APPENDIX B

45-DAY SUMMARY REPORT FOR 2011 FOCUSED QUINO CHECKERSPOT BUTTERFLY SURVEYS

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December 2, 2011

Ms. Erin McCarthy
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

RE: 2011 LanWest Solar Farm Project Quino Checkerspot Butterfly 45-Day Summary Report, Boulevard, California

Dear Ms. McCarthy:

In compliance with the Special Terms and Conditions for Endangered and Threatened Wildlife Species Permit TE-820658-4.6, on behalf of LanWest 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 LanWest Solar Farm 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 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 5.44 megawatts (MW) AC. The Project will be comprised of as many as 264 CPV trackers grouped into four building blocks with up to 66 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; therefore, the total Project capacity is 5.04 to 5.44 MW AC. The Project will be constructed on relatively flat to gently sloping land currently used for grazing. The Project site is comprised of approximately 60 acres and is situated approximately 0.5 mile west of McCain Valley Road and is accessed via an access road to be constructed from McCain Valley Road. It is contiguous to the north side of Old Highway 80 and the south side of Interstate 8. The Project site lies within the unincorporated area of San Diego County just east of Boulevard, California (Figures 1 and 2). It will interconnect to SDG&E's local distribution system at the Boulevard Substation via a dedicated 12.47 kilovolt (kV) tie-line.

A total of approximately 60 acres comprises the Project site, and only one portion of the Project site was excluded from the Quino survey area due to overlap with another project's study area. This was a corridor (5.62 acres) parallel to and directly north of Old Highway 80. This corridor was not included in the Quino survey area, and therefore not surveyed by AECOM. Therefore, approximately 53.29 acres of potential Quino habitat comprised the Quino survey area (Figure 3). For the purpose of this report, only the habitat within the

Project site that was surveyed for Quino will be discussed and is known as the Quino survey area.

Site Description

The Quino survey area is located in a desert transition zone dominated by chaparral communities, subshrub communities, wildflower fields, oak woodlands, and riparian communities. Elevation on the Quino survey area ranges from approximately 3,300 to 3,370 feet above mean sea level, with gently sloping hillsides and shallow valleys. Rock outcrops and a few small hills are scattered throughout the Quino survey area. The Quino survey area 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 (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* spp. *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*).

Big Sagebrush Scrub (35210)

This community is composed of soft-woody shrubs approximately 6.5 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).

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 are 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.

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 with greater precipitation and colder winters. Red shank chaparral occurs in Southern California and is commonly occurring on interior cismontane slopes (Holland 1986). Other associated species often include, Mohave yucca, California buckwheat, and foothill buckwheat.

Chamise Chaparral (37200)

Chamise chaparral is dominated by chamise and generally contains lower 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 (*Ceanothus greggii*), and Mohave yucca.

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 onsite. The shrub understory of these communities may include foothill buckwheat (*Eriogonum wrightii* var. *membranaceum*) in the more open phase oak woodland, and black elderberry (*Sambucus nigra*) and hybrid scrub oak (*Quercus x acutidens*) in the dense phase (Holland 1986).

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 stork's bill, fillaree (*Erodium* sp.), 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 tarweeds (*Deinandra* spp.) and California goldfields (*Lastheniagracilis*), and provides foraging habitat for raptors and often supports other sensitive wildlife species.

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 gentle floodplain of Walker Creek, and is subject to extensive cattle and horse grazing.

Southern Willow Scrub (63320)

Southern willow scrub is a dense, broad-leaved, winter deciduous riparian thicket dominated by several species of willow (*Salix* sp.) in association with mulefat (*Baccharis salicifolia*). Associated species found within this community include mariposa rush (*Juncus dubious*), seep monkey flower (*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).

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 Quino survey area, Tecate tarplant (*Deinandra floribunda*), a California Native Plant Society (CNPS) List 1B rare plant species, 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. The 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). The 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* sp.), Layia (*Layia glandulosa*), goldenbush (*Ericameria* sp.), pincushion (*Chaenactis* sp.), 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* sp.), or those that can be opened by bees, such as snapdragons (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 of 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-tipped 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 that are monitored annually by USFWS. The Project is located in eastern San Diego County, and the Jacumba reference site 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 Quinos were observed flying on March 15, 2011, at the Jacumba reference site, which is approximately 4.2 miles to the southeast of the Quino survey area (USFWS 2011).

Survey Methodology

Habitat Assessment

In accordance with the *Quino Checkerspot Butterfly* (*Euphydryas editha quino*) *Survey Protocol Information* (USFWS 2002), a habitat assessment of the entire Quino survey area was conducted on March 25, 2011, prior to the first protocol-level survey by permitted biologists (Table 1). Protocol-level surveys of the Quino survey area were determined necessary due to the presence of suitable Quino habitat throughout the Quino survey area. The entire Quino survey area occurs within the USFWS Quino recommended survey area (USFWS 2005).Potential habitat surveyed for the Quino consisted of all habitat except for open water (cattle ponds) and developed areas. Results of habitat assessments did not reveal the presence of any excludable areas (per USFWS 202) and therefore all habitats were included in the Quino survey area (Figure 3). All closed-canopy chaparral, riparian forest, and oak woodland habitats in the Quino survey area were included because these areas were small and contained open patches 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 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, and is not present in the Quino survey area. The Jacumba reference site is closer to the desert 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-tipped bird's beak host plants. Quino populations of higher elevations tend to fly slightly later in the season than those of slightly lower populations. Based on AECOM biologists' experience with Quino on the Campo Indian Reservation approximately 6 miles west of the Quino survey area and at a similar elevation (AECOM 2010), 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 Jacumba.

The first adult Quino observed at the Jacumba reference site was detected on March 15, 2011 (USFWS 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 and Bonnie Hendricks under permit number TE-820658-4, and part-time-variable biologists with valid 10(a)(1)(A) permits. Table 2 provides a list of all biologists who conducted surveys and their permit numbers.

Table 2
Survey Personnel and Permit Numbers

Biologist	#TE Permit Number
Erin Bergman	820658-4
Michael Couffer	782703-8
Bonnie Hendricks	820658-4
Ken Osborne	837760-6

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 bushes, 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 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 species survey protocol (USFWS 2002). Surveys were extended an additional week within selected portions of the Quino survey area because potential Quino host plants (dark-tipped bird's beak) were present in these areas or nectar resources remained abundant. Although protocol was satisfied with the 5 weeks of survey, in the interest of survey rigor, AECOM biologists continued with a 6th week of survey within portions of the site considered to have the greatest (if any) potential to support Quino. Portions of the survey area were excluded for this additional survey effort based on the following factors: increased evidence of heavy cattle grazing, a lack of host plant populations, sparse nectaring resources. Therefore, approximately 38.12 acres within the Quino survey 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 shows the survey week date, survey team, total number of survey days, and the number of permitted biologist days that surveys were conducted.

Table 3
Protocol Quino Survey Schedule

Survey Week	Date	Permitted Biologist Survey Team	# Calendar Days	# Person Days[A]
1	03/30/11	Ken Osborne	1	1
2	04/04/11	Mike Couffer	1	1
3	04/13/11 – 04/15/11	Erin Bergman, Mike Couffer	3	3
4	04/20/11	Mike Couffer	1	1
5	4/26/11 – 4/28/11	Ken Osborne, Mike Couffer	2	2
6	05/04/11	Bonnie Hendricks	1	1

[A] The number of person days varied depending on weather conditions; some person days reflected here are partial days. This number only includes permitted biologists.

Results

No Quino were detected during the habitat assessment or the focused adult Quino surveys within the Quino survey area. The five most abundant butterflies found within the Quino survey area in order of abundance were Behr's metalmark (*Apodemia mormo*), common buckeye (*Junonia coenia*), Acmon blue (*Icaria acmon*), sandhill skipper (*Polites sabuleti*), and desert pearly marble (*Euchloe hyantis*). A total of 46 different butterfly and various moth species were detected within the Quino survey area, with numbers varying across survey weeks. The total abundance of butterfly species varied across the six surveys, but was highest during survey weeks 3 through 6.

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 site) was initially part of a larger survey area that was separated into three separate CPV projects (LanWest Solar Farm, LanEast Solar Farm, and Rugged Solar Farm) after the completion of habitat assessments and Quino surveys. LanEast Solar Farm is located adjacent to the Project site (on the eastern boundary of LanWest) and includes habitat on both the west and east side of McCain Valley Road immediately south of Interstate 8 and north of Old Highway 80. Rugged Solar Farm includes land north of Interstate 8 and on both sides of McCain Valley Road. All three project sites were surveyed at the same time for Quino (while the sites were considered one large project). Therefore, some of the appendices include combined data from the now three differentiated projects. Appendix A is identical for both LanWest and LanEast; Appendix B is identical for LanWest and LanEast; Appendix C is identical for LanWest and LanEast;

Appendix D is identical for all three project sites; and Appendix E is identical for LanWest and LanEast.

During spring 2011, rare plant surveys were ongoing concurrent with focused Quino surveys for the Project. Qualified 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 survey area. Botanists mapped all potential Quino larval host plants observed while completing rare plant surveys. All host plants that were detected within the 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.

The only potential Quino host plant detected within the Quino survey area was dark-tip bird's beak. Two small populations of one to 10 plants each were found in the northwestern portion of the Quino survey area. These populations of dark-tip bird's beak were remnant desiccated plants from the previous year.

Discussion

No Quino were found within the Quino survey area. Although two small populations of dark-tip bird's beak were found in the Quino survey area (Figure 3), the low abundance and late emergence of this species and the absence of dotseed plantain, Coulter's snapdragon, and southern Chinese houses substantially diminish the potential of host resources to support a Quino population in 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 Quino survey 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 survey biologists, AECOM is confident that our negative survey results for Quino are valid on all portions of the Quino survey area surveyed for Quino.

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 checkerspot butterfly surveys within the Quino survey area for the proposed LanWest Solar Farm 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 30, 2011 through May 4, 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

Mike Couffer
AECOM Biologist

Bonnie Hendricks
AECOM Biologist

Ken Osborne
AECOM Biologist

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FIGURES

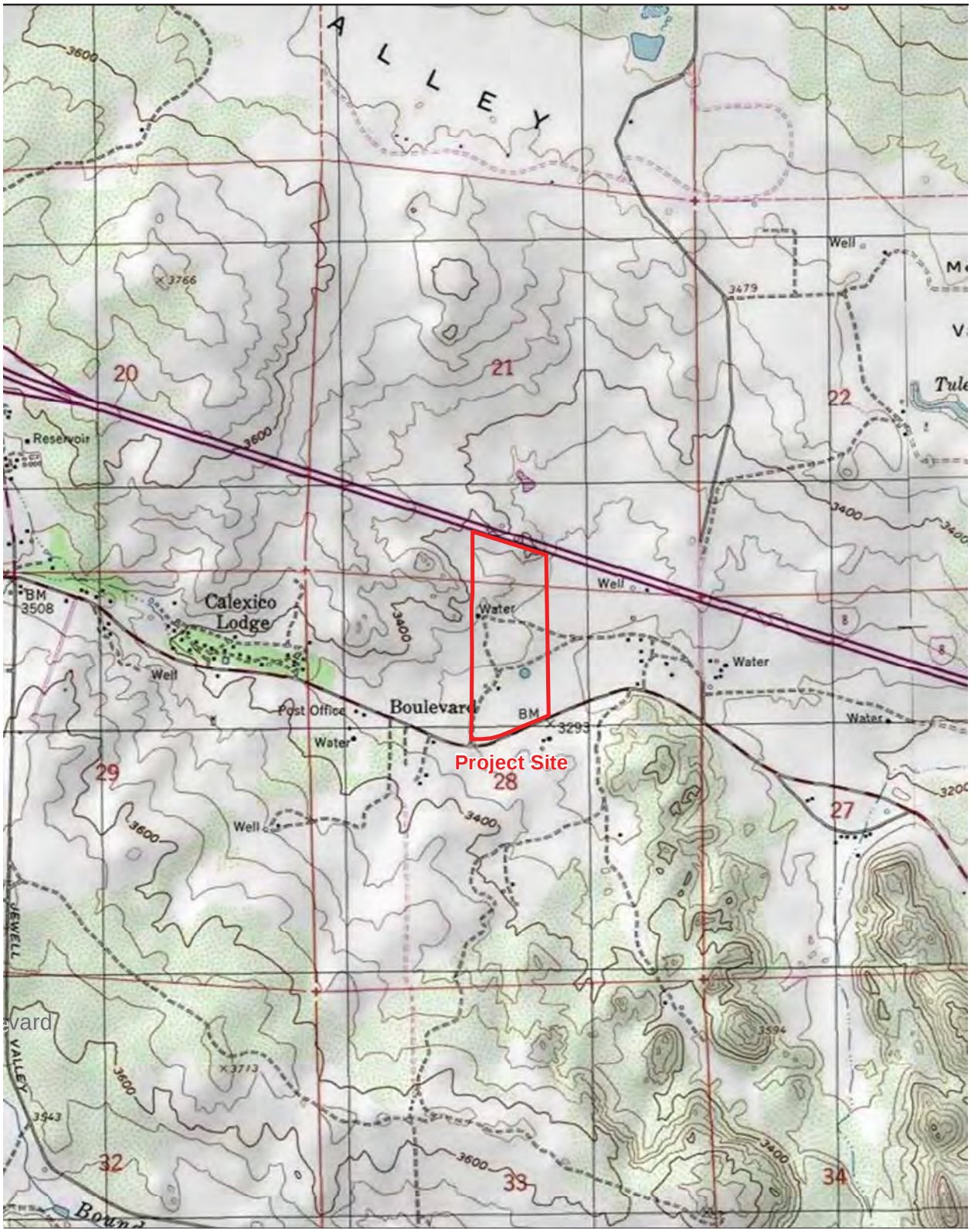
Source: Soitec 2011; AECOM 2011; ESRI 2011

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\LAN_West\RegionalMap.mxd, 11/29/2011, johnsonaa



Source: Soitec; ESRI; AECOM 2011

Live Oak Springs and Jacumba USGS Quadrangles, San Diego County

2,000 1,000 0 2,000 Feet

1:24,000 1 inch = 2,000 feet

Figure 2
Vicinity Map

Path: P:\2011\11280175.01_Concentrix_S\06GIS\6.3_Layout\QCB_45DayReport\LAN_West\VicinityMap.mxd, 11/29/2011, johnsonaa

Source: Soitec; ESRI; AECOM 2011

1,000 500 0 1,000 Feet

1:12,000 1 inch = 1,000 feet

Figure 3
Quino Habitat Assessment and Larval Host Plants Map

Path: P:\2011\11280175.01_Concentrix_S\06GIS\6.3_Layout\QCB_45DayReport\LAN_West\QCBMap.mxd, 11/29/2011, johnsonaa

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[A]

	Survey Week 1	Survey Week 2	Survey Week 3	Survey Week 4	Survey Week 5	Survey Week 6	TOTAL
Nymphalidae (Brushfooted Butterflies)							
Euphydryas chalcedona (Henne's checkerspot)	0	2	0	0	3	0	5
Chlosyne gabbii (Gabb's checkerspot)	0	0	0	0	1	0	1
Checkerspot sp.	0	0	0	1	0	0	1
Junonia coenia (common buckeye)	0	6	15	16	38	23	98
Vanessa annabella (west coast lady)	0	1	0	0	0	0	1
Vanessa atalanta (red admiral)	0	0	0	0	1	0	1
Vanessa cardui (painted lady)	3	1	0	0	1	0	5
Vanessa sp. (lady sp.)	0	2	2	2	0	0	6
Pieridae (Whites, Sulphurs)							
Pontia sisymbrii (spring white)	0	0	0	1	0	0	1
Pontia protodice (common white)	0	7	2	1	7	3	20
Anthocharis sara (Sara orangetip)	10	20	1	0	1	3	35
Euchloe hyantis (desert pearly marble)	19	11	10	0	1	0	41
Colias eurytheme (orange sulphur)	5	6	0	1	6	4	22
Colias harfordii (Harford's sulphur)	1	8	1	1	7	10	28
Colias philodice (clouded sulphur)	0	2	0	0	0	0	2
Nathalis iole (dainty sulphur)	3	4	0	0	1	0	8
Papilionidae (Swallowtails)							
Papilio eurymedon (pale swallowtail)	0	0	0	0	2	1	3
Riodiniade (Metalmarks)							
Apodemia mormo (Behr's metalmark)	151	189	211	137	338	25	1,051
Lycaenidae (Hairstreaks and Blues)							
Celastrina ladon (spring azure)	0	0	0	1	0	0	1
Brephidium exile (western pygmy blue)	0	4	0	0	1	0	5
Glaucopsyche lygdamus (southern blue/silvery blue)	0	0	0	0	2	0	2
Icaria acmon (acmon blue)	10	12	14	6	21	14	77
Philotes sonorensis (sonoran blue)	0	5	1	0	0	0	6
Everes amyntula (western-tailed blue)	1	2	0	0	1	0	4
Callophrys augustinus (brown elfin)	2	0	1	0	1	0	4
Callophrys perplexa (perplexing green hairstreak)	18	14	5	0	1	0	38
Hesperiidae (Skippers)							
Atalopedes campestris (sachem)	0	0	9	0	0	0	9
Erynnis funeralis (funereal duskywing)	0	1	0	0	1	0	2
Erynnis tristis (sad duskywing)	0	1	0	0	0	0	1
Erynnis propertius (propertius duskywing)	2	3	5	3	2	4	19
Erynnis brizo (sleepy duskywing)	1	1	0	0	0	0	2
Erynnis sp. (duskywing sp.)	0	1	0	0	0	0	1
Pyrgus communis (checkered skipper)	1	3	0	0	2	0	6
Heliopetes ericetorum (northern white skipper)	0	0	0	0	2	0	2
Hesperia juba (juba skipper)	0	3	2	17	1	0	23
Polites sabuleti (sandhill skipper)	0	7	2	20	35	5	69
Philosora catullus (common sootywing)	0	2	6	1	3	0	12

	Survey Week 1	Survey Week 2	Survey Week 3	Survey Week 4	Survey Week 5	Survey Week 6	TOTAL
Moths							
Autographa californica	1	0	0	0	0	0	1
Chrismania pictipennalis	5	0	0	0	0	0	5
Drasteria divergens	1	0	0	0	0	0	1
Drasteria edwardsii	8	0	0	0	0	0	8
Drasteria pallescens	1	0	0	0	0	0	1
Drasteria tejonica	1	3	0	0	0	0	4
Euproserpinus phaeton	4	0	0	0	0	0	4
Heliothis belladona	2	0	0	2	0	0	4
Litocola sexsignata	21	0	0	0	0	0	21
Loxostege immerens	7	0	0	0	0	0	7
Schinia amarylis	2	0	0	0	0	0	2
Kodiosoma fulva	0	0	0	1	0	0	1

[A] The Quino survey area (within the LanWest project site) was initially part of a larger survey area that was separated into three separate CPV projects (LanWest Solar Farm, LanEast Solar Farm, and Rugged Solar Farm) after the completion of protocol Quino checkerspot butterfly (*Euphydryas editha quino*) surveys. LanEast Solar Farm is located adjacent to and east of the proposed project site. Rugged Solar Farm is located north of Interstate 8. All three project sites were surveyed for Quino during the same period. This list of butterfly and moth species observations represents species detected for both the LanWest and LanEast projects (but does not include observations from the Rugged Solar site).

APPENDIX B
DAILY WEATHER CONDITIONS DURING QUINO SURVEYS

Appendix B
Daily Weather Conditions During Quino Surveys[A]

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed Average/ Maximum[C] (mph)	Cloud Cover (%)	General Sky Condition
3/30/2011	1	Margaret Mulligan	1410	75	2-5	40	patchy
3/30/2011	1	Margaret Mulligan	1600	75	2-5	65	patchy
3/30/2011	1	Ken Osborne	0900	70	4-8	0	clear
3/30/2011	1	Ken Osborne	0910	68	0-3	0	clear
3/30/2011	1	Ken Osborne	1200	73	6-17	0	clear
3/30/2011	1	Ken Osborne	1420	74	0-4	2	high haze
3/30/2011	1	Ken Osborne	1623	73	3-7	5	haze
3/31/2011	1	Margaret Mulligan	0900	64	3-6	10	clear
3/31/2011	1	Margaret Mulligan	1110	70	2-4	10	clear
3/31/2011	1	Margaret Mulligan	1400	76	3-6	0	clear
3/31/2011	1	Margaret Mulligan	1600	78	2-4	0	clear
4/4/2011	2	Mike Couffer, Brennan Mulrooney[B]	0830	60	0-3	0	clear
4/4/2011	2	Mike Couffer, Brennan Mulrooney[B]	0900	61	1-5	0	clear
4/4/2011	2	Mike Couffer, Brennan Mulrooney[B]	1000	64	1-5	0	clear
4/4/2011	2	Mike Couffer, Brennan Mulrooney[B]	1100	69	1-7	0	clear
4/4/2011	2	Mike Couffer, Brennan Mulrooney[B]	1200	68	3-8	0	clear
4/4/2011	2	Mike Couffer, Brennan Mulrooney[B]	1300	67	3-7	0	clear
4/4/2011	2	Mike Couffer, Brennan Mulrooney[B]	1400	71	2-5	0	clear
4/5/2011	2	Erin Bergman, Brennan Mulrooney[B]	0930	-	-	0	clear
4/5/2011	2	Erin Bergman, Brennan Mulrooney[B]	1153	75	2-4	0	clear
4/5/2011	2	Erin Bergman, Brennan Mulrooney[B]	1200	77	2-5	0	clear
4/5/2011	2	Erin Bergman, Brennan Mulrooney[B]	1300	80	2-5	0	clear
4/5/2011	2	Erin Bergman, Brennan Mulrooney[B]	1400	80	2-5	0	clear
4/5/2011	2	Erin Bergman, Brennan Mulrooney[B]	1500	79	2-5	0	clear
4/5/2011	2	Ken Osborne, Erin Bergman	1153	75	2-4	0	clear
4/5/2011	2	Ken Osborne, Erin Bergman	1555	70	3-6	40	overcast
4/13/2011	3	Erin Bergman	1130	65	1-2	0	clear
4/13/2011	3	Erin Bergman	1200	66	1-2	0	clear
4/13/2011	3	Erin Bergman	1230	66	1-2	0	clear
4/13/2011	3	Erin Bergman	1300	61	3-6	0	clear

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed Average/ Maximum[C] (mph)	Cloud Cover (%)	General Sky Condition
4/13/2011	3	Erin Bergman	1330	32	3-6	0	clear
4/13/2011	3	Erin Bergman	1400	61	4-7	0	clear
4/13/2011	3	Mike Couffer	1119	63	3-7	0	clear
4/13/2011	3	Mike Couffer	1200	62	4-9	0	clear
4/13/2011	3	Mike Couffer	1300	62	4-7	0	clear
4/13/2011	3	Mike Couffer	1400	61	4-7	0	clear
4/13/2011	3	Mike Couffer	1500	60	4-10	0	clear
4/14/2011	3	Mike Couffer	0845	60	1-2	0	clear
4/14/2011	3	Mike Couffer	0900	61	0-1	0	clear
4/14/2011	3	Mike Couffer	1000	63	0-1	0	clear
4/14/2011	3	Mike Couffer	1100	66	0-2	0	clear
4/14/2011	3	Mike Couffer	1200	68	0-4	0	clear
4/14/2011	3	Mike Couffer	1300	72	0-3	0	clear
4/14/2011	3	Mike Couffer	1400	73	0-2	0	clear
4/14/2011	3	Mike Couffer	1500	71	1-5	0	clear
4/14/2011	3	Mike Couffer	1600	71	0-2	0	clear
4/15/2011	3	Mike Couffer	0900	66	1-5	0	clear
4/15/2011	3	Mike Couffer	1000	70	1-10	0	clear
4/15/2011	3	Mike Couffer	1100	71	2-10	0	clear
4/18/2011	4	Ken Osborne	1100	60	4-5	50	patchy
4/18/2011	4	Ken Osborne	1252	67	5-12	25	overcast
4/18/2011	4	Ken Osborne	1400	69	10-19	30	overcast
4/18/2011	4	Mike Couffer	1100	60	0-4	25	patchy
4/18/2011	4	Mike Couffer	1200	68	0-4	0	clear
4/18/2011	4	Mike Couffer	1300	72	0-2	40	patchy
4/18/2011	4	Mike Couffer	1400	71	8-15	90	overcast
4/20/2011	4	Mike Couffer, James McMorran[B]	0930	64	3-6	5	clear
4/20/2011	4	Mike Couffer, James McMorran[B]	1000	71	0-3	5	clear
4/20/2011	4	Mike Couffer, James McMorran[B]	1100	73	0-5	5	clear
4/20/2011	4	Mike Couffer, James McMorran[B]	1145	75	5-9	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
4/26/2011	5	Ken Osborne	1345	71	2-5	0	clear
4/26/2011	5	Ken Osborne	1410	72	4-5	0	clear
4/27/2011	5	Mike Couffer	0830	70	0-4	0	clear

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed Average/ Maximum[C] (mph)	Cloud Cover (%)	General Sky Condition
4/27/2011	5	Mike Couffer	0900	72	0-4	0	clear
4/27/2011	5	Mike Couffer	1000	73	0-4	0	clear
4/27/2011	5	Mike Couffer	1100	73	0-5	0	clear
4/27/2011	5	Mike Couffer	1200	77	1-7	0	clear
4/27/2011	5	Mike Couffer	1300	76	2-8	0	clear
4/27/2011	5	Mike Couffer	1400	74	2-6	0	clear
4/28/2011	5	Mike Couffer	0900	73	1-7	0	clear
4/28/2011	5	Mike Couffer	1000	84	0-2	0	clear
4/28/2011	5	Mike Couffer	1100	84	0-1	0	clear
4/28/2011	5	Mike Couffer	1200	79	3-10	0	clear
4/28/2011	5	Mike Couffer	1300	82	1-5	0	clear
4/28/2011	5	Mike Couffer	1400	79	3-10	0	clear
4/28/2011	5	Mike Couffer	1500	80	4-10	0	clear
5/2/2011	6	Margaret Mulligan	0900	64	4-8	0	clear
5/2/2011	6	Margaret Mulligan	1200	70	4-11	0	clear
5/2/2011	6	Erin Bergman	0850	64	4-8	0	clear
5/2/2011	6	Erin Bergman	0950	72	4-9	0	clear
5/2/2011	6	Erin Bergman	1200	74	8-10	0	clear
5/3/2011	6	Margaret Mulligan, Erin Bergman	0900	75	2-5	0	clear
5/3/2011	6	Margaret Mulligan, Erin Bergman	1130	78	3-6	0	clear
5/4/2011	6	Bonnie Hendricks	1150	84.5	3-6	0	clear
5/4/2011	6	Bonnie Hendricks	1245	88.2	4-6	0	clear
5/4/2011	6	Bonnie Hendricks	1340	89.5	5-8	0	clear
5/4/2011	6	Bonnie Hendricks	1430	95	1-3	0	clear
5/4/2011	6	Bonnie Hendricks	1530	94.5	3-5	0	clear
5/4/2011	6	Bonnie Hendricks	1600	94	4-7	0	clear

[A] The Quino survey area (within the LanWest project site) was initially part of a larger survey area that was separated into three separate CPV projects (LanWest Solar Farm, LanEast Solar Farm, and Rugged Solar Farm) after the completion of protocol Quino checkerspot butterfly (*Euphydryas editha quino*) surveys. LanEast Solar Farm is located adjacent to and east of the proposed project site. Rugged Solar Farm is located north of Interstate 8. All three project sites were surveyed for Quino during the same period. This table of daily weather conditions contains weather information for both the LanWest and LanEast projects, but does not include weather information from the Rugged Solar site.

[B] Supervised biologist

[C] At times, wind gusts occurred that were more than 15 mph, but this was never sustained. If sustained winds were 15 mph or higher, surveys were stopped.

APPENDIX C
FIELD DATA COLLECTED DURING QUINO SURVEYS

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 #: 7 Survey Sxn: ______ QCB Protocol Survey # 1 of 5

TIME (24-hour)	Temp (F°)	Wind (avg/max)	% CC	Sky
Start [illegible] 1400	75°	2-5	40	clear (patchy) overcast drizzle shower
1600	75°	[illegible]	65	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)

Species	Tally	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)	I	(1)
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)	I	(1)
Colias eurytheme (Orange Sulphur)		
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 IIII I	(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)	I	(1)
Philotes sonorensis (Sonoran Blue)		
Callophrys augustinus (Brown Elfin)		
Callophrys dumetorum (Perplexing Green Hairstreak)		
Strymon melinus (Gray Hairstreak)		
Atlides halesus (Great Purple Hairstreak)		

Species	Total
Hesperiidae (Skippers)	
Erynnis funeralis (Funereal Duskywing)	
Erynnis tristis (Sad Duskywing)	
Erynnis propertius (Propertius Duskywing)	
Erynnis brizo (Sleepy Duskeywing)	
Pyrgus communis (Checkered Skipper)	
Hesperia lubia (Jubia Skipper)	
Polites sabuleti (Sandhill Skipper)	
Megathymidae (Giant Skippers)	
Megathymus yuccae (Yucca Giant Skipper)	

Other Butterflies:

Notes:

...ial Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...ors:

...lease 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
- [ ] ***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
- [x] *Cryptantha sp.* — Cryptantha
- [ ] *Cucurbita foetidissima* — Calabazilla
- [x] *Descurainia sp.* — Tansy-mustard
- [ ] *Dicentra chrysantha* — Golden Ear-drops
- [ ] *Dichelostemma capitatum* — Blue Dicks
- [ ] *Dudleya sp.* — Dudleya
- [ ] *Emmenanthe penduliflora* — Whispering Bells
- [ ] *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.* — Long-stem Golden-yarrow
- [x] *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
- [ ] *Hirschfeldia incana* — Short-pod Mustard
- [ ] *Lamium amplexicaule* — Henbit
- [x] *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
- [x] *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
- [x] *Thysanocarpus sp.* — Fringepod
- [ ] *Trichostemma parishii* — Mountain Bluecurls
- [ ] *Tropidocarpum gracile* — Slender Dobie-pod
- [ ] *Uropappus lindleyi* — Silver Puffs
- [ ] *Viola purpurea* — Oak Yellow Violet

Other Flowering Plants:

Lotus strigosus
Lupinus concinnus
Rhus integrifolia
Lupinus bicolor

Rare Wildlife or Rare Plants:

Grindelia viscida
MMGV100
101 - 50+ plants
102 - 20+ plants
103 - 20 plants
104
Astragalus douglasii perstrictus
MMAD 100-104
Liantnus bellus
MMLB100
Streplantnus campestris
MMSC100
Nest = Raven → see map

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

144854 mi on site

Recorder: K. H Osborne Add'l Person: Ø Date: 3/30/2011 GPS Unit: 10

Project: Concentrix Solar Project Map #: 6 Survey Sxn: 6 QCB Protocol Survey # 1 of 5

TIME (24-hour)	Temp (F°)	Wind (avg/max)	% CC	Sky
Start 910 ~~10~~ ~~451~~	68	0 - 3	0	(clear) patchy overcast drizzle shower
900	70	4 - 8	0	(clear) patchy overcast drizzle shower
				clear patchy overcast drizzle shower
1200	73	6 - 17	0	(clear) patchy overcast drizzle shower
1420	74	0 - 4	2% high haze	clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
End 1623	73	3 - 7	5% haze	(clear) patchy overcast drizzle shower

Habitat On-site (circle): open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, various nectar sources

Species	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) //	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)	
Anthocharis sara (Sara Orangetip) /	1
Anthocharis cethura (Felder's Orangetip)	
Euchloe hyantis (Desert Pearly Marble) /V/ll//	11
Colias eurytheme (Orange Sulphur) ~~////~~	5
Colias harfordii (Harford's Sulphur) /	1
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) ~~////~~VXXXXVXV	67
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) ///~~////~~	8
Philotes sonorensis (Sonoran Blue)	
Callophrys augustinus (Brown Elfin) //	2
Callophrys ~~dumetorum~~ (Perplexing Green Hairstreak) ~~////~~~~////~~~~////~~///	18
Strymon melinus (Gray Hairstreak)	
Atlides halesus (Great Purple Hairstreak)	

Species	Total
Hesperiidae (Skippers)	
Erynnis funeralis (Funereal Duskywing)	
Erynnis tristis (Sad Duskywing)	
Erynnis propertius (Propertius Duskywing) //	2
Erynnis brizo (Sleepy Duskeywing) /	1
Pyrgus ~~communis~~ (Checkered Skipper) / albescens	1
Hesperia jubla (Jubla Skipper)	
Politos sabuleti (Sandhill Skipper)	
Megathymidae (Giant Skippers)	
Megathymus yuccae (Yucca Giant Skipper)	
Other Butterflies:	
Moths:	
Litocala sexsignata ~~////~~~~////~~/X	21
Drasteria tejonica /	1
Euproserpinus phaeton ////	4
Cobubatha? (in voucher) V	5
Schinia amaryllis //	2
Drasteria edwardsi ~~////~~///	8
Heliothis belladonna //	2
Drasteria divergens /	1
Drasteria pallescens /	1
"Camissonia pyralid" (in voucher)	7
Notes:	
= C. perplexa	

Osborne 3/30/2016 SE room

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.

LEASE 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**
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
✓	*Camissonia sp.* brevipes	Sun Cup
o	***Castilleja exerta***	**Paintbrush**
o	*Caulanthus heterophyllus*	San Diego Jewelflower
o	*Caulanthus simulans*	Payson's Caulanthus
✓	*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-lip 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
✓	*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.*	Long-stem 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
✓	*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 menziesii*	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.* distans ?	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	*Rorripe 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
✓	*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 gnaphaloides*	Everlasting Nest-straw
o	*Tetradymia comosa*	Cotton-thorn
o	*Thysanocarpus sp.*	Fringepod
o	*Trichostemma perishii*	Mountain Bluecurls
o	*Tropidocarpum gracile*	Slender Dobie-pod
o	*Uropappus lindleyi*	Silver Puffs
o	*Viola purpurea*	Oak Yellow Violet

Other Flowering Plants:

Rhus trilobata

Rare Wildlife or Rare Plants:

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Margie Mulligan Add'l Person: ____________ Date: 3-31-11 GPS Unit: 5

Project: Concentrix Solar Project Map #: 7 Survey Sxn: ________ QCB Protocol Survey # 1 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start 0900	64°F	3-6	10	(clear) patchy overcast drizzle shower
1100	70°F	2-4	10	(clear) patchy overcast drizzle shower
1400	76°F	3-6	0	(clear) patchy overcast drizzle shower
1600	78°F	2-4	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)

Species	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) Baker	
Pontia protodice (Common White)	[illegible]
Anthocharis sara (Sara Orangetip)	||||/ |||
Anthocharis cethura (Felder's Orangetip)	
Euchloe hyantis (Desert Pearly Marble)	||||/ ||
Colias eurytheme (Orange Sulphur)	
Colias harfordii (Harford's Sulphur) [illegible]	
Nathalis iole (Dainty Sulphur)	||| [illegible]
Papilionidae (Swallowtails)	
Papilio polyxenes (Desert Black Swallowtail)	
Papilio eurymedon (Pale swallowtail)	
Papilio rutulus (Western Tiger Swallowtail)	
Riodiniade (Metalmarks)	
Apodemia mormo (Behr's Metalmark)	[illegible]
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)	
Strymon melinus (Gray Hairstreak)	
Atlides halesus (Great Purple Hairstreak)	
Everes amyntula (western-tailed blue) — photo!	1

Species	Total
Hesperiidae (Skippers)	
Erynnis funeralis (Funereal Duskywing)	
Erynnis tristis (Sad Duskywing)	
Erynnis propertius (Propertius Duskywing)	
Erynnis brizo (Sleepy Duskeywing)	
Pyrgus communis (Checkered Skipper)	
Hesperia jubia (Jubia Skipper)	
Polites sabuleti (Sandhill Skipper)	
Megathymidae (Giant Skippers)	
Megathymus yuccae (Yucca Giant Skipper)	
Other Butterflies:	

Notes:

[illegible]

...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

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.*	Sun Cup
X	*Castilleja ~~exserta~~*	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.* ~~Long-stem 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
X	*Garrya veatchii*	Canyon Silk Tassel
o	*Gilia sp.*	Gilia
o	*Gnaphalium*	Cudweed
o	*Guillenia lasiophylla*	California Mustard
o	*Gutierrezia serothrae*	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
X	*Matricaria matricarioides**	Common Pineapple-weed
o	*Menzelia veatchiana*	Veatch's Stick-teak
o	*Microsteris gracilis*	Slender Phlox
o	*Mimulus sp.*	Monkeyflower
o	*Nemophila menziesii*	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
[redacted]	*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 gnaphaloides*	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

Late Summer/Fall Flowering

Other Flowering Plants:

Taraxacum officinale

Rare Wildlife or Rare Plants:

Gorcea viscida
MMGV01-07

Astragalus douglasii parishii
MMAD01-10

Linanthus bellus
MMLB01-05

Streptanthus campestris
MMSC01

Mortero → Rock w/ 3 morteros and shards of clay pots. Looks like someone set them there.

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: BRENNAN MULROONY Date: 4 APRIL, 2011 GPS Unit: 20

Project: Concentrix Solar Project Map #: 6 Survey Sxn: — QCB Protocol Survey # 2 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start 0830 HRS	60°F	0→3	0	clear / partly / overcast / drizzle / shower
0900	61°F	1→5	0	clear / partly / overcast / drizzle / shower
1000	64°F	1→5	0	clear / partly / overcast / drizzle / shower
1100	69°F	1→7	0	clear / partly / overcast / drizzle / shower
1200	68°F	3→8	0	clear / partly / overcast / drizzle / shower
1300	67°F	3→7	0	clear / partly / overcast / drizzle / shower
End 1400	71°F	2→5	0	clear / partly / 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 chalcodona (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 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	2
Danaidae (Milkweed Butterflies)		VANESSA SP.	2
Danaus plexippus (Monarch)		CLOUDLESS SULPHUR	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)	1		
Anthocharis sara (Sara Orangetip)	8		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)	4		
Colias eurytheme (Orange Sulphur)	3		
Colias harfordii (Harford's Sulphur)	2		
Nathalis iole (Dainty Sulphur)	1		
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		1300HRS, 73°F, WIND=0→4MPH, CLEAR	
Papilio eurymedon (Pale swallowtail)		1600HRS, 73°F, WIND=0→2MPH, CLEAR	
Papilio rutulus(Western Tiger Swallowtail)			
Riodinidae (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	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)	6		
Philotes sonorensis(Sonoran Blue)			
Callophrys augustinus (Brown Elfin)			
Callophrys dumetorum (Perplexing Green Hairstreak)	3		
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			
WESTERN TAILED BLUE	2		

...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.

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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
	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 menziesii	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 gnaphaloides	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:

MCBJ01 LBJ1 BLACK-TAILED JACKRABBIT

MC [illegible] BELL 1 DESERT BEAUTY

MCBJ02 B.T JACKRABBIT

BMHL01 S.D. HORNED LIZARD

146275 mi on st

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Ken Osborne Add'l Person: Erin Bagnon Date: 4/5/2011 GPS Unit: 5

Project: Concentrix Solar Project Map #: 7 Survey Sxn: 7 QCB Protocol Survey # 2 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	1153	75	2-4	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	355	70	3-6	40%	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* (Steepy Duskeywing) /	/
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper) //	2
Phyciodes mylitta (Mylitta Crescent)		*Hesperia juba* (Juba Skipper) / H. juba	/
Junonia coenia (Common Buckeye) ////	5	*Polites sabuloti* (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)		Moth:	
Coenonympha californica (Common California Ringlet)		*Drasteria tejonica* ///	3
Pieridae (Whites, Sulphurs)			
Pieris rapae (Cabbage White)			
Pontia sisymbrii (Spring White)			
Pontia beckerii (Beker's White)			
Pontia protodice (Common White) ///	3		
Anthocharis sara (Sara Orangetip) /// /	4		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble) /	/		
Colias eurytheme (Orange Sulphur) //	2		
Colias harfordii (Harford's Sulphur) //	2		
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodinlade (Metalmarks)			
Apodemia mormo (Behr's Metalmark) //////	15		
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) ///	3		
Philotes sonorensis (Sonoran Blue) //	2		
Callophrys augustinus (Brown Elfin)			
Callophrys perplexa (Perplexing Green Hairstreak) //// /	6		
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

...tial 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
	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 pendulifora	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
	Gnaphelium	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
	Peclocarya sp.	Peclocarya
	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

#7

Recorder: Erin Blaymon Add'l Person: ______ Date: 4/13/11 GPS Unit: #6

Project: Concentrix Solar Project Map #: ____ Survey Sxn: ____ QCB Protocol Survey # ____ of 5

TIME (24-hour)	Temp (F°)	Wind (avg/max)	% CC	Sky
Start 11:30	65°F	1-2	0	(clear) patchy overcast drizzle shower
12:00	66°F	1-2	0	(clear) patchy overcast drizzle shower
12:30	66°F	1-2	0	(clear) patchy overcast drizzle shower
1:00	67°F	3-6	0	(clear) patchy overcast drizzle shower
1:30	62°F	3-6	0	(clear) patchy overcast drizzle shower
2:00	61°F	4-7	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

Species	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) ~~||||~~	5
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)	
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) ~~||||~~ ~~||||~~ ~~||||~~	16
Lycaenidae (Hairstreaks and Blues)	
Celastrina ladon (Spring Azure)	
Leptotes marina (Marine Blue)	
Brephidium exilis (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) ||||	4
Strymon melinus (Gray Hairstreak)	
Atlides halesus (Great Purple Hairstreak)	

Species	Total
Hesperiidae (Skippers)	
Erynnis funeralis (Funereal Duskywing)	
Erynnis tristis (Sad Duskywing)	
Erynnis propertius (Propertius Duskywing)	
Erynnis brizo (Sleepy Duskywing)	
Pyrgus albescens (Checkered Skipper)	
Hesperia jubia (Jubia Skipper)	
Polites sabuleti (Sandhill Skipper)	
Megathymidae (Giant Skippers)	
Megathymus yuccae (Yucca Giant Skipper)	
Common sootywing 1	
Other Butterflies:	

Birds –
Cal quail
White crowned sparrow
Lark sparrow
Say's phoebe
Mourning dove
Raven
Red tail
Acorn woodpecker
Western blue bird

Cottontail
Black tailed rabbit
EBDB01

Salix 45m x 60m area

Notes:
Surveyed fence line of 7 and marked SDGE road waiting for weather (too cold in morning)

Area # 7 – new fence and at SDGE road
EBad01 – 1
EBac01 – 3 Encelia californica
EBgv01 – 1
EBgv02 – 1
EBgv03 – 1
EBgv04 – 1
EBgv05 – 1
EBgv06 – 1
EBgv07 – 1
EBgv08 – 2
EBgv09 – 1
EBgv10 – 1
EBgv11 – 1
EBgv12 – 1
EBgv13 – 1
EBgv14 – 3
EBgv16 – 1 Grindelia
EBgv17 – 1
EBgv18 – 1
EBgv19 – 1
EBgv20 – 1
EBgv21 – 1
EBgv?? – 5
EBch02 – 5 Lepidium
EBch01 – 14
EBsc01 – 1 Streptanthus campestris

SDGE road labelled

...ntial 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
○	***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 penduliflora*	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
○	*Menzelia 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
○	*Peclocarya sp.*	Peclocarya
○	*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 gnaphaloides*	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: — Date: 13 APRIL, 2011 GPS Unit: G

Project: Concentrix Solar Project Map #: 7 Survey Sxn: — QCB Protocol Survey # 3 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky				
Start	1119 HRS	63°F	3->7max	0	(clear)	patchy	overcast	drizzle	shower
	1200	62°F	4->9	0	(clear)	patchy	overcast	drizzle	shower
	1300	62°F	4->7	0	(clear)	patchy	overcast	drizzle	shower
	1400	61°F	4->7	0	(clear)	patchy	overcast	drizzle	shower
	1500	60°F	4->10	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 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)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		SATCHEM	4
Danaidae (Milkweed Butterflies)		COMMON SOOTYWING	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)			
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)		MCWW01	
Papilio eurymedon (Pale swallowtail)		MCWW02	
Papilio rutulus(Western Tiger Swallowtail)		MCWW03	
Riodinidae (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	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)	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
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
Menzelia veatchiana	Veatch's Stick-leak
Microsteris gracilis	Slender Phlox
Mimulus sp.	Monkeyflower
Nemophila menziesii	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: Mine Couffer Add'l Person: Ø Date: 14 April, 2011 GPS Unit: 12

Project: Concentrix Solar Project Map #: 7 Survey Sxn: Ø QCB Protocol Survey # 3 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	0845 HRS	60	1 -> 2 MPH	Ø	(clear) patchy overcast drizzle shower
	0900 HRS	61	Ø -> 1	Ø	(clear) patchy overcast drizzle shower
	1000 HRS	63	Ø -> 2	Ø	(clear) patchy overcast drizzle shower
	1100 HRS	66	Ø -> 2	Ø	(clear) patchy overcast drizzle shower
	1200 HRS	68	Ø -> 4	Ø	(clear) patchy overcast drizzle shower
	1300 HRS	72	Ø -> 3	Ø	(clear) patchy overcast drizzle shower
End	1400 HRS	73	Ø -> 2	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)	4
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)	2
Junonia coenia (Common Buckeye)	5	*Polites sabuleti* (Sandhill Skipper)	2
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)		CALIFORNIA SOOTYWING	3
Danaidae (Milkweed Butterflies)		SKIPPER	5
Danaus plexippus (Monarch)		VANESSA SP.	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)	1		
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marbte)	5		
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		END 1441 HRS, 71°F, WIND 1->5 MPH, CLEAR	
Papilio eurymedon (Pale swaltowtail)			
Papilio rutulus (Western Tiger Swaltowtail)		MC3 MORTARHOLES (A SOLITARY GRINDSTONE)	
Riodiniade (Metalmarks)		MCB01 = B.T. JACKRABBIT	
Apodemia mormo (Behr's Metalmark)	98	~~MCH01~~ =	
Lycaenidae (Hairstreaks and Blues)		MCH01 HORNED LIZARD	
Celastrina ladon (Spring Azure)		MCWW01 WESTERN WHIPTAIL	
Leptotes marina (Marine Blue)		MC WW 02	
Brephidium exile (Western Pygmy Blue)		MC WW 03	
Glaucopsyche lygdamus (Southern Blue/Silvery blue)		MC WW 04	
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)	8		
Philotes sonorensis (Sonoran Blue) (WORN)	1		
Callophrys augustinus (Brown Elfin)	1		
Callophrys perplexa (Perplexing Green Hairstreak)	1		
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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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
Emmenantha penduliflora	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-leaf
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 Coffee Add'l Person: Ø Date: 14 APRIL 2011 GPS Unit: 12

Project: Concentrix Solar Project Map #: 6 Survey Sxn: Ø QCB Protocol Survey # 3 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	1500 HRS	71°F	1->5 MPH	Ø	(clear) patchy overcast drizzle shower
	1600 HRS	71°F	Ø->2	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					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 juba* (Juba 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)			
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)	3		
Colias eurytheme (Orange Sulphur)			
Colias harfordii (Harford's Sulphur)	1		
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		MCWW05 WESTERN WHIPTAIL	
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	45		
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)			
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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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 Coulter Add'l Person: Ø Date: 15 April, 2011 GPS Unit: 6

Project: Concentrix Solar Project Map #: 6 Survey Sxn: Ø QCB Protocol Survey # 3 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start 0900	66	1→5 mph	Ø	clear patchy overcast drizzle shower
1000	70	1→10	Ø	clear patchy overcast drizzle shower
1100	71	2→10	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
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Vanessa annabella (West Coast Lady)	
Vanessa atalanta (Red Admiral)	
Vanessa cardui (Painted Lady)	
Vanessa virginiensis (Virginia Lady)	
Nymphalis californica (California Tortoiseshell)	
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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 (Baker's White)	
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)	
Papilio polyxenes (Desert Black Swallowtail)	
Papilio eurymedon (Pale swallowtail)	
Papilio rutulus(Western Tiger Swallowtail)	
Riodinidae (Metalmarks)	
Apodemia mormo (Behr's Metalmark)	48
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)	
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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)	1
Erynnis brizo (Sleepy Duskeywing)	
Pyrgus albescens (Checkered Skipper)	
Hesperia juba (Juba Skipper)	
Polites sabuleti (Sandhill Skipper)	
Megathymidae (Giant Skippers)	
Megathymus yuccae (Yucca Giant Skipper)	
Other Butterflies:	

Notes:

MCBJ01 JACKRABBIT
MCBJ02 "

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 penduliflera	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-leaf
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 COFFEE Add'l Person: — Date: 18 APRIL 2011 GPS Unit: 10

Project: Concentrix Solar Project Map #: 7 Survey Sxn: — QCB Protocol Survey # 4 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	1100 HRS	60°F	0 -> 4 MPH	25%	clear (patchy) overcast drizzle shower
	1200 HRS	68	0 -> 4 MPH	0	(clear) patchy overcast drizzle shower
	1300 HRS	72	0 -> 2 MPH	40%	clear (patchy) overcast drizzle shower
	1400 HRS	71	8 -> 15 MPH	90%	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
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)	7
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)	
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)	25
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)	
Strymon melinus (Gray Hairstreak)	
Atlides halesus (Great Purple Hairstreak)	

	Total
Hesperiidae (Skippers)	
Erynnis funeralis (Funereal Duskywing)	
Erynnis tristis (Sad Duskywing)	
Erynnis propertius (Propertius Duskywing)	20
Erynnis brizo (Sleepy Duskeywing)	
Pyrgus albescens (Checkered Skipper)	
Hesperia juba (Jubia Skipper)	15
Polites sabuleti (Sandhill Skipper)	
Megathymidae (Giant Skippers)	
Megathymus yuccae (Yucca Giant Skipper)	
Other Butterflies:	
VANESSA SP.	20

Notes:

MCWW01 WESTERN WHIPTAIL
MCWW02 "
MCWW03 "
MCBJ02 BLACK-TAILED JACKRABBIT
MCHL01 MOUNTAIN LION

...rtial 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

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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
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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
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
Menzelia veatchiana	Veatch's Stick-leak
Microsteris gracilis	Slender Phlox
Mimulus sp.	Monkeyflower
Nemophila menziesii	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 gnaphaloides	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 COFFEE Add'l Person: JIMMY McMOLEAN Date: 20 APRIL 2011 GPS Unit: 6

Project: Concentrix Solar Project Map #: 6 Survey Sxn: B QCB Protocol Survey # 4 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start 0930 HRS	64°F	3->6 MPH	5%	(clear) patchy overcast drizzle shower
1000 HRS	71	0->3 MPH	5%	(clear) patchy overcast drizzle shower
1100 HRS	73	0->5 MPH	5%	(clear) patchy overcast drizzle shower
1145 HRS	75°	5->9 MPH	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
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)	4
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)	1
Pontia beckerii (Beker's White)	
Pontia protodice (Common White)	
Anthocharis sara (Sara Orangetip)	
Anthocharis cethura (Felder's Orangetip)	
Euchloe hyantis (Desert Pearly Marbte)	
Colias eurytheme (Orange Sulphur)	
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)	105
Lycaenidae (Hairstreaks and Blues)	
Celastrina ladon (Spring Azure)	1
Leptotes marina (Marine Blue)	
Brephidium exile (Western Pygmy Blue)	
Glaucopsyche lygdamus (Southern Blue/Silvery blue)	
Hemiargus ceraunus (Edward's Blue)	
Icaria acmon (Acmon Blue)	5
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)	1
Erynnis brizo (Steepy Duskeywing)	
Pyrgus albescens (Checkered Skipper)	
Hesperia juba (Juba Skipper)	
Polites sabuleti (Sandhill Skipper)	
Megathymidae (Giant Skippers)	
Megathymus yuccae (Yucca Giant Skipper)	
Other Butterflies:	
COMMON SCOTY WING	1
CHECKERSPOT SP.	1

Notes:

dal Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

ers:

Please Place a Check Mark Beside Flowering Plants. Use Numbered Notes to Add Species Detail.

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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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Ceanothus greggii	Cup-leaf-lilac
Ceanothus leucodermis	Chaparral Whitethorn
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Gutierrezia sarothrae	Broom Matchweed
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Linanthus dichotomus	Evening Snow
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Malacothrix clevelandii	Cleveland's Malacothrix
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*Matricaria matricarioides**	Common Pineapple-weed
Mentzelia veatchiana	Veatch's Stick-leak
Microsteris gracilis	Slender Phlox
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Phacelia sp.	Phacelia
Pholisma membranaceum	White Fiesta Flower
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Ribes quercetorum	Oak Gooseberry
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Stephanomeria sp.	Wreathplant
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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
RHUS OVATA	

Other Flowering Plants:

Rare Wildlife or Rare Plants:

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Mike Couffer Add'l Person: Ø Date: 28 April, 2011 GPS Unit: _____

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	0900 HRS	73°F	1→7 MPH	Ø	(clear) patchy overcast drizzle shower
	1000 HRS	84°F	Ø→2	Ø	(clear) patchy overcast drizzle shower
	1100 HRS	84°F	Ø→1	Ø	(clear) patchy overcast drizzle shower
	1200 HRS	79°F	3→10	Ø	(clear) patchy overcast drizzle shower
	1300 HRS	80°F	1→5	Ø	(clear) patchy overcast drizzle shower
	1400 HRS	79°F	3→10	Ø	(clear) patchy overcast drizzle shower
End	1500 HRS	80°F	4→10	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)	2
Chlosyne californica (California Patch)		*Erynnis brizo* (Sleepy Duskywing)	
Chlosyne gabbii (Gabb's Checkerspot)		*Pyrgus albescens* (Checkered Skipper)	1
Phyciodes mylitta (Mylitta Crescent)		*Hesperia juba* (Juba Skipper)	
Junonia coenia (Common Buckeye)	11	*Polites sabuleti* (Sandhill Skipper)	
Vanessa annabella (West Coast Lady)		**Megathymidae (Giant Skippers)**	
Vanessa atalanta (Red Admiral)	1	*Megathymus yuccae* (Yucca Giant Skipper)	
Vanessa cardui (Painted Lady)			
Vanessa virginiensis (Virginia Lady)		**Other Butterflies:**	
Nymphalis californica (California Tortoiseshell)		PHOLISORA CATULLUS (COMMON SOOTYWING)	1
Danaidae (Milkweed Butterflies)		WESTERN TAILED BLUE	
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)	4		
Anthocharis sara (Sara Orangetip)	1		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur)	20		
Colias harfordii (Harford's Sulphur)	6		
Nathalis iole (Dainty Sulphur)	1		
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodiniade (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	135		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)	1		
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)			

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 menziesii	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
Salvigilia 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 gnaphaloides	Everlasting Nest-straw
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:

RHUS OVATA — SUGAR BUSH

Rare Wildlife or Rare Plants: RED-TAILED HAWK NEST

MCRTHA NEST — WITH LARGE WHITE NESTING

MCBJ01 — BLACK-TAILED JACKRABBIT

MCBJ02 — "

MCBJ03 — "

MCWW01 — COASTAL WESTERN WHIPTAIL

MCWW02 — "

MCWW03 — "

MCWW04 — "

MCWW05 — "

MCWW06 — "

MCWW07 — "

MCWW08 — "

MCWW09 — "

MCWW10 — "

MCWW11 — "

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 5.2.11 GPS Unit: personal

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	64°F	4-8 (13)	0	clear patchy overcast drizzle shower
	1200	90°F	4-11 (13)	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					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)	1 (1)
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 Marbte)	
Colias eurytheme (Orange Sulphur)	
Colias harfordii (Harford's Sulphur)	
Nathalis iole (Dainty Sulphur)	
Papilionidae (Swallowtails)	
Papilio polyxenes (Desert Black Swallowtail)	
Papilio eurymedon (Pale swallowtail)	
Papilio rutulus(Western Tiger Swaltowtail)	
Riodinidae (Metalmarks)	
Apodemia mormo (Behr's Metalmark)	1 (1)
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)	11 (2)
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)	1 (1)
Erynnis brizo (Sleepy Duskeywing)	
Pyrgus albescens (Checkered Skipper)	
Hesperia juba (Juba Skipper)	
Polites sabuleti (Sandhill Skipper)	
Megathymidae (Giant Skippers)	
Megathymus yuccae (Yucca Giant Skipper)	
Other Butterflies:	
Notes:	

[Pot]ential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

[Instr]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

Mark	Scientific Name	Common Name
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.*	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
X	*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 penduliflora*	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
X	*Eriophyllum sp.*	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
X	*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	*Hirschfeldia 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-leaf
o	*Microsteris gracilis*	Slender Phlox
X	*Mimulus sp.* ar. dus	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
X	*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
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
o	*Stylocline gnaphalioides*	Everlasting Nest-straw
o	*Tetradymia comosa*	Cotton-thorn
o	*Thysanocarpus sp.*	Fringepod
o	*Trichostemma parishii*	Mountain Bluecurls
X	*Tropidocarpum gracile*	Slender Dobie-pod
X	*Uropappus lindleyi*	Silver Puffs
o	*Viola purpurea*	Oak Yellow Violet

Other Flowering Plants:

Penstemon clevelandii
Streptanthus campestris
Mimulus aurantiacus aridus
~~[illegible]~~

Rare Wildlife or Rare Plants:

Pentagramma triangularis robmannii
MMPT01~~[illegible]~~-02
~~[illegible]~~ elaet

Mimulus aurantiacus aridus
MUMA~~[illegible]~~01-03

~~[illegible]~~ Streptanthus campestris
MMSC01-02

Horn Lizard
MMHL01

Ivesia saxosa
MMIS01

Linanthus bellus
MMLB01-02 (7)   MMLB100 (6)

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Erin Bergman Add'l Person: ______ Date: May 2, 11 GPS Unit: 11

Project: Concentrix Solar Project Map #: 7 Survey Sxn: 7 QCB Protocol Survey # Survey 6 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start 8:50	64	4-8(13)	0	(clear) patchy overcast drizzle shower
9:50	72	4-9(13)	0	(clear) patchy overcast drizzle shower
12:00	74	8-10(13)	0	(clear) patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
End 12:00				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) |	1
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) ||	2
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)	
Papilio polyxenes (Desert Black Swallowtail)	
Papilio eurymedon (Pale swallowtail)	
Papilio rutulus (Western Tiger Swallowtail)	
Riodiniade (Metalmarks)	
Apodemia mormo (Behr's Metalmark) ||	2
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)	

	Total
Hesperiidae (Skippers)	
Erynnis funeralis (Funereal Duskywing)	
Erynnis tristis (Sad Duskywing)	
Erynnis propertius (Propertius Duskywing) ||	2
Erynnis brizo (Sleepy Duskeywing)	
Pyrgus albescens (Checkered Skipper)	
Hesperia jubia (Jubia Skipper)	
Polites sabuleti (Sandhill Skipper)	
Megathymidae (Giant Skippers)	
Megathymus yuccae (Yucca Giant Skipper)	
Other Butterflies:	

Notes: EBMA OIAS Mimulus aurantiacus ?
(got windy)

...ential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...uctions:

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- **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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	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**
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✗	*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 menzelsii	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
	Totradymia 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:

Quino end NOON 12:00 (high wind)
Start Botany survey 12:20

Rare Wildlife or Rare Plants:

EBAP01A1
EBAP02E18
EBdp01E6
EBdp01B5
EBdp02A1
EBdp03A2
EBdp04A1
EBdp05A1
EBdp06A1
EBdp07A5
EBdp08A3
EBdp09A5
EBdp10A1
EBdp11A2
EBdp12A1
EBdp13A1
EBdp14A1
EBdp15B5
EBdp16A1
EBgV01A3
EBgV02A3
EBgV03A1
EBgV04B1
EBgV05A1
EBgV06A2

(Concentrix Solar)

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)	
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)	
Papilio polyxenes (Desert Black Swallowtail)	
Papilio eurymedon (Pale swallowtail)	
Papilio rutulus (Western Tiger Swallowtail)	
Riodinidae (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)	
Philotes sonorensis (Sonoran Blue)	
Callophrys augustinus (Brown Elfin)	
Callophrys perplexa (Perplexing Green Hairstreak)	
Strymon melinus (Gray Hairstreak)	
[illegible]les halesus (Great Purple Hairstreak)	
[illegible]-spotted Blue Euphilotes battoides (bernardino)	

	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 (Jubia Skipper)	
Polites sabuleti (Sandhill Skipper)	
Megathymidae (Giant Skippers)	
Megathymus yuccae (Yucca Giant Skipper)	
Other Butterflies:	

Notes:

Initial 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
○	*Eminenanthe pendulifera*	Whispering Bells
○	*Erlastrum 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
○	*Lemium 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 cleveiandii*	Cleveland's Malacothrix
○	*Marah macrocarpus*	Wild-cucumber
○	*Marrubium vulgare**	Horehound
○	*Matricaria matricanoides**	Common Pineapple-weed
○	*Mentzelia veatchiana*	Veatch's Stick-leak
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus sp.*	Monkeyflower
○	*Nemophila menziesii*	Small-flower Baby Blue Eyes
○	*Orobanche hulbosa*	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:

vegetative Encelia actoni

Rhus ovata

Rare Wildlife or Rare Plants:

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Bonnie Hendricks Add'l Person: _____ Date: 5/4/11 GPS Unit: 2

Project: Concentrix Solar Project Map #: 6 Survey Sxn: 6 QCB Protocol Survey # 6 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	11:50	84.5	3.3/5.6	0	(clear) patchy overcast drizzle shower
	12:45	88.2	4.1/6.3	0	(clear) patchy overcast drizzle shower
	1:40	89.5	5.2/7.8	0	(clear) patchy overcast drizzle shower
	2:30	95.0	1.2/3.0	0	(clear) patchy overcast drizzle shower
	3:30	94.5	3.1/5.2	0	clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
End	4:00	94.0	4.2/6.9	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 juba* (Jubia Skipper)	
Junonia coenia (Common Buckeye) IIII	7	*Polites sabuleti* (Sandhill Skipper) 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)			
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	3		
Anthocharis sara (Sara Orangetip)	1		
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)			
Colias eurytheme (Orange Sulphur)	1		
Colias harfordii (Harford's Sulphur) IIII IIII	10		
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)	1		
Papilio rutulus(Western Tiger Swallowtail)			
Riodinlade (Metalmarks)			
Apodemia mormo (Behr's Metalmark) VIIII	12		
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)			

ntial 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

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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
Hirschfeldia incana	Short-pod Mustard
Lamium amplexicaule	Henbit
Lasthenia gracilis	Common Goldfields
Layia glandulosa	White Layia
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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
Menzelia veatchiana	Veatch's Stick-leak
Microsteris gracilis	Slender Phlox
Mimulus sp.	Monkeyflower
Nemophila menziesii	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
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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:

Rare Wildlife or Rare Plants:

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: K H. Osborne Add'l Person: Date: 4/26/2011 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
Map 3 — Start	935	64	3/5	0	(clear) patchy overcast drizzle shower
	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	3.5/5	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)	~~||||~~ ||||	|||	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)	||||		4
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)	||		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)	XXXXXXX	XX	30/20
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)	||||	|||	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 jubja (Jubja Skipper)	||		2
Polites sabuleti (Sandhill Skipper)			
Megathymidae (Giant Skippers)			
Megathymus yuccae (Yucca Giant Skipper)			
Other Butterflies:			
Plebejus lupini	1		1
Philosova catallus	|||		3
Moths:			
Kodiosoma fulva	||		2
Stylopoda cephalica	||		2
Schinia aurantiaca	V		5

Notes:

Very good conditions

Lasthenia beginning to get old!

Also halcottic, bellodona larvae on Castilleja plants

...ential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

...ructions:

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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
○	*Cautanthus heterophyllus*	San Diego Jewelflower
○	*Cautanthus simulans*	Payson's Cautanthus
○	*Cednothus 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
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○	*Cucurbita foetidissima*	Calabazilla
○	*Descurainia sp.*	Tansy-mustard
○	*Dicentra chrysantha*	Golden Ear-drops
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○	*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
○	*Menzelia veatchiana*	Veatch's Stick-leaf
○	*Microsteris gracilis*	Slender Phlox
○	*Mimulus sp.*	Monkeyflower
○	*Nemophila menziesii*	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
○	*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
○	*Rhus ovata*	
○		
○	**Other Flowering Plants:**	

Rare Wildlife or Rare Plants:

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Mike Coulter Add'l Person: _____ Date: 27 April, 2011 GPS Unit: _____

Project: Concentrix Solar Project Map #: 7 Survey Sxn: Ø QCB Protocol Survey # 5 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start 0830 HRS	70°F	Ø → 4 MPH	Ø	(clear) patchy overcast drizzle shower
0900 HRS	72°F	Ø → 4 MPH	Ø	(clear) patchy overcast drizzle shower
1000 HRS	73°F	Ø → 4 MPH	Ø	(clear) patchy overcast drizzle shower
1100 HRS	73°F	Ø → 5 MPH	Ø	(clear) patchy overcast drizzle shower
1200 HRS	77°F	1 → 7 MPH	Ø	(clear) patchy overcast drizzle shower
1300 HRS	76°F	2 → 8 MPH	Ø	(clear) patchy overcast drizzle shower
End 1400 HRS	74°F	2 → 6 MPH	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)	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)	1	*Pyrgus albescens* (Checkered Skipper)	
Phyciodes mylitta (Mylitta Crescent)		*Hesperia juba* (Juba Skipper)	
Junonia coenia (Common Buckeye)	17	*Polites sabuleti* (Sandhill Skipper)	27
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)	1
Danaidae (Milkweed Butterflies)		WHITE CHECKERED SKIPPER	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 (Becker's White)			
Pontia protodice (Common White)	3		
Anthocharis sara (Sara Orangetip)			
Anthocharis cethura (Felder's Orangetip)			
Euchloe hyantis (Desert Pearly Marble)	1		
Colias eurytheme (Orange Sulphur)	3		
Colias harfordii (Harford's Sulphur)			
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)		END 1500 HRS, 73°F, WIND: 2→5 MPH, CLEAR	
Papilio eurymedon (Pale swallowtail)			
Papilio rutulus(Western Tiger Swallowtail)			
Riodinidae (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	103		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)	1		
Glaucopsyche lygdamus (Southern Blue/Silvery blue)			
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)	12		
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
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 exserta subsp. *linariifolia*	Paintbrush (Indian)
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. LINEARIFOLIA	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
Pletystemon 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 gnaphaloides	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
- CHIA

Rare Wildlife or Rare Plants:

- MCLA01 — HORNED LARK
- MCBJ01 — BLACK-TAILED JACKRABBIT
- MC3MORTARHOLES — 3 MORTAR HOLES
- MC4MORTARHOLES — 4 MORTAR HOLES
- MCWW01 — COASTAL WESTERN WHIPTAIL
- MCWW02
- MCWW03
- MCWW04
- MCWW05
- MCWW06
- MCWW07
- MCWW08
- MCWW09
- MCWW10
- MCWW11
- MCWW12
- MCWW13
- MCWW14
- MCWW15
- MCWW16
- MCWW17
- MCWW18
- MCWW19
- MCWW20
- MCWW21
- MCWW22
- MCWW23
- MCWW24
- MCWW25
- MCWW26
- MCWW27
- MCWW28

147977 miles on site odometer

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: K H Osburne Add'l Person: M. McCullom Date: 4/18/2011 GPS Unit: ~~X~~ 6

Project: Concentrix Solar Project Map #: 3 Survey Sxn: ~~X~~ 7 QCB Protocol Survey # of 5

TIME (24-hour)	Temp (F°)	Wind (avg/max)	% CC	Sky
Start ~~1100~~ 940	~~53~~ 60	~~2.5/ca~~ 4/5.7	~~100~~/50%	clear (patchy) (fog/overcast) (drizzle) shower
				clear patchy overcast drizzle shower
1252	67	5/12	25	clear patchy haze (overcast) drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
				clear patchy overcast drizzle shower
End 200	69	10/19	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

Species	Tally	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~~	5
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)	/	/
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~~ II	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)		
Philotes sonorensis (Sonoran Blue)		
Callophrys augustinus (Brown Elfin)		
Callophrys perplexa (Perplexing Green Hairstreak)		
Strymon melinus (Gray Hairstreak)		
Atlides halesus (Great Purple Hairstreak)		

Species	Tally	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)	//	2
Polites sabuleti (Sandhill Skipper)	XX	20
Megathymidae (Giant Skippers)		
Megathymus yuccae (Yucca Giant Skipper)		
Other Butterflies:		
(Moths)		
Rodissoma fulva		1
Heliothis belladona		2

Notes:

Too cold, fog & overcast @ 940 - (given?)

Began around 7 @ 11 Am

50% clouds, warmer

Good conditions w/ many butterflies 11 am - 1:30 pm

Ending early due to weather

ıal Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

ɔtions

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 monziesii	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
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	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
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	Lasthenia gracilis	Common Goldfields
	Layia glandulosa	White Layia
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	Linanthus dichotomus	Evening Snow
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	Malacothrix clevelandii	Cleveland's Malacothrix
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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 menziesii	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
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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
	Trupidocarpum 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: Orborn arrive @ 1153 / Brown (?) Date: 4.5.11 GPS Unit: 6

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			0	(clear) patchy overcast drizzle shower
11:53	75	2-4	0	(clear) patchy overcast drizzle shower
12	77	2-5	0(?)	(clear) patchy overcast drizzle shower
1:00	80	2-5	0	(clear) patchy overcast drizzle shower
2:00	80	2-5	0	(clear) patchy overcast drizzle shower
3:00	79	2-5	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

Species	Total
Nymphalidae (Brushfooted Butterflies)	
Euphydryas editha (Quino Checkerspot)	
Euphydryas chalcedona (Henne's Checkerspot) |	1
Thessalia leanira (Wright's Checkerspot)	
Chlosyne californica (California Patch)	
Chlosyne gabbii (Gabb's Checkerspot)	
Phyciodes mylitta (Mylitta Crescent)	
Junonia coenia (Common Buckeye) |	1
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) |||	3
Anthocharis sara (Sara Orangetip) 𝍸|||	8
Anthocharis cethura (Felder's Orangetip)	
Euchloe hyantis (Desert Pearly Marble) 𝍸|	6
Colias eurytheme (Orange Sulphur) |	1
Colias harfordii (Harford's Sulphur) ||||	4
Nathalis iole (Dainty Sulphur)	
Papilionidae (Swallowtails)	
Papilio polyxenes (Desert Black Swallowtail)	
Papilio eurymedon (Pale swallowtail)	
Papilio rutulus (Western Tiger Swallowtail)	
Riodinidae (Metalmarks)	
start 10 𝍸 || *Apodemia mormo* (Behr's Metalmark) ||𝍸𝍸𝍸 10-5-5-5-5	74
Lycaenidae (Hairstreaks and Blues)	
Celastrina ladon (Spring Azure)	
Leptotes marina (Marine Blue)	
Brephidium exilo (Western Pygmy Blue) ||	2
Glaucopsyche lygdamus (Southern Blue/Silvery blue)	
Hemiargus ceraunus (Edward's Blue)	
Icaria acmon (Acmon Blue) |||	3
Philotes sonorensis (Sonoran Blue) |||	3
Callophrys augustinus (Brown Elfin)	
Callophrys perplexa (Perplexing Green Hairstreak) |||||	5
Strymon melinus (Gray Hairstreak)	
Atlides halesus (Great Purple Hairstreak)	

Species	Total
Hesperiidae (Skippers)	
Erynnis funeralis (Funereal Duskywing) |	1
Erynnis tristis (Sad Duskywing)	
Erynnis propertius (Propertius Duskywing) |	1
Erynnis brizo (Sleepy Duskeywing)	
Pyrgus albescens (Checkered Skipper) |	1
Hesperia jubia (Jubia Skipper) ||	2
Polites sabuleti (Sandhill Skipper) ||||	4
Megathymidae (Giant Skippers)	
Megathymus yuccae (Yucca Giant Skipper)	
Other Butterflies:	
Duskywing sp. |	1

Notes:

ANHU LEGO Audubon's Cottontail
OATI HOSP Black-tailed Jackrabbit
LEGO(?) RTHA CA Ground Squirrel
WIWA GBHE
CALT(?) TRWA Granite Spiny Lizard
CAQU LISP Side-blotched Lizard
CATH AMCR
CORA SAPH
LEGO(?) WTSW
OCWA(?) WEKI
WCSP BLGR
ACWO LASP
AT??(?) HOLA
BUSH(?) WBNU
RWBL(?) SAVS
RCSP(?)
BGGN

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
✓	*Hirschfeldia 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 menziesii*	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*	Bulterweed
○	*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	
○	C. intermedia	
○	Brassica nigra	
○	Lupinus concinnus – bajada lupine	
○	PENSTEMON	
○	Taraxacum officinale	
○	Lomatium dasycarpum	
○	Malva neglecta	
○	**Rare Wildlife or Rare Plants:**	
○	EBLB01 – 1	
○	EBAD01 – 1 plant area	
○	EBADD02 – 3	
○	EBBD01 – 1 area	
○	EBLB02 – 1 area	
○	EBLB03 – 1 area	
○	EBAD03 – 1	
○	EBAD04 – 1	
○	EBAD05 – 1	
○	EBAD06 – 3	
○	EBAD07 – 6	
○	EBAD08 – 1	
○	EBGV01 – 2	
○	EBGV02 – 1	
○	EBAD09 – 1	
○	EBAD10 – 1	
○	EBGV03 – 5	
○	EBGV04 – 6	
○	EBGV05 – 3	
○	EBCR01 – 109	
○	EBGV06 – 4	

EBLB01 – 5
EBLB02 – 5
EBGV07 – 5
EBHC01 – 1
EBGV08 – 3
EBGV09 – 3
EBGV10 – 30
EBLB03 – 10
EBGV11 – 2
EBAD12 – 1
EBAD13 – 2
EBHC01 – 1
EBLB04 – 5
EBLB05 – 8
EBLB06 – 30
EBLB07 – 6
EBGV12 – 2
EBGV13 – 2
EBGV14 – 15
EBGV15 – 2

Quino Checkerspot Butterfly Protocol Survey — Field Data Sheet

Recorder: Mike Couffer Add'l Person: ___ Date: 26 April, 2011 GPS Unit: 11

Project: Concentrix Solar Project Map #: ___ Survey Sxn: Ø QCB Protocol Survey # ___ of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
Start	1230 HRS	76°F	Ø→3MPH	Ø	clear patchy overcast drizzle shower
	1300 HRS	77°F	Ø	Ø	clear patchy overcast drizzle shower
	1400 HRS	80°F	Ø→1MPH	Ø	clear patchy overcast drizzle shower
	1500 HRS	78°F	2→6MPH	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)	20	*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 juba* (Juba Skipper)	3
Junonia coenia (Common Buckeye)	12	*Polites sabuleti* (Sandhill Skipper)	8
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)		PHOLISORA CATULLUS (Common Sootywing)	
Danaidae (Milkweed Butterflies)		NORTHERN WHITE-SKIPPER	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)			
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)	1		
Nathalis iole (Dainty Sulphur)			
Papilionidae (Swallowtails)		**Notes:**	
Papilio polyxenes (Desert Black Swallowtail)			
Papilio eurymedon (Pale swallowtail)	2		
Papilio rutulus(Western Tiger Swallowtail)			
Riodinidae (Metalmarks)			
Apodemia mormo (Behr's Metalmark)	80		
Lycaenidae (Hairstreaks and Blues)			
Celastrina ladon (Spring Azure)			
Leptotes marina (Marine Blue)			
Brephidium exile (Western Pygmy Blue)			
Glaucopsyche lygdamus (Southern Blue/Silvery blue)	1		
Hemiargus ceraunus (Edward's Blue)			
Icaria acmon (Acmon Blue)	2		
Philotes sonorensis (Sonoran Blue)			
Callophrys augustinus (Brown Elfin)	1		
Callophrys perplexa (Perplexing Green Hairstreak)	1		
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

Potential Nectaring or Host Plants for Quino Checkerspot Butterfly in Boulevard, California (Concentrix Solar)

Instructions:

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o	*Antirrhinum nuttellianum*	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	*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
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 menziesii*	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	*Rorippa nasturtium-aquaticum*	Water-cress
o	*Rosa californica*	California Rose
o	*Salvigilia 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

Other Flowering Plants:

RHUS OVATA — SUGAR BUSH

Rare Wildlife or Rare Plants:

MCWW01 — COASTAL WESTERN WHIPTAIL
MCWW02 — "
MCWW03 — "
MCWW04 — "
MCWW05 — "
MCWW06 — "
MCWW07 — "
MCBTN01 (PAIR) — BLACK-TAILED GNATCATCHER
MCHL01 — HORNED LIZARD

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 #: 7 and 1 Survey Sxn: 1 QCB Protocol Survey # 6 of 5

TIME (24-hour)	Temp (F°)	Wind (avg/max)	% CC	Sky
Start				
9:00	75°	2-5	0	(clear) patchy overcast drizzle shower
11:30	78°	3-6	0	(clear) patchy overcast drizzle shower
12:00	80	2-4	0	(clear) patchy overcast drizzle shower
15:00	83	2-4	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

Nymphalidae (Brushfooted Butterflies)	Area 4	Area 1	Total
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)	HHT HHT 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)			
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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)	HHT I	HHT HHT HHT 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)			
Strymon melinus (Gray Hairstreak)			
Atlides halesus (Great Purple Hairstreak)			

Hesperiidae (Skippers)	Area 4	Area 1	Total
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 bernardino		IIII	4

Notes:

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	Caulanthus simulans	Payson's Caulanthus
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	Ceanothus leucodermis	Chaparral Whitethorn
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X	*Descurainia sp.*	Tansy-mustard
	Dicentra chrysantha	Golden Ear-drops
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X	*Gnaphalium*	Cudweed
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	Orobanche bulbosa	Chaparral Broom-rape
	Osmadenia tenella	Osmadenia
	Paeonia californica	California Peony
X	*Pectocarya sp.*	Pectocarya
X	*Phacelia sp.* Distans	Phacelia
	Pholistoma membranaceum	White Fiesta Flower
X	*Plagiobothrys sp.*	Popcornflower
	Plantago patagonica	**Desert Plantain**
	Platystemon californicus	Cream Cups
	Prunus ilicifolia	Holly-leaf Cherry
	Rafinesquia neomexicana	Desert Chicory
X	*Ribes quercetorum*	Oak Gooseberry
	Rorippa nasturtium-aquaticum	Water-cress
	Rosa californica	California Rose
	Saltugilia australis	Southern Gilia
X	*Senecio californicus*	California Butterweed
	Senecio flaccidus	Butterweed
	Sidalcea malvaeflora	Checker-bloom
X	*Sisymbrium sp.*	Tumble Mustard
X	*Solidago californica*	California Goldenrod
	Stachys ajugoides	Hedge-nettle
	Stephanomeria sp	Wreathplant
	Streptanthus campestris	Southern Jewelflower
X	*Stylocline gnaphalioides*	Everlasting Nest-straw
	Tetradymia comosa	Cotton-thorn
	Thysanocarpus sp.	Fringepod
X	*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:

SBad01A1
SBad02A2
SBad03A1
SBa104A1
SBbz01
SBCC01A1
SBCC02B5
SBdp01A1
SBdp02B15
SBdp03A1
SBgr01A1
SBl601A1
SBl602B2
SB

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	
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	

		Survey Week					
Scientific Name	**Common Name**	**1**	**2**	**3**	**4**	**5**	**6**
Marrubium vulgare	horehound						**x**
Matricaria matricarioides	common pineapple-weed	**x**					
Mentzelia veatchiana	Veatch's stick-leak						**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 survey area (within the LanWest project site) was initially part of a larger survey area that was separated into three separate CPV projects (LanWest Solar Farm, LanEast Solar Farm, and Rugged Solar Farm) after the completion of protocol Quino checkerspot butterfly (*Euphydryas editha quino*) surveys. LanEast Solar Farm is located adjacent to the proposed project (on the eastern boundary of LanWest). 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 only found on Rugged Solar.

Bold = potential Quino larval host plant species.

APPENDIX E
VERTEBRATE WILDLIFE 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	
	Phrynosoma coronatum blainvillii[B]	coast horned lizard[B]
	Family Teiidae	
	Cnemidophorus tigris[C]	coastal whiptail[C]
BIRDS		
Order Ciconiiformes		**Herons, Storks, Ibises, and Relatives**
	Family Ardeidae	
	Butorides virescens	green heron
	Family Cathartidae	
	Cathartes aura	turkey vulture
Order Falconiformes		**Diurnal Birds of Prey**
	Family Accipitridae	
	Buteo jamaicensis	red-tailed hawk
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
	Streptopelia decaocto	Eurasian collared-dove
Order Piciformes		**Woodpeckers**
	Family Picidae	
	Melanerpes formicivorus	acorn woodpecker
	Colaptes auratus	northern flicker
Order Passeriformes		**Song birds**
	Family Tyrannidae	
	Sayornis saya	Say's phoebe
	Tyrannus verticalis	western kingbird
	Family Corvidae	
	Corvus corax	common raven
	Aphelocoma californica	western scrub jay
	Family Paridae	
	Baeolophus inornatus	oak titmouse
	Family Hirundinidae	
	Petrocheliodon pyrrhonota	cliff swallow
	Stelgidopteryx serripennis	northern rough-winged swallow
	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

Scientific Name		Common Name
	Family Regulidae	
	Regulus calendula	ruby-crowned kinglet
	Family Mimidae	
	Mimus polyglottos	northern mockingbird
	Family Sturnidae	
	Sturnus vularis	European starling
	Family Parulidae	
	Dendroica coronata	yellow-rumped warbler
	Vermivora ruficapilla	Nashville warbler
	Vermivora celata	orange-crowned warbler
	Dendroica petechia[B]	yellow warbler[B]
	Family Emberizidae	
	Amphispiza bilineata	black-throated sparrow
	Spizella breweri	Brewer's sparrow
	Pipilo crissalis	California towhee
	Pipilo maculates	spotted towhee
	Junco hyemalis	dark-eyed junco
	Chondestes grammacus	lark sparrow
	Zonotrichia leucophrys	white-crowned sparrow
	Family Icteridae	
	Euphagus cyanocephalus	Brewer's blackbird
	Agelaius tricolor[B]	Tricolored blackbird[B]
	Icterus bullockii	Bullock's oriole
	Family Fringillidae	
	Carpodacus mexicanus	house finch
MAMMALS		
Order Lagomorpha		**Rabbits, Hares, and Pikas**
	Family Leporidae	
	Sylvilagus audubonii	Audubon's cottontail
	Lepus californica bennettii[B]	San Diego black-tailed jackrabbit[B]

[A] The Quino survey area (within the LanWest project site) was initially part of a larger survey area that was separated into three separate CPV projects (LanWest Solar Farm, LanEast Solar Farm, and Rugged Solar Farm) after the completion of protocol Quino checkerspot butterfly (*Euphydryas editha quino*) surveys. LanEast Solar Farm is located adjacent to the proposed project (on the eastern boundary of LanWest). Rugged Solar Farm is located directly north of Interstate 8. All three sites were surveyed for Quino at the same time. This list of vertebrate wildlife species detected represents species detected for both the LanWest and LanEast projects (but does not include observations from the Rugged Solar site).

[B] State species of special concern (State of California 2011)

[C] State special animal (State of California 2011)

APPENDIX C

JURISDICTIONAL DELINEATION LETTER REPORT

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January 30, 2012

Therese Bradford, Chief, San Diego Section
U.S. Army Corps of Engineers
6010 Hidden Valley Road
Carlsbad, CA 92011

Re: LanWest Solar Farm LLC Jurisdictional Delineation Letter Report

Dear Ms. Bradford:

Introduction

LanWest Solar Farm LLC, a subsidiary of Soitec Solar Development LLC, proposes to develop the 5.44-megawatt (MW) photovoltaic LanWest Solar Farm (Proposed Project) located in Boulevard, California (Attachment A, Figures 1 and 2 [all figures referred to in this report are located within Attachment A]). The approximate 54.66-acre Proposed Project (hereinafter referred to as the project area [Figure 3]) includes the primary solar energy facilities (i.e., the solar array field, transformers and capacitors, switchyard, and a direct tie-in to existing distribution system facilities) and the associated construction and operations footprint.

As part of the environmental review process, this jurisdictional delineation letter report (JDLR) outlines and summarizes the latest federal and state guidance and methodologies employed in conducting a formal delineation for jurisdictional waters of the U.S. and State of California (state); the results of the fieldwork; and the amount, type, and location of the formally delineated potential jurisdictional waters occurring within the project area. This JDLR discusses the type and amount of potentially regulated aquatic resources occurring within the approximately 54.66-acre project area (the project area is also synonymous with the delineation survey area [the construction limits of the Proposed Project]) for the project.[1]

[1] Included in the project area is the approximately 19.11-acre transmission corridor for the Tule Wind Project, located at the southern most portion of the project area extending along Old Highway 80.

Summary

Within the project area, approximately 0.66 acre[2] of potential jurisdictional waters of the U.S.[3,4] and state[5] were formally delineated. Of these approximately 0.66 acre of delineated aquatic features, approximately 0.40 acre are potential jurisdictional waters of the U.S. and state (composed of unvegetated ephemeral dry wash [other waters of the U.S.]). Approximately 0.26 acre were formally delineated as potential jurisdictional waters of the state exclusively[6] (composed of southern willow scrub [0.10 acre] and unvegetated swale [0.16 acre]) for the total area of 0.66 acre of potential jurisdictional waters of the U.S. and state.[7]

Regulatory Framework

Wetlands and other aquatic environments/habitats occurring within California and San Diego County (County) are regulated under the following federal and state laws and County ordinances.

Federal Regulations

U.S. Army Corps of Engineers

Pursuant to Section 404 of the Clean Water Act (CWA), the U.S. Army Corps of Engineers (USACE) is authorized to regulate any activity that would result in the discharge of dredged or fill material into jurisdictional waters of the U.S., which include those waters listed in 33 Code of Federal Regulations (CFR) Part 328 (Definitions). USACE, with oversight by the U.S. Environmental Protection Agency (USEPA), has the principal authority to issue CWA Section 404 Permits.

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[2] All acreages are rounded to the nearest hundredth (which may account for minor rounding error).

[3] For this Proposed Project, jurisdictional waters of the U.S. are under the purview of the U.S. Army Corps of Engineers (USACE), with oversight by the U.S. Environmental Protection Agency (USEPA), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Game (CDFG), if applicable. Final acreages of jurisdictional waters of the U.S. are based on the jurisdictional determination (JD) process per the March 30, 2007, USACE Jurisdictional Determination Form Instructional Guidebook; the June 5, 2007, Approved JD Form; the June 5, 2007, Joint Guidance Memorandum; the December 2, 2008, Guidance Memorandum; and Regulatory Guidance Letter (RGL) 08-02 (if RGL 08-02 is deemed applicable and appropriate [i.e., the permit applicant or other "affected party" can decline to request and obtain an Approved JD and elect to use a Preliminary JD instead] for nonbinding written indication that there may be waters of the U.S., including wetlands, on a parcel or indications of the approximate location[s] of waters of the U.S. or wetlands on a parcel).

[4] Jurisdictional waters of the U.S. include jurisdictional waters of the state.

[5] State jurisdictions often exceed, in lateral extent and area, federal jurisdiction. Therefore, jurisdictional waters of the U.S. include waters of the state. Although federal and state jurisdictions do overlap, they would remain distinct for regulatory administration and permitting purposes.

[6] Relevant to CDFG and RWQCB permitting only.

[7] Wetlands and other aquatic habitats and features are not regulated as jurisdictional waters by San Diego County but as "Environmentally Sensitive Lands" (see Regulatory Framework, below).

Pursuant to Section 401 of the CWA, the Regional Water Quality Control Board (RWQCB) certifies that any discharge into jurisdictional waters of the U.S. will comply with state water quality standards. The RWQCB, as delegated by USEPA, has the principal authority to issue a CWA Section 401 water quality certification or waiver.

State Regulations

California Department of Fish and Game

Pursuant to Section 1600 *et seq.* of the California Fish and Game Code (CFGC), the California Department of Fish and Game (CDFG) regulates activities of an applicant's project that would substantially alter the flow, bed, channel, or bank of streams or lakes, unless certain conditions outlined by CDFG are met by the applicant. The limits of CDFG jurisdiction are defined in CFGC Section 1600 *et seq.* as the "bed, channel, or bank of any river, stream,[8] or lake designated by CDFG in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit."[9] However, in practice, CDFG usually extends its jurisdictional limit and assertion to the top of a bank of a stream, the bank of a lake, or outer edge of the riparian vegetation, whichever is wider.

For desert aquatic features, CDFG provides specific guidance concerning its regulatory administration over jurisdictional waters of the state in California Code of Regulations (CCR) Title 14 Section 720 (Designation of Waters of Department Interest):

> For the purpose of implementing Sections 1601 and 1603 of the Fish and Game Code, which requires submission to [CDFG] of general plans sufficient to indicate the nature of a project for construction by or on behalf of any person, governmental agency, state or local, and any public utility, of any project which will divert, obstruct, or change the natural flow or bed of any river, stream, or lake designated by [CDFG], or will use material from the streambeds designated by the department, all rivers, streams, lakes, and streambeds in the State of California, including all rivers, streams, and streambeds, *which may have intermittent flows of water*, are hereby designated for such purpose. [Italics added.]

Regional Water Quality Control Board

Pursuant to Section 13000 *et seq.* of the California Water Code (CWC) (the 1969 Porter-Cologne Water Quality Control Act [Porter-Cologne]), the RWQCB is authorized to regulate any activity that would result in discharges of waste and fill material into waters of the state, including "isolated" waters and wetlands. Waters of the state include any surface or groundwater within the boundaries of the state (CWC Section 13050[e]). Porter-Cologne

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[8] The California Code of Regulations (CCR) (Title 14 CCR 1.72) defines a stream as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation."

[9] This also includes the habitat upon which they depend for continued viability (CFGC Division 5, Chapter 1, Section 45, and Division 2, Chapter 1, Section 711.2[a]).

authorizes the State Water Resources Control Board (SWRCB) to adopt, review, and revise policies for all waters of the state, and directs the RWQCB to develop regional Basin Plans. CWC Section 13170 also authorizes SWRCB to adopt water quality control plans on its own initiative. The Water Quality Control Plan for the Colorado River Basin (RWQCB Region 7), as amended, is designed to preserve and enhance the quality of water resources. The purpose of the plan is to designate beneficial uses of surface and ground waters, designate water quality objectives for the reasonable protection of those uses, and establish an implementation plan to achieve the objectives within RWQCB Region 7 (RWQCB 1993).

Local Regulations

County of San Diego

Pursuant to Chapter 6, Division 6, Title 8 of the San Diego County Code (the County of San Diego Resource Protection Ordinance [RPO]), there are special controls on discretionary development (i.e., requiring a permit from the Department of Planning and Land Use [DPLU]) for the County's "Environmentally Sensitive Lands," which include (specific to this report) wetlands, floodplains, riparian habitat, and "Sensitive Habitat Lands" as defined by Section 86.602 of the RPO. The RPO is a compilation of County Ordinance Nos. 7968, 7739, 7685, and 7631, and strengthens methods adopted by the County to guarantee the preservation of sensitive lands (Ordinance No. 9842). The RPO protects such sensitive lands by requiring a Resource Protection Study for certain discretionary projects. If the Resource Protection Study identifies RPO-defined wetlands (see below), RPO wetland buffers, or RPO sensitive habitat lands, then avoidance or avoidance to the maximum extent feasible and mitigation are required as specified under the code.

According to Sec. 86.602 of Chapter 6 of the RPO, wetlands and wetland buffers are defined as follows:

(q) "Wetland":

(1) Lands having one or more of the following attributes are "wetlands":

(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.

(2) Notwithstanding paragraph (1) above, the following shall not be considered "wetlands":[10]

(aa) Lands which have attribute(s) specified in paragraph (1) solely due to man-made structures (e.g., culverts, ditches, road crossings, or agricultural ponds), provided that the Director of Planning and Land Use determines that they:

(i) Have negligible biological function or value as wetlands;

(ii) Are small and geographically isolated from other wetland systems;

(iii) Are not vernal pools; and

(iv) Do not have substantial or locally important populations of wetland dependent sensitive species.

(bb) Lands that have been degraded by past legal land disturbance activities, to the point that they meet the following criteria as determined by the Director of Planning and Land Use:

(i) Have negligible biological function or value as wetlands even if restored to the extent feasible; and

(ii) Do not have substantial or locally important populations of wetland dependent sensitive species.

(r) "Wetland Buffer": Lands that provide a buffer area of an appropriate size to protect the environmental and functional habitat values of the wetland, or which are integrally important in supporting the full range of the wetland and adjacent upland biological community. Buffer widths shall be 50 to 200 feet from the edge of the wetland as appropriate based on the above factors. Where oak woodland occurs adjacent to the wetland, the wetland buffer shall include the entirety of the oak habitat (not to exceed 200 feet in width).

The RPO applies to this project because the site contains features that meet the County definitions of wetlands, wetland buffers, and riparian habitat.[11]

Purpose of Jurisdictional Delineation

The purpose of performing a formal jurisdictional delineation is to identify the absence and/or presence (including the type, location, boundaries, and acreages) of potential jurisdictional waters of the U.S., state, and County (including wetlands) occurring within the project area. Once the presence or absence of potential jurisdictional waters is formally delineated, the following can occur:

1. This JDLR can be used to make any proactive or unforeseen changes in project design to avoid and/or minimize potential impacts to regulated waters.

[10] Activities on lands not constituting County-defined wetlands may still be subject to mitigation, avoidance, and permitting requirements pursuant to other applicable County, state, and federal regulations (see federal and state regulatory frameworks, above).

[11] Section 86.605 of the RPO also outlines exemptions to Environmentally Sensitive Lands (including wetlands).

2. USACE can conduct the appropriate jurisdictional determination (JD) (see below). (This JDLR is intended to provide the information and documentation necessary for USACE to make this determination.)
3. The results of this JDLR can be verified by the requisite federal, state, and local agencies (e.g., CDFG, DPLU, RWQCB, and USACE) to concur about jurisdictional waters that are under their regulatory administration.
4. Where it is determined that there would be potentially permanent and/or temporary impacts to jurisdictional waters related to the project, the project applicant would apply for and receive the following requisite authorizations, permits, and compliances:
    - Authorization under Section 404 of the CWA, if applicable (as regulated by USACE with oversight by USEPA).[12]
    - Certification of compliance under Section 401 of the CWA, if applicable (as regulated by the RWQCB).[13]
    - Issuance of Waste Discharge Requirements or waiver under Article 4 of Porter-Cologne, if applicable (as regulated by the RWQCB).[14]
    - CFGC Chapter 6 Section 1600 *et seq.*, if applicable (as regulate by CDFG).[15]
    - Issuance of discretionary development permits and/or determining compliance under Section 86.602 of the RPO, if applicable by DPLU.

Purpose of Project

In addition to federal policy, California has long-established energy policies to promote renewable electricity generation. Established in 2002 under Senate Bill (SB) 1078 and accelerated in 2006 under SB 107, California's Renewables Portfolio Standard (RPS) is one of the most ambitious renewable energy standards in the United States. The RPS program required investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources until they reach 20% by 2010. In November 2008, California's governor issued Executive Order (EO) S-14-08 requiring an increase in the percentage of electricity generated by renewable

[12] 40 CFR Part 230.
[13] Maintaining water quality standards under CWA Section 401 would only apply to this project if it has been determined by USACE that some or all of these delineated waters occurring within the survey area are jurisdictional waters of the U.S. and that a discharge of waste would occur to or within jurisdictional waters of the U.S. If USACE/USEPA determines that no jurisdictional waters of the U.S. occur within the project area, then California Water Code Section 13000 *et seq.*(e.g., Porter-Cologne) would apply to any "discharge of waste" into state waters (see Regulatory Framework, above).
[14] If it is determined by USACE that no federal waters occur within the survey area or if no impact (discharge of dredge or fill) would occur to jurisdictional waters of the U.S. as a result of the Proposed Project.
[15] California Code of Regulations (CCR) Title 14, Division 1.

resources to 33% by 2020.[16] EO S-14-08 also directed state agencies to streamline regulatory processes and minimize environmental impacts associated with this development.[17] This project is intended to contribute to meeting the previously established 33% state goal.

Project Description

Project Components

The Proposed Project is a concentrating photovoltaic (CPV) power plant with alternating current (AC) generating capacity up to approximately 5.44 megawatts (MW) AC. The Proposed Project would be composed of as many as approximately 264 CPV trackers grouped into four building blocks with up to about 66 trackers and one pair of 630- to 680-kilovolt (kV) inverters per building block. Each inverter pair is equipped with a small step-up transformer to step the voltage up to 12.5 kV, at which level it will interconnect to the local distribution system. The AC inverter capacity determines the nameplate capacity of each building block to be 1.26 to 1.36 MW AC; therefore, with four building blocks and two inverters per building block, the total project capacity is 5.0 to 5.4 MW AC. The Proposed Project would also include an electrical collection system, communication lines within each building block, the construction of a small switch station at or near the southwest corner of the project area, and a 12.5kV dedicated generation tie in (gen-tie) line from the switch station across Old Highway 80 and southwest to the Boulevard substation, a distance of approximately 0.75 mile. Additionally, approximately 17.98 additional acres are included in the project area and would be designated as project open space.

Each building block in its standard configuration measures approximately 656 feet east/west and 531 feet north/south and is comprised of up to 66 Soitec Concentrix^{R} CX-S530 dual-axis trackers. Trackers are arranged generally in an array comprised of 6 to 8 east/west rows with up to 8 to 12 trackers in each row. Spacing between trackers is 69 feet north/south and 82 feet east/west, subject to reasonable adjustment to accommodate site-specific constraints (i.e. site topography). Power within each building block is delivered through a 1,000-volt (V) direct current (DC) underground collection system from the trackers to the pair of inverters. Each inverter pair would be equipped with a step up transformer to convert the power from the 1.26kV or 1.36 kV (depending on the inverter capacity) on the “low side” to 12.5 kV on the “high side”.

Individual tracker dimensions are approximately 48 feet across by 24 feet tall. Each tracker would be mounted on a 28-inch diameter steel post likely to be vibration pile-driven or

[16] Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006 (AB 32; Statutes of 2006, chapter 488), creates a comprehensive, multi-year program to reduce greenhouse gas emissions to 1990 levels by the year 2020. Executive Order (EO) S-21-09 was issued to adopt a regulation requiring the state’s load-serving entities to meet a 33% renewable energy target for the state of California by 2020.

[17] EO S-21-09 was signed by California’s governor on September 15, 2009, directing the California Air Resources Board to adopt regulations requiring 33% of electricity sold in the state to come from renewable energy by 2020.

integrated into a concrete foundation designed to suit the onsite surface and subsurface conditions and materials. In its most vertical position, the top of each tracker would not be more than 35 feet above grade and the lower edge would not be less than 1 foot above the ground. In its horizontal “stow” mode (for high winds); each tracker would have a minimum ground clearance of 11 feet. Solar CPV modules are mounted on and comprise, en masse, the surface of each tracker. The dimensions, maximum height, and ground clearance for all trackers would be the same.

The Proposed Project site would be fenced along the entire property boundary for security. Signage for electrical safety would be placed along the perimeter of the project area warning the public of the high voltage and the need to keep out as well as within the project where appropriate. Some localized security related lighting, on-site security personnel, and/or remotely monitored alarm system may be required during construction. During operations, while no use of lighting as a preventative measure or permanent on-site security presence is anticipated, approval for installation of remote monitored cameras and alarm system(s) and for perimeter and safety lighting is proposed with such lighting to be utilized only on an as-needed basis for emergencies, protection against security breach, or unscheduled maintenance and trouble shooting (such as may be occasionally required).

Power from the Proposed Project would be delivered to the nearby Boulevard substation by a dedicated 12.5 kV distribution line linking the four building blocks and extending an additional distance of approximately 0.75 mile from the southwest corner of the site, across Old Highway 80, and southwest to the Boulevard Substation. The point of interconnection (POI) contemplated by the interconnection documents is to either the existing Boulevard Substation owned by San Diego Gas and Electric (SDG&E) or to a new Boulevard East substation proposed by SDG&E to replace the existing substation and immediately to the east. Interconnection to the former, if implemented, would be temporary until the new substation is energized.

Project Construction

Construction of the Proposed Project would involve selective clearing and grubbing of vegetation, some grading, construction of CPV foundations, trenching for the electrical collection system and communication lines within each building block, installation of small concrete footing at each pair of inverters, construction of the small switch station, and installation of the short 12.5 kV dedicated gen-tie line from the switch station to the Boulevard Substation. The project area is relatively level and installation of each array would follow the existing grade with grading for minor leveling purposes as appropriate to enable primary and secondary road network completion, compliance with fire regulations, and CPV unit and electrical collection system installation.

Selective clearing and grubbing would be required for construction and access and as necessary to comply with fire code. Trenching for the electrical collection system and communication lines within each building block would entail a trench up to approximately three feet deep and one to two feet wide. The trenches would be filled with base material

above and below the conductors and communications lines to ensure adequate thermal conductivity and electrical insulating characteristics. Material from the foundation and trench excavations would be negligible and used for site leveling, foundation pads, inverter and transformer pads, and the switch station pad. The trackers would be assembled on-site. Recycling during construction would 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). The construction period would be between 6 and 12 months.

During construction, the Proposed Project would use water to suppress fugitive dust during grading and soil compaction. For site preparation and grading, it is assumed that approximately 0.20 acre-feet (65,000 gallons) of water per acre would be used during the first two months or 40 workdays of site construction. For fugitive dust control, it is estimated that approximately 1.75 acre-feet (570,239 gallons) of water would be used per week during six months of construction. Additional water would be used for hydrating the concrete used on-site; however, this would be imported. It is assumed that approximately 30 gallons of water would be used per cubic yard of concrete. As such, the Proposed Project would require approximately 12.84 acre-feet (4,183,052 gallons) of water during construction. Less water-intensive methods to implement dust suppression are under review including: (i) use of soil stabilizers, (ii) more tightly phasing construction activities, and/or (iii) compressing the entire construction schedule to reduce the time period over which dust suppression measures would be required.

The project area would be re-vegetated, except around project components and where primary and/or secondary service road access is required. Disturbed areas would be re-vegetated as follows: (i) areas around each tracker will be re-vegetated with native species, but still allowing for operations and maintenance access and fire suppression, (ii) areas not directly needed for construction or operations maintenance (that have been disturbed) will be re-vegetated with native species and allowed to grow to normal heights except where such growth is limited by fire protective measures or in creates shading that would compromise electricity generation, and (iii) no re-vegetation is proposed for secondary access roads that will be utilized for routine operations (including washing).

Project Operation and Maintenance

Operations of the Proposed Project would entail off-site monitoring through a supervisory control and data acquisition (SCADA) system utilizing on-site sensors or a comparable system that would maintain tracker orientation towards the sun. At night, the trackers would be positioned vertically to minimize dust collection. When winds are high, the trackers would be positioned in a horizontal mode. The PV trackers and communication/monitoring system onsite would require minimal usage of grid-provided electricity for operations use. Operations and maintenance personnel, as well as equipment storage would be located offsite, at a nearby central facility for all Soitec Solar operations.

Operations and maintenance of the CPV units would include in-place panel washing as frequently as up to approximately every 6 weeks to 2 months by mobile crews who would also be available for dispatch whenever on-site repairs or other maintenance are required. To the extent water supplies from existing on-site wells, or wells from the contiguous LanEast Solar Farm LLC project area are inadequate, water would be delivered in a tanker truck and transferred to panel washing trucks. Each panel-washing truck would carry water treatment equipment and truck-mounted panel washing booms. No more than 24 gallons of water would be required to wash each tracker, with a good possibility that much less water would be required. Panel washing would occur on-site for approximately 4 to 6 days per washing cycle.

As previously discussed, the project area is bounded by I-8 to the north, Old Highway 80 to the south, and McCain Valley Road 0.5 mile to the east. Primary access would be from McCain Valley Road and would be controlled by a security gate directly. The primary access road would be 20 feet wide, paved with decomposed granite, and would extend for approximately 0.5 mile. A secondary service road would be located on the southern boundary of the project area for personnel to access the switch station.

Project Location

The 54.66-acre project area lies within the unincorporated area of San Diego County just east of Boulevard, California, in the southeastern portion of the County (Figure 1). The project area is located at an elevation of approximately 3,300 feet above mean sea level and is within Sections 27 and 28 of Township 17S, Range 7E of the Live Oak Springs U.S. Geological Survey (USGS) Quadrangle (Figure 2). The project area is approximately 0.5 mile west of north/south-running McCain Valley Road, and is bordered by Old Highway 80 to the south and Interstate 8 (I-8) to the north(Figure 3). It consists of Assessor's Parcel Numbers 612-09-113 and 612-03-018.

Project Environmental Setting

Regional Context

The project area is located in a desert transition zone dominated by chaparral communities, subshrub communities, oak woodland, nonnative grassland, and disturbed wildflower fields. Abiotic features also present within the project area include rock outcrops, small, limited/restricted ephemeral wash features, and swales. The project area is characterized by gently sloping hillsides and shallow valleys, with rock outcrops and a few small hills scattered throughout the site. The project area is within the Boulevard Community Planning Area of the County's General Plan; the land use designation is Rural Lands with a permitted density of 1 dwelling unit per 80 acres (RL-80). Existing zoning is General Rural (S92), and the project area is currently used for grazing.

The project area is located within the County's draft East County Multiple Species Conservation Program (ECMSCP) Plan Area. More specifically, the project area falls within

a preliminarily delineated Focused Conservation Area (FCA) of the ECMSCP Plan Area (County of San Diego 2010). While the ECMSCP has not yet been finalized, location within a preliminary FCA suggests that the project area has some regional conservation value. Nevertheless, because this plan is not yet finalized, the Proposed Project is not subject to conditions of the ECMSCP.

Climate

The project area occurs within the Peninsular Range region of California at the western edge of the Sonoran Desert. The climate in this transitional region is semi-arid within the Mediterranean climate classification. The climatic pattern for the project area is characterized by moderate to strong fluctuations in daily temperatures, mild to hot dry summers, and mild, wet winters. Average maximum and minimum temperatures are 94 degrees Fahrenheit (°F) and 33°F, respectively. The warmest month for the region is typically July, and the coldest month is December. Precipitation in the area averages 15.5 inches annually, more than 90% of which falls from October through April (NOAA 2011a, 2011b; USCD 2011).

This area of the Peninsular Range region experiences a large number of days each year with generally clear skies and sunshine (averaging [or in excess of] 275 days per year). However, night and morning cloudiness is common during the spring and summer, and fog can occasionally develop during the winter. Seasonal and prevailing wind direction is westerly to northwesterly with an daily mean speed of 6 to 10 miles per hour. Frequently, the strongest winds within the vicinity of the project area occur during the night and morning hours due to the absence of the onshore ocean breeze (NOAA 2011a, 2011b).

The one active climatological station closest to the project area that monitors temperature and precipitation is the Campo Station (COOP ID 041424) which has been recording climatological data actively since July 1948 to the present (WRCC 2011a). [18] The mean annual temperature recorded at the Campo Station ranges from a minimum of 40.8°F to a maximum of 76.3°F. Mean annual rainfall measured at the Campo Station is 14.79 inches (WRCC 2011a).

A climatological station in Boulevard, California, did operate between 1969 and 1994 (Boulevard Station [COOP ID 041010]). The mean annual temperatures recorded at the Boulevard Station are not available. Mean annual rainfall measured at the Boulevard Station for approximately 25 years is 17.51 inches (WRCC 2011b).

[18] The Campo Station is located approximately 9.25 miles southwest of the project area at 32.623331-116.472781 (WRCC 2011a), which is in Campo, California.

Jurisdictional Delineation Methodology

Presurvey Investigations

Prior to conducting the field delineation for potential jurisdictional waters of the U.S. and state (including wetlands), AECOM ecologists Brian Felten and Joshua Zinn reviewed historical land use of the project area, local and regional climactic data, and areas with topographical configurations and vegetative signatures occurring within the project area that may suggest the potential or presence of jurisdictional waters of the U.S. and state at the time of the field survey. Post-delineation data were also compared and confirmed. This information was evaluated by consulting the following available sources:

- 7.5-minute Live Oak Springs Quadrangle (USGS 1997)
- The web-based National Hydrography Dataset (USGS 2011)
- 2010 aerial maps of the project survey area (U.S. Department of Agriculture [USDA] National Agriculture Imagery Program) (USDA 2010)
- The web-based National Wetlands Inventory Wetlands Mapper (USFWS 2011)
- The web-based California Environmental Resources Evaluation System (CERES), California Wetlands Information System Wetland Databases and Inventories (CERES 2011)
- The web-based Information Center for the Environment (U.C. Davis 2011a)
- The web-based National List of Hydric Soils (NRCS 2011a)
- The web-based Natural Resource Conservation Service (NRCS) Web Soil Survey (NRCS 2011b)
- The web-based California Soil Resource Lab (U.C. Davis 2011b)
- The web-based Soil Survey Geographic Database (SSURGO) (NRCS 2011c)
- The web-based U.S. General Soil Map (STATSGO) (NRCS 2011d)
- The web-based California Watershed Portal (CalEPA 2011)
- The web-based California Watershed Network (CWN 2011)
- The web-based Office of Water Programs, Water Quality Planning Tool (CSUS 2011)
- The web-based Digital Watershed (USEPA 2011)
- The web-based Western Regional Climate Center (WRCC 2011c)
- The web-based National Weather Service Climate Office (NOAA 2011a)
- The web-based Project Clean Water San Diego (Project Clean Water 2011)

- The Soil Survey of San Diego County (Bowman 1973)
- The web-based San Diego County Geographic Information System (GIS) site (SANDAG 2011)
- The web-based San Diego County Flood Control District (SDFCD 2011)
- The web-based San Diego County Watershed Network (2011)
- The web-based San Diego County Water Authority (SDCWA 2011)

Formal Field Delineation

An AECOM ecologist initially conducted a general field reconnaissance of the project area (survey area) identifying areas (including the limits) supporting potential state and federal jurisdictional waters (including wetlands). After the initial field reconnaissance was completed, a formal delineation of jurisdictional waters (including wetlands) occurring within the survey area was conducted by two AECOM ecologists.

All acquired field data were obtained by recording the presence (including extents, types, and boundaries) of potential jurisdictional waters using a Trimble XH subfoot accuracy handheld Global Positioning System (GPS) unit. All acquired field data were submitted to AECOM San Diego's GIS specialists for post-field processing. Post-field analysis, using Trimble GPS Analyst (Version 2.1) GIS software to code, define, designate, and edit all acquired GPS field data representing potential jurisdictional waters occurring within the project area, was conducted in tandem by an AECOM GIS specialist and the ecologist who performed the fieldwork. The dates, AECOM personnel, and type of activity conducted for this formal field jurisdictional delineation are listed in Table 1.

Table 1
Survey Dates and Personnel Conducting the Formal Field Delineation at LanWest

Dates	Personnel	Activity
November 8, 2011	Joshua Zinn	General field reconnaissance
December 9, 2011	Brian Felten and Joshua Zinn	Field survey and formal delineation fieldwork
December 12, 2011	Joshua Zinn	Groundtruthing and post-delineation fieldwork

Delineation of Federal Waters

Jurisdictional waters of the U.S. include those waters listed in 33 CFR 328.3 (Definitions of Waters of the United States). All waters of the U.S. were delineated to their jurisdictional limits as defined by 33 CFR 328.4 (Limits of Jurisdiction). It was determined through pre-field surveys (remote analysis) and the general field reconnaissance that the project area had the

potential for the presence of, at a minimum, two types of federally regulated waters (wetlands[19] and "other waters"[20]), warranting field assessments composed of the following:

1. Formal delineations for waters of the U.S. in the form of wetlands based on the three-parameter method.[21] The three-parameter method for identifying and delineating wetlands is outlined in and in accordance with the latest federal guidance, methodologies, and procedures:
    a. Corps of Engineers Wetlands Delineation (1987 Manual) (Environmental Laboratory 1987)
    b. the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (2008 Supplement) (Environmental Laboratory 2008)[22]
    c. USACE *Wetland Plants of Specialized Habitats in the Arid West* (Lichvar and Dixon 2007)
2. Formal delineations for waters of the U.S. in the form of other nonwetland waters based on field indicators to define and identify the jurisdictional lateral extent of the ordinary high water mark (OHWM), as defined by 33 CFR 238.3(e), federal guidance, methodologies, and procedures, including the following:
    a. *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual* (Lichvar and McColley 2008)[23]
    b. *Review and Synopsis of Natural and Human Controls on Fluvial Channel Processes in the Arid West Channels* (Lichvar and Field 2007)
    c. *Distribution of Ordinary High Water Mark (OHWM) Indicators and their Reliability in Identifying the Limits of "Waters Of The United States" in Arid Southwestern Channels* (Lichvar et al. 2006)
    d. All applicable USACE Regulatory Guidance Letters (RGLs) for other waters[24]

This jurisdictional delineation applied the two prescribed field methodologies in the routine delineating of waters of the U.S. (including wetlands), as described below.

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[19] The federal definition of wetlands outlined in 33 CFR 328.3(b), 40 CFR 230.3(t), the 1987 Manual, and the 2008 Supplement.
[20] The federal definition of Other Waters outlined in 33 CFR 328.3(a)(3)(i–iii) and 328.3(e).
[21] The three-parameter method requires the simultaneous presence (co-occurrence) of wetland hydrology, hydric soil, and hydrophytic vegetation for an area to be classified as a wetland (Environmental laboratory 1987).
[22] It should be noted that the 1987 Manual and 2008 Regional Supplement are guidance documents for delineating waters in the form of wetlands only. The portion of the delineated project area containing aquatic features used 2008 Supplement Data Forms to document the presence/absence of wetlands, but not the presence of *jurisdictional waters* possessing an ordinary high water mark or "other waters" of the U.S.
[23] Datasheets from this field delineation manual were used as guidance documents for this delineation and are not included in this JDLR.
[24] RGL 88-06; RGL 05-05.

Methodology One: Formal Delineations for Waters of the U.S. in the Form of Wetlands

The routine determination method requires an examination for the presence of wetland indicators for hydrophytic vegetation, hydric soils, and wetland hydrology. With the exception of some atypical situations, USACE guidelines for delineating wetlands (e.g., 1987 Manual and 2008 Supplement) require co-occurrence of positive wetland indicators for each parameter (e.g., hydrophytic vegetation, wetland hydrology, and hydric soil).

The formal jurisdictional delineation for federally defined wetlands was conducted in accordance with Part IV (Methods), Section D (Routine Determinations), Subsection 1 (Onsite Inspection Necessary) of the 1987 Manual's "Routine Determinations for Areas Greater Than Five Acres in Size." The 1987 Manual recommends that a baseline be established that parallels the watercourse(s) through the survey area and that the maximum distance between transects (intervals) for linear delineations does not exceed 0.5 mile.

A positive wetland determination was made for those observation points that exhibited positive wetland field indicators for each of the three parameters: hydrophytic vegetation, wetland hydrology, and hydric soils. A positive determination for potential nonwetland jurisdictional waters of the U.S. was made for areas that did not meet all three parameters for federally defined wetland but met the definitions of other waters of the U.S.[25] (see Methodology Two, below).

Although the 2008 Supplement also uses the three-criteria method outlined in the 1987 Manual, it identifies specific sections of the 1987 Manual that are replaced by 2008 Supplement guidance (see Table 1 of the 2008 Supplement) that must be used within applicable land resource regions as outlined in the 2008 Supplement (the project area is within Region C [Mediterranean California]). Therefore, the 2008 Supplement takes precedence over the 1987 Manual for applications in the Arid West region, and states the following in Chapter 4:

> The Arid West is characterized by extended dry seasons in most years and by extreme temporal and spatial variability in rainfall, even in "normal" years. Many wetlands in the region are dry for much of the year and, at those times, may lack hydrology indicators entirely. Therefore, *lack of an indicator is not evidence for the absence of wetland hydrology*. [Italics in the original.]

In Chapter 5:

> In general, *wetland determinations on difficult or problematic sites must be based on the best information available to the field inspector, interpreted in light of his or her personal experience and knowledge of the ecology of wetlands in the region*. [Italics in the original.]

[25] 33 CFR 328.3(a–f) (51 Federal Register [FR] 41250, November 13, 1986, as amended at 58 FR 45036, August 25, 1993).

In accordance with the 1987 Manual and the 2008 Regional Supplement, the following wetland delineation criteria, primary field indicators, and best professional judgment were used for the collection of data pertinent to assessment of the mandatory technical criteria. Field data were recorded in the 2008 Supplement Wetland Determination Data Forms – Arid West Region (Version 2.0), which is appropriate for application of both the 1987 Manual and the 2008 Supplement "routine" method. Copies of the Arid West region data forms are included in Attachment B.[26]

Where feasible, the baseline for establishing the transect (and field data point) locations was situated in nonjurisdictional (i.e., upland and/or nonwetland and/or nonriparian) habitat so that the initial observation points of the transect were likely outside of wetland boundaries or on either side of the potential jurisdictional waters (in the form of wetland), and extended across the jurisdictional feature to nonjurisdictional (upland) habitat on the opposite side. This baseline placement ensured that the outer observation point for each transect was also located in representative nonwetland (or upland) habitat, allowing for accurate demarcation of the limits of potentially jurisdictional areas. Additionally, a field data point would be used to confirm the presence or absence of a federally defined wetland within a feature that presented the potential to support the simultaneous presence of all three wetland parameters (as defined in the 1987 Manual and 2008 Supplement) occurring at such a confirmation point.

It was determined that one transect interval for riparian vegetation occupying an unnamed ephemeral dry wash (located within the southwest portion of the project area) would be adequate for wetland field delineation data collection. Obvious upland areas were not mapped as part of this analysis, as they did not represent waters, wetland, and/or riparian communities that warranted a formal jurisdictional delineation. Therefore, for this delineation, the one transect, providing a cumulative total of one field data point, was completed throughout the project area for the field delineation. This field data point also served as a confirmation point. Additional soil pits were dug in close proximity to this upland confirmation point to accurately confirm the field findings (see results, below).[27]

It should be noted that riverine features occurring within Arid West region may support riverine-dependent (or wash-dependent) vegetation. This dependent vegetation associated with these features may not necessarily be hydrophytic and, thus, not meet the federal criteria or definition of wetland. The 2008 Supplement recognizes these "problem" situations concerning Arid West region riparian areas, and states the following in Chapter 5:

> Riparian ecosystems are highly variable across the Arid West, and can contain both wetland and non-wetland components. Riparian corridors can be lined with

[26] One data form was used for this delineation to confirm the absence of federally defined wetlands as outlined in 33 CFR 328.3(b), 40 CFR 230.3(t), the 1987 Manual, and the 2008 Supplement.

[27] Based on Section D, Subsection 1 of the 1987 Manual's "Routine Determinations for Areas Greater Than Five Acres in Size," this single confirmation point will suffice as a baseline for the delineated features which, while can potentially supporting, do not meet the federal definition of wetland occurring within the project area.

> hydrophytic vegetation, upland vegetation, unvegetated areas, or a mosaic of these types …
>
> … In addition, many riparian areas contain remnant stands of tree species that may have germinated during unusually high water events or under wetter conditions than currently exist at the site. These areas may have a high frequency of phreatophytic species that, when mature, are able to exploit groundwater that is too deep to support wetlands. In such situations, there may be a hydrophytic overstory and a nonhydrophytic understory. If the soils are recently deposited lacking hydric soil features and/or wetland hydrology is problematic, more emphasis should be placed on the understory, which may be more indicative of current wetland or non-wetland conditions.

Hydrophytic Vegetation

In addition to the jurisdictional delineation described in this JDLR, AECOM conducted vegetation communities surveys and mapping within the project area between April 19 and November 26, 2011. Rare and sensitive plant surveys were conducted within the project area in the spring between April 19 and June 14, 2011; fall surveys were conducted from October 6 to November 26, 2011 (AECOM 2012) (Figure 4).

Vegetation mapping and rare plant surveys were confirmed in GIS in December 2011, and refined to include results of wetland field delineation and vegetation mapping surveys conducted during spring and fall of 2011. The minimum mapping unit used for this delineation was 0.01 acre for hydrophytic vegetation communities.

Only those plant species that form hydrophytic plant communities within the project area that are listed within the *National List of Plant Species that Occur in Wetlands: California (Region 0)* (Reed 1988) or have the potential for being considered as hydrophytic are addressed herein. This JDLR uses the Holland Code Classification System (Holland 1986) as modified by Oberbauer (Oberbauer 1996, revised 2005), and the Draft Vegetation Communities of San Diego County cross-referenced with *A Manual of California Vegetation* (Sawyer and Keeler-Wolf 2008) to describe riparian and wetland (e.g., hydrophytic) vegetation communities occurring with the project area.[28] Where vegetation contains a mixture of component and indicator species from two or more communities outlined in Holland (1986) and Sawyer and Keeler-Wolf (2008), the indicator species that appears with the greatest vegetation coverage (absolute dominance based on percent cover) is used to identify the vegetation community (County of San Diego 2010).

An area was determined to support hydrophytic vegetation if more than 50% of the dominant species was listed as Obligate Wetland (OBL), Facultative Wetland (FACW), or Facultative (FAC) species on the U.S. Fish and Wildlife Service (USFWS) *National List of Plant Species*

[28] Only those plant species that are listed within the *National List of Plant Species that Occur in Wetlands: California (Region 0)* (Reed 1988) or have the potential for being considered as hydrophytic are considered as hydrophytic plant species (e.g., wetland plants).

that Occur in Wetlands: California (Region 0) (Reed 1988).[29] Vegetation was assessed using the "50/20 Rule" to determine dominant species.[30] By definition, dominant species are the most abundant plant species (when ranked in descending order of abundance and cumulatively totaled) that immediately exceed 50% of the total dominance measure (e.g., basal area or areal coverage) for the stratum, plus any additional species that individually comprise 20% or more of the total dominance measure for the stratum (Tiner 1999). All observation points were also surveyed for the presence of surface wetland hydrological field indicators such as inundation, saturation, water marks, drift lines, drainage patterns, and sediment deposits occurring within a hydrophytic vegetation community.

Hydric Soil

AECOM consulted and field verified the Soil Survey of San Diego County, California (Bowman 1973) and the USDA NRCS Soil Survey Geographic Database (SSURGO) and State Soil Geographic Database (STATSGO) digital soil survey metadata provided by the California Soil Resource Lab (U.C. Davis 2011a) within the project survey area. Guidance for using soil surveys in the Arid West region is found in the 2008 Arid West Region (Version 2.0) Supplement: Chapter 3 (Hydric Soil Indicators), page 34, Use of existing soil data; soil surveys, which emphasizes groundtruthing to document the soil survey and field conditions.[31]

All soil pits (field data points for soil inspection and observation) were dug to a depth of 20 inches below natural grade or to the point of obstruction (e.g., compaction or rock barriers) if a 20-inch-deep soil pit was not possible. Soil pits were consciously located in obvious (or potential) wetland and nonwetland areas to determine the wetland/nonwetland boundary and the presence or absence of hydric soil. In most instances, additional soil pits were dug between observation points to accurately determine the potential wetland/nonwetland boundary. Subsurface soil taken from soil pits was analyzed visually for redoximorphic features using *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils* (USDA 2006). A Munsell Color System was consulted to document and record soil color at the time of the subsurface investigations.

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[29] The 2008 Supplement does not use ± facultative values.

[30] The 50/20 Rule is a dominance ratio. When using the 50/20 Rule, greater than 50% of the plants must be facultative, facultative wet, or obligate wet species. In addition, the cumulative total of all dominant plants must be equal to or greater than 50% of the areal coverage of the plot, and any plant species that equals or exceeds 20% of the total percentage areal coverage of the plot is also considered a dominant plant. If no plant species equals or exceeds 20% of the cumulative total areal coverage of the plot, then the dominant plants are the plants that, when ranked in decreasing order of abundance and summed, immediately exceed 50% of the plot's areal coverage when added together (Federal Interagency Committee for Wetland Delineation 1989).

[31] It should be noted that the USDA Soil Survey of the San Diego Area, California (Bowman 1973), may not reflect current field conditions. It is possible that some soils investigated for that study have been transformed through human intervention since the 1973 soil survey was published. Soils that underlie the project area may have been transformed significantly or extensively as a result of human activity (e.g., transportation development encroachment and sedimentation). Therefore, the formal delineation fieldwork included examining soils in the survey area. When comparing these findings to the 1973 Soil Survey for San Diego County, field findings took precedent over the 1973 survey findings.

Only those soil(s) and soil land type(s)[32] within the project area that are listed as hydric by the National Resource Conservation Service (NRCS 2011a), have diagnostic hydric properties and/or features, have hydric inclusions, meet the criteria and/or definition of a hydric soil, or have the potential to be hydric by definition are addressed herein.

The National Technical Committee for Hydric Soils (NTCHS) defines a hydric soil as "a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (NRCS 2011e).[33] The NTCHS definition identifies general soil properties that are associated with wetness. Additionally, specific criteria that identify those estimated soil properties unique to hydric soils have been established by NTCHS (NTCHS 1995). Therefore, hydric soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

Hydric soil definitions and NTCHS-approved hydric soil criteria are used to generate hydric soil lists (Environmental Laboratory 2008). The National Hydric Soils List (NRCS 2011a), primarily used as an off-site assessment tool during presurvey investigations, contains a listing of soils that have a probability of being hydric. Hydric soil indicators are primarily morphological indicators used for field identification of hydric soils and/or soils meeting the hydric soil definition. These hydric soil indicators are a subset of the NTCHS *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils, Version 6.0* (USDA 2006). Hydric soil indicators are not intended to replace or relieve the requirements contained in the definition of a hydric soil. Therefore, a soil that meets the definition and/or criteria of hydric can be considered hydric whether or not it exhibits diagnostic field indicators (e.g., the presence of mottles or gleying [redoximorphic features]) at the point of subsurface investigation. If hydric soil indicators are absent and indicators of understory and/or herbaceous hydrophytic vegetation and wetland hydrology are simultaneously present within an appropriate landscape setting, then, by definition, the presence of a problematic soil would be justified as meeting the criteria to be considered a hydric soil (Environmental Laboratory 2008).[34]

Where warranted, a field diagnostic test for determining the presence or absence of iron reduction and identifying aquic conditions using α, α' Dipyridyl was also applied in selected soil examination areas. The soil test pits were also evaluated for the presence of subsurface wetland hydrology indicators such as soil saturation, oxidized root channels, and other hydric soil indicators such as fluvial depositional material.

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[32] In most areas surveyed, there are places where the soil material is transported depositional material, or so altered, rocky, shallow, dynamic, or so severely eroded that it cannot be classified by soil series. While still technically considered a soil, these soil materials are called soil land types (not soil series), and are given descriptive names outside of the system of soil taxonomy. For example, a soil land type recognizes and names the soil and landscape properties that are not used as criteria in soil taxonomy (e.g., escarpments, inundation, deposition, gullying, and erosion). Therefore, a soil land type is a functional unit that may be designed and designated according to the purpose of the existing soil survey (Pedosphere 2011).

[33] Also published in FR 59 35680–35681, July 13, 1994.

[34] Also published in FR 60 10349, February 24, 1995.

Wetland Hydrology

Wetland hydrology is essentially a result of watershed-driven processes of hydrological inputs from precipitation that provide sufficient groundwater and/or surface flows to support hydrophytic plants. Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic and reducing conditions, respectively (Environmental Laboratory 1987).The formation, persistence, size, and function of wetlands are controlled by hydrologic processes within the watershed. Water sources from continual inputs (e.g., immediate proximity to a hydrological feature such as a lake, a river [including small intermittent stream features], the ocean, and/or a wet climate) and the ability to retain or slow down water flow are necessary for the creation and existence of wetlands. Distribution and differences in wetland type, vegetative composition, and soil type are caused primarily by geology, topography, and climate. Hydrologic processes occurring in wetlands are the same processes that occur in uplands, and are collectively referred to as the hydrologic cycle. Major components of the hydrologic cycle are precipitation, surface-water retention, surface-water flow, groundwater flow, and evapotranspiration. Wetlands and uplands continually receive or lose water through exchange with the atmosphere, streams, and groundwater. Wetland hydrology is a result of a favorable topographic and geologic setting and an adequate or persistent supply of water (USGS 1996).

USACE has set a quantitative wetland hydrology threshold as it applies to all types of nontidal wetlands (Environmental Laboratory 1987).[35] Specifically, an area has wetland hydrology if it is inundated or saturated to the surface continuously for at least 5% of the growing season in most years (50% probability of recurrence).[36,37] Additionally, the hydrology requirements for a wetland can be defined as follows: On average, an area must be inundated or the soils saturated to the surface in more than half the years (1 out of 2, 5 out of 10, or 50 out of 100) for more than 5% of the growing season to conclude with reasonable certainty that the area has wetland hydrology. The project area is located in Region 0 where the growing season is year-round. By using this protocol, the hydrology of non-tidal jurisdictional wetlands can often be empirically identified using a minimum of 10 years of climactic data (to represent normal conditions).

Specific wetland hydrology field indicators, as outlined by federal guidance documents (e.g., the 1987 Manual and 2008 Supplement), occurring within the project area were surveyed for wetland hydrology factors such as stratigraphy (and groundwater levels), topography, soil permeability, and plant cover, in concert with available climactic data. All wetland hydrology

[35] Criteria, limits, and thresholds for wetland hydrology are defined for nontidal wetlands in the 1987 Manual.
[36] The growing season in Southern California is estimated to be 365 days a year; therefore, an area has wetland hydrology if it is inundated or saturated to the surface continuously for 18 days.
[37] The 2008 Supplement provides no quantitative information for the start of a “growing season.” The 1987 Manual defines “growing season” as the portion of the year when soil temperature (measured 20 inches below the surface) is above biological zero (5°C or 41°F). This period “can be approximated by the number of frost-free days.” Estimated starting and ending dates for the growing season are based on 28°F air temperature thresholds at a frequency of 5 years in 10. The end of the growing season is still based on the 28°F (-2.2°C) air temperature threshold, as reported in Climate Analysis for Wetlands tables.

indicators (both primary and secondary [per the 2008 Supplement]) were recorded when observed where there was adequate potential for surface water inundation, saturation, and retention occurring in exposed soil (e.g., unlined channels and/or swales or low topographic areas) per the guidance outlined within the 1987 Manual and 2008 Supplement. Areas that have hydrophytic vegetation and hydric soils generally also have wetland hydrology unless the hydrologic regime has changed due to natural events or human activities (NRC 1995).

Methodology Two: Formal Delineations for Potential Jurisdictional Waters of the U.S. in the Form of Other Waters

OHWM indicators were used to delineate the lateral jurisdictional extent of potential nonwetland waters of the U.S. Lateral jurisdictional limits were established for all drainage features/channels occurring within the project area in conjunction with field verification for a determination of the OHWM, which provides an acceptable estimate for the lateral jurisdictional limits. The OHWM of the drainage features/channels was identified on the basis of one (or more) of the following:

- Water marks within their respective channel banks established by the fluctuations of water and indicated by physical characteristics such as clear, natural lines impressed on the banks;
- Scour and shelving, local deposition, distinct and indistinct terraces, and changes in the character of soil;
- The presence of developed longitudinal bars within channel margins;
- Type, abundance, and relative age of vegetation and/or destruction of terrestrial vegetation, and the presence and absence of litter and debris within the ephemeral channels;
- Ephemeral channel configuration, estimated streamflow behavior, and other subtle geomorphic evidence indicative of regular flow levels;
- Consideration of precipitation patterns and lack of consistent flow;
- Geomorphic OHWM indicators (e.g., surface relief, cobblebars, benches, crested ripples, particle size distribution, mudcracks, gravel sheets, desert pavement, and dunes); and/or
- Pattern and location of relictual channels and discontinuous drainage features.

The lateral limits of jurisdiction specified by a technically defensible method such as the portion of the drainage features/channels supporting an OHWM would indicate a sufficiency to carry the mean annual flow, as determined through the extrapolation of field indicators and rainfall data. Lateral jurisdictional limits were established for the two drainage features/channels occurring within the project area in conjunction with field verification for a determination of the OHWM, which provides an acceptable estimate for the lateral jurisdictional limits (and other potential waters of the U.S. existing within this limit).

The limits of waters of the U.S. in non-tidal waters is defined in 33 CFR Part 328.4 (c)(1–3) as follows:

1. In the absence of adjacent wetlands, the jurisdiction extends to the OHWM; or
2. When adjacent wetlands are present, the jurisdiction extends beyond the OHWM to the limit of the adjacent wetlands; or
3. When the water of the U.S. consists only of wetlands, the jurisdiction extends to the limit of the wetland.

The criteria for frequency and duration of the OHWM have not been defined under the CWA or under any guidance from USACE for field delineators; therefore, identifiable field indicators and characteristics of OHWM, best professional judgment, interpretation of 33 CFR 328.3(e), and appropriate RGLs were applied to determine the potential jurisdictional extent of OHWM within the project survey area. Fluvial channels occurring within the Arid West region of the U.S. have recently been described as "ordinary" when they typically correspond to a 5- to 8-year event, and typically have an active floodplain with sparse vegetation cover, shifts in soil texture, and occasional alignment with distinctive bed and bank features (USACE 2007a). However, modeling has shown that slightly larger events (5- to 10-year recurrence) may be necessary to engage the active floodplain in arid systems (USACE 2006).

OHWM and the limits of jurisdiction are discussed in the preamble to the USACE November 13, 1986, Final Rule, Regulatory Programs of the Corps of Engineers, Federal Register Volume 51, No. 219, page 41217, which discusses the proper interpretation of 33 CFR Part 328.4 (c)(1) as follows:

> Section 328.4: *Limits of Jurisdiction.* Section 328.4 (c)(1) defines the lateral limit of jurisdiction in nontidal waters as the OHWM provided that the jurisdiction is not extended by the presence of wetlands. Therefore, it should be concluded that in the absence of wetlands, the upstream limit of [USACE] jurisdiction also stops when the OHWM is no longer perceptible.

In addition, RGL 88-06, issued June 27, 1988, discussed the OHWM as follows:

> The OHWM is the physical evidence (shelving, debris lines, etc.) established by normal fluctuations of water level. For rivers and streams, the OHWM is meant to mark the within-channel high flows, not the average annual flood elevation that generally extends beyond the channel.[38]

RGL 05-05, issued December 7, 2005, discusses the field practice and practicability of identifying, determining, and applying the OHWM for nontidal waters under Section 404 of

[38] Following RGL 05-06 (Expired RGLs): Unless superseded by specific provisions of subsequently issued regulations or RGLs, the guidance provided in RGLs generally remains valid after the expiration date, as discussed in the Federal Register notice on RGLs of March 22, 1999, FR Vol. 64, No. 54, page 13783.

the CWA (and under Sections 9 and 10 of the Rivers and Harbors Act of 1899), and states the following:

> Where the physical characteristics are inconclusive, misleading, unreliable, or otherwise not evident, districts may determine OHWM by using other appropriate means that consider the characteristics of the surrounding areas, provided those other means are reliable.[39] Such other reliable methods that may be indicative of the OHWM include, but are not limited to, lake and stream gage data, elevation data, spillway height, flood predictions, historic records of water flow, and statistical evidence.

Many stream channels in arid regions are dry for much of the year and, at times, may lack hydrology indicators entirely or exhibit relic OHWM features from exceptional hydrological events. RGL 05-05 further states the following:

> When making OHWM determinations, districts should be careful to look at characteristics associated with ordinary high water events, which occur on a regular or frequent basis. Evidence resulting from extraordinary events, including major flooding and storm surges, is not indicative of OHWM. For instance, a litter or wrack line resulting from a 200-year flood event would, in most cases, not be considered evidence of an OHWM.

It should be noted that swales and swale complexes in the survey area, while unvegetated, occur within the larger chaparral, subshrub, oak woodland, and nonnative grassland habitats. Swales are generally poorly defined surface aquatic features characterized by low-volume, infrequent, or short-duration flow, and are usually shallow topographical features in the landscape that *may* convey water across upland areas during and following uncommon large storm events. Swales are generally not considered jurisdictional waters of the U.S. because, among other things, they lack an identifiable OHWM, are not tributaries to any receiving water, and do not support interstate commerce.[40]

Field Survey for Waters of the State

In addition to prefield and reconnaissance surveys, potential jurisdictional waters of the state were assessed and delineated within the project survey area pursuant to CFGC Section 1600 *et seq.* (and other relevant guidance and regulatory applicability [see above]). In addition to formal field delineation efforts, aerial signatures of potential aquatic features were identified and noted on recent aerial photos (USDA 2010), and were subsequently groundtruthed for their occurrence and presence within the survey area. Boundaries for

[39] In some cases, the physical characteristics may be misleading and would not be reliable for determining the OHWM. For example, water levels or flows may be manipulated by human intervention for power generation or water supply. For such cases, districts should consider using other appropriate means to determine the OHWM (RGL 05-05).

[40] 33 CFR 328.3. Even when not considered a jurisdictional water of the U.S., swales may still contribute to a surface hydrologic connection between upland and aquatic features. However, such hydrological connections are dependent on large, uncommon storm events.

unvegetated ephemeral dry wash and swale features (e.g., waters of the state) were determined (and recorded) by the presence of shelving and/or scour resulting in an established bank, bed, or channel of an ephemeral wash feature and its associated swales and swale complexes (where applicable). In specific areas within the small underdeveloped ephemeral wash channel, where evidence of shelving or scour was absent, subsurface investigations were undertaken to identify established channel banks. Although some portions of the ephemeral washes presented shelving with smooth-toe transitions, these features are composed of friable sand and are evidence of recent sand deposition (both from fluvial- and aeolian-related events) covering the bank features.

Based on the CFGC Section 1600 *et seq.* definition, relevant state regulations (see above), CDFG regulatory practice, and past CDFG field guidance, swale features (individual and complexes) occurring within the project area were also noted and recorded as potential jurisdictional waters of the state.[41]

In conjunction with adopting a wetlands policy on March 9, 1987, the California Fish and Game Commission assigned CDFG the task of recommending a wetlands definition. CDFG determined the USFWS wetland definition and classification system, which is based on the *Classification of Wetland and Deepwater Habitats of the United States* (Cowardin et al. 1979) to be the most biologically valid. Therefore, for jurisdictional waters of the state under the regulatory administration of the CDFG (e.g., CFGC Section 1600 *et seq.* [waters associated with a stream, a lake, and potentially a swale feature]) CDFG only requires the presence of one parameter (e.g., wetland hydrology, hydric soils, or hydrophytic vegetation) for an area to qualify as a jurisdictional water of the state in the form of a wetland. The Cowardin method (Cowardin et al. 1979) requires care to avoid falsely positive conclusions (e.g., concluding that an area with no transitional relation to the aquatic system is a wetland based on presence of vegetation equally apt to be found in wetland or nonwetland circumstances).

Therefore, jurisdictional wetland delineations for waters of the state (in the form of associated riparian wetland) occurring within the survey area were conducted based on the one-parameter[42] method outlined in CDFG/USFWS guidance documents and classification manual(s) to define presence and state jurisdictional extent.[43,44]

RWQCB jurisdiction was delineated based upon the presence of aquatic features that may present 'beneficial use' as outlined in the *Water Quality Control Plan Colorado River Basin*

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[41] Swales are microtopographic features that convey surface water in low volume and short duration (hours to days [usually in sheetflow]) and are commonly associated with riverine features (Hauer and Lamberti 2007).

[42] For federal jurisdictional waters, a determination for the presence of wetland is based on the presence of three parameters occurring simultaneously at the area of investigation and study: (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology (Environmental Laboratory 1987). Therefore, for state-defined wetlands, only one of these three wetland criteria is required to be present for the state to consider an aquatic feature a wetland.

[43] It should be noted that CDFG does not currently have a delineation manual for jurisdictional waters of the state (including wetlands).

[44] Although aquatic features can be delineated and defined as an aquatic feature under the Cowardin Classification System, they are not necessarily *jurisdictional* waters of the U.S. or state.

Plan (RWQCB 1993). Therefore, if it was determined that any type of aquatic and/or aquatic-related features occurring within the project area would present "beneficial use," the aquatic feature would be delineated (this would include swale features)

Field Survey for County Environmentally Sensitive Lands in the Form of Aquatic Features

Surveys for potential County Environmentally Sensitive Lands in the Form of Aquatic Features were assessed and delineated within the project survey area pursuant to Section 86.602 of the RPO and in accordance with the federal and state delineation methodologies addressed above.

Results

The findings for each potential wetland parameter(s) were recorded for the field data point taken within the project area (Table 2). Specific findings for hydrophytic vegetation, hydric soils, and wetland hydrology are discussed in detail below.

Table 2
Survey Results for Parameters of Potential Jurisdictional Waters of the U.S.[a], State,[b] and County[c] in the Form of Wetland Occurring within LanWest

Sample Point	Vegetation Community	Hydrophytic Vegetation	Hydric Soils	Wetland Hydrology	Potential Federal Water	Potential State Water[f,g]	Potential County Environmentally Sensitive Land
T1.1	Disturbed Southern Willow Scrub	yes/no[d]	no[e]	no	no	yes/no	yes

[a] The federal definition of wetlands outlined in 33 CFR 328.3(b), 40 CFR 230.3(t), the 1987 Manual, and the 2008 Supplement.
[b] As defined by CFGC Section 1600 *et seq*. and Title 14 CCR 1.72; CCR 1500 *et seq*.; and Public Resource Code 21000 *et seq*.
[c] As defined by Section 86.602 of the County RPO.
[d] Although there are hydrophytic plant species occurring within the project area outside this point of investigation, they are intermixed with upland species. Additionally, these hydrophytic species are scattered throughout the project area and do not meet the definition of over 50% dominance.
[e] Only where this soil occurs within the unvegetated ephemeral dry wash upstream (outside this point of investigation [which is not populated by hydrophytic vegetation]).
[f] Although this disturbed riparian feature occurs within a swale (or roadside ditch) and not as a direct component of an established channel, this feature likely meets the CDFG definition of state waters in the form of a riparian extent of the upstream portion of the defined channel.
[g] Although this is a disturbed riparian feature and it is directly associated with a swale, it may likely meet the RWQCB definition of a state water (as outlined in CWC Section 13000 *et seq.* and the Basin Plan [RWQCB 1993]).

Hydrophytic Vegetation

One hydrophytic vegetation community occurring within the project area, composed of disturbed southern willow scrub, was observed existing within a swale. This vegetation community was recorded and mapped during the vegetation surveys[45] (see above)(Figure 4). This hydrophytic vegetation community and its acreage occurring within the survey area are summarized in Table 3. Hydrophytic plant species associated with this vegetation community occurring within the survey area are listed in Table 4. This wetland floristic association (hydrophytic vegetation community) is discussed below and corresponds to the following:

1. Southern willow scrub (Holland Code 63320 [Holland 1986]) or the *Salix Laevigata* Woodland Alliance (Red Willow Thickets) (Sawyer and Keeler-Wolf 2008) (Figure 4)

Table 3
Hydrophytic Vegetation Communities Occurring within the Survey Area[a,b]

Vegetation Community (Holland 1986)	Vegetation Community (Sawyer and Keeler-Wolf 2008)	Acreage within the Survey Area
Southern Willow Scrub (disturbed/degraded)	*Salix Laevigata* Woodland Alliance (Red Willow Thickets (disturbed/degraded)	0.10
Total		**0.10**

[a] In acres. Acreage of the vegetation communities occurring within the survey area was determined by using ArcGIS. All acreages are rounded to the nearest hundredth.
[b] Includes disturbed wetland vegetation community.

Table 4
Hydrophytic Plant Species Observed within the Survey Area[a]

Scientific Name	Common Name	Region 0 (California) Indicator Status[a]
Tree Species Growth Habit		
Salix laevigata[b]	red willow	Facultative Wetland (FACW)
Salix lasiolepis	arroyo willow	FACW
Shrub Species Growth Habit		
Atriplex lentiformis	big saltbush	
Baccharis salicifolia	mulefat	
Baccharis sergiloides	desert baccharis	
Herbaceous Species Growth Habit[c]		
Ambrosia psilostachya	western ragweed	Facultative (FAC)
Distichlis spicata	salt grass	FACW
Euthamia occidentalis	western goldenrod	Obligate (OBL)
Heliotropium curassavicum	salt heliotrope	OBL
Hordeum marinum ssp. *gussoneanum*[d]	Mediterranean barley	FAC

[45] The area of potential jurisdictional waters in the form of southern willow scrub may differ from the mapped vegetation community based upon differing criteria in vegetation mapping and formal field delineations.

Scientific Name	Common Name	Region 0 (California) Indicator Status[a]
Juncus mexicanus	Mexican rush	FACW
Juncus xiphioides	iris-leaf rush	FACW
Mimulus cardinalis	scarlet monkey flower	OBL
Mimulus guttatus	seep monkey flower	OBL
Muhlenbergia rigens	muhley grass	FACW
Plantago major	common plantain	FACW
Polypogon monspeliensis	annual beard grass	FACW
Rumex salicifolius var. *denticulatus*	toothed willow dock	FACW
Veronica Anagallis-aquatica	Mexican purslane	OBL

[a] Based on the National List of Vascular Plant Species that Occur in Wetlands (Reed 1988) except where noted. OBL wetland species occur almost always (estimated probability >99%) under natural conditions in wetlands; FACW species usually occur in wetlands (estimated probability 67 to 99%) but occasionally are found in nonwetlands; FAC species are equally likely to occur in wetlands or nonwetlands (estimated probability 34 to 66%); Facultative Upland (FACU) species usually occur in nonwetlands (estimated probability 67 to 99%) but occasionally are found in wetlands (estimated probability 1 to 33%) under natural conditions in the region specified. Therefore, FACU is not considered a hydrophytic plant species for purposes of this delineation. If a species does not occur in wetlands in any region, it is not on the National List of Vascular Plant Species that Occur in Wetlands (Reed 1988). The 2008 Supplement (Environmental Laboratory 2008) does not use ± facultative values.

[b] *Salix laevigata* is not on Reed 1988 but appears on the U.S. Fish and Wildlife Service 1996 National List of Vascular Plant Species that Occur in Wetlands (USFWS 1996). The 1996 National List is a draft revision of the National List of Plant Species That Occur in Wetlands: 1988 National Summary. However, for this delineation, based on the occurrence of this plant species within the project area, a minimum wetland indicator of FAC will be applied.

[c] Not all hydrophytic plants listed were observed at the point of investigation. Hydrophytic plants listed above and observed throughout the project area, with the exception of the swale feature, tended to be few, scattered, and incidental and did not reach dominant or coverage levels to warrant a formal delineation where they occurred.

[d] *Hordeum marinum ssp. gussoneanum* is not listed in Reed (1988). However, it is a synonym for *Hordeum hystrix,* which is listed in Reed (1988) as FAC.

Southern Willow Scrub (Holland Code 63320)

Southern willow scrub is a dense, broad-leaved, winter-deciduous riparian thicket dominated by several species of willows in association with mulefat. Scattered individuals of cottonwood and California sycamore may exist as canopy emergents. This is an early seral community that requires periodic flooding for its maintenance (Oberbauer et al. 2008). In the absence of periodic flooding, this community would develop into a riparian woodland or forest.

Based on vegetation mapping and the formal field delineation efforts within the project area, southern willow scrub is encountered within a swale that parallels Old Highway 80 and is located within the southeast portion of the project area. This swale feature also functions as a roadside ditch. Within the project area where the southern willow scrub occurs, the swale is essentially a terminus of a more developed unvegetated ephemeral wash feature occurring upstream. Dominant overstory species are composed of scattered red willow and arroyo willow. Dominant understory species are overwhelmingly composed of nonhydrophytic shrubs such as coyote brush (*Baccharis pilularis*) and big sagebrush

(*Artemisia tridentata* ssp*. tridentate*), and nonhydrophytic herbaceous species such as tarragon (*Artemisia dracunculus*), Russian thistle (*Salsola tragus*), shortpod mustard (*Hirshfeldia incana*), bedstraw (*Galium aparine*), and red-stem filaree (*Erodium cicutarium*). Nonnative grasses such as *Brome* sp. also populate the southern willow scrub understory.

Soil

No soil series (including its respective phase) or soil land type[46] listed in the National List of Hydric Soils (NRCS 2011f) occur within the project area. During the field investigation and delineation efforts, it was observed that the soils occurring within the project area generally conformed to the *San Diego County Soil Survey* description (Bowman 1973) (where there were no impervious surfaces obstructing observations and subsurface investigations). Based on the field verification of soils, the project area is entirely composed of soils from the mollisol soil order (and all mollisols occurring within the project area are of the Xeroll soil suborder[47]), which do not exhibit hydric indicators or considered as a hydric soil (Figure 5).

Mollisols primarily occur in the middle latitudes and are soils common to grassland environments. Soils from this order are characterized by a thick, dark surface horizon. This fertile surface horizon, known as a mollic epipedon, results from the long-term addition of organic materials derived from humic inputs. In the U.S., soils from this order are extensive in the Great Plains prairie region. However, most of the natural grasslands within this region (and other regions supporting the mollisol soil order) have been converted into agricultural fields for crop growth. Mollisols are among the most important and productive agricultural soils in the world because of their nutrient-rich profile resulting from the high organic content in the upper horizons (the humus enrichment resulting from the decomposition of *in-situ* plant matter decomposition and litterfall input) (Brady 1990; NRCS 2011g; Pedoshpere 2011).

Mollisols are highly arable soils that have low shrink-swell capability and a high retention of available metal nutrients. Important mineral plant nutrients (e.g., calcium, magnesium, and potassium) are found through most, if not all, horizons of the mollisol soil profile. Below the surface horizon, mollisols do not show major accumulations of humus or translocated (migrated) aluminum- and iron-bearing minerals. The uppermost zone has a characteristic dark color, giving clear evidence of the decomposition of organic matter and of the wet-dry cycles over millennia that are essential to the formation of these soils. It should be noted that mollisols found in more arid environments often exhibit calcification and are not typically fertile soils (Brady 1990; NRCS 2011g; Pedoshpere 2011).

[46] While still technically considered a soil, land types are where soil materials are either excavated away, exceptionally rocky, exceptionally shallow, or so severely eroded that it cannot be classified by a soil series. Land types are given descriptive names rather than traditional soil taxonomy epithets.

[47] Xerolls are Mollisols formed under a Mediterranean climate where internal drainage is sufficient to avoid development of mottles or iron-manganese concretions larger than 2 millimeters in diameter. Xerolls have a xeric (arid or dry) moisture regime or an aridic regime that borders on being xeric (Dregne 1976).

Although not listed as a hydric or exhibiting diagnostic hydric soil features, there is the potential for one of the soils within the project area to be considered as hydric where it is primarily associated with the unvegetated ephemeral channel. This mollisol is associated with alluvial fans and is discussed below.

Mottsville Series

The Mottsville soil series is mixed mesic torripsammentic haploxerolls and consists of very deep, excessively drained soils that formed in alluvium derived from granitic rocks. Mottsville soils are on alluvial fans, fan remnants, and fan aprons. Slopes are 0 to 15% at elevations of about 2,600 feet above sea level to 3,900 feet above sea level. Mottsville soils are naturally well drained and commonly present moderate to high runoff with rapid permeability. Flooding is none to rare. The mean annual precipitation for this soil is approximately 11 inches (Bowman 1973; NRCS 2011g).

While the unvegetated ephemeral dry wash occurs within an area mapped as having the Mottsville soil series, the ephemeral wash does contain depositional fluvial sediments, which can be considered as an entisol. Entisols are young soils primarily originating from sediments (both from aeolian and fluvial/alluvial deposition) that show little alteration of the parent material from which they were derived, and that exhibit little pedogenesis (Brady 1990). Since entisols are primarily associated with fluvial processes and deposition (and, to a lesser extent, aeolian deposition), they are dynamic and do not have the ability to develop buried soil horizons, which, in turn, contribute to *in situ* development of redoximorphic features when conditions are hydric over the appropriate temporal frame. However, based on the NTCHS and NRCS definitions of a hydric soil, entisols can be considered “hydric by definition.” However, no hydrophytic vegetation occupies the developed unvegetated ephemeral dry wash within the project area.

Hydrology

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 6).

The McCain Hydrologic Subarea (watersheds) drain a relatively underdeveloped region. However, these watersheds are still experiencing significant land development. The degree of imperviousness within this watershed 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) (SWQCB 2011).[48]

The project survey area is populated by two small (and limited) unvegetated ephemeral dry washes (or drainage features)[49] that both transition and convert into swale features near their terminuses.[50]

1. Within the southwestern portion of the project area an ephemeral dry wash feature appears to have been created by a large storm event (as evidenced by the erosive characteristics of its nickpoint [headwaters]) and now, once established, collects surface runoff from developed swale complexes and Old Highway 80. This riverine feature is entirely dependent on discrete rainfall events for surface flow to occur. The southwestern drainage feature transitions to swale (or roadside ditch [e.g., exhibiting no OHWM or other defined and developed channel morphological features]) within approximately 550 feet downstream of the nickpoint (Figure 7).
2. Within the northern portion of the project area is an ephemeral dry wash feature that is a component of a micro watershed that drains an area along I-8. This drainage feature transitions to a swale complex (Figure 7).

Although these unvegetated ephemeral dry washes do not exceed approximately 1300 linear feet in length (before transitioning into swales and/or swale complexes), they are the major aquatic features occurring within the project area. Although small and limited, these ephemeral channels can be classified as a single-thread discontinuous ephemeral streams. These types of riverine features are best developed in semi-arid climates (Tooth 2000).

Arid and semi-arid climate aquatic features are commonly linear and can present themselves as straight to slightly meandering (High and Picard 1973; Whitford 2002). The unvegetated ephemeral channel within the project area generally converts from unvegetated linear to slightly meandering morphology (with limited sinuosity). Within the larger channel is

[48] Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the U.S. Additionally, Section 303 of the CWA requires states to identify and make a list of surface water bodies that are polluted (impaired). This list is referred to as the "303(d) List of Water Quality Limited Segments." (RWQCB 2011)

[49] Ephemeral streams are characterized by sands and gravels. These sediments are characterized by exceedingly high infiltration rates and typically present seasonal flow. Ephemeral stream transmission/infiltration losses can be high enough that surface flow duration can range from a single day of high-volume surface flow to seasonal flow (Whitford 2002).

[50] Swales are microtopographic features that convey surface water in low volume and short duration (hours to days [usually in sheetflow]) and are commonly associated with riverine features (Hauer and Lamberti 2007).

a semibraided bed with regular incised compound channels and multiple small relic channels (which abut the more developed portions of the channel) as they approach the swale transition point. Compound channels are considered the most common channel types in arid regions and are characterized by a single, low-flow meandering channel inset into a wider channel (Graf 1988; Tooth 2000). These channels are highly susceptible to widening and avulsions (i.e., rapid changes in channel position and/or channel relocation) during moderate to high discharges, reestablishing a low-flow channel during subsequent low flows (USACE 2008).

The unvegetated ephemeral dry wash occurring within the project area can present itself as a micro-floodplain. The sandy substrate within the channel is composed of entisols and presents a high infiltration rate (see soils, above). Surface hydrology can potentially vary from ephemeral to intermittent. After a heavy rain event, water tables can drop quickly to low levels due to the permeability of the sandy substrate (which is a common semi-arid stream system) (Environmental Laboratory 2008).

As rainfall in arid regions is the primary source of surface water for the majority of the rivers and streams existing within these climactic regions, river and stream complexes are intermittent or ephemeral, flowing only during storm events and remaining dry for most of the year. As a result, the analysis of streamflow and changes in compound channel morphology in arid fluvial systems emphasize flood events (Graf 1988). Flood events and the resulting channel avulsion that occur within arid river systems generally consist of four types:

1. Flash floods
2. Single peak events
3. Multiple peak events
4. Seasonal floods

These flood events are partly scale dependent, with flash floods occurring on smaller stream systems (tributaries) and seasonal floods characteristic of large through-flowing rivers (Graf 1988). Because micro-compound channel fluvial systems, such as the very small ephemeral washes occurring within the project survey area, are subject to very wide fluctuations in discharges over a short period of time, their channels can frequently change configuration to accommodate large variations in surface flow as a result of storm events. As a result, arid fluvial systems usually exhibit long periods of little morphologic change interspersed with short-term dramatic changes in channel configuration. Therefore, arid stream geometry is more likely to be influenced strongly by a large event of low recurrence frequency (Allen 1999). The ephemeral washes occurring within the project survey area *do not* support wetland hydrology because, outside of (remote) flooding events, the hydrology for the ephemeral washes occurring within the project survey area is generally predictable (e.g., dependent on heavy rain events only).

Therefore, surface hydrology is solely influenced by precipitation inputs and the surrounding local topographical relief of the immediate area. The general storm water flow pattern within this portion of the project survey area is from the higher elevations of the surrounding area and into the lower elevation project area. Surface flow is west to east toward the swale feature that parallels Old Highway 80. By virtue of the surface hydrological inputs and generally flat topography, this portion of the project survey area is primarily occupied by two types of semi-arid aquatic features that flow in a west to east orientation:

1. Underdeveloped, unvegetated ephemeral dry washes that are discontinuous and transform into swale features and/or swale complexes.
2. Swale feature that traverses along Old Highway 80 and functions partially as a roadside ditch that eventually abates into upland.

The project area is designated as an area of undetermined flood hazards (Federal Emergency Management Agency [FEMA] Flood Zone Designation D). The areas near the project area are determined to be outside of the 100- and 500-year floodplains (FEMA Flood Zone Designation X) (FEMA 2011).

Jurisdictional Waters of the U.S.

The extent and distribution of the collective area of potential jurisdictional waters of the U.S. and state occurring within the project survey area is 0.40 acre (Figure 7) (please see footnote 3, above, pertaining to the JD process). Potential jurisdictional waters of the U.S. are listed for each aquatic habitat in Table 5. A summary of potential jurisdictional waters occurring within the project area is provided in Table 6. Aquatic-related habitats have been classified according to both the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986) as modified by Oberbauer (Oberbauer 1996, revised 2005) and *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). Both classification systems incorporate a hierarchical structure of systems, subsystems, and classes to identify vegetation communities, wetland habitat types, and cover types. The vegetation occurring within the project area is typically associated with this semi-arid region of Southern California.

Photopoint locations and orientations of the representative photos taken during the field delineation are included in Figure 8. Detailed field photos, which are included to document the ambient conditions at the time of the formal field delineation, are included in Figures 9 through 11.

Table 5
Potential Jurisdictional Waters of the U.S. and State
Occurring within the Project Area

Type of Potential Jurisdictional Waters	Type of Habitat (Holland 1986)	Type of Habitat (Cowardin et al. 1979)	Area of Aquatic Resource in Project Area (acres)[a]	Regulatory Authority[b]
Potential Jurisdictional Waters of the U.S. and State				
Other Waters	Ephemeral Dry Wash/ Nonvegetated Channel (64200)	Riverine; Unconsolidated Bottom, Sand, Intermittently Flooded, Fresh	0.40 (1,557)	CDFG, RWQCB, and USACE
Subtotal Potential Waters of the U.S. and State			*0.40*	
Potential Jurisdictional Waters of the State, Exclusively				
Vegetated Swale[c]	Southern Willow Scrub (63320)	Palustrine; Scrub/Shrub Broad-leaved, Deciduous, Seasonally Flooded, Fresh	0.10 (227 linear feet)	CDFG and RWQCB
Unvegetated Swale[c]	Big Sagebrush Scrub (35210)[d]	Big Sagebrush Scrub is not considered an aquatic habitat by Cowardin[e]	0.16 (949 linear feet)	CDFG and RWQCB
Subtotal Potential Waters of the State			*0.26*	
Grand Total Potential Jurisdictional Waters			**0.66**	

[a] Jurisdictional waters acreage within the project area was determined by using ArcGIS. All acreages are rounded to the nearest hundredth.
[b] Although the County does provide regulations for "Environmentally Sensitive Lands" such as wetlands and other aquatic features, the delineated aquatic features occurring within the project area are not "jurisdictional waters of the County," per se. However, all delineated features may meet the definition of wetland as outlined by Sec. 86.602 of Chapter 6 of the RPO and may still be subject to buffer requirements and mitigation, avoidance, and permitting requirements (if impacted) pursuant to the County's RPO.
[c] Based on Section 86.602 (q)(2)(aa) of the RPO, the swales may not be considered "wetlands" by the County.
[d] Although this portion of the swale is unvegetated, it occurs within the larger big sagebrush scrub habitat.
[e] Swales are microtopographic features that convey surface water in low volume and short duration (hours to days [usually in sheetflow]) and are commonly associated with riverine features (Hauer and Lamberti 2007).

Table 6
Summary of Potential Jurisdictional Waters of the U.S. and State
Occurring within the Project Area

Potential Jurisdictional Waters of the U.S. and State[a]	Area (in Acres)
Other Waters	0.40
Subtotal Jurisdictional Waters of the U.S.	*0.40*
Potential Jurisdictional Waters of the State, Exclusively	*Area*
Swale	0.26
Subtotal Jurisdictional Waters of the State	*0.26*
Grand Total Potential Jurisdictional Waters	**0.66**

[a] Jurisdictional waters of the U.S. include jurisdictional waters of the state and are under the purview of CDFG, RWQCB, and USACE.

Jurisdictional Determination for Potential Waters of the U.S.

All waters delineated within the project area are considered potential jurisdictional waters of the U.S. (including final acreages and types) prior to an Approved or Preliminary JD performed by USACE (with potential oversight by USEPA depending on the relationship of the delineated feature toward Traditionally Navigable Waters [TNW]). The final JD may remove portions of delineated waters from being considered as jurisdictional and/or may include additional waters not initially considered as jurisdictional during the field delineation (and, thus, not included in this JDLR).

Determining whether the delineated waters are, in fact, jurisdictional and under the regulatory administration of USACE, including the final acreages and types of jurisdictional waters occurring within the project area, is primarily based on the procedural changes and guidance outlined by the following:[51]

a. The June 5, 2007, USACE/USEPA Memorandum Re: Jurisdiction Following The U.S. Supreme Court Decision In *Rapanos v. United States* on the interpretation of the *Rapanos* Supreme Court case for making a JD for waters of the U.S. (including wetlands) (USEPA/USACE).[52,53] This memorandum provides guidance to USEPA and USACE on implementing the *Rapanos* Supreme Court decision.

b. The June 5, 2007, USEPA/USACE Memorandum for the Field: Coordination on JDs under the CWA in light of *SWANCC* and *Rapanos* Supreme Court decisions.[54] This memorandum outlined procedures that replace the coordination procedures contained in the January 2003 USEPA/USACE guidance implementing the *SWANCC* decision (but leaves the remainder of that guidance unaffected) and articulates new coordination procedures for JDs affected by *Rapanos* (USEPA/USACE 2007).[55]

c. The May 5, 2007, USACE *Jurisdictional Determination Form Instructional Guidebook* (USACE 2007b) and the Approved JD Form.

d. The June 5, 2007, USACE RGL 07-01, Practices for Documenting Jurisdiction under CWA Section 404 (and Rivers and Harbors Act CWA Sections 9 and 10). This RGL provides coordination requirements for Approved JDs and outlines a consistent approach for making, documenting, and approving JDs in a timely manner by USACE. This RGL also outlines the differences between Approved JDs and Preliminary JDs.

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[51] This delineation followed these procedural guidance documents to ascertain the jurisdictional status of all delineated waters (including wetlands) occurring within the survey area.
[52] "Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States & Carabell v. United States*" (June 5, 2007).
[53] 126 S. Ct 2208 (2006). This case was consolidated with *Carabell v. United States*.
[54] "Memorandum for Director of Civil Works and USEPA Regional Administrators" (June 5, 2007).
[55] "Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States & Carabell v. United States*" (June 5, 2007).

e. The January 28, 2008, Coordination Memorandum. This memorandum outlined the process for coordinating JDs with USEPA and USACE.

f. The June 26, 2008, USACE RGL 08-02. This RGL primarily explains the goals of a Preliminary JD and differences between Approved JDs and Preliminary JDs. This RGL provides guidance on when an Approved JD is required and when a landowner, permit applicant, or other "affected party" can decline to request and obtain an Approved JD and elect to use a Preliminary JD instead.[56,57] This RGL also outlines that it is the goal of USACE that every JD requested by an affected party be completed within 60 calendar days of receiving the request.[58]

g. The December 2, 2008, USACE Guidance Memorandum Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States* and *Carabell v. United States*. This guidance incorporates revisions to the USEPA/USACE memorandum originally issued on June 6, 2007, after careful consideration of public comments received and based on the agencies' experience in implementing the *Rapanos* decision.

h. The December 2, 2008, USACE Response To Comments "Clean Water Act Jurisdiction Following The Supreme Court's Decision in *Rapanos v. United States & Carabell v. United States* Guidance" issued June 5, 2007.

i. The December 2, 2008, USACE Questions and Answers Regarding the Revised *Rapanos & Carabell* Guidance.

Nonjurisdictional Features

In taking into account federal definitions of waters of the U.S. (e.g., 33 CFR 328) and recent procedural guidance discussed herein, the swale features occurring within the project area were determined by this jurisdictional delineation and JDLR not to be potential waters of the U.S. The swale features observed and noted during the formal field delineation and not considered as potentially jurisdictional waters of the U.S. in this JDLR are based on the following reasons and justifications:

a. The swales and swale complexes occurring within the project survey area, while generally unvegetated, occur within the larger big sagebrush scrub habitat. The swales are generally poorly defined surface aquatic features characterized by low-volume, infrequent or short-duration flow, and usually shallow topographical features

[56] Generally, approved JDs should be used to support individual permit applications, but applicants should be made aware of their option to elect to use a Preliminary JD wherever applicants feel doing so is in their best interest (RGL 08-02 [paragraph 4(h)]).
[57] RGL 08-02 (paragraph 4) outlines that Preliminary JDs cannot be appealed.
[58] RGL 08-02 (paragraphs 4[a] and 5[a]).

in the landscape that *may* convey water across upland areas during and following uncommon large storm events.[59]

b. Swales are generally not considered as potential waters of the U.S. by USACE based on the 2007 Guidebook (USACE 2007b) and the June 5, 2007, Joint Guidance Memorandum. Swales are generally not considered waters of the U.S. because they are not tributaries to receiving waters nor do they exhibit an OHWM (as defined by 33 CFR Part 328.3[e] and identified in RGL 05-05). Swales are characterized by the conveyance of a low volume of surface water and infrequent and short duration flow without a significant nexus to a TNW (or a USACE-designated jurisdictional water of the U.S. [in this case, the Salton Sea]). Considering these conditions, it is anticipated that the swales within the project survey area would not be considered waters of the U.S. by USACE.

c. All drainage ditches and culverts, which have been constructed wholly in uplands, and/or culverts and ditches with connectivity to a Municipal Separate Storm Sewer System (MS4) can be considered point sources,[60] but not navigable waters.

d. Significantly interrupted OHWM or OHWM that cease and/or abates into the upland landscape outside of the 10-year flood extent of major drainages occurring within the survey area are either isolated waters or exempt waters and, thus, not under regulatory administration by USACE.

e. Upland erosional features (including gullies) characterized by low volume, short duration flow, and/or uncommon storm events, or above headwaters of riverine systems.

Preliminary JD Form for Potential Jurisdictional Waters of the U.S.

Based on RGL 08-02, the applicant may elect to use a Preliminary JD to voluntarily waive or set aside questions regarding CWA jurisdiction over a particular site, usually in the interest of allowing the landowner or other "affected party" to move ahead expeditiously to obtain CWA Section 404 permit authorization where the party determines that it is in its best interest to do so.[61]

As of this writing, this jurisdictional delineation presents 0.40 acre of potential jurisdictional waters of the U.S. The final acreages of jurisdictional waters delineated within the project survey area will be based on the JD process per USACE RGL 08-02 (see above). For this particular jurisdictional delineation, the formal procedure for obtaining a JD requires the

[59] Even when not considered a jurisdictional water of the U.S. or state, swales may still contribute to a surface hydrologic connection between upland and aquatic features. However, such hydrological connections are dependent on large, uncommon storm events.
[60] 33 U.S. Code (USC) §1362(14).
[61] RGL 08-02 outlines that the permit applicant or other "affected party" can decline to request and obtain an Approved JD and elect to use a Preliminary JD instead for nonbinding written indication that there may be waters of the U.S., including wetlands, on a parcel or indications of the approximate location(s) of waters of the U.S. or wetlands on a parcel(s) or project area.

submittal of a completed Preliminary JD (for assertion of jurisdictional waters) to USACE (Los Angeles District, South Coast Branch).[62]

This JDLR and attached Preliminary JD Form (Attachment C) are meant to provide assistance and support to USACE to determine that the 0.40 acre of delineated aquatic features occurring within the project area "may be" jurisdictional waters of the U.S. and, thus, under its regulatory administration.[63] For this jurisdictional delineation occurring within the survey area, a Preliminary JD Form was prepared to present the following:

- 0.40 acre of aquatic features composed of unvegetated ephemeral dry wash (other waters of the U.S.) that "may be" jurisdictional waters of the U.S.

The completed Preliminary JD Form for this jurisdictional delineation is located in Attachment C.

Jurisdictional Waters of the State

As shown in Table 5, above, areas under the jurisdiction and regulatory administration of CDFG and the RWQCB include the 0.40 acre of potential jurisdictional waters of the U.S. and an additional 0.26 acre of swales (composed of vegetated swale [0.10 acre] and unvegetated swale [0.16 acre]) as potential jurisdictional waters of the state, exclusively (Figure 7).

Discussion

Avoidance and Minimization of Potential Impacts

Impact avoidance and minimization measures to jurisdictional waters of the U.S. and state must be implemented through project design and be employed during the construction process to avoid and minimize potential impacts to jurisdictional aquatic features to the greatest practicable extent. If no regulated activities resulting in permanent and/or temporary impacts were to occur toward jurisdictional waters (as a result of this Proposed Project), then no requisite authorizations or permitting would be required by the resource agencies (see regulatory framework and purpose of jurisdictional delineation sections of this JDLR, above).

Potential Impacts and Requisite Permitting

If it is determined that anticipated unavoidable impacts (permanent and/or temporary) will occur to jurisdictional waters of the U.S. and/or state as a result of this Proposed Project, then meeting all terms and conditions of federal and state law will be required for the

[62] The USACE district engineer retains the discretion to use an Approved JD in any other circumstance where he or she determines that it is appropriate given the facts of the particular case (RGL 08-02 [4][c]).
[63] Sections 4 and 7 of RGL 08-02.

issuance of the following authorizations and permits (as applicable) from the appropriate resource agencies.

As a requirement and component of all authorizations and permits discussed below, the development of a conceptual mitigation, maintenance, and monitoring plan (for compensatory mitigation in the form of creation, restoration, or enhancement mitigation) would be necessary. This plan should include details regarding site preparation (e.g., grading), planting specifications, and irrigation design, as well as maintenance and monitoring procedures. The plan should outline yearly success criteria and remedial measures should the mitigation effort fall short of the success criteria. Any appropriate mitigation that cannot be achieved through on-site creation/restoration and enhancement should be performed off-site, typically per agency guidance within the same hydrologic unit (watershed) where impacts occur. Alternatively, the mitigation obligations may also be satisfied by participating in a fee-based mitigation program through an approved mitigation bank. Any proposed mitigation is subject to the resource agencies' review and discretion; thus, the mitigation obligations for the impacts to jurisdictional aquatic habitats may change from those recommended here.

CWA Section 404 Permitting

It is anticipated that USACE may recommend authorizing this project under the CWA Section 404 Nationwide Permit Program (NWP) (33 CFR 330).[64] Specifically, it is anticipated that USACE will recommend authorizing this project under Section 404 by complying with the upcoming NWP for "Land Based Renewable Energy Generation Facilities."[65,66]

For CWA Section 404 authorization, USACE will require compensatory mitigation for both temporary and permanent impacts that cannot be avoided.[67]

CWA Section 401 Water Quality Certification

For Section 401 State Water Quality Certification/Waiver for an action that may result in degradation of waters of the state under Section 401 of the CWA, the RWQCB implements the water quality certification process for any activity that requires a federal permit or license

[64] Although CWA Section 404 authorization through the NWP program is for the loss of jurisdictional waters resulting from the discharge of dredge or fill material (33 CFR 323), the USACE reserves the right (i.e., discretion) to modify, suspend, or revoke NWP authorizations (33 CFR 330[e] and Reissuance of Nationwide Permits; Final Notice, 72 Federal Register 47 [March 12, 2007]).

[65] This NWP is based on the February 16, 2011, *Proposal to Reissue and Modify Nationwide Permits* (FR/ Vol. 76, No. 32 / Wednesday, February 16, 2011 / Notices) and is predicated on the assumption that this Proposed Project and the related activities occurring within federally regulated waters meet all terms and conditions of the NWP program. New NWPs are anticipated to be issued in March 2012 and include an upcoming (or proposed) NWP for renewable energy projects.

[66] It is at the discretion of USACE to assign the type of NWP(s) that it determines to qualify for a project.

[67] Compensatory mitigation is used to meet the U.S. overall policy goal of "No Net Loss" of wetlands. However, the policy does not differentiate between no net loss of function or no net loss in area (Council on Environmental Quality 1993).

and that may result in the discharge of pollutants into waters of the U.S. (which include wetlands). The RWQCB reviews the proposal to determine whether the activity would comply with state water quality objectives and, subsequently, will either issue a certification with conditions or deny the certification. According to the CWA, water quality standards include beneficial uses, water quality objectives, and complying with USEPA's anti-degradation policy.[68]

In many cases, the conditions of the RWQCB CWA Section 401 certification are more stringent than the CWA Section 404 permit. All parties proposing to discharge waste that could affect waters of the state, but do not affect federal waters (which requires a CWA Section 404 permit *and* CWA Section 401 certification) must file a Report of Waste Discharge (ROWD) with the appropriate RWQCB.[69]

CFGC Section 1600 et seq. *Permitting*

By submitting a Notification for a Lake or Streambed Alteration Agreement (SAA) to the appropriate CDFG field office (South Coast Region), CDFG will ascertain which (or all) of the delineated aquatic features occurring within the project area will be under its regulatory administration. The SAA Notification process also allows CDFG to determine whether aquatic features will become "substantially adversely affected" under CFGC Section 1602(a), and to provide guidance on requisite and appropriate compensatory mitigation for any unavoidable impacts to these aquatic resources as a result of the Proposed Project.

CWC Section 13000 et seq*. (Porter-Cologne) Waste Discharge Requirement (or Waiver)*

The RWQCB regulates the "discharge of waste" to waters of the state.[70] The definition of waters of the state is broader than that for waters of the U.S. in that all waters are considered to be a water of the state regardless of circumstances or condition. The term "discharge of waste" is also broadly defined in Porter-Cologne, such that discharges of waste include fill, any material resulting from human activity, or any other "discharge" that may directly or indirectly impact waters of the state. As conditional to this permit, best management practices (BMPs) will be required to ensure compliance with state water quality standards. BMPs can also be specified by the RWQCB based on the ROWD (filed with the appropriate RWQCB by the applicant). The RWQCB is authorized to regulate discharges of waste and fill material to waters of the state (including "isolated" waters and wetlands) through the issuance of a Waste Discharge Requirement (WDR).[71] WDRs are commonly issued based on the threshold of allowable pollutants into waters of the state.

Under Porter-Cologne, all applicants proposing to discharge waste that could affect the quality of waters of the state, other than into a community sewer system, must file with the appropriate RWQCB an ROWD containing such information and data as may be required by

[68] 40 CFR Part 131.12.
[69] CWC Section 13260.
[70] "Waters of the state" is defined in CWC Section 13050(e).
[71] CWC Section 13263.

the RWQCB.[72] The RWQCB will then respond to the ROWD by issuing a WDR in a public hearing or by waiving WDRs (with or without conditions) for that proposed discharge. The RWQCB has a statutory obligation to prescribe WDRs, except where the RWQCB finds that a waiver (with or without conditions) of WDRs for a specific type of discharge is in the public interest.[73] Therefore, all parties proposing to discharge waste that could affect waters of the state, but do not affect federal waters (which requires authorization under CWA Section 404 and certification under CWA Section 401) must file an ROWD with the appropriate RWQCB prior to issuance of the WDR.[74] The ROWD/WDR is also subject to the resource agencies' review and discretion for BMPs and mitigation.

Section 86.602 of the RPO

Issuance of discretionary development permits will be contingent upon determining compliance under Section 86.602 of the RPO (as applicable) by DPLU.

Please contact me at (619) 764-6829 or joshua.zinn@aecom.com with any questions or requests concerning this matter.

Sincerely,

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[72] CWC Section 13260(a).
[73] CWC Section 13269.
[74] CWC Section 13260.

Attachment A – Figures:

- Figure 1 – Regional Map
- Figure 2 – Project Vicinity
- Figure 3 – Survey Area
- Figure 4 – Vegetation Communities
- Figure 5 – Soils
- Figure 6 – Watersheds
- Figure 7 – Potential Jurisdictional Waters of the State
- Figure 8 – Photopoint Locations
- Figure 9 – Representative Photos 1 and 2
- Figure 10 – Representative Photos 3 and 4
- Figure 11 – Representative Photo 5

Attachment B – Wetland Determination Data Forms – Arid West Region (Version 2.0)

Attachment C – Preliminary JD Form

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ATTACHMENT A

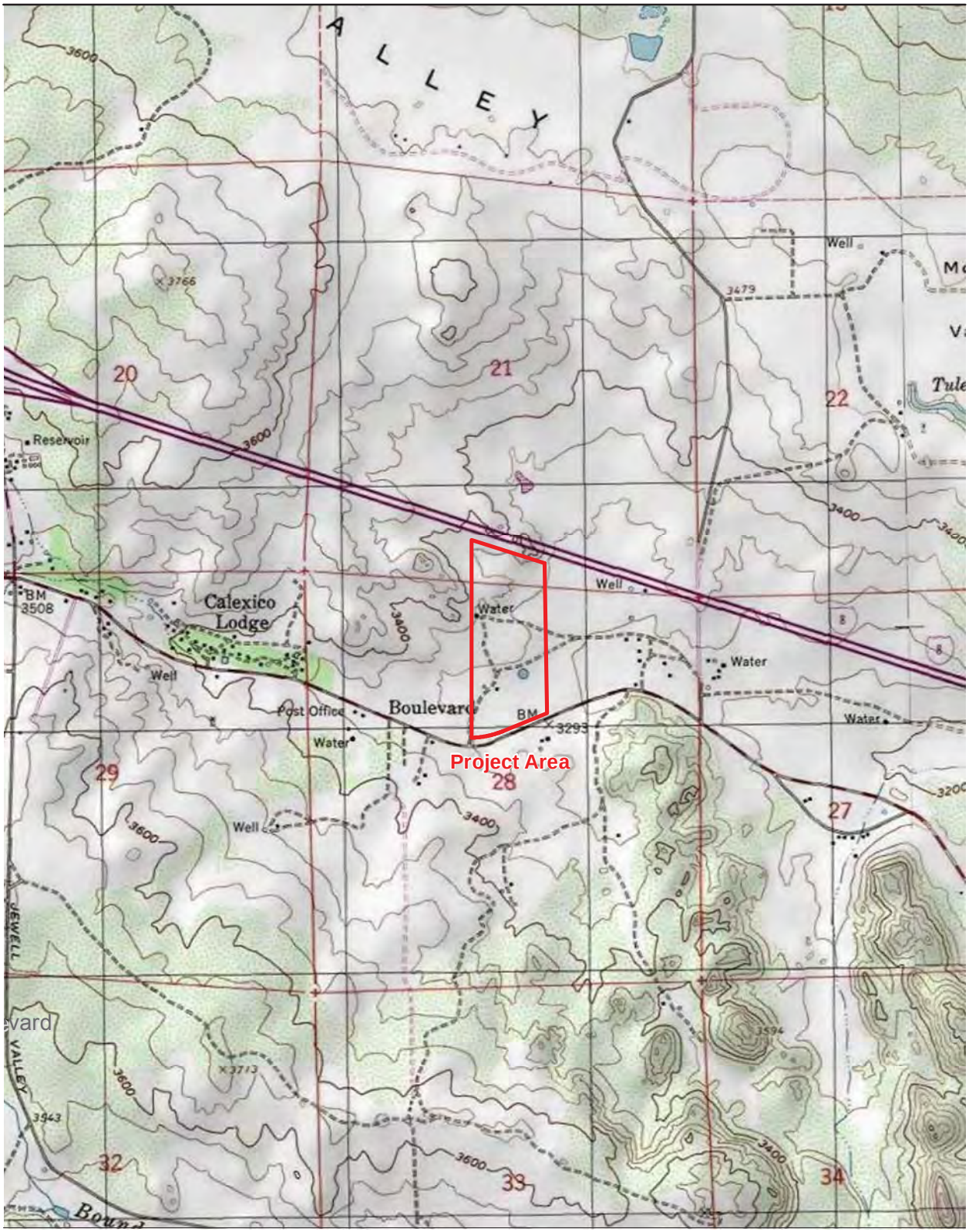
FIGURES

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



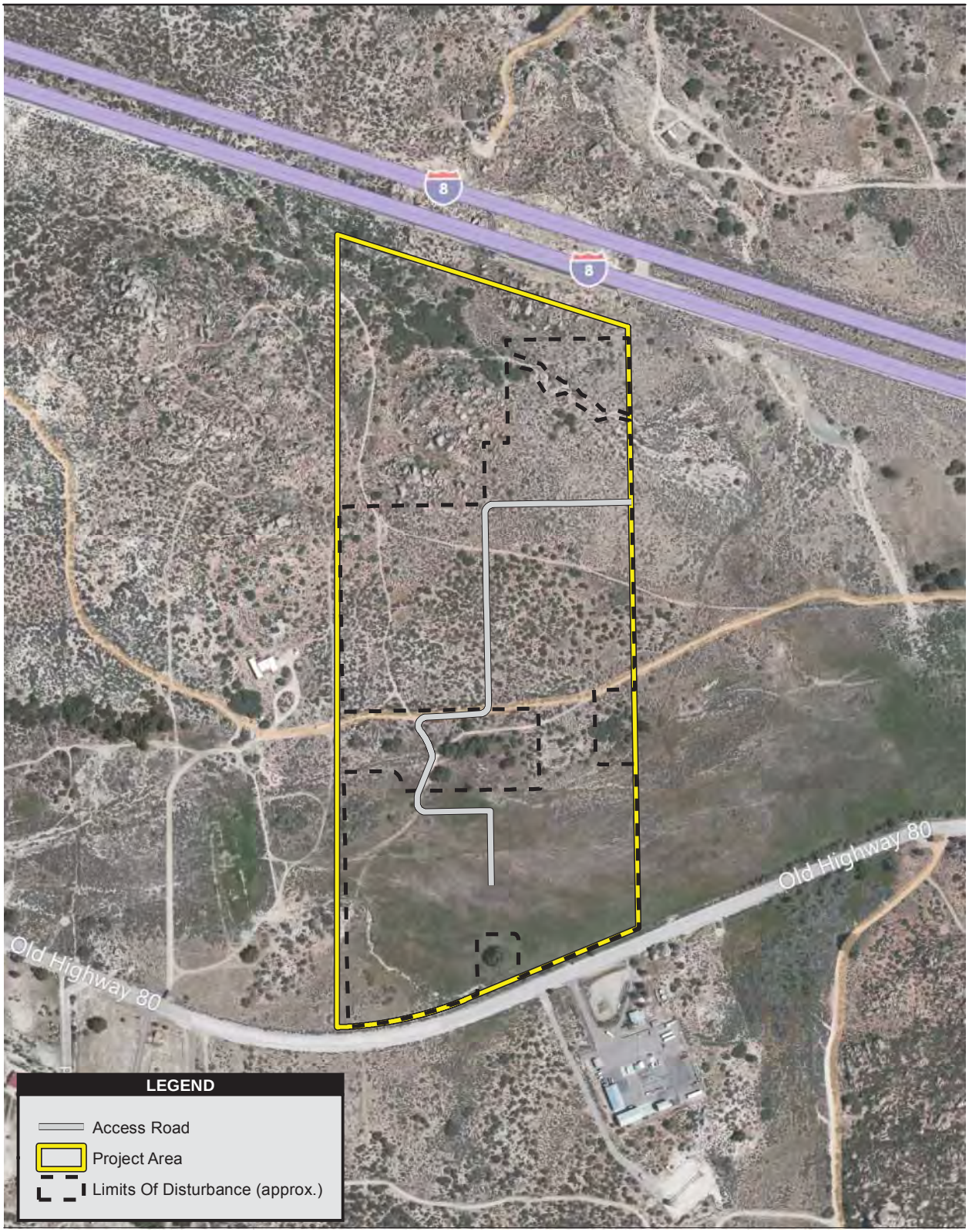
Source: USGS; Soitec 2011; AECOM 2011

Live Oak Springs USGS Quadrangle, San Diego County

2,000 1,000 0 2,000 Feet

1:24,000 1 inch = 2,000 feet

Figure 2
Vicinity Map



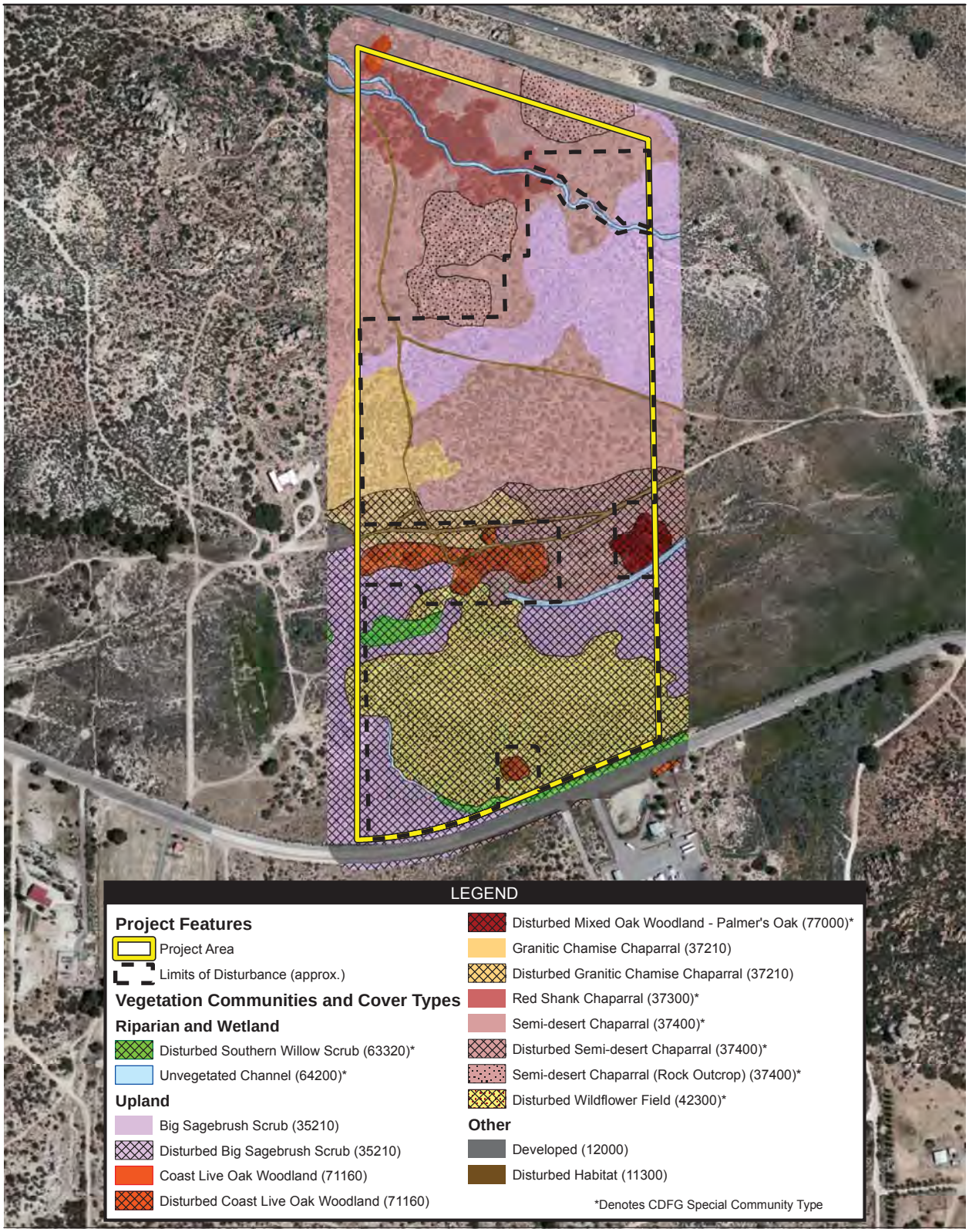
Source: Bing 2011; Soitec 2011; AECOM 2011;

500 250 0 500 Feet

Scale 1:6,000; 1 inch = 500 feet

Figure 3
Survey Area

Path: P:\2011\11280175.01_Concentrix_S\06GIS\6.3_Layout\Reports\JDR\LanWest\AerialMap.mxd, 1/27/2012, johnsonaa



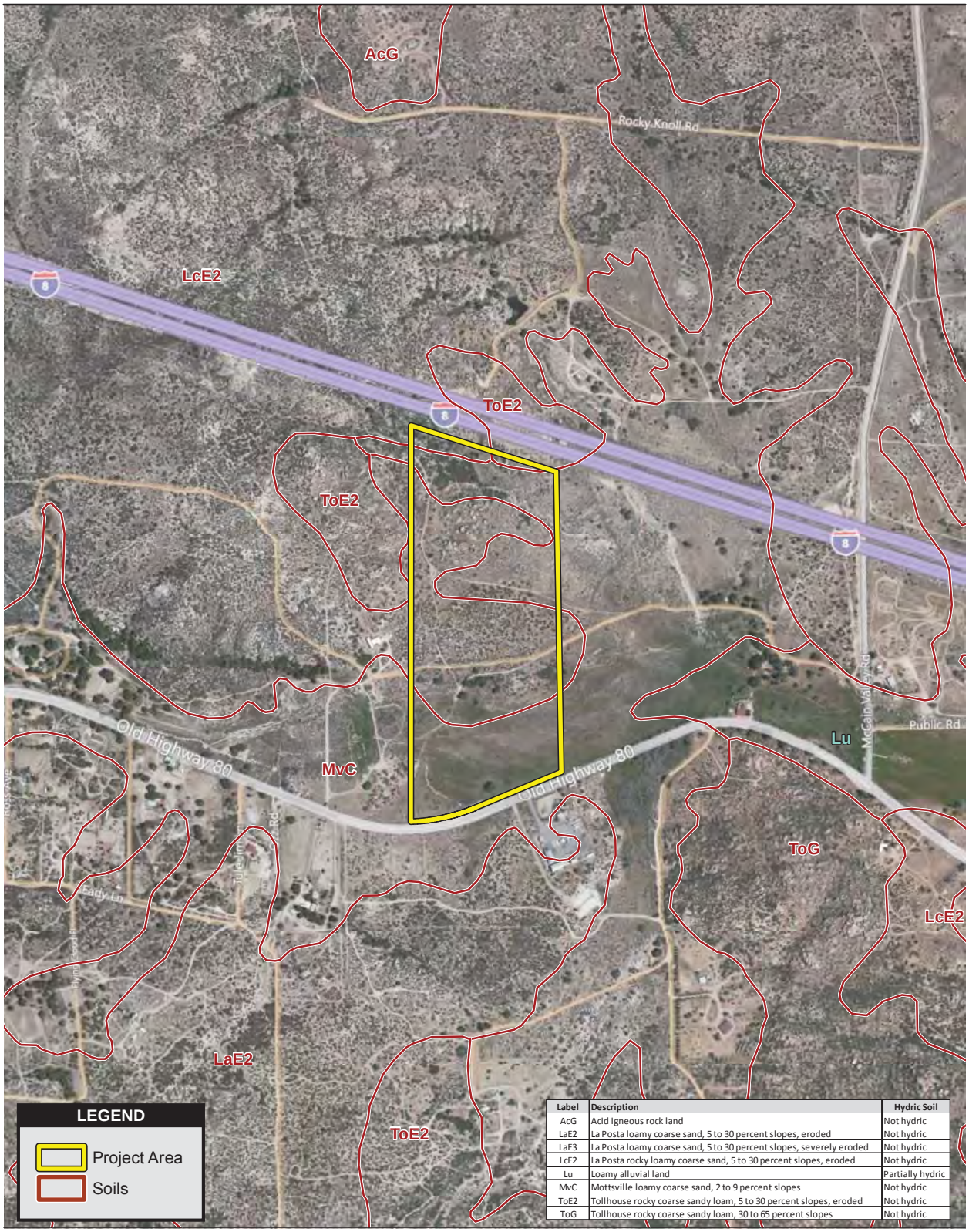
Source: Soitec 2011; AECOM 2011; Bing 2011

500 250 0 500 Feet

1:6,000 1 inch = 500 feet

Figure 4
Vegetation Communities and Cover Types

Path: P:\2011\11280175.01_Concentrix_S\06GIS\6.3_Layout\Reports\JDR\LanWest\LANWest_VegMap.mxd, 1/27/2012, johnsonaa



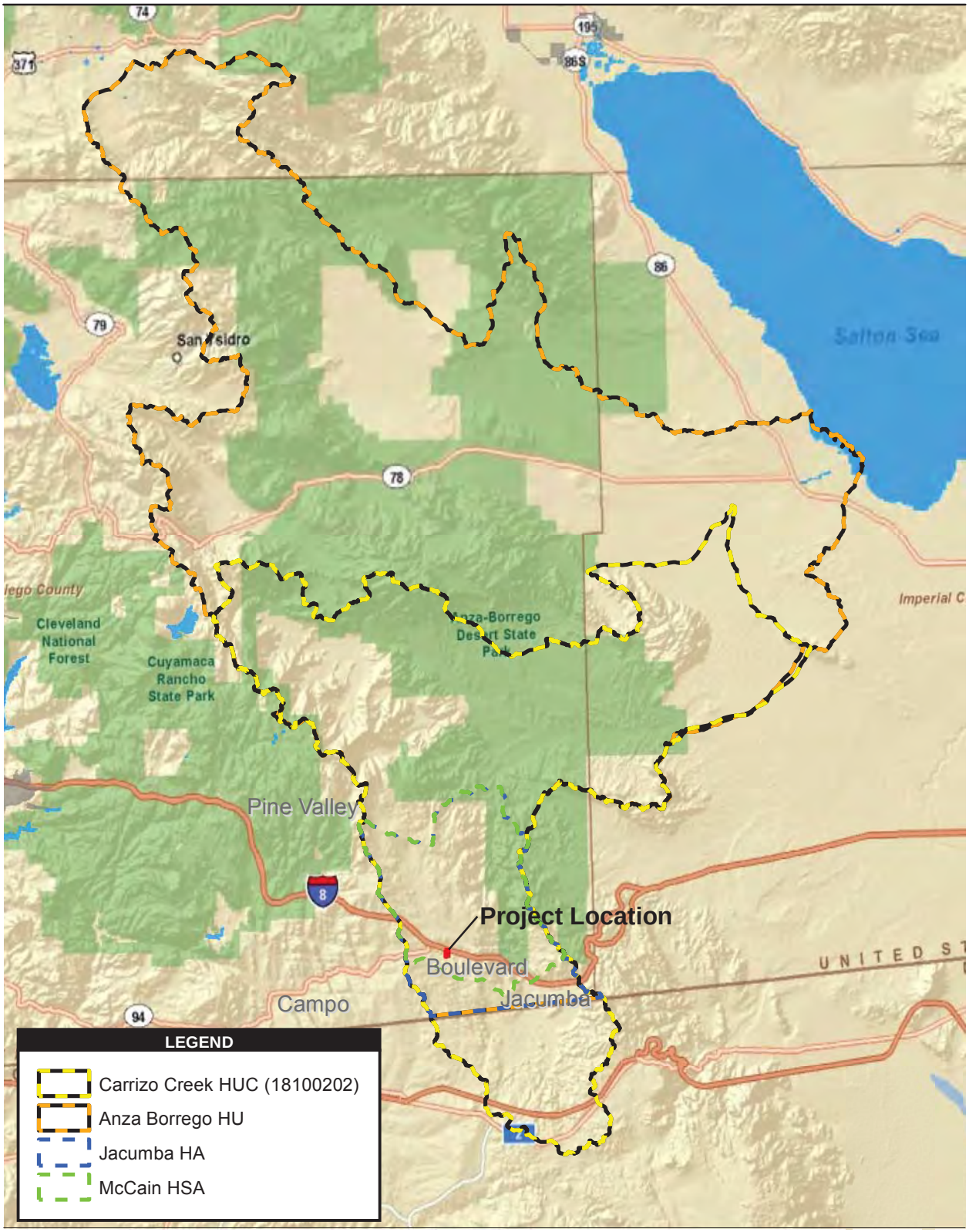
Label	Description	Hydric Soil
AcG	Acid igneous rock land	Not hydric
LaE2	La Posta loamy coarse sand, 5 to 30 percent slopes, eroded	Not hydric
LaE3	La Posta loamy coarse sand, 5 to 30 percent slopes, severely eroded	Not hydric
LcE2	La Posta rocky loamy coarse sand, 5 to 30 percent slopes, eroded	Not hydric
Lu	Loamy alluvial land	Partially hydric
MvC	Mottsville loamy coarse sand, 2 to 9 percent slopes	Not hydric
ToE2	Tollhouse rocky coarse sandy loam, 5 to 30 percent slopes, eroded	Not hydric
ToG	Tollhouse rocky coarse sandy loam, 30 to 65 percent slopes	Not hydric

Source: Bing 2011; Soitec 2011; AECOM 2011; USGS 2011

1,000 500 0 1,000 Feet

Scale 1:12,000; 1 inch = 1,000 feet

Figure 5
Soils in Project Area



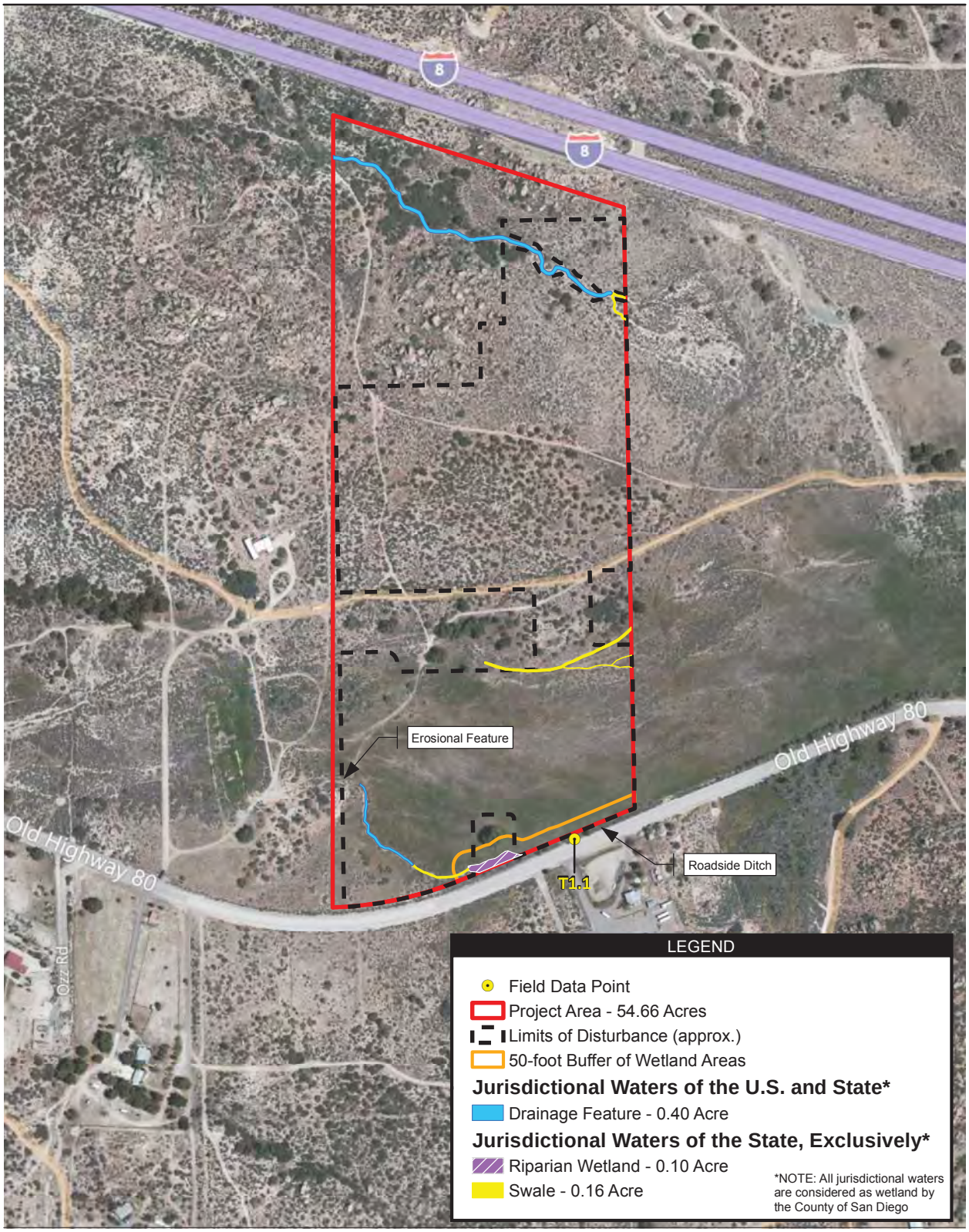
Source: Soitec 2011; AECOM 2011; ESRI 2011; NHD 2011; CalWater 2011

10 5 0 10 Miles

Scale 1:633,600; 1 in = 10 miles

Figure 6
Watersheds

Path: P:\2011\11280175.01_Concentrix_S\06GIS\6.3_Layout\Reports\JDR\LanWest\Watersheds.mxd, 1/24/2012, johnsonaa



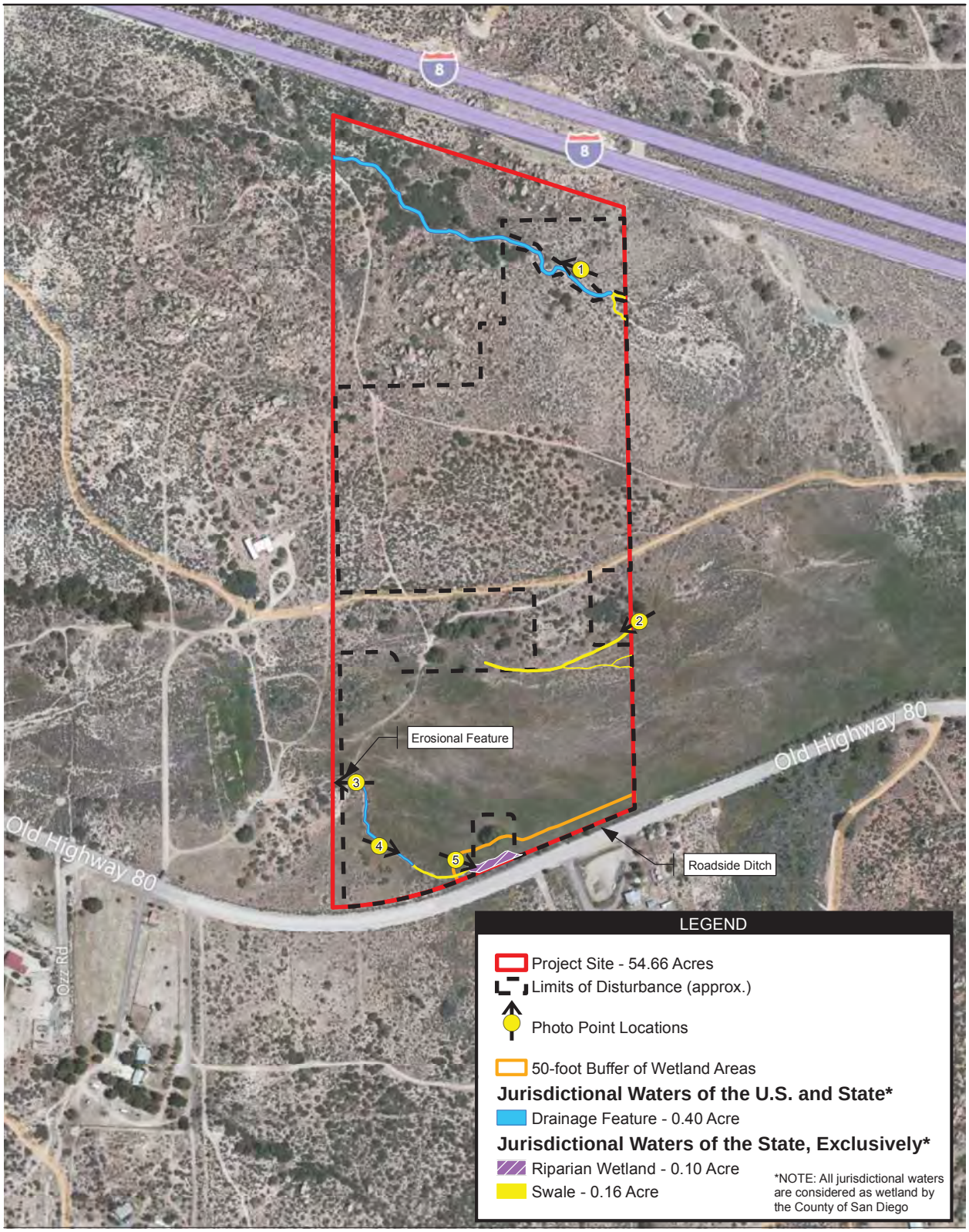
Source: Soitec 2011; AECOM 2011; Bing 2011

500 250 0 500 Feet

1:6,000 1 inch = 500 feet

Figure 7
Potential Jurisdictional Waters of the State

Path: P:\2011\11280175.01_Concentrix_S\06GIS\6.3_Layout\Reports\JDR\LanWest\JDW.mxd, 1/27/2012, johnsonaa



Source: Soitec 2011; AECOM 2011; Bing 2011

500 250 0 500 Feet

1:6,000 1 inch = 500 feet

Figure 8
Photopoint Locations

Path: P:\2011\11280175.01_Concentrix_S\06GIS\6.3_Layout\Reports\JDR\LanWest\Photopoints.mxd, 1/27/2012, johnsonaa

Photograph 1: Looking west (upstream) at an unvegetated ephemeral dry wash that contains an OHWM.

Photograph 2: Looking west (downstream) at a swale lacking an OHWM that abates into upland habitat.

AECOM

Figure 9

Representative Photographs 1 and 2

Photograph 3: Looking west at a non-jurisdictional erosive feature that originates immediately west of the project boundary.

Photograph 4: Looking south east (downstream) at an unvegetated ephemeral dry wash.

AECOM

Figure 10

Representative Photographs 3 and 4

Photograph 5: Looking south east (downstream) at an unvegetated ephemeral dry wash. The channel converts to a roadside ditch at this point.

AECOM

Figure 11

Representative Photograph 5

ATTACHMENT B

WETLAND DETERMINATION DATA FORMS – ARID WEST REGION (VERSION 2.0)

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Soitec Solar - LanWest | City/County: Boulevard/San Diego | Sampling Date: 12-08-11

Applicant/Owner: Soitec Solar, LLC | State: CA | Sampling Point: T1.1

Investigator(s): B. Felten and J. Zinn | Section, Township, Range: Section 28, Township 17S, Range 7E

Landform (hillslope, terrace, etc.): Graded terrance | Local relief (concave, convex, none): Convex | Slope (%): 1-2

Subregion (LRR): C - Mediterranean California | Lat: 32.663448 | Long: -116.267484 | Datum: WGS 84

Soil Map Unit Name: Mottsville Loamy Coarse Sand 2 to 9 Percent Slopes | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [X] Soil [X] or Hydrology [X] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [X] Soil [X] or Hydrology [X] 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: Field datapoint taken within constructed swale feature that performs as a roadside ditch. There is hydrophytic overstory, however the understory is dominated by upland plants. The willows indicate a phreatophytic species able to exploit groundwater that is too deep to support wetlands. Please refer to Figure 11, Photo 5 to review general area of the point of investigation. There is surface water but is is low volume and short duration that rapidly infiltrates the sandy loam soil.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	25	Yes	FACW
2.			
3.			
4.			
Total Cover:	25 %		
Sapling/Shrub Stratum			
1. *Artemisia tridentata*	10	Yes	UPL
2. *Baccharis sergiloides*	≤5	No	FAC
3. *Baccharis salicifolia*	≤5	No	FAC
4.			
5.			
Total Cover:	10 %		
Herb Stratum			
1. *Hirschfeldia incana*	15	Yes	UPL
2. *Galium aparine*	10	No	UPL
3. *Hordeum marinum ssp. gussoneanum*	10	No	FAC
4. *Camissonia californica*	10	No	UPL
5. *Ambrosia psilostachya*	≤5	No	FAC
6. *Juncus mexicanus*	≤5	No	FACW
7. *Rumex salicifolius*	≤5	No	FACW
8. *Sonchus sp.*	≤5	No	FACW
Total Cover:	45 %		
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: 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	25	x 2 =	50
FAC species	10	x 3 =	30
FACU species		x 4 =	0
UPL species	45	x 5 =	225
Column Totals:	80 (A)		305 (B)

Prevalence Index = B/A = 3.81

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: Pg 91 of Chapter 5 of the 2008 Supplement (Problematic Vegetation) states: remnant stands of tree species that may have germinated during unusually high water events or under wetter conditions than currently exist at the site. In such situations, there may be a hydrophytic overstory and a nonhydrophytic understory. If the soils are recently deposited lacking hydric soil features and/or wetland hydrology is problematic, more emphasis should be placed on the understory, which may be more indicative of current wetland or non-wetland conditions. Erodium was also observed near the point of investigation.

SOIL

Sampling Point: T1.1

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	Remarks
0-20	7.5YR3/2	N/A	N/A	N/A			N/A	Sandy Loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: Mottsville Loamy Coarse Sand 2 to 9 Percent Slopes is not listed as hydric by the NRCS. Soil at point of investigation is likely native loam mixed with fill material (the small presence of gravel observed in soil pit) is not a result of depositional events by water, rather small amount of gravel is likely from backfill during roadside ditch (or swale) creation and placement. Negative α,α-dipyridyl test at point of investigation. Although this soil can potentially perform as a hydric soil if it is depositional events, there are not significant amounts of depositional materials observed at the point of investigation. Additionally, hydrophytic vegetation and wetland hydrology are not present (either by themselves or simultaneously) at the point of investigation. Therefore the potential for this soil, at the point of investigation, to be considered 'hydric by definition, is none.

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)
- ☐ Thin Muck Surface (C7)
- ☐ 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)
- ☐ 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): Unknown

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: No wetland hydrology indicators observed at the point of investigation. However, this datapoint was taken within a swale feature that supports low volume/short duration flows. Infiltration rate appears to be rapid and does not retain surface water to promote or create wetland hydrology conditions.

ATTACHMENT C

PRELIMINARY JD FORM

PRELIMINARY JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

Soitec Solar LanWest Solar Farm

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): January 18, 2012

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:

Brison Ellinghaus, Project Development Manager
Soitec Solar, LLC
4250 Executive Square, Suite 770
La Jolla, CA 92037

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles District Regulatory Division, Los Angeles Section, San Diego Section

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:

The community of Boulevard. Please refer to the Introduction, Summary and the Project Description located in the Jurisdictional Delineation Letter Report (JDLR).

(Use the attached table to document multiple waterbodies at different sites)

State: CA County/parish/borough: San Diego County City: Boulevard
Center coordinates of site (lat/long in degree decimal format): Lat: 32.666640 Long: -116.268650
UTM: 11N 14564.11. m E 3614564.11 m N
Name of nearest waterbody: Walker Creek (which is a tributary to Carrizo Creek). The Salton Sea is the closest receiving TNW
Identify (estimate) amount of waters in the review area: 0.40 acre
Non-wetland waters: 0.40 acre
Cowardin Class: Riverine
Stream Flow: Ephemeral
Wetlands: N/A
Cowardin Class: N/A
Name of any waterbodies on the site that have been identified as Section 10 waters: None
Tidal:
Non-Tidal:

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:
☒ Field Determination. Date(s): December 9, 2011

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there "may be" waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: See Attachment A (Figures) of the JDLR.
- ☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant. Please see Attachment B of the JDLR (2008 Supplement Wetland Determination Data Forms — Arid West Region [Version 2.0]).
  - ☐ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: .
- ☐ Corps navigable waters' study: .
- ☐ U.S. Geological Survey Hydrologic Atlas: .
  - ☒ USGS NHD data.
  - ☒ USGS 8 and 12 digit HUC maps.
  - ☒ U.S. Geological Survey map(s). Cite scale & quad name: 7.5' U.S. Geologic Service (USGS) Live Oak Springs topographic quadrangle (1997)

- ☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Web Soil Survey.
- ☒ National wetlands inventory map(s). Cite name: NWI Website.
- ☐ State/Local wetland inventory map(s): .
- ☒ FEMA/FIRM maps: Zone X
- ☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date): 2010 Aerial Maps of the survey area (Digital Globe 2010)

- ☒ Other (Name & Date): See Figures in the JDLR. The representative field photos were taken on December 9, 2011.
- ☐ Previous determination(s). File no. and date of response letter: .
- ☒ Other information (please specify): Please review the JDLR

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Signature and date of Regulatory Project Manager (REQUIRED)	Signature and date of person requesting preliminary JD (REQUIRED, unless obtaining the signature is impracticable)

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

Appendix A – Sites

District Office: **San Diego Field Office** File/ORM # PJD Date: **January 18, 2012**
State: **CA** City/County: **Boulevard/San Diego**

Person Requesting PJD: **Mr. Brison Ellinghaus**

Waters Type	Habitat	Latitude	Longitude	Cowardin Class	Estimated Amount of Aquatic Resource in Review Area (in acres)	Class of Aquatic Resource
Other Waters (Drainage Features [OHWM])	Nonvegetated Channel	32.663626	-116.269676	Riverine; Unconsolidated Bottom, Sand, Intermittently Flooded, Fresh	0.06	Non-Section 10 Waters
Other Waters (Unvegetated Waters [OHWM])	Nonvegetated Channel	32.668706	-116.267600	Riverine; Unconsolidated Bottom, Sand, Intermittently Flooded, Fresh	0.33	Non-Section 10 Waters
					TOTAL 0.40 Acre[a]	

[a] Jurisdictional waters acreage of the project survey area was determined by utilizing ArcGIS. All acreages are rounded to the nearest hundredth if which may account for minor rounding error).

APPENDIX D

FLORAL COMPENDIUM

APPENDIX D
PLANT SPECIES DOCUMENTED WITIHN AND ADJACENT TO THE PROPOSED LANWEST SOLAR FARM LLC PROJECT AREA[1]

Family	Scientific Name	Common Name
LEPTOSPORANGIATE FERNS		
Pteridaceae – Brake Fern Family		
	Cheilanthes clevelandii var. *clevelandii*	Cleveland's Lip Fern
	Pellea mucronata var. *mucronata*	Bird's Foot Cliff-Brake
	Pentagramma triangularis ssp. *rebmanii*	Rebman's Silverback Fern
CONIFERS		
Cupressaceae – Cypress Family		
	Hesperocyparis stephensonii	Cuyamaca Cypress
	Juniperus californicus	California Juniper
Pinaceae – Pine Family		
	Pinus halepensis	Aleppo Pine
	Pinus jeffreyi	Jeffrey/Yellow Pine
	Pinus quadrifolia	Parry Pinyon
GNETALES		
Ephedraceae – Ephedra Family		
	Ephedra californica	California Ephedra
MAGNOLIIDS-PIPERALES		
Saururaceae – Lizard's Tail Family		
	Anemopsis californica	Yerba Mansa
MONOCOTS		
Agavaceae – Century Plant Family		
	Hesperoyucca whipplei	Chaparral Candle
	Yucca schidigera	Mohave Yucca
Cyperaceae – Sedge Family		
	Carex praegracilis	Cluster Field Sedge
	Schoenoplectus americanus	Olney's Bulbrush
	Schoenoplectus californicus	California Bulrush
Juncaceae – Rush Family		
	Juncus mexicanus	Mexican Rush
	Juncus dubius	Mariposa Rush
	Juncus macrophyllus	Long-Leaf Rush
	Juncus xiphioides	Iris-Leaf Rush
Liliaceae – Lily Family		
	Calochortus concolor	Golden-Bowl Mariposa Lily
	Calochortus splendens	Splendid Mariposa Lily
Poaceae – Grass Family		
	Aristida purpurea	Three Awn
	*Avena barbata**	Slender Wild Oat
	*Bromus diandrus**	Ripgut Grass
	Bromus hordeaceus	Soft Chess
	Bromus madritensis ssp. *rubens**	Red Brome
	*Bromus tectorum**	Cheat grass
	Distichlis spicata	Salf Grass
	Elymus elymoides ssp. *brevifolius*	Squirreltail
	Elymus glaucus var. *virescens*	Green-Blue Wildrye
	*Elymus hispidus**	Intermediate Wheatgrass
	Elytrigia pontica ssp. *pontica*	Turkish Wheatgrass
	*Festuca myuros**	Rattail Sixweeks Grass
	*Festuca perennis**	Itallian Ryegrass
	*Lamarkia aurea**	Golden-Top
	*Hordeum marinum ssp. gussoneanum**	Hare Barley, Mediterranean Barley
	*Hordeum murinum ssp. glaucum**	Glaucous Barley

Family	Scientific Name	Common Name
	Melica imperfecta	Coast Range Melic
	Muhlenbergia asperifolia	Common Scratchgrass
	Muhlenbergia rigens	Muhley Grass
	*Poa bulbosa**	Bluegrass
	Poa secunda ssp. *secunda*	One-Sided Bluegrass
	*Polypogon monspeliensis**	Annual Beard Grass
	*Schismus barbatus**	Mediterranean Grass
	Sporobilis airoides	Alkali Sacaton
	Stipa cernua	Nodding Needlegrass
	Stipa coronata	Giant Stipa
	Stipa speciosa	Desert Needlegrass
	Vulpia microstachys var. *pauciflora*	Pacific Fescue
	*Vulpia myuros**	Rat-Tail Fescue
	Vulpia octoflora var. *hirtella*	Tufted Fescue
Themidaceae – Brodiaea Family		
	Dichelostemma capitatum ssp. *capitatum*	Blue Dicks
EUDICOTS		
Adoxaceae – Adoxa Family		
	Sambucus nigra ssp. *caerulea*	Blue Elderberry
Amaranthaceae – Amaranth Family		
	Amaranthus sp.	White Tumbleweed
	Atriplex canescens var. *canescens*	Four-wing Saltbush
	Atriplex lentiformis	Big Saltbush
	*Bassia hyssopifolia**	Five Hook Bassia
	Chenopodium californicum	California Goosefoot
	*Salsola tragus**	Prickly Russian-thistle
Anacardiaceae –Family		
	Rhus ovata	Sugar Bush
	Rhus aromatica (R. trilobata)	Skunkbrush
Apiaceae –Carrot Family		
	Apiastrum angustifolium	Mock-Parsley
	*Apium graveolens**	Common Celery
	Bowlesia incana	American Bowlesia
	Lomatium dasycarpum ssp. *dasycarpum*	Woolly-Fruit Lomatium
	Tauschia arguta	Southern Tauschia
Apocynaceae – Dogbane Family		
	Asclepias fascicularis	Narrow-leaf Milkweed
	Asclepias erosa	Desert Milkweed
Asteraceae – Sunflower Family		
	Acourtia microcephala	Sacapellote
	Ambrosia acanthicarpa	Annual Bur-sage
	Ambrosia confertiflora	Weak-Leaf Bur-Sage
	Ambrosia psilostachya	Western Ragweed
	Anisocoma acaulis	Scale-Bud
	Artemisia dracunculus	Tarragon
	Artemisia tridentata ssp. *tridentata*	Big Sagebrush
	Athysanus pusillus	Dwarf Athysanus
	Baccharis salicifolia	Mule-Fat
	Baccharis sergiloides	Desert Baccharis
	Brickellia californica	California Brickellbush
	Cirsium occidentale var. *californicum*	California Thistle
	Chaenactis glabriuscula var. *glabriuscula*	Yellow Pincushion
	Corethrogyne filaginifolia var. *filaginifolia*	Common Sand-Aster
	Coreopsis californica var. *californica*	California Coreopsis
	Cirsium scariosum	Meadow Thistle
	Cirsium vulgare	Bull Thistle
	Deinandra floribunda	**Tecate Tarplant**

Family	Scientific Name	Common Name
	Encelia actoni	Acton's Encelia
	Ericameria brachylepis	Boundary Goldenbush
	Ericameria cuneata var. *spathulata*	Wedge-leaf Goldenbush
	Ericameria linearifolia	Interior Goldenbush
	Ericameria pinifolia	Pine Goldenbush
	Erigeron canadensis	Horseweed/Fleabane
	Erigeron foliosus	Leafy Daisy
	Eriophyllum confertiflorum var. *confertiflorum*	Long-Stem Golden-Yarrow
	Eriophyllum wallacei	Wallace's Woolly Daisy
	Euthamia occidentalis	Western Goldenrod
	Filago californica	California Filago
	*Filago gallica**	Narrow-Leaf Filago
	Gnaphalium californicum	California Everlasting
	Gnaphalium palustre	Lowland Cudweed
	Geraea viscida	**Sticky Geraea**
	Gutierrezia sarothrae	Broom Matchweed
	Hazardia squarrosa var. *grindelioides*	Southern Sawtooth Goldenbush
	*Hedypnois cretica**	Crete Hedypnois
	*Hypochaeris glabra**	Smooth Cat's Ear
	Isocoma acradenia	Desert Alkali Goldenbush
	*Lactuca serriola**	Prickly Lettuce
	Lasthenia gracilis	Common Goldfields
	Layia glandulosa	White Layia
	Leptosyne californica	California Coreopsis
	Lessingia glandulifera var. *glandulifera*	Valley Lessingia
	Malacothrix californica	California Dandelion
	Malacothrix clevelandii	Cleveland's Malacothrix
	Matricaria discoidea	Common Pineapple-Weed
	Pseudognaphalium canescens	Everlasting Cudweed
	Senecio californicus	California Butterweed
	Senecio flaccidus var. *douglasii*	Sand-Wash Butterweed
	Senecio flaccidus var. *monoensis*	Mono Butterweed
	Sonchus asper ssp. *asper**	Prickly Sow-Thistle
	Stephanomeria exigua ssp. exigua	Small Wreath-Plant
	Stephanomeria deanei	Deane's Small Wreath Plant
	Stylocline gnaphalioides	Everlasting Nest-Straw
	*Taraxicum officinale**	Common Dandelion
	Tetradymia canescens	Spineless Horsebrush, Spinefree Horsebrush
	Uropappus lindleyi	Silver Puffs
Boraginaceae – Borage Family		
	Amsinckia menziesii var. *intermedia*	Rancher's Fiddleneck
	Cryptantha micrantha ssp. *lepida*	Purple-Root Cryptantha
	Cryptantha intermedia	Nievitas Cryptantha
	Pectocarya penicillata	Winged Pectocarya
	Pectocarya setosa	Bristly Pectocarya
	Plagiobothrys sp.	Arizona Popcornflower
	Plagiobothrys collinus var. *fulvescens*	Rough Popcornflower
Brassicaceae – Mustard Family		
	Athysanus pusillus	Dwarf Athysanus
	Boechera pulchra var. *pulchra*	Beautiful Rock-Cress
	Caulanthus simulans	**Payson's Caulanthus**
	Descurainia pinnata ssp. *glabra*	Western Tansy-Mustard
	Draba sp.	Desert Whitlow
	Erysismum capitatum ssp. *capitatum*	Western Wallflower
	Guillenia lasiophylla	California Mustard
	*Hirshfeldia incana**	Short-Pod Mustard
	*Lepidium perfoliatum**	Clasping Pepperweed

Family	Scientific Name	Common Name
	Lepidium lasiocarpum var. *lasiocarpum*	Sand Pepperweed
	*Sisymbrium altissimum**	Tumble Mustard
	*Sisymbrium irio**	London Rocket
	*Sisymbrium orientale**	Hare's-Ear Cabbage
	Streptanthus campestris	**Southern Jewelflower**
	Thysanocarpus laciniatus	Notch Fringepod
Cactaceae – Cactus Family		
	Cylindropuntia californica var. *parkeri*	Cane Cholla
	Cylindropuntia ganderi var. *ganderi*	Gander's Cholla
	Echinocereus englemannii	Englemann's Hedgehog Cactus
	Opuntia phaeacantha	Desert Prickly-Pear
	Opuntia x vaseyi	Mesa Prickly-Pear
Caprifoliaceae – Honeysuckle Family		
	Lonicera subspicata var. *denudata*	Johnston's Honeysuckle
Caryophyllaceae – Pink Family		
	Herniaria hirsuta var. *cinerea**	Grey Herniaria
	Loeflingia squarrosa var. *squarrosa*	California Loeflingia
Convolvulaceae – Morning-Glory Family		
	Cuscuta cailfornica	Dodder
Crassulaceae – Stonecrop Family		
	Crassula connata	Pygmyweed
	Dudleya abramsii ssp. *ambramsii*	Abram's Dudleya
	Dudleya pulverulenta	Chalk Dudleya
Cucurbitaceae – Gourd Family		
	Cucurbita foetidissima	Calabazilla
	Marah macrocarpus var. *marcrocarpus*	Wild-Cucumber
Elatinaceae – Waterwort Family		
	Elatine californica	California Waterwort
Ericaceae – Heath Family		
	Arctostaphylos pungens	Point-Leaf Manzanita
	Arctostaphylos glauca	Big-Berry Manzanita
	Arctostaphylos glandulosa	Manzanita
Euphorbiaceae – Spurge Family		
	Chamaesyce albomarginata	White-Margin Sandmat
	Chamaesyce polycarpa	Rattlesnake Weed
	Croton setigerus	Doveweed
Fabaceae – Legume Family		
	Acmispon glaber var. *brevialatus*	Short-Wing Deerweed
	Astragalus douglasii* var. *perstrictus	**Jacumba Milkvetch**
	Astragalus didymocarpus var. *dispermus*	Dwarf Locoweed
	Lathyrus splendens	**Campo Pea**
	Lotus argophyllus var. *argophyllus*	Silver-Leaf Lotus
	Lotus heermannii var. *heermannii*	Heermann's Lotus
	Lotus strigosus	Strigose Lotus
	Lupinus albifrons var. *albifrons*	Silver-Bush Lupine
	Lupinus bicolor	Minature Lupine
	Lupinus concinnus	Bajada Lupine
	Lupinus truncatus	Collar Lupine
	*Medicago polymorpha**	California Burclover
	*Melilotus indicus**	Indian Sweetclover
	*Robinia pseudoacacia**	Black Locust
	Senegalia greggii (Acacia greggii)	Catclaw Acacia
	Trifolium gracilentum	Pin-Point Clover
	Trifolium variegatum	White-Tip Clover
	Vicia sp.*	Vetch

Family	Scientific Name	Common Name
Fagaceae – Oak Family		
	Quercus ×acutidens *(Quercus cornelius-mulleri × engelmannii)*	Scrub Oak Hybrid
	Quercus agrifolia var. *oxydenia*	Interior Coast Live Oak
	Quercus cornelius-mulleri	Muller's Oak
	Quercus palmeri	Palmer's Oak
	Quercus engelmannii	**Engelmann Oak**
	Quercus palmeri	Palmer's Oak
	Quercus wislizeni var. *frutescens*	Interior Live Oak
Garryaceae – Silk Tassel Family		
	Garrya veatchii	Canyon Silk Tassel
Gentianaceae – Gentian Family		
	Zeltnera venustum (Centaureum v.)	Canchalagua
	Swertia parryi	Green Gentian
Geraniaceae – Geranium Family		
	*Erodium cicutarium**	Red-Stem Filaree
	*Erodium brachycarpum**	Short-Beak Filaree
Grossulariaceae – Gooseberry Family		
	Ribes quercetorum	Oak Gooseberry
Heliotropaceae – Heliotrope Family		
	Heliotropium curassavicum	Salt Heliotrope
Hydrophyllaceae – Waterleaf Family		
	Emmenanthe penduliflora var. *penduliflora*	Whispering Bells
	Eriodictyon trichocalyx var. *lanatum*	Hairy Yerba Santa
	Eucrypta chrysanthemifolia var. *bipinnatifida*	Spotted Hideseed
	Nemophila menzeisii var. *integrifolia*	Small-Flower Baby Blue Eyes
	Phacelia distans	Wild-Heliotrope
	Phacelia imbricata var. *patula*	Ives's Phacelia
	Phacelia parryi	Parry's Phacelia
	Pholistoma membranaceum	White Fiesta Flower
Lamiaceae – Mint Family		
	*Marrubium vulgare**	Horehound
	Monardella liniodes ssp. *linoides*	Narrow-Leaf Monardella
	Salvia columbariae	Chia
	Stachys ajugoides var. *rigida*	Hedge-Nettle
	Trichostemma parishii	Mountain Bluecurls
Loasaceae – Blazing Star Family		
	Mentzelia sp.	Stick-Leaf
Nyctaginaceae – Four O'Clock Family		
	Mirabilis multiflora var. *pubescens*	Froebel's Four O'Clock
Onagraceae – Evening Primrose Family		
	Camissonia bistorta	California Sun Cup
	Camissonia californica	False-Mustard
	Camissonia confusa x hirtella	San Bernardino/Field Sun Cup
	Camissonia strigulosa	Sandysoil Sun Cup
	Clarkia purpurea ssp. *quadrivulnera*	Four-Spot Clarkia
	Epilobium canum ssp. *latifolium*	Zauchineria
	Oenothera californica ssp. *californica*	California Evening-Primrose
Orobanchaceae – Broom Rape Family		
	Castilleja subinclusa var. *subinclusa*	Longleaf Paintbrush
	Castilleja foliolosa	Woolly Indian Paintbrush
	Cordylathus rigidus ssp. setigerus	Dark-Tip Bird's Beak
	Orobanche californica ssp. *feudgei*	Sagebrush Broom-Rape
Paeoniaceae – Peony Family		
	Paeonia californica	California Peony

Family	Scientific Name	Common Name
Papaveraceae – Poppy Family		
	Argemone munita	Prickly Poppy
	Eschscholzia californica	California Poppy
	Platystemon californicus	Cream Cups
Phrymaceae - Hopseed Family		
	Mimulus aurantiacus* var. *aridus	**Jacumba Monkey Flower**
	Mimulus brevipes	Slope Semiphore
	Mimulus cardinalis	Scarlet Monkey Flower
	Mimulus guttatus	Seep Monkey Flower
	Mimulus pilosus	Downy Monkey Flower
Plantaginaceae – Plantain Family		
	Antirrhimum coulterianum	Coulter's Snapdragon
	Antirrhinum nuttallianum ssp. *nutallianum*	Nuttall's Snapdragon
	Collinsia concolor	Southern Chinese Houses
	Keckiella ternata var. *ternata*	Summer Bush Penstemon
	Penstemon centranthifolius	Scarlet Bugler
	Penstemon clevelandii var. *clevelandii*	Clevelands's Beardtongue
	Penstemon spectabilis var. *spectabilis*	Showy Penstemon
	*Plantago major**	Common Plantain
	*Veronica Anagallis-aquatica**	Mexican Purslane
Polemoniaceae – Phlox Family		
	Eriastrum densiflorum var. *elongatum*	Chaparral Woolly-Star
	Eriastrum sapphirinum ssp. *sapphirinum*	Sapphire Woolly-Star
	Gila angelensis	Grassland Gilia
	Gilia capitata ssp. *abrotanifolia*	Ball Gilia
	Leptosiphon lemmonii	Lemmon's Linanthus
	Leptosiphon parviflorus	Coast Baby-Star
	Leptosiphon pygmaeus ssp. *continentalis*	Pygmy Linanthus
	Loeseliastrum schottii	Desert Calico
	Linanthus bellus	**Desert Beauty**
	Navarretia atractyloides	Holly-Leaf Skunkweed
Polygonaceae – Buckwheat Family		
	Chorizanthe fimbriata ssp. *laciniata*	Lacinate Spineflower
	Eriogonum davidsonii	Davidson's Buckwheat
	Eriogonum elongatum var. *elongatum*	Tall Buckwheat
	Eriogonum fasciculatum var. *polifolium*	Mountain Buckwheat
	Eriogonum gracile var. *incultum*	Smooth Slender Buckwheat
	Eriogonum thurberi	Thurber's Buckwheat
	Eriogonum wrightii ssp. *membranaceum*	Foothill Buckwheat
	Pterostegia drymarioides	Granny's Hairnet
	Rumex salicifolius var. *denticulatus*	Toothed Willow Dock
	Sidotheca trilobata	Three-Lobe Starry Puncturebract
Portulaceae – Purslane Family		
	Calandrinia ciliata	Red Maids
	Calyptridium monandrum	Common Calyptridium
	Claytonia parviflora ssp. *parviflora*	Utah's Miner's-Lettuce
	Claytonia perfoliata ssp. *perfoliata*	Miner's Lettuce
Ranunculaceae – Buttercup Family		
	Clematis pauciflora	Ropevine Clematis
	Delphinium parishii* ssp. *subglobosum	**Desert Larkspur**
Rhamnaceae – Buckthorn Family		
	Ceanothus cuneatus var. *cuneatus*	Buck Brush
	Ceanothus greggii var. *perplexans*	Cup-Leaf-Lilac
	Ceanothus leucodermis	Chaparral Whitethorn
	Frangula californica ssp. *tomentella* (= *Rhamnus t.* ssp. *t.*)	Chaparral Coffeeberry
	Rhamnus ilicifolia	Holly-Leaf Redberry

Family	Scientific Name	Common Name
Rosaceae – Rose Family		
	Adenostoma fasciculatum	Chamise
	Adenostoma sparsifolium	Red Shank
	Cercocarpus betuloides var. *betuloides*	Birch-Leaf Mountain-Mahogany
	Heteromeles arbutifolia	Toyon
	Ivesia saxosa	Rock Cinquefoil
	Prunus fremontii	Desert Apricot
	Prunus ilicifolia ssp. *ilicifolia*	Holly-Leaf Cherry
Rubiaceae – Madder or Coffee Family		
	Galium andewsii ssp. *andrewsii*	Phlox-Leaf Bedstraw
	Galium angustifolium ssp. *angustifolium*	Narrow Leaf Bedstraw
	Galium aparine	Common Bedstraw
Salicaceae – Willow Family		
	Populus fremontii ssp. *fremontii*	Western Cottonwood
	Salix lasiolepis	Arroyo Willow
	Salix laevigata	Red Willow
	Salix exigua	Sandbar Willow
Scrophulariaceae s.s. – Figwort Family		
	Scrophularia californica ssp. *floribunda*	California Bee Plant
	*Verbascum thapsus**	Common Mullein
Solanaceae – NIghtshade Family		
	Datura wrightii	Western Jimson Weed
	Nicotiana clevelandii	Cleveland's Tobacco
	Physalis hederifolia var. *fendleri*	Ground Cherry
	Solanum xantii	Chaparral Nightshade
Tamaricaceae –Tamarisk Family		
	*Tamarix ramosissima**	Tamarisk, Salt-Cedar
Urticaceae –Family		
	Hesperocnide tenella	Western Nettle
	Urtica dioica ssp. *holosericea*	Hoary Nettle
Violaceae – Violet Family		
	Viola purpurea ssp. *quercetorum*	Oak Yellow Violet
Viscaceae – Mistletoe Family		
	Phoradendron villosum	Oak Mistletoe
	Phoradendron macrophyllum	Big-Leaf Mistletoe

[1] The project area was initially part of a larger survey area that was separated into three separate projects (LanWest Solar Farm LLC, LanEast Solar Farm LLC, and Rugged Solar LLC). LanEast Solar Farm LLC is located adjacent to the Proposed Project (on the eastern boundary of LanWest). Rugged Solar LLC is located directly north of I-8. All three sites were surveyed concurrently. Therefore, this list of plant species represents species detected for all project areas.

[2] Sensitive wildlife species documented from project vicinity during 2011/2012 surveys conducted by AECOM for adjacent projects.

* = Nonnative species

Bold = Sensitive species

APPENDIX E

SENSITIVE PLANT SPECIES KNOWN OR POTENTIALLY OCCURRING

APPENDIX E
SENSITIVE PLANT SPECIES KNOWN OR POTENTIALLY OCCURRING WITHIN THE PROPOSED LANWEST SOLAR FARM LLC PROJECT AREA

Species	Status[1] (Federal/State/ CNPS)	County of San Diego Listing[1]	Proposed for Coverage Under Draft East County MSCP (yes/no)[2]	Primary Habitat Associations	Potential for Occurrence/Comments
California androsace *Androsace elongata* ssp. *acuta*	None/None/4.2	List D	No	Chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, and valley and foothill grassland. Elevation range 492–3,937 ft.	Low. Species distribution is primarily west of Pine Valley.
Peninsular manzanita *Arctostaphylos peninsularis*	None/None/None	None	No	Semi- desert chaparral	Moderate. Known from nearby, in SD County, only at In Ko Pah County Park.
Western spleenwort *Asplenium vespertinum*	None/None/4.2	List D	No	Chaparral, cismontane woodland, coastal scrub. Found on rocky soils. Elevation range 591–3,281 ft.	Not Expected. Project area outside of the known range. Distribution is west of Cuyamaca Rancho State Park and east of the 15 freeway.
Dean's milkvetch *Astragalus deanei*	None/None/1B.1	List A	Yes	Chaparral, cismontane woodland, coastal scrub, and riparian forest. Elevation range 246–2,280 ft.	Not Expected. Project area outside of known range. Distribution is west of Pine Valley and east of Lakeside. Site also outside of the elevational range for this species.
Jacumba milkvetch *Astragalus douglasii* var. *perstrictus*	None/None/1B.2	List A	Yes	Chaparral, cismontane woodland, pinyon and juniper woodland, riparian scrub, and valley and foothill grassland. Found on rocky soils. Elevation range 2,953–4,495 ft.	Observed.
San Diego milkvetch *Astragalus oocarpus*	None/None/1B.2	List A	Yes	Openings in chaparral and cismontane woodland. Elevation range 1,000–5,000 ft.	Low. Species distribution is north of Pine Valley and South of Rainbow.

Species	Status[1] (Federal/State/ CNPS)	County of San Diego Listing[1]	Proposed for Coverage Under Draft East County MSCP (yes/no)[2]	Primary Habitat Associations	Potential for Occurrence/Comments
California ayenia *Ayenia compacta*	None/None/2.3	List B	No	Mojavean desert scrub, Sonoran desert scrub. Prefers rocky soils. Elevation range 492–3,592 ft.	Not Expected. Distribution is inside of Anza Borrego Desert State Park.
Fremont barberry *Berberis fremontii*	None/None/3	List C	Yes	Chaparral, Joshua tree woodland, and pinyon and juniper woodland. Found on rocky soils. Elevation range 2,756–6,070 ft.	Moderate. Scattered in areas nearby.
Orcutt's brodiaea *Brodiaea orcuttii*	None/None/1B.1	List A	Yes	Closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools. Found on mesic, clay, sometimes serpentine soils. Elevation range 98–5,551 ft.	Moderate. Known from the La Posta area but the majority of the species' distribution is west of the 79 freeway.
Brewer's calandrinia *Calandrinia breweri*	None/None/4.2	List D	No	Chaparral and coastal scrub. Found on sandy or loamy soils. Disturbed sites and burns. Elevation range 33–4,003 ft.	Not Expected. Majority of the species' distribution is both west and southwest of the Cleveland National Forest.
Dunn's mariposa lily *Calochortus dunnii*	None/SR/1B.2	List A	Yes	Closed-cone coniferous forest, chaparral, and valley and foothill grassland. Found on gabbroic or metavolcanic, rocky soils. Elevation range 1,247–6,004 ft.	Not Expected. Gabbro endemic. No suitable habitat present on-site. Distribution is both west and southwest of Pine Valley.
Payson's jewelflower *Caulanthus simulans*	None/None/4.2	List D	Yes	Chaparral and coastal scrub. Sandy and granitic soils. Elevation range 295–7,218 ft.	High. Documented from the vicinity of the project area in 2011.
Parish's chaenactis *Chaenactis parishii*	None/None/1B.3	List A	Yes	Chaparral. Rocky soils. Elevation range 4,265–8,202 ft.	Moderate. Found in the Laguna Mountains in chamise chaparral. The distribution is west of Cleveland National forest and north of Descanso.

Species	Status[1] (Federal/State/ CNPS)	County of San Diego Listing[1]	Proposed for Coverage Under Draft East County MSCP (yes/no)[2]	Primary Habitat Associations	Potential for Occurrence/Comments
Peninsular spineflower *Chorizanthe leptotheca*	None/None/4.2	List D	No	Chaparral, coastal scrub, and lower montane coniferous forest. Found on alluvial fan and granitic soils. Elevation range 984–6,234 ft.	Moderate. Known from chamise chaparral approximately 5–10 miles southwest of the project site.
Long-spined Spineflower *Chorizanthe polygonoides* var. *longispina*	None/None/1B.2	List A	Yes	Chaparral, coastal scrub, meadows and seeps, valley and foothill grassland, and vernal pools. Often found on clay soil. Elevation range 98–5,019 ft.	Low. Found in the Laguna Mountains. Distribution is west of Mt. Laguna.
Campo clarkia *Clarkia delicata*	None/None/1B.2	List A	Yes	Chaparral and cismontane woodland. Often found on gabbroic soils. Elevation range 770–3,280 ft.	Moderate. Species' distribution is on the western side of the Cleveland National Forest, west to Mission Trails Regional Park.
Tecate tarplant *Deinandra* (*Hemizonia*) *floribunda*	None/None/1B.2	List A	Yes	Chaparral and coastal scrub. Elevation range 229–4,002 ft.	Observed.
Cuyamaca larkspur *Delphinium hesperium* ssp. *cuyamacae*	None/None/1B.2	List A	Yes	Lower montane coniferous forest, meadows and seeps, and vernal pools. Mesic soils. Elevation range 4,002–5,351 ft.	Low. Species found inside Cuyamaca Rancho State Park and inside Cleveland National Forest.
Oceanblue larkspur *Delphinium parishii* ssp. *subglobosum*	None/None/4.3	List D	No	Chaparral, cismontane woodland, pinyon and juniper woodland, and Sonoran desert scrub. Elevation range 1,969–5,906 ft.	Observed.
Mount Laguna aster *Dieteria asteroides* var. *lagunensis*	None/SR/2.1	List B	No	Cismontane woodland and lower montane coniferous forest. Elevation range 2,625–7,874 ft.	Not Expected. Species found in the higher parts of the Laguna Mountains. Distribution is inside the Cleveland National Forest on the eastern side.

Species	Status[1] (Federal/State/ CNPS)	County of San Diego Listing[1]	Proposed for Coverage Under Draft East County MSCP (yes/no)[2]	Primary Habitat Associations	Potential for Occurrence/Comments
Laguna Mountains goldenbush *Ericameria cuneata* var. *macrocephala*	None/None/1B.3	List A	Yes	Chaparral. Granitic soils. Elevation range 3,920–6,102 ft.	Moderate. Species distribution is inside the Cleveland National Forest on the eastern side, north into Cuyamaca Rancho State Park.
Chocolate lily *Fritillaria biflora* var. *biflora*	None/None/CBR	List D	No	Cismontane woodland, valley and foothill grassland, oak and pine scrub, and grasslands. Well-drained soils on open slopes. Elevation <3,937 ft.	Not Expected. Species' distribution is on the very western side of the Cleveland National Forest, west to the coast.
San Jacinto narrow-leaf bedstraw *Galium angustifolium* ssp. *jacinticum*	None/None/1B.3	List A	No	Lower montane coniferous forest, semi-desert chaparral, and southern mixed chaparral. Elevation range 4,000–5,500 ft.	High. Species known mostly from Mt. San Jacinto and from three sites in San Diego County: McCain Valley, Laguna Mt., and Volcan Mt. Closely resembles and easily confused with *Galium angustifolium* ssp. *angustifolium*.
Sticky geraea *Geraea viscida*	None/None/2.3	List B	Yes	Chaparral (often in disturbed areas). Elevation range 328–3,937 ft.	Observed.
San Diego gumplant *Grindelia hirsutula* var. *hallii*	None/None/None (taxon no longer recognized)	List A	No	Chaparral, lower montane coniferous forest, meadows and seeps, and valley and foothill grassland. Clay soils. Elevation range 607–5,725 ft.	Not Expected. Suitable habitat not present. Preferred soil type absent. Distribution is inside Cleveland National Forest, west to Poway.
Tecate cypress *Hesperocyparis* (*Cupressus, Callitropsis*) *forbesii*	None/None/1B.1	List A	Yes	Closed-cone coniferous forest and chaparral. Clay, gabbroic or metavolcanic soils. Elevation range 262–4,921 ft.	Not Expected. Preferred soil type absent. Distribution is south near Tecate and Otay Mountain. It is also distributed near Descanso and Julian.

Species	Status[1] (Federal/State/ CNPS)	County of San Diego Listing[1]	Proposed for Coverage Under Draft East County MSCP (yes/no)[2]	Primary Habitat Associations	Potential for Occurrence/Comments
Cuyamaca cypress *Hesperocyparis stephensonii*	None/None/1B.1	List A	Yes	Closed-cone coniferous forest, chaparral, cismontane woodland, and riparian forest. Gabbroic soils. Elevation range 3,395–5,593 ft.	Low. Known from project vicinity. However, it is found naturally occurring on the west slope of Cuyamaca Peak in gabbro soils.
San Jacinto golden-aster *Heterotheca sessiflora* ssp. *sanjacintensis* (ssp. *fastigiata* var. *sanjacintensis*)	None/None/None	List D	No	Oak woodland, pine forest, and desert washes (rare). Elevation range 328 –7,217 ft.	Not Expected. Species found at Mount San Jacinto and Palomar Mountain
Graceful tarplant *Holocarpha virgata* ssp. *elongata*	None/None/4.2	List D	Yes	Chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland. Elevation range 197–3,609 ft.	Not Expected. Species primarily found in western San Diego County. Not known from east of Santa Ysabel.
Laguna Mountains alumroot *Heuchera brevistaminea*	None/None/1B.3	List A	No	Broad-leafed upland forest, chaparral, cismontane woodland, and riparian forest. Rocky soils. Elevation range 4,495–6,561 ft.	Not Expected. Found in the Laguna Mountains on cliff habitats and at higher elevation.
California hulsea *Hulsea californica*	None/None/1B.3	List A	Yes	Chaparral, lower montane coniferous forest. Found in openings and burned areas. Elevation range 3,002–9,564 ft.	High. Known from vicinity, off of McCain Valley Road in chamise chaparral habitat.
Mexican hulsea *Hulsea mexicana*	None/None/2.3	List B	Yes	Chaparral. Volcanic, often on burns or disturbed areas. Unknown elevation range.	Low. Known from Table Mountain near Jacumba.
Beautiful hulsea *Hulsea vestita* ssp. *callicarpha*	None/None/4.2	List D	Yes	Chaparral, lower montane coniferous forest. Rocky or gravelly, granitic soils. Elevation range 3,001–10,006 ft.	Low. Outside of species' known range. Distribution is north of Lake Henshaw.
Slender-leaved ipomopsis *Ipomopsis tenuifolia*	None/None/2.3	List B	No	Chaparral, pinyon and juniper woodland, and Sonoran desert scrub. Gravelly or rocky soils. Elevation range 328–3,937 ft.	High. Suitable habitat present. Species' distribution ranges from Boulevard through Anza Borrego Desert State Wilderness and does not go east of In Ko Pa County Park.

Species	Status[1] (Federal/State/ CNPS)	County of San Diego Listing[1]	Proposed for Coverage Under Draft East County MSCP (yes/no)[2]	Primary Habitat Associations	Potential for Occurrence/Comments
Cooper's rush *Juncus cooperi*	None/None/4.3	List D	No	Meadows and seeps. Mesic, alkaline, or saline soils. Elevation range 0–2,526 ft.	Low. Distribution of this species is just south of Anza Borrego Desert State Wilderness.
Campo pea *Lathyrus splendens*	None/None/4.3	List D	Yes	Chaparral. Elevation range 656–5,003 ft.	High. Documented from the vicinity of the project area in 2011. Distribution is in the southern part of the County from just south of Jamul to Boulevard.
Ocellated Humboldt lily *Lilium humboldtii* ssp. *ocellatum*	None/None/4.2	List D	Yes	Openings in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, and riparian woodland. Elevation range 98–5,906 ft.	Moderate. Distribution of this species is north to Fallbrook through Pine Valley and south to Otay County Open Space Preserve.
Desert beauty *Linanthus bellus*	None/None/2.3	List B	Yes	Chaparral. Sandy soils. Elevation range 3,281–5,493 ft.	Observed.
Orcutt's linanthus *Linanthus orcuttii*	None/None/1B.3	List A	Yes	Openings in chaparral, lower montane coniferous forest, and pinyon and juniper woodland. Elevation range 3,001–7,037 ft.	Low. Species' distribution is inside Palomar Mountain, south to Cleveland National Forest.
Parish's meadowfoam *Limnanthes gracilis* ssp. *parishii*	None/SE/1B.2	List A	Yes	Lower montane coniferous forest, meadows and seeps, and vernal pools. Vernally mesic soils. Elevation range 2,953–6,562 ft.	Not Expected. Species known only from Cuyamaca Rancho State Park.
Pygmy lotus *Lotus* (*Acmispon*) *haydonii*	None/None/1B.3	List A	Yes	Pinyon and juniper woodland and Sonoran desert scrub. Rocky soils. Elevation range 1,706–3,937 ft.	Low. Distribution is scattered throughout Anza Borrego Desert State Wilderness.
Mountain Springs bush lupine *Lupinus excubitus* var. *medius*	None/None/1B.3	List A	Yes	Pinyon and juniper woodland and Sonoran desert scrub. Elevation range 1,394–4,494 ft.	Low. Species' distribution is scattered north of Boulevard and Jacumba in Anza Borrego Desert State Wilderness.

Species	Status[1] (Federal/State/ CNPS)	County of San Diego Listing[1]	Proposed for Coverage Under Draft East County MSCP (yes/no)[2]	Primary Habitat Associations	Potential for Occurrence/Comments
Parish's desert thorn *Lycium parishii*[4]	None/None/2.3	List B	Yes	Coastal scrub and Sonoran desert scrub. Elevation range 1,001–3,281 ft.	Low. Species' distribution is inside Anza Borrego Desert State Wilderness.
Small-flowered microseris *Microseris douglasii* ssp. *platycarpha*	None/None/4.2	List D	No	Cismontane woodland, coastal scrub, valley and foothill grassland, and vernal pools. Clay soils. Elevation range 49–3,510 ft.	Not Expected. Species' distribution is west of Harbison Canyon and runs all the way to the coast.
Jacumba monkeyflower *Mimulus aurantiacus* var. *aridus* (*Mimulus aridus*)	None/None/4.3	List D	Yes	Chaparral. Rocky soils. Elevation range 2,461–3,609 ft.	High. Documented from the vicinity of the project area in 2011.
Cleveland's bush monkeyflower *Mimulus clevelandii*	None/None/4.2	List D	Yes	Chaparral, cismontane woodland, and lower montane coniferous forest. Found on gabbroic soils, often in disturbed areas, openings, and rocky areas. Elevation range 2,674–6,562 ft.	Low. Suitable soils (gabbroic) not present on-site.
San Felipe monardella *Monardella nana* ssp. *leptosiphon*	None/None/1B.2	List A	Yes	Chaparral and lower montane coniferous forest. Elevation range 3,937–6,085 ft.	Not Expected. Outside of species' known range and more likely to be found at higher elevations.
California spineflower *Mucronea californica*	None/None/4.2	List D	No	Chaparral, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grassland. Sandy soils. Elevation range 0–4,593 ft.	Moderate. Distribution of this species is largely coastal.
San Jacinto beardtongue *Penstemon clevelandii* var. *connatus*	None/None/4.3	List D	No	Chaparral, pinyon and juniper woodland, and Sonoran desert scrub. Rocky soils. Elevation range 1,312–4,921 ft.	Low. Species distributed throughout Anza Borrego Desert State Wilderness.

Species	Status[1] (Federal/State/ CNPS)	County of San Diego Listing[1]	Proposed for Coverage Under Draft East County MSCP (yes/no)[2]	Primary Habitat Associations	Potential for Occurrence/Comments
Thurber's beardtongue *Penstemon thurberi*	None/None/4.2	List D	No	Chaparral, Joshua tree woodland, pinyon and juniper woodland, and Sonoran desert scrub. Elevation range 1,640–4,003 ft.	Low. Species found in more montane locations. Distribution is throughout Anza Borrego Desert State Wilderness and just to the central west section of Anza Borrego Desert State Wilderness.
Golden-rayed pentachaeta *Pentachaeta aurea*	None/None/4.2	List D	No	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland, and valley and foothill grassland. 262–6,070 ft.	Moderate. Found in the Laguna Mountains. Species' distribution does not run east of Cleveland National Forest but runs west all the way to the coast.
Chaparral rein orchid *Piperia cooperi*	None/None/4.2	List D	Yes	Chaparral, cismontane woodland, and valley and foothill grassland. Elevation range 49–5,200 ft.	Not Expected. Species known only from Pine Valley to Cuyamaca Rancho State Park.
Narrow-petaled rein orchid *Piperia leptopetala*	None/None/4.3	List D	Yes	Cismontane woodland, lower montane coniferous forest, and upper montane coniferous forest. Elevation range 1,247–7,300 ft.	Not Expected. Species known only from Pine Valley to Cuyamaca Rancho State Park.
Fish's milkwort *Polygala cornuta* var. *fishiae*	None/None/4.3	List D	No	Chaparral, cismontane woodland, and riparian woodland. Elevation range 328–3,281 ft.	Low. Suitable gabbroic soils not present on-site. Species' distribution runs north to Temecula, south through Pine Valley, and into Otay County Open Space Preserve.
Engelmann oak *Quercus engelmannii*	None/None/4.2	List D	Yes	Chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland. Elevation range 164–4,265 ft.	Moderate. Known from a nearby location.
Moreno currant *Ribes canthariforme*	None/None/1B.3	List A	Yes	Chaparral and riparian scrub. Elevation range 1,115–3,937 ft.	Low. Found in more mesic habitat. Distributed throughout Cleveland National Forest and west to Lake Jennings Park.

Species	Status[1] (Federal/State/ CNPS)	County of San Diego Listing[1]	Proposed for Coverage Under Draft East County MSCP (yes/no)[2]	Primary Habitat Associations	Potential for Occurrence/Comments
Coulter's matilija poppy *Romneya coulteri*	None/None/4.2	List D	No	Chaparral and coastal scrub. Often in burns. Elevation range 66–3,937 ft.	Not Expected. Species distributed throughout Alpine.
Parish's rupertia *Rupertia rigida*	None/None/4.3	List D	No	Chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, pebble plain, and valley and foothill grassland. Elevation range 2,297–8,202 ft.	Low. Species' distribution runs north to Palomar Mountain State Park and south to Pine Valley.
Caraway leaved gilia *Saltugilia caruifolia* (*Gilia caruifolia*)	None/None/4.3	List D	No	Openings in chaparral and lower montane coniferous forest. Sandy soils. Elevation range 2,755–7,545 ft.	High. Suitable habitat present. Species' distribution runs north to Hwy 79, west to I-15 and east to Cleveland National Forest.
Southern mountain skullcap *Scutellaria bolanderi* ssp. *austromontana*	None/None/1B.2	List A	No	Chaparral, cismontane woodland, and lower montane coniferous forest. Elevation range 1,394–6,561 ft.	Low. Species' distribution runs throughout Cleveland National Forest and north to Palomar Mountain.
Desert spike-moss *Selaginella eremophila*	None/None/2.2	List B	No	Chaparral and Sonoran desert scrub. Gravelly or rocky soils. Elevation range 656–2,952 ft.	Moderate. Species' distribution runs throughout Anza Borrego Desert State Wilderness.
Chaparral ragwort *Senecio aphanactis*	None/None/2.2	List B	No	Chaparral, cismontane woodland, and coastal scrub. Sometimes alkaline soils. Elevation range 49–2,624 ft.	Not Expected. Species' distribution runs from Jamul to the coast.
Laguna Mountains jewelflower *Streptanthus bernardinus*	None/None/4.3	List D	No	Chaparral and lower montane coniferous forest. Elevation range 2,198–8,202 ft.	Low. Species' distribution runs from Mt. Laguna through Cuyamaca Rancho State Park and southwest into Otay County Open Space Preserve.
Southern jewelflower *Streptanthus campestris*	None/None/1B.3	List A	No	Chaparral, lower montane coniferous forest, and pinyon and juniper woodland. Rocky soils. Elevation range 2,953–7,546 ft.	High. Documented from a nearby location.

Species	Status[1] (Federal/State/ CNPS)	County of San Diego Listing[1]	Proposed for Coverage Under Draft East County MSCP (yes/no)[2]	Primary Habitat Associations	Potential for Occurrence/Comments
San Bernardino aster *Symphyotrichum defoliatum*	None/None/1B.2	None	No	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. Elevation range 7–6,693 ft.	Low. Distributed throughout Cleveland National Forest and throughout Cuyamaca Rancho State Park.
Parry's tetrococcus *Tetracoccus dioicus*	None/None/1B.2	List A	No	Chaparral and coastal scrub. Elevation range 541–3,281 ft.	Not Expected. Suitable gabbroic or metavolcanic soils not present on-site.
Velvety false lupine *Thermopsis californica* var. *semota*	None/None/1B.2	List A	Yes	Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland. Elevation range 3,281–6,135 ft.	Low. Found in montane meadows, distributed from Palomar Mountain to Cleveland National Forest.
San Diego sunflower *Viguiera* (*Bahiopsis*) *laciniata*	None/None/4.2	List D	No	Chaparral and coastal scrub. Elevation range 196–2,460 ft.	Not Expected. Project area outside species' known elevational and distributional range. Species distributed west of Jamul.
Rush-like bristleweed *Xanthisma junceum*	None/None/4.3	List D	Yes	Chaparral and coastal scrub. Elevation range 787–3,281 ft.	Moderate. Species distributed throughout Cleveland National Forest and runs north to Hidden Meadows.

[1]Status Codes:

Federal Status
FE = Federally listed endangered
FT = Federally listed threatened

State Status
SE = State listed endangered
ST = State listed threatened
SR = State listed rare

CNPS Status
1B: Considered rare, threatened, or endangered in California and elsewhere
2: Plants rare, threatened, or endangered in California, but more common elsewhere
3: Plants for which we need more information – review list
4: Plants of limited distribution – a watch list
CBR: Considered but rejected
Decimal notations: .1 - Seriously endangered in California, .2 – Fairly endangered in California, .3 – Not very endangered in California

County of San Diego Status
List A: Plants rare, threatened or endangered in California and elsewhere
List B: Plants rare, threatened or endangered in California but more common elsewhere
List C: Plants which may be rare, but need more information to determine true rarity status
List D: Plants of limited distribution and are uncommon, but not presently rare or endangered

[2] The draft East County Multiple Species Conservation Plan (MSCP) has not yet been approved. Therefore, the list of species proposed for coverage under this plan is subject to changes.

APPENDIX F

WILDLIFE COMPENDIUM

APPENDIX F
WILDLIFE SPECIES DOCUMENTED WITHIN AND ADJACENT TO THE PROPOSED LANWEST SOLAR FARM LLC PROJECT AREA[1]

Scientific Name	Common Name	Evidence of Occurrence
INVERTEBRATES		
Order Lepidoptera (Moths and Butterflies)		
Family Arctiidae		
Kodiosoma fulva	n/a	Observed
Family Noctuidae		
Autographa californica	Alfalfa looper	Observed
Drasteria divergens	n/a	Observed
Drasteria edwardsii	n/a	Observed
Drasteria pallescens	Madera Canyon moth	Observed
Drasteria tejonica	n/a	Observed
Heliothis belladona	n/a	Observed
Schinia amarylis	n/a	Observed
Family Crambidae		
Chrismania pictipennalis	n/a	Observed
Loxostege immerens	n/a	Observed
Family Sphingidae		
Euproserpinus phaeton	Primrose sphinx moth	Observed
Family Erebidae		
Litocola sexsignata	Litocala moth	Observed
Family Nymphalidae		
Euphydryas chalcedona	Henne's checkerspot	Observed
Chlosyne gabbii	Gabb's checkerspot	Observed
Junonia coenia	Common buckeye	Observed
Vanessa annabella	West coast lady	Observed
Vanessa atalanta	Red admiral	Observed
Vanessa cardui	Painted lady	Observed
Vanessa sp.	Lady sp.	Observed
Family Pieridae		
Pontia sisymbrii	Spring white	Observed
Pontia protodice	Common white	Observed
Anthocharis sara	Sara orangetip	Observed
Euchloe hyantis	Desert pearly marble	Observed
Colias eurytheme	Orange sulphur	Observed
Colias harfordii	Harford's sulphur	Observed
Colias philodice	Clouded sulphur	Observed
Nathalis iole	Dainty sulphur	Observed
Family Papilionidae		
Papilio eurymedon	Pale swallowtail	Observed
Family Riodiniade		
Apodemia mormo	Behr's metalmark	Observed
Family Lycaenidae		
Celastrina ladon	Spring azure	Observed
Brephidium exile	Western pygmy blue	Observed
Glaucopsyche lygdamus	Southern blue/Silvery blue	Observed
Icaria acmon	Acmon blue	Observed
Philotes sonorensis	Sonoran blue	Observed
Everes amyntula	Western-tailed blue	Observed

Scientific Name		Common Name	Evidence of Occurrence
	Callophrys augustinus	Brown elfin	Observed
	Callophrys perplexa	Perplexing green hairstreak	Observed
	Family Hesperiidae		
	Atalopedes campestris	Sachem	Observed
	Erynnis funeralis	Funereal duskywing	Observed
	Erynnis tristis	Sad duskywing	Observed
	Erynnis propertius	Propertius duskywing	Observed
	Erynnis brizo	Sleepy duskywing	Observed
	Erynnis sp.	Duskywing sp.	Observed
	Pyrgus communis	Checkered skipper	Observed
	Heliopetes ericetorum	Northern white skipper	Observed
	Hesperia juba	Juba skipper	Observed
	Polites sabuleti	Sandhill skipper	Observed
	Philosora catullus	Common sootywing	Observed
REPTILES			
Order Squamata (Lizards and Snakes)			
	Family Phrynosomatidae		
	Phrynosoma coronatum blainvillii	**Coast horned lizard**	Observed
	Sceloporus orcutti	Granite spiny lizard	Observed
	Family Teiidae		
	Aspidoscelis hyperythrus beldingi[2]	**Belding's orange-throated whiptail**	Observed
	Cnemidophorus tigris	**Coastal western whiptail**	Observed
BIRDS			
Order Ciconiiformes (Herons, Storks, Ibises, and Relatives)			
	Family Ardeidae		
	Butorides virescens[2]	**Green heron**	Observed
	Family Cathartidae		
	Cathartes aura[2]	**Turkey vulture**	Observed
Order Falconiformes (Diurnal Birds of Prey)			
	Family Accipitridae		
	Accipiter cooperii[2]	**Cooper's hawk**	Observed
	Buteo jamaicensis	Red-tailed hawk	Observed
	Buteo swainsoni[2]	**Swainson's hawk**	Observed
	Circus cyaneus	Northern harrier	Observed
	Family Falconidae		
	Falco mexicanus[2]	**Prairie falcon**	Observed
Order Strigiformes (Owls)			
	Family Strigidae		
	Bubo virginianus	Great horned owl	Observed
Order Galliformes (Magapodes, Curassows, Pheasants, and Relatives)			
	Family Odontophoridae		
	Callipepla californica	California quail	Observed
Order Charadriiformes (Shorebirds, Gulls, and Relatives)			
	Family Charadriidae		
	Charadrius vociferus	Killdeer	Observed
Order Columbiformes (Pigeons and Doves)			
	Family Columbidae		
	Zenaida macroura	Mourning dove	Observed
	Streptopelia decaocto	Eurasian collared-dove	Observed

Scientific Name	Common Name	Evidence of Occurrence
Order Cuculiformes (Cuckoos and Relatives)		
Family Cuculidae		
Geococcyx californianus	Greater roadrunner	Observed
Order Piciformes (Woodpeckers)		
Family Picidae		
Melanerpes formicivorus	Acorn woodpecker	Observed
Colaptes auratus	Northern flicker	Observed
Order Passeriformes (Song birds)		
Family Tyrannidae		
Sayornis saya	Say's phoebe	Observed
Tyrannus verticalis	Western kingbird	Observed
Family Corvidae		
Corvus corax	Common raven	Observed
Aphelocoma californica	Western scrub jay	Observed
Family Laniidae		
***Lanius ludovicianus*[2]**	**Loggerhead shrike**	Observed
Family Paridae		
Baeolophus inornatus	Oak titmouse	Observed
Family Hirundinidae		
Petrocheliodon pyrrhonota	Cliff swallow	Observed
Stelgidopteryx serripennis	Northern rough-winged swallow	Observed
Family Aegithalidae		
Psaltriparus minimus	Bushtit	Observed
Family Troglodytidae		
Catherpes mexicanus	Canyon wren	Observed
Thryomanes bewickii	Bewick's wren	Observed
Troglodytes aedon	House wren	Observed
Family Alaudidae		
***Eremophila alpestris*[2]**	**Horned lark**	Observed
Family Sylviidae		
Polioptila melanura	Black-tailed gnatcatcher	Observed
Polioptila caerulea obscura	Blue-gray gnatcatcher	Observed
Family Turdidae		
Sialia mexicana	Western bluebird	Observed
Family Timaliidae		
Chamaea fasciata	Wrentit	Observed
Family Regulidae		
Regulus calendula	Ruby-crowned kinglet	Observed
Family Mimidae		
Mimus polyglottos	Northern mockingbird	Observed
Family Sturnidae		
Sturnus vularis	European starling	Observed
Family Parulidae		
Dendroica coronata	Yellow-rumped warbler	Observed
Vermivora ruficapilla	Nashville warbler	Observed
Vermivora celata	Orange-crowned warbler	Observed
***Dendroica petechia*[2]**	**Yellow warbler**	Observed
Family Emberizidae		
***Amphispiza belli*[2]**	**Bell's sage sparrow**	Observed
Amphispiza bilineata	Black-throated sparrow	Observed
Spizella breweri	Brewer's sparrow	Observed

Scientific Name		Common Name	Evidence of Occurrence
	Pipilo crissalis	California towhee	Observed
	Pipilo maculates	Spotted towhee	Observed
	Junco hyemalis	Dark-eyed junco	Observed
	Chondestes grammacus	Lark sparrow	Observed
	Zonotrichia leucophrys	White-crowned sparrow	Observed
	Family Icteridae		
	Euphagus cyanocephalus	Brewer's blackbird	Observed
	Agelaius tricolor[2]	**Tricolored blackbird**	Observed
	Icterus bullockii	Bullock's oriole	Observed
	Sturnella neglecta	Western meadowlark	Observed
	Family Fringillidae		
	Carpodacus mexicanus	House finch	Observed
	Carduelis psaltria	Lesser goldfinch	Observed
	Spinus lawrencei	Lawrence's goldfinch	Observed
MAMMALS			
Order Lagomorpha (Rabbits, Hares, and Pikas)			
	Family Leporidae		
	Sylvilagus audubonii	Audubon's cottontail	Observed
	Lepus californica bennettii	**San Diego black-tailed jackrabbit**	Observed, Scat
Order Rodentia (Rodents)			
	Family Muridae		
	Neotoma sp.	Woodrat sp.	Nest
Order Carnivora (Carnivores)			
	Family Felidae		
	Lynx rufus	Bobcat	Scat
	Puma concolor	**Mountain lion**	Scat
Order Artiodactyla (Even-toed Ungulates)			
	Family Cervidae		
	Odocoileus hemionus fuliginata	**Southern mule deer**	Tracks

[1] The project area was initially part of a larger survey area that was separated into three separate projects (LanWest Solar Farm LLC, LanEast Solar Farm LLC, and Rugged Solar LLC). LanEast Solar Farm LLC is located adjacent to the Proposed Project (on the eastern boundary of LanWest). Rugged Solar LLC is located directly north of I-8. All three sites were surveyed concurrently. Therefore, this list of wildlife species represents species detected for all project areas.

[2] Sensitive wildlife species documented from project vicinity during 2011/2012 surveys conducted by AECOM for adjacent projects.

Bold = Sensitive Species

APPENDIX G

SENSITIVE WILDLIFE SPECIES KNOWN OR POTENTIALLY OCCURRING

APPENDIX G
SENSITIVE WILDLIFE SPECIES KNOWN OR POTENTIALLY OCCURRING WITHIN THE PROPOSED LANWEST SOLAR FARM LLC PROJECT AREA

Species	Status[1] (Federal/State)	County of San Diego Listing[1]	Proposed for Coverage Under Draft East County MSCP (yes/no)[2]	Primary Habitat Associations	Potential for Occurrence/Comments
Invertebrates					
Monarch butterfly *Danaus plexippus*	None/SA	Group 2	No	Found in conifer forests, grasslands, old fields, dune habitat, scrublands, chaparral, orchards, woodlands, and herbaceous and shrub wetlands. Breeds in patches of milkweed.	High. Suitable wildflower field, scrub, and chaparral habitats present on-site.
Quino checkerspot butterfly *Euphydryas editha quino*	FE/None	Group 1	Yes	Occurs in association with a variety of vegetation communities including clay soil meadows, open grasslands, coastal sage scrub, chamise chaparral, red shank chaparral, juniper woodlands, and semi-desert scrub. Also associated with clay soils that possess cryptogamic crusts and vernal pools.	Low. Quino was not detected during 2011 focused surveys. Although two small populations of dark-tip bird's beak were found in the Quino survey area, the low abundance and late emergence of this species and the absence of dotseed plantain, Coulter's snapdragon, and southern Chinese houses substantially diminish the potential of host resources to support a Quino population in the project area.
Reptiles					
Belding's orange-throated whiptail *Aspidoscelis hyperythrus beldingi*	None/SSC	Group 2	Yes	Most often associated with sparsely vegetated patches of coastal sage scrub and chamise chaparral	High. Documented from the vicinity of the project area in 2011. Suitable open scrub and chaparral habitats present onsite.
Coastal western whiptail *Aspidoscelis tigris stejnegeri*	None/SA	Group 2	No	Often associated with dense vegetation such as chaparral and sage scrub especially in and around sandy washes and streambeds.	Observed. Documented from the northern portion of the site within semi-desert chaparral and big sagebrush scrub habitats.

Species	Status[1] (Federal/State)	County of San Diego Listing[1]	Proposed for Coverage Under Draft East County MSCP (yes/no)[2]	Primary Habitat Associations	Potential for Occurrence/Comments
San Diego ringneck snake *Diadophis punctatus similis*	None/SA	Group 2	No	Found in moist habitats including wet meadows, rocky hillsides, gardens, chaparral, mixed coniferous forests, and woodlands.	High. Suitable chaparral and woodland habitat with rock outcroppings present on-site.
Coast horned lizard *Phrynosoma coronatum blainvillii*	None/SSC	Group 2	Yes	Chaparral, coastal sage scrub with fine, loose soil. Partially dependent on harvester ants for forage.	Observed. Documented on an access road within semi-desert chaparral.
Southern sagebrush lizard *Sceloporus graciosus vandenburgianus*	None/None	Group 2	No	Variety of habitats from sagebrush and chaparral to open fir forests. Prefers open areas with scattered low bushes.	Not expected. Species found at higher elevations (4,500–9,600 ft).
Birds					
Cooper's hawk *Accipiter cooperi*	None/WL	Group 1	No	Mature forest, open woodlands, wood edges, river groves. Parks and residential areas.	High. Documented from the vicinity of the project area in 2011. Oak woodland habitat on-site provides suitable habitat.
Sharp-shinned hawk *Accipiter striatus*	None/WL	Group 1	No	Inhabits woodlands with a certain amount of dense cover, but this species can be localized and scattered through relatively open country.	Moderate. Potentially suitable foraging habitat present. Species does not breed in San Diego County; considered an uncommon winter visitor.
Tricolored blackbird *Agelaius tricolor*	None/SSC	Group 1	Yes	Nests in large, dense colonies in freshwater marsh or willow scrub vegetation in proximity to freshwater and forages in agricultural areas, lakeshores, and damp lawns.	High. Documented from the vicinity of the project area in 2011. Wildflower field on-site provides suitable foraging habitat.
Bell's sage sparrow *Amphispiza belli belli*	None/WL	Group 1	Yes	Open chaparral and sage scrub habitats.	High. Documented from the vicinity of the project area in 2011. Scrub and chaparral habitat on-site provides suitable breeding and foraging habitat.

Species	Status[1] (Federal/State)	County of San Diego Listing[1]	Proposed for Coverage Under Draft East County MSCP (yes/no)[2]	Primary Habitat Associations	Potential for Occurrence/Comments
Golden eagle *Aquila chrysaetos*	BGEPA/FP,WL	Group 1	Yes	Nests on cliffs, in boulders or in large trees. Foraging habitat includes grassland, open chaparral, and coastal sage scrub.	High. Although suitable nesting habitat is not present, there is high potential for the species to use the project area for foraging. Wildflower field, big sagebrush scrub, and semi-desert chaparral provides suitable foraging habitat.
Red-shouldered hawk *Buteo lineatus*	None/None	Group 1	No	Riparian woodlands, oak woodlands, eucalyptus groves. Constructs stick nests high in trees – sycamores, coast live oaks, eucalyptus, and fan palms.	Moderate. Potentially suitable habitat is not abundant on-site.
Swainson's hawk *Buteo swainsoni*	None/ST	Group 1	Yes	Inhabits a wide variety of open habitats, ranging from prairie to shrub steppe to desert and intensive agricultural systems. Nest within riparian forest or in remnant riparian trees and forages in agricultural lands (such as fallow fields and alfalfa fields).	High. Documented from the vicinity of the project area in 2011. Potential to use site as stopoverr habitat during migration. However, species not known to nest or winter in San Diego County.
Green heron *Butorides striatus*	None/None	Group 2	No	Nests solitarily typically in riparian woodlands and marshes.	Not expected. Suitable riparian woodland and marsh nesting and foraging habitat not present on-site.
Turkey vulture *Cathartes aura*	None/None	Group 1	Yes	Forages over open country, especially within a few miles of rocky or wooded areas. Rocky outcroppings, cliffs, and dry forests provide nesting sites.	High. Suitable open foraging habitat present on-site. Suitable nesting habitat not available on-site.
Northern harrier *Circus cyaneus hudsonius*	None/SSC	Group 1	Yes	Nests on the ground at the edge of marshes, but will also nest on grasslands, in fields, or in areas of sparse shrubs. Foraging habitat includes grasslands, agricultural fields, and coastal marshes.	High. Documented from the vicinity of the project area in 2011. Expected as a winter visitor in grassland habitat within near vicinity of project area. Breeding on-site not likely.

Species	Status[1] (Federal/State)	County of San Diego Listing[1]	Proposed for Coverage Under Draft East County MSCP (yes/no)[2]	Primary Habitat Associations	Potential for Occurrence/Comments
Yellow warbler *Dendroica petechia*	None/SSC	Group 2	Yes	Found in mature riparian woodlands that consist of cottonwood, willow, alder, and ash trees. It is restricted to this increasingly patchy habitat.	High. Documented from the vicinity of the project area in 2011. Suitable breeding habitat present within vicinity of project area. Expected to use site occasionally as foraging/dispersal habitat.
Horned lark *Eremophila alpestris actis*	None/WL	Group 2	Yes	Coastal strand, arid grasslands, and sandy desert floors. Disturbance enhances habitat.	High. Documented from the vicinity of the project area in 2011. Wildflower field habitat within project area provides suitable nesting and foraging habitat.
Prairie falcon *Falco mexicanus*	None/WL	Group 1	No	Nests on ledges on cliffs or bluffs. Forages in open desert or grasslands.	High. Documented from the vicinity of the project area in 2011. Wildflower field on-site provides suitable foraging habitat. Nesting habitat not present within project area.
Loggerhead shrike *Lanius ludovicianus*	None/SSC	Group 1	Yes	Grassland, open sage scrub and chaparral, and desert scrub.	High. Documented from the vicinity of the project area in 2011. Scrub and chaparral habitats on-site provides suitable nesting and foraging habitat.
California gull (nonbreeding) *Larus californicus*	None/WL	Group 2	No	Marine habitats, lakes, marshes.	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.
Lewis' woodpecker (winter) *Melanerpes lewis*	None/SA	Group 1	No	Found primarily in oak woodlands and riparian areas with large cottonwoods.	Moderate. Potentially suitable foraging and roosting habitats present. Breeding is not expected as this species is only found in San Diego County during migration and winter.
Mountain quail *Oreortyx pictus eremophila*	None/None	Group 2	No	Dense chaparral in foothills and mountains.	Low. Habitat typically used by this species is not present. However, mountain quail are found within the vicinity of the project area.

Species	Status[1] (Federal/State)	County of San Diego Listing[1]	Proposed for Coverage Under Draft East County MSCP (yes/no)[2]	Primary Habitat Associations	Potential for Occurrence/Comments
Purple martin *Progne subis*	None/SSC	Group 1	Yes	Open woodlands. Most abundant in mesic regions, near large wetlands and other water bodies, and at upper slopes and ridges. Distribution and abundance are most consistently determined by nest-site availability.	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.
Western bluebird *Sialia mexicana*	None/None	Group 2	No	Open woodland or edge habitat with exposed perches and fairly sparse ground cover.	High. Oak woodlands and wildflower field on-site provides suitable nesting and foraging habitat.
Mammals					
Pallid bat *Antrozous pallidus*	None/SSC	Group 2	Yes	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect them from high temperatures.	Moderate. Potentially suitable foraging and roosting habitat (rock outcrops and oaks) present.
Ringtail *Bassariscus astutus*	None/FP	Group 2	Yes	Various riparian habitats and in forest and shrub habitats. Den sites include boulders and hollows of trees.	Moderate. Usually not found more than 0.6 mile from permanent water. Nearest permanent water source approximately 1.05 miles from project area (Tule Lake). Suitable den sites present (rock outcrops and oak woodland).
Northwestern San Diego pocket mouse *Chaetodipus fallax fallax*	None/SSC	Group 2	No	Occurs in coastal sage scrub, chaparral, and grassland habitat.	High. Suitable habitat present and within species range.
Townsend's big-eared bat *Corynorhinus townsendii*	None/SSC	Group 2	Yes	Forages in forest and woodland habitats or along habitat edges within 15 km of roost sites. Roosts in caves.	Moderate. Potentially suitable foraging habitat present. However, numbers in CA (especially San Diego County) have declined steeply.
Greater western mastiff bat *Eumops perotis californicus*	None/SSC	Group 2	No	Inhabits arid and semiarid, rocky canyons where it roosts in crevices and shallow caves on the sides of cliffs and rock walls. Also known to inhabit coastal scrub, grasslands, and chaparral.	Moderate. Potentially suitable roosting and foraging habitat present.

Species	Status[1] (Federal/State)	County of San Diego Listing[1]	Proposed for Coverage Under Draft East County MSCP (yes/no)[2]	Primary Habitat Associations	Potential for Occurrence/Comments
Mountain lion *Puma concolor*	--/--	Group 2	No	Many habitats. Most abundant in riparian and brushy habitats, in areas where mule deer (their primary food source) are present.	Observed. Mountain lion scat was observed in the northern portion of the project area, along the edge of a sandy wash.
Western red bat *Lasiurus blossevillii*	None/SSC	Group 2	No	Feeds over grasslands, shrublands, open woodlands, forests, and croplands. Roosts primarily in trees and at times, shrubs, often in edge habitats along streams, fields, or urban areas.	Moderate. Potentially suitable foraging and roosting habitat present.
San Diego black-tailed jackrabbit *Lepus californicus bennettii*	None/SSC	Group 2	Yes	Open areas of scrub, grasslands, and agricultural fields.	Observed. Individuals and scat observed throughout project area.
Small-footed myotis *Myotis ciliolabrum*	None/SA	Group 2	No	Inhabits short grass prairies, riparian areas and coniferous forests.	Moderate. Potentially suitable foraging and roosting habitat present.
Long-eared myotis *Myotis evotis*	None/SA	Group 2	No	Found in all brush, woodland, and forest habitats. Prefers coniferous woodlands and forests. Nursery colonies in buildings, crevices, spaces under bark and snags. Caves used primarily as night roosts.	Moderate. Potentially suitable foraging and roosting habitat present.
Fringed myotis *Myotis thysanodes*	None/SA	Group 2	No	Occurs in a wide range of habitats, from desert scrub to high elevation conifer forest. Roosts in caves, mines, or buildings.	Moderate. Potentially suitable foraging habitat present.
Long-legged myotis *Myotis volans*	None/SA	Group 2	No	Found primarily in coniferous montane forests. Most common in woodland and forest habitats above 4,000 ft. Uncommon in desert and arid grassland habitats.	Not expected. Suitable habitat not present and the project area is below elevational range of species.
Yuma myotis *Myotis yumanensis*	None/SA	Group 2	No	Open forests and woodlands with water sources. Forages over water and roosts in caves, mines, buildings, or crevasses.	Moderate. Potentially suitable foraging habitat present.

Species	Status[1] (Federal/State)	County of San Diego Listing[1]	Proposed for Coverage Under Draft East County MSCP (yes/no)[2]	Primary Habitat Associations	Potential for Occurrence/Comments
Southern mule deer *Odocoileus hemionus fuliginata*	None/None	Group 2	No	Occupies almost all types of habitat within its range. Prefers arid, open areas and rocky hillsides.	Observed. Mule deer tracks were observed in the northwestern portion of the project area, along a small trail in semi-desert chaparral.
American badger *Taxidea taxus*	None/SSC	Group 2	Yes	Coastal sage scrub, mixed chaparral, grassland, oak woodland, chamise chaparral, mixed conifer, pinyon-juniper, desert scrub, desert wash, montane meadow, open areas, and sandy soils.	Moderate. Potentially suitable habitat present. However, the species has experienced large population declines in southern California.

[1]**Status Codes:**

Federal Status
FE = Federally listed endangered
FT = Federally listed threatened
BGEPA = Bald and Golden Eagle Protection Act

State Status
SE = State listed endangered
ST = State listed threatened
FP = State fully protected species
SSC = State species of special concern
SA = State special animal
WL = State watch list

County of San Diego Status
Group 1 = Animals with a high level of sensitivity, either because they are threatened or endangered or because they have very specific natural history requirements that must be met.
Group 2 = Animals which are becoming less common, but are not yet so rare that extirpation or extinction is imminent without immediate action.

[2] The draft East County Multiple Species Conservation Plan (MSCP) has not yet been approved. Therefore, the list of species proposed for coverage under this plan is subject to changes.