacinto Mountain, and Santa Ana Mountain (Jepson Flora Project 2019c). Specimen records are primarily from the Boulevard and McCain Valley areas, with a couple of records also north of Warner Springs, Tierra del Sol, and Jacumba (Jepson Flora Project 2019c). Desert beauty is found within openings in upland habitats on granitic soils that have not been disturbed. Desert beauty is generally intolerant of soil disturbance and competition from non-native species. Locations where soil movement is found, desert beauty is absent even with larger populations nearby. Desert beauty is extremely sensitive to weed species like cheat grass (*Bromus tectorum*) and Mediterranean grass (*Schismus barbatus*) in this region based on the results of plant surveys in the area and experience within eastern San Diego county. Reproduction of desert beauty in restoration efforts can be challenging because timing of bloom and seed set is rapid, making seed collection difficult to implement. The quality and condition of soils along with the control of weeds are critical to the success of habitat restoration for the desert beauty.

2.1.3.2 Occurrences and Estimated Impacts

Approximately 216 desert beauty individuals were observed during the 2019 focused surveys. Each desert beauty was counted individually, and polygon areas were mapped for each location. Populations were scattered in uplands and mostly in the most southern section of the survey area where very little soil disturbance was present and with minimal annual weed cover. Approximately 203 (94%) individual desert beauty will be impacted by the Project.

2.1.3.3 RPSP Measures

Impacts to desert beauty will be mitigated through restoration and enhancement/monitoring of populations within the Open Space Preserve.

Restoration will occur in the eastern portion of the Open Space Preserve where desert beauty was detected and suitable conditions occur (e.g., soil, slope, vegetation, associated plant species, and minimal weed cover). Site-specific restoration measures will be identified the site-specific restoration plans and the designated Open Space Preserve under the RPSP. Enhancement and monitoring measures will focus on the monitoring and control of invasive plants in and around existing populations. Depending on the availability of seed, some seeding in the ROW also may occur. The enhancement/monitoring measures will continue until the success criteria are met for the desert beauty restoration sites.

Rugged Solar LLC will have the option to substitute off-site conservation for some or all restoration within Open Space Preserve. Surveys for desert beauty will be conducted at the Project site in April or May of 2021 to determine if this species is present and, if so, in what numbers. Section 3 of this RPSP identifies the process for confirming off-site conservation as a substitute for all or some restoration of desert beauty.

3 Existing Site Conditions

3.1 Soils

According to the U.S. Department of Agriculture (USDA 2019), there are nine soil types found in the Project area, and descriptions based on those by Bowman (1973) and Web Soil Survey are provided below.

Acid igneous rock land soil is found in rough broken terrain. The topography ranges from low hills to steep mountains. Large boulders and rock outcrops of granite, quartz diorite, gabbro, basalt, and other rock types cover greater than 50% of the total area of this soil type. The soil material is very shallow consisting of loam to loamy coarse sand textures over decomposed granite or basic igneous rock. In some locales, pockets of deep soils may be present between the rocks. Many areas are practically barren and have very rapid runoff. The vegetation for this soil type varies by elevation and climate. In the foothills and mountains, acid igneous rock land supports various chaparral vegetation communities.

The Calpine series consists of very deep, well-drained soils that formed in alluvium derived from granitic rocks. The following Calpine soil inclusions occur within the Project area: Calpine coarse sandy loam, 2% to 5% slopes (CaB) and Calpine coarse sandy loam, 5% to 9% slopes (CaC). Calpine soils occur on alluvial fans, fan remnants, and stream terraces on slopes of 0% to 15% and at elevations of 3,000 feet to 6,000 feet above mean sea level. Calpine soils are well drained with very low or low surface runoff and moderately rapid permeability. Native vegetation expected on this soil type within the Project area is primarily big sagebrush (*Artemisia tridentata*).

The Kitchen Creek series is a member of the coarse-loamy, mixed, mesic family of Ultic Argixerolls. Kitchen Creek soils have dark brown, slightly acid, loamy coarse sand and coarse sandy loam A horizons, pale brown, medium acid, coarse-sandy loam B2t horizons grading to weathered granitic rock at a depth of 54 inches. Kitchen Creek soils occur on moderately to strongly sloping to rolling broad ridges that are bounded by short escarpment slopes. They formed in residuum weathered from granitic and other acid igneous rocks. Kitchen Creek soils occur at elevations of 2,500 feet to 4,500 feet above mean sea level. Native vegetation expected on this soil type in the Project area includes chamise (*Adenostoma fasciculata*) chaparral and small areas of non-native annual grasses.

The La Posta series has grayish brown and brown, slightly acidic to neutral in pH, loamy coarse sand A horizons grading to weathered acid igneous rock at a depth of 29 inches. These soils occur in hilly mountainous areas that are moderately sloping to very steep. The following La Posta soil inclusions occur within the Project area: La Posta loamy coarse sand, 5% to 30% slopes, eroded (LaE2); and La Posta rocky loamy coarse sand, 5% to 30% slopes, eroded. The soils formed in residuum weathered from granitic rocks at elevations of 2,000 feet to 4,500 feet above mean sea level. La Posta soils are somewhat excessively drained with medium or rapid runoff and rapid permeability, and native vegetation expected on this soil type in the Project area is mainly non-native annual grasses and forbs, chamise, red shank (*Adenostoma sparsifolia*), manzanita (*Arctostaphylos* spp.), scrub oak (*Quercus* spp.), and a few scattered oak trees (*Quercus agrifolia*) along drainages.

Loamy alluvial land consists of areas of recent alluvium adjacent to stream channels and in meadows. Loamy alluvial land is nearly level to gently sloping, and it is somewhat poorly drained to poorly drained. Permeability and the available water capacity vary. Runoff is very slow.

The Mottsville series consists of very deep, excessively drained soils that formed in alluvium derived from granitic rocks. Mottsville soils occur on gently sloping (0% to 15%) alluvial fans, fan remnants, and fan aprons. Mottsville soil inclusion occurs within the Project area: Mottsville loamy coarse sand, 2% to 9% slopes. Mottsville soils occur at elevations of 4,500 feet to 5,300 feet above mean sea level. Mottsville soils have negligible or very low surface runoff, rapid or very rapid permeability, and high saturated hydraulic conductivity. Native vegetation expected on this soil type within the Project area is mainly big sagebrush, other desert transition shrubs, and needlegrass (*Stipa* spp.).

The Tollhouse series consists of shallow, somewhat excessively or excessively drained soils that formed in material weathered from granite and closely related coarse crystalline rocks. The following Tollhouse soil inclusion occurs within the Project area: Tollhouse rocky, coarse sandy loam, 5% to 30% slopes, and eroded (ToE2). Tollhouse soils are on strongly sloping to very steep mountain slopes. Rock outcrops are common to many soils of this series. Tollhouse soils occur at elevations of approximately 2,000 feet to 8,000 feet above mean sea level. Native vegetation expected on this soil type within the Project area is primarily chaparral consisting of a variety of native shrubs and oak trees. Non-native grasses and forbs may occur in some locations.

3.2 Existing Biological Functions and Values

All three special-status species occur within the proposed restoration areas located adjacent to the Project site. The Open Space Preserve currently provides suitable biological functions and values relative to the Project areas that will be permanently impacted. The site is bordered by relatively high-quality native habitat to the north and east which is owned and managed by the BLM. Additional conserved lands include the Walker Canyon Ecological Reserve, approximately 1.5 miles southeast of the Project site, and the Descanso district of the Cleveland National Forest, whose boundary is located approximately 7 miles northwest of the Project parcels (CDFW 2019). To the south and east there is undeveloped agricultural land with scattered residential development on private land. The region largely consists of public lands dominated by undeveloped land. Existing biological resources on site are shown on Figure 3.

3.3 Restoration Areas Identification

Dudek Restoration Specialists conducted a field assessment April 30, 2021, to identify areas for special-status plant mitigation in the Open Space Preserve. The field survey consisted of identifying representative habitat characteristics of existing special-status plant populations such as slope, existing substrate, disturbance, associated species, and levels of native/non-native cover. Areas within the Open Space Preserve which currently contain populations of special-status plant species generally indicated suitability. Additional areas that would experience a significant increase in habitat value as a result of restoration were prioritized based on similarities in habitat characteristics. Potential mitigation areas identified for special-status plant species restoration include the northern and eastern portions of the Open Space Preserve (Figure 4).

As previously mentioned, these areas were determined to be suitable due to adjacency to existing special-status plant species, presence of key habitat characteristics, and potential for increased habitat value. In the case of the desert beauty, habitat assessments of the existing population within the impact footprint indicated the species primarily occurred in generally undisturbed openings in chaparral with little to no competition from non-native species. The existing soils consisted of La Posta rocky loamy coarse sand with an intact surface layer of cryptogramic crust, which is indicative of a lack of disturbance. Associated species included chamise, Lemmon's linanthus (*Linanthus lemmonii*), needle goldfields (*Lasthenia gracilis*), and woolly easterbonnets (*Eriophyllum*

wallacei). Assessments of the desert beauty population in the eastern portion of the Open Space Preserve resulted in the observation of similar soils, intact surface substrate, cryptogramic crust, and associated species. However, levels of non-native cover were moderately higher in and around the Open Space Preserve populations, indicating higher levels competition and greater risk of invasion. Given that desert beauty is a small annual herb, the species is particularly susceptible to competition from annual grasses which can rapidly occupy available substrate and crowd out germinating native annuals, including the desert beauty. Furthermore, the Open Space Preserve population is considerably smaller (11 observed individuals during baseline surveys) which places it at a higher risk of local extirpation. Therefore, re-establishment of additional desert beauty individuals adjacent to this population coupled with an effective weed control program will provide the greatest net benefit to the population and ensure long-term population stability.

In the case of sticky geraea and Jacumba milkvetch, both species were observed in several vegetation communities and soil types. Both species were observed to tolerate moderate to high levels of non-native competition and were often observed co-occurring with each other. Given the lack of specific habitat requirements observed for both species, it is assumed that both species can successfully establish within a variety of habitat conditions. In order to provide the greatest net benefit to all special-status plant species for which mitigation is required, re-establishment of sticky geraea and Jacumba milkvetch will be concentrated in the eastern portion of the Open Space Preserve in the areas surrounding the desert beauty re-establishment areas. Both sticky geraea and Jacumba milkvetch currently exist in this area in relatively lower numbers compared to other portions of the site, therefore, re-establishment will ensure population stability by increasing abundance and expanding local distribution. Additionally, the incorporation of a weed control program in the re-establishment of sticky geraea and Jacumba milkvetch will facilitate maintenance across all mitigation areas and provide an effective weed buffer around the desert beauty re-establishment areas, further increasing the likelihood of success.

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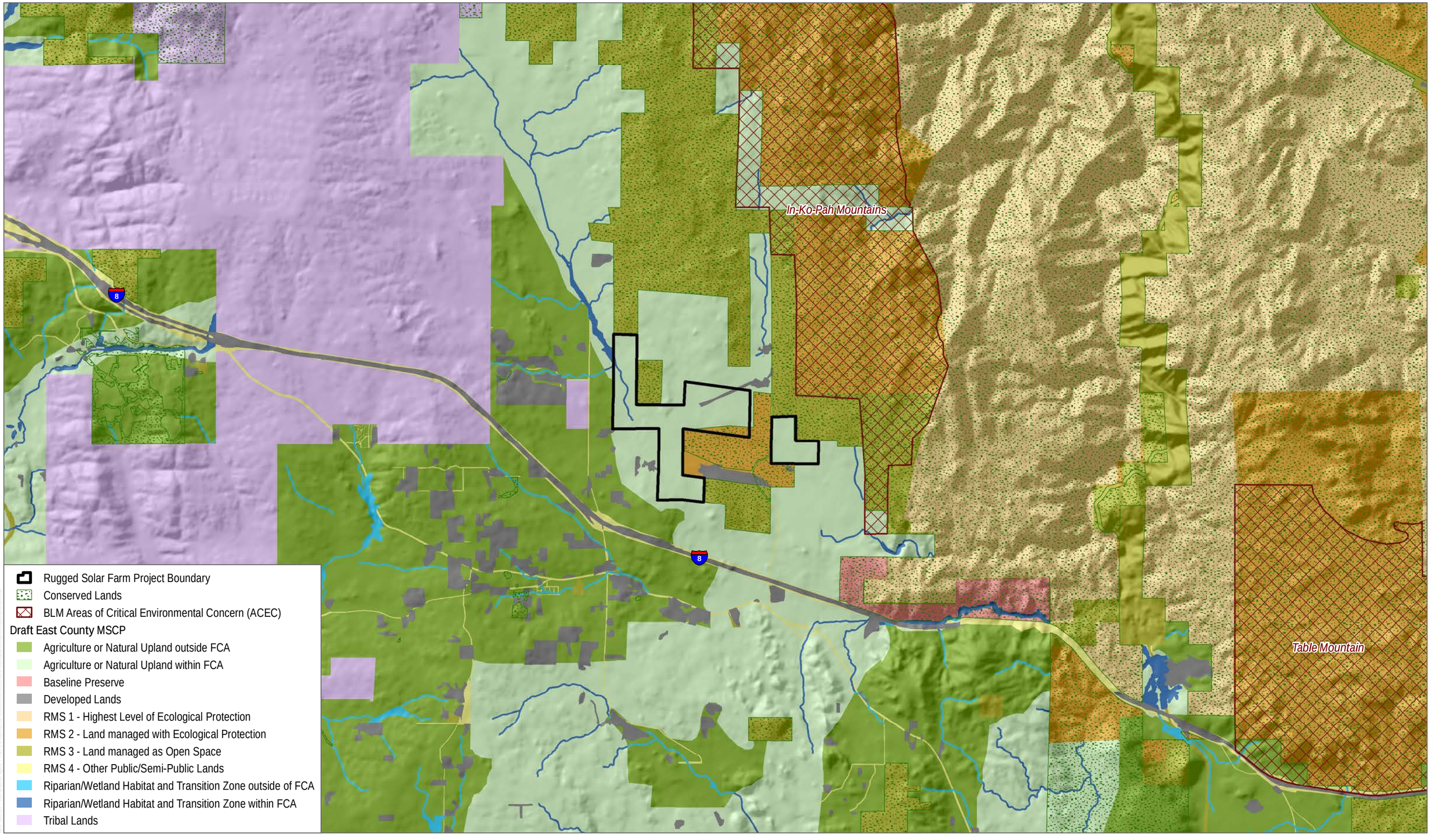

SOURCE: Michael Baker 2019; SANGIS 2020; BLM 2019

DUDEK

0 0.5 1 Miles

FIGURE 3

Regional Context

Restoration Plan for Special-Status Plants for the Rugged Solar Farm Project

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4 Implementation Plan

This implementation plan describes a strategy to achieve the habitat restoration goals stated in Section 1.3. Jacumba milkvetch, sticky geraea, and desert beauty restoration will be achieved through a program of seed collection and dispersal, topsoil salvage, and potential salvage of whole plants, where appropriate. Methods to achieve the habitat restoration goals include the following:

- Removal of trash and debris that may interfere with the restoration efforts
- Mark restoration area limits with fencing and signage
- Remove and/or treat all existing non-native weeds and invasive vegetation
- Collect seed and store until planted within the restoration areas
- Salvage and stockpile 2 to 3 inches of topsoil
- Potentially salvage plants within the impact area and relocate to restoration areas
- Hand seed in restoration areas
- Potentially implement an irrigation plan for the first 2 to 3 years following planting
- Retain a qualified Restoration Ecologist to conduct site monitoring and reporting, and to provide recommendations from installation through the duration of the 5–year maintenance period

Prior to implementation, a revegetation agreement shall be signed and notarized by the property owner following approval of this RPSP and accompanied by the required security as agreed upon by the County. The intended steps in the implementation of the RPSP are outlined herein.

4.1 Preliminary Schedule

An outline of the anticipated Project installation tasks, collection of seeds, salvage of plants and topsoil, and an approximate schedule is provided in Table 2. The schedule is dependent upon the initiation and completion of several preparatory tasks by the Project applicant and Restoration Contractor.

Table 2. Approximate Restoration Implementation Schedule[1] [WK5][CA6]

Task Description	Anticipated Work Period
Desert Beauty Seed Collection	May 2021
Sticky Geraea and Jacumba Milkvetch Seed Collection	July 2021
Sticky Geraea and Jacumba Milkvetch Plant Salvage[2]	August ~~2021~~2022
Site Preparation	August ~~2021~~2022
Topsoil Salvage and Storage	August ~~2021~~2022
Initial Weed Control	November ~~2021~~2022–June ~~2022~~ 2023
Irrigation Installation[3]	July ~~2022~~2023
Topsoil Placement	November ~~2022~~2023
Seed Application and/or Salvage Plant Translocation[2]	November ~~2022~~2023
Five-Year Maintenance & Monitoring Program	December ~~2022~~2023–December ~~2027~~2028

Notes:

1 Scheduled dates of implementation tasks are dependent upon progress of Project development.
2 Plant salvage will only be conducted if deemed necessary by the Restoration Ecologist.
3 Irrigation installation will only be conducted if deemed necessary by the Restoration Ecologist.

4.2 Site Preparation

The limits of the restoration areas shall be marked with fencing and signage, as deemed necessary by the Restoration Ecologist.

Site preparation for the RPSP will begin in the spring of the planting year. Site preparation activities are detailed below.

- Areas supporting special-status plants within the restoration areas will be marked in the field during the blooming period in the spring prior to planting by the Restoration Ecologist.
- The limits shall be clearly delineated to show the areas that need to be protected in place. The Restoration Ecologist shall define the limits of restoration areas for fencing installation. The restoration areas shall be enclosed with fencing consisting of t-posts and wire in order to prevent unauthorized access.
- Seed shall be collected from special-status plants within the impact area and retained for application within the restoration areas. Seed will be dried and stored in a cool, dry, and dark place until it is installed in the restoration areas (see Section 4.5).
- If site grading associated with Project development is ongoing at the time, the topsoil salvage area will be marked in the field and fenced with temporary construction fencing until the topsoil can be removed from the site (see Section 4.6).
- Any non-native plant species that are potentially invasive and/or pose a threat to the establishment, development, or persistence of special-status plants shall be controlled by physical removal and/or herbicide treatment, as appropriate, prior to plant topsoil salvage (see Section 4.4).

4.3 Nesting Bird Surveys

Nesting bird surveys will be conducted prior to implementation of restoration. If nesting birds are detected by the Restoration Ecologist, buffers shall be established per the Restoration Ecologist's discretion. The buffer shall be flagged in the field. The buffer zones shall be avoided until the nesting cycle is complete. Exceptions may be made if the Restoration Ecologist determines that work within the buffer is not and would not affect the nesting cycle.

4.4 Initial Weed Control

Prior to planting and seeding of the site, the Restoration Contractor will be responsible for performing adequate control of non-native/exotic species which occur in the restoration areas, as directed by the Restoration Ecologist. Weed control may include non-native annual grasses, mustards, and any other weed/exotic species identified by the Restoration Ecologist. Control will include hand-pulling of weeds, use of string trimmers, and/or foliar treatments with appropriate herbicides as determined by the Restoration Ecologist. Specific herbicide treatments, application rates, and methods will be based on manufacturer specifications and will follow the general guidelines summarized below.

The Restoration Contractor shall coordinate with the Restoration Ecologist to ensure that the special-status plants to be preserved are not inadvertently impacted during the weed control activities. Weed control procedures will include the following:

- Herbicides will be applied in a manner that ensures that each plant receives a comprehensive and fully effective treatment, and that re-sprouting from root materials is minimal. Application methods will follow

manufacturer specifications regarding application and safety procedures. Herbicide application will only be performed by licensed applicators and will comply with state and local regulations. Treatment shall be as specified by a Pest Control Advisor. Herbicide applications will be performed by, or under supervision of, a licensed Applicator working under a Pest Control Business License issued by the State of California Department of Parks and Recreation (DPR) and registered with the County Agricultural Commissioner.

- Application will consist of: (1) spot applications to individual plants where weed/exotic cover is sparse and (2) broadcast applications to dense patches of weed/exotic species. Applications should be on a spray-to-wet basis and coverage should be uniform and complete. Contact with native shrub and grass species should be avoided; in the event of gusty winds or winds in excess of five miles per hour (Mph), all work will be temporarily discontinued to protect applicators and adjacent natural resources. Treatments should also be temporarily discontinued in the event of rainfall since rainfall reduces the effectiveness of the herbicide.
- Sprayed vegetation should be left undisturbed for seven days to allow the herbicide to be distributed throughout the entire plant. Visible effects of herbicide application consist of wilted foliage, brown foliage, and disintegrated root material.
- If necessary, treated plants that leave behind excessive dead vegetation should be removed by a string trimmer or other appropriate equipment and disposed of off-site within a landfill, or green waste facility.
- Herbicide application will not occur if wind speeds on site are greater than 5 mph, and/or within 48 hours prior to predicted rain. In the event that rain does occur, herbicide application will not resume again until 72 hours after the rain event.
- If necessary, the steps listed above should be repeated two to three times every two to three weeks following the initial treatment to remove seedling weed/exotic species.

4.5 Seed Collection and Application

4.5.1 Seed Collection

Following the bloom period for each species, seed will be collected from plants within the impact area prior to construction, dried, and stored off-site in in a cool, dark, location. Field visits will be conducted during the bloom period for each species to verify phenology and time the collection events. For plants located within the impact area, 100% of seed will be collected. Given the abundance of special-status plant individuals within the impact area, it is anticipated that sufficient seed will be available, and that seed will not need to be collected from individuals outside the impact area. Should sufficient seed be unavailable from special-status plants within the impact area, seed collection from within the impact area will be prioritized and supplemental collections will be conducted from individuals outside the impact area, with the exception of desert beauty, given the small population size in the Open Space Preserve and its dependence on a stable seed bank as an annual species.

Seed collection for desert beauty is anticipated to take place in late spring (May), after the plants bloom and seeds begin to ripen. Seed will be collected by hand and will involve removing the entire infructescence. Seed from adjacent associated species will also be collected given the potential for senesced desert beauty individuals to closely resemble senesced associated herbaceous species.

Seed collection for sticky geraea and Jacumba milkvetch is anticipated to take place in mid-summer (July) after both species have bloomed and seeds begin to ripen. Seed will be collected by hand and will involve removing the entire infructescence or, in the case of Jacumba milkvetch, the entire seed pod.

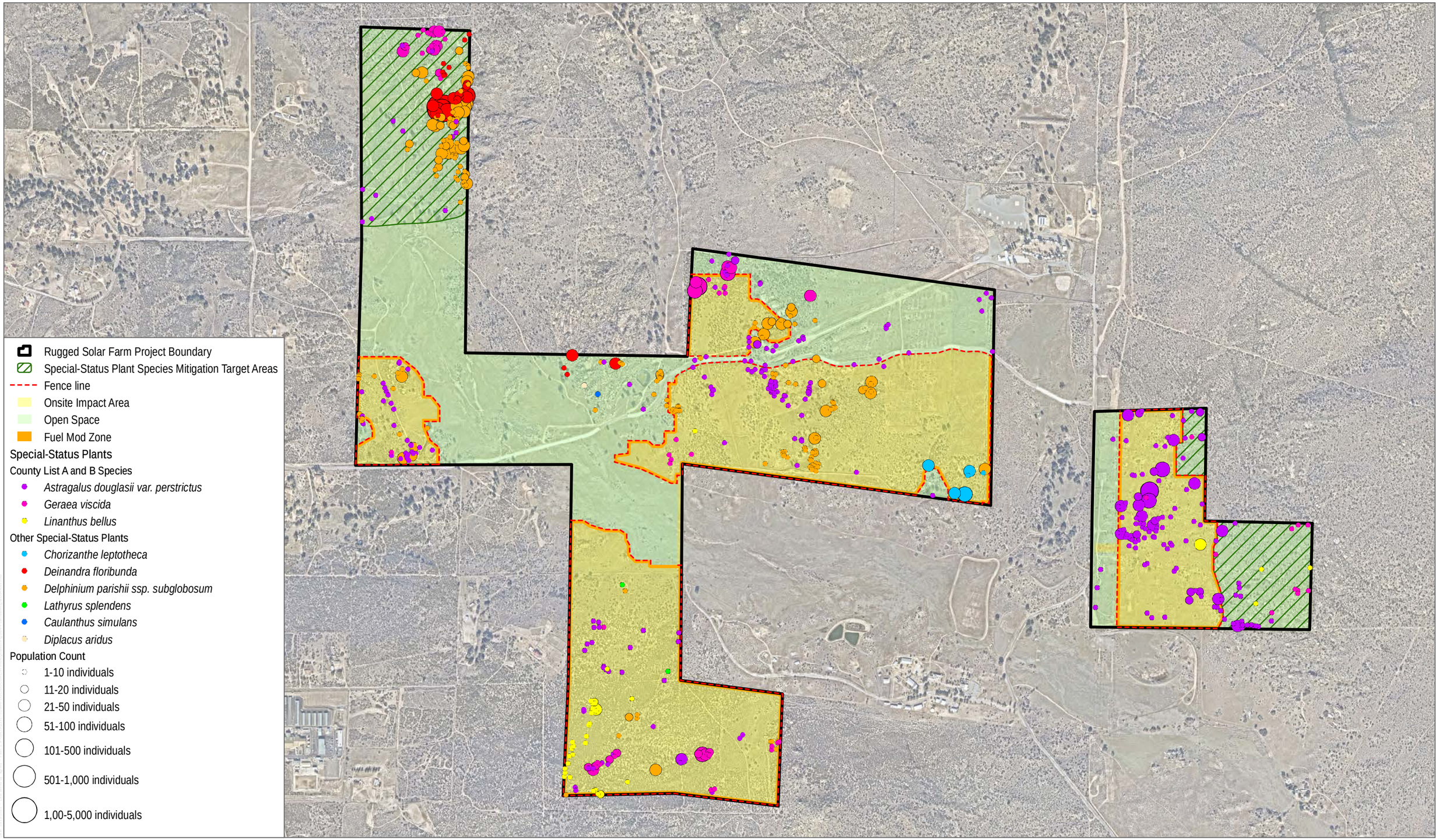
4.5.2 Seed Application

Once topsoil has adequately settled and salvaged plants have been planted, the restoration areas shall be seeded with the collected special-status plant seeds. Seed will be applied from November through January to take advantage of fall/winter rains. As part of site preparation, the soil surface will be roughened to provide more favorable micro-site conditions for moisture retention and seed germination. Restoration and mitigation for Jacumba milkvetch, sticky geraea, and desert beauty will be conducted by hand seeding within designated areas identified and marked by the Restoration Ecologist. Seed will then be lightly raked in to ensure adequate contact with the soil. Given that the restoration areas already contain ample amounts of associated species, no seed other than the seed collected as part of this RPSP will be applied within the restoration areas.

4.6 Topsoil Salvage

When possible, topsoil areas with special-status plants from within the Project footprint will be salvaged and relocated to the restoration area within the Open Space Preserve. Topsoil salvage is only anticipated to take place within the impact area occupied by desert beauty in order to preserve the seed bank. The basic process for implementing the topsoil salvage includes: (1) preparing the receptor site for placement of salvaged topsoil, (2) salvaging the topsoil that supports the targeted special-status plant species, (3) placing the topsoil at the receptor site. Details about each of these steps are provided in more detail below:

- Soil from the identified topsoil salvage areas will be excavated to a depth of approximately 2–3 inches with heavy equipment, such as a multi-terrain track loader. Small occurrences may be salvaged by hand. The salvaged topsoil shall be placed in a dump trailer or haul truck for transport to the receptor site. The Restoration Ecologist shall be present to monitor the topsoil excavation process and identify areas and extents of areas for topsoil excavation.
- Salvaged topsoil will be placed within the receptor sites to a depth of approximately 2–3 inches. The Restoration Ecologist shall monitor the placement of topsoil to ensure that the appropriate soil depths are achieved, and to ensure that no impacts occur outside of those proposed to implement this plan.
- Once the topsoil is placed in the restoration receptor site, the topsoil shall be mildly compacted through track walking with heavy equipment.
- The deposited topsoil shall be soaked with water using a water truck to help settle and consolidate the soil.



SOURCE: AECOM 2011; Michael Baker 2020; SANGIS 2020

DUDEK

0 500 1,000 Feet

FIGURE 4

Potential Mitigation Areas

Restoration Plan for Special-Status Plants for the Rugged Solar Farm Project

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4.7 Plant Salvaging

While it is anticipated that sufficient seed material is available to satisfy the established mitigation requirements, salvage and relocation of perennial special-status plant individuals within the Project footprint may be conducted, if deemed necessary by the Restoration Ecologist. Should the Restoration Ecologist determine salvage of special-status individuals is necessary, salvage shall take place during the dormant season prior to construction. The soil around the root ball will be watered and a clean, flat-bladed shovel will be used to excavate the entire root ball. Salvaged plants will be placed in a wet burlap bag or containers and taken directly to the restoration areas and planted immediately. If the restoration areas have not been prepared at the time of salvage, salvaged plants will be planting into containers and stored at a nursey for care until the restoration area has been prepared for planting.

Salvaged plants will be installed by excavating a hole two times the diameter of the root ball to the depth of the root ball. Each hole will be filled with water and allowed to drain prior to plant installation. Salvaged plants will be immediately watered in following installation until backfilled soils are saturated to the depth of the root ball. A basin will be created around each installed salvaged plant in order to facilitate hand watering. Planting basins shall also be filled with mulch to retain soil moisture around the root ball. Salvaged plants will be marked in the field for monitoring throughout the maintenance period.

4.8 Irrigation and Schedule

If deemed necessary by the Restoration Ecologist, temporary irrigation may be used to assist with the germination and establishment of the installed seeds and/or salvaged plants. Depending on the configuration of the restoration areas, a temporary irrigation system may be installed above-ground and constructed of UV-resistant PVC pipe consisting of water truck coupling stations to facilitate hand-watering the areas of seed installation and/or plant salvage, as needed. No overhead spray or drip system is proposed as part of this RPSP. Should the Restoration Ecologist determine the configuration of the restoration areas does not warrant the installation of a temporary irrigation system, temporary irrigation to seeds and/or salvaged plants may still be supplied by hand watering directly from a water truck.

Irrigation will be applied in a manner that encourages deep root growth (i.e., periodic, deep irrigation as opposed to frequent, light irrigation). Watering will be conducted as needed to augment natural rainfall during the first two to three years following planting. The goal of the restoration Project is to establish self-sustaining special-status plant populations within the Open Space Preserve; therefore, irrigation use would be discontinued at least 2 years before the end of the maintenance and monitoring period to demonstrate the special-status plant population's ability to survive without supplemental water. The entire system would be removed prior to the end of the five-year period.

Temporary irrigation shall only be applied during the rainy season to supplement gaps in precipitation which may contribute to mortality of special-status plant species within the restoration areas. Typically, irrigation will occur on a biweekly basis during periods of drought. During supplemental watering events, the Restoration Contractor will apply water directly to seeded areas and/or salvaged planting basins. Seeded areas will be watered using low-pressure hoses in order to minimize erosion and provide sufficient water to completely saturate soils down to the root zone. Salvaged planting basins will be watered until the basins have been completely saturated and allowed to drain before saturating the basins again.

4.9 Estimated Cost

A cost estimate is provided in Table 3.

Table 3. Project Cost Estimate

Task	Estimated Cost
Rare Plant Seed Collection	$20,000 – $40,000
Sticky Geraea and Jacumba Milkvetch Plant Salvage[1]	$20,000 - $30,000
Initial Weed Control	$60,000 - $100,000
Topsoil Salvage and Placement	$50,000 – $100,000
Irrigation Installation[2]	$25,000 – $80,000
Seed Application	$50,000 – $75,000
Salvage Plant Translocation[1]	$25,000 – $75,000
Five-Year Maintenance and Monitoring Program	$500,000 – $1,000,000
Total	**$750,000 – $1,500,000**

Notes:
1 Plant salvage will only be conducted if deemed necessary by the Restoration Ecologist.
2 Irrigation installation will only be conducted if deemed necessary by the Restoration Ecologist.

5 Five-Year Maintenance Plan

This five-year maintenance plan provides direction for expected routine maintenance of the restoration area to be conducted throughout the five-year maintenance and monitoring period. This section provides a brief description of these activities. The five-year maintenance period begins when the Restoration Ecologist certifies that the restoration installation is in substantial conformance with this RPSP and the County has determined installation to be complete and successful.

The restoration area is expected to become self-sustaining over time, capable to survive on natural conditions, and require reduced maintenance once established. Maintenance activities during the five-year period will focus on ensuring the establishment of a self-sustaining habitat. Maintenance activities shall include weed and exotic species removal/control, pest management, trash and debris removal, maintaining site fencing and signage, and potentially providing temporary irrigation to foster successful establishment and healthy plant growth.).

5.1 120-Day Plant Establishment Maintenance Period

During the initial 120-day Plant Establishment Period (PEP) following successful installation, the contractor shall be responsible for the health and survival of all installed plant material and the general maintenance of the restoration areas. In the event salvaged plants are installed within the restoration areas, plant mortality count will be conducted by the Restoration Ecologist prior to completion of the PEP. The Restoration Contractor shall be responsible for replacing any dead salvaged plant material, either in the form of container stock or seed establishment. Germination of native seed and native plant recruitment may off set salvaged plant mortality if vigor and establishment of the seedlings is determined satisfactory by the Restoration Ecologist. Plants noted for replacement shall be installed prior to Restoration the Ecologist and County approving the completion of the PEP. The installed salvaged/container plant material shall have a 100% survival rate at the completion of the PEP. The PEP schedule and maintenance tasks are shown in Table ~~3~~4.

Table ~~4~~3. PEP Maintenance Schedule (First 120 Days of the Maintenance and Monitoring Period)

Work Task	1–30 Days	31–60 Days	61–90 Days	91–120 Days
Weed Control	X	X	X	X
Temporary Irrigation	X	X	X	X
Site Cleanup and General Maintenance	X	X	X	X

5.2 Weed Control

Non-native plant control measures will include the following: (1) hand removal, (2) mowing with mechanical devices, and (3) herbicide application. When feasible and appropriate, weed control efforts will be conducted using herbicide application. If the target species are flowing or are growing too closely with non-target species, hand removal and other mechanical techniques will be used. The primary focus of weed control is to reduce competition for special-status plants in the restoration areas and prevent non-native species from establishing a seed bank. Weeds should be pulled or mowed when plants are 6–12 inches tall, or when they can be positively identified, and prior to the formation of seed heads. If seed heads have formed, they shall be cut and bagged for removal from the site. Crews conducting weed control should be trained to distinguish native species and non-native species in order to avoid inadvertent impacts to

native species within the restoration areas. Any herbicide treatment must be specified by a licensed Pest Control Advisor and applied by a licensed Pest Control Applicator. Initial weed control procedures are found in Section 4.4.

5.3 General Site Maintenance

Pruning or clearing of native vegetation within the restoration areas will generally not be allowed, except as directed by the Restoration Ecologist. Dead native plant biomass and plant litter will be left in place to decompose naturally. Organic biomass and leaf litter provide valuable microhabitats for benthic and terrestrial invertebrates, reptiles, small mammals, and birds. The decomposition of native plant material is also essential for the replenishment of soil nutrients and minerals. All trash and debris will be removed from the restoration areas by hand on a regular basis. Trash and debris consist of all anthropogenic materials, equipment, or debris dumped, thrown, washed, blown, or left within the restoration areas.

5.4 Trash and Debris Removal

Trash and debris shall be regularly removed from the restoration area and disposed of legally at an off-site waste facility. Trash and debris shall be removed as needed, but no less than quarterly.

5.5 Public Access Control

The Restoration Contractor shall maintain and repair perimeter fencing and signage to discourage unauthorized access. The Restoration Contractor shall confer with the Restoration Ecologist if it appears that deficiencies in the perimeter fencing need to be addressed or if modifications must be implemented in order to continue to provide appropriate site delineation and protection during the maintenance and monitoring period.

5.6 Irrigation Maintenance

If the Restoration Ecologist determines a temporary irrigation system is necessary, The Restoration Contractor shall regularly inspect the irrigation system during scheduled maintenance visits and make any repairs or adjustments to the watering frequency as recommended by the Restoration Ecologist. Supplemental irrigation is anticipated to be discontinued by the end of Year 3 of the maintenance and monitoring period, at the latest. This will allow potentially salvaged plant material and seed to establish and adjust to natural precipitation patterns for the final two years of the maintenance and monitoring period. For the duration of the period in which irrigation is in use, the Restoration Contractor will verify that there are no leaks, breaks or disruptions in controller operation, and that container plants are receiving adequate water while avoiding over-watering and erosion. Irrigation frequency will be gradually reduced over time to acclimate plants to a non-irrigated condition prior to complete cessation of irrigation. Irrigation from Jun to November will be minimized to allow plants to experience normal drought cycles and to promote appropriate root growth. Should the site experience drought conditions during the winter months, the Restoration Ecologist may recommend supplemental irrigation be continued to ensure successful establishment of container plants and seed. The Restoration Contractor will maintain the irrigation system at the optimum level of operation. Following the completion of restoration and County approval, the Restoration Contractor will remove all aboveground irrigation components from the site.

6 Monitoring Program

Upon successful completion of the installation phase of the Project, including the initial 120-day PEP, the Restoration Ecologist shall prepare an installation completion report documenting completion of the installation phase and acknowledging the start of the five-year program. The Restoration Ecologist shall conduct the qualitative and quantitative monitoring of the restoration area and will be responsible for preparing annual reports at each anniversary of installation. Additionally, the Restoration Ecologist will provide observations and recommendations following each qualitative monitoring visit. Observations and recommendations will be provided to the Restoration Contractor and will inform maintenance actions. At the completion of the maintenance and monitoring period, the Restoration Ecologist will prepare a final monitoring report documenting progress towards achievement of success criteria. The restoration effort will be considered successful when the success criteria outlined in Section 7 have been met and completion has been approved by the County.

6.1 Qualitative Monitoring

The restoration effort should be qualitatively assessed monthly through the completion of the PEP. Following completion of the PEP, qualitative monitoring will occur monthly during the months of January through June, and then quarterly through the remainder of each year. Qualitative monitoring of the restoration areas will consist of general site assessments, inspection of vegetation health and establishment, wildlife use, presence of special-status plants, and documentation of disturbance. Qualitative monitoring will also produce maintenance recommendations for the Restoration Contractor. Maintenance notes will include the health of potentially salvaged plants, status of seed mix establishment, pest problems, erosion issues, disturbance, potential irrigation issues, non-native species occurrence, trash, and perimeter control. The results of qualitative monitoring events and relevant maintenance observations/recommendations will be documented in a brief site observation report and distributed to the Restoration Contractor. All significant observations will be included in the annual monitoring report, which will be produced at the end of each year (Table ~~4~~5).

Table 5~~4~~. Monitoring Site Visit Schedule

Year	Frequency	Annual Report *
1	Monthly during the PEP, Quarterly thereafter	December
2	Monthly during the months of January through June, and quarterly for the remainder of each year.	December
3	Monthly during the months of January through June, and quarterly for the remainder of each year.	December
4	Monthly during the months of January through June, and quarterly for the remainder of each year.	December
5	Monthly during the months of January through June, and quarterly for the remainder of each year.	December

* Annual report dates may vary depending upon the actual date of installation completion.

6.2 Quantitative Monitoring

Quantitative monitoring for special-status species will consist of physically counting individual plants within the restoration areas of each restored special-status species. If populations of restored special-status plants become too large and counting becomes infeasible, sample-based methods may be implemented at the discretion of the

Restoration Ecologist and the County. Quantitative monitoring will also include estimating levels of non-native cover within the restoration areas. A minimum of 10 sample points will be randomly placed within the restoration areas and cover of non-native species will be recorded at each sample point. A 1 meter by 1 meter quadrat will be placed at each sample point and the absolute cover of each non-native species will be recorded. Any modifications to the quantitative methods described in this RPSP will require approval by the Restoration Ecologist and the County.

6.3 Reporting

An annual biological monitoring report outlining the results of the progress of the restoration areas will be submitted to the County at the end of each year on the anniversary date of completion of restoration installation, or at the end of the calendar year (December). The annual monitoring reports will include the following: description of the existing conditions of the restoration areas derived from qualitative and quantitative data, a comparison of annual performance standards against actual field conditions, identification of all shortcomings of the restoration program, and recommended remedial measures necessary for the successful completion of the restoration Project. Each annual report will provide a summary of the accumulated data. If the year five annual monitoring report indicates that the restoration effort has been unsuccessful either in part or in whole, based upon the approved success criteria, then the Owner shall submit within 90 days an adaptive management plan for addressing those portions of the original program which did not achieve the approved success criteria.

7 Final Performance Standards

The goal of the restoration program is the creation of self-sustaining special-status plant populations that will be preserved and require reduced levels of maintenance. Performance standards have been established for this habitat type, which will determine when the restoration effort will be considered successful.

7.1 Rationale for Expecting Success

This plan proposes to create and enhance special-status plant populations within the on-site Open Space Preserve. The proposed restoration areas were identified based on the existing environmental conditions (i.e., soils, slope, and vegetation communities) and locations of existing special-status plant populations. The restoration areas selected are known to contain populations of the special-status species for which mitigation is being required, indicating each species is capable of establishing within the restoration areas. Additionally, the proposed maintenance and monitoring period will ensure restored populations of special-status species will successfully establish and persist with reduced maintenance.

7.2 Target Functions

To achieve the target functions and values of the proposed restoration program, implementation of the revegetation program will create and enhance special-status plant populations. Special-status plant populations are anticipated to be stable and self-sustaining following the successful completion of the maintenance and monitoring period.

7.3 Performance Standards

Survival of all potentially salvaged plants and sufficient germination of the intended seeded species within the restoration area will be required by the end of the initial 120-day PEP. If the Restoration Ecologist determines that plant mortality, or seed germination progress are unacceptable, then a reseeding program will be initiated within the restoration areas during the first growing season after the PEP is complete. In the case of sticky geraea and Jacumba milkvetch, additional seed will be collected from existing plants within the Open Space Preserve and redistributed within the restoration areas. In the case of desert beauty, seed will be collected from the existing population within the Open Space Preserve and used to initiate a seed bulking program with the intent of providing sufficient seed to satisfy the mitigation requirements.

Specific performance standards for the restoration areas must be attained within the restoration area at the end of each year of the five-year maintenance and monitoring period following installation. The interim performance standards are shown in Table ~~5~~ 6 and include the required number of special-status plant individuals and maximum percent of non-native plant cover. These standards have been established to measure the success of the restoration effort during each year of the restoration effort.

Should the Restoration Ecologist determine that any part of the restoration program is not meeting interim performance standards, the Restoration Ecologist will recommend corrective measures for the Restoration Contractor to implement. The corrective measures will be implemented during the following year to bring the restoration areas into compliance with the interim performance standards. These corrective measures may include

replanting of failed areas with container stock of appropriate species, re-seeding, more intensive weed control efforts, applying soil amendments, or adjustments to irrigation and maintenance practices.

Table 6~~5~~. Total Performance Standards

Year	Minimum Number of Special-Status Plant Individuals Required	Maximum Percent Non-Native Plant Cover**
1	422 Jacumba milkvetch 28 Sticky geraea 190* Desert beauty	25
2	844 Jacumba milkvetch 56 Sticky geraea 190* Desert beauty	20
3	1266 Jacumba milkvetch 84 Sticky geraea 190* Desert beauty	15
4	1688 Jacumba milkvetch 112 Sticky geraea 190* Desert beauty	10
5	2112 Jacumba milkvetch 138 Sticky geraea 190* Desert beauty	10

* This number represents the minimum quantity of desert beauty individuals that must be observed in any one year during the maintenance and monitoring period. Due to the annual nature of the species and variable climatic conditions, population size is known to fluctuate annually.

** No perennial invasive plant species shall be allowed to persist in the site during the maintenance and monitoring period. Non-native grasses shall not count toward total non-native cover due to their ubiquitous nature surrounding the site.

8 Completion of Five-Year Program

8.1 Notification of Completion

Upon completion of the five-year maintenance and monitoring period, and achievement of the success criteria, the Restoration Ecologist shall prepare a final letter indicating that the restoration has completed its required maintenance and monitoring period and that the restoration is ready for County sign-off. The letter shall indicate that the restoration areas are in substantial conformance with the intended final success criteria. If the Project does not meet the success criteria by the completion of the five-year period, then the Restoration Ecologist shall make remedial recommendations to bring the Project into compliance, and the maintenance and monitoring period shall be extended until the success criteria are met or modified.

8.2 Contingency Measures

Contingency measures will be implemented if the restoration program fails to meet the performance standards at the end of the five-year monitoring period and it is felt that an extended maintenance period would not be sufficient to assure success. Such measures may include planting additional container stock, applying additional seed, implementing a seed bulking program, conducting additional pest control measures, modifications to the irrigation system, and the extension of the maintenance and monitoring period until such time that the performance standards are achieved. If it is determined at that time that the success standards cannot be met at the intended restoration areas, then additional consultation shall be undertaken with the County to determine alternate contingency measures and/or another compensatory mitigation solution. Any significant issue or contingency that arises within the Project site (e.g. excessive plant mortality, fire, or flooding) shall be reported in writing to the County within two weeks from the date of incident. Accompanying the identification of the issue shall be a plan for remediation, with an implementation schedule and monitoring schedule.

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9 Long-Term Protection and Management

After successful completion of the five-year maintenance and monitoring period, the restoration area is expected to function as naturally regenerating and self-sustaining native habitat that will be preserved and protected in perpetuity. Long-term protection and management of the preserved habitat will be assured through the establishment of a conservation easement over the area.

The County shall maintain the right to inspect the restoration areas and to inform the Owner of any conditions requiring amelioration and direct the Owner to maintain vegetation and soils on site in qualitatively similar condition to that of the site at the end of the five-year maintenance and monitoring period.

The Owner, in coordination with the County, shall submit a Conservation Easement which will run with the land, obligating the Owner and any successors to protect and maintain the Open Space Preserve as natural open space in perpetuity. The conservation easement shall preclude establishment of fuel modification zones, additional public access trails that were not part of the approved Project, additional drainage facilities, construction of walls or other physical structures, construction of additional maintenance access roads and/or future easements, except as provided in the restoration area description. Further, to the extent practicable, any such facilities outside of the conservation easement shall be sited to minimize indirect impacts on the restored habitat. An open space easement over the land shall be dedicated to the County of San Diego or similar agency to the satisfaction of the Director of Planning and Development Services. The land shall be protected in perpetuity. An endowment shall be established to provide funding for the long-term protection and management of the Open Space Preserve.

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Appendix M

San Diego Gas and Electric Construction Yard

- Rugged Solar Farm Project Boundary
- SDG&E Construction Yard

Impacts

- Onsite Impact Area
- Open Space
- Fuel Mod Zone
- **Vegetation Communities**

Uplands

- BSS - Big Sagebrush Scrub
- dBSS - disturbed Big Sagebrush Scrub
- CC - Granitic Chamise Chaparral
- CLOW - Coast Live Oak Woodland
- DEV - Urban/Developed
- DH - Disturbed Habitat
- MBWS - Montane Buckwheat Scrub
- dMBWS - disturbed Montane Buckwheat Scrub
- MOW - Mixed Oak Woodland
- NNG - Non-Native Grassland
- NNGB - Non-Native Grassland-Broadlead-Dominated
- OW - Open Water
- RSCH - Red Shank Chaparral
- SDC - Semi-Desert Chaparral
- dSDC - disturbed Semi-Desert Chaparral
- SDC-rock - Semi-Desert Chaparral - Rock
- SMX - Granitic Northern Mixed Chaparral
- dSMX - disturbed Granitic Northern Mixed Chaparral
- SOC - Scrub Oak Chaparral
- dSOC - disturbed Scrub Oak Chaparral
- dSWS - disturbed Southern Willow Scrub

Wetlands

- AM - Alkali Meadow
- dAM - disturbed Alkali Meadow
- dMFS - disturbed Mulefat Scrub
- NVC - Non-Vegetated Channel
- TS - Tamarisk Scrub

SOURCE: SANGIS 2020

DUDEK

0 500 1,000 Feet

FIGURE 1

SDG&E Construction Yard within the Rugged Solar Project Site

Rugged Solar Farm

From:	Fritts Golden
To:	Collins, Linda
Cc:	"billie.blanchard@cpuc.ca.gov" (billie.blanchard@cpuc.ca.gov); Pearson, Scott; MDoalson@semprautilities.com; JSeifert@semprautilities.com; Hingtgen, Robert J; Jim Whalen (james@jwhalen.net); John Gibson (john@hamannco.com); Sher, Nicholas (nicholas.sher@cpuc.ca.gov); Merideth "Molly" Sterkel (merideth.sterkel@cpuc.ca.gov); Borak, Mary Jo (maryjo.borak@cpuc.ca.gov); Fritts Golden; Vida Strong; Valerie Yep; Shelby Howard
Subject:	Mitigation Restoration in lieu of using Rough Acres site
Date:	Tuesday, June 18, 2013 3:46:07 PM
Attachments:	Rough Acres Restoration Ltr 061813.pdf

Linda:

Billie Blanchard, CPUC, has requested that I send you her reply regarding the Rough Acres property and SDG&E's restoration obligations for impacts there. The letter approving your plan for using alternative locations is attached. If you have any questions, please contact Billie.

Regards

Fritts

Aspen Environmental Group

Fritts Golden, MRP
Senior Associate
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PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

June 18, 2013

Ms. Linda Collins
Manager – Sunrise Environmental
SDG&E Environmental Services
8315 Century Park Court - CP21E
San Diego, CA 92123-1548

RE: Approval of Alternative Program to Mitigate for Impacts at Rough Acres Yard.

Dear Ms. Collins:

CPUC staff has reviewed you letter of May 24, 2013, replying to our request for information regarding how SDG&E will meet its obligations to mitigate for impacts that occurred from activities at Rough Acres Yard. A copy of your letter is attached for the record.

CPUC approves the program outlined in the letter and accepts this off-site mitigation and restoration program in lieu of restoration at Rough Acres.

Background

In order to construct the Sunrise 500-kV transmission line, SDG&E established a number of construction yards along or near the route. These yards were approved as part of the overall project. Subsequently, SDG&E sought modifications to various aspects of the project, including to the Rough Acres yard. The Project Modification Report (May 14, 2010, page 4-51ff), discusses the modification to expand operations at Rough Acres.

> "… The modification would increase ground disturbance by approximately 50 acres and would increase temporary impacts to Jacumba milk-vetch, chaparrals, coastal and montane scrubs, and visual resources. [Because it would eliminate the need to use other sites,] It would reduce impacts to non-vegetated channels, riparian and woodland habitats, Peninsular bighorn sheep habitat, and US and State waters."

The project modification resulted in a new 92.46-acre yard west of McCain Valley Road in eastern San Diego County, north of Interstate 8. This yard consolidated some construction-related operations, facilitated aircraft operations, and increased the area available for storage and tower assembly. The consolidation allowed for the elimination of three yards planned elsewhere and totaling 91.72 acres.

A letter report, Rare Plant and Invasive Weed Report for the Rough Acres Construction Yard, dated September 28, 2010, was provided to SDG&E by its consultant RECON. It was reported that rare plant species identified during the survey at Rough Acres Phase II included Jacumba milk-vetch (*Astragalus douglasii* var. *perstrictus*) [CNPS rating 1B.2]1 and sticky geraea (*Geraea viscida*) [CNPS rating 2.3], which were generally found in areas of mild disturbance and were distributed throughout the proposed

[1] California Native Plant Society ratings: List 1B (considered endangered throughout its range); List 2 (considered endangered in California but more common elsewhere). Impacts to CNPS List 1B and 2 species, due to their relatively high regional sensitivity, will require in-kind mitigation

construction site. Mountain Springs bush lupine (*Lupinus excubitus* var. *medius*) [CNPS rating 1B.3] was found at a single location off of an existing unpaved access road.

Notices to Proceed (NTPs) for Rough Acres Phase I Yard and for Rough Acres Phase II Yard were issued on September 28, 2010 (NTP #5) and December 28, 2010 (NTP #12), respectively. Phase I was on an already disturbed or developed portion of the site. In its November 29, 2010 request for approval for the use of Phase II of Rough Acres, SDG&E stated: "Upon completion of the Project, the Rough Acres Construction Yard will be restored to its original condition. This will include removal of any temporary facilities, as well as collection and proper disposal of any waste, trash, and debris. However, the owner-installed perimeter fence, aggregate base and crushed rock will be left in place per agreement with property owner."

The modification increasing the size of Rough Acres increased temporary impacts to the rare Jacumba milk-vetch (*Astragalus douglasii* var. *perstrictus*). Jacumba milk-vetch is a perennial herb with stout, erect stems that can grow up to 3 feet (1 meter) in height. This species ranges from Imperial and San Diego counties to Baja California. Most of the project's impacts to this species were at Rough Acres and mitigation for impacts to this species was anticipated to occur at Rough Acres. The Rough Acres Yard modification also increased temporary impacts to sensitive vegetation communities.

In a July 18, 2012, letter to Billie Blanchard at CPUC, John Gibson, Hamann Companies (Rough Acres property owner), expressed a desire to "keep using the yard, in its current state, going forward, without restoration." Mr. Gibson requested that SDG&E not conduct any additional restoration after completing site stabilization required to prevent erosion.

On August 10, 2012, CPUC met with SDG&E to discuss post-construction project requirements applicable to several locations and various landowners' requests, including a request for not restoring Rough Acres. In a letter dated August 17, 2012, CPUC granted SDG&E's requests to comply with a number of individual landowner requests (e.g., leaving a fence in place, leaving a gate, leaving property 'as-is', etc.). However, with regard to the Rough Acres property, the disturbed area of Phase II was to be restored. SDG&E was directed to restore the area as detailed in the Restoration Plan as soon as the need for Rough Acres for Sunrise construction and post-construction restoration was complete.

The area in question contained most of the Jacumba milk-vetch plants that were expected to be subject to temporary impact by the project (836 of 958 plants). Because site restoration was identified in the Restoration Plan for Special Status Plants, site clearing was accounted as a temporary impact in this area. Section 2.2.3 of the restoration plan states: "Restoration will occur primarily at the Rough Acres construction Yard, where the largest number of Jacumba milk-vetch will be affected." The plan states that restoration can also occur in the Temporary Impact Areas (TIAs) where 10 or more Jacumba milk-vetch plants have been documented.

In a February 5, 2013, letter to Billie Blanchard from John Gibson, Hamann Companies, the landowner asked CPUC to relieve SDG&E from its obligation to restore the property. The letter states that SDG&E's leases on the properties had expired, all alterations to the property belong to the landowner, and that SDG&E had no further right of access. The letter claimed that the property owner did not know of the restoration requirement and had it been known he would not have leased the property. The letter noted that SDG&E disagreed with Hamann Company's assertions and the utility maintained that it had the right to mitigate impacts per its obligations and, if necessary, could resort to eminent domain.

The February letter inaccurately characterizes the required restoration as creating a "perpetual encumbrance as open space." The only requirement imposed by CPUC on SDG&E is to restore the

property with appropriate vegetation. Failure to restore the site would make permanent the otherwise temporary impacts and this would require appropriate mitigation.

The Hamann Company letter stated that the property has been optioned to a solar developer, that the County of San Diego is processing a Major Use Permit for an 80 MW solar farm, and that SDG&E has signed a Power Purchase Agreement with the solar developer. The landowner expressed concern that the restoration obligation could affect the permitting process and stated that Hamann Company could lose more than $2.2 million should the solar developer elect not to use the property.

A Major Use Permit (MUP) application has been made to San Diego County for the project and an Environmental Impact Report (EIR) is being prepared by Soitec Solar Development, LLC to construct solar facilities on the Rough Acres property and other properties in the area. CPUC confirmed that as of June 5, 3013, the application is active and the draft EIR is undergoing internal review at the County.

Conclusions

CPUC recognizes that compelling restoration of a property planned to be developed into a solar farm in the foreseeable future would be a waste of ratepayer money and would not achieve the objective of the mitigation measure. The objective is to ensure that the plant communities and special status plant species that were on the site previous to the Sunrise project be successfully reestablished or their loss mitigated.

By not restoring the Rough Acres site, the temporary impacts to plants become permanent. This status would require SDG&E to undertake offsetting mitigation elsewhere for the plant communities and Jacumba milk-vetch lost at Rough Acres.

The mitigation requirements for sensitive biological resources of the type at Rough Acres are:

- Semi-desert chaparral – mitigated at a 1:1 ratio for temporary and permanent impacts
- Flat-topped buckwheat scrub – mitigated at a 2:1 ratio for temporary and permanent impacts
- Jacumba milk-vetch – mitigated at a 1:1 ratio for temporary and permanent impacts

SDG&E has demonstrated that it has acquired sufficient acreage at its Long Potrero mitigation property at the required ratios to offset the lost semi-desert chaparral and flat-topped buckwheat scrub at Rough Acres.

The 923 Jacumba milk-vetch individuals at Rough Acres occupied approximately 18 acres. SDG&E has identified 54 acres of disturbed habitat suitable for milk-vetch restoration in the McCain Valley (where Rough Acres is located). This acreage is in the temporary impact areas associated with various tower construction sites and the McCain Valley construction yard. SDG&E's restoration activities will include supplemental seeding of Jacumba milk-vetch, salvage of individuals, and adaptive weed control at disturbed areas and in the project right of way. The restoration program will continue over approximately 5 years.

CPUC staff has reviewed you letter of May 24, 2013, replying to our request for information regarding how SDG&E will meet its obligations to mitigate for impacts that occurred from activities at Rough Acres Yard. A copy of your letter is attached for the record.

Based on the information provide in SDG&E May 24, 2013 letter and discussion with SDG&E on implementation of the restoration effort, CPUC approves the program outlined in the letter and accepts the program as a reasonable alternative to restoration of lands at Rough Acres.

Regards

Billie Blanchard
CPUC Environmental Project Manager
Sunrise Powerlink Transmission Project

Cc Scott Pearson, SDG&E
Daryle Cheever, SDG&E
Marc Doalson, SDG&E
Jim Seifert, SDG&E
Robert Hingtgen, San Diego County Planning
James Whalen, Whalen Associates
John Gibson, Hamann Companies
Nicholas Sher, CPUC Legal
Merideth Sterkel, CPUC
Mary Jo Borak, CPUC
Fritts Golden, Aspen
Vida Strong, Aspen
Valerie Yep, Aspen
Shelby Howard, Helix

Attachment: SDG&E letter

SDGE connected
A Sempra Energy utility

Linda Collins
Manager – Sunrise Environmental
SDG&E Environmental Services
8315 Century Park Court
San Diego, CA 92123

May 24, 2013

Ms. Billie Blanchard
California Public Utilities Commission
505 Van Ness Avenue
4th Floor
San Francisco, CA 94102-3298

Re: SDG&E Reply to CPUC's Data Request for Rough Acres

Dear Ms. Blanchard:

On April 19, 2013, Fritts Golden (Aspen), Shelby Howard (Helix) and Marc Doalson (SDG&E) had a conference call to discuss a CPUC request for information letter dated March 14, 2013 and SDG&E's letter reply dated April 5, 2013 relating to project impacts within the Rough Acres construction yard to sensitive vegetation communities and sensitive plant species. The primary issues relate to the Rough Acres property owner refusing access to SDG&E for habitat restoration activities. The main issue for the conference call was a discussion of project mitigation requirements for temporary impacts to flat-topped buckwheat scrub, semi-desert chaparral and Jacumba milk-vetch (*Astragalus douglasii* var. *perstrictus*) within the Rough Acres construction yard.

On the April 19, 2013, call all parties concurred that SDG&E has a responsibility to mitigate project impacts to sensitive vegetation communities and Jacumba milk-vetch within the Rough Acres construction yard due to impacts resulting from project activities. In order to resolve the issue in a way that benefits biological resources along the project alignment the potential to change the characterization of all impacts within the Rough Acres construction yard from temporary to permanent was discussed, as it might be an acceptable method to the CPUC to ensure appropriate mitigation of biological values, and resolve the issue. The reasoning was twofold: (1) the mitigation ratios for impacts to semi-desert chaparral, flat-topped buckwheat scrub and Jacumba milk-vetch are the same regardless of the type of impact (temporary or permanent) since the project has already mitigated ratios greater than 1:1 at offsite mitigation properties; and (2) the Rough Acres landowner has proposed a renewable energy project at the site, and therefore it will not be possible to effectively restore the site. The proposed solution would allow for habitat restoration and enhancement activities within the project right-of-way and impact areas as well as additional offsite preservation of sensitive vegetation communities at project offsite mitigation properties. This will meet the project's mitigation obligations in lieu of restoration at Rough Acres.

The mitigation requirements for these sensitive biological resources are as follows:

- Temporary and permanent impacts to semi-desert chaparral are to be mitigated at a 1:1 ratio;
- Temporary and permanent impacts to flat-topped buckwheat scrub will be mitigated at a 2:1 ratio; and
- Temporary and permanent impacts to Jacumba milk-vetch will be mitigated at a 1:1 ratio (Restoration Plan for Special Status Plants [RPSP], § 1.1, page 3.).

As discussed on April 19, 2013, SDG&E proposes to achieve these mitigation ratios through the following steps:

1. Mitigate impacts to Jacumba milk-vetch as described in SDG&E's reply to the CPUC on the April 5, 2013 (referenced above). This includes:

    a. Mitigate impacts to 923 Jacumba milk-vetch individuals within the Rough Acres construction yard through seeding and natural recruitment of Jacumba milk-vetch within temporary impact areas in McCain Valley (EP170 through EP221-2, including the McCain Valley construction yard). The 923 Jacumba milk-vetch individuals impacted within the Rough Acres construction yard occupied approximately 18 of the 70 acres impacted. There is approximately 54 acres of suitable habitat available for restoration of at least 923 Jacumba milk-vetch individuals within temporary impact areas being restored (EP170, EP171, EP172, EP173-1, EP174, EP175, EP176, EP177, EP178, McCain Valley construction yard, EP179, EP180, EP181, EP182, EP184-1, EP185-1, EP186-1, EP187-2, EP190-2, EP191-2, EP192-2, EP193-2, EP197-3, EP198-3, EP199-3, EP200-3, EP200A-1, EP201-3, EP202-3, EP203-3, EP204-3, EP205-2, EP206-1, EP207, EP208, EP209-1, EP210, EP211, EP213, EP214, EP215, EP217-1, EP218-1, EP219-1 and EP220-1) in McCain Valley, outside of the Rough Acres construction yard.

    b. Enhancement of existing populations of Jacumba milk-vetch within the project right-of-way per Section 2.1.2 in the RPSP, as appropriate.

    c. SDG&E will continue habitat restoration and enhancement efforts, including but not limited to supplemental seeding of Jacumba milk-vetch for the duration of the habitat restoration program, salvage of Jacumba milk-vetch individuals within vegetation management areas (i.e. project access roads, crane pads and structure pads) and adaptive weed control strategies within project impact areas as well as within the project right-of-way, as appropriate. The total number of individuals within temporary and permanent impact areas will be included in the Sunrise Powerlink Restoration Annual Monitoring and Maintenance Report(s) (related to Site Specific Restoration Plans [SRP] 07 through 14). The annual reports will detail the status of project habitat restoration activities for special-status plants and vegetation communities. Current estimates (March 25, 2013) of Jacumba milk-vetch individuals along with project impact acreages (temporary and permanent) within the McCain Valley area are included in Attachment A.

    In aggregate, these efforts will meet if not exceed the total number of individuals required during the habitat restoration program, over the course of approximately 5-years, and ensure perpetuation of the species within project impact areas in McCain Valley. Per Section 5.2 in the appropriate SRP's, final success criteria will be met when the density and total population size in restored sites are comparable to the established reference site for each Jacumba milk-vetch restoration area.

2. Mitigate impacts to flat-topped buckwheat scrub and semi-desert chaparral as described in SDG&E's reply to the CPUC on the April 5, 2013 (referenced above). This mitigation will be achieved through preservation of similar habitats at SDG&E's Long Potrero mitigation property as described below.

    a. Temporary and permanent impacts to flat-topped buckwheat scrub are mitigated at a 2:1 ratio. SDG&E has accounted for the first 1:1 portion, 27.82 acres of flat-topped buckwheat scrub, at the Long Potrero mitigation property. With the proposed action an additional 27.82 acres of flat-topped buckwheat scrub will be mitigated, (a total of 55.64 acres), for project impacts to this sensitive vegetation community within the Rough Acres construction yard. Accounting for this there will be 115.07 acres of flat-topped buckwheat scrub remaining on Long Potrero that has not been claimed to mitigate project impacts to this sensitive vegetation community. SDG&E permanently impacted an additional 0.67 acres of flat-topped buckwheat

scrub between EP78 (0.10 acre), EP179 (0.45 acre), CP95-1 (0.11 acre) and CP96-1 (0.01 acre) and owes an additional 1.34 acres, due to the 2:1 mitigation ratio, of compensation for this community. Pursuant to the approach outlined here, 56.98 acres of flat-topped buckwheat scrub impacts would be accounted for on the Long Potrero mitigation property, leaving a remaining excess of 113.73 acres of flat-topped buckwheat scrub available for other project mitigation requirements.

b. Temporary and permanent impacts to semi-desert chaparral are mitigated at a 1:1 ratio. Mitigation for temporary impacts to semi-desert chaparral is generally accomplished for the project via habitat restoration. With the proposed action SDG&E plans to account for the 1:1, 41.06 acres of semi-desert chaparral, at the Long Potrero mitigation property in lieu of habitat restoration. The 41.06 acres of semi-desert chaparral will be mitigated through preservation of an additional 0.38 acres of northern mixed chaparral and 40.68 acres of southern mixed chaparral at Long Potrero. This will exhaust the additional acreage of northern mixed chaparral and leave an additional 546.58 acres of southern mixed chaparral on Long Potrero as mitigation for project impacts to this sensitive vegetation community.

SDG&E sent a preliminary table detailing project impacts, mitigation ratios and vegetation community acreages per project mitigation property to Mr. Golden and Mr. Howard on April 19, 2013. A final table will be produced and submitted to the CPUC when project impacts are finalized.

Sincerely,

Linda Collins

Linda Collins
Manager – Sunrise Environmental
San Diego Gas & Electric Company

Enclosure

Cc:

Vida Strong
Fritz Golden
Shelby Howard
Nicholas Sher
Scott Pearson
Janice Schneider
David Barrett
Linda Collins
Dayle Cheever
Marc Doalson
Bryan Bennett
Keri Cuppage
Allison Willardson
Ileen Rodriguez

Attachment A

Project features in McCain Valley, vegetation community impact acreages, observed Jacumba milk-vetch individuals and impact types

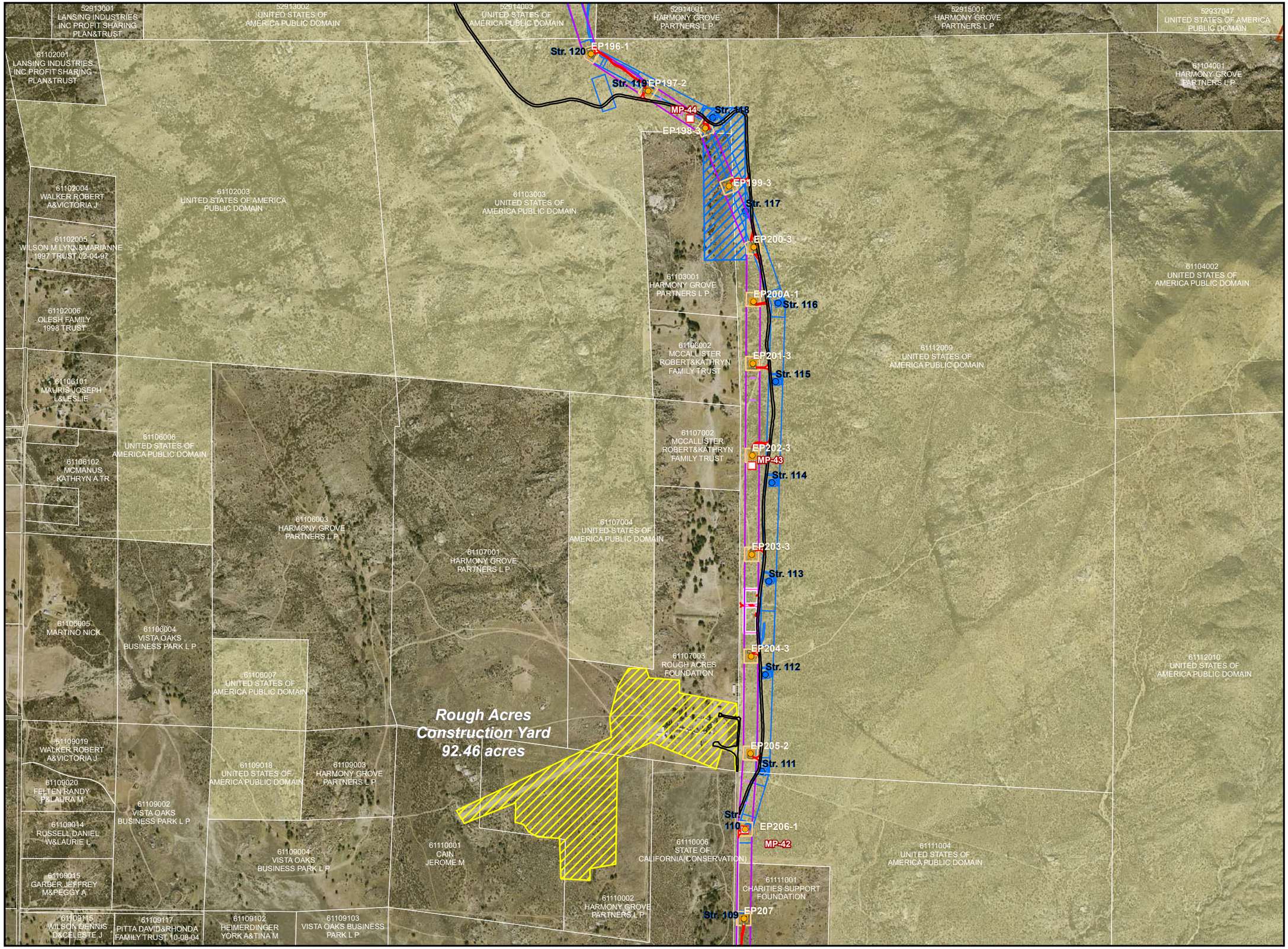
Project Feature	Vegetation Community	Impact Acreage	Number of Jacumba milk-vetch Individuals	Temporary (TIA) or Permanent (PIA) Impact Areas
EP220-1	Developed	0.04	33	TIA
	Non-native Grassland - Disturbed	0.08		
	Redshank Chaparral	1.30		
	Semi-desert Chaparral	0.93		
EP219-1	Big Sagebrush Scrub	0.24	0	TIA
	Developed	0.01		
	Non-vegetated Channel	0.00		
	Northern Mixed Chaparral	1.74		
	Semi-desert Chaparral	2.36		
EP218-1	Diegan Coastal Sage Scrub - Inland Form	0.16	0	TIA
	Northern Mixed Chaparral	0.28		
EP217-1	Northern Mixed Chaparral	0.46	0	TIA
EP215	Chamise Chaparral	0.14	2	TIA
	Developed	0.03		
	Diegan Coastal Sage Scrub - Inland Form	1.70		
	Northern Mixed Chaparral	0.01		
	Semi-desert Chaparral	0.53		
EP214	Developed	0.02	3	TIA
	Diegan Coastal Sage Scrub - Inland Form	0.06		
	Diegan Coastal Sage Scrub - Inland Form - Disturbed	0.01		
	Semi-desert Chaparral	0.02		
EP213	Diegan Coastal Sage Scrub - Inland Form	0.44	0	TIA
EP211	Diegan Coastal Sage	0.03	0	TIA

Project Feature	Vegetation Community	Impact Acreage	Number of Jacumba milk-vetch Individuals	Temporary (TIA) or Permanent (PIA) Impact Areas
	Scrub - Inland Form			
	Semi-desert Chaparral	0.43		
EP210	Developed	0.00	0	TIA
	Diegan Coastal Sage Scrub - Inland Form	0.43		
EP209-1	Non-native Grassland	0.24	0	TIA
EP208	Diegan Coastal Sage Scrub - Inland Form	0.10	7	TIA
	Diegan Coastal Sage Scrub - Inland Form - Disturbed	0.01		
	Semi-desert Chaparral - Disturbed	0.00		
EP207	Diegan Coastal Sage Scrub - Inland Form - Disturbed	0.08	0	TIA
	Semi-desert Chaparral - Disturbed	0.04		
EP206-1	Semi-desert Chaparral - Disturbed	0.14	2	TIA
EP205-2	Semi-desert Chaparral	0.55	0	TIA
EP204-3	Developed	0.09	26	TIA
	Semi-desert Chaparral	1.54		
EP203-3	Semi-desert Chaparral	1.00	0	TIA
EP202-3	Semi-desert Chaparral	0.16	0	TIA
EP201-3	Semi-desert Chaparral	0.18	16	TIA
	Semi-desert Chaparral - Disturbed	0.00		
EP200A-1	Semi-desert Chaparral	0.09	0	TIA
EP200-3	Redshank Chaparral	0.37	2	TIA
	Semi-desert Chaparral - Disturbed	0.88		
EP199-3	Diegan Coastal Sage Scrub - Inland Form	0.14	0	TIA
EP198-3	Developed	0.00	0	TIA
	Semi-desert Chaparral	0.08		
EP197-3	Developed	0.00	0	TIA
	Semi-desert Chaparral	0.28		
EP193-2	Diegan Coastal Sage	0.09	0	TIA

Project Feature	Vegetation Community	Impact Acreage	Number of Jacumba milk-vetch Individuals	Temporary (TIA) or Permanent (PIA) Impact Areas
	Scrub - Inland Form			
	Redshank Chaparral	0.02		
	Semi-desert Chaparral	1.09		
EP192-2	Redshank Chaparral	0.27	0	TIA
	Semi-desert Chaparral	1.34		
EP191-2	Redshank Chaparral	0.06	0	TIA
	Semi-desert Chaparral	0.01		
EP190-2	Semi-desert Chaparral	0.48	0	TIA
EP187-2	Semi-desert Chaparral	2.93	3	TIA
EP186-1	Scrub Oak Chaparral	0.12	0	TIA
EP185-1	Non-vegetated Channel	0.00	0	TIA
	Semi-desert Chaparral	0.09		
EP184-1	Developed	0.08	0	TIA
EP182	Semi-desert Chaparral	0.09	0	TIA
EP181	Chamise Chaparral	0.05	0	TIA
	Semi-desert Chaparral	0.00		
EP180	Semi-desert Chaparral	0.07	0	TIA
EP179	Flat-topped Buckwheat Scrub	0.02	0	TIA
	Semi-desert Chaparral	0.06		
CY McCain Valley	Non-vegetated Channel	0.01	5	TIA
	Semi-desert Chaparral	29.74		
	Chamise Chaparral	1.10		
EP178	Semi-desert Chaparral	0.62	0	TIA
EP177	Chamise Chaparral	0.05	0	TIA
	Northern Mixed Chaparral	0.04		
EP176	Northern Mixed Chaparral	0.18	0	TIA
EP175	Northern Mixed Chaparral	0.11	0	TIA
EP174	Northern Mixed Chaparral	0.16	0	TIA
EP173-1	Developed	0.00	0	TIA
	Northern Mixed Chaparral	0.10		

Project Feature	Vegetation Community	Impact Acreage	Number of Jacumba milk-vetch Individuals	Temporary (TIA) or Permanent (PIA) Impact Areas
EP172	Northern Mixed Chaparral	0.21	0	TIA
EP171	Northern Mixed Chaparral	0.10	0	TIA
EP170	Northern Mixed Chaparral	4.46	0	TIA
Total Individuals in TIA			**99**	
EP220-1	Non-vegetated Channel	0.00	5	PIA
	Semi-desert Chaparral	1.04		
EP215	Chamise Chaparral	0.01	0	PIA
	Developed	0.01		
	Diegan Coastal Sage Scrub - Inland Form	0.49		
EP214	Developed	0.01	0	PIA
	Diegan Coastal Sage Scrub - Inland Form	0.24		
	Semi-desert Chaparral	0.01		
EP213	Developed	0.00	0	PIA
	Diegan Coastal Sage Scrub - Inland Form	0.62		
EP211	Developed	0.04	0	PIA
	Semi-desert Chaparral	0.40		
EP210	Diegan Coastal Sage Scrub - Inland Form	0.46	0	PIA
EP209-1	Non-native Grassland	0.34	0	PIA
	Northern Mixed Chaparral	0.08		
EP208	Diegan Coastal Sage Scrub - Inland Form	0.26	2	PIA
	Diegan Coastal Sage Scrub - Inland Form - Disturbed	0.12		
	Northern Mixed Chaparral	0.03		
	Semi-desert Chaparral - Disturbed	0.16		
EP207	Diegan Coastal Sage Scrub - Inland Form -	0.13	0	PIA

Project Feature	Vegetation Community	Impact Acreage	Number of Jacumba milk-vetch Individuals	Temporary (TIA) or Permanent (PIA) Impact Areas
	Disturbed			
	Semi-desert Chaparral - Disturbed	0.31		
EP206-1	Semi-desert Chaparral - Disturbed	0.26	2	PIA
EP205-2	Semi-desert Chaparral	0.36	0	PIA
EP204-3	Semi-desert Chaparral	0.37	0	PIA
EP203-3	Semi-desert Chaparral	0.41	0	PIA
EP202-3	Semi-desert Chaparral	0.47	0	PIA
EP201-3	Semi-desert Chaparral	0.39	10	PIA
	Semi-desert Chaparral - Disturbed	0.00		
EP200A-1	Semi-desert Chaparral	0.34	13	PIA
EP196-2	Semi-desert Chaparral	0.23	0	PIA
EP195-2	Semi-desert Chaparral	0.27	0	PIA
EP194-3	Semi-desert Chaparral	0.21	0	PIA
EP189-3	Semi-desert Chaparral	0.15	0	PIA
EP188-1	Non-vegetated Channel	0.00	0	PIA
	Semi-desert Chaparral	0.15		
EP187-2	Developed	0.05	0	PIA
	Non-vegetated Channel	0.00		
	Semi-desert Chaparral	0.57		
EP183	Northern Mixed Chaparral	0.65	0	PIA
EP152-2	Northern Mixed Chaparral	0.12	0	PIA
Total Individuals in PIA			**32**	



SUNRISE POWERLINK™

- Mile Marker (MP-51, EP1-X)
- Current Sunrise Structure
- FEIR/EIS Structure
- Guard Structure
- TSAP (Tower Staging Access Pad)
- Road - Existing - No Improvements
- Road - Existing - Improvements Required
- Road - New Construction - Permanent
- Road - New Construction - Temporary
- Suncrest Substation
- Substation Impact Area
- Maintenance Pad
- Structure Pad Area
- Work Area
- Grading
- Stringing Area
- Current Construction Yard Originally in EIR
- Current Construction Yard Not Originally in EIR
- Construction Yard in EIR but Not Current
- Right of Way
- FEIR/EIS Engineering Components
- Parcel Boundary
- Federal Wilderness Area
- Cleveland National Forest Congressional Boundary
- Indian Reservation Boundary
- State Park Boundary
- BLM Land
- U. S. Forest Service Land
- Military Land
- Indian Land
- State Land

0 1,300 2,600

SCALE IN FEET



Figure 13
STRUCTURES
EP206-1 TO EP196-1
(ROUGH ACRES)

May 2010

SDGE
A Sempra Energy utility