APPENDIX P-2
Part 7
Biological Assessment

5.2 Special-Status Plant Species

5.2.1 Boulder Brush Facilities

Direct Impacts to Special-Status Plant Species

Temporary Direct Impacts

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

Temporary impacts to special-status plants resulting from construction are quantified as permanent impacts (see Section 5.2.1.2, Permanent Direct Impacts). Additionally, temporary direct impacts to special-status plants at the edge of the development footprint could primarily result from construction activities. Clearing, trampling, or grading of special-status plants outside designated Boulder Brush Facilities disturbance limits (or development 'footprint') could occur in the absence of avoidance and mitigation measures. These potential temporary direct impacts could damage individual plants and alter their ecosystem, creating gaps in vegetation that allow exotic, non-native plant species to become established, thus increasing soil compaction and leading to soil erosion. Any special-status plant species at the edge of the development footprint could be impacted by potential temporary direct impacts, such as those previously listed.

The significance of these potential impacts is determined through application of the County's Significance Guidelines, as described in Section 6.1, Guidelines for the Determination of Significance.

Permanent Direct Impacts

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

The Boulder Brush Facilities would result in the loss of sensitive plant species (Table 5-4, Summary of Direct Impacts to Special-Status Plant Species) (**Impact SP-2**). Special-status plant surveys were conducted in 2017 and 2018 (see Section 3.3.1) and results are described in Section 4.5.1. Permanent direct impacts to special-status plant species were quantified by comparing the development footprint with the occurrence data for each special-status plant species. Table 5-4 includes each species' status, estimates of the number of individuals within the Boulder Brush Corridor, and an assessment of permanent direct impacts based on the number of individual plants located within the development footprint. The Boulder Brush Corridor does not contain any critical habitat for plant species.

The significance of these potential impacts is determined through application of the County's Significance Guidelines, as described in Section 6.1.

Table 5-4
Summary of Direct Impacts to Special-Status Plants Species – Boulder Brush Corridor

Species	Regulatory Status:Federal/State//CRPR	Approximate Number of Individuals within the Boulder Brush Corridor	Impacts to Number of Individuals
County List A			
Jacumba milk-vetch (*Astragalus douglasii* var. *perstrictus*)	None/None/CRPR 1B.2	255	111
Southern jewelflower (*Streptanthus campestris*)	None/None/CRPR 1B.3	30	20
Tecate tarplant (*Deinandra floribunda*)	None/None/CRPR 1B.2	3,029	61
County List B			
Desert beauty (*Linanthus bellus*)	None/None/CRPR 2B.1	1,400	1,308
Sticky geraea (*Geraea viscida*)	None/None/CRPR 2B.2	673	203
County List D			
Colorado Desert larkspur (*Delphinium parishii* ssp. *subglobosum*)	None/None/CRPR 4.3	82	46

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

Indirect Impacts to Special-Status Plant Species

Temporary Indirect Impacts

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

The temporary indirect impacts to vegetation communities described in Section 5.1.1.2, Indirect Impacts to Riparian Habitat or Sensitive Vegetation Communities, can also affect sensitive plants. The indirect impacts analyzed in Section 5.1.1.2 include the following potential indirect impacts described in the County's *Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources* (County of San Diego 2010a): increased human access,

increased predation or competition from domestic animals, pets or exotic species, altering natural drainage, and increasing noise and/or nighttime lighting. Additional potential indirect impacts are also analyzed in terms of their potential to affect the special-status plant species. Special-status plant species at the edge of the Boulder Brush Facilities development footprint could be impacted by potential temporary indirect impacts such as those listed in Section 5.1.1.2 (**Impact SP-3**).

The significance of these potential impacts is determined through application of the County's Significance Guidelines, as described in Section 6.1.

Permanent Indirect Impacts

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

The permanent indirect impacts to vegetation communities described in Section 5.1.1.2, Indirect Impacts to Riparian Habitat or Sensitive Vegetation Communities, can also affect sensitive plants. Permanent indirect impacts could result from the proximity of the development footprint to special-status plants outside of the Boulder Brush Facilities development footprint after construction. The indirect impacts analyzed in Section 5.1.1.2 include the following potential indirect impacts described in the County's *Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources* (County of San Diego 2010a): increased human access, increased predation or competition from domestic animals, pets or exotic species, altering natural drainage, and increasing noise and/or nighttime lighting. Additional potential indirect impacts are also analyzed in terms of their potential to affect the special-status plant species. Special-status plant species at the edge of the development footprint could be impacted by permanent indirect impacts such as those previously listed in Section 5.1.1.2 (**Impact SP-4**).

The significance of these potential impacts is determined through application of the County's Significance Guidelines, as described in Section 6.1.

5.2.2 Campo Wind Facilities

Direct Impacts to Special-Status Plant Species

Temporary Direct Impacts

For purposes of this analysis, all impacts associated with the Campo Wind Facilities are considered permanent direct impacts.

Permanent Direct Impacts

Impact SP-5: Permanent Direct Impacts to Special-Status Plant Species

The portion of the proposed Project on the Campo Reservation (Campo Wind Facilities) would likely result in the loss of special-status plant species, but these impacts cannot be quantified, because location information for special-status plants identified during surveys in 2010 and 2011 for the Shu'luuk Wind Project is not available. The following species have been observed in the project area or have a high potential to occur and therefore are subject to potential direct impacts: Tecate cypress (List A), Tecate tarplant (List A), Jacumba milk-vetch (List A), sticky geraea (List B), desert beauty (List B), southern jewelflower (List A), Payson's jewelflower (List D), Peninsular spineflower (List D), Colorado desert larkspur (List D), pride-of-California (List D) (**Impact SP-5**). The Campo Corridor does not contain any critical habitat for plant species.

Indirect Impacts to Special-Status Plant Species

Temporary Indirect Impacts

Impact SP-6: Temporary Indirect Impacts to Special-Status Plant Species

Most of the indirect impacts to vegetation communities described in Section 5.1.1.2, Indirect Impacts to Riparian Habitat or Sensitive Vegetation Communities, can also affect sensitive plants. Potential temporary indirect impacts to special-status plant species in the Campo Corridor would primarily result from construction activities and would include impacts related to or resulting from the increased human access, increased predation or competition from domestic animals, pets or exotic species, altering natural drainage, increasing noise and/or nighttime lighting, generation of fugitive dust, the introduction of chemical pollutants (including herbicides), and alteration of the natural fire regime (**Impact SP-6**). Special-status plant species at the edge of the development footprint could be impacted by potential temporary indirect impacts such as those previously listed (**Impact SP-6**) (see descriptions in Section 5.1.1.2).

Standard BMPs would be implemented during construction, O&M, and decommissioning of the project that would reduce temporary indirect impacts to special-status plants. Table 5-3 above outlines BMPs relevant for avoidance and minimization of impacts to biological resources. The significance of these potential impacts is determined through application of the County's Significance Guidelines, as described in Section 6.1.

Permanent Indirect Impacts

Impact SP-7: Permanent Indirect Impacts to Special-Status Plant Species

Most of the indirect impacts to vegetation communities described in Section 5.1.1.2, Indirect Impacts to Riparian Habitat or Sensitive Vegetation Communities, can also affect sensitive plants. Permanent

indirect impacts could result from the proximity of the development footprint to special-status plants outside of the development footprint after construction. Permanent indirect impacts that could affect special-status plant species include increased human access, increased predation or competition from domestic animals, pets or exotic species, altering natural drainage, increasing noise and/or nighttime lighting, generation of fugitive dust, chemical pollutants, and alteration of the natural fire regime (**Impact SP-7**). Each of these potential indirect impacts is discussed in Section 6.2.2, Special-Status Plant Species. Special-status plant species at the edge of the development footprint could be impacted by permanent indirect impacts such as those previously listed (**Impact SP-7**) (see descriptions in Section 5.1.1.2).

Standard best management practices (BMPs) would be implemented during construction, O&M, and decommissioning of the project that would reduce permanent indirect impacts to special-status plants. Table 5-3 above outlines BMPs relevant for avoidance and minimization of impacts to biological resources. The significance of these potential impacts is determined through application of the County's Significance Guidelines, as described in Section 6.1.

5.3 Sensitive Wildlife Species

5.3.1 Boulder Brush Facilities

Direct Impacts to Special-Status Wildlife Species

Temporary Direct Impacts

Impact W-1: Temporary Direct Impacts to Habitat for Special-Status Wildlife Species

There would be temporary direct impacts to suitable habitat for special-status wildlife species, including foraging habitat for raptors, associated with the development footprint (Table 5-1). Although these areas will be revegetated after Boulder Brush Facilities construction, for mitigation purposes, these impacts are considered permanent and mitigated through habitat conservation. Additionally, construction-related, temporary direct impacts to avian foraging and wildlife access to foraging, nesting, or water resources would primarily result from clearing, trampling, or grading of vegetation communities outside of the development footprint in the absence of avoidance and mitigation measures (**Impact W-1**). These potential impacts could reduce suitable habitat for wildlife species and alter their ecosystem, thus creating gaps in vegetation that allow exotic, non-native plant species to become established.

The significance determination for these potential impacts is described in Section 6.2, Analysis of Project Effects.

Permanent Direct Impacts

Impact W-2: Permanent Direct Impacts to Habitat for Special-Status Wildlife Species

Permanent direct impacts to special-status wildlife species were quantified by comparing the development footprint with suitable habitat for wildlife species observed or those that have a high potential to occur within the Boulder Brush Corridor. Implementation of the Boulder Brush Facilities would result in the direct loss of habitat, including foraging habitat, for some of the County of San Diego Group 1 and Group 2 species and SSCs described in Section 4.6.1 (**Impact W-2**). Table 5-5 outlines impacts to suitable habitat for County Group 1 and/or SSC species that are known to occur within the Boulder Brush Corridor or immediately surrounding area and those with a high potential to occur. Group 2 special-status wildlife species, that are not state SSC animals, are not included in the table as loss of habitat for these species from development of the Boulder Brush Facilities would be less than significant. These species occur within a variety of habitats and through a wide geographic, topographic, and elevation ranges where there are an abundance of these species in the region.

Locations of special-status wildlife observed are shown in the Figure 5-1 series, and described in Sections 4.6.1. The significance determination for these potential impacts is described in Section 6.1.

Impact W-3 and W-4: Permanent Direct Impacts to Special-Status Wildlife Species

Impact W-3: Impacts to Active Nests

If any active nests or the young of nesting special-status bird species are impacted through direct grading, these impacts would be considered significant, absent mitigation (**Impact W-3**). O&M during the life of the project is not expected to affect the nesting opportunities of birds.

Golden Eagle. Golden eagles can be sensitive to changes in their environment (e.g., wind farms). Madders (2009) describes a home range use change in a pair of resident golden eagles after a wind farm was constructed in their territory. The proposed project will be located adjacent to existing wind turbines, which would likely deter golden eagle from utilizing the Boulder Brush Corridor. Madders (2009) also indicates that it is unlikely that golden eagles would nest within the immediate vicinity (i.e., 500 meters or 1,640 feet) of wind turbines, likely constraining the eagles from occupying nests within their existing territory.

There are no golden eagle nests within the Project Site, nor within 4,000 feet of the development footprint. The nearest active golden eagle nest (e.g., nesting behavior documented) to the development footprint is approximately 5.5 miles east of the Project Site in the Carrizo Gorge area of the Jacumba Mountains. The location was last noted as active in February 2012 based on

confidential data provided by USFWS (Dietsch 2018). Although one golden eagle was observed flying over the Boulder Brush Corridor, focused all-day eagle surveys (which were conducted on site in May/June, October/November 2018) and weekly 30-minute point counts (September 2017 through current) did not record any golden eagles, indicating that this species does not occur in the Boulder Brush Corridor with much frequency. Therefore, construction and implementation of the Boulder Brush Facilities would not result in direct permanent impacts to golden eagle nests, given the distance between nest sites and the development footprint.

Impact W-4 Impacts to Wildlife Species from Collisions and Electrocution

All electrical transmission would be overhead connecting to the proposed high-voltage substation and ultimately to the Sunrise Powerlink transmission line. The utility poles would provide perches from which avian species may forage, thereby increasing the potential risk of fatality associated with collisions and electrocutions and resulting in a potentially significant impact (**Impact W-4**).

Bats. The abundance of bats within the Boulder Brush Corridor is low (IA range of 215-855), particularly when compared to other areas with higher quality habitat types in the region, such as the Virgin River sample area (IA of 46,583) and the Las Vegas Wash sample area (IA range of 28,594 to 168,428) (O'Farrell 2006a and 2006b).

Therefore, the overall magnitude of bat usage within the Boulder Brush Corridor is significantly less than any locations studied that contain attractant features (see Section 4.4.3, Mammals). This suggests that the risk for bat electrocution with Boulder Brush Facilities is low when taking into account the overall low abundance of bats in the area (see Table 4-2). The acoustical bat results indicate that the activity of the higher microphone (which captures bats that tend to fly higher), was lower when compared to the lower microphone. However, high-flying species such as hoary bat and Mexican free-tailed bat were detected with relatively low IAs. Both species have shown high tendencies to be subject to turbine blade strikes at wind facilities (AWWI 2018). Although, due to the low activity index for both species, and all bat species in the Boulder Brush Corridor, it can be concluded that the potential effects of the Boulder Brush Facilities on the meta-community of bats in the region, would be negligible. Potential impacts from electrocution to individual bats would not result in the greater population of any bat species known to occur on the Boulder Brush Corridor to drop below self-sustaining levels. Therefore, potential project-related impacts to bats related to electrocution would be considered less than significant (**Impact W-4**).

However, in order to comply with the USFWS Land Based Wind Energy Guidelines Tier 4 post-construction studies should be conducted to estimate mortality rates and ensure impacts to individual bats are at a minimum.

Golden Eagle. The USGS biotelemetry data indicates that golden eagle use within the Project site and the surrounding area is low compared to other areas in San Diego (Tracey et al. 2016, 2017). Figures 4-3a through 4-3n show only two eagles flying through the Project Site between 2015 and 2017. These eagles did not stop on site and the timing of their flight patterns indicate they did not spend more than 15 to 30 minutes flying over the Project Site. This data suggests that the Project Site and surrounding area (i.e., 10 mile buffer around the Project site) receives little use by eagles and is not the core territory of any eagles, therefore the chance for electrocution is low.

Table 5-5
Permanent Impacts to Group 1 and/or CDFW SSC Wildlife Species Present within the Boulder Brush Corridor or with High Potential to Occur

Species Common Name (Scientific Name)	Regulatory Status: Federal State County Group	Modeled Habitat within the Biological Cumulative Study	Biological Cumulative Study Area Habitat Total	Modeled Habitat within the Boulder Brush Corridor	Occurrence and Development Footprint Habitat Total	Significance Determination
Amphibians and Reptiles						
San Diegan tiger whiptail (*Aspidoscelis tigris stejnegeri*)	USFWS: None CDFW: SSC County: Group 2	• montane buckwheat scrub • big sagebrush scrub • granitic chamise chaparral • granitic northern mixed chaparral • red shank chaparral • semi-desert chaparral • southern mixed chaparral • chamise chaparral • non-native grassland • disturbed habitat • wildflower field • mulefat scrub • alluvial fan scrub • desert woodland • pine forest • sea level to 7,000 ft. (2,130 m)	There is 435,099 acres of modeled habitat within the biological cumulative study area.	• montane buckwheat scrub • big sagebrush scrub • granitic chamise chaparral • granitic northern mixed chaparral • red shank chaparral • semi-desert chaparral • disturbed habitat • wildflower field • sea level to 7,000 ft. (2,130 m)	Observed in the east-central portion of the Boulder Brush Corridor. There is 42.5 acres of modeled habitat within the development footprint.	Although there is a large amount of habitat within the region, of which 59% is in public ownership and is reasonable anticipated to remain undisturbed, impacts to suitable habitat associated with the proposed Project would be potentially significant prior to implementation of mitigation as the Project would impact more than 5% of habitat within the Boulder Brush Corridor (Impact W-2).

Table 5-5
Permanent Impacts to Group 1 and/or CDFW SSC Wildlife Species Present within the Boulder Brush Corridor or with High Potential to Occur

Species Common Name (Scientific Name)	Regulatory Status: Federal State County Group	Modeled Habitat within the Biological Cumulative Study	Biological Cumulative Study Area Habitat Total	Modeled Habitat within the Boulder Brush Corridor	Occurrence and Development Footprint Habitat Total	Significance Determination
San Diego banded gecko (*Coleonyx variegatus abbotti*)	USFWS: None CDFW: None County: Group 1	• montane buckwheat scrub • big sagebrush scrub • granitic chamise chaparral • granitic northern mixed chaparral • red shank chaparral • semi-desert chaparral • chamise chaparral • southern mixed chaparral • mulefat scrub • alluvial fan scrub	There is 399,880 acres of modeled habitat within the biological cumulative study area.	• montane buckwheat scrub • big sagebrush scrub • granitic chamise chaparral • granitic northern mixed chaparral • red shank chaparral • semi-desert chaparral	High potential to occur. There is 36.4 acres of modeled habitat within the development footprint.	Although there is a large amount of habitat within the region, of which 59% is in public ownership and is reasonable anticipated to remain undisturbed, impacts to suitable habitat associated with the proposed Project would be potentially significant prior to implementation of mitigation as the Project would impact more than 5% of habitat within the Boulder Brush Corridor (Impact W-2).

Table 5-5
Permanent Impacts to Group 1 and/or CDFW SSC Wildlife Species Present within the Boulder Brush Corridor or with High Potential to Occur

Species Common Name (Scientific Name)	Regulatory Status: Federal State County Group	Modeled Habitat within the Biological Cumulative Study	Biological Cumulative Study Area Habitat Total	Modeled Habitat within the Boulder Brush Corridor	Occurrence and Development Footprint Habitat Total	Significance Determination
Blainville's horned lizard (*Phrynosoma blainvillii*)	USFWS: None CDFW: SSC County: Group 2	• montane buckwheat scrub • big sagebrush scrub • granitic chamise chaparral • granitic northern mixed chaparral • southern mixed chaparral • red shank chaparral • semi-desert chaparral • chamise chaparral • non-native grassland • southern arroyo willow riparian forest • coast live oak woodland • desert woodland • pine forest • oak riparian forest • riparian forest • riparian scrub • alluvial fan scrub • sea level to 8,000 ft. (2,438 m)	There is 472,398 acres of modeled habitat within the biological cumulative study area.	• montane buckwheat scrub • big sagebrush scrub • granitic chamise chaparral • granitic northern mixed chaparral • red shank chaparral • semi-desert chaparral • southern arroyo willow riparian forest • coast live oak woodland • sea level to 8,000 ft. (2,438 m)	Observed in four locations in the central-eastern and western, and southern-eastern and western portions of the Boulder Brush Corridor. There is 37.5 acres of modeled habitat within the development footprint.	Although there is a large amount of habitat within the region, of which 58% is in public ownership and is reasonable anticipated to remain undisturbed, impacts to suitable habitat associated with the proposed Project would be potentially significant prior to implementation of mitigation as the Project would impact more than 5% of habitat within the Boulder Brush Corridor (Impact W-2).

Table 5-5
Permanent Impacts to Group 1 and/or CDFW SSC Wildlife Species Present within the Boulder Brush Corridor or with High Potential to Occur

Species Common Name (Scientific Name)	Regulatory Status: Federal State County Group	Modeled Habitat within the Biological Cumulative Study	Biological Cumulative Study Area Habitat Total	Modeled Habitat within the Boulder Brush Corridor	Occurrence and Development Footprint Habitat Total	Significance Determination
Coronado skink (*Plestiodon skiltonianus interparietalis*)	USFWS: None CDFW: SSC County: Group 2	• granitic chamise chaparral • granitic northern mixed chaparral • red shank chaparral • semi-desert chaparral • chamise chaparral • southern mixed chaparral • alluvial fan scrub • sea level to 8,300 ft. (2,530 meters)	There is 374,167 acres of modeled habitat within the biological cumulative study area.	• granitic chamise chaparral • granitic northern mixed chaparral • red shank chaparral • semi-desert chaparral • sea level to 8,300 ft. (2,530 meters)	High potential to occur. There is 28.0 acres of modeled habitat within the development footprint.	Although there is a large amount of habitat within the region, of which 59% is in public ownership and is reasonable anticipated to remain undisturbed, impacts to suitable habitat associated with the proposed Project would be potentially significant prior to implementation of mitigation, as the Project would impact more than 5% of habitat within the Boulder Brush Corridor (Impact W-2).

Table 5-5
Permanent Impacts to Group 1 and/or CDFW SSC Wildlife Species Present within the Boulder Brush Corridor or with High Potential to Occur

Species Common Name (Scientific Name)	Regulatory Status: Federal State County Group	Modeled Habitat within the Biological Cumulative Study	Biological Cumulative Study Area Habitat Total	Modeled Habitat within the Boulder Brush Corridor	Occurrence and Development Footprint Habitat Total	Significance Determination
Coast patch-nosed snake (*Salvadora hexalepis virgultea*)	USFWS: None CDFW: SSC County: Group 2	• montane buckwheat scrub • big sagebrush scrub • granitic chamise chaparral • granitic northern mixed chaparral • red shank chaparral • semi-desert chaparral • chamise chaparral • southern mixed chaparral • non-native grassland • disturbed habitat • wildflower • mulefat scrub • coast live oak woodland • desert woodland • pine forest • oak riparian forest • southern arroyo willow riparian forest • riparian forest • riparian scrub • alluvial fan scrub • southern willow scrub	There is 505,063 acres of modeled habitat within the biological cumulative study area.	• montane buckwheat scrub • big sagebrush scrub • granitic chamise chaparral • granitic northern mixed chaparral • red shank chaparral • semi-desert chaparral • disturbed habitat • wildflower • coast live oak woodland • southern arroyo willow riparian forest • below sea level to 7,000 ft. (2,130 m)	High potential to occur. There is 43.6 acres of modeled habitat within the development footprint.	Although there is a large amount of habitat within the region, of which 57% is in public ownership and is reasonable anticipated to remain undisturbed, impacts to suitable habitat associated with the proposed Project would be potentially significant prior to implementation of mitigation as the Project would impact more than 5% of habitat within the Boulder Brush Corridor (Impact W-2).

Table 5-5
Permanent Impacts to Group 1 and/or CDFW SSC Wildlife Species Present within the Boulder Brush Corridor or with High Potential to Occur

Species Common Name (Scientific Name)	Regulatory Status: Federal State County Group	Modeled Habitat within the Biological Cumulative Study	Biological Cumulative Study Area Habitat Total	Modeled Habitat within the Boulder Brush Corridor	Occurrence and Development Footprint Habitat Total	Significance Determination
		• below sea level to 7,000 ft. (2,130 m)				
Birds						
Cooper's hawk (*Accipiter cooperii*) (nesting)	USFWS: None CDFW: WL County: Group 1	**Nesting** • coast live oak woodland • southern arroyo willow riparian forest • eucalyptus woodland • oak riparian forest • riparian forest • pine forest • riparian scrub • mulefat scrub **Foraging** • montane buckwheat scrub • big sagebrush scrub • granitic chamise chaparral • granitic northern mixed chaparral • red shank chaparral • semi-desert chaparral • chamise chaparral • southern mixed chaparral	There is 59,756 acres of modeled nesting habitat and 448,719 acres of modeled foraging habitat within the biological cumulative study area.	**Nesting** • coast live oak woodland • southern arroyo willow riparian forest **Foraging** • montane buckwheat scrub • big sagebrush scrub • granitic chamise chaparral • granitic northern mixed chaparral • red shank chaparral • semi-desert chaparral	Observed within the northern and southern portions of the Boulder Brush Corridor. There is 1.1 acres of modeled nesting habitat and 37.5 acres of modeled foraging habitat within the development footprint.	Although there is a large amount of habitat within the region, of which 57% of foraging and 51% of nesting is in public ownership and is reasonable anticipated to remain undisturbed, impacts to suitable habitat associated with the proposed Project would be potentially significant prior to implementation of mitigation as the Project would impact more than 5% of habitat within the Boulder Brush Corridor (Impact W-2).

Table 5-5
Permanent Impacts to Group 1 and/or CDFW SSC Wildlife Species Present within the Boulder Brush Corridor or with High Potential to Occur

Species Common Name (Scientific Name)	Regulatory Status: Federal State County Group	Modeled Habitat within the Biological Cumulative Study	Biological Cumulative Study Area Habitat Total	Modeled Habitat within the Boulder Brush Corridor	Occurrence and Development Footprint Habitat Total	Significance Determination
		• non-native grassland • southern arroyo willow riparian forest • coast live oak woodland • eucalyptus woodland • oak riparian forest • riparian forest • riparian scrub • mulefat scrub • cismontane alkali marsh		• southern arroyo willow riparian forest coast live oak woodland		
Bell's sage sparrow (*Artemisiospiza belli belli)*	USFWS: BCC CDFW: WL County: Group 1	Nesting and foraging • montane buckwheat scrub • big sagebrush scrub • granitic chamise chaparral • granitic northern mixed chaparral • red shank chaparral • semi-desert chaparral • chamise chaparral • southern mixed chaparral • non-native grassland • mulefat scrub • riparian scrub	There is 410,658 acres of modeled habitat within the biological cumulative study area.	Nesting and foraging • montane buckwheat scrub • big sagebrush scrub • granitic chamise chaparral • granitic northern mixed chaparral • red shank chaparral	Observed within the northern portion of the Boulder Brush Corridor. There is 36.4 acres of modeled nesting/foraging habitat within the development footprint.	Although there is a large amount of habitat within the region, of which 58% is in public ownership and is reasonable anticipated to remain undisturbed, impacts to suitable habitat associated with the proposed Project would be potentially significant prior to implementation of mitigation as the

Table 5-5
Permanent Impacts to Group 1 and/or CDFW SSC Wildlife Species Present within the Boulder Brush Corridor or with High Potential to Occur

Species Common Name (Scientific Name)	Regulatory Status: Federal State County Group	Modeled Habitat within the Biological Cumulative Study	Biological Cumulative Study Area Habitat Total	Modeled Habitat within the Boulder Brush Corridor	Occurrence and Development Footprint Habitat Total	Significance Determination
		• alluvial fan scrub		• semi-desert chaparral		Project would impact more than 5% of habitat within the Boulder Brush Corridor (Impact W-2).
Loggerhead shrike (*Lanius ludovicianus*) (nesting)	USFWS: BCC CDFW: SSC County: Group 1	• montane buckwheat scrub • big sagebrush scrub • non-native grassland • mulefat scrub • riparian scrub • disturbed habitat • wildflower • eucalyptus woodland • desert woodland • alluvial fan scrub • semi-desert chaparral • southern mixed chaparral	There is 57,950 acres of modeled habitat within the biological cumulative study area.	• montane buckwheat scrub • big sagebrush scrub • disturbed habitat • wildflower • semi-desert chaparral	Observed within the Project site. There is 24.9 acres of modeled nesting/foraging habitat within the development footprint.	Although there is a large amount of habitat within the region, of which 46% is in public ownership and is reasonable anticipated to remain undisturbed, impacts to suitable habitat associated with the proposed Project would be potentially significant prior to implementation of mitigation as the Project would impact more than 5% of habitat within the Boulder Brush Corridor (Impact W-2).

Table 5-5
Permanent Impacts to Group 1 and/or CDFW SSC Wildlife Species Present within the Boulder Brush Corridor or with High Potential to Occur

Species Common Name (Scientific Name)	Regulatory Status: Federal State County Group	Modeled Habitat within the Biological Cumulative Study	Biological Cumulative Study Area Habitat Total	Modeled Habitat within the Boulder Brush Corridor	Occurrence and Development Footprint Habitat Total	Significance Determination
Yellow warbler (*Setophaga petechial)*	USFWS: BCC CDFW: SSC County: Group 2	• southern arroyo willow riparian forest • coast live oak woodland • oak riparian forest • riparian forest • riparian scrub • southern willow scrub • freshwater marsh • mulefat scrub	There is 44,334 acres of modeled habitat within the biological cumulative study area.	• southern arroyo willow riparian forest • coast live oak woodland	Observed within the Project site. There is 1.2 acres of modeled nesting/foraging habitat within the development footprint.	Although there is a large amount of habitat within the region, of which 39% is in public ownership and is reasonable anticipated to remain undisturbed, impacts to suitable habitat associated with the proposed Project would be potentially significant prior to implementation of mitigation as the Project would impact more than 5% of habitat within the Boulder Brush Corridor (Impact W-2).
Mammals						

Table 5-5
Permanent Impacts to Group 1 and/or CDFW SSC Wildlife Species Present within the Boulder Brush Corridor or with High Potential to Occur

Species Common Name (Scientific Name)	Regulatory Status: Federal State County Group	Modeled Habitat within the Biological Cumulative Study	Biological Cumulative Study Area Habitat Total	Modeled Habitat within the Boulder Brush Corridor	Occurrence and Development Footprint Habitat Total	Significance Determination
Western red bat (*Lasiurus blossevillii*)	USFWS: None CDFW: SSC MSCP: Not Covered County: Group 2	• southern arroyo willow riparian forest • coast live oak woodland • oak riparian forest • eucalyptus woodland • riparian forest • pine forest • riparian scrub • southern willow scrub	There is 59,859 acres of modeled habitat within the biological cumulative study area.	• southern arroyo willow riparian forest • coast live oak woodland	High potential to occur. There is 1.1 acres of modeled habitat within the development footprint.	Although there is a large amount of habitat within the region, of which 51% is in public ownership and is reasonable anticipated to remain undisturbed, impacts to suitable habitat associated with the proposed Project would be potentially significant prior to implementation of mitigation as the Project would impact more than 5% of habitat within the Boulder Brush Corridor (Impact W-2).

Table 5-5
Permanent Impacts to Group 1 and/or CDFW SSC Wildlife Species Present within the Boulder Brush Corridor or with High Potential to Occur

Species Common Name (Scientific Name)	Regulatory Status: Federal State County Group	Modeled Habitat within the Biological Cumulative Study	Biological Cumulative Study Area Habitat Total	Modeled Habitat within the Boulder Brush Corridor	Occurrence and Development Footprint Habitat Total	Significance Determination
San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)	USFWS: None CDFW: SSC County: Group 2	• montane buckwheat scrub • big sagebrush scrub • granitic chamise chaparral • granitic northern mixed chaparral • red shank chaparral • semi-desert chaparral • chamise chaparral • southern mixed chaparral • non-native grassland • mulefat scrub • riparian scrub • alluvial fan scrub • desert woodland	There is 413,938 acres of modeled habitat within the biological cumulative study area.	• montane buckwheat scrub • big sagebrush scrub • granitic chamise chaparral • granitic northern mixed chaparral • red shank chaparral • semi-desert chaparral	Observed within the Boulder Brush Corridor. There is 36.4 acres of modeled habitat within the development footprint.	Although there is a large amount of habitat within the region, of which 59% is in public ownership and is reasonable anticipated to remain undisturbed, impacts to suitable habitat associated with the proposed Project would be implementation significant prior to implementation of mitigation as the Project would impact more than 5% of habitat within the Boulder Brush Corridor (Impact W-2).

Table 5-5
Permanent Impacts to Group 1 and/or CDFW SSC Wildlife Species Present within the Boulder Brush Corridor or with High Potential to Occur

Species Common Name (Scientific Name)	Regulatory Status: Federal State County Group	Modeled Habitat within the Biological Cumulative Study	Biological Cumulative Study Area Habitat Total	Modeled Habitat within the Boulder Brush Corridor	Occurrence and Development Footprint Habitat Total	Significance Determination
San Diego desert woodrat (*Neotoma lepida intermedia*)	USFWS: None CDFW: SSC County: Group 2	• montane buckwheat scrub • big sagebrush scrub • granitic chamise chaparral • chamise chaparral • non-native grassland • mulefat scrub • riparian scrub • disturbed habitat • wildflower • alluvial fan scrub • desert woodland • southern mixed chaparral • semi-desert chaparral	There is 415,819 acres of modeled habitat within the biological cumulative study area.	• montane buckwheat scrub • big sagebrush scrub • granitic chamise chaparral • disturbed habitat • wildflower • semi-desert chaparral	High potential to occur. There is 26.0 acres of modeled habitat within the development footprint.	Although there is a large amount of habitat within the region, of which 58% is in public ownership and is reasonable anticipated to remain undisturbed, impacts to suitable habitat associated with the proposed Project would be implementation significant as the Project would impact more than 5% of habitat within the Boulder Brush Corridor (Impact W-2).

Federal
BCC = Birds of Conservation Concern
FE = Federally Endangered

State
FP = Fully Protected
SE = State Endangered
SSC = Species of Special Concern
WL = Watch List

Impact W-5: Permanent Direct Impacts to Potentially Occupied Quino Checkerspot Butterfly

Quino checkerspot butterfly is the only known federally listed species to occur within the Boulder Brush Corridor. Quino checkerspot butterfly was observed once during the 2019 focused surveys (see Section 4.6.1) (Figure 4-6). Dudek modeled habitat in order to estimate potentially occupied areas on site (see Section 4.6.1). There are impacts to 54.79 acres of potentially occupied Quino checkerspot butterfly habitat (Figure 5-3).

Indirect Impacts to Special-Status Wildlife Species

Temporary Indirect Impacts

Impact W-6: Temporary Indirect Impacts to Special-Status Wildlife Species

Temporary indirect impacts to avian foraging and wildlife access to foraging, nesting, or water resources would primarily result from construction activities limiting access to those resources (**Impact W-6**). The indirect impacts below include the following potential indirect impacts described in the County's *Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources* (County of San Diego 2010a): increased human access, increased predation or competition from domestic animals, pets or exotic species, altering natural drainage, and increasing noise and/or nighttime lighting. Additional potential indirect impacts are also analyzed in terms of their potential to affect special-status wildlife species. These potential impacts are described in detail below.

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

Increased Predation or Competition from Domestic Animals. No domestic animals will be present on site related to the proposed project.

Pests or Exotic Species. Trash from construction-related activities could attract invasive predators such as ravens and coyotes that could impact the wildlife species in the Boulder Brush Corridor.

Increasing Noise and/or Nighttime Lighting. Construction-related noise could occur from equipment used during vegetation clearing and construction of the turbines and associated infrastructure. Noise impacts can have a variety of indirect impacts on wildlife species, including increased stress, weakened immune systems, altered foraging behavior, displacement due to startle, degraded communication with conspecifics (e.g., masking), damaged hearing from extremely loud noises, and increased vulnerability to predators (Lovich and Ennen 2011;

Brattstrom and Bondello 1983, as cited in Lovich and Ennen 2011). The impact of noise on wildlife differs from species to species, and is dependent on the source of the noise (e.g., vehicle traffic versus blasting) and the decibel level, duration, and timing. The project is currently subject to off-road vehicle use, which Brattstrom and Bondello (1983) concludes has significant impacts on species such as kangaroo rats (*Dipodomys* spp.), desert iguanas (*Dipsosaurus dorsalis*), and fringe-toed lizards (*Uma* spp.). Therefore, it is likely that species sensitive to noise may not utilize the area given the frequent off-road vehicle use.

Construction noise would be generated by workers commuting to and from the job site; by construction-material deliveries; and, by the use of construction equipment during site preparation, grading, and construction activities. Although nearby off-site areas would be exposed to elevated construction noise levels, the exposure would be short term, and would cease upon Project construction. While typical construction activities would occur between 7 a.m. and 7 p.m., Monday through Friday, construction might occasionally occur during the night and/or on Saturdays and Sundays to enable deliveries or other activities for which Caltrans may restrict hours during which I-8 may be used for oversized loads. The project would involve blasting and rock crushing. Lighting associated with possible nighttime work would be limited to vehicle deliveries and not expected to affect adjacent habitat for wildlife species.

Altering Natural Drainage. Changed hydrologic conditions can alter seed bank characteristics and modify habitat for ground-dwelling fauna that may disperse seed.

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

Chemical Pollutants. Accidental spills of hazardous chemicals could contaminate nearby surface waters and groundwater and indirectly impact wildlife species through poisoning or altering suitable habitat. Use of pesticides for rodent control could directly or indirectly affect wildlife species, such as raptors that prey on small mammals through secondary poisoning. The Project will not use any pesticides for rodent control or other reasons.

Alteration of the Natural Fire Regime. The effects of altered natural fire regime on special-status wildlife are the same as those described above in Section 5.1.1.2. Alterations of plant communities could affect wildlife that relies on those habitat types.

The significance of these potential impacts is determined through application of the County's Significance Guidelines, described in Section 6.1.

Permanent Indirect Impacts

Impact W-7: Permanent Indirect Impacts to Special-Status Wildlife Species

Permanent (operation-related) indirect impacts could result from the proximity of the Boulder Brush Facilities to sensitive vegetation communities after construction, including impacts related to operation and maintenance (**Impact W-7**). The indirect impacts below include the following potential indirect impacts described in the County's *Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources* (County of San Diego 2010a): increased human access, increased predation or competition from domestic animals, pets or exotic species, altering natural drainage, and increasing noise and/or nighttime lighting. Additional potential indirect impacts are also analyzed in terms of their potential to affect special-status wildlife species. All special-status wildlife species at the edge of the development footprint could potentially be impacted by temporary indirect impacts. These potential impacts are described in detail below.

Increased Human Access. The effects of increased human access on special-status wildlife are similar to what is described in Section 5.1.1 An increased human population increases the risk for damage to suitable habitat for wildlife species. In addition, increased human activity can deter wildlife from using habitat areas near the development footprint. A network of dirt roads and trails already crisscross through the Project site, upon which activities would potentially persist after Project completion and a change in the overall human activity is not expected.

Increased Predation or Competition from Domestic Animals. No domestic animals will be present on site related to the proposed project.

Pests or Exotic Species. As described in Section 5.1.1, exotic plant species may alter habitats and displace native species over time, leading to extirpation of native plant species, unique vegetation communities, and subsequently suitable habitat for special-status wildlife species. The introduction of non-native, invasive animal species could negatively affect native species that may be pollinators of or seed dispersal agents for plants within sensitive vegetation communities. In addition, trash can attract invasive predators such as ravens and coyotes, in artificially high subsidized numbers, which could disproportionately impact the wildlife species in the Boulder Brush Corridor.

Increasing Noise and/or Nighttime Lighting. The high-voltage substation and 500 kV switchyard are predicted to produce less than 20 dBA L_{eq} at a distance of 15,000 feet from the closest potential noise-sensitive land uses to the south. At this noise level, the transformer noise impact would be considered a less than significant or non-substantial adverse effect. Lighting will be installed inside the high-voltage substation and switchyard fenced areas for the purpose of emergency repair work.

Since nighttime maintenance activities are not expected to occur more than once per year, the safety lighting inside the fence would normally be turned off. Some of the perimeter lighting in both facilities will remain on all night for safety purposes.

Altering Natural Drainage. Changed hydrologic conditions can alter seed bank characteristics and modify habitat for ground-dwelling fauna that may disperse seed.

Generation of Fugitive Dust. The effects of fugitive dust on special-status wildlife are described in Section 5.3.1.

Alteration of the Natural Fire Regime. The effects of altered natural fire regime on special-status wildlife are the same as those described above in Section 5.1.1.2. Alterations of plant communities could affect wildlife that relies on those habitat types.

The significance of these potential impacts is determined through application of the County's Significance Guidelines, described in Section 6.1.

5.3.2 Campo Wind Facilities

Direct Impacts to Special-Status Wildlife Species

Temporary Direct Impacts

For purposes of this analysis, all impacts associated with the Campo Wind Facilities are considered permanent direct impacts.

Permanent Direct Impacts

Impact W-8: Permanent Direct Impacts to Potentially Occupied Quino Checkerspot Butterfly

Quino checkerspot butterfly is the only known federally listed species to occur within the Campo Corridor. Quino checkerspot butterfly was observed during the 2010 focused surveys within portions of the Campo Corridor as well as outside the Campo Corridor (see Section 4.6.2) (Figure 4-5). No Quino checkerspot butterflies were observed during the focused 2018 surveys; however, that does not override the results of the previous survey efforts. Dudek modeled habitat in order to estimate potentially occupied areas on site (see Section 4.6.2). There are impacts to 272.81 acres of potentially occupied Quino checkerspot butterfly habitat (Figure 5-3).

Impact W-9: Permanent Direct Impacts to Habitat for Special-Status Wildlife Species

Permanent direct impacts to special-status wildlife species were quantified by comparing the development footprint with suitable habitat for wildlife species observed or those that have a high potential to occur within the Campo Corridor. Implementation of the Campo Wind Project on the Campo Reservation would result in the direct loss of habitat, including foraging habitat, for some of the County of San Diego Group 1 and Group 2 species and SSCs described in Section 4.6.2 (**Impact W-9**). Table 5-6 outlines impacts to suitable habitat for County Group 1 and/or SSC species that are known to occur within the Campo Corridor or immediately surrounding area and those with a high potential to occur. Group 2 special-status wildlife species, that are not state SSC animals, are not included in the table as loss of habitat for these species from development of the Project would be less than significant. These species occur within a variety of habitats and through a wide geographic, topographic, and elevation ranges where there is an abundance of these species in the region.

Recorded locations of special-status wildlife observed are shown in the Figure 5-2 series, and described in Section 4.6.2. The significance determination for these potential impacts is described in Section 6.1.

Table 5-6
Permanent Impacts to Group 1 and/or CDFW SSC Wildlife Species Present within the Campo Corridor or with High Potential to Occur

Species Common Name (Scientific Name)	Regulatory Status: Federal State County Group	Modeled Habitat	Biological Cumulative Study Area Habitat Total	Modeled Habitat within the Development Footprint and Occurrence	Significance Determination
Amphibians and Reptiles					
Arroyo toad (*Anaxyrus californicus*)	USFWS: FE CDFW: SSC County: Group 1	• emergent wetland • freshwater marsh	There is 2,277 acres of modeled habitat within the biological cumulative study area.	Low potential to occur within the Boulder Brush facilities. There is 0.3 acres of modeled habitat within the development footprint.	Given the large amount of habitat within the cumulative study area, impacts to suitable habitat associated with the proposed project would be less than significant.
San Diegan tiger whiptail (*Aspidoscelis tigris stejnegeri*)	USFWS: None CDFW: SSC County: Group 2	• montane buckwheat scrub • big sagebrush scrub • granitic chamise chaparral • granitic northern mixed chaparral	There is 30,933,425 acres of modeled habitat within the biological	Observed in the east-central portion of the Boulder Brush facilities Boulder Brush Corridor. There is 771.0 acres of modeled habitat within the	Given the large amount of habitat within the cumulative study area, impacts to suitable habitat associated with the proposed project

Table 5-6
Permanent Impacts to Group 1 and/or CDFW SSC Wildlife Species Present within the Campo Corridor or with High Potential to Occur

Species Common Name (Scientific Name)	Regulatory Status: Federal State County Group	Modeled Habitat	Biological Cumulative Study Area Habitat Total	Modeled Habitat within the Development Footprint and Occurrence	Significance Determination
		• red shank chaparral • scrub oak chaparral • upper Sonoran subshrub scrub • valley Sacaton grassland • non-native grassland • non-native grassland broadleaf-dominated • disturbed habitat • mulefat scrub • sea level to 7,000 ft. (2,130 m)	cumulative study area.	development footprint.	would be less than significant.
San Diego banded gecko (*Coleonyx variegatus abbotti*)	USFWS: None CDFW: None County: Group 1	• montane buckwheat scrub • big sagebrush scrub • granitic chamise chaparral • granitic northern mixed chaparral • red shank chaparral • scrub oak chaparral • upper Sonoran subshrub scrub • mulefat scrub	There is 25,997,751 acres of modeled habitat within the biological cumulative study area.	High potential to occur within the Boulder Brush facilities. There is 699.7 acres of modeled habitat within the development footprint.	Given the large amount of habitat within the cumulative study area, impacts to suitable habitat associated with the proposed project would be less than significant.
Blainville's horned lizard (*Phrynosoma blainvillii*)	USFWS: None CDFW: SSC County: Group 2	• montane buckwheat scrub • big sagebrush scrub • granitic chamise chaparral • granitic northern mixed chaparral • red shank chaparral • scrub oak chaparral • upper Sonoran subshrub scrub	There is 29,575,617 acres of modeled habitat within the biological cumulative study area.	Observed in four locations in the central-eastern and western, and southern-eastern and western portions of the Boulder Brush facilities Boulder Brush Corridor. There is 746.8 acres of modeled habitat	Given the large amount of habitat within the cumulative study area, impacts to suitable habitat associated with the proposed project would be less than significant.

Table 5-6
Permanent Impacts to Group 1 and/or CDFW SSC Wildlife Species Present within the Campo Corridor or with High Potential to Occur

Species Common Name (Scientific Name)	Regulatory Status: Federal State County Group	Modeled Habitat	Biological Cumulative Study Area Habitat Total	Modeled Habitat within the Development Footprint and Occurrence	Significance Determination
		• valley Sacaton grassland • non-native grassland • non-native grassland broadleaf-dominated • coast live oak woodland • coast live oak riparian forest • sea level to 8,000 ft. (2,438 m)		within the development footprint.	
Coronado skink (*Plestiodon skiltonianus interparietalis*)	USFWS: None CDFW: SSC County: Group 2	• big sagebrush scrub • granitic chamise chaparral • granitic northern mixed chaparral • red shank chaparral • scrub oak chaparral • upper Sonoran subshrub scrub • sea level to 8,300 ft. (2,530 meters)	There is 20,106,530 acres of modeled habitat within the biological cumulative study area.	High potential to occur within the Boulder Brush facilities. There is 616.8 acres of modeled habitat within the development footprint.	Given the large amount of habitat within the cumulative study area, impacts to suitable habitat associated with the proposed project would be less than significant.
Coast patch-nosed snake (*Salvadora hexalepis virgultea*)	USFWS: None CDFW: SSC County: Group 2	• montane buckwheat scrub • big sagebrush scrub • granitic chamise chaparral • granitic northern mixed chaparral • red shank chaparral • scrub oak chaparral • upper Sonoran subshrub scrub • valley Sacaton grassland • non-native grassland	There is 33,421,368 acres of modeled habitat within the biological cumulative study area.	High potential to occur within the Boulder Brush facilities. There is 794.3 acres of modeled habitat within the development footprint.	Given the large amount of habitat within the cumulative study area, impacts to suitable habitat associated with the proposed project would be less than significant.

Table 5-6
Permanent Impacts to Group 1 and/or CDFW SSC Wildlife Species Present within the Campo Corridor or with High Potential to Occur

Species Common Name (Scientific Name)	Regulatory Status: Federal State County Group	Modeled Habitat	Biological Cumulative Study Area Habitat Total	Modeled Habitat within the Development Footprint and Occurrence	Significance Determination
		• non-native grassland broadleaf-dominated • coast live oak riparian forest • coast live oak woodland • disturbed habitat • mulefat scrub • southern willow scrub • below sea level to 7,000 ft. (2,130 m)			
Birds					
Cooper's hawk (*Accipiter cooperii*) (nesting)	USFWS: None CDFW: WL County: Group 1	• Nesting • coast live oak woodland • coast live oak riparian forest • mulefat scrub • Foraging • montane buckwheat scrub • big sagebrush scrub • granitic chamise chaparral • granitic northern mixed chaparral • red shank chaparral • scrub oak chaparral • non-native grassland • non-native grassland broadleaf-dominated • valley Sacaton grassland • coast live oak woodland • coast live oak riparian forest • mulefat scrub	There is 2,474,108 acres of modeled nesting habitat and 29,556,616 acres of modeled foraging habitat within the biological cumulative study area.	Observed within the northern and southern portions of the Boulder Brush facilities Boulder Brush Corridor. There is 22.3 acres of modeled nesting habitat and 746.8 acres of modeled foraging habitat within the development footprint.	Given the large amount of habitat within the cumulative study area, impacts to suitable habitat associated with the proposed project would be less than significant.

Table 5-6
Permanent Impacts to Group 1 and/or CDFW SSC Wildlife Species Present within the Campo Corridor or with High Potential to Occur

Species Common Name (Scientific Name)	Regulatory Status: Federal State County Group	Modeled Habitat	Biological Cumulative Study Area Habitat Total	Modeled Habitat within the Development Footprint and Occurrence	Significance Determination
Bell's sage sparrow (*Artemisiospiza belli belli)*	USFWS: BCC CDFW: WL County: Group 1	**Nesting and foraging** • montane buckwheat scrub • big sagebrush scrub • granitic chamise chaparral • granitic northern mixed chaparral • red shank chaparral • scrub oak chaparral • upper Sonoran subshrub scrub • non-native grassland • non-native grassland broadleaf-dominated • valley Sacaton grassland • mulefat scrub	There is 27,096,638 acres of modeled habitat within the biological cumulative study area.	High potential to occur within the Boulder Brush facilities. There is 724.5 acres of modeled nesting/foraging habitat within the development footprint.	Given the large amount of habitat within the cumulative study area, impacts to suitable habitat associated with the proposed project would be less than significant.
Long-eared owl (*Asio otus*)	USFWS: None CDFW: SSC County: Group 1	• montane buckwheat scrub • non-native grassland • non-native grassland broadleaf-dominated • upper Sonoran subshrub scrub • valley Sacaton grassland • emergent wetland	There is 5,756,163 acres of modeled habitat within the biological cumulative study area.	Low potential to occur within the Boulder Brush facilities. There is 74.3 acres of modeled nesting/foraging habitat within the development footprint.	Given the large amount of habitat within the cumulative study area, impacts to suitable habitat associated with the proposed project would be less than significant.
Prairie falcon (*Falco mexicanus*)	USFWS: BCC CDFW: WL County: Group 1	• coast live oak woodland • coast live oak riparian forest	There is 2,421,728 acres of modeled habitat within the biological cumulative study area.	Low potential to occur within the Boulder Brush facilities. There is 21.4 acres of modeled nesting/foraging habitat within the development footprint.	Given the large amount of habitat within the cumulative study area, impacts to suitable habitat associated with the proposed project would be less than significant.

Table 5-6
Permanent Impacts to Group 1 and/or CDFW SSC Wildlife Species Present within the Campo Corridor or with High Potential to Occur

Species Common Name (Scientific Name)	Regulatory Status: Federal State County Group	Modeled Habitat	Biological Cumulative Study Area Habitat Total	Modeled Habitat within the Development Footprint and Occurrence	Significance Determination
Loggerhead shrike (*Lanius ludovicianus*) (nesting)	USFWS: BCC CDFW: SSC County: Group 1	• montane buckwheat scrub • big sagebrush scrub • non-native grassland • non-native grassland broadleaf-dominated • valley Sacaton grassland • mulefat scrub • disturbed habitat	There is 12,226,528 acres of modeled habitat within the biological cumulative study area.	Observed within the Boulder Brush facilities Project site. There is 154.2 acres of modeled nesting/foraging habitat within the development footprint.	Given the large amount of habitat within the cumulative study area, impacts to suitable habitat associated with the proposed project would be less than significant.
Yellow warbler (*Setophaga petechial)*	USFWS: BCC CDFW: SSC County: Group 2	• coast live oak woodland • coast live oak riparian forest • emergent wetland • southern willow scrub • freshwater marsh • mulefat scrub • unvegetated stream channel	There is 2,460,623 acres of modeled habitat within the biological cumulative study area.	Observed within the Boulder Brush facilities Project site. There is 22.9 acres of modeled nesting/foraging habitat within the development footprint.	Impacts to yellow warbler would be less than significant due to the small amount of suitable nesting habitat proposed to be impacted.
Mammals					
Western red bat (*Lasiurus blossevillii*)	USFWS: None CDFW: SSC MSCP: Not Covered County: Group 2	• coast live oak woodland • coast live oak riparian forest • southern willow scrub	There is 2,474,589 acres of modeled habitat within the biological cumulative study area.	High potential to occur within the Boulder Brush facilities. There is 22.5 acres of modeled habitat within the development footprint.	Given the large amount of habitat within the cumulative study area, impacts to suitable habitat associated with the proposed project would be less than significant.
San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)	USFWS: None CDFW: SSC County: Group 2	• montane buckwheat scrub • big sagebrush scrub • granitic chamise chaparral • granitic northern mixed chaparral	There is 27,103,533 acres of modeled habitat within the biological	Observed within the Boulder Brush facilities Boulder Brush Corridor. There is 724.5 acres of modeled habitat within the	Given the large amount of habitat within the cumulative study area, impacts to suitable habitat associated with the proposed project

Table 5-6
Permanent Impacts to Group 1 and/or CDFW SSC Wildlife Species Present within the Campo Corridor or with High Potential to Occur

Species Common Name (Scientific Name)	Regulatory Status: Federal State County Group	Modeled Habitat	Biological Cumulative Study Area Habitat Total	Modeled Habitat within the Development Footprint and Occurrence	Significance Determination
		• red shank chaparral • scrub oak chaparral • upper Sonoran subshrub scrub • non-native grassland • mulefat scrub	cumulative study area.	development footprint.	would be less than significant.
San Diego desert woodrat (*Neotoma lepida intermedia*)	USFWS: None CDFW: SSC County: Group 2	• montane buckwheat scrub • big sagebrush scrub • granitic chamise chaparral • granitic northern mixed chaparral • non-native grassland • non-native grassland broadleaf-dominated • valley Sacaton grassland • mulefat scrub • disturbed habitat	There is 23,837,041 acres of modeled habitat within the biological cumulative study area.	High potential to occur within the Boulder Brush facilities. There is 613.1 acres of modeled habitat within the development footprint.	Given the large amount of habitat within the cumulative study area, impacts to suitable habitat associated with the proposed project would be less than significant.

Impact W-10 and W-11: Permanent Direct Impacts to Special-Status Wildlife Species

Impact W-10: Impacts to Active Nests

If any active nests or the young of nesting special-status bird species are impacted through direct grading, these impacts would be considered significant, absent mitigation (**Impact W-10**). O&M during the life of the Project is not expected to affect the nesting opportunities of birds.

Golden Eagle. Golden eagles can be sensitive to changes in their environment (e.g., wind farms). Madders (2009) describes a home range use change in a pair of resident golden eagles after a wind farm was constructed in their territory. The Project will be located adjacent to existing wind turbines which would likely deter golden eagle from utilizing the Campo Corridor. Madders (2009) also indicates that it is unlikely that golden eagles would nest within the immediate vicinity (i.e.,

500 meters or 1,640 feet) of wind turbines, likely constraining the eagles from occupying nests within their existing territory.

Golden eagle use in the project site and surrounding area is described in Section 4.6.2. The infrequent sightings during the eagle point surveys and USGS biotelemetry data suggests that the Project Site and surrounding area receives little use by eagles and is not the core territory of any eagles. A separate golden eagle report using USFSW guidance is being prepared that will address golden eagles in more detail for the purposes of determining if an eagle take permit is needed.

There are no golden eagle nests within the Campo Corridor, nor within 4,000 feet of the development footprint. The nearest active golden eagle nest (e.g., nesting behavior documented) to the development footprint is approximately 7 miles east of the Campo Corridor in the Carrizo Gorge area of the Jacumba Mountains. The location was last noted as active in February 2012, based on confidential data provided by USFWS (Dietsch 2018). In total, eagles were observed on site for approximately 20 of over 20,000 minutes during the 2017/2018 avian point-count surveys. Although one golden eagle was observed flying over the Campo Corridor, focused all-day eagle surveys (which were conducted on site in May/June and October/November 2018) did not record any golden eagles, indicating that this species does not occur in the Campo Corridor with much frequency. Additionally, the weekly point count surveys performed between September 2017 to current found no eagle occurrences either. Therefore, construction and implementation of the Campo Wind Facilities would not result in direct permanent impacts to golden eagle nests, given the distance between nest sites and the development footprint.

Impact W-11 Impacts to Wildlife Species from Collisions

Avian. There are potential impacts from avian collisions with turbines or towers (**Impact W-11**). Birds can collide with structures during migration or hunting/foraging activities.

Bats. The abundance of bats adjacent to the Campo Corridor is low when compared to other habitat types and regions. Thus, most species of bats are at minimal risk of adverse encounters with wind turbines. However, direct impacts to bats could result in mortality or injury due electrocution at overhead lines, as well as barotrauma (**Impact W-11**).

Golden Eagle. The USGS biotelemetry data indicates that golden eagle use within the Project Site and the surrounding area is low compared to other areas in San Diego (Tracey et al. 2016, 2017). One golden eagle was observed flying adjacent to the Boulder Brush Corridor during the focused Quino checkerspot butterfly surveys in April 2018. Although there are data points of golden eagles within the 10-mile area, and the 2018 observation over the project site, these are very minor when compared to their overall use areas and geographic range. As shown in Figures 4-4a through 4-4n,

the Campo Corridor appears to be at the very fringe of their individual territories or use areas, and likely mostly represent brief exploratory searches. This data suggests that the Project Site and surrounding area (i.e., 10 mile buffer around the Project Site) receives little use by eagles and is not the core territory of any eagles; therefore, the chance for electrocution is low.

Indirect Impacts to Special-Status Wildlife Species

Temporary Indirect Impacts

Impact W-12: Temporary Indirect Impacts to Special-Status Wildlife Species

Temporary (construction-related) indirect impacts from grading and other construction activities to special-status wildlife species are the same as those described above for Boulder Brush Facilities and include temporary indirect impacts that could occur as a result of increased human access, increased predation or competition from domestic animals, pets or exotic species, altering natural drainage, and increasing noise and/or nighttime lighting, generation of fugitive dust, chemical pollutants, and alteration of the natural fire regime (**Impact W-12**). These potential impacts are described in detail in Section 5.3.

The significance determination for these potential impacts is described in Section 6.2, Analysis of Project Effects.

Permanent Indirect Impacts

Impact W-13: Permanent Indirect Impacts to Special-Status Wildlife Species

Permanent indirect impacts to special-status wildlife species are the same as those described above for Boulder Brush Facilities and include increased human access, increased predation or competition from domestic animals, pets or exotic species, altering natural drainage, and increasing noise and/or nighttime lighting, generation of fugitive dust, and alteration of the natural fire regime (**Impact W-13**). All special-status wildlife species at the edge of the development footprint could potentially be impacted by temporary indirect impacts. These potential impacts are described in detail in Section 5.3.2.

5.4 Jurisdictional Aquatic Resources

5.4.1 Boulder Brush Facilities

Features that convey or hold water are regulated by multiple agencies. Federal, state, and local agencies have different definitions and terminology for these types of features. As defined in

Section 3.2.3, water-dependent resources regulated by USACE, RWQCB, CDFW, and the County are collectively referred to as jurisdictional aquatic resources herein.

5.4.1.1 Direct Impacts to Jurisdictional Aquatic Resources

Temporary Direct Impacts

Impact JAR-1: Temporary Direct Impacts to Jurisdictional Aquatic Resources within the Boulder Brush Corridor

Temporary direct impacts to jurisdictional wetlands and riparian areas and non-wetland waters would primarily result from construction activities. Temporary impacts to jurisdictional aquatic resources are summarized in Table 5-7. The temporary direct impacts to these waters and riparian areas will be restored to the extent feasible, but not through a long-term management plan. Therefore, for mitigation purposes, these impacts are considered permanent and mitigated through habitat conservation. Additionally, temporary construction-related direct impacts to jurisdictional aquatic resources could result from clearing, trampling, or grading of jurisdictional aquatic resources outside of Boulder Brush Facilities, which would be significant (**Impact JAR-1**). These potential impacts could damage individual plants and alter their ecosystem, creating gaps in vegetation that allow exotic, non-native plant species to become established, thus increasing soil compaction and leading to soil erosion.

The significance of these potential impacts is determined through application of the County's Significance Guidelines, described in Sections 7.1 and 8.1 of this report.

Table 5-7
Impacts to Jurisdictional Aquatic Resources Within Boulder Brush Boulder Brush Corridor

Jurisdiction	Type	Permanent		Temporary		Total	
		Acres	*LF*	*Acres*	*LF*	*Acres*	*LF*
USACE/RWQCB/ CDFW	Non-Wetland Water – Intermittent	0.01	24	0.09	141	0.10	166
	Non-Wetland Water – Ephemeral	0.11	1,612	0.21	2,277	0.32	3,858
Total USACE/RWQCB/CDFW Regulated Resources		*0.12*	*1,636*	*0.30*	*2,419*	*0.33*	*4,055*
CDFW Only	Riparian Habitat	0.15	N/A	0.40[a]	N/A	0.55	N/A
Total CDFW Only Regulated Resources		*0.15*	N/A	*0.40*	*N/A*	*0.55*	*6,204*

RPO = Resource Protection Ordinance; LF = linear feet

[a] The temporary direct impacts to 0.40 acres are temporarily impacted as part of a construction road that will be utilized only during construction and will not be a permanent access road. Vegetation in this area will be trimmed or disked and no gravel or pavement will be placed within the creek. Following project construction, the area will be re-countered and revegetated to restore Tule Creek to pre-project conditions.

Permanent Direct Impacts

Impact JAR-2: Permanent Direct Impacts to Jurisdictional Aquatic Resources within Boulder Brush Corridor

The Boulder Brush Facilities would permanently impact waters of the United States and state, as summarized in Table 5-7 (**Impact JAR-2**) (Figure 4-1 series).

The significance of these potential impacts is determined through application of the County's Significance Guidelines, as described in Sections 7.1 and 8.1.

5.4.1.2 Indirect Impacts to Jurisdictional Aquatic Resources

Temporary Indirect Impacts

Impact JAR-3: Temporary Indirect Impacts to Jurisdictional Aquatic Resources within the Boulder Brush Corridor

There are potential temporary indirect impacts to jurisdictional aquatic resources in the Boulder Brush Corridor (**Impact JAR-3**). The indirect impacts below include the following potential indirect impacts described in the County's *Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources* (County of San Diego 2010a): increased human access, increased predation or competition from domestic animals, pets or exotic species, altering natural drainage, and increasing noise and/or nighttime lighting. Additional potential indirect impacts are also analyzed in terms of their potential to affect the jurisdictional aquatic resources. Potential temporary indirect impacts that could affect all the jurisdictional aquatic resources that occur adjacent to development are described below.

Increased Human Access. The effects of increased human access on jurisdictional aquatic features are similar to those described in Section 5.1 for vegetation communities.

Increased Predation or Competition from Domestic Animals. No domestic animals will be present on site related to the Boulder Brush Facilities.

Pests or Exotic Species. The effects of pests or exotic species on jurisdictional aquatic features are similar to those described in Section 5.1 for vegetation communities.

Increasing Noise and/or Nighttime Lighting. The effects of noise and/or nighttime lighting on jurisdictional aquatic features are similar to those described in Section 5.1 for vegetation communities.

Altering Natural Drainage. The effects of altering natural drainages on jurisdictional aquatic features are similar to those described in Section 5.1 for vegetation communities.

Generation of Fugitive Dust. The effects of fugitive dust on jurisdictional aquatic features are similar to those described in Section 5.1, Indirect Impacts to Riparian Habitat or Sensitive Vegetation Communities, for vegetation communities.

Chemical Pollutants. The effects of chemical pollutants on jurisdictional aquatic features are similar to those described in Section 5.1 for vegetation communities.

The significance of these potential impacts is determined through application of the County's Significance Guidelines, described in Sections 7.1 and 8.1.

Permanent Indirect Impacts

Impact JAR-4: Permanent Indirect Impacts to Jurisdictional Aquatic Resources within the Boulder Brush Corridor

Permanent indirect impacts could result from the proximity of the Boulder Brush Facilities to jurisdictional aquatic resources after construction, including impacts related to operation and maintenance (**Impact JAR-4**). Operation and maintenance activities would occur within the development footprint. The indirect impacts below include the following potential indirect impacts described in the County's *Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources* (County of San Diego 2010a): increased human access, increased predation or competition from domestic animals, pets or exotic species, altering natural drainage, and increasing noise and/or nighttime lighting. Additional potential indirect impacts are also analyzed in terms of their potential to affect the jurisdictional aquatic resources. Each of these potential indirect impacts is discussed below.

Increased Human Access. The effects of increased human access on jurisdictional aquatic resources are similar to those described in Section 5.1 for vegetation communities.

Increased Predation or Competition from Domestic Animals. No domestic animals will be present on site related to the Boulder Brush Facilities.

Pests or Exotic Species. The effects of non-native, invasive plant and animal species on jurisdictional aquatic resources are similar to those described in Section 5.1 for vegetation communities.

Altering Natural Drainage. The effects of altering natural drainage are the same as to those described in Section 5.1 for vegetation communities.

Increasing Noise and/or Nighttime Lighting. Noise and lighting would not affect jurisdictional aquatic resources.

Generation of Fugitive Dust. The effects of fugitive dust on jurisdictional aquatic resources are similar to those described in Section 5.1, Permanent Indirect Impacts, for vegetation communities.

Chemical Pollutants. The effects of chemical pollutants on jurisdictional aquatic resources are similar to those described in Section 5.1 for vegetation communities.

Alteration of the Natural Fire Regime. The effects of non-native, invasive plant and animal species on jurisdictional aquatic resources are similar to those described in Section 5.1 for vegetation communities.

The significance of these potential impacts is determined through application of the County's Significance Guidelines, described in Sections 7.1 and 8.1.

5.4.2 Campo Wind Facilities

5.4.2.1 Direct Impacts to Jurisdictional Aquatic Resources

Temporary Direct Impacts

For purposes of this analysis, all impacts associated with the Campo Wind Facilities are considered permanent direct impacts.

Permanent Direct Impacts

Impact JAR-5: Permanent Direct Impacts to Jurisdictional Aquatic Resources within the Campo Corridor

There are direct impacts to jurisdictional aquatic resources as a result of the Campo Wind Facilities. Table 5-8 quantifies the impacts to these resources. Figure 5-2 series shows these impacts.

Table 5-8
Impacts to Waters and Wetlands of the United States – Campo Corridor

Feature Type	Type of Habitat (Oberbauer et al. 2008)	Type of Habitat (Cowardin et al. 1979)	Acres	Linear Feet
Non-wetland waters	Waters of the United States/ unvegetated channel – ephemeral	Riverine; unconsolidated Bottom, sand, ephemerally flooded, fresh	1.13	8,839
Non-wetland waters	Waters of the United States/ unvegetated channel – intermittent	Riverine; unconsolidated bottom, sand, intermittently flooded, fresh	<0.00	199
Riparian habitat	Emergent wetland Freshwater marsh Valley Sacaton grassland	Riparian; emergent, lentic, riparian	0.54	N/A
Riparian habitat	Southern willow scrub	Riparian; scrub-shrub, lentic, riparian	0.13	N/A
Total Potential Jurisdictional Waters			**1.81**	**9,038**

5.4.2.2 Indirect Impacts to Jurisdictional Aquatic Resources

Temporary Indirect Impacts

Impact JAR-6: Temporary Indirect Impacts to Jurisdictional Aquatic Resources within the Campo Corridor

Temporary (construction-related) indirect impacts from grading and other construction activities to jurisdictional aquatic resources outside of the limits of grading are similar to those described for vegetation in Section 5.1. Potential temporary indirect impacts include generation of fugitive dust; changes in hydrology resulting from construction, including sedimentation and erosion; and the introduction of chemical pollutants (including herbicides). The standard BMPs described in Table 5-3 minimize some of these potential impacts, such as keeping equipment free of leaks, avoiding working in heavy rains, and establishing speed limits to reduce dust from equipment and vehicles.

Permanent Indirect Impacts

Impact JAR-7: Permanent Indirect Impacts to Jurisdictional Aquatic Resources within the Campo Corridor

Permanent (operation-related) indirect impacts could result from the proximity of the Campo Wind Facilities to jurisdictional aquatic resources after construction are similar to those described for

vegetation in Section 5.1. Potential permanent indirect impacts include generation of fugitive dust from vehicles (similar to the temporary impacts) and chemical pollutants if used for operation-related activities. The standard BMPs described in Table 5-3 minimize some of these potential impacts, such as speed limits to reduce dust from vehicles and trash abatement to reduce attraction of predators.

5.5 Habitat Connectivity and Wildlife Corridors

5.5.1 Direct Impacts to Habitat Connectivity and Wildlife Corridors

The impacts to habitat connectivity and wildlife corridors are similar for both the Boulder Brush Facilities and Campo Wind Facilities since both portions of the Project are generally surrounded by undeveloped landscapes allowing wildlife movement within and adjacent to the project boundaries. Additionally, I-8 can provide a significant barrier to large mammal movement.

5.5.1.1 Temporary Direct Impacts

Impact WLC-1: Temporary Direct Impacts to Habitat Connectivity and Wildlife Corridors

There are temporary direct impacts associated with the Boulder Brush Facilities development footprint. However, for mitigation purposes, these impacts are considered permanent and mitigated through habitat conservation. Temporary construction-related, direct impacts to habitat connectivity and wildlife corridors would primarily result from construction activities. Construction-related impacts to vegetation communities, such as clearing, trampling, or grading of vegetation outside designated construction zones, could occur in the absence of avoidance and mitigation measures, and thus could impede access to important resources. These potential impacts could affect wildlife movement through the area by temporarily cutting off access routes for foraging, mating and territories as well as the potential for being trapped in open trenches (**Impact WLC-1**). The significance of these potential impacts was determined through application of the County's Significance Guidelines, as described in Section 9.1, Guidelines for the Determination of Significance, of this report. There are no temporary direct impacts associated with the Campo Wind Facilities.

5.5.1.2 Permanent Direct Impacts

Implementation of the proposed Project is not expected to result in permanent direct impacts to habitat connectivity and wildlife corridors. See Section 4.8, Habitat Connectivity and Wildlife Corridors, for a detailed discussion regarding habitat connectivity and wildlife corridors. Although the project boundaries are included within a Core Wildlife Area, defined

by the County based on its size and the surrounding undeveloped land, the area does not serve as a defined wildlife corridor or regional linkage, due to the lack of well-developed riparian corridors or other topographical features which confine wildlife movement.[10] The Boulder Brush Corridor is currently undeveloped, with scattered residential to the south and southwest. The Campo Corridor is open with occasional roads, residences and other buildings. Although construction of the Project would impact areas where wildlife may generally move through, it is not anticipated to hinder wildlife movement through the surrounding undeveloped landscapes. Therefore, installation of the turbines and associated features is not anticipated to constrain a wildlife movement corridor within the region.

5.5.2 Indirect Impacts to Habitat Connectivity and Wildlife Corridors

5.5.2.1 Temporary Indirect Impacts

Impact WLC-2: Temporary Indirect Impacts to Habitat Connectivity and Wildlife Corridors

As discussed in Section 5.5.1.2, Permanent Direct Impacts, the Project Area function as part of a large habitat block, and the Project would not have any direct impacts on habitat linkages or movement corridors. However, wildlife movement through the Project Area may be indirectly impacted by development (**Impact WLC-2**). The indirect impacts below include the following potential indirect impacts described in the County's *Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources* (County of San Diego 2010a): increased human access, increased predation or competition from domestic animals, pets or exotic species, altering natural drainage, and increasing noise and/or nighttime lighting. Additional potential indirect impacts are also analyzed in terms of their potential to affect wildlife movement. These potential impacts are described below.

Increased Human Access. Project construction would likely take place during the day and would not affect wildlife species such as mammals that are most active in evenings and at night. Wildlife species such as birds, rabbits, and lizards are active in the day, but use a variety of habitats and could continue using other areas within and adjacent to the Boulder Brush Corridor and Campo Corridor for wildlife movement.

Increased Predation or Competition from Domestic Animals. No domestic animals will be present on site related to the proposed Project.

[10] As described in Section 4.8, wildlife corridors are defined as areas that connect suitable wildlife habitat in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Natural features, such as canyon drainages, ridgelines, or areas with vegetation cover, provide corridors for wildlife travel.

Pests or Exotic Species. Trash from construction-related activities could attract invasive predators such as ravens and coyotes that could impact the wildlife species in the Project Site.

Increasing Noise and/or Nighttime Lighting. Some localized security-related lighting may be required during construction and/or operation. Lighting would conform to County of San Diego outdoor lighting requirements, therefore, lighting associated with the Project is not expected to result in significant impacts to wildlife movement related to lighting.

Project construction would result in noise and ground vibrations through the use of mechanized equipment and increased traffic and are described in more detail in Section 5.1.1. Noise would most likely only be a disturbance to those species that are active during the day, since noise levels are less at night. Lighting associated with possible nighttime work would be limited to vehicle deliveries and not expected to affect adjacent habitat for wildlife species. Most wildlife species that would use the area as a habitat corridor are nocturnal, and, therefore, would not be impacted while foraging and moving at night. Noise pollution during construction is not anticipated to hamper breeding of any special-status species.

Altering Natural Drainage. Changed hydrologic conditions can alter seed bank characteristics and modify habitat for ground-dwelling fauna that may disperse seed.

The significance of these potential impacts was determined through application of the County's Significance Guidelines, described in Section 9.1.

5.5.2.2 Permanent Indirect Impacts

Impact WLC-3: Permanent Indirect Impacts to Habitat Connectivity and Wildlife Corridors

There are potential permanent indirect impacts to habitat connectivity and wildlife corridors (**Impact WLC-3**). The indirect impacts below include the following potential indirect impacts described in the County's *Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources* (County of San Diego 2010a): increased human access, increased predation or competition from domestic animals, pets or exotic species, altering natural drainage, and increasing noise and/or nighttime lighting. Additional potential indirect impacts are also analyzed in terms of their potential to affect wildlife movement. Each of these potential indirect impacts is discussed below.

Increased Human Access. As stated in Section 5.3, the Project site is already subject to human activity. The impact is expected to remain the same after Project construction and human activity as a result of the Project is expected to have a negligible effect on the surrounding landscapes.

Increased Predation or Competition from Domestic Animals. No domestic animals will be present on site related to the proposed Project.

Pests or Exotic Species. The effects of pests or exotic species would be the same as is discussed in Section 5.3 for special-status wildlife species.

Increasing Noise and/or Nighttime Lighting. For the Boulder Brush Facilities, nighttime maintenance activities are not expected to occur more than once per year, the safety lighting inside the fence would normally be turned off. Some of the perimeter lighting in both facilities will remain on all night for safety purposes. For the Campo Wind Facilities, operations-related lighting is limited to (1) restricted exterior lighting installed on turbines for Federal Aviation Administration aviation warning lights and (2) permanent, directional security lights installed to provide adequate illumination around the collector substation amd O&M building. All lighting would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties.

Noise impacts to wildlife are complex and depend on variety of factors, including the type of bird, type of noise impact and how far the sound travels in a particular environment (Caltrans 2016). Caltrans (2016) describes the use of 60 A-weighted decibel (dBA) as a noise level for traffic that would begin to raise concerns about the potential masking of communication sounds between birds, but the report goes on to further explain that the use of a single noise level threshold may be unnecessarily restrictive. Using a specific dBA threshold may not be appropriate to determine noise impacts on birds; however, data shows that birds can tolerate certain levels of noise below 110 dBA without having permanent hearing damage or and permanent threshold shifts (hearing loss), and continuous noise levels below 93 dBA are unlikely to cause temporary threshold shifts in birds (Caltrans 2016). At further distances from the noise (beyond the 93 dBA), Caltrans' model shows that there is little to no additional masking of communication signals.

The closest Off-Reservation potential NSLU to the Boulder Brush Facilities within the jurisdiction of the County of San Diego would be located approximately 15,000 feet from the high-voltage substation and switchyard. At this distance, the expected sound pressure level from continuous operation of the high-voltage substation transformers would be less than 20 dBA L_{eq} and hence expected to result in a less than adverse effect. Aboveground electrical transmission lines associated with the Boulder Brush Facilities may produce corona during normal operation, but even under "foul" weather conditions that would moisten or wet the conductor surfaces, the resulting noise would only be audible at very close distances and thus not result in an adverse effect.

On the Reservation, there are potential impacts associated with noise from the wind turbines. The EPA public-protecting guideline of 55 dBA L_{dn} functions as the criterion for determining potential impacts for noise from the Project's operation, and therefore data is available from that analysis (see Appendix J to the EIR). Noise contour modeling show that predicted wind turbine noise levels range from approximately 31 dBA to 65 dBA depending on the turbine location and predicted wind speeds.

Based on the Caltrans findings and generally low levels of sound emission associated with the project, long-term noise effects are considered to be less than significant.

The significance of these potential impacts was determined through application of the County's Significance Guidelines, described in Section 9.1.

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6 SPECIAL-STATUS SPECIES

6.1 Guidelines for the Determination of Significance

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

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

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

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

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

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

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

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

G. The project would impact the viability of a core wildlife area, defined as a large block of habitat (typically 500 acres or more not limited to project boundaries, although smaller areas with particularly valuable resources may also be considered a core wildlife area) that supports a viable population of a sensitive wildlife species or supports multiple wildlife species. Alteration of any portion of a core habitat could only be considered less than significant if a biologically based determination can be made that the project would not have a substantially adverse effect on the core area and the species it supports.

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

I. The project would impact occupied burrowing owl habitat.

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

K. The project would impact occupied Hermes copper habitat.

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

Species	Breeding Season
Coastal cactus wren	February 15 to August 15
Coastal California gnatcatcher	February 15 to August 31

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

6.2 Analysis of Project Effects

6.2.1 Project Effects Relevant to Guideline 4.1.A (Federally Listed and State-Listed Species)

Boulder Brush Facilities

There are no federally or state-listed plants within the Boulder Brush Corridor or limits of grading; therefore, there are no permanent direct impacts to federally or state-listed plants.

Impact W-5: Permanent Direct Impacts to Potentially Occupied Quino Checkerspot Butterfly

Quino checkerspot butterfly is the only known federally listed species to occur within the Boulder Brush Corridor. Quino checkerspot butterfly was observed once during the 2019 focused surveys (see Section 4.6.1) (Figure 4-6). Dudek modeled habitat in order to estimate potentially occupied areas on site (see Section 4.6.1). There are impacts to 54.8 acres of potentially occupied Quino checkerspot butterfly habitat (Figure 5-3). These permanent direct impacts to would be mitigated to **less than significant** through implementation of mitigation measure **M-BI-1**, which describes the Section 7 consultation process with the USFWS, off-site mitigation for permanent impacts to Quino checkerspot butterfly habitat, avoidance of hilltopping habitat, fencing and signage around occupied Quino checkerspot butterfly habitat, and working in suitable habitat areas when the adult and larval activity is low.

Campo Corridor

There are no federally or state-listed plants within the Campo Corridor or limits of grading; therefore, there are no permanent direct impacts to federally or state-listed plants.

Impact W-8: Permanent Direct Impacts to Potentially Occupied Quino Checkerspot Butterfly

Quino checkerspot butterfly is the only known federally or state-listed species to occur within the Campo Corridor. Dudek modeled habitat in order to estimate potentially occupied areas on site

(see Section 4.6.2). On-site direct impacts to 272.8 acres of potentially occupied Quino checkerspot butterfly habitat would be significant, absent mitigation (**Impact W-8**). These permanent direct impacts to would be mitigated to **less than significant** through implementation of the Quino Checkerspot Butterfly-Specific Avoidance, Minimization, and Mitigation Measures described in the *Campo Wind Project Biological Technical Report*, which describes the Section 7 consultation process with the USFWS, off-site mitigation for permanent impacts to Quino checkerspot butterfly habitat, avoidance of hilltopping habitat, fencing and signage around occupied Quino checkerspot butterfly habitat, and working in suitable habitat areas when the adult and larval activity is low.

6.2.2 Project Effects Relevant to Guideline 4.1.B (County-Designated Sensitive Species)

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

Boulder Brush Facilities

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

Temporary direct impacts to County List A and B plant species are considered permanent impacts because the plants will be lost during grading activities and the area will not be replanted with these species (Table 5-2, Summary of Direct Impacts to Special-Status Plant Species; Figure 5-1 series). Additionally, clearing, trampling, or grading of special-status plants outside of designated construction zones could occur in the absence of avoidance and mitigation measures. These potential temporary direct impacts to County List A and B plant species would be significant, absent mitigation (**Impact SP-1**). These temporary direct impacts would be mitigated to **less than significant** through implementation of Mitigation Measure **M-BI-2** (biological monitoring) and **M-BI-3** (temporary construction flagging and/or fencing) and **M-BI-4** (SWPPP BMPs, including restrictions on plantings, temporary equipment staging and storage, and construction vehicle speed limits). These mitigation measures would ensure that construction does not occur outside of the Boulder Brush Facilities impact areas resulting in unauthorized impacts (**M-BI-2** and **M-BI-3**), and that best management practices are implemented to prevent construction related impacts such as the spread of invasive plant species (**M-BI-4**). With implementation of these measures, temporary direct impacts resulting from construction would be **less than significant**. The full text of mitigation measures is presented in Section 6.4, Mitigation Measures and Design Considerations.

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

The Boulder Brush Facilities would result in the loss of sensitive plant species (Table 6-1; Figure 5-1 series) (**Impact SP-2**). Impacts to County List A and B species would be mitigated through the preservation of suitable habitat and populations of each species per County requirements. Impacts to County List A species will be mitigated at a 2:1 mitigation to impact ratio while County List B species will be mitigated at a 1:1 ratio (Table 6-1) (**M-BI-5**). Since none of the County List A species proposed for impact are state or federally-listed, and are relatively common throughout the region, a mitigation ratio of 2:1, rather than 3:1, is appropriate to mitigate for impacts to these species. Surveys will be conducted to ensure that the mitigation site contains adequate populations of each plant species. With implementation of this measure, permanent direct impacts resulting from the Boulder Brush Facilities would be **less than significant**. The full text of mitigation measures is presented in Section 6.4.

Table 6-1
Summary of Direct Impacts to Special-Status Plants Species On Private Lands

Species	Regulatory Status: Federal/State//CRPR	Impacts to Number of Individuals	Mitigation Ratio	Individuals Preserved
County List A				
Jacumba milk-vetch (*Astragalus douglasii* var. *perstrictus*)	None/None/CRPR 1B.2	111	2:1	222
Southern jewelflower (*Streptanthus campestris*)	None/None/CRPR 1B.3	20	2:1	40
Tecate tarplant (*Deinandra floribunda*)	None/None/CRPR 1B.2	61	2:1	122
County List B				
Desert beauty (*Linanthus bellus*)	None/None/CRPR 2B.1	1,308	1:1	1,308
Sticky geraea (*Geraea viscida*)	None/None/CRPR 2B.2	203	1:1	203
County List D				
Colorado Desert larkspur (*Delphinium parishii* ssp. *subglobosum*)	None/None/CRPR 4.3	46	Habitat Based	N/A

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

Campo Wind Facilities

Impact SP-5: Permanent Direct Impacts to Special-Status Plant Species

The Campo Wind Facilities would likely result in the loss of special-status plant species (**Impact SP-5**), but these impacts cannot be quantified because location information for special-status plants identified during surveys in 2010 and 2011 for the Shu'luuk Wind Project is not available. Therefore, impacts to non-federally listed plants on the Reservation (e.g., County List A or B species) are not subject to the mitigation requirements in the County guidelines. Permanent direct impacts to special-status plants could be **significant and unavoidable**.

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

Boulder Brush Facilities

Impact W-1: Temporary Direct Impacts to Habitat for Special-Status Wildlife Species

Temporary direct impacts to special-status wildlife species were quantified by comparing the development footprint with suitable habitat for wildlife species (see Table 5-3). Loss of special-status wildlife species (County Group 1 or state SSC animals), including individual amphibians, reptiles, small mammals, and their suitable habitat, from construction-related activities would result in temporary direct impacts that would be significant (**Impact W-1**). The Boulder Brush Facilities would include the following mitigation measures: biological monitoring to avoid unintentional impacts to species and habitat (**M-BI-2**); temporary flagging or fencing of construction limits to prevent unauthorized impacts (**M-BI-3**); implementation of SWPPP BMPs, including restrictions on plantings, temporary equipment staging and storage, and construction vehicle speed limits (**M-BI-4**); avoidance by preconstruction surveys for nesting birds and setbacks (**M-BI-6**); and replanting temporarily impacts areas with native vegetation (**M-BI-7**). However, temporary impacts to vegetation communities are still considered permanent impacts and mitigated through off-site habitat conservation (see **Impact W-2**). Therefore, temporary direct impacts to County Group 1 species or state SSC would be **less than significant** with implementation of these mitigation measures.

Impact W-2: Permanent Direct Impacts to Habitat for Special-Status Wildlife Species

Permanent direct impacts to special-status wildlife species were quantified by comparing the development footprint with suitable habitat for wildlife species observed or those that have a high potential to occur within the Boulder Brush Corridor (Table 5-3). Implementation of the Boulder Brush Facilities would result in the direct loss of habitat, including foraging habitat, for the

following County of San Diego Group 1, and/or SSC species: San Diegan tiger whiptail, San Diego banded gecko, Blainville's horned lizard, Coast patch-nosed snake, Cooper's hawk, Bell's sage sparrow, loggerhead shrike, yellow warbler, western red bat, San Diego black-tailed jackrabbit, and San Diego desert woodrat (**Impact W-2**). These species occur within a variety of habitats and through a wide geographic, topographic, and elevation ranges where there are an abundance of these species within the south desert slope and southern mountains ecoregions, and generally a substantial portion of the suitable habitat for these species are in public ownership and therefore reasonably anticipated to remain undisturbed. However, since the Boulder Brush Facilities would result in impacts to more than 5% of modeled habitat for each of the species, impacts to suitable habitat within the development footprint are considered **potentially significant**. Implementation of **M-BI-5** would provide for the preservation of suitable habitat for all special-status species which are known to occur, or which have a high potential to occur, through the long-term conservation of similar habitat and would have a beneficial impact to these species.

Impact W-3 and W-4: Permanent Direct Impacts to Special-Status Wildlife Species

Impact W-3: Impacts to Active Nests

As described in Section 5.3.1.2, if any active nests or the young of nesting special-status bird species are impacted through direct grading, these impacts would be significant, absent mitigation, (**Impact W-3**). It is recommended that clearing of vegetation occur outside of the typical nesting period for most bird species and raptors (i.e., outside the period of February 1–September 1 and as early as January 1 for some raptor species) to limit impacts to nesting birds and raptors. If clearing is required within the nesting period, a nesting bird survey would be conducted and buffers required if nesting birds are identified, as described in **M-BI-6** (preconstruction surveys for nesting birds). With this mitigation measure, impacts to nesting birds and raptors and other sensitive status species would be less than significant. Therefore, impacts to active nests or the young of nesting special-status bird species would be **less than significant**.

Impact W-4 Impacts to Wildlife Species from Collisions and Electrocution

Migrating birds and bat species would be at risk for electrocution from the overhead power lines and/or collisions with poles and structures (**Impact W-4**). The Boulder Brush Facilities would ensure that all transmission towers and lines are designed to conform to Avian Power Line Interaction Committee (APLIC) standards (**M-BI-8**). The Boulder Brush Facilities shall implement recommendations by the APLIC (2006), which will protect raptors and other birds from electrocution. These measures are sufficient to protect even the largest birds that may perch or roost on transmission lines or towers from electrocution. Specifically, these measures will include

guidance on proper pole and crossmember dimensions, phasing, and insulator design and dimensions to preclude wire to wire contact with a goal of providing 150-cm of separation between energized conductors and energized hardware and ground wire. In addition, bird diverters or other means to make lines more visible to birds will be installed to help avoid collisions. In addition, the Boulder Brush Facilities will be required to move any dead carcasses, which may attract carrion-consuming birds of prey to the Boulder Brush Facilities **(M-BI-9**).

Golden Eagle. Golden eagle use in the Project Site and surrounding area is described in Sections 4.6.1 and 5.3.1. Electrocution from power lines, has some outside potential to cause injury or mortality of golden eagle individuals; however, the USGS biotelemetry data suggests that the Project site and surrounding area receives little use by eagles and is not the core territory of any eagles; Additionally, the Project will comply with APLIC standards as mentioned above. therefore, the chance for collisions/electrocution is very low and potential impacts would be less than significant.

Campo Wind Facilities

Impact W-9: Permanent Direct Impacts to Habitat for Special-Status Wildlife Species

Permanent direct impacts to special-status wildlife species were quantified by comparing the development footprint with suitable habitat for wildlife species observed or those that have a high potential to occur within the Campo Corridor (Table 5-6). Implementation of the Campo Wind Facilities would result in the direct loss of habitat, including foraging habitat, for the following County of San Diego Group 1, and/or SSC species: San Diegan tiger whiptail, San Diego banded gecko, Blainville's horned lizard, Coast patch-nosed snake, Cooper's hawk, Bell's sage sparrow, long-eared owl, northern harrier, prairie falcon, loggerhead shrike, yellow warbler, San Diego black-tailed jackrabbit, and San Diego desert woodrat (**Impact W-9**). Impacts to these species would be **less than significant** given the large amount of habitat within the region. These species occur within a variety of habitats and through a wide geographic, topographic, and elevation ranges where there are an abundance of these species in the region.

Impact W-10: Impacts to Active Nests

As described in Section 5.3.1.2, if any active nests or the young of nesting special-status bird species protected under the MBTA are impacted through direct grading, these impacts would be significant, absent mitigation (**Impact W-10**). It is recommended that clearing of vegetation occur outside of the typical nesting period for most bird species and raptors (i.e., outside the period of February 1–September 1 and as early as January 1 for some raptor species) to limit impacts to nesting birds and raptors. If clearing is required within the nesting period, a nesting bird survey would be conducted and buffers required if nesting birds are identified, as described in the Avian-

Specific Avoidance, Minimization, and Mitigation Measures from the *Campo Wind Project Biological Technical Report*. With this mitigation measure, impacts to nesting birds and raptors and other sensitive status species would be less than significant. Therefore, impacts to active nests or the young of nesting special-status bird species would be **less than significant**.

Impact W-11 Impacts to Wildlife Species from Collisions

Birds would be at risk for collisions with the turbines and towers and these impacts would be significant, absent mitigation (**Impact W-11**). The Avian-Specific Avoidance, Minimization, and Mitigation Measures from the *Campo Wind Project Biological Technical Report* recommends implementing APLIC standards, preparing an Avian Monitoring Plan, and removing carcasses within the development site to reduce increased attraction of carrion-consuming birds of prey to the turbine and tower areas. Therefore, impacts collisions would be **less than significant**.

6.2.3 Project Effects Relevant to Guideline 4.1.C (County Designated Special-Status Species)

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

Boulder Brush Facilities

There would be no direct impacts to County List C plant species resulting from implementation of the Boulder Brush Facilities. Potential impacts to County List D species are summarized in Table 5-2. Although impacts to these species are not considered significant per the County Guidelines because of the low number of individuals being impacted, suitable habitat for these species would be conserved within an off-site preserve (**M-BI-5**).

Campo Wind Facilities

Impact SP-5: Permanent Direct Impacts to Special-Status Plant Species

The Campo Wind Facilities would likely result in the loss of special-status plant species (**Impact SP-5**), but these impacts cannot be quantified because location information for special-status plants identified during surveys in 2010 and 2011 for the Shu'luuk Wind Project is not available. There are no federally listed plants on Campo or that have potential to occur and therefore, impacts to non-federally listed plants on the Reservation (e.g., County List C or D species) are not subject to the mitigation requirements in the County guidelines. Permanent direct impacts to County special-status plants could be **significant and unavoidable**.

Special-Status Wildlife Species (County Group 2 Species)

Boulder Brush Facilities

Impact W-2: Permanent Direct Impacts to Habitat for Special-Status Wildlife Species

As summarized in Section 4.6.1, the following County Group 2 special-status wildlife species were observed either directly or indirectly (i.e., scat, tracks), or have a high potential to occur, within the Boulder Brush Corridor: Coronado skink, San Diego ringneck snake, rosy boa, California horned lark, merlin, barn owl, western bluebird, mule deer, cougar, and small-footed myotis. The Figure 5-1 series shows the Project's impacts in relation to the special-status wildlife observations mapped within the Boulder Brush Corridor. Six additional Group 2 species were observed or have a high potential to occur and are state SSCs: San Diegan tiger whiptail, Blainville's horned lizard, coast patch-nosed snake, San Diego black-tailed jackrabbit, and San Diego desert woodrat. These species are discussed in Section 6.2.2.

Loss from development of the Boulder Brush Facilities of Group 2 special-status wildlife species that are not state SSC animals would be less than significant, because these species occur within a variety of habitats and through a wide geographic, topographic, and elevation ranges where there is an abundance of these species in the region. Although impacts to Group 2 species would be **less than significant**, **M-BI-5** ensures that suitable habitat for these species would be conserved off-site, which would be beneficial to Group 2 special-status wildlife species.

Campo Wind Facilities

Impact W-9: Permanent Direct Impacts to Habitat for Special-Status Wildlife Species

As summarized in Section 4.6.2, the following County Group 2 special-status wildlife species were observed either directly or indirectly (i.e., scat, tracks), or have a high potential to occur, within the Campo Corridor: Coronado skink, San Diego ringneck snake, rosy boa, California horned lark, merlin, barn owl, western bluebird, mule deer, cougar, and small-footed myotis. Loss from development of the Campo Wind Facilities of Group 2 special-status wildlife species that are not state SSC animals would be **less than significant**, because these species occur within a variety of habitats and through a wide geographic, topographic, and elevation ranges where there is an abundance of these species in the region.

6.2.4 Project Effects Relevant to Guideline 4.1.D (Arroyo Toad)

No arroyo toads (*Anaxyrus californicus*) have been incidentally detected in either the Boulder Brush or Campo Corridors, nor are they expected to occur due to the lack of suitable habitat. Arroyo toads are not known from this area and have not been documented in the Live Oak Springs and Sombrero Peak quadrangles (CDFW 2018a). Although arroyo toad is known to occur within the surrounding quadrangles (CDFW 2018a), the Project sites lack suitable habitat for this species, such as perennial or intermittent stream channels that support regular flows. For Boulder Brush Facilities, the closest California Natural Diversity Database occurrence is 8.5 miles west along Kitchen Creek within Fred Canyon and the USFWS occurrence is approximately 10.2 miles southwest along Cottonwood Creek of the Boulder Brush Corridor (CDFW 2018a; USFWS 2018a). Focused arroyo toad surveys conducted on the Campo Indian Reservation located south of the Boulder Brush Facilities site in 2010 were negative (AECOM 2010b).

For Campo Wind Facilities, the closest known arroyo toad occurrences are located approximately 5.5 miles west of the Campo Corridor in the Cottonwood Creek area (USFWS 2018), a different watershed. There are no records of arroyo toad east of this location (USFWS 2018; CDFW 2018a). Surveys conducted for the 2010 BSA were negative (AECOM 2012).

6.2.5 Project Effects Relevant to Guideline 4.1.E (Golden Eagle)

Boulder Brush Facilities

A golden eagle was observed flying over the portion of the Boulder Brush Corrdidor on private land once during the 2018 Quino checkerspot butterfly surveys. No active nests are known to occur within 4,000 feet of the Boulder Brush Corridor. The closest suitable nesting habitat is located approximately 5.5 miles east of the Boulder Brush Corridor in the Jacumba Mountains where there may be rocky outcrops suitable for nesting, and where this species has been documented (USFWS 2018). The nearest active golden eagle nest (e.g., nesting behavior documented) to the development footprint is approximately 5.5 miles east of the Project site in the Carrizo Gorge area of the Jacumba Mountains. The location was last noted as active in February 2012 based on confidential data provided by USFWS (Dietsch 2018). This species has potential to forage over the Boulder Brush Corridor, but there are no suitable nesting areas within 4,000 feet of the Boulder Brush Corridor; therefore, there is no impact to nesting habitat within 4,000 feet of the Boulder Brush Corridor. Regardless, possible foraging habitat for golden eagle would include more open communities like big sagebrush scrub, disturbed habitat, emergent wetland, montane buckwheat scrub, semi-desert chaparral, wildflower field, unvegetated stream channels, and open coast live oak woodland. There are 141.5 potential

acres of foraging habitat, of which 69.8 acres temporarily or permanently impacted. The USFWS and BLM determined through the Desert Renewable Energy Conservation Plan process that impacts to 20% of an eagle territory might cause take of an individual or pair. On the small side, home ranges are around 12,000 acres in size, so 20% would equate to 2,400 acres. Even cumulatively in this area, there would not be that much impact on foraging habitat, so the assessment would be a less than significant finding. Certainly, "take" of an eagle or pair could not be attributed to the loss of foraging habitat related to the Boulder Brush Facilities.

Campo Wind Facilities

Eight golden eagles were observed flying over the Campo Corridor during the 2018 eagle point count surveys (Figure 4-2 series). There are no golden eagle nests within the Campo Corridor, nor within 4,000 feet of the development footprint. Therefore, construction and implementation of the Campo Wind Facilities would not result in direct permanent impacts to golden eagle nests, given the distance between nest sites and the development footprint. The nearest active golden eagle nest (e.g., nesting behavior documented) to the development footprint is approximately 7 miles east of the Project site in the Carrizo Gorge area of the Jacumba Mountains. Golden eagle use on site is infrequent, and the chance for collisions is low; therefore, there are no significant impacts to golden eagle.

6.2.6 Project Effects Relevant to Guideline 4.1.F (Raptor Foraging Habitat)

Boulder Brush Facilities

Impact W-2: Permanent Direct Impacts to Habitat for Special-Status Wildlife Species

Foraging habitat for raptors is present throughout the Boulder Brush Corridor, as well as the overall Boulder Brush Boundary (2,200 acres). The following vegetation communities are considered suitable raptor foraging habitat within the Boulder Brush Corridor: big sagebrush scrub, emergent wetland, disturbed habitat, granitic chamise chaparral, granitic northern mixed chaparral, montane buckwheat scrub, red shank chaparral, semi-desert chaparral, wildflower field, unvegetated stream channel, southern arroyo willow riparian forest, and coast live oak woodland. The Boulder Brush Facilities would result in impacts to more than 5% of the raptor foraging habitat within the entire Boulder Brush Boundary; however, the amount of impact (130.8 acres; 7%) is relatively small compared to available habitat in the overall Boulder Brush Boundary. Per the County guidelines, impacts to raptor foraging habitat would be a significant impact, because more than 5% of the raptor foraging habitat within the Boulder Brush Boundary would be impacted **(Impact W-2)**. Impacts to raptor foraging habitat would be mitigated to less than significant through off-site preservation of suitable habitat for foraging raptors (**M-BI-5**).

Campo Wind Facilities

Impact W-9: Permanent Direct Impacts to Habitat for Special-Status Wildlife Species

Foraging habitat for raptors is present throughout the Campo Corridor (2,200 acres), as well as the overall Reservation Boundary (16,000 acres). The following vegetation communities are considered suitable raptor foraging habitat within the Campo Corridor: big sagebrush scrub (including disturbed), coast live oak woodland (including open and dense forms), disturbed habitat, emergent wetland, freshwater marsh, granitic chamise chaparral, granitic northern mixed chaparral, montane buckwheat scrub, mulefat scrub, non-native grassland, non-native grassland broadleaf-dominated, red shank chaparral, scrub oak chaparral, southern coast live oak riparian forest, southern willow scrub, upper Sonoran subshrub scrub, unvegetated stream channel, and valley Sacaton grassland.

The Campo Wind Facilities would result in impacts to 4.9% of the raptor foraging habitat within the entire Reservation Boundary (785.7 acres; 5% of the Reservation Boundary). Per the County guidelines, impacts to raptor foraging habitat would be a **less than significant** because less than 5% of the raptor foraging habitat on the Reservation would be impacted.

6.2.7 Project Effects Relevant to Guideline 4.1.G (Core Wildlife Area)

As discussed in 5.5.1.2, the Project boundaries are included within a Core Wildlife Area, as defined by the County; however, the Boulder Brush Facilities and Campo Corridors do not serve as a defined wildlife corridor, due to the lack of riparian corridors or other topographical features that direct wildlife movement through the Project sites. Further, the Project boundaries are part of a larger contiguous area composed of private and public lands, which are mostly undeveloped and contribute to the Core Wildlife Area. The Tule Wind project is located east and north of the Boulder Brush Facilities and includes wind turbines and associated access roads; however, the turbines do not present a movement barrier to terrestrial wildlife species since their footprint is small and wildlife can still move through these areas uninterrupted. Additionally, no fencing will be installed in large areas that might artificially constrain wildlife movement.

Although construction of the Project would impact areas where wildlife may generally move through, it is not anticipated to hinder wildlife movement through the surrounding landscapes. Installation of the Project components is not anticipated to constrain a wildlife movement corridor within the region since the footprints of the turbines and electrical poles are small and provide easy access around/between them. Therefore, the Project is not anticipated to impact long-term wildlife movement or viability within the development footprints or throughout the larger landscape. In addition, viable populations of special-status wildlife species are not limited to the development

footprints alone (i.e., disturbed site area). As such, impacts to Core Wildlife Area would be less than significant.

6.2.8 Project Effects Relevant to Guideline 4.1.H (Indirect Impacts)

Special-Status Plant Species

Boulder Brush Facilities

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

There are potential temporary indirect impacts to special-status plant species in the Boulder Brush Corridor (**Impact SP-3**). The indirect impacts analyzed in Section 5.2 include the following potential indirect impacts described in the County's *Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources* (County of San Diego 2010a): increased human access, increased predation or competition from domestic animals, pets or exotic species, altering natural drainage, and increasing noise and/or nighttime lighting. Additional potential indirect impacts are also analyzed in terms of their potential to affect the special-status plant species. Special-status plant species at the edge of the development footprint, including all seven special-status plant species observed within the Boulder Brush Corridor, could be impacted by potential temporary indirect impacts such as those previously listed (see Section 4.2 and descriptions in Section 5.2). Absent mitigation, these impacts would be significant. **M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-10** (fugitive dust control plan), **M-BI-11** (erosion and runoff control), and **M-BI-12** (regulation of chemical pollutants) described in Section 6.4 would mitigate these impacts to less than significant. Regarding fire, the proposed vegetative fuel modification treatments and the use of metal poles will lower the risk for potential loss of the Boulder Brush Facilities. The high-voltage substation and switchyard sites will include contiguous fuel modification from 100 feet outside of the perimeter fence inward onto the pad area. The high-voltage substation and switchyard pad areas will be free of vegetation around all electrical equipment. These impacts would be reduced to **less than significant** because the measures would minimize the potential for unintentional loss of individuals during construction.

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

Permanent indirect impacts could result from the proximity of the development footprint to special-status plants after construction. Permanent indirect impacts that could affect special-status plant species include generation of fugitive dust, unintentional spillover or drift of chemical pollutants, non-native invasive species, and alteration of the natural fire regime (**Impact SP-4**). Each of these potential indirect impacts is discussed in Section 5.2. Special-status plant species at

the edge of the development footprint, including all six special-status plant species observed within the Boulder Brush Corridor, could be impacted by permanent indirect impacts such as those previously listed (see Section 4.2). Absent mitigation, these impacts would be significant. **M-BI-4** (SWPPP), **M-BI-10** (fugitive dust control plan), **M-BI-11** (erosion and runoff control), **M-BI-12** (regulation of chemical pollutants), and **M-BI-13** (prevention of invasive plant species), described in Section 6.4 would mitigate these impacts to less than significant by ensuring that the project does not introduce pollutants or spread invasive plant species within and surrounding the development footprint.

Campo Wind Facilities

Impact SP-6: Temporary Indirect Impacts to Special-Status Plant Species

Potential temporary indirect impacts to special-status plant species in the Campo Corridor would primarily result from construction activities and include impacts related to or resulting from increased human access, increased predation or competition from domestic animals, pets or exotic species, altering natural drainage, increasing noise and/or nighttime lighting, generation of fugitive dust, the introduction of chemical pollutants (including herbicides), and alteration of the natural fire regime (**Impact SP-6**). Special-status plant species that could occur within the Campo Corridor, but outside of the development footprint, could be impacted by potential temporary indirect impacts such as those previously listed (see descriptions in Section 5.2). Absent mitigation, these impacts would be significant. The incorporation of the BMPs outlined in Table 5-3 and the General Avoidance and Minimization Measures described in the *Campo Wind Project Biological Technical Report* reduce the impacts to **less than significant**.

Impact SP-7: Permanent Indirect Impacts to Special-Status Plant Species

Permanent indirect impacts could result from the proximity of the development footprint to special-status plants after construction. Permanent indirect impacts that could affect special-status plant species include increased human access, increased predation or competition from domestic animals, pets or exotic species, altering natural drainage, increasing noise and/or nighttime lighting, and alteration of the natural fire regime (**Impact SP-7**). Each of these potential indirect impacts is discussed in Section 5.2. Special-status plant species that may occur at the edge of the development footprint could be impacted by permanent indirect impacts such as those previously listed. Absent mitigation, these impacts would be significant. The incorporation of the BMPs outlined in Table 5-3 and the General Avoidance and Minimization Measures described in the *Campo Wind Project Biological Technical Report* reduce the impacts to **less than significant**.

Special-Status Wildlife Species

Boulder Brush Facilities

Impact W-6: Temporary Indirect Impacts to Special-Status Wildlife Species

Temporary indirect impacts to avian foraging and wildlife access to foraging, nesting, or water resources would primarily result from construction activities limiting access to those resources (**Impact W-6**). Potential temporary indirect impacts could occur as a result of increased human access, increased predation or competition from domestic animals, pets or exotic species, altering natural drainage, increasing noise and/or nighttime lighting, generation of fugitive dust, chemical pollutants, and alteration of the natural fire regime (see Section 5.3 for additional details). Absent mitigation, these impacts would be significant. Species potentially affected by such activities include loggerhead shrike, Cooper's hawk, Blainville's horned lizard, and other wildlife species that are on site during construction activities. Indirect impacts to sensitive bird species may occur if clearing of vegetation is conducted during the nesting season for migratory birds (February 15 through August 31) and raptors (January 15 through July 31). Implementation of **M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-6** (nesting bird survey), **M-BI-7** (revegetation of temporarily impacted areas), **M-BI-10** (fugitive dust control plan), **M-BI-11** (erosion and runoff control), **M-BI-12** (regulation of chemical pollutants), and **M-BI-13** (prevention of invasive species) as described in Section 6.4 would mitigate these impacts to **less than significant** because the mitigation would prevent construction impacts beyond the development footprint and restore temporarily impacted areas.

Impact W-7: Permanent Indirect Impacts to Special-Status Wildlife Species

Permanent indirect impacts to special-status wildlife species include increased human access, increased predation or competition from domestic animals, pets or exotic species, altering natural drainage, increasing noise and/or nighttime lighting, generation of fugitive dust, and alteration of the natural fire regime (**Impact W-7**). Absent mitigation, these impacts would be significant. **M-BI-10** (fugitive dust control plan), **M-BI-11** (erosion and runoff control), **M-BI-13** (prevention of invasive species), **M-BI-14** (fire protection), and **M-BI-15** (access control) described in Section 6.4 would mitigate these impacts to **less than significant**.

Campo Wind Facilities

Impact W-12: Temporary Indirect Impacts to Special-Status Wildlife Species

Temporary indirect impacts to avian foraging and wildlife access to foraging, nesting, or water resources would primarily result from construction activities limiting access to those resources

(**Impact W-12**). Potential temporary indirect impacts could occur as a result of increased human access, increased predation or competition from domestic animals, pets or exotic species, altering natural drainage, increasing noise and/or nighttime lighting, generation of fugitive dust, chemical pollutants, and alteration of the natural fire regime (see Section 5.3 for additional details). Absent mitigation, these impacts would be significant. The incorporation of the BMPs outlined in Table 5-3 and the General Avoidance and Minimization Measures described in the *Campo Wind Project Biological Technical Report* reduce the impacts to **less than significant**.

Impact W-13: Permanent Indirect Impacts to Special-Status Wildlife Species

Permanent indirect impacts to special-status wildlife species include increased human access, increased predation or competition from domestic animals, pets or exotic species, altering natural drainage, increasing noise and/or nighttime lighting, generation of fugitive dust, chemical pollutants, and alteration of the natural fire regime (**Impact W-13**). Absent mitigation, these impacts would be significant. The incorporation of the BMPs outlined in Table 5-3 and the General Avoidance and Minimization Measures described in the *Campo Wind Project Biological Technical Report* reduce the impacts to **less than significant**.

6.2.9 Project Effects Relevant to Guideline 4.1.I (Burrowing Owl)

As described in Attachments I-1 and I-2, burrowing owl are not known to occur between the Jacumba Valley and Otay areas in San Diego County. Therefore, there are no impacts to occupied burrowing owl habitat.

6.2.10 Project Effects Relevant to Guideline 4.1.J (Coastal Cactus Wren)

Coastal (San Diego) cactus wren (*Campylorhynchus brunneicapillus sandiegensis*) is not expected to occur within the Boulder Brush Corridor or Campo Corridor. Coastal cactus wren rely on cactus thickets at elevations below 1,500 feet (Unitt 2004). The site is above this elevation range and there are no large patches of *Cylindropuntia* spp. or *Opuntia* spp. on site; however, there are scattered cacti throughout the scrub and chaparral. *C. brunneicapillus* (desert subspecies) was documented on the Campo Corridor (AECOM 2012); however, this species is not the coastal subspecies for which this guideline applies. Because the Project Site is outside of the range for the coastal (San Diego) cactus wren, there would be no impacts to occupied coastal cactus wren habitat.

6.2.11 Project Effects Relevant to Guideline 4.1.K (Hermes Copper Butterfly)

The known range for Hermes copper butterfly is farther west toward Descanso, Jamul, and Potrero (CDFW 2018a). Additionally, no *Rhamnus crocea*, this species' host plant, was observed within the Boulder Brush Corridor. Therefore, there are no impacts to occupied Hermes copper butterfly habitat.

6.12 Project Effects Relevant to Guideline 4.1.L (Sensitive Bird Nesting)

Boulder Brush Facilities

Direct impacts to trees could result in impacts to the nesting success of tree-nesting raptors (such as Cooper's hawk) as a result of the removal of potential nesting habitat. There impacts to permanent impacts to 1.1 acres of tree-dominated vegetation (coast live oak woodland and southern arroyo willow riparian forest). There are also temporary impacts to 4.9 acres of these vegetation types that will likely result in tree removal. As described above, temporary impacts resulting from construction are quantified as permanent impacts. Nesting tree habitat within the Boulder Brush Corridor includes coast live oak woodland and southern arroyo willow riparian forest. Impacts to the nesting success of tree- and ground-nesting raptors associated with the loss of suitable nesting habitat would be significant (**Impact W-2**). The loss of suitable nesting habitat would be mitigated to less than significant by habitat preservation. Temporary and permanent indirect impacts to nesting raptors (**Impact W-6** and **Impact W-7**) are discussed in Section 5.3.2, Indirect Impacts to Special-Status Wildlife Species, and Section 6.2.8.2, Special-Status Wildlife Species.

Due to lack of suitable habitat, least Bell's vireo, southwestern willow flycatcher, and light-footed clapper rail (*Rallus longirostris levipes*) are not expected to nest in the development footprint (see Attachment I-1); therefore, no impact to the nesting success of those protected species would result. The Boulder Brush Corridor is outside of the range, or does not have suitable habitat, for burrowing owl, coastal California gnatcatcher and coastal cactus wren.

Campo Wind Facilities

Direct impacts to trees could result in impacts to the nesting success of tree-nesting raptors (such as Cooper's hawk and long-eared owl) and ground-nesting raptors (such as prairie falcon) as a result of the removal of potential nesting habitat. There impacts to permanent impacts to 21.55 acres of tree-dominated vegetation (coast live oak woodland habitats) and 21.97 acres of potential ground-nesting raptor habitat (emergent wetland and grasslands). Impacts to the nesting success of tree- and ground-nesting raptors associated with the loss of suitable nesting habitat would be significant (**Impact W-9**). Impacts to nesting habitat on the Reservation are not subject to the mitigation requirements in the County guidelines. Permanent direct impacts to raptor nesting

habitat would be **significant and unavoidable**. Temporary and permanent indirect impacts to nesting raptors (**Impact W-12** and **Impact W-13**) are discussed in Section 5.3, and Section 6.2.8.2, Special-Status Wildlife Species and would be less than significant with implementation of mitigation measures described in the *Campo Wind Project Biological Technical Report*.

Due to lack of suitable habitat and negative surveys for least Bell's vireo, southwestern willow flycatcher, and light-footed clapper rail (*Rallus longirostris levipes*) are not expected to nest in the development footprint (see Attachment I-2); therefore, no impact to the nesting success of those protected species would result. The Campo Corridor is outside of the range, or does not have suitable habitat, for burrowing owl, coastal California gnatcatcher and coastal cactus wren.

6.3 Cumulative Impact Analysis

Cumulative impacts are not assessed in this document, but are discussed in the EIR being prepared by the County for the Campo Wind Project as well as the EIS being prepared by the BIA for the same Project. For purposes of assessing cumulative impacts related to the Project, an appropriate geographic scope would include the Peninsular Ranges of the California floristic province, as defined by the Jepson Flora Project (2018).

6.4 Mitigation Measures and Design Considerations

6.4.1 Boulder Brush Facilities

M-BI-1 **Implementation of USFWS-Issued Terms and Conditions.** All terms and conditions developed as part of the Section 7 consultation process with the U.S. Fish and Wildlife Service (USFWS) and provided in the Project's Biological Opinion shall be implemented. Terms and conditions shall apply to federally listed species that may be impacted by the Project. Ratios for habitat-based mitigation shall be determined during the Section 7 consultation process. The mitigation shall focus on habitat preservation and creation for long-term conservation of metapopulation dynamics. Habitat mitigation ratios will be determined through the Section 7 consultation. Terms and conditions outlined in the Project's Biological Opinion shall take precedence over the measures outlined herein to the extent there is conflict between the two.

(a) Construction Fencing and Signage. Construction fencing and/or signage will be installed when construction of the Project occurs immediately adjacent to mapped occupied Quino checkerspot butterfly habitat to prevent unnecessary intrusion into occupied Quino checkerspot butterfly habitat.

Signage shall be installed where high-use areas of the Boulder Brush Facilities border suitable Quino checkerspot butterfly habitat to prevent intrusion into sensitive habitat and remind personnel of restrictions regarding activities within these areas.

(b) Seasonal Avoidance. To the extent practicable, all construction clearing and grubbing in mapped suitable Quino checkerspot butterfly habitat associated with construction of the Project shall occur when adult and larval activity is reduced and host plants are not generally flowering or germinating, as determined by the USFWS. Vegetation management during the operation and maintenance phase of the Project shall also occur when adult and larval activity is reduced and host plants are not generally flowering or germinating, to the extent practicable.

M-BI-2 **Biological Monitoring.** To prevent inadvertent disturbance to areas outside the limits of grading, flagging shall be installed and all grading shall be monitored by a biologist in environmentally sensitive areas. A biologist (Project Biologist) approved by the County of San Diego (County) shall be contracted to perform biological monitoring during all grading, clearing, grubbing, trenching, construction, and decommissioning activities.

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

1. A worker environmental awareness program (WEAP) would be prepared for construction contractors and all on-site personnel. WEAP training would cover the sensitive resources found on site, flagging/fencing of exclusion areas, permit requirements, and other environmental issues and permit constraints. The WEAP would also educate and instruct on-site personnel to avoid harassment and disturbance of wildlife, especially during reproductive activities (e.g., courtship and nesting) during construction. In

addition, temporary personnel delivering equipment and supplies to the Project site will be aware of the requirements and required to comply with the WEAP training, including, but not limited to, 15 mile per hour speed limit, stopping for wildlife observed in the access road, driving within the approved Project right-of-way, observing bird buffer signs and not stopping within the buffers, and driving slower than the approved Project speed limit, should dust occur on the access road. All on-site personnel would be required to attend the WEAP training in conjunction with hazard and safety training prior to working on site.

2. Attend the preconstruction meeting with the construction contractor and other key construction personnel prior to clearing, grubbing, or grading to reduce conflict between the timing and location of construction activities with other mitigation requirements (e.g., seasonal surveys for nesting birds).
3. Conduct meetings with the construction contractor and other key construction personnel describing the importance of restricting work to designated areas prior to clearing, grubbing, or grading and clarifying that the Project Biologist has the authority to halt work that could harm or harass a protected species.
4. Review and/or designate the construction area in the field with the construction contractor in accordance with the final grading plan prior to clearing, grubbing, or grading.
5. Conduct a field review of the staking to be set by the surveyor, designating the limits of all construction activity prior to clearing, grubbing, or grading.
6. Flush special-status species (i.e., avian or other mobile species) from occupied habitat areas immediately prior to brush-clearing and earth-moving activities.
7. To address hydrology impacts, the Project Biologist shall verify that grading plans include a Stormwater Pollution Prevention Plan (if required pursuant to provisions of the State Water Resources Control Board 2009-0009-DWQ Construction General Permit, or equivalent applying the standards set forth in the County of San Diego Stormwater Standards Manual); see **M-BI-3**.
8. Periodically monitor the construction site in accordance with the Project's fugitive dust control plan. Periodically monitor the construction site to see

that dust is minimized according to the fugitive dust control plan and that temporary impacted areas are revegetated as soon as possible.

9. Periodically monitor the construction site to verify that artificial security light fixtures are directed away from open space and are shielded.
10. Oversee the construction site so that cover and/or escape routes for wildlife from excavated areas are provided on a daily basis. All steep trenches, holes, and excavations during construction shall be covered at night with backfill, plywood, metal plates, or other means, and the edges covered with soils and plastic sheeting such that small wildlife cannot access them, and/or excavations shall provide an earthen ramp to allow for a wildlife escape route.

M-BI-3 **Temporary Construction Flagging and/or Fencing.** Prior to issuance of permits, including clearing, grubbing, grading, and/or construction permits, the Project applicant or its designee shall install flagging wherever the limits of grading are adjacent to sensitive vegetation communities or jurisdictional aquatic resources, as identified by the qualified monitoring biologist. Fencing will be limited to areas where Project impacts are adjacent to a population of special-status plant species. Flagging and fencing shall remain in place during all construction activities. All temporary flagging and fencing shall be shown on plans. Access roads would be staked at the outermost perimeter of 40 feet, to ensure no project personnel go beyond these boundaries. Stakes would be placed every 200 feet in accordance with industry standards. Additionally, all on-site construction workers performing ground disturbance activities would be equipped with GPS units that would clearly delineate the limits of grading.

M-BI-4 **SWPPP.** If required, the Stormwater Pollution Prevention Plan (SWPPP) or equivalent shall include, at a minimum, the best management practices listed below. The combined implementation of these requirements shall protect adjacent habitats and special-status species during construction to the maximum extent practicable. At a minimum, the following measures and/or restrictions shall be incorporated into the SWPPP and noted on construction plans, where appropriate, to avoid impacts to special-status species, sensitive vegetation communities, and/or jurisdictional waters during construction. The Project Biologist shall verify the implementation of the following design requirements:

1. No planting or seeding of invasive plant species (per the most recent version of the California Invasive Plant Council California Invasive Plant Inventory for the Project region) shall be permitted.
2. Construction activity shall not be permitted in jurisdictional waters of the United States/state except as authorized by applicable law and permit(s), including permits and authorizations approved by the U.S. Army Corps of Engineers, California Department of Fish and Wildlife, and Regional Water Quality Control Board.
3. Silt settling basins installed during the construction process shall be located away from areas of ponded or flowing water to prevent discolored, silt-bearing water from reaching areas of ponded or flowing water during normal flow regimes.
4. Temporary structures, staging, and storage areas for construction equipment and/or materials shall not be located in jurisdictional waters, including wetlands and riparian areas.
5. Any equipment or vehicles driven and/or operated within a jurisdictional waters of the United States/state shall be checked and maintained by the operator daily to prevent leaks of oil or other petroleum products that could be deleterious to aquatic life if introduced to the watercourse.
6. No stationary equipment, such as motors, pumps, generators, and welders, or fuel storage tanks shall be located within 200 feet of jurisdictional waters of the United States/state.
7. No debris, bark, slash sawdust, rubbish, cement, concrete, oil, or petroleum products shall be stored where it may be washed by rainfall or runoff into jurisdictional waters of the United States/state.
8. When construction operations are completed, any excess materials or debris shall be removed from the work area.
9. No equipment maintenance shall be performed within 200 feet of jurisdictional waters of the United States/state where petroleum products or other pollutants from the equipment may enter these areas.
10. Fully covered trash receptacles that are animal-proof and weather-proof shall be installed and used by the operator to contain all food, food scraps, food wrappers, beverage containers, and other miscellaneous trash. Littering shall be prohibited

and trash shall be removed from construction areas daily. All food-related trash and garbage shall be removed from the construction sites on a daily basis.

M-BI-5

(a) Habitat Preservation. To mitigate for impacts to vegetation communities and habitats for special-status wildlife species and occurrences of special-status plant species, suitable off-site mitigation land shall be acquired prior to issuance of grading or building permits. The Project applicant shall purchase habitat credit or provide for the conservation of habitat generally consistent with the assemblage of vegetation communities impacted by the Project. As proposed, the project is estimated to impact the following vegetation community acreages; however, the permanent open space acres shall be dependent on the actual temporary and permanent areas of impact. Montane buckwheat scrub, red shank chaparral, semi-desert chaparral, and unvegetated stream channel would be mitigated at a 1:1 ratio; big sagebrush scrub would be mitigated at a 2:1 ratio; wildflower field, emergent wetland, southern arroyo willow riparian forest, coast live oak woodland, and oak root zone would be mitigated at a 3:1 ratio; and granitic northern mixed chaparral, and granitic chamise chaparral would be mitigated at a 0.5:1 ratio. The permanent open space acres shall be dependent on the final as-built drawings. This shall mitigate for Project impacts to sensitive vegetation communities, thereby preserving compensatory habitat that provides equal or greater benefit to plant and wildlife species. The off-site mitigation options are described below:

County List A plant species will be mitigated at 2:1, List B species are mitigated at 1:1 and impacts to List D species are not ratio based but will be through the preservation of suitable habitat. Therefore, mitigation for the loss of special-status plant species shall be as follows: 2:1 mitigation ratio for impacts to Jacumba milk vetch, southern jewelflower, and Tecate tarplant; and 1:1 mitigation ratio for impacts to desert beauty and sticky geraea. Impacts to Colorado Desert larkspur will be mitigated through preservation of suitable habitat for the species.

This shall mitigate for Project impacts to sensitive vegetation communities, thereby preserving compensatory habitat that provides equal or greater benefit to plant and wildlife species. The off-site mitigation site will also provide for the preservation of known populations of special-status plants impacted by the project. The off-site mitigation options are described below:

Option 1: If purchasing mitigation credit, the mitigation bank shall be approved by the Wildlife Agencies (i.e., U.S. Fish and Wildlife Service and California

Department of Fish and Wildlife). The evidence of purchase shall include the following information to be provided by the mitigation bank:

1. A copy of the purchase contract referencing the project name and numbers for which the habitat credits were purchased.
2. If not stated explicitly in the purchase contract, a separate letter must be provided identifying the entity responsible for the long-term management and monitoring of the preserved land.
3. To ensure the land is protected in perpetuity, evidence must be provided that a dedicated conservation easement or similar land constraint has been placed over the mitigation land.
4. An accounting of the status of the mitigation bank. This shall include the total amount of credits available at the bank, the amount required by the Project and the amount remaining after use by this Project.

Option 2: If habitat credit cannot be purchased in a mitigation bank, then the Project applicant shall provide for the conservation of habitat of the same amount and type of land located in San Diego County as required per County guidelines:

1. Prior to purchasing the land for the proposed mitigation, the location shall be pre-approved by the Department of Planning and Development Services (PDS).
2. A Resource Management Plan (RMP) shall be prepared and approved pursuant to the County of San Diego Report Format and Content Requirements: Biological Resources to the satisfaction of the Director of PDS.
3. An open space easement over the land shall be dedicated to the County of San Diego or like agency to the satisfaction of the Director of PDS. The land shall be protected in perpetuity.
4. The purchase and dedication of the land and the selection of the Resource Manager and establishment of an endowment to ensure funding of annual ongoing basic stewardship costs shall be complete prior to the approval of the RMP.
5. In lieu of providing a private habitat manager, the applicant may contract with a federal, state or local government agency with the primary mission of resource management to take fee title and manage the mitigation land. Evidence of satisfaction must include a copy of the contract with the agency,

and a written statement from the agency that (1) the land contains the specified acreage and the specified habitat, or like functioning habitat, and (2) the land shall be managed by the agency for conservation of natural resources in perpetuity.

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

M-BI-6 **Nesting Bird Survey**. To avoid any direct impacts to raptors and/or any migratory birds protected under the Migratory Bird Treaty Act and California Fish and Game Code, removal of habitat that supports active nests on the proposed area of disturbance shall occur outside of the nesting season for these species (January 15 through September 1, annually). If, however, removal of habitat on the proposed area of disturbance must occur during the nesting season, the Project applicant or its designee shall retain a biologist approved by the County of San Diego to conduct a preconstruction survey to determine the presence or absence of nesting birds on the proposed area of disturbance. The preconstruction survey must be conducted within 72 hours prior to the start of construction that would impact any vegetation that could support nesting birds.

If nesting birds are detected by the biologist, buffers shall be established per the biologist's discretion and submitted to the County and Wildlife Agencies[11] for review and concurrence prior to disturbance. The buffer shall be flagged in the

[11] Wildlife Agencies is defined as the U.S. Fish and Wildlife Service and California Department of Fish and Game.

field and mapped on the construction plans. These buffer zones shall be avoided until the nesting cycle is complete.

M-BI-7 **Revegetation of Temporarily Impacted Areas.** The Project would result in temporary impacts to sensitive upland and jurisdictional aquatic resources (ephemeral channels). Temporary impacts shall be restored to provide erosion control, slope stabilization, or other necessary function. Restoration areas may incorporate salvaged materials, such as seed collection and translocation of plant materials, as determined to be appropriate. The Project Biologist shall review the plant materials prior to grading and determine if salvage is warranted. Ephemeral channels will be restored to pre-project contours.

M-BIO-8 **APLIC Standards.** Provide evidence to the Director of PDS that all transmission towers and lines are designed to conform to Avian Power Line Interaction Committee (APLIC) standards. The Proposed Project shall implement recommendations by the APLIC (2006, 2012), which will protect raptors and other birds from electrocution. These measures are sufficient to protect even the largest birds that may perch or roost on transmission lines or towers from electrocution. Specifically, these measures will include guidance on proper pole and crossmember dimensions, phasing, and insulator design and dimensions to preclude wire to wire contact with a goal of providing 150-cm of separation between energized conductors and energized hardware and ground wire. In addition, bird diverters or other means to make lines more visible to birds will be installed to help avoid collisions.

M-BI-9 **Removal of Carcasses.** All large animal carcasses (e.g., any domestic livestock, feral animal, or big game) incidentally found within or adjacent to the development footprint during operation and maintenance activities shall be removed from the site to prevent attraction of carrion-consuming birds of prey.

M-BI-10 **Fugitive Dust Control Plan**. The Project applicant shall develop a fugitive dust control plan in compliance with San Diego County Air Pollution Control Regulations to reduce particulate matter less than 10 microns (PM_{10}) and fine particulate matter less than 2.5 microns ($PM_{2.5}$) emissions during construction and decommissioning. The Fugitive Dust Control Plan shall include name(s), address(es), and phone number(s) of person(s) responsible for the preparation, submission, and implementation of the plan; description and location of operation(s); and listing of all fugitive dust emissions sources included in the operation.

The following dust control measures shall be implemented:

a. All on-site unpaved roads shall be effectively stabilized using soil stabilizers that can be determined to be as efficient, or more efficient for fugitive dust control than California Air Resources Board–approved soil stabilizers, and shall not increase any other environmental impacts, including loss of vegetation. Application of the soil stabilizer shall be undertaken strictly to the manufacturer's directions for application and cognizant of the weather forecast to avoid application immediately before a rain event.

b. All material excavated or graded shall be sufficiently watered to prevent excessive dust. Watering shall occur as needed with complete coverage of disturbed areas.

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

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

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

f. Traffic speeds on unpaved roads shall be limited to 15 miles per hour.

g. Disturbed areas shall be minimized.

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

M-BI-11 **Erosion and Runoff Control.** During construction, material stockpiles shall be placed such that they cause minimal interference with on-site drainage patterns. This shall protect sensitive vegetation from being inundated with sediment-laden runoff.

Dewatering shall be conducted in accordance with standard regulations of the Regional Water Quality Control Board (RWQCB). A construction National Pollutant Discharge Elimination System permit, issued by RWQCB to discharge water from dewatering activities, shall be required prior to start of construction. This shall minimize erosion, siltation, and pollution within sensitive communities.

Design of drainage facilities shall incorporate long-term control of pollutants and stormwater flow to minimize pollution and hydrologic changes. An Urban Runoff Plan

and operational best management practices shall be approved by the San Diego County Department of Planning & Development Services prior to construction.

M-BI-12 **Regulation of Chemical Pollutants.** Weed control treatments shall include all legally permitted chemical, manual, and mechanical methods applied with the authorization of the County of San Diego agriculture commissioner. The application of herbicides shall be in compliance with all state and federal laws and regulations under the prescription of a Pest Control Adviser and implemented by a licensed applicator. Where manual and/or mechanical methods are used, disposal of the plant debris shall follow the regulations set by the County agriculture commissioner.

During Project operation, all recreational areas that use chemicals or animal by-products, such as manure, that are potentially toxic or impactive to sensitive habitats or plants shall incorporate best management practices on site to reduce impacts caused by the application and/or drainage of such materials. In addition, use of rodenticides shall not be allowed.

M-BI-13 **Prevention of Invasive Plant Species.** A County of San Diego–approved plant list shall be used for areas immediately adjacent to open space. A hydroseed mix that incorporates native species, is appropriate to the area, and is without invasive species shall be used for slope stabilization in transitional areas. The Planning and Development Services Landscape Architect shall require that all final landscape plans comply with the following: no invasive plant species as included on the most recent version of the California Invasive Plant Council's California Invasive Plant Inventory for the Project region shall be included, and the plant palette shall be composed of native species that do not require high irrigation rates. The Project Biologist shall check landscape products for compliance with these requirements.

M-BI-14 **Fire Protection**. To minimize the potential exposure of the Project to fire hazards, all features of the Boulder Brush Project Fire Protection Plan shall be implemented in conjunction with development of the Project.

M-BI-15 **Access Control**. To minimize unauthorized access to the Project, all access roads adjacent to a public road shall be gated and locked to the extent permitted by adjacent land owners, easements and County of San Diego requirements.

6.4.2 Campo Facilities

The mitigation measures for the Campo Facilities are described in detail in the *Campo Wind Project Biological Technical Report*.

6.5 Conclusions: Level of Significance After Mitigation

6.5.1 Sensitive Plant Species

Boulder Brush Facilities

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

Potential significant temporary direct impacts during Boulder Brush Facilities construction would be mitigated to less than significant through implementation of **M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing) and **M-BI-4** (SWPPP BMPs, including restrictions on plantings, and temporary equipment staging and storage).

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

The Boulder Brush Facilities would result in the loss of sensitive plant species. Impacts to County List A and B species would be mitigated through the preservation of suitable habitat for each species (**M-BI-5**).

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

Potential temporary indirect impacts during Boulder Brush Facilities construction to special-status plant species would be reduced to less than significant through **M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-10** (fugitive dust control plan), **M-BI-11** (erosion and runoff control), and **M-BI-12** (regulation of chemical pollutants).

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

Permanent indirect impacts to special-status plants during the life of the Boulder Brush Facilities would be reduced to less than significant through **M-BI-4** (SWPPP), **M-BI-10** (fugitive dust control plan), **M-BI-11** (erosion and runoff control), **M-BI-12** (regulation of chemical pollutants), and **M-BI-13** (prevention of invasive plant species).

Campo Corridor

Impact SP-5: Permanent Direct Impacts to Special-Status Plant Species

Potential permanent impacts to non-federally listed plants on the Reservation (e.g., County List A or B species) are not subject to the mitigation requirements in the County guidelines and could be **significant and unavoidable**.

Impact SP-6: Temporary Indirect Impacts to Special-Status Plant Species

Potential temporary indirect impacts to special-status plant species would be reduced to less than significant through the incorporation of the BMPs outlined in Table 5-3 and the General Avoidance and Minimization Measures described in the *Campo Wind Project Biological Technical Report*.

Impact SP-7: Permanent Indirect Impacts to Special-Status Plant Species

Potential permanent indirect impacts to special-status plant species would be reduced to less than significant through the incorporation of the BMPs outlined in Table 5-3 and the General Avoidance and Minimization Measures described in the *Campo Wind Project Biological Technical Report*.

6.5.2 Sensitive Wildlife Species

Boulder Brush Facilities

Impact W-1: Temporary Direct Impacts to Habitat for Special-Status Wildlife Species

Potential significant temporary direct impacts to sensitive wildlife species would be reduced to less than significant through implementation of **M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP BMPs, including restrictions on plantings, and temporary equipment staging and storage), **M-BI-6** (preconstruction surveys for nesting birds), and **M-BI-7** (replanting temporarily impacts areas). These impacts would be reduced to less than significant because the measures would minimize the potential for loss of individuals. However, temporary impacts to vegetation communities are still considered permanent impacts and mitigated through off-site habitat conservation (see **Impact W-2**).

Impact W-2: Permanent Direct Impacts to Habitat for Special-Status Wildlife Species

As stated in Section 6.2, the Boulder Brush Facilities would have direct impacts to foraging habitat for raptors and habitat for those species listed in Table 5-5. These impacts would be reduced to **less than significant** levels through implementation of **M-BI-5** (habitat preservation).

Impact W-3: Permanent Direct Impacts to Special-Status Wildlife Species (Nesting Birds)

The Boulder Brush Facilities could impact nesting birds protected under the MBTA and California Fish and Game Code. These impacts would be reduced to **less than significant** through implementation of **M-BI-6** (preconstruction surveys for nesting birds).

Impact W-4: Permanent Direct Impacts to Special-Status Wildlife Species (Electrocution)

Migratory birds and bats could be injured or killed through electrocution by transmission lines (gen-tie). These impacts would be reduced to **less than significant** through implementation **M-BI-8** (APLIC standards) and **M-BI-9** (removal of dead carcasses).

Impact W-5: Permanent Direct Impacts to Potentially Occupied Quino Checkerspot Butterfly

The significant permanent direct impacts to 54.79 acres of potentially occupied Quino checkerspot butterfly habitat would be reduced to less than significant through implementation of mitigation measure **M-BI-1**, which describes the Section 7 consultation process with the USFWS, off-site mitigation for permanent impacts to Quino checkerspot butterfly habitat, avoidance of hilltopping habitat, fencing and signage around occupied Quino checkerspot butterfly habitat, and working in suitable habitat areas when the adult and larval activity is low.

Impact W-6: Temporary Indirect Impacts to Special-Status Wildlife Species

The significant temporary indirect impacts to avian foraging and wildlife access to foraging, nesting, or water resources would be reduced to less than significant through implementation of **M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP BMPs, including restrictions on plantings, and temporary equipment staging and storage), **M-BI-6** (nesting bird survey), and **M-BI-7** (replanting temporarily impacts areas), **M-BI-10** (fugitive dust control plan), **M-BI-11** (erosion and runoff control), **M-BI-12** (regulation of chemical pollutants), and **M-BI-13** (prevention of invasive species) because the mitigation would prevent construction impacts beyond the Boulder Brush Facilities development footprint and restore temporarily impacted areas.

Impact W-7: Permanent Indirect Impacts to Special-Status Wildlife Species

The significant permanent indirect impacts from Boulder Brush Facilities to special-status wildlife species would be reduced to less than significant through implementation of **M-BI-10** (fugitive dust control plan), **M-BI-11** (erosion and runoff control), **M-BI-13** (prevention of invasive species), **M-BI-14** (fire protection) and **M-BI-15** (access control).

Campo Corridor

Impact W-8: Permanent Direct Impacts to Potentially Occupied Quino Checkerspot Butterfly

Permanent direct impacts to 272.81 acres of potentially occupied Quino checkerspot butterfly habitat would be reduced to **less than significant** through implementation of the Quino Checkerspot Butterfly-Specific Avoidance, Minimization, and Mitigation Measures described in the *Campo Wind Project Biological Technical Report*, which describes the Section 7 consultation process with the USFWS, off-site mitigation for permanent impacts to Quino checkerspot butterfly habitat, avoidance of hilltopping habitat, fencing and signage around occupied Quino checkerspot butterfly habitat, and working in suitable habitat areas when the adult and larval activity is low.

Impact W-9: Permanent Direct Impacts to Habitat for Special-Status Wildlife Species

Permanent direct impacts to raptor foraging and/or nesting habitat on the Reservation are not subject to the mitigation requirements in the County guidelines and would be **significant and unavoidable**.

Impact W-10: Impacts to Active Nests

The Campo Wind Facilities could impact nesting birds protected under the MBTA. These impacts would be reduced to **less than significant** through implementation the Avian-Specific Avoidance, Minimization, and Mitigation Measures from the *Campo Wind Project Biological Technical Report.*

Impact W-11: Impacts to Wildlife Species from Collisions or Electrocution

The Campo Wind Facilities could impact birds through collisions with the turbines and towers and electrocution from transmission lines (gen-tie). These impacts would be significant, absent mitigation (**Impact W-10**). These impacts would be reduced to **less than significant** through implementation the Avian-Specific Avoidance, Minimization, and Mitigation Measures from the *Campo Wind Project Biological Technical Report*, which recommend implementing APLIC standards, preparing an Avian Monitoring Plan, and removing carcasses within the development site to reduce increased attraction of carrion-consuming birds of prey to the turbine and tower areas.

Impact W-12: Temporary Indirect Impacts to Special-Status Wildlife Species

Temporary indirect impacts to special-status wildlife species would be reduced to less than significant through the incorporation of the BMPs outlined in Table 5-3 and the General Avoidance and Minimization Measures described in the *Campo Wind Project Biological Technical Report*.

Impact W-13: Permanent Indirect Impacts to Special-Status Wildlife Species

Permanent indirect impacts to special-status wildlife species would be reduced to less than significant through the incorporation of the BMPs outlined in Table 5-3 and the General Avoidance and Minimization Measures described in the *Campo Wind Project Biological Technical Report*.

7 RIPARIAN HABITAT OR SENSITIVE NATURAL COMMUNITY

7.1 Guidelines for the Determination of Significance

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

Guideline 4.2: The Project would have a substantial adverse effect on riparian habitat or another sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG [now CDFW] or USFWS.

A. Project-related grading, clearing, construction, or other activities would temporarily or permanently remove sensitive native or naturalized habitat (as listed in Table 5 [County of San Diego 2010a] excluding those without a mitigation ratio) on or off the Project Area. This Guideline would not apply to small remnant pockets of habitat that have a demonstrated limited biological value. No *de minimus* standard is specified under which an impact would not be significant; however, minor impacts to native or naturalized habitat that is providing essentially no biological habitat or wildlife value can be evaluated on a case-by-case basis to determine whether the projected impact may be less than significant. For example, an impact to native or naturalized upland habitat under 0.1 acres in an existing urban setting may be considered less than significant (depending on a number of factors). An evaluation of this type should consider factors including, but not limited to, type of habitat, relative presence or potential for sensitive species, relative connectivity with other native habitat, wildlife species and activity in the Project vicinity, and current degree of urbanization and edge effects in Project vicinity, etc. Just because a particular habitat area is isolated, for example, does not necessarily mean that impacts to the area would not be significant (e.g., vernal pools). An area that is disturbed or partially developed may provide a habitat "island" that would serve as a functional refuge area "stepping stone" or "archipelago" for migratory species.

B. Any of the following will occur to or within jurisdictional wetlands and/or riparian habitats as defined by U.S. Army Corps of Engineers (USACE), California Department of Fish and Game (CDFG [now CDFW]), and the County of San Diego: removal of vegetation; grading; obstruction or diversion of water flow; adverse change in velocity, siltation, volume of flow, or runoff rate; placement of fill; placement of structures; construction of a road crossing; placement of culverts or other underground piping; any disturbance of the substratum; and/or any activity that may cause an adverse change in native species composition, diversity, and abundance.

C. The project would draw down the groundwater table to the detriment of groundwater-dependent habitat, typically a drop of 3 feet or more from historically low groundwater levels.

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

E. The project does not include a wetland buffer adequate to protect the functions and values of existing wetlands. If the project is subject to the Resource Protection Ordinance (RPO), buffers of a minimum of 50 feet and a maximum of 200 feet to protect wetlands are required based on the best available science available to the County at the time of adoption of the ordinance. The following examples provide guidance on determining appropriate buffer widths:

   - A 50-foot wetland buffer would be appropriate for lower quality RPO-wetlands where the wetland has been assessed to have low physical and chemical functions, vegetation is not dominated by hydrophytes, soils are not highly erosive, and slopes do not exceed 25%.
   - A wetland buffer of 50 to 100 feet is appropriate for moderate- to high-quality RPO-wetlands that support a predominance of hydrophytic vegetation or wetlands within steep slope areas (greater than 25%) with highly erosive soils. Within the 50- to 100-foot range, wider buffers are

appropriate where wetlands connect upstream and downstream, where the wetlands serve as a local wildlife corridor, or where the adjacent land use(s) would result in substantial edge effects that could not be mitigated.

- Wetland buffers of 100 to 200 feet are appropriate for RPO-wetlands within regional wildlife corridors or wetlands that support significant populations of wetland-associated sensitive species, or where stream meander, erosion, or other physical factors indicate a wider buffer is necessary to preserve wildlife habitat.
- Buffering of greater than 200 feet may be necessary when an RPO-wetland is within a regional corridor or supports significant populations of wetland-associated sensitive species and lies adjacent to land use(s) that could result in a high degree of edge effects within the buffer. Although the RPO stipulates a maximum of 200 feet for RPO-wetland buffers, actions may be subject to other laws and regulations (such as the Endangered Species Act) that require greater wetland buffer widths.

7.2 Analysis of Project Effects

7.2.1 Project Effects Relevant to Guideline 4.2.A (Impacts to Sensitive Habitat)

Boulder Brush Facilities

Impact V-1: Temporary Direct Impacts to Sensitive Vegetation Communities within the Boulder Brush Corridor

Temporary direct impacts to sensitive riparian and upland vegetation communities within and outside of the development footprint would primarily result from construction activities. Temporary impacts would occur in conjunction with road grading, pole installation, a laydown yard needed for installation of the power poles, a parking area during construction, a temporary concrete batch plant, and FMZs associated with the batch plant and laydown yard. Temporary direct impacts associated with the development footprint are considered permanent and mitigated through off-site habitat conservation (see **Impact V-2**). Clearing, trampling, or grading of sensitive vegetation communities outside designated construction zones could occur in the absence of avoidance and mitigation measures. Potential temporary direct impacts to sensitive vegetation communities on site would be significant, absent mitigation (**Impact V-1**). However, these temporary, direct impacts would be mitigated to less than significant through implementation of **M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-5** (habitat preservation), **M-BI-7** (restoration of temporary impacts), and **M-BI-16** (federal and state agency permits).

Impact V-2: Permanent Direct Impacts to Sensitive Vegetation Communities within the Boulder Brush Corridor

Permanent direct impacts to sensitive riparian and upland vegetation communities are analyzed in Section 5.1.1.2. As noted above in **Impact V-1**, there are temporary direct impacts to vegetation. While these areas would be replanted, they will not be managed as part of a long-term management or monitoring plan, and therefore, are considered permanent impacts for mitigation requirement purposes. The Project would cause the direct loss of 122.4 acres of sensitive vegetation communities (uplands and riparian) and 7.3 acre of oak root zone (Table 7-1, Vegetation Communities and Land Cover Types within the Development Footprint Mitigation Requirements) (**Impact V-2**).

Table 7-1
Vegetation Communities and Land Cover Types within the Boulder Brush Facilities Development Footprint Mitigation Requirements

General Vegetation Community/Land Cover Category	Vegetation Type (Holland/Oberbauer Code[a])	Impacts (Acres)	Mitigation Ratio	Mitigation Requirements (Acres)
Disturbed and Developed Areas (10000)	Disturbed Habitat (11300)	8.0	—	0
	Urban/Developed (12000)	0.1	—	*0*
	Disturbed and Developed Areas Subtotal	*8.1*	—	*0*
Scrub and Chaparral (30000)	Montane buckwheat scrub (32800)[b]	17.0	1:1	17.0
	Big Sagebrush Scrub (35210)[b]	9.2	2:1	18.4
	Granitic Northern Mixed Chaparral (37131)[b]	33.4	0.5:1	16.7
	Granitic Chamise Chaparral (37210)[b]	3.6	0.5:1	1.8
	Red Shank Chaparral (37300)[b]	18.3	1:1	18.3
	Semi-Desert Chaparral (37400)[b]	31.1	1:1	31.1
	Scrub and Chaparral Subtotal[c]	*112.6*	—	*103.3*
Grasslands, Vernal Pools, Meadows, and other Herb Communities (40000)	Wildflower Field (42300)[b]	3.7	3:1	11.1
Grasslands, Vernal Pools, Meadows, and other Herb Communities Subtotal		*3.7*	—	*11.1*
Bog and Marsh (50000)	Emergent Wetland (52440)[b]	0.2	3:1	0.6
	Bog and Marsh Subtotal[c]	*0.2*	—	*0.6*
Riparian and Bottomland Habitat (60000)	Southern Arroyo Willow Riparian Forest (61320)[b]	0.4	3:1	1.1[d]
	Riparian and Bottomland Habitat Subtotal[c]	*0.4*	—	*1.1*
Woodland (70000)	Coast Live Oak Woodland (71160)[b]	5.5	3:1	16.5
	Open Coast Live Oak Woodland	0.1	3:1	0.3
	Woodland Subtotal[c]	*5.6*	—	*16.8*
Waters of the United States/State	Unvegetated Stream Channel	0.1[e]	1:1	0.1

Table 7-1
Vegetation Communities and Land Cover Types within the
Boulder Brush Facilities Development Footprint Mitigation Requirements

General Vegetation Community/Land Cover Category	Vegetation Type (Holland/Oberbauer Code[a])	Impacts (Acres)	Mitigation Ratio	Mitigation Requirements (Acres)
	Waters of the United States/State Subtotal	*0.1*	—	*0.1*
Total Impacts to Sensitive Upland and Riparian and Required Mitigation[c]		122.4	—	132.8
	Oak Root Zone	*7.3*	*3:1*	*21.9*
	Total[c]	**122.4[f]**	**—**	**155.1**

[a] Holland (1986) as modified by Oberbauer et al. (2008).
[b] Considered special status by the County (County of San Diego 2010a).
[c] Totals may not sum due to rounding.
[d] Per County guidelines, mitigation will include a minimum 1:1 creation component, while restoration/enhancement of existing wetlands may be used to make up the remaining requirements for a total 3:1 ratio
[e] Impacts to unvegetated stream channel does not include 0.30 acres of temporary impacts which will be restored following project construction (see Table 5-1).
[f] Since the oak root zone is an overlay, it is not included in the impacts total. However, separate mitigation requirements apply to the oak root zone; therefore it is included in the mitigation requirements.

M-BI-5 (habitat preservation) and **M-BI-16** (federal and state agency permits requiring no net loss of resources), described in Section 6.4, would mitigate for this impact through off-site habitat preservation and agency permitting requiring no net loss of jurisdictional aquatic resources. With implementation of these measures, potentially significant impacts to sensitive vegetation communities as a result of the Project would be mitigated to less than significant.

Campo Wind Facilities

Impact V-5: Permanent Direct Impacts to Sensitive Vegetation Communities within the Campo Corridor

There are impacts to 789.3 acres of vegetation communities and land covers associated with the Campo Wind Project (Table 5-2). Of those, approximately 740.5 acres are considered "sensitive vegetation communities" by the County. Impacts to vegetation communities or land covers on the Reservation are not subject to the mitigation requirements in the County guidelines. Permanent direct impacts would be **significant and unavoidable**.

7.2.2 Project Effects Relevant to Guideline 4.2.B (Impacts to Wetlands and Riparian Habitats)

Any activity resulting from construction activities, which result in an adverse change to jurisdictional aquatic resources (i.e., wetlands and riparian habitat under the jurisdiction of USACE, CDFW and/or County), would be significant. As stated in Guideline 4.2.B, an activity is defined as: removal of vegetation; grading; obstruction or diversion of water flow; adverse change in velocity, siltation, volume of flow, or runoff rate; placement of fill; placement of structures; construction of a road crossing; placement of culverts or other underground piping; any disturbance of the substratum; and/or any activity that may cause an adverse change in native species composition, diversity, and abundance.

Boulder Brush Facilities

Impact JAR-1: Temporary Direct Impacts to Jurisdictional Aquatic Resources within the Boulder Brush Corridor

Temporary direct impacts to jurisdictional aquatic resources would primarily result from construction activities. Temporary impacts to jurisdictional aquatic resources total 0.70 acres (see Table 5-7). Similar to vegetation impacts, temporary direct impacts to wetland or riparian areas are considered permanent and mitigated through off-site habitat conservation (see **Impact JAR-2**); however, temporary impacts to non-wetland waters/unvegetated stream channels will be re-contoured to pre-project conditions. Clearing, trampling, or grading of jurisdictional aquatic resources outside of designated construction zones could occur in the absence of avoidance and mitigation measures. Potential temporary direct impacts to jurisdictional aquatic resources within the Boulder Brush Corridor would be significant, absent mitigation (**Impact JAR-1**).

Temporary impacts would be mitigated to a level below significance through implementation of **M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-7** (restoration of temporary impacts), and **M-BI-16** (federal and state agency permits). Additionally, **M-BI-5** will provide off-site habitat mitigation for temporary impacts. These mitigation measures would prevent and document that construction would not cause additional impacts outside of the development footprint, restore hydrology as part of erosion control, and require permits from the appropriate federal and state agencies relating to impacting jurisdictional aquatic resources. The permits, in conjunction with agency oversight, would ensure that adequate mitigation, such as the restoration of temporary impacts to jurisdiction aquatic features, is implemented. The above mitigation measures are described in Sections 6.4 and 7.4.

Impact JAR-2: Permanent Direct Impacts to Jurisdictional Aquatic Resources within Boulder Brush Corridor

The Project would permanently affect 0.28 acres of regulated jurisdictional aquatic resources, as summarized in Table 5-7 (**Impact JAR-2**) (Figure 5-1 series; Table 5-4). As noted above in **Impact JAR-1**, there are temporary direct impacts to wetland or riparian habitat. Permanent, direct impacts would be mitigated to less than significant through implementation of **M-BI-5** (habitat preservation) and **M-BI-16** (federal and state agency permits). Implementation of **M-BI-5** and **M-BI-16** ensures that the Project applicant provide off-site habitat preservation obtain the required permits from the appropriate federal and state agencies relating to impacting jurisdictional aquatic resources. These permits would require that the Project have a no-net loss of jurisdictional aquatic resources (i.e., wetlands and non-wetland waters).

Impact JAR-3: Temporary Indirect Impacts to Jurisdictional Aquatic Resources within the Boulder Brush Corridor

Potential temporary indirect impacts to jurisdictional aquatic resources in the Boulder Brush Corridor would primarily result from construction activities and include impacts related to or resulting from the generation of fugitive dust; changes in hydrology resulting from construction, including sedimentation and erosion; and the introduction of chemical pollutants (including herbicides) (**Impact JAR-3**). Potential temporary indirect impacts that could affect all the jurisdictional aquatic resources that occur adjacent to development are described in Section 5.4.

Absent mitigation, potential temporary indirect impacts to jurisdictional aquatic resources that occur within the Boulder Brush Corridor would be significant. **M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-11** (erosion and runoff control), **M-BI-12** (regulation of chemical pollutants), and **M-BI-16** (federal and state agency permits) described in Sections 6.4 and 7.4 would mitigate these impacts to less than significant. The measures would mitigate for this impact through implementation of construction-related measures to reduce impacts outside of the development footprint, implementation of a SWPPP, implementation of erosion and runoff control measures, prevention of chemical spills, and implementation of federal and state agency permit requirements.

Impact JAR-4: Permanent Indirect Impacts to Jurisdictional Aquatic Resources within the Boulder Brush Corridor

Permanent indirect impacts could result from the proximity of the portion of the Project site on private land to jurisdictional aquatic resources after construction generation of fugitive dust, chemical pollutants, non-native invasive species, and alteration of the natural fire regime (**Impact**

JAR-4). Each of these potential indirect impacts is discussed in Section 5.4. Absent mitigation, potential permanent indirect impacts to jurisdictional aquatic resources that occur within the Boulder Brush Corridor would be significant. **M-BI-4** (SWPPP), **M-BI-11** (erosion and runoff control), **M-BI-12** (regulation of chemical pollutants), **M-BI-13** (prevention of invasive plant species), **M-BI-14** (fire protection), and **M-BI-16** (federal and state agency permits) described in Section 6.4 would mitigate for these impacts. These measures would mitigate for this impact through construction-related measures to reduce impacts outside of the development footprint, SWPPP implementation, erosion and runoff control measures, minimization of release of exotic plants and animals, implementation of a Fire Protection Plan, prevention of chemical spills, and implementation of federal and state agency permit requirements.

Campo Wind Facilities

Impact JAR-5: Permanent Direct Impacts to Jurisdictional Aquatic Resources within the Campo Corridor

The Campo Wind Project would permanently affect 1.13 acres (8,839 linear feet) of ephemeral non-wetland waters, less than 0.00 acre (199 linear feet) of intermittent non-wetland waters, and 0.67 acres of wetlands (**Impact JAR-5**) (Figure 5-2 series; Table 5-8). To the extent feasible, project features have been sited to avoid potential jurisdictional waters of the United States. However, potential permanent impacts resulting from new access road (unpaved) construction are unavoidable. While considered a permanent impact, construction of these unpaved roads across underdeveloped ephemeral drainage features would not affect the overall functions (e.g., volume, velocity, and historical direction of surface water) or values (e.g., aesthetics, flood control, and water quality) of these ephemeral drainages because the roads will be at grade to allow for water to continue flowing downstream.

These permanent direct impacts will be reduced to less than significant through the Jurisdictional Waters and Wetlands-Specific Avoidance, Minimization, and Mitigation Measures described in the *Campo Wind Project Biological Technical Report*.

Impact JAR-6: Temporary Indirect Impacts to Jurisdictional Aquatic Resources within the Campo Corridor

Potential temporary indirect impacts to jurisdictional aquatic resources in the Campo Corridor would primarily result from construction activities and include impacts related to or resulting from the generation of fugitive dust; changes in hydrology resulting from construction, including sedimentation and erosion; and the introduction of chemical pollutants (including herbicides)

(**Impact JAR-6**). Potential temporary indirect impacts that could affect all the jurisdictional aquatic resources that occur adjacent to development are described in Section 5.4.

The incorporation of the BMPs outlined in Table 5-3 and the General Avoidance and Minimization Measures described in the *Campo Wind Project Biological Technical Report* reduce the impacts to **less than significant**.

Impact JAR-7: Permanent Indirect Impacts to Jurisdictional Aquatic Resources within the Campo Corridor

Permanent indirect impacts could result from the proximity of the Project to jurisdictional aquatic resources after construction generation of fugitive dust, chemical pollutants, non-native invasive species, and alteration of the natural fire regime (**Impact JAR-7**). Each of these potential indirect impacts is discussed in Section 5.4. Absent mitigation, potential permanent indirect impacts to jurisdictional aquatic resources that occur within the Campo Corridor would be significant.

The incorporation of the BMPs outlined in Table 5-3 and the General Avoidance and Minimization Measures described in the *Campo Wind Project Biological Technical Report* reduce the impacts to **less than significant**.

7.2.3 Project Effects Relevant to Guideline 4.2.C (Impacts to Groundwater Table)

The Boulder Brush Facilities would use approximately 50 acre-feet (AF) of water to construct the Boulder Brush Facilities. The Campo Wind Project would use up to 123 AF of water to construct the Campo Wind Project. The Jacumba Community Service District (JCSD) or Padre Dam Municipal Water District (PDMWD) have capacity to support these temporary water needs. Additionally, the Boulder Brush Facilities would use up less than acre-foot of groundwater from an on-site well during this time, and none during the operation of the Project. Decommissioning of the Project would require less activity and reduced water demand from JCSD or PDMWD compared to construction and would not therefore be expected to exceed capacity for temporary needs. Therefore, the Projects would not impact groundwater or groundwater-dependent habitat.

7.2.4 Project Effects Relevant to Guideline 4.2.D (Indirect Impacts to Sensitive Habitat)

Boulder Brush Facilities

Impact V-3: Temporary Indirect Impacts to Sensitive Vegetation Communities within the Boulder Brush Corridor

Potential temporary indirect impacts to sensitive vegetation communities in the Boulder Brush Corridor would primarily result from construction activities and include impacts related to or resulting from the generation of fugitive dust; changes in hydrology resulting from construction, including sedimentation and erosion; and the introduction of chemical pollutants, including herbicides as described in detail in Section 5.1.2.1 (**Impact V-3**). Absent mitigation, potential temporary indirect impacts to sensitive vegetation communities that occur within the Boulder Brush Corridor would be significant. **M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-7** (replanting temporarily impacts areas), **M-BI-10** (fugitive dust control plan), **M-BI-11** (erosion and runoff control), and **M-BI-12** (regulation of chemical pollutants) described in Sections 6.4 and 7.4 would mitigate these impacts to less than significant. The measures would mitigate for this impact through implementation of construction-related measures to reduce impacts outside of the development footprint, implementation of a SWPPP, implementation of erosion and runoff control measures, prevention of chemical spills, and implementation of federal and state agency permit requirements.

Impact V-4: Permanent Indirect Impacts to Sensitive Vegetation Communities within the Boulder Brush Corridor

As described in Section 5.1.2.2, permanent indirect impacts could result from the proximity of the Project to sensitive vegetation communities after construction (e.g., maintenance of roads, and clearance around power poles) (**Impact V-4**). Permanent indirect impacts that could affect sensitive vegetation communities include generation of fugitive dust, chemical pollutants, non-native invasive species, and alteration of the natural fire regime. Absent mitigation, potential permanent indirect impacts to sensitive vegetation communities that occur within the Boulder Brush Corridor would be significant. **M-BI-4** (SWPPP), **M-BI-11** (erosion and runoff control), **M-BI-12** (regulation of chemical pollutants), **M-BI-13** (prevention of invasive plant species), **M-BI-14** (fire protection) and **M-BI-16** (federal and state agency permits) would mitigate for these impacts. These measures would mitigate for this impact through construction-related measures to reduce impacts outside of the development footprint, SWPPP implementation, erosion and runoff control measures, minimization of release of exotic plants and animals, implementation of a Fire Protection Plan, and prevention of chemical spills.

Campo Wind Facilities

Impact V-6: Temporary Indirect Impacts to Sensitive Vegetation Communities within the Campo Corridor

Potential temporary indirect impacts to sensitive vegetation communities in the Campo Corridor would primarily result from construction activities and include impacts related to or resulting from the generation of fugitive dust; changes in hydrology resulting from construction, including sedimentation and erosion; and the introduction of chemical pollutants (including herbicides) (**Impact V-6**). Sensitive vegetation communities that could occur within the Campo Corridor, but outside of the development footprint, could be impacted by potential temporary indirect impacts such as those previously listed (see descriptions in Section 5.1). Absent mitigation, these impacts would be significant. The incorporation of the BMPs outlined in Table 5-3 and the General Avoidance and Minimization Measures described in the *Campo Wind Project Biological Technical Report* reduce the impacts to **less than significant**.

Impact V-7: Permanent Indirect Impacts to Sensitive Vegetation Communities within the Campo Corridor

Permanent indirect impacts could result from the proximity of the development footprint to sensitive vegetation communities after construction. Permanent indirect impacts that could affect sensitive vegetation communities include generation of fugitive dust, unintentional spillover or drift of chemical pollutants, non-native invasive species, and alteration of the natural fire regime (**Impact V-7**). Each of these potential indirect impacts is discussed in Section 5.1. Sensitive vegetation communities that may occur at the edge of the development footprint could be impacted by permanent indirect impacts such as those previously listed. Absent mitigation, these impacts would be significant. The incorporation of the BMPs outlined in Table 5-3 and the General Avoidance and Minimization Measures described in the *Campo Wind Project Biological Technical Report* reduce the impacts to **less than significant**.

7.2.5 Project Effects Relevant to Guideline 4.2.E (Resource Protection Ordinance Buffers)

The portion of the Campo Wind Project on the Campo Reservation is not subject to the County RPO and it is not known whether there are biological resources subject to that County's RPO on the Reservation. Impacts to such resources, if they exist, are considered to be **significant and unavoidable.**

Impact V-8: Permanent Direct Impacts to RPO Wetland and Wetland Buffer within the Boulder Brush Corridor

There are RPO wetlands along and within Tule Creek and Ribbonwood Road (Table 7-2). The Project would use the existing dirt road that bisects the RPO wetlands and wetland buffer associated with Tule Creek; however, the road would need to be widened to 25 feet in order to

accommodate construction equipment, resulting in permanent impacts to 0.09 acres of RPO wetland/wetland buffer. The road would remain unpaved. Additional improvements are needed along Ribbonwood Road, which would permanently impact 0.31 acres of RPO wetland/wetland buffer. There are temporary impacts associated with each of these road improvements, totaling 0.90 acres of RPO wetland/wetland buffer. An additional temporary road is proposed in the northern portion of the Tule Creek floodplain. This temporary road results in approximately 0.27 acres of temporary impacts to RPO wetland/wetland buffer.

Section 86.604 of the RPO provides the following list of permitted uses within wetlands and wetland buffers [original numbering retained] (County of San Diego 2012):

> (5) Crossings of wetlands for roads, driveways or trails/pathways dedicated and improved to the limitations and standards under the County Trails Program, that are necessary to access adjacent lands, when all of the following conditions are met:
>
> (aa) There is no feasible alternative that avoids the wetland;
>
> (bb) The crossings are limited to the minimum number feasible;
>
> (cc) The crossings are located and designed in such a way as to cause the least impact to environmental resources, minimize impacts to sensitive species and prevent barriers to wildlife movement (e.g., crossing widths shall be the minimum feasible and wetlands shall be bridged where feasible);
>
> (dd) The least-damaging construction methods are utilized (e.g., staging areas shall be located outside of sensitive areas, work shall not be performed during the sensitive avian breeding season, noise attenuation measures shall be included and hours of operation shall be limited so as to comply with all applicable ordinances and to avoid impacts to sensitive resources);
>
> (ee) The applicant shall prepare an analysis of whether the crossing could feasibly serve adjoining properties and thereby result in minimizing the number of additional crossings required by adjacent development; and
>
> (ff) There must be no net loss of wetlands and any impacts to wetlands shall be mitigated at a minimum ratio of 3:1 (this shall include a minimum 1:1 creation component, while restoration/enhancement of existing wetlands may be used to make up the remaining requirements for a total 3:1 ratio).

The proposed Project would involve use of an existing unpaved access road to cross over the middle segment of Tule Creek to the western side of the Boulder Brush Corridor. This is the only available

access road to this portion of the Boulder Brush Facilities. This crossing would need to be improved to accommodate the necessary construction equipment via upgrades to the roadway (i.e., widening to 25 feet) and installation of a larger culvert to maintain flows beneath the roadway. Improvements to Ribbonwood Road would require minimal impacts to the RPO wetland buffer along the southern portion of Tule Creek. Additionally, a 12-foot wide temporary construction access road is required in the northern segment of Tule Creek for hauling equipment between the poles. This road will be utilized only during construction to drive a pull truck across it to string cables, and will not be a permanent access road. Vegetation in this area will be trimmed or disked and no gravel or pavement will be placed within the creek. Following project construction, the area will be re-countered and replanted to restore Tule Creek to pre-project conditions. However, for habitat mitigation purposes, these impacts are considered permanent and mitigated through habitat conservation.

All temporary staging for the proposed Project would be outside of the RPO wetlands, and impacts to these resources would be mitigated through **M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-11** (erosion and runoff control), and **M-BI-12** (regulation of chemical pollutants).

There are permanent impacts to RPO wetlands and wetland buffers, as summarized in Table 7-2.

Table 7-2
Impacts to Resource Protection Ordinance Wetlands and Wetland Buffers within the Boulder Brush Facilities Development Footprint

RPO Wetland or Wetland Buffer	Vegetation Type	Permanent Impacts (Acres)	Temporary Impacts (Acres)	Total Impacts
RPO Wetlands	Emergent Wetland	--	0.20	0.20
	Southern Arroyo Willow Riparian Forest	0.15	0.20	0.35
	Unvegetated Stream Channel - Intermittent	0.01	0.09	0.10
	RPO Wetland Impact Subtotal	*0.17*	*0.49*	*0.66*
RPO Wetland Buffers	Big Sagebrush Scrub	0.05	0.40	0.45
	Coast Live Oak Woodland	--	0.04	0.04
	Disturbed Habitat	0.18	0.17	0.35
	Semi-Desert Chaparral	--	0.03	0.03
	Wildflower Field	--	0.01	0.01
	Unvegetated Stream Channel - Ephemeral	--	0.05	0.05
	RPO Wetland Buffer Impact Subtotal	*0.23*	*0.68*	*0.92*
	Grand Total	**0.40**	**1.17**	**1.57**

Although construction would result in permanent impacts to 0.17 acres of RPO wetlands, these impacts would be mitigated at a 3:1 ratio, as required by the RPO (**M-BI-5**). Permanent impacts to 0.23 acres of RPO wetland buffers will be mitigated through habitat preservation (**M-BI-5**). Temporary impacts to 0.09 acres of intermittent stream channel and 0.05 acres of ephemeral stream channels will be restored to pre-Project conditions (**M-BI-7**). The remaining temporary impacts to RPO wetland and wetland buffer would will be mitigated through habitat preservation (**M-BI-5**). In addition, these areas are subject to federal and state agency permitting (**M-BI-16**). With implementation of these measures, impacts to RPO wetlands would be **less than significant**.

7.3 Cumulative Impact Analysis

Cumulative impacts will be discussed in the proposed Project's EIR and EIS. For purposes of assessing cumulative impacts related to the Project, an appropriate geographic scope would include the Peninsular Ranges of the California floristic province, as defined by the Jepson Flora Project (2018).

7.4 Mitigation Measures and Design Considerations

Mitigation measures M-BI-1 through M-BI-15 are described in Section 6.4 above. Mitigation measures associated with the Campo Wind Project are described in the *Campo Wind Project Biological Resources Technical Report*.

M-BI-16 **Federal and State Agency Permits.** Prior to impacts occurring to U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) (collectively, the Resource Agencies) jurisdictional aquatic resources, the Project applicant or its designee shall obtain the following permits: USACE 404 permit or authorization under a Nationwide Permit, RWQCB 401 Water Quality Certification, and California Fish and Game Code 1602 Streambed Alteration Agreement. To mitigate for impacts to jurisdictional waters, the applicant may purchase mitigation bank credits, including establishment, re-establishment, enhancement, or rehabilitation. Alternatively, a suitable mitigation site shall be selected and approved by the Resource Agencies during the permitting process. Either of these mitigation options would result in no net loss of jurisdictional aquatic resources. A functional assessment, such as the California Rapid Assessment Method (CRAM), of the jurisdictional areas proposed to be impacted and preserved at the mitigation site shall be conducted. The purpose of the functional assessment is to evaluate the existing functions and services within the jurisdictional drainages and ensure that the functions and values of the jurisdictional areas lost are replaced at the mitigation site. The

precise mitigation ratio shall depend on the functions and values of the mitigation site and any restoration activities that may be conducted to further increase the functions and values of the mitigation site.

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

If mitigation is proposed to occur within the Boulder Brush Corridor or within the off-site mitigation area, then a Wetlands Mitigation and Monitoring Plan shall be prepared. Prior to issuance of land development permits, including clearing, grubbing, and grading permits for activities that would impact jurisdictional aquatic resources, the Project applicant shall prepare a Wetlands Mitigation and Monitoring Plan to the satisfaction of the Director of Planning & Development Services (or his/her designee). The Conceptual Wetlands Mitigation and Monitoring Plan shall, at a minimum, prescribe site preparation, planting, irrigation, and a 5-year maintenance and monitoring program with qualitative and quantitative evaluation of the revegetation effort and specific performance criteria to determine successful revegetation.

7.5 Conclusions

Boulder Brush Facilities

Impact V-1: Temporary Direct Impacts to Sensitive Vegetation Communities within the Boulder Brush Corridor

The significant temporary direct impacts to sensitive vegetation communities would be reduced to less than significant through implementation of **M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-5** (habitat preservation), **M-BI-7** (restoration of temporary impacts), and **M-BI-16** (federal and state agency permits; see County Guideline 4.2.B), which would mitigate for this impact through construction-related measures to reduce impacts outside of the development footprint, restoration of temporary impacted areas, and implementation of agency permitting requirements for impacts to jurisdictional aquatic resources.

Impact V-2: Permanent Direct Impacts to Sensitive Vegetation Communities within the Boulder Brush Corridor

The significant permanent, direct impact to sensitive vegetation communities within the development footprint (Table 5-1) would be reduced to less than significant through implementation of **M-BI-5** (habitat preservation), and **M-BI-16** (federal and state agency permits for jurisdictional aquatic resources, see County Guideline 4.2.B). These measures would mitigate for this impact through habitat preservation and, construction-related measures to reduce impacts outside of the development footprint.

Impact V-3: Temporary Indirect Impacts to Sensitive Vegetation Communities within the Boulder Brush Corridor

Significant indirect impacts to sensitive vegetation communities would be reduced to less than significant through implementation of **M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-7** (replanting temporarily impacts areas), **M-BI-10** (fugitive dust control plan), **M-BI-11** (erosion and runoff control), and **M-BI-12** (regulation of chemical pollutants).

Impact V-4: Permanent Indirect Impacts to Sensitive Vegetation Communities within the Boulder Brush Corridor

Significant permanent indirect impacts to sensitive vegetation communities would be reduced to less than significant through implementation of **M-BI-4** (SWPPP), **M-BI-11** (erosion and runoff control), **M-BI-12** (regulation of chemical pollutants), **M-BI-13** (prevention of invasive plant species), **M-BI-14** (fire protection), and **M-BI-16** (federal and state agency permits).

Impact V-8: Permanent Direct Impacts to RPO Wetland and Wetland Buffer within the Boulder Brush Corridor

The significant permanent, direct impacts to RPO wetland and wetland buffer (Table 7-2) would be reduced to less than significant through implementation of **M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-5** (habitat preservation), **M-BI-7** (restoration of temporary impacts), **M-BI-11** (erosion and runoff control), **M-BI-12** (regulation of chemical pollutants), and **M-BI-16** (federal and state agency permits).

Impact JAR-1: Temporary Direct Impacts to Jurisdictional Aquatic Resources within the Boulder Brush Corridor

Significant temporary direct impacts to jurisdictional aquatic resources would be reduced to less than significant through implementation of **M-BI-2** (biological monitoring), **M-BI-3** (temporary

construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-7** (restoration of temporary impacts), and **M-BI-16** (federal and state agency permits).

Impact JAR-2: Permanent Direct Impacts to Jurisdictional Aquatic Resources within the Boulder Brush Corridor

Significant permanent direct impacts to jurisdictional aquatic resources would be reduced to less than significant through implementation of **M-BI-5** (habitat preservation) and **M-BI-16** (federal and state agency permits), which would mitigate for this impact through coordination with federal and state agencies to obtain the appropriate permits and approvals for impacts to jurisdictional aquatic resources and implementation of measures that would reduce impacts to jurisdictional aquatic resources (i.e., restoration of temporary impacts and purchase of mitigation credits to offset impacts).

Impact JAR-3: Temporary Indirect Impacts to Jurisdictional Aquatic Resources within the Boulder Brush Corridor

The significant temporary indirect impacts to jurisdictional aquatic resources would be reduced to less than significant through implementation of **M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-11** (erosion and runoff control), **M-BI-12** (regulation of chemical pollutants), and **M-BI-16** (federal and state agency permits).

Impact JAR-4: Permanent Indirect Impacts to Jurisdictional Aquatic Resources within the Boulder Brush Corridor

The significant permanent indirect impacts to jurisdictional aquatic resources would be reduced to less than significant through implementation of **M-BI-4** (SWPPP), **M-BI-11** (erosion and runoff control), **M-BI-12** (regulation of chemical pollutants), **M-BI-13** (prevention of invasive plant species), **M-BI-14** (fire protection), and **M-BI-16** (federal and state agency permits).

Campo Wind Facilities

Impact V-5: Permanent Direct Impacts to Sensitive Vegetation Communities within the Campo Corridor

There are impacts to 789.3 acres of vegetation communities and land covers associated with the Campo Wind Project (Table 5-2). Of those, approximately 740.5 acres are considered "sensitive vegetation communities" by the County. Impacts to vegetation communities or land covers on the Reservation are not subject to the mitigation requirements in the County guidelines. Permanent direct impacts would be **significant and unavoidable**.

Impact V-6: Temporary Indirect Impacts to Sensitive Vegetation Communities within the Campo Corridor

Significant temporary indirect impacts to sensitive vegetation communities would be reduced to less than significant through implementation of the BMPs outlined in Table 5-3 and the General Avoidance and Minimization Measures described in the *Campo Wind Project Biological Technical Report.*

Impact V-7: Permanent Indirect Impacts to Sensitive Vegetation Communities within the Campo Corridor

Significant permanent indirect impacts to sensitive vegetation communities would be reduced to less than significant through implementation of the BMPs outlined in Table 5-3 and the General Avoidance and Minimization Measures described in the *Campo Wind Project Biological Technical Report.*

Impact JAR-5: Permanent Direct Impacts to Jurisdictional Aquatic Resources within the Campo Corridor

Significant permanent direct impacts to jurisdictional aquatic resources will be reduced to less than significant through the Jurisdictional Waters and Wetlands-Specific Avoidance, Minimization, and Mitigation Measures described in the *Campo Wind Project Biological Technical Report*.

Impact JAR-6: Temporary Indirect Impacts to Jurisdictional Aquatic Resources within the Campo Corridor

The significant temporary indirect impacts to jurisdictional aquatic resources would be reduced to less than significant through implementation of the BMPs outlined in Table 5-3, the General Avoidance and Minimization Measures, and the Jurisdictional Waters and Wetlands-Specific Avoidance, Minimization, and Mitigation Measures described in the *Campo Wind Project Biological Technical Report.*

Impact JAR-7: Permanent Indirect Impacts to Jurisdictional Aquatic Resources within the Campo Corridor

The significant permanent indirect impacts to jurisdictional aquatic resources would be reduced to less than significant through implementation of the BMPs outlined in Table 5-3, the General Avoidance and Minimization Measures, and the Jurisdictional Waters and Wetlands-Specific Avoidance, Minimization, and Mitigation Measures described in the *Campo Wind Project Biological Technical Report.*

8 JURISDICTIONAL WETLANDS AND WATERWAYS

8.1 Guidelines for the Determination of Significance

The County's Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources (County of San Diego 2010a) are based on the criteria in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) and were used to analyze potential direct and indirect impacts to biological resources. The following guideline for the determination of significance comes directly from the County's guidelines and refers only to federally protected wetlands (County of San Diego 2010a):

Guideline 4.3: The project would have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

The significance of impacts are determined under County Guidelines 4.2B, C, and E.

8.2 Analysis of Project Effects Relevant to Guideline 4.3 (Federally Protected Wetlands)

Boulder Brush Facilities

As described in Section 7.2, Analysis of Project Effects, the Boulder Brush Facilities would have temporary and permanent direct impacts to jurisdictional aquatic resources, including wetlands, as defined by Section 404 of the Clean Water Act (**Impacts JAR-1** through **JAR-4**). **Impacts JAR-1** through **JAR-4** would be mitigated through **M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-5** (habitat preservation), **M-BI-7** (restoration of temporary impacts), **M-BI-11** (erosion and runoff control), **M-BI-12** (regulation of chemical pollutants), **M-BI-13** (prevention of invasive plant species), and **M-BI-16** (federal and state agency permits).

Campo Wind Facilities

As described in Section 7.2, the Campo Wind Facilities would have permanent direct impacts to jurisdictional aquatic resources, including wetlands, as defined by Section 404 of the Clean Water Act (**Impacts JAR-5** through **JAR-7**)**. Impacts JAR-5** through **JAR-7**will be reduced to less than significant through the Jurisdictional Waters and Wetlands-Specific Avoidance, Minimization, and Mitigation Measures described in the *Campo Wind Project Biological Technical Report*.

8.3 Cumulative Impact Analysis

Cumulative impacts will be discussed in the Project's EIR and EIS. For purposes of assessing cumulative impacts related to the Project, an appropriate geographic scope would include the Peninsular Ranges of the California floristic province, as defined by the Jepson Flora Project (2018).

8.4 Mitigation Measures and Design Considerations

Mitigation measures applicable to County Guideline 4.3 are discussed in Section 7.4, Mitigation Measures and Design Considerations, of this report, and the Jurisdictional Waters and Wetlands-Specific Avoidance, Minimization, and Mitigation Measures described in the *Campo Wind Project Biological Technical Report*.

8.5 Conclusions

Refer to Section 7.5, Conclusions, for the conclusions related to **Impacts JAR-1** through **JAR-7**.

9 WILDLIFE MOVEMENT AND NURSERY SITES

9.1 Guidelines for the Determination of Significance

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

Guideline 4.4: The project would interfere substantially with the movement of a native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

A. The project would impede wildlife access to foraging habitat, breeding habitat, water sources, or other areas necessary for their reproduction.

B. The project would substantially interfere with connectivity between blocks of habitat, or would potentially block or substantially interfere with a local or regional wildlife corridor or linkage. For example, if the project proposes roads that cross corridors, fencing that channels wildlife to underpasses located away from interchanges will be required to provide connectivity. Wildlife underpasses shall have dimensions (length, width, height) suitable for passage by the affected species based on a site-specific analysis of wildlife movement. Another example is increased traffic on an existing road that would result in significant road-kill or interference with an existing wildlife corridor/linkage.

C. The project would create artificial wildlife corridors that do not follow natural movement patterns; for example, constraining a corridor for mule deer or mountain lion to an area that is not well-vegetated or that runs along the face of a steep slope instead of through the valley or along the ridgeline.

D. The project would increase noise and/or nighttime lighting in a wildlife corridor or linkage to levels likely to affect the behavior of the animals identified in a site-specific analysis of wildlife movement.

E. The project does not maintain an adequate width for an existing wildlife corridor or linkage and/or would further constrain an already narrow corridor through activities such as (but not limited to) reduction of corridor

width, removal of available vegetative cover, placement of incompatible uses adjacent to it, and placement of barriers in the movement path. The adequacy of the width shall be based on the biological information for the target species, the quality of the habitat within and adjacent to the corridor, topography, and adjacent land uses. Where there is limited topographic relief, the corridor should be well-vegetated and adequately buffered from adjacent development. Corridors for bobcats, deer, and other large animals should reach rim-to-rim along drainages.

F. The project does not maintain adequate visual continuity (i.e., long lines of site) within wildlife corridors or linkage. For example, development (such as homes or structures) sited along the rim of a corridor could present a visual barrier to wildlife movement. For stepping-stone/archipelago corridors, a project does not maintain visual continuity between habitat patches.

9.2 Analysis of Project Effects

9.2.1 Project Effects Relevant to Guideline 4.4.A (Wildlife Access to Key Habitat Areas)

Impact WLC-1: Temporary Direct Impacts to Habitat Connectivity and Wildlife Corridors

Temporary direct impacts to potential foraging and breeding habitat for species that use the Boulder Brush Corridor would primarily result from construction activities associated with the Boulder Brush Facilities. Clearing, trampling, or grading of foraging and breeding habitat outside designated construction zones could occur in the absence of avoidance and mitigation measures. Potential temporary direct impacts to foraging and breeding habitat on site would be significant, absent mitigation (**Impact WLC-1**). However, these temporary, direct impacts would be mitigated to less than significant through implementation of **M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), and **M-BI-7** (restoration of temporary impacts), which would mitigate for this impact through construction-related measures to reduce impacts outside of the development footprint and through restoration of temporarily impacted areas. There are no temporary direct impacts associated with the Campo Wind Facilities.

9.2.2 Project Effects Relevant to Guideline 4.4.B (Connectivity Between Blocks of Habitat)

As stated in Section 5.5.1.2, implementation of the proposed Project is not expected to result in permanent direct impacts to habitat connectivity and wildlife corridors. Although construction of

the Project would impact areas where wildlife may generally move through, it is not anticipated to hinder wildlife movement through the surrounding undeveloped landscapes. Additional human activity from O&M activities is not expected to significantly impact wildlife movement throughout the Project Site. Therefore, installation of the turbines, towers, power poles, and other associated features is not anticipated to constrain any wildlife movement (either terrestrial or avian) corridor within the region. The proposed Project would have less-than-significant direct impacts on connectivity between blocks of habitat.

9.2.3 Project Effects Relevant to Guideline 4.4.C (Creation of Unnatural Movement Corridors)

The Project would not result in the creation of unnatural movement corridors. Wildlife can freely move through the Project Site and would continue to move freely through the site following Project construction. The turbines, towers, and power poles and lines would not create a barrier to ground-based wildlife movement, nor would they constrain a corridor such that natural wildlife movement would be interrupted. Therefore, impacts to wildlife movement from the Project would be less than significant. Likewise, the presence of power poles and lines would not preclude the use of the Pacific Flyway for avian species, nor would it artificially constrain avian species to a modified or "un-natural" movement corridor. Although the Project would involve placement of structures and poles within the landscape, these features would not be considered barriers that would interfere with the movement of avian species within and throughout the Project Site.

Boulder Brush Facilities

Impact W-4: Impacts to Wildlife Species from Electrocution

Migrating birds and bat species would be at risk for electrocution from the overhead power lines (**Impact W-4**). The Boulder Brush Facilities would ensure that all transmission towers and lines are designed to conform to Avian Power Line Interaction Committee (APLIC) standards (**M-BI-8**). The Boulder Brush Facilities shall implement recommendations by the APLIC (2006), which will protect raptors and other birds from electrocution. These measures are sufficient to protect even the largest birds that may perch or roost on transmission lines or towers from electrocution. Specifically these measures will include guidance on proper pole and crossmember dimensions, phasing, and insulator design and dimensions to preclude wire to wire contact with a goal of providing 150-cm of separation between energized conductors and energized hardware and ground wire. In addition, bird diverters or other means to make lines more visible to birds will be installed to help avoid collisions. In addition, the Boulder Brush Facilities will be required to move any dead carcasses which may attract carrion-consuming birds of prey to the Boulder Brush Corridor **(M-BI-9**).

Golden Eagle. Golden eagle use in the Project Site and surrounding area is described in Sections 4.6.1 and 5.3.1. Electrocution by from power lines, has some outside potential to cause injury or mortality of golden eagle individuals; however, the USGS biotelemetry data suggests that the Project Site and surrounding area receives little use by eagles and is not the core territory of any eagles; therefore, the chance for collisions/electrocution is very low and potential impacts would be less than significant.

Campo Wind Facilities

Impact W-11: Impacts to Wildlife Species from Collisions and Electrocution

Birds would be at risk for collisions with the turbines and towers and these impacts would be significant, absent mitigation (**Impact W-11**). The Avian-Specific Avoidance, Minimization, and Mitigation Measures from the *Campo Wind Project Biological Technical Report* recommends implementing APLIC standards, preparing an Avian Monitoring Plan, and removing carcasses within the development site to reduce increased attraction of carrion-consuming birds of prey to the turbine and tower areas. Therefore, impacts would be **less than significant**.

9.2.4 Project Effects Relevant to Guideline 4.4.D (Noise and Lighting Impacts to Wildlife Corridors)

Impacts WLC-2 and WLC-3: Temporary and Permanent Indirect Impacts to Habitat Connectivity and Wildlife Corridors

Permanent lighting associated with the Project would consist of the operation and maintenance facility, Federal Aviation Administration lighting on selected turbines, and parking areas. These areas would include security lighting designed to minimize light pollution and preserve dark skies, while enhancing safety, security, and functionality. Some localized security-related lighting may be required during construction and/or operation. Lighting would conform to County outdoor lighting requirements and therefore, lighting associated with the proposed Projects is not expected to result in significant impacts to wildlife corridors related to lighting.

Project construction would result in noise and ground vibrations through the use of mechanized equipment and increased traffic. Noise would most likely only be a disturbance to those species that are active during the day, since noise levels are less at night. Most wildlife species, such as cougars and bobcats, that would use the area as a habitat corridor or live-in habitat are nocturnal, and, therefore, would not be impacted by Project construction while foraging and moving at night.

As described in Section 5.5.2, the sound pressure from the substation is expected to be less than 20 dBA L_{eq} approximately 15,000 feet from the high-voltage substation and switchyard. Aboveground electrical transmission lines associated with the Boulder Brush Facilities may produce corona during normal operation, but even under adverse weather conditions that would moisten or wet the conductor surfaces, the resulting noise would only be audible at very close distances and thus not result in an adverse effect.

On the Reservation, there are potential impacts associated with noise from the wind turbines. Noise contour modeling show that predicted wind turbine noise levels range from approximately 31 dBA to 65 dBA depending on the turbine location and predicted wind speeds. However, studies cited in Caltrans (2016) indicate that birds can tolerate noise below 110 dBA without having permanent hearing damage or and permanent threshold shifts, and continuous noise levels below 93 dBA are unlikely to cause temporary threshold shifts in birds. The modeled noise impacts are 65 dBA at the highest estimate; therefore long-term noise associated with the turbines is not expected to significantly impact birds.

Therefore, the potential noise and lighting impacts as a result of the Project would be less than significant.

9.2.5 Project Effects Relevant to Guideline 4.4.E (Width of Wildlife Corridors)

The Project Site does not contain any defined wildlife corridors; therefore, the development footprints would not further constrain an already narrow corridor. Although the Project would involve placement of structures and poles within the landscape, these features would not be considered barriers that would interfere with the movement of wildlife through the area.

9.2.6 Project Effects Relevant to Guideline 4.4.F (Visual Continuity within Wildlife Corridors)

The Project would not create a barrier to visual continuity within a wildlife corridor or linkage. No structures would be placed along the rim of a corridor which would present a visual barrier to wildlife movement.

9.3 Cumulative Impact Analysis

Cumulative impacts will be discussed in the Project's EIR and EIS. For purposes of assessing cumulative impacts related to the Project, an appropriate geographic scope would include the Peninsular Ranges of the California floristic province, as defined by the Jepson Flora Project (2018).

9.4 Mitigation Measures and Design Considerations

Mitigation for temporary, direct impacts to potential foraging and breeding habitat includes **M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), and **M-BI-7** (restoration of temporary impacts), which are described in Section 6.4, are applicable for the Boulder Brush Facilities. Mitigation for the Campo Wind Project area described in the *Campo Wind Project Biological Technical Report*.

9.5 Conclusions

Impact WLC-1: Temporary Direct Indirect Impacts to Habitat Connectivity and Wildlife Corridors

The significant temporary direct impacts to potential foraging and breeding habitat from the Boulder Brush Facilities would be reduced to a level that is less than significant through implementation of **M-BI-2**, **M-BI-3**, and **M-BI-7**, which require biological monitoring, temporary construction flagging and/or fencing, and restoration of temporary impacts. There would be no temporary or permanent significant impacts to wildlife corridors or habitat linkages as a result of the Project.

Impacts WLC-2 and WLC-3: Temporary and Permanent Indirect Impacts to Habitat Connectivity and Wildlife Corridors

The temporary and permanent indirect impacts to habitat connectivity and wildlife corridors are less than significant.

Impact W-4: Impacts to Wildlife Species from Electrocution

Migratory birds and bats could be injured or killed through electrocution from transmission lines (gen-tie). The Boulder Brush Facilities impacts would be reduced to **less than significant** through implementation **M-BI-8** (APLIC standards) and **M-BI-9** (removal of dead carcasses).

Impact W-11: Impacts to Wildlife Species from Collisions

The Campo Wind Facilities could impact birds through collisions with the turbines and towers or electrocution with transmission lines (gen-tie). These impacts would be significant, absent mitigation (**Impact W-11**). These impacts would be reduced to **less than significant** through implementation the Avian-Specific Avoidance, Minimization, and Mitigation Measures from the *Campo Wind Project Biological Technical Report*, which recommend implementing APLIC standards, preparing an Avian Monitoring Plan, and removing carcasses within the development site to reduce increased attraction of carrion-consuming birds of prey to the turbine and tower areas.

10 LOCAL POLICIES, ORDINANCES, AND ADOPTED PLANS

10.1 Guidelines for the Determination of Significance

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

Guideline 4.5: The project would conflict with one or more local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, and/or would conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state HCP.

A. For lands outside of the Multiple Species Conservation Plan (MSCP), the project would impact coastal sage scrub (CSS) vegetation in excess of the County's 5% habitat loss threshold as defined by the Southern California Coastal Sage Scrub Natural Communities Conservation Planning Process (NCCP) Guidelines.

B. The project would preclude or prevent the preparation of the subregional Natural Communities Conservation Planning Process (NCCP). For example, the project proposes development within areas that have been identified by the County or resource agencies as critical to future habitat Preserves.

C. The project will impact any amount of wetlands or sensitive habitat lands as outlined in the Resource Protection Ordinance (RPO).

D. The project would not minimize and/or mitigate coastal sage scrub habitat loss in accordance with Section 4.3 of the Natural Communities Conservation Planning Process (NCCP) Guidelines.

E. The project does not conform to the goals and requirements as outlined in any applicable Habitat Conservation Plan (HCP), Habitat Management Plan (HMP), Special Area Management Plan (SAMP), Watershed Plan, or similar regional planning effort.

F. For lands within the Multiple Species Conservation Program (MSCP), the project would not minimize impacts to Biological Resource Core Areas (BRCAs), as defined in the Biological Mitigation Ordinance (BMO).

G. The project would preclude connectivity between areas of high habitat values, as defined by the Southern California Coastal Sage Scrub Natural Communities Conservation Planning Process (NCCP) Guidelines.

H. The project does not maintain existing movement corridors and/or habitat linkages as defined by the Biological Mitigation Ordinance (BMO).

I. The project does not avoid impacts to MSCP narrow endemic species and would impact core populations of narrow endemics.

J. The project would reduce the likelihood of survival and recovery of listed species in the wild.

K. The project would result in the killing of migratory birds or destruction of active migratory bird nests and/or eggs (Migratory Bird Treaty Act).

L. The project would result in the take of eagles, eagle eggs, or any part of an eagle (Bald and Golden Eagle Protection Act).

10.2 Analysis of Project Effects

10.2.1 Project Effects Relevant to Guideline 4.5.A (Coastal Sage Scrub Habitat Loss)

The Boulder Brush Facilities and Campo Wind Facilities development footprints do not support, and therefore would not impact, coastal sage scrub vegetation.

10.2.2 Project Effects Relevant to Guideline 4.5.B (NCCP Planning)

The Campo Wind Facilities are not subject to NCCP planning and therefore not discussed below.

Although the County and Wildlife Agencies (i.e., USFWS and CDFW) have developed a list of covered species and have created a preliminary draft map of the focused conservation areas, the East County MSCP Subarea Plan is currently in draft form with no current schedule for completion. The Project would not preclude or prevent the preparation of the subregional NCCP because the Project has been planned in accordance with the planning principles of the MSCP and in consideration of preparation of the East County MSCP Subarea Plan. The Project design has been evaluated according to the Preliminary Conservation Objectives outlined in the Planning Agreement for East County MSCP (County of San Diego 2014). These objectives, and Project applicability/compliance, are listed in Table 10-1, East County MSCP Planning Agreement Conservation Objectives.

Table 10-1
East County MSCP Planning Agreement Conservation Objectives

Conservation Objective	Consistency with the Planning Agreement
Provide for the protection of species, natural communities, and ecosystems on a landscape level;	The Boulder Brush Facilities, with mitigation, would provide for protection and conservation of special-status species and natural communities.
Preserve the diversity of plant and animal communities throughout the Planning Area;	The Boulder Brush Facilities, with mitigation, would preserve the diversity of plant and animal communities throughout the Planning Area.
Protect threatened, endangered, or other special status plant and animal species, and minimizes and mitigate the take or loss of proposed Covered Species;	The Boulder Brush Facilities, with mitigation, would provide for protection and conservation of special-status species and natural communities.
Identify and designate biologically sensitive habitat areas;	Biological studies have been conducted for the Boulder Brush Corrdidor to determine sensitive habitat areas. Mitigation follows the County guidelines.
Preserve habitat and contribute to the recovery of Covered Species;	The Boulder Brush Facilities, with mitigation, would provide for protection and conservation of special-status species and natural communities.
Reduce the need to list additional species;	The Boulder Brush Corridor does not support candidate or species in peril. The Boulder Brush Facilities is consistent with the County's guidelines and provides mitigation for County listed plant and wildlife species and therefore is expected to be consistent with the draft East County MSCP Plan.
Set forth species-specific goals and objectives; and	Although the draft East County MSCP Plan does not provide species-specific goals and objectives, the proposed Boulder Brush Facilities is consistent with the County's guidelines and provides mitigation for County listed plant and wildlife species and therefore is expected to be consistent with the draft East County MSCP Plan.
Set forth specific habitat-based goals and objectives expressed in terms of amount, quality, and connectivity of habitat	Although the draft East County MSCP Plan does not provide specific habitat-based goals and objectives expressed in terms of amount, quality, and connectivity of habitat, the Boulder Brush Facilities is consistent with the County's guidelines and provides mitigation for County listed plant and wildlife species and sensitive habitats and therefore is expected to be in compliance.

10.2.3 Project Effects Relevant to Guideline 4.5.C (RPO Wetlands)

There are RPO wetlands along Tule Creek and Ribbonwood Road. These impacts are discussed in Section 7.2.5, Project Effects Relevant to Guideline 4.2.E (Resource Protection Ordinance Buffers) (**Impact V-8**). Absent mitigation, impacts to RPO wetlands and wetland buffers would be significant. Impacts to these resources would be mitigated through **M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-5** (habitat preservation), **M-BI-7** (restoration of temporary impacts), **M-BI-11** (erosion and runoff control), **M-BI-12** (regulation of chemical pollutants), and **M-BI-16** (federal and state agency permits). It is not known whether there are RPO resources on the portion of the Project on the Reservation.

10.2.4 Project Effects Relevant to Guideline 4.5.D (Coastal Sage Scrub)

The Project development footprint does not support, and therefore would not impact, coastal sage scrub vegetation.

10.2.5 Project Effects Relevant to Guideline 4.5.E (Regional Planning Efforts)

The Boulder Brush Facilities conforms to the goals and requirements as outlined in the East County MSCP Planning Agreement Conservation Objectives (Table 10-1); therefore, the Boulder Brush Facilities conforms to the goals and requirements as outlined in the regional planning effort. The Campo Wind Project is not subject to regional planning efforts.

10.2.6 Project Effects Relevant to Guideline 4.5.F (Biological Mitigation Ordinance)

Since there is no approved East County MSCP and no associated BMO, this guideline does not apply to the Boulder Brush Facilities and therefore no impacts would occur. The Campo Wind Project is not subject to the County BMO.

10.2.7 Project Effects Relevant to Guideline 4.5.G (Connectivity between Areas of High Habitat Value)

The Project will not preclude habitat connectivity between areas of high habitat values as defined in the NCCP Guidelines; therefore, no impacts would occur.

10.2.8 Project Effects Relevant to Guideline 4.5.H (Movement Corridors Defined in the BMO)

Since there is no approved East County MSCP and no associated BMO, this guideline does not apply to the Boulder Brush Facilities and therefore no impacts would occur. The Campo Wind Project is not subject to the County BMO.

10.2.9 Project Effects Relevant to Guideline 4.5.I (Narrow Endemics)

Narrow endemic species are evaluated under the County Guidelines for Determining Significance for Biological Resources. There are none within the Boulder Brush Corridor; therefore, no impacts would occur. There are no narrow endemics identified in the Campo Corridor.

10.2.10 Project Effects Relevant to Guideline 4.5.J (Listed Species)

Boulder Brush Facilities

No federally or state-listed plant species have been observed within the Boulder Brush Corridor.

Quino checkerspot butterfly is known to occur in the Boulder Brush Corridor and there are impacts to potentially occupied habitat (**Impact W-5**). This impact would be reduced to **less than significant** through implementation of mitigation measure **M-BI-1**, which describes the Section 7 consultation process with the USFWS, off-site mitigation for permanent impacts to Quino checkerspot butterfly habitat, fencing and signage around occupied Quino checkerspot butterfly habitat, and working in suitable habitat areas when the adult and larval activity is low.

Campo Wind Facilities

Quino checkerspot butterfly is known to occur in the Campo Corridor and there are impacts to potentially occupied habitat (**Impact W-8**). This impact would be reduced to **less than significant** through implementation of the Quino Checkerspot Butterfly-Specific Avoidance, Minimization, and Mitigation Measures described in the *Campo Wind Project Biological Technical Report*, which describes the Section 7 consultation process with the USFWS, off-site mitigation for permanent impacts to Quino checkerspot butterfly habitat, fencing and signage around occupied Quino checkerspot butterfly habitat, and working in suitable habitat areas when the adult and larval activity is low.

10.2.11 Project Effects Relevant to Guideline 4.5.K (Migratory Birds)

Boulder Brush Facilities

Temporary construction-related impacts to migratory birds and active migratory bird nests and/or eggs would be significant, absent mitigation (**Impact W-3**). This impact would be mitigated through **M-BI-6** (preconstruction surveys for nesting birds and setbacks), which prevents direct loss of active nests and indirect disturbance to active nests.

Campo Wind Facilities

The Campo Wind Facilities could impact nesting birds protected under the MBTA (**Impact W-10**). These impacts would be reduced to **less than significant** through implementation the Avian-Specific Avoidance, Minimization, and Mitigation Measures from the *Campo Wind Project Biological Technical Report*.

10.2.12 Project Effects Relevant to Guideline 4.5.L (Eagles)

Boulder Brush Facilities

The Boulder Brush Facilities would not have site-specific impacts on golden eagle nesting. Impacts to 69.8 acres of suitable foraging habitat for eagles would be significant, absent mitigation (included with raptor foraging impacts, **Impact W-2**). This impact would be mitigated through **M-BI-5** (habitat preservation and management), which requires conservation of 133.2 acres of suitable raptor foraging habitat, of which, 79.1 acres is suitable eagle foraging habitat. Based on the low golden eagle use on site for foraging, potential collision impacts are considered less than significant. Since the Boulder Brush Facilities development footprint is not located within 4,000 feet of nesting golden eagle, the Boulder Brush Facilities would not have site-specific impacts on golden eagle nesting. The Boulder Brush Corridor is not expected to cause take of eagles pursuant to the Bald and Golden Eagle Protection Act.

Campo Wind Facilities

There are impacts to 785.7 acres of suitable foraging habitat for raptors, including eagles that would be less than significant because the overall impacts are less than 5% of the total Reservation Boundary. Based on the low golden eagle use on site for foraging, potential collision impacts are considered less than significant.

10.3 Cumulative Impact Analysis

Cumulative impacts will be discussed in the Projects' EIR and EIS. For purposes of assessing cumulative impacts related to the Project, an appropriate geographic scope would include the Peninsular Ranges of the California floristic province, as defined by the Jepson Flora Project (2018).

10.4 Mitigation Measures and Design Considerations

No other mitigation is proposed for impacts to local policies, ordinances, and plans because the proposed Project remains consistent with all applicable approved planning documents/plans.

10.5 Conclusions

Implementation of the Project would not conflict with currently established applicable local policies, ordinances, or plans. Biological resources protected under these documents are expected to remain safeguarded given the compliance of the Project with the stipulations indicated in these regulations.

Boulder Brush Facilities

Impact W-2: Permanent Direct Impacts to Golden Eagle Foraging Habitat

Impacts to golden eagle foraging habitat would be mitigated through the preservation of habitat within an off-site location (**M-BI-5**). These impacts would be reduced to **less than significant** levels through implementation of **M-BI-5** (habitat preservation).

Impact W-3: Permanent Direct Impacts to Special-Status Wildlife Species (Nesting Birds)

The Boulder Brush Facilities could impact nesting birds protected under the MBTA and California Fish and Game Code. These impacts would be reduced to **less than significant** through implementation of **M-BI-6** (preconstruction surveys for nesting birds).

Impact W-5: Permanent Direct Impacts to Potentially Occupied Quino Checkerspot Butterfly

The significant permanent direct impacts to 54.8 acres of potentially occupied Quino checkerspot butterfly habitat would be reduced to less than significant through implementation of mitigation measure **M-BI-1**, which describes the Section 7 consultation process with the USFWS, off-site mitigation for permanent impacts to Quino checkerspot butterfly habitat, fencing and signage around occupied Quino checkerspot butterfly habitat, and working in suitable habitat areas when the adult and larval activity is low.

Campo Wind Facilities

Impact W-8: Permanent Direct Impacts to Potentially Occupied Quino Checkerspot Butterfly

Permanent direct impacts to 272.8 acres of potentially occupied Quino checkerspot butterfly habitat would be reduced to **less than significant** through implementation of the Quino Checkerspot Butterfly-Specific Avoidance, Minimization, and Mitigation Measures described in the *Campo Wind Project Biological Technical Report*, which describes the Section 7 consultation process with the USFWS, off-site mitigation for permanent impacts to Quino checkerspot butterfly habitat, fencing and signage around occupied Quino checkerspot butterfly habitat, and working in suitable habitat areas when the adult and larval activity is low.

Impact W-9: Permanent Direct Impacts to Golden Eagle Foraging Habitat

Permanent direct impacts to golden eagle foraging habitat on the Reservation are not subject to the mitigation requirements in the County guidelines and would be **significant and unavoidable**.

Impact W-10: Impacts to Active Nests

The proposed Project could impact nesting birds protected under the MBTA. These impacts would be reduced to **less than significant** through implementation the Avian-Specific Avoidance, Minimization, and Mitigation Measures from the *Campo Wind Project Biological Technical Report*.

11 SUMMARY OF PROJECT IMPACTS AND MITIGATION

Sections 6.5, 7.5, 8.5, 9.5, and 10.5 summarize the impacts and associated mitigation for each significant impact that may occur as a result of the proposed Project. Table 11-1, Summary of Impacts and Mitigation, summarizes the impacts and mitigation required for impacts to special-status species, vegetation communities, and jurisdictional areas.

Table 11-1
Summary of Significant Impacts and Mitigation

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
Guideline 4.1: *The project would have a substantial adverse effect, either directly or through habitat modifications, on a candidate, sensitive, or special status species listed in local or regional plans, policies, or regulations, or by California Department of Fish and Game or U.S. Fish and Wildlife Service.*						
6.2.1	Impact W-5	Federally listed wildlife (Quino checkerspot butterfly)	Permanent direct	**M-BI-1** (Quino Checkerspot Butterfly-Specific Avoidance, Minimization, and Mitigation Measures)	Less than significant	4.1A
6.2.1	Impact W-8	Federally listed wildlife (Quino checkerspot butterfly)	Permanent direct	Quino Checkerspot Butterfly-Specific Avoidance, Minimization, and Mitigation Measures described in the *Campo Wind Project Biological Technical Report*	Less than significant	4.1A
6.2.2	Impact SP-1	Special-status plants	Temporary direct	**M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), and **M-BI-4** (SWPPP BMPs, including restrictions on plantings, temporary equipment staging and storage, and construction vehicle speed limits)	Less than significant	4.1B
6.2.2	Impact SP-2	Special-status plants	Permanent direct	**M-BI-5** (habitat preservation)	Less than significant	4.1B
6.2.2	Impact SP-5	Special-status plants	Permanent direct	None	Significant and unavoidable	4.1B

Table 11-1
Summary of Significant Impacts and Mitigation

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
6.2.2	Impact W-1	Special-status wildlife	Temporary direct	**M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-6** (nesting bird surveys), and **M-BI-7** (restoration of temporary impacts)	Less than significant	4.1B
6.2.2	Impact W-2	Special-status wildlife	Permanent direct	**M-BI-5** (habitat preservation)	Less than significant	4.1B
6.2.2	Impact W-3	Special-status wildlife (active nests)	Permanent direct	**M-BI-6** (nesting bird surveys)	Less than significant	4.1B
6.2.2	Impact W-4	Special-status wildlife (bird and/or bat collisions)	Permanent direct	**M-BI-8** (APLIC standards) and **M-BI-9** (carcass removal)	Less than significant	4.1B
6.2.2	Impact W-9	Special-status wildlife (habitat)	Permanent direct	Impact is considered less than significant prior to mitigation.	Less than significant	4.1B
6.2.2	Impact W-10	Special-status wildlife (active nests)	Permanent direct	Avian-Specific Avoidance, Minimization, and Mitigation Measures from the *Campo Wind Project Biological Technical Report*	Less than significant	4.1B
6.2.2	Impact W-11	Special-status wildlife (bird collisions)	Permanent direct	Avian-Specific Avoidance, Minimization, and Mitigation Measures from the *Campo Wind Project Biological Technical Report*	Less than significant	4.1B
6.2.3	Impact SP-5	Special-status plants	Permanent direct	None	Significant and unavoidable	4.1C

Table 11-1
Summary of Significant Impacts and Mitigation

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
6.2.3	Impact W-2	Special-status wildlife (habitat for Group 2 species)	Permanent direct	Impact is considered less than significant prior to mitigation. **M-BI-5** (habitat preservation)	Less than significant	4.1C
6.2.6	Impact W-2	Special-status wildlife	Permanent direct	**M-BI-5** (habitat preservation)	Less than significant	4.1F
6.2.6	Impact W-9	Special-status wildlife (raptor foraging habitat)	Permanent direct	Impact is considered less than significant prior to mitigation.	Less than significant	4.1F
6.2.8	Impact SP-3	Special-status plants	Temporary indirect	**M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-10** (fugitive dust control plan), **M-BI-11** (erosion and runoff control), and **M-BI-12** (regulation of chemical pollutants)	Less than significant	4.1H
6.2.8	Impact SP-4	Special-status plants	Permanent indirect	**M-BI-4** (SWPPP), **M-BI-10** (fugitive dust control plan), **M-BI-11** (erosion and runoff control), **M-BI-12** (regulation of chemical pollutants), and **M-BI-13** (prevention of invasive plant species)	Less than significant	4.1H

Table 11-1
Summary of Significant Impacts and Mitigation

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
6.2.8	Impact SP-6	Special-status plants	Temporary indirect	BMPs outlined in Table 5-3 and the General Avoidance and Minimization Measures described in the *Campo Wind Project Biological Technical Report*	Less than significant	
6.2.8	Impact SP-7	Special-status plants	Permanent indirect	BMPs outlined in Table 5-3 and the General Avoidance and Minimization Measures described in the *Campo Wind Project Biological Technical Report*	Less than significant	
6.2.8	Impact W-6	Special-status wildlife	Temporary indirect	**M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-6** (nesting bird survey), **M-BI-7** (replanting temporarily impacts areas), **M-BI-10** (fugitive dust control plan), **M-BI-11** (erosion and runoff control), **M-BI-12** (regulation of chemical pollutants), and **M-BI-13** (prevention of invasive species)	Less than significant	4.1H

Table 11-1
Summary of Significant Impacts and Mitigation

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
6.2.8	Impact W-7	Special-status wildlife	Permanent indirect	**M-BI-10** (fugitive dust control plan), **M-BI-11** (erosion and runoff control), **M-BI-13** (prevention of invasive species), **M-BI-14** (fire protection), and **M-BI-15** (access control)	Less than significant	4.1H
6.2.8	Impact W-12	Special-status wildlife	Temporary indirect	BMPs outlined in Table 5-3 and the General Avoidance and Minimization Measures described in the *Campo Wind Project Biological Technical Report*	Less than significant	4.1H
6.2.8	Impact W-13	Special-status wildlife	Permanent indirect	BMPs outlined in Table 5-3 and the General Avoidance and Minimization Measures described in the *Campo Wind Project Biological Technical Report*	Less than significant	4.1H
6.2.12	Impact W-2, Impact W-6, Impact W-7	Special-status wildlife (sensitive bird nesting)	Temporary and Permanent indirect	**M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-5** (habitat preservation), **M-BI-6** (nesting bird survey), **M-BI-7** (replanting temporarily impacts areas), **M-BI-10** (fugitive dust control plan), **M-**	Less than significant	4.1L

Table 11-1
Summary of Significant Impacts and Mitigation

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
				BI-11 (erosion and runoff control), **M-BI-12** (regulation of chemical pollutants), **M-BI-13** (prevention of invasive species), **M-BI-14** (fire protection), and **M-BI-15** (access control)		
6.2.12	Impact W-9	Special-status wildlife (sensitive bird nesting)	Permanent direct	None	Significant but unavoidable	4.1L
6.2.12	Impact W-12, Impact W-13	Special-status wildlife (sensitive bird nesting)	Temporary and Permanent indirect	BMPs outlined in Table 5-3 and the General Avoidance and Minimization Measures described in the *Campo Wind Project Biological Technical Report*	Less than significant	4.1L
Guideline 4.2: *The project would have a substantial adverse effect on riparian habitat or another sensitive natural community identified in local or regional plans, policies, regulations, or by California Department of Fish and Game or U.S. Fish and Wildlife Service.*						
7.2.1	Impact V-1	Sensitive vegetation communities	Temporary direct	**M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-5** (habitat preservation), **M-BI-7** (restoration of temporary impacts), and **M-BI-16** (federal and state agency permits)	Less than significant	4.2A

Table 11-1
Summary of Significant Impacts and Mitigation

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
7.2.1	Impact V-2	Sensitive vegetation communities	Permanent direct	**M-BI-5** (habitat preservation) and **M-BI-16** (federal and state agency permits)	Less than significant	4.2A
7.2.1	Impact V-5	Sensitive vegetation communities	Permanent direct	None	Significant but unavoidable	4.2A
7.2.2	Impact JAR-1	Jurisdictional aquatic resources	Temporary direct	**M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-5** (habitat preservation), **M-BI-7** (restoration of temporary impacts), and **M-BI-16** (federal and state agency permits)	Less than significant	4.2B
7.2.2	Impact JAR-2	Jurisdictional aquatic resources	Permanent direct	**M-BI-5** (habitat preservation) and **M-BI-16** (federal and state agency permits)	Less than significant	4.2B
7.2.2	Impact JAR-3	Jurisdictional aquatic resources	Temporary indirect	**M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-11** (erosion and runoff control), **M-BI-12** (regulation of chemical pollutants), and **M-BI-16** (federal and state agency permits)	Less than significant	4.2D

Table 11-1
Summary of Significant Impacts and Mitigation

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
7.2.2	Impact JAR-4	Jurisdictional aquatic resources	Permanent indirect	**M-BI-4** (SWPPP), **M-BI-11** (erosion and runoff control), **M-BI-12** (regulation of chemical pollutants), **M-BI-13** (prevention of invasive plant species), **M-BI-14** (fire protection), and **M-BI-16** (federal and state agency permits)	Less than significant	4.2B
7.2.2	Impact JAR-5	Jurisdictional aquatic resources	Permanent direct	Jurisdictional Waters and Wetlands-Specific Avoidance, Minimization, and Mitigation Measures described in the *Campo Wind Project Biological Technical Report*	Less than significant	4.2B
7.2.2	Impact JAR-6	Jurisdictional aquatic resources	Temporary indirect	BMPs outlined in Table 5-3, the General Avoidance and Minimization Measures, and the Jurisdictional Waters and Wetlands-Specific Avoidance, Minimization, and Mitigation Measures described in the *Campo Wind Project Biological Technical Report.*	Less than significant	4.2B

Table 11-1
Summary of Significant Impacts and Mitigation

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
7.2.2	Impact JAR-7	Jurisdictional aquatic resources	Permanent indirect	BMPs outlined in Table 5-3, the General Avoidance and Minimization Measures, and the Jurisdictional Waters and Wetlands-Specific Avoidance, Minimization, and Mitigation Measures described in the *Campo Wind Project Biological Technical Report.*	Less than significant	4.2B
7.2.4	Impact V-3	Sensitive vegetation communities	Temporary indirect	**M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-7** (replanting temporarily impacts areas), **M-BI-10** (fugitive dust control plan), **M-BI-11** (erosion and runoff control), and **M-BI-12** (regulation of chemical pollutants)	Less than significant	4.2D
7.2.4	Impact V-4	Sensitive vegetation communities	Permanent indirect	**M-BI-4** (SWPPP), **M-BI-11** (erosion and runoff control), **M-BI-12** (regulation of chemical pollutants), **M-BI-13** (prevention of invasive plant species), **M-BI-14** (fire protection), and **M-BI-16** (federal and state agency permits)	Less than significant	4.2D

Table 11-1
Summary of Significant Impacts and Mitigation

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
7.2.4	Impact V-6	Sensitive vegetation communities	Temporary indirect	BMPs outlined in Table 5-3 and the General Avoidance and Minimization Measures described in the *Campo Wind Project Biological Technical Report*	Less than significant	4.2D
7.2.4	Impact V-7	Sensitive vegetation communities	Permanent indirect	BMPs outlined in Table 5-3 and the General Avoidance and Minimization Measures described in the *Campo Wind Project Biological Technical Report*	Less than significant	4.2D
7.2.5	Impact V-8	RPO wetland and wetland buffer	Permanent direct	**M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-5** (habitat preservation), **M-BI-7** (replanting temporarily impacts areas), **M-BI-11** (erosion and runoff control), **M-BI-12** (regulation of chemical pollutants), and **M-BI-16** (federal and state agency permits)**.**	Less than significant	4.2E

Table 11-1
Summary of Significant Impacts and Mitigation

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
Guideline 4.3: *The project would have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption or other means.*						
8.2	Impact JAR-1, Impact JAR-2, Impact JAR-3, and Impact JAR-4	Jurisdictional aquatic resources	Temporary and Permanent direct and indirect	**M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-5** (habitat preservation), **M-BI-7** (restoration of temporary impacts), **M-BI-11** (erosion and runoff control), **M-BI-12** (regulation of chemical pollutants), **M-BI-13** (prevention of invasive plant species), and **M-BI-16** (federal and state agency permits)	Less than significant	4.3
8.2	Impact JAR-5, Impact JAR-6, and Impact JAR-7	Jurisdictional aquatic resources	Temporary and Permanent direct and indirect	BMPs outlined in Table 5-3, the General Avoidance and Minimization Measures, and the Jurisdictional Waters and Wetlands-Specific Avoidance, Minimization, and Mitigation Measures described in the *Campo Wind Project Biological Technical Report*.	Less than significant	4.3

Table 11-1
Summary of Significant Impacts and Mitigation

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
***Guideline 4.4**: The project would interfere substantially with the movement of a native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.*						
9.2.1	Impact WLC-1	Wildlife Movement	Temporary direct	**M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), and **M-BI-7** (restoration of temporary impacts)	Less than significant	4.4A
9.2.3	Impact W-4	Special-status wildlife (bird and/or bat collisions)	Permanent direct	**M-BI-8** (APLIC standards) and **M-BI-9** (carcass removal)	Less than significant	4.4C
9.2.3	Impact W-11	Special-status wildlife (bird collisions)	Permanent direct	Avian-Specific Avoidance, Minimization, and Mitigation Measures from the *Campo Wind Project Biological Technical Report*	Less than significant	4.4C
9.2.4	Impact WLC-2 and Impact WLC-3	Habitat Connectivity and Wildlife Corridors	Temporary direct and indirect	Impact is considered less than significant prior to mitigation.	Less than significant	4.4D
***Guideline 4.5:** The project would conflict with one or more local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, and/or would conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state HCP.*						
10.2.3	Impact V-8	RPO wetland and wetland buffer	Permanent direct	**M-BI-2** (biological monitoring), **M-BI-3** (temporary construction flagging and/or fencing), **M-BI-4** (SWPPP), **M-BI-5** (habitat preservation), **M-BI-7** (replanting temporarily impacts areas), **M-BI-11**	Less than significant	4.5C

Table 11-1
Summary of Significant Impacts and Mitigation

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
				(erosion and runoff control), **M-BI-12** (regulation of chemical pollutants), and **M-BI-16** (federal and state agency permits)**.**		
10.2.10	Impact W-5	Federally listed wildlife (Quino checkerspot butterfly)	Permanent direct	**M-BI-1** (Quino Checkerspot Butterfly-Specific Avoidance, Minimization, and Mitigation Measures)	Less than significant	4.5J
10.2.10	Impact W-8	Federally listed wildlife (Quino checkerspot butterfly)	Permanent direct	Quino Checkerspot Butterfly-Specific Avoidance, Minimization, and Mitigation Measures described in the *Campo Wind Project Biological Technical Report*	Less than significant	4.5J
10.2.11	Impact W-3	Migratory birds	Temporary direct	**M-BI-6** (nesting bird surveys)	Less than significant	4.5K
10.2.11	Impact W-10	Migratory birds	Permanent direct	Avian-Specific Avoidance, Minimization, and Mitigation Measures from the *Campo Wind Project Biological Technical Report*.	Less than significant	4.5K
10.2.12	Impact W-2	Special-status wildlife (raptor foraging habitat)	Permanent direct	**M-BI-5** (habitat preservation)	Less than significant	4.5L
10.2.12	Impact W-9	Special-status wildlife (raptor foraging habitat)	Permanent direct	None	Significant and unavoidable	4.5L

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13 LIST OF PREPARERS

This report was prepared by Dudek biologists Patricia Schuyler, Callie Amoaku, and Janice Wondolleck. Review was provided by Brock Ortega. Graphics and GIS analyses were provided by Randy Deodat and Mark McGinnis.

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ATTACHMENT A-1

2011 Focused Quino Checkerspot Butterfly Survey for the Jewell Valley Wind Project, San Diego County, California

DUDEK

MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 T 800.450.1818 F 760.632.0164

July 18, 2011 6759-4.7

U.S. Fish and Wildlife Service
Attention: Recovery Permit Coordinator
6010 Hidden Valley Road
Carlsbad, California 92011

Subject: ***2011 Focused Quino Checkerspot Butterfly Survey for the Jewell Valley Wind Project, San Diego County, California***

Dear Recovery Permit Coordinator:

This letter report documents the Spring 2011 results of a focused survey conducted by Dudek for the federally-listed endangered Quino checkerspot butterfly (*Euphydryas editha quino*; QCB) for the Jewell Valley Wind Project, a proposed wind energy development project in the southeastern portion of the County of San Diego, California.

PROJECT LOCATION AND EXISTING CONDITIONS

The proposed Jewell Valley Wind Project site is approximately 6,660 acres in southeastern San Diego County, approximately 60 miles east of the City of San Diego near the town of Boulevard, CA (Figure 1). The project site includes two components consisting of the Northern Ranch located to the north of Interstate 8 (I-8) and the Southern Ranch located to the south of I-8. The site lies between two major drainage divides: the Tecate Divide to the west, and the In-Ko-Pah Mountains to the east. This area occurs within the Live Oak Springs U.S. Geographic Survey (USGS) topographic quadrangle (Figure 2).

The terrain in the area ranges from valley bottoms to house-sized boulder-covered ridgelines. The elevation ranges across the study area from approximately 3,280 feet above mean sea level (AMSL) to approximately 4,120 feet AMSL.

Soils on site include acid igneous rock land, Calpine coarse sandy loam, Kitchen Creek loamy coarse sand, La Posta loamy coarse sand, La Posta rocky loamy coarse sand, Las Flores loamy fine sand, Loamy alluvial land, Mottsville loamy coarse sand, Riverwash, and Rositas loamy coarse sand.

VEGETATION COMMUNITIES

Nine plant communities and land cover types were mapped within the focused QCB survey area, including: red shank chaparral, semi-desert chaparral, granitic northern mixed chaparral, valley and foothill grassland, field/pasture, open coast live oak woodland, dense coast live oak woodland, upper sonoran subshrub scrub, and freshwater marsh. The acreages of each community type within the project site are shown in Table 1. Descriptions of each vegetation community (with Holland numeric codes) are provided following Table 1. Holland (1986) and Oberbauer (1996) were used to describe vegetation communities on site.

Table 1
Vegetation Communities within the Focused Quino Checkerspot Butterfly Survey Area for the Jewell Valley Wind Project

Vegetation Community	Acreage On Site
Red shank chaparral	427.1
Semi-desert chaparral	264.1
Granitic northern mixed chaparral	263.8
Valley and Foothill Grassland	22.2
Field/pasture	13.8
Open coast live oak woodland	5.8
Upper Sonoran subshrub scrub	3.2
Freshwater marsh	2.6
Dense coast live oak woodland	0.2
Total	1002.8

Red Shank Chaparral (37300)

Red shank chaparral is made up of nearly pure stands of red shank (*Adenostoma sparsifolium*) (Holland 1986). This community is similar to chamise chaparral but is typically taller and somewhat more open (Holland 1986). In the study area, red shank chaparral intergrades with chamise chaparral and scrub oak chaparral. Like chamise chaparral, the understory in red shank chaparral is sparse and composed of flat-topped buckwheat, annual forbs, and brome grasses.

Semi-Desert Chaparral (37400)

Semi-desert chaparral is relatively open, with widely spaced shrubs and openings supporting annuals. This community is similar to mixed chaparral but occurs in areas with hotter, drier summers and colder winters. In the study area, this community is characterized by abundant rock outcrops. Semi-desert chaparral intergrades with flat-topped buckwheat and the other chaparral

communities. Perennial species common to this community include flat-topped buckwheat, silver cholla (*Cylindropuntia echinocarpus*), Mojave yucca, and Mormon-tea (*Ephedra californica*). Scattered occasionally throughout this community are other common chaparral shrubs, including sugarbush, mountain mahogany, and scrub oak. Annual species observed in the openings of this community include goldfields, red-stemmed filaree, golden yarrow (*Eriophyllum confertiflorum*) thread-leafed eriastrum (*Eriastrum filifolium*), chia, desert beauty, Lemmon's linanthus, San Diego gilia, popcorn flower, and red brome.

Granitic Northern Mixed Chaparral (37131)

Granitic northern mixed chaparral is similar to northern mixed chaparral (37130), but with granitic soils. This community consists of broad-leaved sclerophyll shrubs, 2–4 m tall, forming dense, often nearly impenetrable vegetation dominated by Nuttall's scrub oak (*Quercus dumosa*), chamise (*Adenostoma fasciculatum*), and any one of several taxa in *Arctostaphylos* and *Ceanothus*. Plants in this community are typically deep-rooted, with usually little or no understory vegetation, and often considerable accumulation of leaf litter. Granitic northern mixed chaparral is well adapted to repeated fires, to which many species respond by stump sprouting. A dense cover of annual herbs may appear during the first growing season after a fire, followed in subsequent years by perennial herbs, short-lived shrubs and re-establishment of dominance by the original shrub species in this community.

Valley and Foothill Grassland (42000)

Valley and foothill grassland is a native community dominated by large tussocks of perennial native needlegrass (*Nasella* spp.). The habitat is open and typically supports a variety of native and introduced grasses and forbs, often actually exceeding the bunchgrasses in cover. In San Diego County, native perennial herbs such as *Sanicula*, *Sidalcea*, *Sisirynchium*, *Eschscholzia* or *Lasthenia* are present. The percentage cover of native species at any one time may be quite low, but is considered native grassland if 20% aerial cover of native species is present. Other species commonly associated with valley and foothills grassland include wild oat (*Avena fatua*), common goldenstar (*Bloomeria crocea*), ripgut grass (*Bromus diandrus*), foxtail chess (*Bromus madriatensis* ssp. *rubens*), California poppy (*Eschscholzia* spp.), and goldfields (*Lasthenia* spp.).

Open and Dense Coast Live Oak Woodland (71161 and 71162, respectively)

Both open coast live oak woodland and dense coast live oak woodland are generally similar to the coast live oak woodland (71160). Open coast live oak woodland has a canopy with less than 50% cover, while dense coast live oak woodland has a canopy with between 50% and 75% cover. Coast

live oak woodland is an evergreen woodland dominated by coast live oak (*Quercus agrifolia*). The shrub layer is poorly developed, but may include toyon (*Heteromeles arbutifolia*), currant or gooseberry (*Ribes* spp.), laurel sumac (*Malosma laurina*), or dominated by Mexican elderberry (*Sambucus Mexicana*). The herb component is continuous and dominated by ripgut grass and several other introduced taxa. Open coast live oak woodland typically occurs along drainages at desert margin on north-facing slopes or mixed with Engelmann oak (*Quercus engelmannii*). Dense coast live oak woodland mostly occurs at the narrowing of valley flood plains, or valleys with deep alluvium and high perennial groundwater, mostly in riparian habitats.

Field/Pasture (18310)

Field/pasture includes areas of low-intensity agriculture typically involving dry farming or livestock grazing. In the study area, a small area of field/pasture occurs along McCain Valley Road near Interstate 8, where livestock grazing occurs in a floodplain area. In general, this area is characterized by non-native grasses, including *Bromus* and *Hordeum* species, and non-native herbaceous species, including tumble mustard (*Sisymbrium altissimum*) and red-stemmed filaree (*Erodium cicutarium*).

Upper Sonoran Subshrub Scrub (39000)

Upper sonoran subshrub scrub is a low, fairly penetrable scrub of soft-wooded, summer-dormant, drought- tolerant shrubs. Dominance varies among sites, but usually includes interior goldenbush (*Ericameria linearifolia*), interior California buckwheat (*Eriogonum fasciculatum polifolium*), bladderpod (*Isomeris arborea arborea*), or desert tea (*Ephedra californica*), with many annuals derived from nearby grasslands filling the spaces between the shrubs. Upper sonoran subshrub scrub typically occurs in fairly well drained soils derived from sandstone, shale, or even sterile white diatomaceous deposits. In San Diego County this community occurs at high elevations.

Freshwater Marsh (52400)

Freshwater marsh is a wetland habitat type that develops where the water table is at or just above the ground surface, such as around the margins of lakes, ponds, slow-moving streams, ditches, and seepages. It typically is dominated by tall, emergent monocots, such as cattail (*Typha* sp.) and bulrush (*Scirpus* sp.). With elevations on the Jewell Valley study area ranging from 2932–3534 feet AMSL, the freshwater marsh on site could most accurately be described as transmontane freshwater marsh (52420), which occurs from 3500–7500 feet AMSL. Transmontane freshwater marsh differs from coastal and valley freshwater marsh (52410) in having a shorter growing season, confined more strictly to the summer and subject to much lower temperatures in winter, often well below freezing.

Freshwater marsh is considered a wetland community and the marsh on site is under the jurisdiction of the CDFG, pursuant to Section 1601-1603 of the California Fish and Game Code, the ACOE, pursuant to Section 404 of the Clean Water Act, and the RWQCB, pursuant to Section 401 of the Clean Water Act. In addition, this wetland habitat is under the jurisdiction of the County of San Diego.

QUINO CHECKERSPOT BUTTERFLY SURVEY

Methods

The project developer is in the process of developing a site plan that will be based on meteorological data collected from MET facilities to be constructed onsite. Since a site plan was not available at the time Focused QCB surveys were completed, a survey program was developed by Dudek that included surveying specific areas located throughout the project site (Figures 3 and 4). The survey areas were developed by Dudek based on discussions with the project developer that identified potential areas onsite that would likely be most suitable for development and habitat onsite that would likely support QCB.

Focused QCB surveys were conducted over five visits within a 5-week period between March 9 and April 15, 2011. Surveys were conducted by QCB permitted biologists Anita M. Hayworth, Ph.D. (TE781084), Brock A. Ortega (TE813545-5), Jeff D. Priest (TE840619-2), Kam J. Muri (TE051250-0), Tricia Wotipka (TE840619-2), Paul M. Lemons (TE051248-2), Vipul R. Joshi (TE019949-0), Viviane Marquez (TE800930-9) and David Waller (TE025394-2) in accordance with current USFWS protocol (USFWS 2002a, 2002b).

The site was divided into 11 survey polygons, each representing a single day survey effort (i.e., in accordance with USFWS protocol) (Table 2). These survey areas were numbered and assigned to Dudek's permitted biologists. The biologists were provided with 200-scale (1 inch = 200 feet) aerial photographs of each survey polygon. These photographs were used for mapping host plant populations. Binoculars were used to aid in detecting and identifying butterfly and other wildlife species. GPS units also were available for recording locations of host plant populations.

Table 2
2011 Quino Checkerspot Butterfly (QCB) Survey Polygons

Survey Area	Acreage of Survey Area
1	96
2	95
3	93

Table 2
2011 Quino Checkerspot Butterfly (QCB) Survey Polygons

Survey Area	Acreage of Survey Area
4	99
5	84
6	85
7	88
8	93
9	89
10	88
11	93

The survey methods consisted of slowly walking roughly parallel transects throughout all potential habitat within the survey area (i.e., all areas that are not excluded per the survey protocol, generally including sage scrub, open chaparral, grasslands, open or sparsely vegetated areas, hilltops, ridgelines, rocky outcrops, trails and dirt roads). Survey routes were arranged to thoroughly cover the survey area at a rate of no more than 10–15 acres per hour.

Surveys were conducted only during acceptable weather conditions (i.e., surveys were not conducted during fog, drizzle, or rain; sustained winds greater than 15 miles per hour measured 4–6 feet above ground level; temperature in the shade at ground level less than 60° Fahrenheit (F) on a clear, sunny day; or temperature in the shade at ground level less than 70°F on an overcast or cloudy day). Survey times, personnel, and conditions during the QCB survey are shown in Table 3. Photocopies of the surveyor's field notes are included as Appendix A.

Table 3
Schedule of Focused Quino Checkerspot Butterfly Surveys and Environmental Conditions

Survey Area	Date	Time	Range of Conditions			Personnel*
			Temperature Range (°F)	*Percent Cloud Cover (% cc)*	*Wind (miles per hour (mph))*	
Week 1						
1	3/11/11	0805–1400	64–81	0–0	3–5 to 6–10	AMH
2	3/9/11	0946–1530	60–60	0–0	0–10, gusts to 30	BAO
3	3/11/11	1000–1600	63–70	0–0	3–5 to 5–10, gusts to 15	BAO
4	3/11/11	0830–1505	61–80	0–20	3–6 to 4–8, gusts to 15	JDP
5	3/15/11	0850–1500	63–70	0–10	0–4 to 6–10, gusts 10–15	PML
6	3/15/11	1000–1600	68–72	5–15	2–3 to 2–5, gusts 8–15	VRJ
7	3/10/11	0910–1500	64–78	0–0	0–3 to 3–6, gusts 12–20	PML

Table 3
Schedule of Focused Quino Checkerspot Butterfly Surveys and Environmental Conditions

Survey Area	Date	Time	Range of Conditions			Personnel*
			Temperature Range (°F)	*Percent Cloud Cover (% cc)*	*Wind (miles per hour (mph))*	
8 (north half)	3/11/11	0840–1400	60–69	0–5	0–5 to 4–10, gusts 10–15	PML
8 (south half)	3/11/11	0915–1530	68–86	0–0	4–7	TLW
9	3/10/11	0930–1530	64–67	0–0	0–1 to 0–5	VRJ
10	3/14/11	0915–1515	66–80	10–35	3–6 to 6–9	TLW
11	3/11/11	0945–1545	62–64	0–40	7–8 to 5–10	KJM
Week 2						
1	3/18/11	0930–1530	62–65	20–0	5–10, gusts to 15	BAO
2	3/18/11	0945–1515	64–64	20–0	1–3 to 5–10, gusts 10–15	AMH
3	3/15/11	1000–1610	65–70	0–20	5–10, gusts to 15	BAO
4	3/18/11	0930–1600	60–73	60–5	0–3 to 8–12, gusts to 15	JDP
5	3/29/11	1100–1630	66–70	10–10	5–10 to 3–5	BAO
6	3/17/11	0845–1525	64–69	10–40	0–5 to 2–9, gusts 10–14	PML
7	3/17/11	0905–1515	61–72	0–0 hazy	2–3 to 5–8	TLW
8	3/23/11	0945–1600	64–62	0–0	0–2 to 4–6	TLW
9	3/28/11	1100–1700	64–66	0–0	3–8, gusts to 15	VRJ
10	3/18/11	0905–1505	70–68	0–0 hazy	4–6 to 6–9	TLW
11	3/18/11	1000–1600	60–60	50–0	4–8 to 6–10, gusts to 12	KJM
Week 3						
1	3/29/11	0930–1615	64–72	0–80	3–5 to 5–8	AMH
2	3/23/11	1000–1630	60–64	0–15	2–4 to 8–12, gusts 15–25	JDP
2	4/1/11	1420–1720*	81–88	0–0	0–7	VM & DW
3	3/30/11	1015–1630	73–74	2–60	1–5 to 2–6, gusts to 8	JDP
4	4/5/11	1015–1700	67–72	40–80	3–7 to 2–8, gusts 10–14	PML
5	3/31/11	0920–1535	68–77	5–5	0–4 to 4–8, gusts 9–12	PML
6	3/30/11	0900–1500	64–74	10–20	0–4 to 4–8, gusts 9–15	PML
7	3/29/11	0900–1505	64–76	0–20	5–8 to 2–4, morning gusts to 12	TLW
8	4/1/11	0900–1515	74–86	0–0	2–3	TLW
9	3/30/11	1030–1350*	69–77	5–20	0–8	VM & DW
10	3/30/11	1350–1525*	75–76	25–35	0–8	VM & DW
10	4/1/11	1035–1305*	78–89	0–0	0–7	VM & DW
11	3/28/11	1015–1630	60–62	0–0	4–6 to 3–7	KJM
Week 4						
1	4/1/11	0830–1550	64–64	0–0	3–5	AMH
2	4/13/11	1030–1305*	60–67	0–5	0–7, gusts 7–9	VM & DW
3	4/2/11	0915–1530	68–74	50–60	0–5 to 4–9, gusts to 15	JDP

Table 3
Schedule of Focused Quino Checkerspot Butterfly Surveys and Environmental Conditions

Survey Area	Date	Time	Range of Conditions			Personnel*
			Temperature Range (°F)	*Percent Cloud Cover (% cc)*	*Wind (miles per hour (mph))*	
4	4/1/11	0930–1600	74–88	0–0	0–2 to 0–4	JDP
5	4/4/11	0920–1545	64–72	0–0	3–8 to 4–8, gusts 9–15	PML
6	4/11/11	1000–1600	62–65	50–0	2–6 to 1–4, gusts 5–8	PML
7	4/4/11	0930–1545	70–74	0–0	5–8, gusts to 16	TLW
8	4/5/11	1030–1630	70–70	40–60	4–7 to 4–12, gusts to 20	KJM
9	4/1/11	1000–1500	63–66	0–0	3–5, gusts to 10	BAO
10 north	4/10/11	1405–1545*	62–64	0–0	0–7, gusts 7–9.5	VM & DW
11	4/4/11	1030–1630	62–67	0–0	2–4 to 0–2, gusts 6–10	KJM
Week 5						
1	4/12/11	1005–1605	64–68	0–0	4–8 to 5–10	AMH
1	4/15/11	1030–1400	67–69	0–0	5–9	AMH
2	4/15/11	1030–1630	66–69	0–0	5–7 to 4–7, gusts 10–12	KJM
3	4/14/11	1030–1640	61–64	0–0	3–7 to 2–5	KJM
4	4/11/11	0950–1415	62–65	50–0	3–5	AMH
5	4/12/11	0940–1600	60–65	0–0	2–4 to 2–6, gusts 7–10	PML
6	4/13/11	1040–1630	60–62	0–10	3–8 to 4–8, gusts 10–17	PML
7	4/12/11	1020–1625	62–64	0–0	2–6 to 4–7	KJM
8	4/13/11	1405–1630*	56–62	0–20	0–5, gusts 6–11	VM & DW
9	4/11/11	1015–1450*	60–67	15–70	0–7	VM & DW
10	4/14/11	1100–1700	63–65	0–0	3–5 to 2–10	BAO
11	4/10/11	1000–1405*	58–65	0–0	0–6 gusts 9–13	VM & DW

* Survey areas were split up and surveyed simultaneously by Viviane Marquez and David Waller. Survey times shown should be doubled to determine time spent in each survey area.
AMH = Anita M. Hayworth, PhD (TE-781084-6)
BAO = Brock A. Ortega (TE-813545-5)
JDP = Jeffrey D. Priest (TE-840619-2)
KJM = Kam J. Muri (TE-051250-0)
PML = Paul M. Lemons (TE-051248-4)
TLW = Tricia L. Wotipka (TE-840619-2)
VRJ = Vipul R. Joshi (TE-019949-0)
VM = Viviane Marquez (TE-800930-9)
DW = David Waller (TE-025394-2)

RESULTS

No QCB were observed during the 2011 focused survey. Thirty-three (33) butterfly species were observed during the surveys. The weeks in which these butterflies were observed are shown in Table 4.

Table 4
Butterflies Observed on Site

Scientific Name	Common Name	Week				
		1	*2*	*3*	*4*	*5*
Hesperiidae – Skippers						
Erynnis funeralis	Funeral duskywing	X	X	X	X	X
Erynnis propertius	Propertius duskywing	—	—	—	X	—
Erynnis sp.	Duskywing	X	X	X	X	X
Thorybes pylades	Northern Cloudywing	X	—	—	—	—
Nymphalidae – Brush-footed Butterflies						
Agraulis sp.	Fritillary	—	—	X	—	—
Coenonympha californica californica	California ringlet	X	X	—	X	—
Junonia coenia	Buckeye	—	—	—	X	X
Vanessa annabella	West coast lady	X	X	—	—	X
Vanessa cardui	Painted lady	X	X	X	X	X
Vanessa sp.	Lady	X	X	X	X	X
Lycaenidae – Blues and Hairstreaks						
Brephidium exile	Western pygmy blue	—	—	X	—	—
Callophrys perplexa	Perplexing (green) hairstreak	X	X	X	X	X
Glaucopsyche lygdamus australis	Southern blue	X	X	X	X	X
Icaria acmon acmon	Acmon blue	X	X	X	X	X
Incisalia augustinus	Brown elfin	X	X	X	—	—
Leptotes marina	Marine blue	X	—	—	—	—
Philotes sonorensis	Sonoran blue	—	—	X	—	—
Papilionidae – Swallowtails						
Papilio eurymedon	Pale swallowtail	X	X	X	X	X
Papilio rutulus	Western swallowtail	—	X	—	X	—
Papilo zelicaon lucas	Anise swallowtail	—	—	—	—	X
Peiridae – Whites and Sulfurs						
Anthocharis centhura	Felder's orangetip	X	X	X	X	X
Anthocharis sara	Sara orangetip	X	X	X	X	X
Colias eurydice	California dogface	X	X	—	—	—
Colias harfordi	Harford's Sulfur	X	—	X	X	X
Colias sp.	Sulfur	X	X	X	—	X
Euchloe hyantis	Pearly marble	X	—	X	—	—
Euchloe lotta	Desert marble	—	—	X	X	X
Pieris rapae	European cabbage white	—	X	X	—	—
Pontia beckerii	Becker's white	X	—	X	—	—
Pontia protodice	Common white	X	X	X	X	X
Pontia sisymbrii	California white	X	X	X	—	—

Table 4
Butterflies Observed on Site

Scientific Name	Common Name	Week				
		1	*2*	*3*	*4*	*5*
Riodinidae – Metalmarks						
Apodemia virgulti	Behr's metalmark	X	X	X	X	X
Calephelis wrightii	Wright's metalmark	X	—	—	—	—

One species of QCB larval host plant, common owl's-clover (*Castilleja exserta* ssp. *exserta*), was observed within the study area during focused surveys. Occurrences of the larval host plant are shown on Figure 4. Table 5 includes the known and observed adult QCB nectar plants (according to Mattoni et al. 1997, USFWS 2002a, USFWS 2002b, USFWS 2003). Larval host plants are also included in Table 5 and are in bold print.

Table 5
QCB Larval Food and Adult Nectar Plants[1]

Scientific Name	Common Name	Observed During Focused Survey
Apiaceae – Carrot Family		
Lomatium dasycarpum ssp. *dasycarpum*	woolly-fruit lomatium	—
Lomatium utriculatum	common lomatium	—
Asteraceae – Sunflower Family		
Achillea millefolium	yarrow, milfoil	—
Lasthenia californica	common goldfields	X
Lasthenia coronaria	southern goldfields	—
Layia platyglossa	common tidy tips	X
Boraginaceae – Borage Family		
Amsinckia menziesii	rancher's fireweed	—
Amsinckia menziesii var. *intermedia*	rancher's fiddleneck	X
Amsinckia menziesii var. *menziesii*	rigid fiddleneck	—
Cryptantha spp. or *Plagyobothrys* spp.	popcorn flower	X
Fabaceae – Pea Family		
Lotus spp.	deerweed, spanishclover, lotus	X
Hydrophyllaceae – Waterleaf Family		
Eriodictyon crassifolium var. *crassifolium*	thickleaf yerba santa	—
Eriodictyon trichocalyx var. *trichocalyx*	hairy yerba santa	—
Phacelia distans	wild-heliotrope	X
Lamiaceae – Mint Family		
Salvia columbariae	chia	X
Plantaginaceae – Plantain Family		
Plantago erecta[2]	dot-seed plantain	—

Table 5
QCB Larval Food and Adult Nectar Plants[1]

Scientific Name	Common Name	Observed During Focused Survey
Plantago patagonica	woolly plantain	—
Polemoniaceae – Phlox Family		
Gilia angelensis	grassland gilia	—
Gilia capitata ssp. *abrotanifolia*	ball gilia	—
Linanthus spp.	ground pink	—
Polygonaceae – Buckwheat Family		
Eriogonum fasciculatum var. *foliolosum*	California buckwheat	X
Scrophulariaceae – Figwort Family		
Antirrhinum coulterianum	Coulter's snapdragon	—
Castilleja exserta	common owl's-clover	X
Collinsia sp.	Chinese houses	—
Cordylanthus rigidus ssp. *setiger*	dark-tipped bird's-beak	—
Keckiella antirrhinoides var. *antirrhinoides*	yellow bush-penstemon	—
Keckiella cordifolia	climbing bush penstemon	—
Liliaceae – Lily Family		
Allium haematochiton	red-skin onion	—
Allium peninsulare	red-flower onion	—
Allium praecox	early onion	—
Dichelostemma capitatum	blue dicks	X
Muilla clevelandii	San Diego goldenstar	—
Muilla maritima	common muilla	—

1 List derived from Mattoni et al. 1997; USFWS 2002a, USFWS 2002b; USFWS 2003 (for *Euphydras editha*)
2 Plants listed in **bold** print are known QCB larval host plant species.

Dudek certifies that the information in this survey report and attached exhibits fully and accurately represents the work conducted by the QCB permitted biologists who conducted this focused survey.

Please feel free to contact us at 760.942.5147, plemons@dudek.com, or bortega@dudek.com if you have any questions regarding the contents of this report.

Sincerely,

Paul M. Lemons
Permit #TE051248-4

Brock A. Ortega
Permit #TE813545-5

Anita M. Hayworth
Permit #TE781084

Kam J. Muri
Permit # TE051250-0

Jeffrey D. Priest
Permit #TE840619-2

Tricia L. Wotipka
Permit # TE840619-2

Recovery Permit Coordinator

Subject: 2011 Focused Quino Checkerspot Butterfly Survey for the Jewell Valley Wind Project, San Diego County, California

Vipul R. Joshi	David Waller	Viviane Marquez
Permit # TE019949-0	Permit #TE025394-2	Permit #TE800930-9

Att: Figure 1, Regional Map
Figure 2, Vicinity Map
Figure 3, Biological Resources Map with Quino Survey Areas – North
Figure 4, Biological Resources Map with Quino Survey Areas – South
Appendix A – List of Wildlife Species Observed during the 2011 Jewell Valley QCB Survey
Appendix B – 2011 Jewell Valley QCB Survey Field Notes

cc: Joan Heredia, Enel Green Power North America
David Hochart, Dudek

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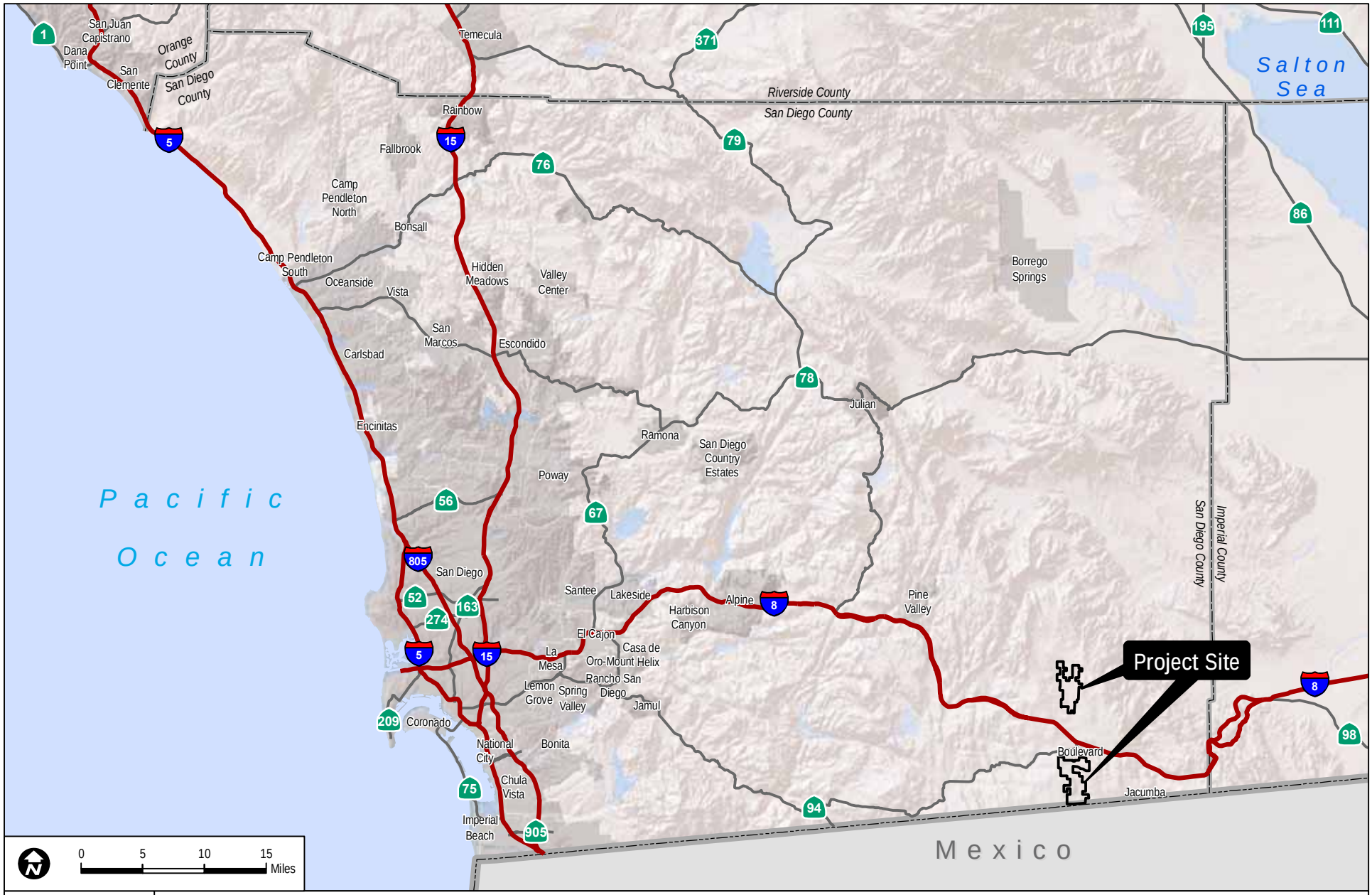


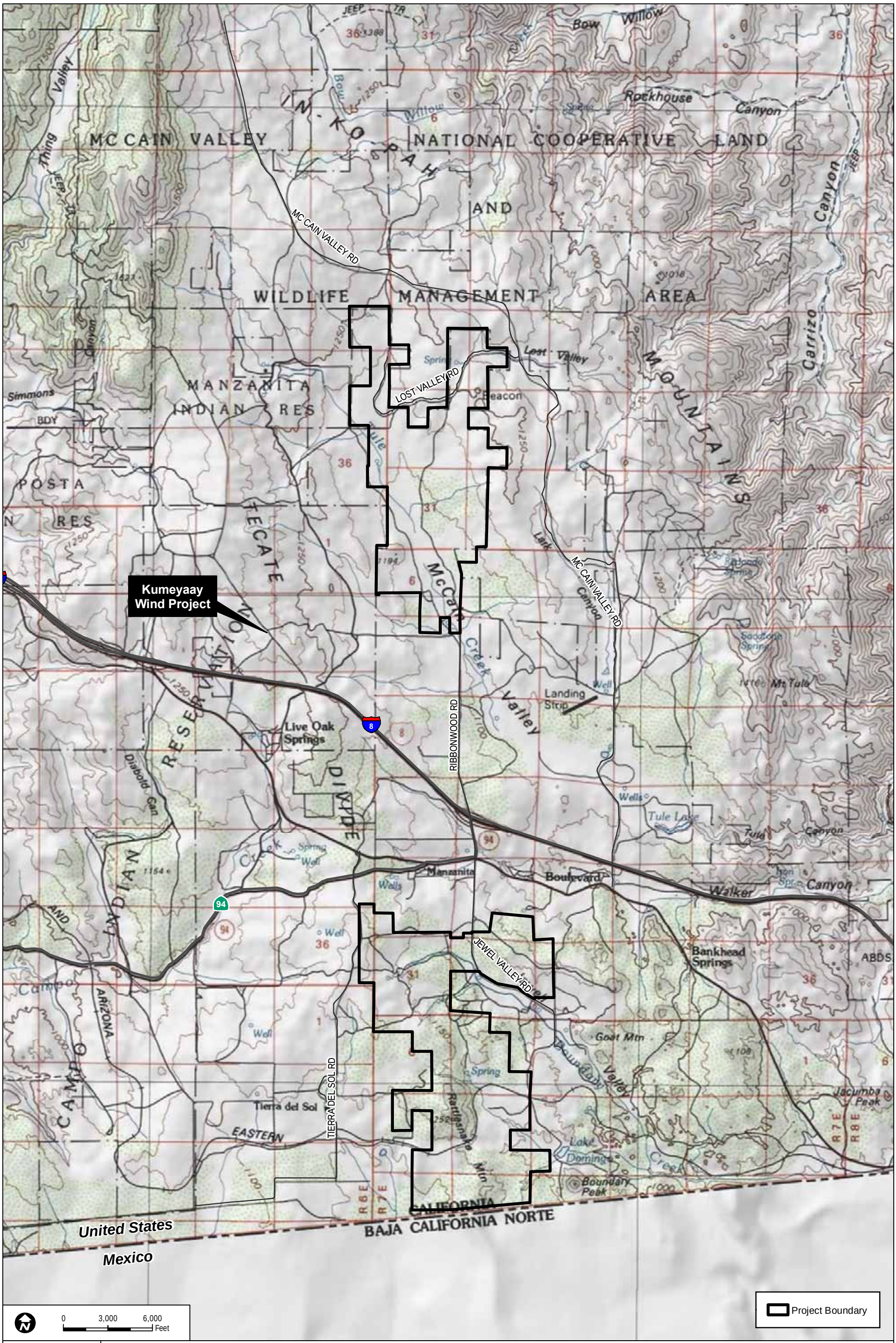
DUDEK

6759-4.7

FIGURE 1

Regional Map

2011 Focused Quino Checkerspot Butterfly Survey Report for the Jewell Valley Wind Project



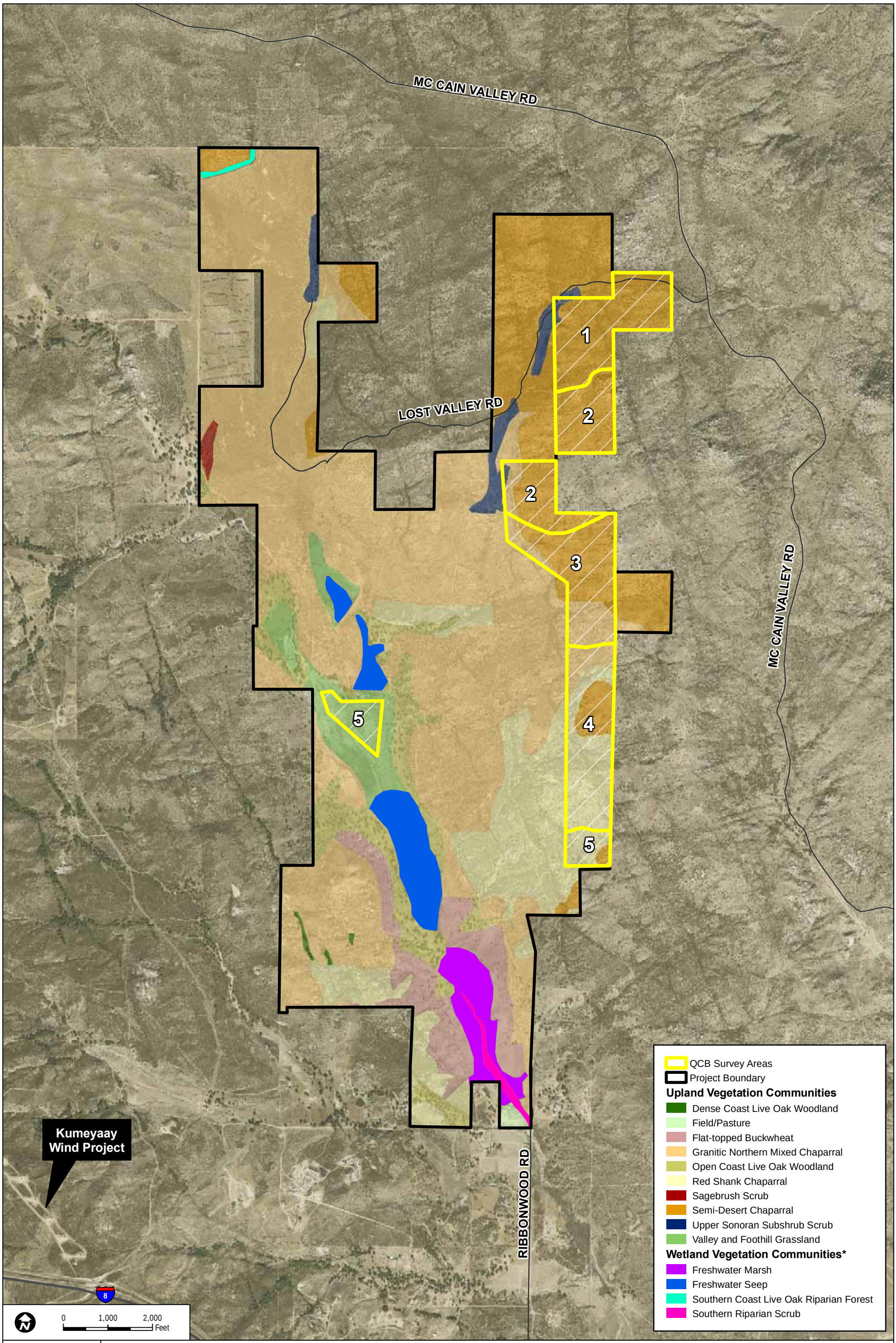
DUDEK

SOURCE: Digital Globe 2008
SANGIS 2010

FIGURE 2
Vicinity Map

6759-4.7

2011 Focused Quino Checkerspot Butterfly Survey Report for the Jewell Valley Wind Project



DUDEK

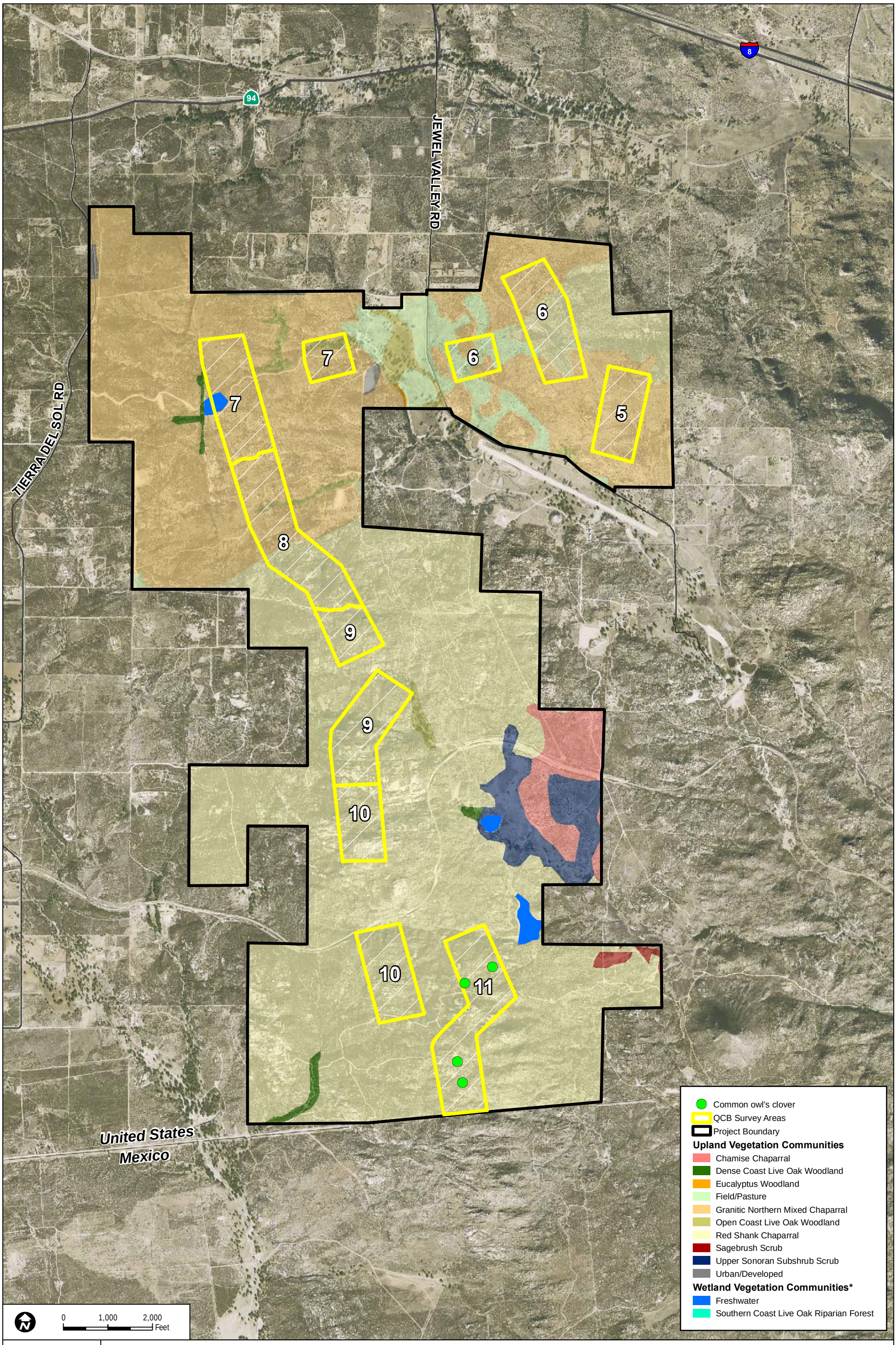
6759-4.7

SOURCE: Digital Globe 2008
SANGIS 2010

FIGURE 3

Biological Resources Map with Quino Survey Areas - North

2011 Focused Quino Checkerspot Butterfly Survey Report for the Jewell Valley Wind Project



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SOURCE: Digital Globe 2008
SANGIS 2010

FIGURE 4

Biological Resources Map with Quino Survey Areas - South

2011 Focused Quino Checkerspot Butterfly Survey Report for the Jewell Valley Wind Project

APPENDIX A

List of Wildlife Species Observed during the 2011 Jewell Valley QCB Survey

APPENDIX A
List of Wildlife Species Observed during the 2011 Jewell Valley QCB Survey

WILDLIFE SPECIES – VERTEBRATES

AMPHIBIANS

***BUFONIDAE* – TRUE TOADS**

Bufo boreas – western toad

***HYLIDAE* – TREEFROGS**

Hyla cadaverina – California treefrog
Hyla regilla – Pacific treefrog

REPTILES

***IGUANIDAE* – IGUANID LIZARDS**

Gambelia wislizenii – long-nosed leopard lizard
Phrynosoma coronatum – coast horned lizard
Sceloporus graciosus – sagebrush lizard
Sceloporus occidentalis – western fence lizard
Sceloporus orcutti – granite spiny lizard
Uta stansburiana – side-blotched lizard

***TEIIDAE* – WHIPTAIL LIZARDS**

Cnemidophorus hyperythrus – orange-throated whiptail

***COLUBRIDAE* – COLUBRID SNAKES**

Coluber constrictor – racer
Masticophis lateralis – California whipsnake
Pituophis melanoleucus – gopher snake

***VIPERIDAE* – VIPERS**

Crotalus atrox – western diamondback rattlesnake
Crotalus ruber – red-diamond rattlesnake
Crotalus oreganus helleri – Southern pacific rattlesnake

BIRDS

***ARDEIDAE* – HERONS**

Ardea alba – great egret

***ANATIDAE* – WATERFOWL**

Anas platyrhynchos – mallard

***CATHARTIDAE* – NEW WORLD VULTURES**

Cathartes aura – turkey vulture

***ACCIPITRIDAE* – HAWKS**

Accipiter cooperii – Cooper's hawk
Buteo jamaicensis – red-tailed hawk
Parabuteo unicinctus – Harris's hawk

***FALCONIDAE* – FALCONS**

Falco sparverius – American kestrel

***PHASIANIDAE* – PHEASANTS AND QUAILS**

Callipepla californica – California quail

***CHARADRIIDAE* – PLOVERS**

Charadrius vociferus – killdeer

***COLUMBIDAE* – PIGEONS AND DOVES**

Zenaida macroura – mourning dove

***CUCULIDAE* – CUCKOOS AND ROADRUNNERS**

Geococcyx californianus – greater roadrunner

***STRIGIDAE* – TRUE OWLS**

Bubo virginianus – great horned owl

***APODIDAE* – SWIFTS**

Aeronautes saxatalis – white-throated swift

***TROCHILIDAE* – HUMMINGBIRDS**

Calypte anna – Anna's hummingbird

***PICIDAE* – WOODPECKERS**

Colaptes auratus – northern flicker
Melanerpes formicivorus – acorn woodpecker
Picoides nuttallii – Nuttall's woodpecker
Picoides scalaris – ladder-backed woodpecker

***TYRANNIDAE* – TYRANT FLYCATCHERS**

Sayornis nigricans – black phoebe
Sayornis saya – Say's phoebe
Tyrannus vociferans – Cassin's kingbird
Tyrannus verticalis – western kingbird

***HIRUNDINIDAE* – SWALLOWS**

Petrochelidon pyrrhonota – cliff swallow

***CORVIDAE* – JAYS AND CROWS**

Aphelocoma californica – western scrub-jay
Corvus brachyrhynchos – American crow
Corvus corax – common raven

***PARIDAE* – TITMICE**

Baeolophus inornatus – oak titmouse

***AEGITHALIDAE* – BUSHTITS**

Psaltriparus minimus – bushtit

***TROGLODYTIDAE* – WRENS**

Campylorhynchus brunneicapillus – cactus wren
Salpinctes obsoletus – rock wren
Thryomanes bewickii – Bewick's wren

***SYLVIIDAE* – GNATCATCHERS**

Polioptila caerulea – blue-gray gnatcatcher

***TURDIDAE* – THRUSHES AND BABBLERS**

Sialia mexicana – western bluebird

***TIMALIIDAE* – LAUGHINGTHRUSH AND WRENTIT**

Chamaea fasciata – wrentit

***MIMIDAE* – THRASHERS**

Mimus polyglottos – northern mockingbird
Toxostoma redivivum – California thrasher

***PTILOGONATIDAE* – SILKY-FLYCATCHERS**

Phainopepla nitens – phainopepla

***LANIIDAE* – SHRIKES**

Lanius ludovicianus – loggerhead shrike

***STURNIDAE* – STARLINGS**

* *Sturnus vulgaris* – European starling

***PARULIDAE* – WOOD WARBLERS**

Dendroica coronata – yellow-rumped warbler
Geothlypis trichas – common yellowthroat
Oporonis tolmiei – MacGillivray's warbler
Vermivora celata – orange-crowned warbler
Wilsonia pusilla – Wilson's warbler

***EMBERIZIDAE* – BUNTINGS AND SPARROWS**

Amphispiza bilineata – black-throated sparrow
Chondestes grammacus – lark sparrow
Junco hyemalis – dark-eyed junco
Melospiza melodia – song sparrow
Pipilo crissalis – California towhee
Pipilo maculatus – spotted towhee
Spizella atrogularis – black-chinned sparrow
Zonotrichia leucophrys – white-crowned sparrow

***ICTERIDAE* – BLACKBIRDS AND ORIOLES**

Agelaius phoeniceus – red-winged blackbird
Icterus bullockii – Bullock's oriole
Icterus parisorum – Scott's oriole
Molothrus ater – brown-headed cowbird
Quiscalus mexicanus – great-tailed grackle
Sturnella neglecta – western meadowlark

***FRINGILLIDAE* – FINCHES**

Carpodacus mexicanus – house finch
Carduelis psaltria – lesser goldfinch

MAMMALS

***LEPORIDAE* – HARES AND RABBITS**

Lepus californicus – black-tailed jackrabbit
Sylvilagus bachmani – brush rabbit
Sylvilagus audubonii – desert cottontail

***SCIURIDAE* – SQUIRRELS**

Ammospermophilus leucurus – white-tailed antelope squirrel
Spermophilus beecheyi – California ground squirrel

***GEOMYIDAE* – POCKET GOPHERS**

Thomomys bottae – Botta's pocket gopher

***HETEROMYIDAE* – POCKET MICE AND KANGAROO RATS**

Dipodomys sp. – kangaroo rat (sign)

***MURIDAE* – RATS AND MICE**

Neotoma lepida – desert woodrat
Peromyscys sp. – mouse

***CANIDAE* – WOLVES AND FOXES**

* *Canis familiaris* – domestic dog
Canis latrans – coyote

***PROCYONIDAE* – RACCOONS AND RELATIVES**

Procyon lotor – common raccoon

***MUSTELIDAE* – WEASELS, SKUNKS, AND OTTERS**

Mephitis mephitis – striped skunk
Mustela frenata – long-tailed weasel

***FELIDAE* – CATS**

Felis concolor – mountain lion

***CERVIDAE* – DEERS**

Odocoileus hemionus – mule deer

WILDLIFE SPECIES – INVERTEBRATES

BUTTERFLIES AND MOTHS

***HESPERIIDAE* – SKIPPERS**

Erynnis funeralis – funereal duskywing
Erynnis propertius – propertius duskywing
Erynnis sp. – Duskywing
Thorybes pylades – Northern Cloudywing

***PAPILIONIDAE* – SWALLOWTAILS**

Papilio eurymedon – pale swallowtail
Papilio rutulus – western tiger swallowtail
Papilo zelicaon lucas – anise swallowtail

***PIERIDAE* – WHITES AND SULFURS**

Anthocharis centhura – Felder's orangetip
Anthocharis sara – Sara orangetip
Colias Eurydice – California dogface
Colias harfordi – Harford's Sulfur
Colias sp. – Sulfur
Euchloe hyantis – Pearly marble
Euchloe lotta – Desert marble
Pieris rapae – European cabbage white
Pontia beckerii – Becker's white
Pontia protodice – Common white
Pontia sisymbrii – California white

***RIODINIDAE* – METALMARKS**

Apodemia mormo virgulti – Behr's metalmark
Calephelis wrightii – Wright's metalmark

***LYCAENIDAE* – BLUES, HAIRSTREAKS, AND COPPERS**

Brephidium exile – western pygmy blue
Callophrys dumetorum perplexa – perplexing (green) hairstreak
Glaucopsyche lygdamus australis – southern blue
Icaria acmon acmon – acmon blue
Incisalia augustinus – brown elfin
Leptotes marina – marine blue
Philotes sonorensis – sonoran blue

***NYMPHALIDAE* – BRUSH-FOOTED BUTTERFLIES**

Agraulis sp. – fritillary
Coenonympha californica californica – California ringlet
Junonia coenia – buckeye
Vanessa annabella – west coast lady
Vanessa sp. – lady
Vanessa cardui – painted lady

* signifies introduced (non-native) species

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APPENDIX B

2011 Jewell Valley QCB Survey Field Notes

ATTACHMENT A-2

45-Day Summary Report of Focused Surveys for the Quino Checkerspot Butterfly for the Campo Wind Energy Project

AECOM
1420 Kettner Boulevard
Suite 500
San Diego, CA 92101
www.aecom.com

619.233.1454 tel
619.233.0952 fax

July 5, 2010

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

RE: 45-Day Summary Report of Focused Surveys for the Quino Checkerspot Butterfly for the Campo Wind Energy Project

Dear Ms. Marquez:

In compliance with the Special Terms and Conditions for Endangered and Threatened Wildlife Species Permit TE-820658-4.6, AECOM submits this letter report summarizing the results of focused surveys conducted during 2010 for the federally listed endangered Quino checkerspot butterfly (*Euphydryas editha quino*; Quino) associated with the Campo Wind Energy Project. AECOM currently holds an Endangered and Threatened Species Permit issued by the U.S. Fish and Wildlife Service (USFWS) under Section 10(a) of the federal Endangered Species Act. This permit authorizes AECOM to conduct presence/absence surveys for Quino and other species.

Project Description

The Campo Band of Mission Indians (a California federally recognized Indian tribe), Muht-Hei, Inc. (a tribally chartered corporation wholly owned by the Campo Band of Mission Indians), the Bureau of Indian Affairs, and Invenergy Wind California, LLC, propose construction and operation of a wind generation facility on the Campo Indian Reservation in southeastern San Diego County. This facility would be capable of generating up to 300 megawatts (MW) of electricity and would include turbine strings, substations, transmission facilities, and access roads. The exact footprint of project features is currently being designed. Generally, strings of 2.5-MW turbines are being considered for installation across ridgelines that do not contain residences throughout the reservation, including areas north and south of both Interstate 8 and State Route 94. Each turbine would be set on a large concrete foundation. Turbines would be connected by underground electrical cables to one or two substations. Each substation would be sited on approximately 2 to 3 acres and would consist of a graveled, fenced area containing transformer and switching equipment and an area to park utility vehicles. In addition, a three-phase overhead transmissions circuit would be constructed from each substation and would connect to the existing transmission network. Other likely facilities would include an Operations and Maintenance building; new access roads; and a temporary concrete batch plant. The biological survey area (BSA) identified for the proposed project includes approximately 4,417 acres. This acreage consists of all proposed project features with a 500-foot buffer around new, proposed features, and a 100-foot buffer around existing features of the site that are proposed to be used or modified (i.e., existing roads).

Site Description

The Campo Indian Reservation includes lands both north and south of Interstate 8 along the Tecate Divide, extending to a quarter of a mile north of the California and Mexico international border (Figure 1). The reservation is located between the communities of Old Campo and Jacumba, around the community of Live Oak Springs, and bisected by Church Road (Figure 2). On-site elevation ranges from approximately 3,030 to 4,320 feet above mean sea level.

The BSA supports a variety of habitat types and vegetation communities but is dominated by chamise chaparral with both a monotypic phase and a mixed chaparral phase. Additional vegetation communities found throughout the site and especially along ridges and slopes include redshank chaparral, big sagebrush scrub, and Sonoran subshrub scrub. A series of north-south-running ridges is located throughout the proposed project site separated by shallow valleys consisting of coast live oak woodland, nonnative grassland, and southern willow scrub vegetation. Buckwheat scrub is interspersed throughout the chamise chaparral primarily in shallow valleys, along washes and roads, and along firebreaks. Various large rock-outcrops are scattered throughout the site but are primarily located along the ridgelines.

Background Information

The 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 20 subspecies, each of which has its own range and biological and morphological characteristics. In California, there are 12 subspecies (Garth and Tilden 1986). 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).

The 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).

The Quino is a medium-sized butterfly (approximately 0.8- to 1.1-inch wingspan) belonging to the family Nymphalidae. The adults are primarily orange-red with white and have black markings on the dorsal wing surface. They are active primarily in March and April. This active period may vary depending on weather conditions (Ballmer et al. 2001). The adult butterfly feeds on nectar, which it obtains from spring annuals such as popcorn flower (*Cryptantha* spp.), Layia (*Layia glandulosa*), goldenbush (*Ericameria* spp.), pincushion (*Chaenactis* spp.), fiddleneck (*Amsinckia intermedia*), chia (*Salvia columbariae*), and blue dicks (*Dichelostemma pulchella*), among others. It cannot use flowers that possess deep corolla tubes, such as monkeyflower (*Mimulus* spp.), or those that can be opened by bees,

such as snapdragons (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).

A female may lay 20 to 75 eggs at one time and may produce up to 1,200 eggs in her lifetime. 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 Chinese houses (*Collinsia concolor)* as their host plants (Pratt 2009). Dark-tipped bird's-beak (*Cordylanthus rigidus*) and owl's clover (*Castilleja exserta*) are considered secondary hosts (USFWS 2002). New evidence suggests that Chinese houses is a primary larval food plant for Quino in the 900 to 1,300-meter elevation range (Pratt 2009), which is within the range coincident with the BSA.

After feeding, the early larva enters 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.

The Quino was once common in Southern California. It ranged north into Ventura County, west to the Pacific Ocean, east to the deserts, 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.

Survey Methodology

Habitat Assessment

Prior to the initiation of surveys, a focused habitat assessment of the 4,417-acre BSA was conducted from March 1 through March 5 and March 15 through March 17. One additional

day of habitat assessments was conducted on March 22 for adjustments to the proposed project footprint that were added during the week of March 8. Habitat assessments were conducted by Project permitted biologists David Faulkner, Martha Heath, Michael Klein, Ken Osborne, and Dale Powell. These permitted biologists were assisted by project supervised biologists Andrew Fisher and Shirley Innecken.

An internal meeting took place on March 10, 2010, to compile, review, and discuss the results of initial habitat assessments with project biologists Barbra Calantas, Dave Faulkner, Andrew Fisher, Michael Klein, and Erin Riley. Upon review of the initial habitat assessment mapping, differences in the interpretation of the USFWS Quino survey protocol (USFWS 2002) with regard to chaparral density and areas to include or exclude from surveys were identified and discussed. The survey protocol recommends excluding “dense chaparral” and “small openings (less than an acre) completely enclosed within dense chaparral.” It further defines “dense chaparral” as “vegetation so thick that it is inaccessible to humans except by destruction of woody vegetation for at least 100 meters.”

Ken Osborne defined excluded habitat using a strict interpretation of the protocol definition of dense chaparral. David Faulkner and Michael Klein applied a more restrictive interpretation of the protocol as it applied to the BSA than initially assumed in many areas. Their interpretation of excluded areas resulted in a narrowing of habitat to be surveyed. This was based on refining the mapping of dense chaparral to include vegetation that was relatively easily traversed and thought to be the optimal Quino habitat on-site. It was decided at this meeting that field review of initial habitat assessments would take place to ensure a consistent interpretation of the survey protocol and approach on habitat assessment mapping throughout the BSA.

These conclusions regarding the mapping of potential Quino habitat during the habitat assessment were discussed at a meeting on March 11, 2010, with USFWS, Invenergy, Lisa Gover (Campo Environmental Protection Agency), AECOM, and subcontracted biologist David Faulkner. At this meeting, AECOM and Invenergy provided a background of the project and discussed biological surveys scoped for the project. AECOM and David Faulkner provided the results of the initial habitat assessment mapping. David Faulkner described conditions at various specific areas within the survey area boundary and adjacent areas based on his experience completing Quino surveys for the proposed Campo Landfill project in prior years. He explained why these areas were or were not suitable for Quino, stating that most excluded areas consisted of closed-canopy chaparral (AECOM 2010).

It was agreed upon at the March 11, 2010, meeting that focused surveys should likely start the week of March 22, 2010, based on site conditions and seasonal weather patterns. Also, it was discussed that a typical survey week could be expected to last as long as 9 to 10 calendar days instead of the usually 7-day week due to adverse weather conditions given the elevation and interior mountain location of the site. USFWS agreed on the approach to habitat assessments that was discussed at the March 11, 2010 meeting. USFWS also concurred on the start date and survey week length.

Follow-up field review of Quino habitat assessments took place from March 15 through March 17, 2010. AECOM staff, Michael Klein, and David Faulkner conducted this second round of habitat assessments. Thus, areas defined as suitable Quino habitat during the first week of habitat assessments were reassessed to further refine mapping of closed-canopy chaparral habitat. The resulting 1,806 acres of included habitat is depicted in Figure 3 (see "original survey area").

As the focused adult surveys ensued, some surveyors observed patches of open habitat in the dense chaparral they deemed suitable for the species. Starting in survey week 2, Quino observations were made outside of the original survey area (Figure 3). The survey area was expanded during survey week 2 to include additional trails and narrow openings in the chaparral that were not easily visible during habitat assessments. The expanded survey area is depicted in Figure 3 and constitutes approximately 541 additional acres.

The total original Quino survey area within the BSA is approximately 1,806 acres. Focused surveys were conducted for 6 weeks over this 1,806-acre survey area according to the most current USFWS protocol (USFWS 2002). The expanded survey area, comprised of 541 acres, was surveyed according to the survey guidelines during weeks 2 through 6, thus receiving a full 5 weeks of surveys and spanning the entire documented 2010 flight season of the species in the BSA (Figure 3). Thus, focused surveys were conducted for a minimum of 5 weeks over the entire 2,347-acre survey area according to the most current USFWS protocol (USFWS 2002).

The final habitat assessment map including both the original and expanded survey areas and depicting all excluded habitats is presented on USGS Quad maps at 200 percent (Figure 4). Host plant locations are also depicted on the habitat assessment maps. The criteria for including habitat in the final survey area include the following:

- chaparral and scrub communities with passable openings between shrubs
- dirt roads and trails
- open hilltops and ridges
- rock outcroppings
- areas with concentrated nectaring sources and host plants

Focused Adult Quino Surveys

The start date for focused adult Quino surveys was determined based on the following: (1) the first detection of Quino during surveys for another project on the Campo Indian Reservation directly adjacent to the proposed project the previous year; (2) conditions at the project site this year relative to last year; and (3) conditions at the Jacumba reference site monitored by USFWS. Project biologists Michael Klein and David Faulkner conducted focused surveys for the proposed Campo Landfill project in previous years and provided input that the first Quino detections at the Campo Landfill site occurred around the third week of March the previous year. Based on this information, Ken Osborne stated that the flight season would likely begin at the Jacumba reference site around the third week of

March (Osborne 2010). However, based on colder temperatures at the site in mid-March, which delayed the flight season by at least by another week, and the lack of Quino at the Campo Landfill site that was being monitored during that time, it later was agreed that the fourth week of March would be an appropriate start date for surveys. Thus, focused adult surveys commenced on March 22, 2010, by surveyors Natalie Brodie, Gretchen Cummings, David Flietner, Martha Heath, Erik LaCoste, Brian Lostroh, Viviane Marquez, Margie Mulligan, Ken Osborne, Andrew Pigniolo, and Dale Powell.

The survey routes of each permitted biologist were recorded and mapped electronically using Garmin Global Positioning System (GPS) units. A list of all biologists who conducted habitat assessments and focused surveys, and their corresponding permit numbers is provided in Table 1. A summary of the survey schedule is presented in Table 2.

Table 1
Survey Personnel and TE Permit Numbers

Biologist	#TE Permit Number
Erin Bergman	#TE-820658 (supervised)
Natalie Brodie	#TE-135948
Michael Couffer	#TE-782703
Gretchen Cummings	#TE-031850
Frank Dittmer	#TE-225938
David Faulkner	#TE-838743
Andrew Fisher	#TE-820658 (supervised)
David Flietner	#TE-008031
Antonette Gutierrez	#TE-797999
Martha Heath	#TE-099005
Bonnie Hendricks	#TE-820658
Shirley Innecken	#TE-820658 (supervised)
Diana Jensen	#TE-797999
Michael Klein	#TE-039305
Gina Krantz	#TE-797999 (supervised)
Erik LaCoste	#TE-027736
Brian Lohstroh	#TE-063608
Viviane Marquez	#TE-800930
James McMorran	#TE-820658 (supervised)
Margie Mulligan	#TE-233291
Ken Osborne	#TE-837760
Andrew Pigniolo	#TE-053020
Dale Powell	#TE-006559
Steve Rink	#TE-797999

Table 2
Quino Checkerspot Butterfly Survey Schedule

Survey Week	Date	Survey Team	# Calendar Days[2]	# Person Days	Survey Rate
1	03/22/2010 – 04/02/2010	Brodie, Cummings, Faulkner, Fisher[1], Flietner, Heath, Innecken[1], LaCoste, Lohstroh, Marquez, McMorran[1], Mulligan, Osborne, Pigniolo, Powell	12 (5 days cancelled, 3 days delayed due to weather)	24	75 acres/day
2	04/02/2010 – 04/17/2010	Bergman[1], Brodie, Couffer, Cummings, Faulkner, Flietner, Gutierrez, Hendricks, Innecken[1], Jensen, LaCoste, Lohstroh, McMorran[1], Mulligan, Osborne, Powell	14 (3 days cancelled, 2 days delayed due to weather)	29	81 acres/day
3	04/18/2010 – 04/26/2010	Bergman[1], Brodie, Couffer, Faulkner, Gutierrez, Hendricks, LaCoste, Lohstroh, Mulligan, Powell	7 (2 days cancelled, 2 days ended early due to weather)	27	87 acres/day
4	04/27/2010 – 05/05/2010	Bergman[1], Brodie, Couffer, Dittmer, Faulkner, Fisher[1], Flietner, Gutierrez, Krantz, Hendricks, Lohstroh, Mulligan, Pigniolo, Powell, Rink	9 (3 days cancelled due to weather)	30	78 acres/day
5	05/05/2010 – 05/11/2010	Brodie, Couffer, Faulkner, LaCoste, Marquez, McMorran[1], Mulligan, Osborne, Powell	8 (3 days cancelled due to weather)	24	97 acres/day
6	05/12/2010 – 05/20/2010	Brodie, Couffer, Faulkner, Flietner, Lohstroh, Marquez, Mulligan, Powell	8 (1 day cancelled, 1 day ended early due to weather)	23	99 acres/day

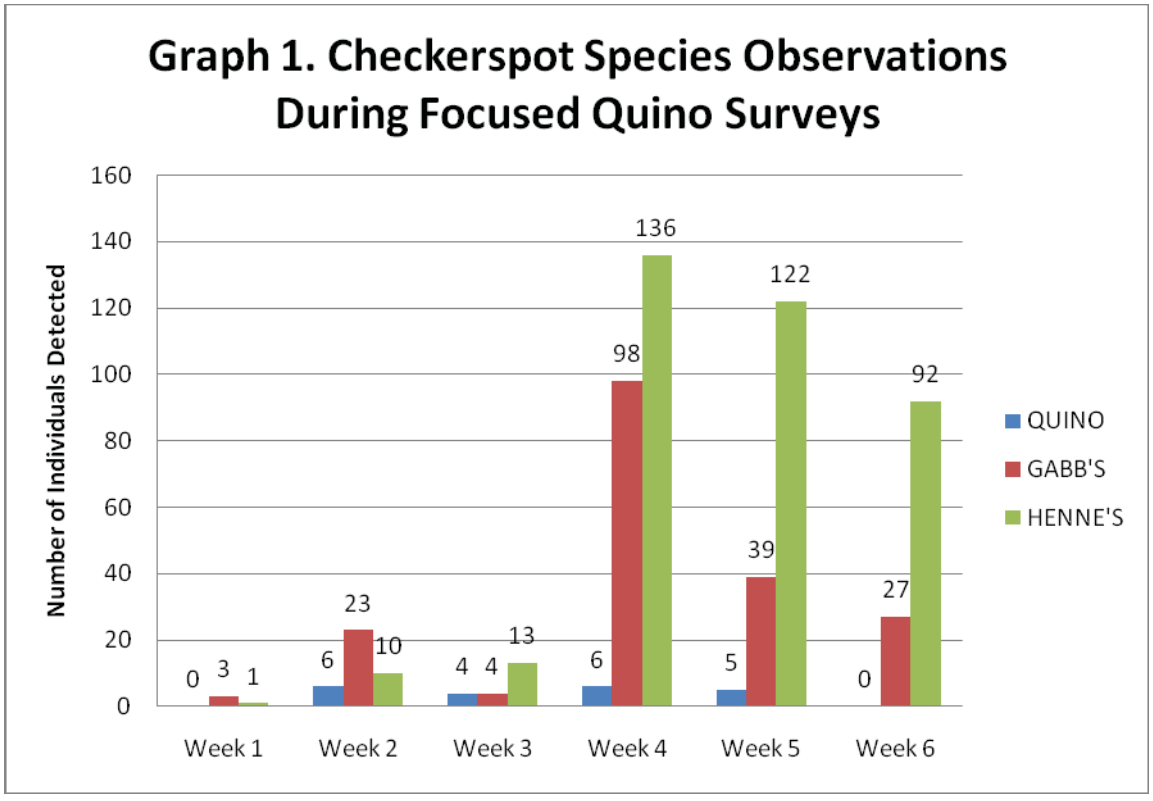
[1] Supervised to survey under TE# 820658.
[2] Cancelled calendar days, delayed calendar days, and calendar days where surveys were ended early are a result of unacceptable weather conditions outlined in the USFWS protocol.

Results

Six weeks of focused surveys were conducted for the approximate 1,806 acres of the original focused survey area, shown in Figure 3. The expanded focused survey area of approximately 541 acres was surveyed from weeks 2 through 6 according to the USFWS protocol (USFWS 2002).

After 5 weeks of surveys, it was determined that a sixth week of Quino surveys at the site was necessary, based on continued observations of Quino individuals during the fifth week that appeared in moderate condition with minimal fading of wing color and fraying of wing edges. Potential larval host plants, including Chinese houses, were blooming with increasing abundance during survey week 5. While the actual blooms of Chinese houses do not benefit Quino larvae, the blooming cycle indicates that Chinese houses were still green and supple, and had not yet dried up during the Quino survey season. Thus, the host plants were still available for Quino larvae to feed on during the Quino survey season. Based on the continued presence of adult Quino and blooming stage of potential larval host plants during survey week 5, a sixth week of focused adult Quino surveys was added to the season. Per discussions with USFWS during survey week 5, Eric Porter and the project team determined that area already surveyed during weeks 1 through 5 in the southern third of the BSA did not need additional focused surveys (Figure 3) (Meyer 2010). This determination was based on number of Quino observations that clearly established presence of the species in this area (Figure 3).

Three checkerspot species were detected on-site, Quino, Gabb's checkerspot (*Chlosyne gabbi*), and Henne's chalcedon checkerspot (*Euphydryas chalcedona*). Observations of these three species overlapped with the exception of survey weeks 1 and 6 (no Quino detected during these weeks). These observations are displayed in Graph 1.



Survey-specific weather conditions and personnel are presented in Appendix A. Field datasheets are included as Appendix B.

A total of 61 butterfly species and various moth species were detected within the survey area, with peak numbers generally occurring during survey weeks 3 and 4. A list of all butterfly species observed within the survey area each survey week is summarized in Appendix C. A list of potential nectaring plant species in flower each survey week is presented in Appendix D. Generally, nectaring plants increased in diversity and abundance during survey weeks 3 and 4, which coincided with the times that Quino and other checkerspots were observed in greatest abundance. A list of vertebrate species detected during focused Quino surveys is presented in Appendix E.

During spring 2010, vegetation mapping and rare plant surveys were ongoing and concurrent with focused Quino surveys for the project. Botanists conducting vegetation mapping and rare plant surveys across 100 percent of the BSA also mapped all potential Quino larval host plants observed, including Chinese houses, Coulter's snapdragon, and dark-tip bird's beak. On-site, Chinese houses was the most abundant potential host plant and was associated with the chaparral understory and adjacent open areas of habitat. Coulter's snapdragon was also associated with the chaparral understory and open areas. Of these three species observed within the survey area, only Chinese houses was vegetatively mature as early as April, during the peak of Quino observations. The blooming period for Chinese houses on-site during spring 2010 was from mid-April to late-June. This species was past its peak bloom and in full fruit by late June. The other two species documented on-site, dark-tip bird's beak and Coulter's snapdragon, were present only as small basal rosettes and/or diminutive, immature plants in April. Coulter's snapdragon began blooming in early May in some areas, and dark-tip bird's beak is not expected to fully mature and bloom until July. All host plants that were detected within the survey area, including observations made by Quino surveyors and botanists during rare plant surveys, are provided in Figure 5.

Twenty-one Quino observations were made during the survey period during focused surveys. Two of these observations were likely of the same individual Quino due to distinct markings; therefore, 20 distinct Quino individuals were observed during focused surveys. Six additional Quino observations occurred incidentally during non-Quino project-specific survey efforts, which represent at least four distinct Quino individuals. Therefore, a minimum of 24 distinct Quino individuals were observed within the Campo Indian Reservation during the survey period, with a maximum of 27 observations made. Among these, eight of the observations occurred just outside the project boundaries on the Campo Indian Reservation as surveyors walked to and from their vehicle to access the site. All Quino detections are displayed in Figures 3 and 4. Information for each Quino sighting, including the survey week (where applicable), date, time, weather conditions, surveyor, and number of Quino individuals detected, is provided in Table 3. Detailed information on each sighting, including weather conditions, habitat conditions, and photographs of the habitat and/or individual(s) detected as applicable, is provided in the corresponding 24-hour notification letter (Appendix F).

Table 3
Quino Checkerspot Butterfly Observations

Observation Number	Survey Week	Date	Time	Temp	Wind	% Cloud Cover	Observer/ Permitted Biologist	Date Reported to USFWS	Number of Quino Observed
1	2[1]	04/08/2010	12:40-13:15	68.0°F	1-3 mph	0	Andrew Fisher[2], James McMorran[2]	04/09/2010	3 individuals
2	2	04/09/2010	13:00-13:15	73.0°F	0	0	Dave Flietner, Erin Bergman[2]	4/12/2010	2 individuals
3	2	04/13/2010	10:30	58.0°F	3 mph	0	Michael Couffer	04/14/2010	1 individual
4	2	04/15/2010	15:48-15:57	73.0°F	0	10	Ken Osborne	04/16/2010	2 individuals
5	2[1]	04/15/2010	10:15	64.4°F	3.3 mph	0	Andrew Fisher[2]	04/16/2010	1 individual
6	2[1]	04/15/2010	13:15	72.0°F	3.5-8 mph	100	Andrew Fisher[2], James McMorran[2]	04/16/2010	1 individual[3]
7	2	04/16/2010	10:10	71.5°F	1.7-4.2 mph	0	Bonnie Hendricks	04/16/2010	1 individual
8	3	04/19/2010	13:45	75.0°F	0-5 mph	5	Michael Couffer	04/19/2010	2 individuals
9	3	04/24/2010	13:20	82.0°F	0-3 mph	0	Michael Couffer	04/26/2010	1 individual
10	3	04/26/2010	14:13	82.0°F	0-3 mph	0	Michael Couffer	04/27/2010	1 individual
11	4[1]	04/27/2010	11:45	74.0°F	1-7 mph	15	Andrew Fisher[2]	04/29/2010	1 individual
12	4	04/27/2010	12:40	80.0°F	7-13 mph	5	Michael Couffer	04/29/2010	1 individual[4]
13	4	04/27/2010	12:27	74.0°F	5-7 mph	0	Dale Powell, Andrew Fisher[2]	04/29/2010	1 individual
14	4	04/27/2010	14:45	76.0°F	0-2 mph	10	Michael Couffer	04/29/2010	1 individual
15	4	04/27/2010	15:40-15:47	76.0°F	0-4 mph	10	Michael Couffer	04/29/2010	1 individual
16	4	05/01/2010	09:58-10:08	64.0°F	2-5 mph	0	Michael Couffer, Andrew Fisher[2]	05/02/2010	2 individuals
17	5	05/06/2010	08:45	73.0°F	1-5 mph	0	Antonette Gutierrez, Gina Krantz[2]	05/07/2010	1 individual
18	5	05/06/2010	10:44	73.0°F	1-5 mph	0	Michael Couffer	05/07/2010	1 individual[5]
19	5	05/06/2010	10:28; 12:04	71.0°F; 76.0°F	1-3 mph; 0-5 mph	0	Michael Couffer	05/07/2010	2 individuals
20	5	05/07/2010	11:25	76.0°F	0-6 mph	0	Michael Couffer	05/07/2010	1 individual

[1] Quino not observed during a focused survey; individual(s) observed incidentally during project avian surveys.
[2] Supervised. All observations made by supervised biologists were verified through photographs taken of the Quino individuals (see Appendix F).
[3] Individual is likely the same as one of three individuals documented in Observation 1.
[4] Likely the same Quino individual observed in Observation 11.
[5] Likely the same Quino individual observed in Observation 17.

Quino detections are primarily concentrated in the southern portion of the project area south of State Route 94. There are also at least four sightings in the northern portion of the project area near Interstate 8. One area of habitat in the southern portion of the site was adjacent to a previously known Quino location (Faulkner 2010). This area had the highest density of Quino individuals observed, with a cluster of nine total Quino observations throughout the survey period in the expanded survey area (Figure 3 – Inset 3).

Discussion

A total of 27 individual Quino observations (representing a minimum of 24 individual Quino) were made during the flight season, with likely repeat observations of the same individuals in at least three cases (Figure 3 - Inset 2 and Inset 3).

As recorded in Table 3, no Quino were detected during survey week 1. The first detection of Quino this season occurred on April 8, 2010, during the week 2 survey period. Quino were detected during survey weeks 2 through 5. No Quino were detected during survey week 6 on-site. Thus, the survey window of March 22 to May 20 appears to have appropriately encompassed the flight season for Quino at the project site this year.

After conclusion of the field season on June 24, 2010, an internal meeting between AECOM biologists and subconsultant biologists (Barbra Calantas, Michael Couffer, David Faulkner, Andrew Fisher, Bonnie Hendricks, Scott McMillan, Antonette Gutierrez, Ken Osborne, and Erin Riley) took place to discuss focused survey results and conclusions.

This meeting assessed results of adult focused surveys, host plant mapping and vegetation mapping across the entire BSA. In comparing the focused Quino survey area to the larger BSA, spans of dense chaparral with small openings exist outside of the survey area. These areas may incur some use by Quino at a reduced level. These spans of dense chaparral are suitable for the overall persistence of the population but do not consist of high quality Quino habitat. These areas lack concentrations of resources that would be likely to support dense localized Quino numbers or use at this point in time given the maturity of the chaparral community based on lack of recent fire or other disturbances. These areas of dense chaparral include hilltops/ridgelines and populations of host plants and nectaring sources that may serve as a resource to some degree to the local Quino population despite being excludable by interpretation of the survey protocol.

The total area surveyed, including the original and expanded survey areas (2,347 acres), represents what is considered the optimal habitat for Quino on-site. Of the areas surveyed, Quino were observed in a small percentage of the total survey area. The Quino is known to undergo population fluctuations with extirpation of local populations and recolonization of new areas in a fashion characteristic of metapopulation dynamics (Osborne 1998). Thus, the participants of the June 24 meeting concluded that a larger area of suitable habitat totaling 3,456 acres is potentially supporting the persistence of the species. Much of this area was excluded from surveys based on the presence of dense chaparral. However, the larger area of suitable habitat defined in Figure 5 includes all chaparral with host plants and

occasional openings (>1 acre).This area of suitable habitat is most relevant for discussing the larger patterns of species distribution through space and time (Figure 5).

If you have any questions or comments regarding this letter report, please contact me at (619) 233-1454.

Sincerely,

Barbra Calantas
Associate Wildlife Biologist
barbra.calantas@aecom.com

Attachments:

- Figure 1 – Regional Map
- Figure 2 – Vicinity Map
- Figure 3 – Quino Survey Area and Detections
- Figure 4 – Quino Habitat Assessment (Map Pocket)
- Figure 5 – Quino Larval Host Plants and Suitable Habitat
- Appendix A – Daily Weather Conditions for Focused Quino Surveys on Campo Wind Energy Project
- Appendix B – Field Data Sheets
- Appendix C – Summary of Butterfly and Moth Species Observed during Focused Quino Checkerspot Butterfly Surveys for the Campo Wind Energy Project
- Appendix D – Weekly Flowering Plant Observations for Campo Wind Energy Project
- Appendix E – Vertebrate Species Detected during Focused Quino Surveys for Campo Wind Energy Project
- Appendix F – 24-hour Notification Letters to USFWS

Certification

Qualified biologists who conducted Quino checkerspot butterfly habitat assessments and focused adult surveys for the Campo Wind Energy Site certify that the information in this survey report fully and accurately represents the work performed by AECOM biologists. Signatures of permitted biologists as listed in Table 1 who conducted focused surveys (March 22 through May 20, 2010) are included below. The results of focused surveys for listed species are typically considered valid for 1 year by the resource agencies.



Bonnie Hendricks
AECOM Quino Surveyor



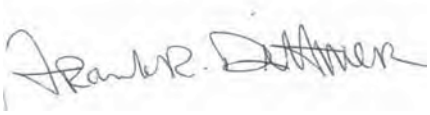
Natalie Brodie
Subcontracted Quino Surveyor



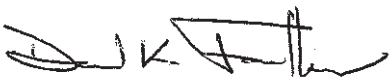
Michael Couffer
Subcontracted Quino Surveyor



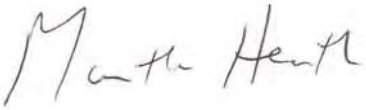
Gretchen Cummings
Subcontracted Quino Surveyor



Frank Dittmer
Subcontracted Quino Surveyor



David Faulkner
Subcontracted Quino Surveyor



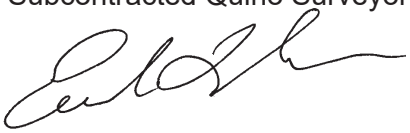
Martha Heath
Subcontracted Quino Surveyor



Steve Rink
Subcontracted Quino Surveyor



Diana Jensen
Subcontracted Quino Surveyor



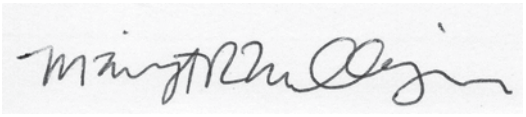
Erik LaCoste
Subcontracted Quino Surveyor



Brian Lohstroh
Subcontracted Quino Surveyor



Viviane Marquez
Subcontracted Quino Surveyor



Margie Mulligan
Subcontracted Quino Surveyor



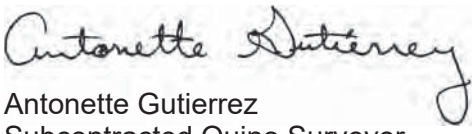
Ken Osborne
Subcontracted Quino Surveyor



Andrew Pigniolo
Subcontracted Quino Surveyor



Dale Powell
Subcontracted Quino Surveyor



Antonette Gutierrez
Subcontracted Quino Surveyor



David Flietner
Subcontracted Quino Surveyor

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FIGURES

Campo Wind Energy Project Quino Checkerspot Butterfly Survey 45-day Report

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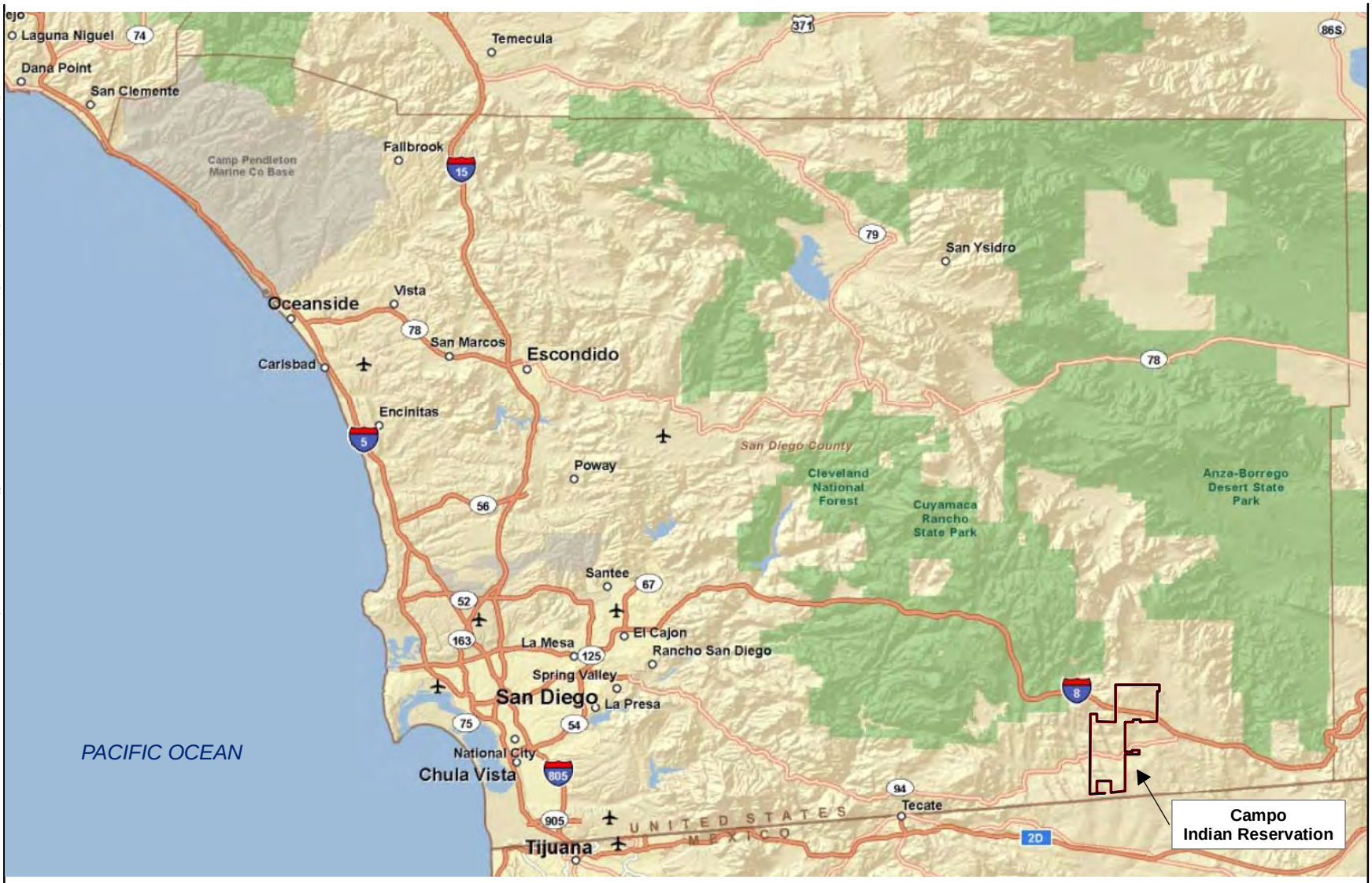
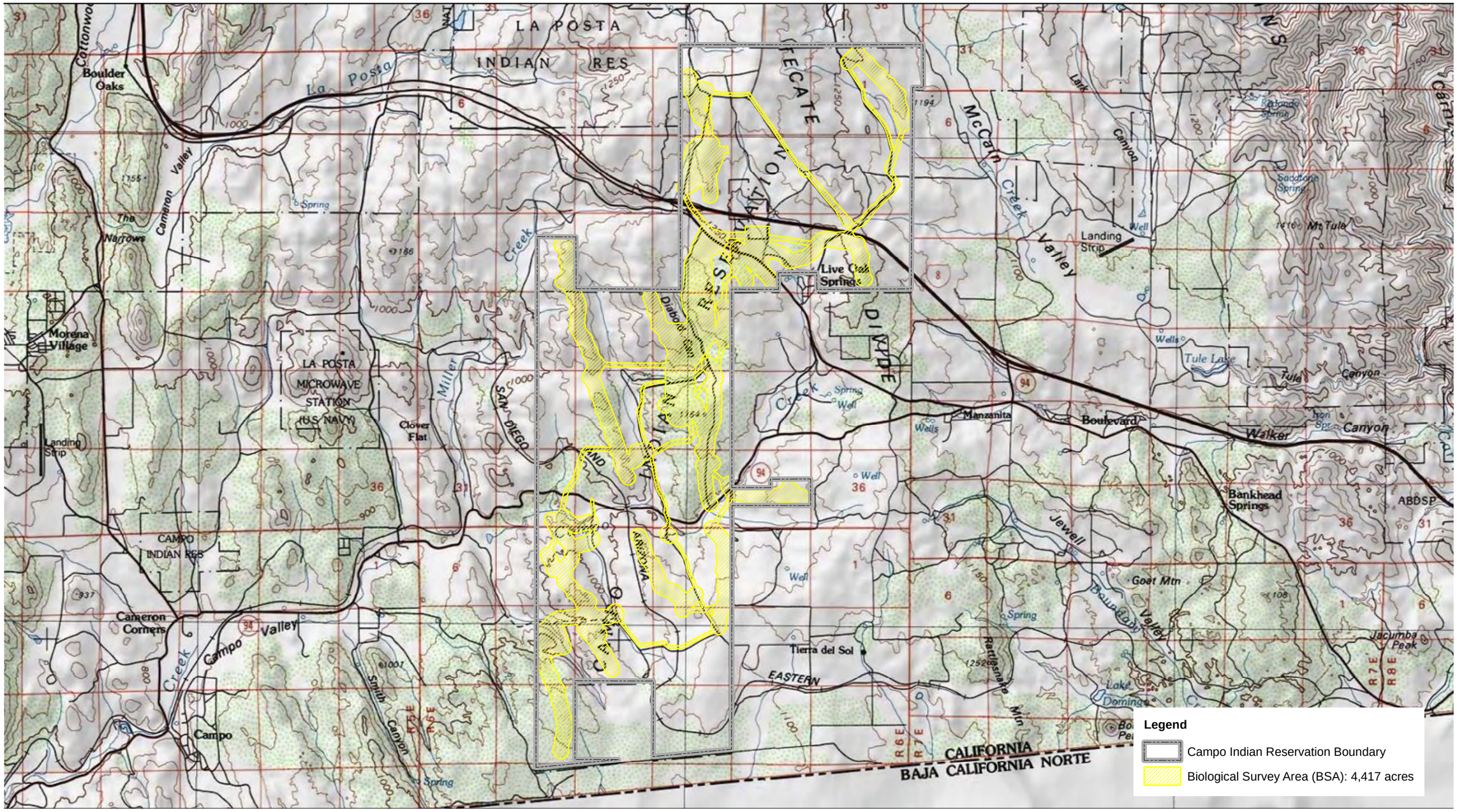


Source: ESRI 2009

12.8 0 12.8 Miles

Scale: 1 = 810,771.7; 1 inch = 12.8 mile(s)

Figure 1
Regional Map



Source: Tierra del Sol 1959; Live Oak Springs 1975; Campo 1959; Cameron Corners 1988

6,500 3,250 0 6,500 Feet

Scale: 1 = 78,000; 1 inch = 6,500 feet

Figure 2
Vicinity Map

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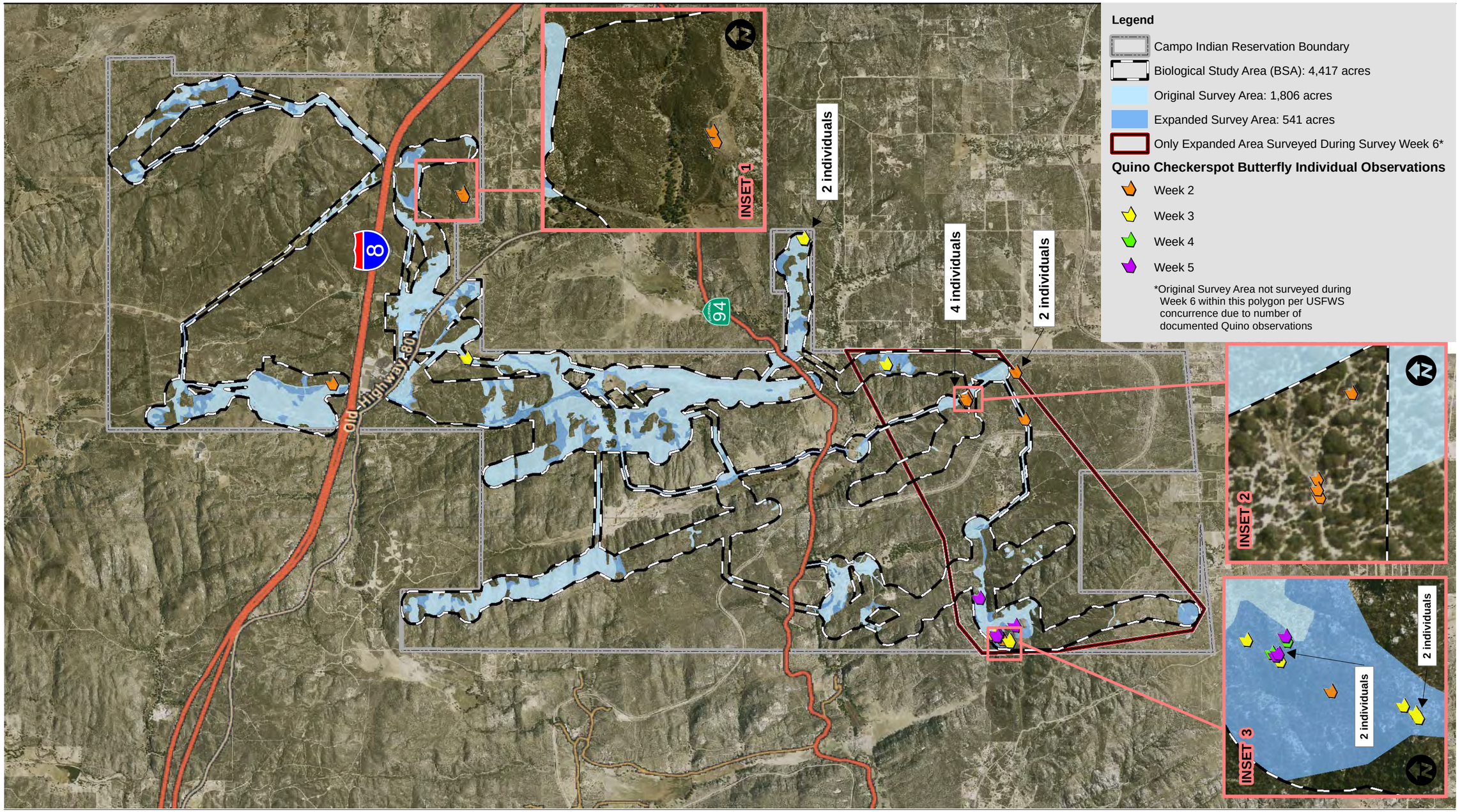

Source: DigitalGlobe 2008; Invenergy 2010

4,250 2,125 0 4,250 Feet

Scale: 1 = 51,000; 1 inch = 4,250 feet

Figure 3
Quino Checkerspot Butterfly Survey Area and Detections

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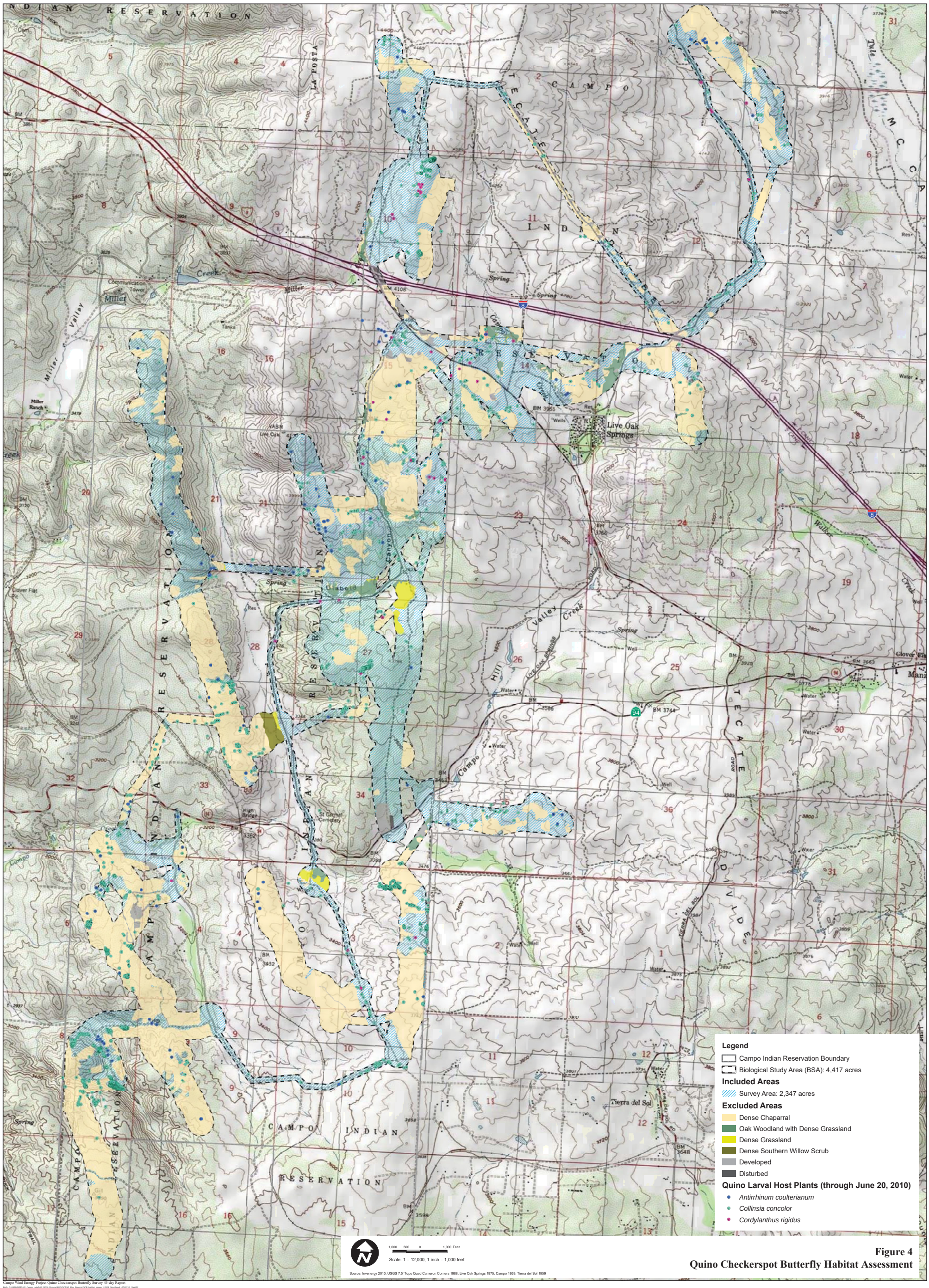
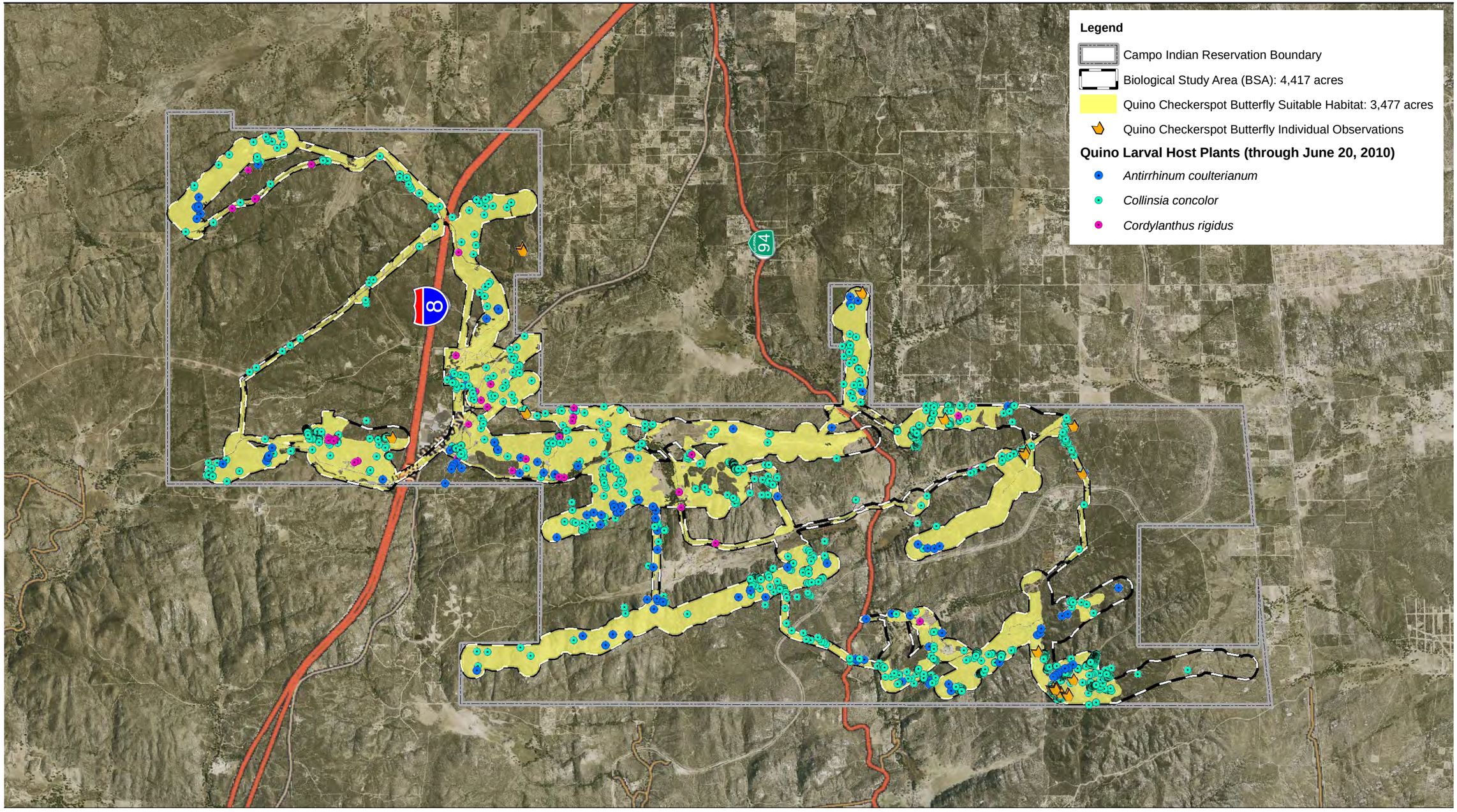


Figure 4
Quino Checkerspot Butterfly Habitat Assessment



Source: DigitalGlobe 2008; Invenergy 2010

4,250 2,125 0 4,250 Feet

Scale: 1 = 51,000; 1 inch = 4,250 feet

Figure 5
Quino Larval Host Plants and Suitable Habitat

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APPENDIX A

DAILY WEATHER CONDITIONS FOR FOCUSED QUINO SURVEYS ON CAMPO WIND ENERGY PROJECT

APPENDIX A
DAILY WEATHER CONDITIONS FOR FOCUSED QUINO SURVEYS ON CAMPO WIND ENERGY PROJECT

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed Average/ Maximum (mph)	Cloud Cover (%)	General Sky Condition
3/22/2010	1	Pigniolo	1030	61	0/2	20	patchy
3/22/2010	1	Pigniolo	1130	61	2/6	60	overcast
3/22/2010	1	Pigniolo	1230	63	2/6	85	overcast
3/22/2010	1	Pigniolo	1330	57	2/6	95	overcast
3/22/2010	1	Pigniolo	1400	58	2/6	100	overcast
3/22/2010	1	Marquez	1015	66.8	3.4/6.2	10	patchy
3/22/2010	1	Marquez	1140	67.2	0.6/1.6	60	patchy
3/22/2010	1	Marquez	1300	65.5	4.7/8.7	100	overcast
3/22/2010	1	Marquez	1400	63.8	2.1/4.8	100	overcast
3/22/2010	1	Marquez	1425	62.9	5.4/9.9	100	overcast
3/22/2010	1	Heath	1000	61	8/9	10	patchy
3/22/2010	1	Heath	1115	63	7.2/10.5	25	patchy
3/22/2010	1	Heath	1200	63	3.5/6.5	75	patchy
3/22/2010	1	Heath	1300	62	3.5/6.5	95	overcast
3/22/2010	1	Heath	1400	58.5	5.6/9.9	100	overcast
3/22/2010	1	Lohstroh	920	61	0/5	10	clear
3/22/2010	1	Lohstroh	1000	64	0/3	20	patchy
3/22/2010	1	Lohstroh	1100	61	3/5	40	patchy
3/22/2010	1	Lohstroh	1200	61	3/5	60	patchy
3/22/2010	1	Lohstroh	1300	60	3/5	100	overcast
3/22/2010	1	Lohstroh	1400	60	3/5	100	overcast
3/22/2010	1	Lohstroh	1445	60	3/5	100	overcast
3/22/2010	1	Faulkner	1000	65	2	30	patchy
3/22/2010	1	Faulkner	1100	68	3	50	patchy
3/22/2010	1	Faulkner	1200	68	5	70	patchy
3/22/2010	1	Faulkner	1300	65	6	100	overcast
3/22/2010	1	Faulkner	1400	64	6	100	overcast
3/22/2010	1	Faulkner	1500	63	2	100	overcast
3/22/2010	1	Faulkner	1600	59	13	100	overcast
3/22/2010	1	McMorran/Brodie	1315	66	2/4	90	overcast
3/22/2010	1	McMorran/Brodie	1415	64	8/12	90-100	overcast
3/22/2010	1	McMorran/Brodie	1015	68	2/6	10	clear
3/22/2010	1	McMorran/Brodie	1100	66	8/12	30-40	patchy
3/22/2010	1	McMorran/Brodie	1220	68	4/10	70-80	patchy
3/22/2010	1	McMorran/Brodie	1315	66	4/6	80-90	overcast
3/24/2010	1	Heath	930	60	5.6/8.6	0	clear
3/24/2010	1	Heath	1030	63	3.6/7.2	0	clear
3/24/2010	1	Heath	1130	67	2.6/4.5	0	clear
3/24/2010	1	Heath	1300	69.5	2.6/6.9	0	clear
3/24/2010	1	Heath	1400	64.5	2.9/7.8	0	clear
3/24/2010	1	Heath	1500	70	3.0/6.4	0	clear
3/24/2010	1	Heath	1600	65	15	0	clear
3/24/2010	1	LaCoste	950	60	10/15	0	clear
3/24/2010	1	LaCoste	1640	65	10/15	5	clear

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed Average/ Maximum (mph)	Cloud Cover (%)	General Sky Condition
3/24/2010	1	Cummings	945	64	4.9/10.1		clear
3/24/2010	1	Cummings	1100	70	7.6/10.9		clear
3/24/2010	1	Cummings	1300	70	3.6/4.4		patchy
3/24/2010	1	Cummings	1415	71	2.1/3.0		patchy
3/24/2010	1	Mulligan/Innecken	1034	65	3/5	5	clear
3/24/2010	1	Mulligan/Innecken	1305	68	3/5	20	patchy
3/24/2010	1	Cummings	1520	75	2.0/6.3		patchy
3/24/2010	1	Mulligan/Innecken	1412	72	1	20	patchy
3/24/2010	1	Mulligan/Innecken	1512	72	5/6	20	patchy
3/24/2010	1	Mulligan/Innecken	1630	70	3/5	20	patchy
3/24/2010	1	Cummings	1520	75	2.0/6.3		patchy
3/24/2010	1	Cummings	1600	70	3.6/8.2		patchy
3/24/2010	1	Osborne	1121	72	1.0/3	0	clear
3/25/2010	1	Osborne	1140	72	2.8/5	0	clear
3/25/2010	1	Osborne	1215	60	6/10	0	clear
3/25/2010	1	Osborne	140	59	10/17	0	clear
3/25/2010	1	Osborne	410	61	1.7/4	0	clear
3/25/2010	1	Heath	1100	60	3.1/4.9	0	clear
3/25/2010	1	Heath	1220	61	7.2/10.3	0	clear
3/25/2010	1	Heath	1400	61	9.9/17.2	0	clear
3/25/2010	1	Heath	1500	61.5	5.5/14.7	0	clear
3/25/2010	1	Heath	1620	60.5	14.2/21.3	0	clear
3/25/2010	1	Faulkner	1300	63	7	0	clear
3/25/2010	1	Faulkner	1400	60	9	0	clear
3/25/2010	1	Faulkner	1400	60	9	0	clear
3/25/2010	1	Faulkner	1600	59	8	0	clear
3/25/2010	1	Faulkner	1100	60	7	0	clear
3/25/2010	1	Faulkner	1200	61	6	0	clear
3/25/2010	1	Faulkner	1300	63	7	0	clear
3/25/2010	1	Flietner/Innecken	1130	63	4/8	0	clear
3/25/2010	1	Flietner/Innecken	12	63	4/8	0	clear
3/25/2010	1	Flietner/Innecken	1220	70	0/3	0	clear
3/25/2010	1	Flietner/Innecken	1340	72	0/5	0	clear
3/25/2010	1	Flietner/Innecken	1410	72	3/7	0	haze
3/25/2010	1	Flietner/Innecken	1645	61	2/4	0	clear
3/26/2010	1	Flietner/Innecken	1020	63	0/2	0	clear
3/26/2010	1	Flietner/Innecken	1240	65	0/2	0	clear
3/26/2010	1	Flietner/Innecken	1450	72	0/2	0	clear
3/26/2010	1	Heath	1000	57	1.2/2.4	0	clear
3/26/2010	1	Heath	1130	64.7	0/2	0	clear
3/26/2010	1	Heath	1300	64.9	3.0/4.3	0	clear
3/26/2010	1	Heath	1430	67	2.1/4.1	0	clear
3/26/2010	1	Heath	1630	67.8	6.0/8.6	0	clear
3/27/2010	1	Faulkner	900	56	12	0	not available
3/27/2010	1	Faulkner	1000	56	10	0	not available
3/27/2010	1	Faulkner	1100	67	11	0	not available
3/27/2010	1	Faulkner	1200	63	7	0	not available
3/27/2010	1	Faulkner	1300	61	13	0	not available
3/29/2010	1	Brodie	1230	72	0/2	20	clear/patchy
3/29/2010	1	Brodie	13445	73	2/4	20-30	patchy

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed Average/ Maximum (mph)	Cloud Cover (%)	General Sky Condition
3/29/2010	1	Brodie	1445	72	2/4	10-20	overcast
3/29/2010	1	Brodie	1600	70	4/6	0	clear
3/29/2010	1	Brodie	930	64	0/2	0	clear
3/29/2010	1	Brodie	1040	68	0/2	0	clear
3/29/2010	1	Brodie	1130	70	0/2	10	clear
3/29/2010	1	Brodie	1215	72	0/2	20	clear
3/29/2010	1	Heath	900	69.2	0.8/1.6	0	clear
3/29/2010	1	Heath	1100	73.1	2.9/5.8	0	clear
3/29/2010	1	Heath	1200	72.2	3.0/5.6	0	clear
3/29/2010	1	Heath	1330	77	2.3/5.3	0	patchy
3/29/2010	1	Heath	1600	72	5.7/14.9	0	clear
3/29/2010	1	Powell	930	68	1/5	0	clear
3/29/2010	1	Powell	1100	75	5/7	0	clear
3/29/2010	1	Powell	1200	79	4/8	0	patchy
3/29/2010	1	Powell	1300	77	7/11	0	patchy
3/29/2010	1	Powell	1400	80	6/10	0	patchy
3/29/2010	1	Powell	1500	76	6/12	0	patchy
3/29/2010	1	Powell	1620	75	5/10	0	clear
3/29/2010	1	Pigniolo/Fisher	915	60	0	0	clear
3/29/2010	1	Pigniolo/Fisher	1015	60	0	0	clear
3/29/2010	1	Pigniolo/Fisher	1115	76	0/5	0	clear
3/29/2010	1	Pigniolo/Fisher	1215	78	0/6	20	patchy
3/29/2010	1	Pigniolo/Fisher	1315	79	0/6	40	patchy
3/29/2010	1	Pigniolo/Fisher	1415	81	2/7	10	clear
3/29/2010	1	Pigniolo/Fisher	1515	74	2/5	5	clear
3/29/2010	1	Faulkner	900	69	1	0	clear
3/29/2010	1	Faulkner	1000	73	1	0	clear
3/29/2010	1	Faulkner	1100	78	1	0	clear
3/29/2010	1	Faulkner	1200	81	1	0	patchy
3/29/2010	1	Faulkner	1300	83	5	50	patchy
3/29/2010	1	Faulkner	1400	81	2	50	patchy
3/29/2010	1	Faulkner	1500	81	5	0	clear
3/29/2010	1	Faulkner	1500	81	5	0	clear
3/29/2010	1	Faulkner	1600	62	15	0	clear
3/30/2010	1	Mulligan	1040	64	3/6	5	clear
3/30/2010	1	Mulligan	1205	73	4/6	0	clear
3/30/2010	1	Mulligan	1335	73	4/7	0	clear
3/30/2010	1	Powell	1235	67	8/11	0	clear
3/30/2010	1	Powell	1330	72	4/7	0	clear
3/30/2010	1	Powell	1430	68	7/11	0	clear
3/30/2010	1	Powell	1530	70	8/12	0	clear
3/30/2010	1	Powell	1625	65	5/9	0	clear
3/30/2010	1	Heath	1030	63.5	4.5/7.2	10	clear
3/30/2010	1	Heath	1230	66	8.7/12.4	20	clear
3/30/2010	1	Heath	1430	64.7	15.9/19.6	10	clear
3/30/2010	1	Heath	1600	60	15.0	10	clear
3/30/2010	1	Powell	1030	61	4/8	10	patchy
3/30/2010	1	Powell	1200	70	8/10	0	clear
3/30/2010	1	Lohstroh	1040	61.4	5/8	10	clear
3/30/2010	1	Lohstroh	1140	65	6/10	0	clear

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed Average/ Maximum (mph)	Cloud Cover (%)	General Sky Condition
3/30/2010	1	Lohstroh	1240	67	4/7	0	clear
3/30/2010	1	Lohstroh	1400	69	6/8	0	clear
3/30/2010	1	Lohstroh	1500	70	3/5	0	clear
3/30/2010	1	Lohstroh	1600	64	3/7	0	clear
3/30/2010	1	Lohstroh	1610	65	5/10	0	clear
4/2/2010	1	Flietner	1045	63	0/2	0	clear
4/2/2010	1	Flietner	1420	75	0/2	0	clear
4/2/2010	1	Flietner	1635	66	2/5	10	clear
4/2/2010	1	Powell/McMorran	1050	59	8/12	0	clear
4/2/2010	2	Powell/McMorran	1210	60	10/17	0	clear
4/2/2010	2	Powell/McMorran	1245	62	7/15	0	clear
4/2/2010	2	Powell/Innecken	1140	63	1/3	0	clear
4/2/2010	2	Powell/Innecken	1300	68	1/3	0	clear
4/2/2010	2	Powell/Innecken	1400	69	4/8	0	clear
4/2/2010	2	Powell/Innecken	1500	65	4/8	0	clear
4/2/2010	2	Powell/Innecken	1600	61	4/8	0	clear
4/2/2010	2	Powell/Innecken	1700	59	5/8	0	clear
4/2/2010	2	Cummings	1040	66	3.3/4.9	0	clear
4/2/2010	2	Cummings	1230	68	3.8/5.4	0	clear
4/2/2010	2	Cummings	1245	68	3./5.4	0	clear
4/2/2010	2	Cummings	1245	68	3.8/5.4	0	clear
4/2/2010	2	Cummings	1545	62	3.6/8.2	0	clear
4/2/2010	2	Faulkner	1300	68	5	0	clear
4/2/2010	2	Faulkner	1400	69	4	0	clear
4/2/2010	2	Faulkner	1500	69	4	0	clear
4/2/2010	2	Faulkner	1600	67	9	0	clear
4/2/2010	2	Faulkner	1600	67	9	0	clear
4/2/2010	2	Faulkner	1700	65	9	0	clear
4/2/2010	2	Faulkner	1030	59	3	0	clear
4/2/2010	2	Faulkner	1100	66	1	0	clear
4/2/2010	2	Faulkner	1200	72	0	0	clear
4/2/2010	2	Faulkner	1300	68	5	0	clear
4/6/2010	2	Mulligan	1250	65	3/6	0	clear
4/6/2010	2	Mulligan	1340	63	5/8	0	clear
4/6/2010	2	Mulligan	1420	63	5/8	0	clear
4/6/2010	2	Mulligan	1000	60	5/9	0	clear
4/6/2010	2	Mulligan	1107	62	1/4	0	clear
4/6/2010	2	Mulligan	1210	63	3/6	0	clear
4/6/2010	2	Mulligan	1400	63	4/8	0	clear
4/6/2010	2	Mulligan	1522	63	4/8	0	clear
4/6/2010	2	Faulkner	1400	64	8	0	clear
4/6/2010	2	Faulkner	1500	65	9	0	clear
4/6/2010	2	Faulkner	1000	57	7	0	clear
4/6/2010	2	Faulkner	1100	57	7	0	clear
4/6/2010	2	Faulkner	1200	63	7	0	clear
4/6/2010	2	Faulkner	1300	61	13	0	clear
4/6/2010	2	Faulkner	1200	63	7	0	clear
4/6/2010	2	Faulkner	1300	61	13	0	clear
4/6/2010	2	Faulkner	1400	64	8	0	clear
4/6/2010	2	Faulkner	1500	65	9	0	clear

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed Average/ Maximum (mph)	Cloud Cover (%)	General Sky Condition
4/6/2010	2	Faulkner	1600	63	8	0	clear
4/6/2010	2	Lohstroh	1000	60	5/8	0	clear
4/6/2010	2	Lohstroh	1100	60	10/14	0	clear
4/6/2010	2	Lohstroh	1200	61	4/9	0	clear
4/6/2010	2	Lohstroh	1300	61	4/7	0	clear
4/6/2010	2	Lohstroh	1400	61	8/12	0	clear
4/6/2010	2	Lohstroh	1445	62	7/12	0	clear
4/8/2010	2	Faulkner/Bergman	1500	78	2	0	clear
4/8/2010	2	Faulkner/Bergman	1600	78	5	0	clear
4/8/2010	2	Faulkner/Bergman	1000	68	5	0	clear
4/8/2010	2	Faulkner/Bergman	1100	69	6	0	clear
4/8/2010	2	Faulkner/Bergman	1200	72	7	0	clear
4/8/2010	2	Faulkner/Bergman	1300	77	0	0	clear
4/8/2010	2	Faulkner/Bergman	1400	78	5	0	clear
4/8/2010	2	Faulkner/Bergman	900	60	7	0	clear
4/8/2010	2	Faulkner/Bergman	1000	68	5	0	clear
4/8/2010	2	Osborne	914	59	2.5/5	0	clear
4/8/2010	2	Osborne	1120	69	1.7/2.8	0	clear
4/8/2010	2	Osborne	1400	72	0	0	clear
4/8/2010	2	Osborne	1625	74	0	0	clear
4/8/2010	2	Powell	1330	72	2/5	0	clear
4/8/2010	2	Powell	1435	75	0	0	clear
4/8/2010	2	Powell	1625	72	4/6	0	clear
4/8/2010	2	Powell	845	63	5/7	0	clear
4/8/2010	2	Powell	955	67	10/13	0	clear
4/8/2010	2	Powell	1130	71	3/7	0	clear
4/8/2010	2	Powell	1240	71	6/9	0	clear
4/8/2010	2	Powell	1310	74	5/9	0	clear
4/8/2010	2	Flietner	900	57	3/6	0	clear
4/8/2010	2	Flietner	930	61	3/6	0	clear
4/8/2010	2	Flietner	1620	70	0/2	0	clear
4/9/2010	2	Flietner/Bergman	1020	69	0	0	clear
4/9/2010	2	Flietner/Bergman	1235	73	0	0	clear
4/9/2010	2	Flietner/Bergman	1430	74	5/8	0	clear
4/9/2010	2	Flietner/Bergman	1550	73	3/6	0	clear
4/9/2010	2	Couffer	1430	74	3/5	0	clear
4/9/2010	2	Couffer	1500	73	1/4	0	clear
4/9/2010	2	Couffer	1600	72	1/6	0	clear
4/9/2010	2	Couffer	930	67	0/2	0	clear
4/9/2010	2	Couffer	1000	74	0/4	0	clear
4/9/2010	2	Couffer	1100	72	0/5	0	clear
4/9/2010	2	Couffer	1200	76	0/2	0	clear
4/9/2010	2	Couffer	1300	77	1/4	0	clear
4/9/2010	2	Couffer	1400	73	3/7	0	clear
4/13/2010	2	Lohstroh/Innecken	1040	62	2/5	0	clear
4/13/2010	2	Lohstroh/Innecken	1200	67	2/3	0	clear
4/13/2010	2	Lohstroh/Innecken	1300	64	0/3	0	clear
4/13/2010	2	Lohstroh/Innecken	1430	66	0/6	0	clear
4/13/2010	2	Lohstroh/Innecken	1520	62	3/8	30	patchy
4/13/2010	2	Lohstroh/Innecken	1640	59	3/8	30	patchy

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed Average/ Maximum (mph)	Cloud Cover (%)	General Sky Condition
4/13/2010	2	Powell	1330	62	2/4	25	clear
4/13/2010	2	Powell	1440	61	4/7	25	clear
4/13/2010	2	Powell	1550	58	1/3	20	clear
4/13/2010	2	Powell	1030	64	0	15	clear
4/13/2010	2	Powell	1210	60	2/4	30	clear
4/13/2010	2	Faulkner	1100	48	3	0	clear
4/13/2010	2	Faulkner	1200	55	2	0	clear
4/13/2010	2	Faulkner	1300	58	2	5	clear
4/13/2010	2	Faulkner	1400	61	3	5	clear
4/13/2010	2	Faulkner	1500	55	8	10	clear
4/13/2010	2	Faulkner	1600	52	9	10	clear
4/13/2010	2	Couffer	1000	58	0/3	0	clear
4/13/2010	2	Couffer	1100	58	0/3	0	clear
4/13/2010	2	Couffer	1200	56	0/2	0	clear
4/13/2010	2	Couffer	1300	65	0/1	0	clear
4/13/2010	2	Couffer	1400	67	1/2	0	clear
4/13/2010	2	Couffer	1500	66	0/3	0	clear
4/13/2010	2	Couffer	1600	63	1/5	0	clear
4/14/2010	2	LaCoste	930	65	3/7	5	clear
4/14/2010	2	LaCoste	130	70	3/6	75	overcast
4/14/2010	2	LaCoste	230	67	4/8	90	overcast
4/14/2010	2	LaCoste	300	66	80	80	overcast
4/14/2010	2	Cummings	945	60.3	1/2.2	20	patchy
4/14/2010	2	Cummings	1125	98.7	3.2/3.8	25	patchy
4/14/2010	2	Cummings	1345	70	2.6/3.9	40	patchy
4/14/2010	2	Cummings	1420	77	2.6/6.2	70	patchy
4/14/2010	2	Cummings	1600	74	.8/1.9	80	patchy
4/14/2010	2	Cummings	1645	69	1.3/2.1	70	patchy
4/14/2010	2	Powell/Mulligan	1015	63	0/2	0	clear
4/14/2010	2	Powell/Mulligan	1205	64	0	0	clear
4/14/2010	2	Powell/Mulligan	1300	72	1/3	0	clear
4/14/2010	2	Powell/Mulligan	1430	60	7/10	75	
4/14/2010	2	Powell/Mulligan	1645	70	3/5	50	
4/14/2010	2	Powell/Mulligan	945	62	0/2	0	clear
4/14/2010	2	Powell/Mulligan	1005	65	0/2	0	clear
4/15/2010	2	Osborne	900	63	2/4	0	clear
4/15/2010	2	Osborne	1030	66	3.9/6	0	clear
4/15/2010	2	Osborne	1400	72	2.4/6	10	clear
4/15/2010	2	Osborne	1600	73	0	10	overcast
4/15/2010	2	Powell	900	61	8/11	0	clear
4/15/2010	2	Powell	1015	66	11/14	0	clear
4/15/2010	2	Powell	1125	68	7/11	0	clear
4/15/2010	2	Powell	1410	72	4/7	0	clear
4/15/2010	2	Faulkner	900	64	6	0	clear
4/15/2010	2	Faulkner	1000	67	3	0	clear
4/15/2010	2	Faulkner	1100	64	9	0	clear
4/15/2010	2	Couffer	900	67	1/5	0	clear
4/15/2010	2	Couffer	1000	68	1/8	0	clear
4/15/2010	2	Couffer	1100	71	0/7	0	clear
4/15/2010	2	Couffer	1200	71	0/8	0	clear

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed Average/ Maximum (mph)	Cloud Cover (%)	General Sky Condition
4/15/2010	2	Couffer	1300	70	2/6	0	clear
4/15/2010	2	Couffer	1400	71	0/3	50	patchy
4/15/2010	2	Couffer	1500	70	1/4	90	overcast
4/16/2010	2	Couffer	900	67	0/3	0	clear
4/16/2010	2	Couffer	1300	60	2/5	0	clear
4/16/2010	2	Couffer	1100	70	0/3	0	clear
4/16/2010	2	Couffer	1200	73	0/3	0	clear
4/16/2010	2	Couffer	1300	74	1/4	0	clear
4/16/2010	2	Couffer	1400	76	0/3	0	clear
4/16/2010	2	Couffer	1500	73	2/5	0	clear
4/16/2010	2	Powell	1510	75	4/7	0	clear
4/16/2010	2	Powell	1700	70	3/6	0	clear
4/16/2010	2	Powell	945	60	2/4	0	clear
4/16/2010	2	Powell	1055	72	5/8	0	clear
4/16/2010	2	Powell	1200	78	10/13	0	clear
4/16/2010	2	Powell	1400	72	5/8	0	clear
4/16/2010	2	Powell	1445	72	3/5	0	clear
4/16/2010	2	Hendricks	915	59.5	4.4/8.2	0	clear
4/16/2010	2	Hendricks	1020	71.5	1.7/4.2	0	clear
4/16/2010	2	Hendricks	1150	72	1.2/2.5	0	clear
4/16/2010	2	Hendricks	1230	72	2.0/3.0	0	clear
4/16/2010	2	Hendricks	345	73.5	3.2/10.3	0	clear
4/16/2010	2	Hendricks	1515	73.7	1.4/4.2	0	clear
4/16/2010	2	Hendricks	1700	67.2	2.3/5.8	0	clear
4/16/2010	2	Hendricks	1545	61.3	4.5/8.7	0	clear
4/17/2010	2	Mulligan	900	67	0/3	80	overcast
4/17/2010	2	Mulligan	1000	70	0/4	100	overcast
4/17/2010	2	Mulligan	1245	79	1/5	100	overcast
4/17/2010	2	Couffer	900	67	0/4	100	overcast
4/17/2010	2	Couffer	1000	67	0/2	100	overcast
4/17/2010	2	Couffer	1100	70	0/3	100	overcast
4/17/2010	2	Couffer	1200	73	0/4	100	overcast
4/17/2010	2	Couffer	1300	75	0/5	100	overcast
4/17/2010	2	Couffer	1320	75	0/5	100	overcast
4/17/2010	2	Powell	900	66	9/11	90	overcast
4/17/2010	2	Powell	1010	72	6/8	60	overcast
4/17/2010	2	Powell	1110	72	7/9	50	overcast
4/17/2010	2	Powell	1125	72	7/9	50	overcast
4/17/2010	2	Powell	1300	70	6/9	50	overcast
4/17/2010	2	Mulligan	1300	79	2/8	100	overcast
4/17/2010	2	Mulligan	1600	80	2/4	100	overcast
4/18/2010	3	Gutierrez	900	76	0	80	overcast
4/18/2010	3	Gutierrez	1000	78	0	40	patchy
4/18/2010	3	Gutierrez	1100	82	0	40	patchy
4/18/2010	3	Gutierrez	1600	84	2	30	patchy
4/18/2010	3	Powell	830	66	0	0	clear
4/18/2010	3	Powell	1000	77	0	0	clear
4/18/2010	3	Powell	1130	80	2/4	0	clear
4/18/2010	3	Powell	1145	80	3/6	0	clear
4/18/2010	3	Powell	1330	78	4/7	0	clear

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed Average/ Maximum (mph)	Cloud Cover (%)	General Sky Condition
4/18/2010	3	Powell	1430	74	4/7	0	clear
4/18/2010	3	Couffer	844	70	0	0	clear
4/18/2010	3	Couffer	900	71	0	0	clear
4/18/2010	3	Couffer	1000	75	0	0	clear
4/18/2010	3	Couffer	1100	77	0/2	0	clear
4/18/2010	3	Couffer	1200	78	0/3	0	clear
4/18/2010	3	Couffer	1300	82	0/3	0	clear
4/18/2010	3	Couffer	1400	80	0/4	0	clear
4/19/2010	3	Powell	1550	76	3/6	0	clear
4/19/2010	3	Powell	1635	72	6/9	0	clear
4/19/2010	3	Faulkner	1500	71	4	0	clear
4/19/2010	3	Faulkner	1630	69	7/8	0	clear
4/19/2010	3	LaCoste	1640	64	2/4	30	patchy
4/19/2010	3	LaCoste	1215	62	5/10	5	clear
4/19/2010	3	LaCoste	1415	76	5/10	0	clear
4/19/2010	3	LaCoste	1530	70	5/10	0	clear
4/19/2010	3	Brodie/Bergman	1045	65	4/7	40	patchy
4/19/2010	3	Brodie/Bergman	1145	72	4/8	10	clear
4/19/2010	3	Brodie/Bergman	1330	74	2/5	0	clear
4/19/2010	3	Brodie/Bergman	1445	75	2/5	0	clear
4/19/2010	3	Brodie/Bergman	1540	73	3/6	0	clear
4/19/2010	3	Brodie/Bergman	1200	73	3/6	0	clear
4/19/2010	3	Brodie/Bergman	1300	72	3/6	0	clear
4/19/2010	3	Brodie/Bergman	1330	74	2/5	0	clear
4/19/2010	3	Powell	1045	69	2/4	20	clear
4/19/2010	3	Powell	1215	75	6/8	0	clear
4/19/2010	3	Powell	1330	79	5/7	0	clear
4/19/2010	3	Powell	1500	81	6/9	0	clear
4/19/2010	3	Couffer	1100	69	0/6	45	patchy
4/19/2010	3	Couffer	1200	70	1/6	5	clear
4/19/2010	3	Couffer	1300	75	0/5	5	clear
4/19/2010	3	Couffer	1400	75	0/4	5	clear
4/19/2010	3	Couffer	1500	76	0/5	0	clear
4/19/2010	3	Couffer	1600	75	0/6	0	clear
4/19/2010	3	Couffer	1630	75	0/3	0	clear
4/19/2010	3	Faulkner	1000	70	4	50	clear
4/19/2010	3	Faulkner	1130	71	6	30	patchy
4/19/2010	3	Faulkner	1200	73	5	0	clear
4/19/2010	3	Faulkner	1330	76	3	0	clear
4/19/2010	3	Faulkner	1400	76	4	0	clear
4/20/2010	3	Couffer	945	65	1/5	0	clear
4/20/2010	3	Couffer	1000	64	2/6	0	clear
4/20/2010	3	Couffer	1100	68	2/8	5	clear
4/20/2010	3	Couffer	1200	68	2/5	5	clear
4/20/2010	3	Couffer	1300	70	0/4	5	clear
4/20/2010	3	Couffer	1400	72	0/4	10	patchy
4/20/2010	3	Couffer	1445	70	2/8	50	patchy
4/20/2010	3	Faulkner	900	59	3		clear
4/20/2010	3	Faulkner	1000	67	1		clear
4/20/2010	3	Faulkner	1100	63	9		patchy

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed Average/ Maximum (mph)	Cloud Cover (%)	General Sky Condition
4/20/2010	3	Faulkner	1200	64	7		patchy
4/20/2010	3	Faulkner	1300	65	9	30	patchy
4/20/2010	3	Faulkner	1400	63	10	50	patchy
4/20/2010	3	Faulkner	1500	62	9	40	patchy
4/20/2010	3	Lohstroh/Faulkner	945	65	2-6/12	40	clear
4/20/2010	3	Lohstroh/Faulkner	1045	65	4/10	40	clear
4/20/2010	3	Lohstroh/Faulkner	1200	67	4/8	20	patchy
4/20/2010	3	Lohstroh/Faulkner	1300	69	6-9/12	40	patchy
4/20/2010	3	Lohstroh/Faulkner	1400	64	6/12	40	patchy
4/20/2010	3	Lohstroh/Faulkner	1440	67	6/12	50	patchy
4/20/2010	3	Lohstroh/Faulkner	1545	62	8/15	50	patchy
4/20/2010	3	Mulligan	1030	65	2/6	20	patchy
4/20/2010	3	Mulligan	1200	65	4/8	30	patchy
4/20/2010	3	Mulligan	1400	64	8/13	50	patchy
4/20/2010	3	Mulligan	1600	66	4/10	50	patchy
4/20/2010	3	Powell	1230	66	7/10	0	clear
4/20/2010	3	Powell	950	64	4/6	0	clear
4/20/2010	3	Powell	1045	66	4/6	0	clear
4/20/2010	3	Powell	1100	66	4/6	0	clear
4/20/2010	3	Powell	1320	66	7/10	0	clear
4/20/2010	3	Powell	1500	67	8/11	10	patchy
4/20/2010	3	Powell	1615	62	9/14	10	patchy
4/23/2010	3	Powell	1250	58	7/10	10	patchy
4/23/2010	3	Powell	1350	63	8/10	10	patchy
4/23/2010	3	Powell	1505	65	7/10	15	patchy
4/23/2010	3	Powell	1625	60	5/10	10	patchy
4/23/2010	3	Faulkner	1100	59	4	0	clear
4/23/2010	3	Faulkner	1200	60	6	0	clear
4/23/2010	3	Faulkner	1300	61	9	0	clear
4/23/2010	3	Faulkner	1400	62	5	10	patchy
4/23/2010	3	Faulkner	1500	65	3	50	patchy
4/23/2010	3	Faulkner	1600	64	4	40	patchy
4/23/2010	3	Couffer	1045	60	2/7	0	clear
4/23/2010	3	Couffer	1100	61	2/6	0	clear
4/23/2010	3	Couffer	1200	63	3/7	0	clear
4/23/2010	3	Couffer	1300	59	3/7	0	clear
4/23/2010	3	Couffer	1400	61	4/9	0	clear
4/23/2010	3	Couffer	1415	59	4/9	0	clear
4/23/2010	3	Hendricks	1155	59.5	4.3/8.2	0	clear
4/23/2010	3	Hendricks	1320	62.1	4.3/12.1	0	clear
4/23/2010	3	Hendricks	1415	65.3	2.6/4.9	0	clear
4/23/2010	3	Hendricks	1510	61.5	8.0/15.1	10	clear
4/23/2010	3	Hendricks	1615	57.2	4.2/8.1	1	clear
4/24/2010	3	Powell	835	63	0	0	clear
4/24/2010	3	Powell	945	68	1/3	0	clear
4/24/2010	3	Powell	1130	77	3/6	0	clear
4/24/2010	3	Powell	1315	77	4/6	0	clear
4/24/2010	3	Powell	1340	79	3/5	0	clear
4/24/2010	3	Powell	1540	75	4/6	0	clear
4/24/2010	3	Couffer	1518	73	2/6	0	clear

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed Average/ Maximum (mph)	Cloud Cover (%)	General Sky Condition
4/24/2010	3	Couffer	1600	73	1/5	0	clear
4/24/2010	3	Couffer	1623	73	1/3	0	clear
4/24/2010	3	Couffer	1240	70	2/9	0	clear
4/24/2010	3	Couffer	1300	77	0/4	0	clear
4/24/2010	3	Couffer	1320	82	0/3	0	clear
4/24/2010	3	Couffer	1400	77	0/2	0	clear
4/24/2010	3	Couffer	1500	73	1/9	0	clear
4/24/2010	3	Couffer	900	66	0	0	clear
4/24/2010	3	Couffer	1000	70	0	0	clear
4/24/2010	3	Couffer	1100	73	0/3	0	clear
4/24/2010	3	Couffer	1200	71	0/3	0	clear
4/24/2010	3	Couffer	1210	71	0/3	0	clear
4/25/2010	3	Couffer	1150	80	0/4	0	clear
4/25/2010	3	Couffer	1200	80	0/4	0	clear
4/25/2010	3	Couffer	1300	85	0/1	0	clear
4/25/2010	3	Couffer	1400	78	0/4	0	clear
4/25/2010	3	Couffer	1500	75	3/7	0	clear
4/25/2010	3	Couffer	1515	75	3/7	0	clear
4/25/2010	3	Couffer	830	76	0	0	clear
4/25/2010	3	Couffer	900	74	0/1	0	clear
4/25/2010	3	Couffer	1000	77	0/1	0	clear
4/25/2010	3	Couffer	1100	78	0/3	0	clear
4/25/2010	3	Couffer	1130	79	0/2	0	clear
4/25/2010	3	Powell	1215	79	3/5	0	clear
4/25/2010	3	Powell	1410	77	5/7	0	clear
4/25/2010	3	Powell	1615	77	3/6	0	clear
4/25/2010	3	Powell	840	69	0	0	clear
4/25/2010	3	Powell	1010	74	3/5	0	clear
4/25/2010	3	Powell	1105	76	4/5	0	clear
4/26/2010	3	Brodie	930	69	0	0	clear
4/26/2010	3	Brodie	1030	72	0	0	clear
4/26/2010	3	Brodie	1130	76	2/4	0	clear
4/26/2010	3	Brodie	1235	75	0	0	clear
4/26/2010	3	Brodie	1340	76	0	0	clear
4/26/2010	3	Brodie	1520	74	0	0	clear
4/26/2010	3	Powell	830	74	0	0	clear
4/26/2010	3	Powell	1025	78	4/7	0	clear
4/26/2010	3	Powell	1130	83	2/4	0	clear
4/26/2010	3	Faulkner	1400	87	2	5	patchy
4/26/2010	3	Faulkner	1500	80	6	5	patchy
4/26/2010	3	Faulkner	1600	75	5	5	patchy
4/26/2010	3	Faulkner	900	75	0	0	clear
4/26/2010	3	Faulkner	1000	77	2	0	clear
4/26/2010	3	Faulkner	1100	79	4	0	clear
4/26/2010	3	Faulkner	1200	83	0	0	clear
4/26/2010	3	Faulkner	1300	83	0	5	patchy
4/26/2010	3	Faulkner	1400	87	2	5	patchy
4/26/2010	3	Couffer	1335	83	0/2	0	clear
4/26/2010	3	Couffer	1400	82	0/3	0	clear
4/26/2010	3	Couffer	1500	80	2/6	5	clear

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed Average/ Maximum (mph)	Cloud Cover (%)	General Sky Condition
4/26/2010	3	Couffer	1600	79	2/6	5	clear
4/26/2010	3	Couffer	845	72	1/5	0	clear
4/26/2010	3	Couffer	900	73	0/3	0	clear
4/26/2010	3	Couffer	1000	72	0/3	0	clear
4/26/2010	3	Couffer	1100	80	0/6	0	clear
4/26/2010	3	Couffer	1130	82	0/2	0	clear
4/27/2010	4	Rink	912	70	1-2/5	2-5	patchy
4/27/2010	4	Rink	1030	70	2-3/5	3-5	patchy
4/27/2010	4	Rink	1130	71	2-3/5	5-7	patchy
4/27/2010	4	Rink	1230	73	3-4/5	10-12	patchy
4/27/2010	4	Couffer	1200	81	0/3	5	clear
4/27/2010	4	Couffer	1300	80	7/13	5	clear
4/27/2010	4	Couffer	1400	75	3/7	10	clear
4/27/2010	4	Couffer	1500	76	0/2	10	clear
4/27/2010	4	Couffer	1600	76	0/4	10	clear
4/27/2010	4	Couffer	848	72	0	0	clear
4/27/2010	4	Couffer	900	73	0/2	0	clear
4/27/2010	4	Couffer	1000	76	1/5	0	clear
4/27/2010	4	Couffer	1100	77	0/3	0	clear
4/27/2010	4	Powell	845	74	2/4	0	clear
4/27/2010	4	Powell	1115	77	5/8	0	clear
4/27/2010	4	Powell	1140	74	5/7	0	clear/patchy
4/27/2010	4	Powell	1345	72	6/9	0	clear
4/27/2010	4	Powell	1500	78	5/8	0	clear
4/27/2010	4	Powell	1555	73	7/10	0	clear
4/27/2010	4	Mulligan/Bergman	920	67	0/4	1	clear
4/27/2010	4	Mulligan/Bergman	1200	78	4/8	10	clear
4/27/2010	4	Mulligan/Bergman	1515	78	2/6	20	patchy
4/27/2010	4	Faulkner	900	65	1	0	clear
4/27/2010	4	Faulkner	1000	73	2	0	clear
4/27/2010	4	Faulkner	1100	73	4	0	clear
4/27/2010	4	Faulkner	1100	73	2	0	clear
4/27/2010	4	Faulkner	1200	77	2	0	clear
4/27/2010	4	Faulkner	1300	77	8	10	patchy
4/27/2010	4	Faulkner	1400	75	10	50	patchy
4/27/2010	4	Faulkner	1500	73	11	0	clear
4/30/2010	4	Couffer/Powell	1300	62	2/4	60	patchy
4/30/2010	4	Couffer/Powell	1400	61	2/7	50	patchy
4/30/2010	4	Couffer/Powell	1300	63	4/6	50	patchy
4/30/2010	4	Couffer/Powell	1405	61	4/7	50	clear/patchy
4/30/2010	4	Couffer/Powell	1550	55	5/9	75	patchy
4/30/2010	4	Faulkner	1100	63	2	30	patchy
4/30/2010	4	Faulkner	1200	65	1	40	patchy
4/30/2010	4	Faulkner	1300	67	5	50	overcast/drizzle
4/30/2010	4	Faulkner	1400	62	9	50	overcast/drizzle
4/30/2010	4	Hendricks/Bergman	1130	64.7	3.7/7	60	patchy
4/30/2010	4	Hendricks/Bergman	1215	57	4.9/8.8	80	overcast
4/30/2010	4	Hendricks/Bergman	1245	60.4	3.7/8.7	30	patchy
4/30/2010	4	Hendricks/Bergman	1350	67.6	5.1/7.5	40	patchy
4/30/2010	4	Hendricks/Bergman	1430	57.7	5.2/8.3	80	overcast

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5/1/2010	4	Powell	1445	67	7/9	0	clear
5/1/2010	4	Powell	1605	65	6/7	0	clear
5/1/2010	4	Powell		62	4/6	0	clear
5/1/2010	4	Powell		6	5/7	0	clear
5/1/2010	4	Powell	1330	66	6/9	0	clear
5/1/2010	4	Powell	1425	67	6/8	0	clear
5/1/2010	4	Couffer/Fisher	930	63	0/3	0	clear
5/1/2010	4	Couffer/Fisher	1000	64	2/5	0	clear
5/1/2010	4	Couffer/Fisher	1100	67	0/4	5	clear
5/1/2010	4	Couffer/Fisher	1200	68	0/3	5	clear
5/1/2010	4	Couffer/Fisher	1300	72	0/5	5	clear
5/1/2010	4	Couffer/Fisher	1400	73	0/5	0	clear
5/1/2010	4	Couffer/Fisher	1500	68	2/5	0	clear
5/1/2010	4	Lohstroh	930	64	0/3	0	clear
5/1/2010	4	Lohstroh	1130	64	6/10	10	patchy
5/1/2010	4	Lohstroh	1300	65	5/13	5	patchy
5/1/2010	4	Lohstroh	1400	72	2/8	1	clear
5/1/2010	4	Lohstroh	1520	69	0/10	1	clear
5/1/2010	4	Lohstroh	1550	67	0/10	3	clear
5/1/2010	4	Mulligan	900	60	2/6	0	clear
5/1/2010	4	Mulligan	1200	66	4/10	40	patchy
5/1/2010	4	Mulligan	1300	67	8/12	25	patchy
5/1/2010	4	Mulligan	1530	37	6/8	25	patchy
5/2/2010	4	Powell	1055	59	4/6	0	clear
5/2/2010	4	Powell	1200	62	5/7	0	clear
5/2/2010	4	Powell	1230	67	4/6	0	clear
5/2/2010	4	Powell	1355	70	5/7	0	clear
5/2/2010	4	Powell	1615	72	4/7	0	clear
5/2/2010	4	Couffer	1020	60	0/3	0	clear
5/2/2010	4	Couffer	1100	66	0/3	0	clear
5/2/2010	4	Couffer	1200	64	0/7	0	clear
5/2/2010	4	Couffer	1300	73	0/3	0	clear
5/2/2010	4	Couffer	1400	76	0/2	0	clear
5/2/2010	4	Couffer	1500	74	0/6	0	clear
5/2/2010	4	Couffer	1600	71	2/8	0	clear
5/3/2010	4	Dittmer	900	68.9	2/4	0	clear
5/3/2010	4	Dittmer	1550	77	2/4	0	clear
5/3/2010	4	Pigniolo	1300	74	0/2	0	clear
5/3/2010	4	Pigniolo	1400	76	0/2	0	clear
5/3/2010	4	Pigniolo	1530	77	0/2	0	clear
5/3/2010	4	Pigniolo	915	60	2/6	0	clear
5/3/2010	4	Pigniolo	1015	66	2/6	0	clear
5/3/2010	4	Pigniolo	1115	69	2/6	0	clear
5/3/2010	4	Pigniolo	1215	69	2/4	0	clear
5/3/2010	4	Pigniolo	1245	68	0/4	0	clear
5/3/2010	4	Flietner	830	64	5/9	0	clear
5/3/2010	4	Flietner	1600	77	3/5	0	clear
5/3/2010	4	Faulkner	900	67	5	0	clear
5/3/2010	4	Faulkner	1000	71	4	0	clear
5/3/2010	4	Faulkner	1100	75	2	0	clear

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed Average/ Maximum (mph)	Cloud Cover (%)	General Sky Condition
5/3/2010	4	Faulkner	1200	76	3	0	clear
5/3/2010	4	Faulkner	1300	78	1	0	clear
5/3/2010	4	Faulkner	1400	78	2	0	clear
5/3/2010	4	Faulkner	1500	83	1	0	clear
5/3/2010	4	Faulkner	1600	79	4	0	clear
5/3/2010	4	Couffer	835	67	3/6	0	clear
5/3/2010	4	Couffer	900	70	3/8	0	clear
5/3/2010	4	Couffer	1000	72	3/10	0	clear
5/3/2010	4	Couffer	1100	74	4/8	0	clear
5/3/2010	4	Couffer	1200	77	0/3	0	clear
5/3/2010	4	Couffer	1300	80	0/4	0	clear
5/3/2010	4	Couffer	1400	81	0/4	0	clear
5/3/2010	4	Couffer	1500	80	0/3	0	clear
5/3/2010	4	Powell	830	65	7/9	0	clear
5/3/2010	4	Powell	950	67	7/10	0	clear
5/3/2010	4	Powell	1115	75	4/7	0	clear
5/3/2010	4	Powell	1430	78	5/8	0	clear
5/3/2010	4	Powell	1600	81	4/6	0	clear
5/3/2010	4	Powell	1640	79	7/11	0	clear
5/4/2010	4	Lohstroh	840	68	0/1	0	clear
5/4/2010	4	Lohstroh	1040	78	0/4	0	clear
5/4/2010	4	Lohstroh	1300	80	3/8	0	clear
5/4/2010	4	Lohstroh	1420	83	3/8	0	clear
5/4/2010	4	Lohstroh	1515	79	4/8	0	clear
5/4/2010	4	Powell	850	68	2/3	0	clear
5/4/2010	4	Powell	1020	71	6/7	0	clear
5/4/2010	4	Powell	1115	78	2	0	clear
5/4/2010	4	Powell	1155	75	7/12	0	clear
5/4/2010	4	Powell	1325	78	5/9	0	clear
5/4/2010	4	Powell	1520	76	9/13	0	clear
5/4/2010	4	Powell	1545	76	8/11	0	clear
5/4/2010	4	Powell	1120	78	8/12	0	clear
5/4/2010	4	Powell	1145	75	7/12	0	clear
5/4/2010	4	Faulkner	900	70	0	0	clear
5/4/2010	4	Faulkner	1000	74	5	0	clear
5/4/2010	4	Faulkner	1100	77	4	0	clear
5/4/2010	4	Faulkner	1200	80	6/7	0	clear
5/4/2010	4	Faulkner	1300	83	8	0	clear
5/4/2010	4	Faulkner	1400	80	7	0	clear
5/4/2010	4	Faulkner	1500	80	7	0	clear
5/4/2010	4	Faulkner	1600	78	8	0	clear
5/4/2010	4	Flietner	820	58	0/2	0	clear
5/4/2010	4	Flietner	850	66	2/4	0	clear
5/4/2010	4	Flietner	1030	75	3/5	0	clear
5/4/2010	4	Flietner	1100	77	0/3	0	clear
5/4/2010	4	Flietner	1630	83	7/10	0	clear
5/4/2010	4	Couffer	1100	78	3/5	0	clear
5/4/2010	4	Couffer	1200	76	7/14	0	clear
5/4/2010	4	Couffer	1300	81	0/6	0	clear
5/4/2010	4	Couffer	1400	81	3/8	0	clear

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed Average/ Maximum (mph)	Cloud Cover (%)	General Sky Condition
5/4/2010	4	Couffer	1500	81	0/5	0	clear
5/4/2010	4	Couffer	1530	80	0/5	0	clear
5/4/2010	4	Couffer	840	70	0/2	0	clear
5/4/2010	4	Couffer	900	69	0/2	0	clear
5/4/2010	4	Couffer	1000	73	0/3	0	clear
5/4/2010	4	Couffer	1015	73	0/2	0	clear
5/4/2010	4	Brodie	900	64	0	0	clear
5/4/2010	4	Brodie	1005	68	2/5	0	clear
5/4/2010	4	Brodie	1110	70	6/11	0	clear
5/4/2010	4	Brodie	1200	75	5/10	0	clear
5/4/2010	4	Brodie	1305	73	4/9	0	clear
5/4/2010	4	Brodie	1415	73	4/12	0	clear
5/4/2010	4	Brodie	1515	69	6/13	0	clear
5/4/2010	4	Gutierrez	1115	76	1.5/3	0	clear
5/4/2010	4	Gutierrez	1300	78	25/10	0	clear
5/4/2010	4	Gutierrez	900	72	0	0	clear
5/4/2010	4	Gutierrez	1000	76	0/2	0	clear
5/4/2010	4	Gutierrez	1100	78	2/5	0	clear
5/4/2010	4	Gutierrez	1310	78	2.5/10	0	clear
5/4/2010	4	Gutierrez	1500	78	2.5/10	0	clear
5/4/2010	4	Mulligan	1345	80	2/5	0	clear
5/4/2010	4	Mulligan	1530	80	3/6	0	clear
5/4/2010	4	Mulligan	900	75	0/2	0	clear
5/4/2010	4	Mulligan	1200	80	3/6	0	clear
5/4/2010	4	Mulligan	1330	80	4/6	0	clear
5/5/2010	4	Powell	1145	76	4/7	0	clear
5/5/2010	4	Powell	1400	78	3/5	0	clear
5/5/2010	4	Powell	1515	78	3/6	0	clear
5/5/2010	4	Powell	1615	78	5/8	0	clear
5/5/2010	4	Couffer	900	68	1/4	0	clear
5/5/2010	4	Couffer	1000	73	2/6	0	clear
5/5/2010	4	Couffer	1100	76	1/4	0	clear
5/5/2010	4	Couffer	1130	73	5/13	0	clear
5/5/2010	4	Brodie	1130	75	7/11	0	clear
5/5/2010	4	Brodie	1230	76	6/11	0	clear
5/5/2010	4	Brodie	1330	72	4/9	0	clear
5/5/2010	4	Brodie	1435	75	5/10	0	clear
5/5/2010	5	Marquez	915	70.7	2.6/4.3	0	clear
5/5/2010	5	Marquez	1015	69	2.1/4.4	0	clear
5/5/2010	5	Marquez	1140	72	3.8/5.4	0	clear
5/5/2010	5	Marquez	1255	75.5	5.3/6.8	0	clear
5/5/2010	5	Marquez	1355	75.1	6.2/8.5	0	clear
5/5/2010	5	Marquez	1455	74.9	7.6/9.8	0	clear
5/5/2010	5	Brodie	900	62	3/7	0	clear
5/5/2010	5	Brodie	1015	69	3/9	0	clear
5/5/2010	5	Brodie	1100	72	4/10	0	clear
5/5/2010	5	Mulligan	900	76	4	0	clear
5/5/2010	5	Mulligan	1200	80	6/10	3	clear
5/5/2010	5	Mulligan	1500	81	5/9	5	clear
5/5/2010	5	Osborne	906	70	0	0	clear

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed Average/ Maximum (mph)	Cloud Cover (%)	General Sky Condition
5/5/2010	5	Osborne	1015	77	1.5/5.8	0	clear
5/5/2010	5	Osborne	1340	72	8.5/14	0	clear
5/5/2010	5	Osborne	1557	71	9.9/14.7	0	clear
5/5/2010	5	Couffer	1200	82	1/7	0	clear
5/5/2010	5	Couffer	1300	77	2/10	0	clear
5/5/2010	5	Couffer	1400	78	3/10	0	clear
5/5/2010	5	Couffer	1500	78	3/10	0	clear
5/5/2010	5	Couffer	1548	77	3/13	5	clear
5/5/2010	5	Powell	845	72	3/5	0	clear
5/5/2010	5	Powell	1015	72	5/6	0	clear
5/5/2010	5	Powell	1120	73	9/13	0	clear
5/5/2010	5	LaCoste	845	64	3/6	0	clear
5/5/2010	5	LaCoste	1100	71	4/8	0	clear
5/5/2010	5	LaCoste	1330	72	8/12	0	clear
5/5/2010	5	LaCoste	1430	76	6/10	0	clear
5/5/2010	5	Osborne	905	67	1.8/4.4	0	clear
5/5/2010	5	Osborne	1030	71	1.5/4.4	0	clear
5/5/2010	5	Osborne	1302	73	3.7/13.5	0	clear
5/5/2010	5	Osborne	1500	75	4.3/9.3	0	clear
5/5/2010	5	Osborne	1555	74	4/9.2	0	clear
5/6/2010	5	Powell	830	60	2/4	0	clear
5/6/2010	5	Powell	945	73	1/3	0	clear
5/6/2010	5	Powell	1010	74	3/5	0	clear
5/6/2010	5	Powell	1215	78	6/8	0	clear
5/6/2010	5	Powell	1430	76	4/6	0	clear
5/6/2010	5	Powell	1515	77	7/9	0	clear
5/6/2010	5	Brodie	1345	75	3/5	0	clear
5/6/2010	5	Brodie	1500	74	3/6	0	clear
5/6/2010	5	Brodie	1540	73	3/7	0	clear
5/6/2010	5	Couffer	830	69	0	0	clear
5/6/2010	5	Couffer	900	70	1/3	0	clear
5/6/2010	5	Couffer	1000	71	1/3	0	clear
5/6/2010	5	Couffer	1100	73	1/5	0	clear
5/6/2010	5	Couffer	1200	76	0/5	0	clear
5/6/2010	5	Couffer	1300	81	0/4	0	clear
5/6/2010	5	Couffer	1400	83	0/3	0	clear
5/6/2010	5	Couffer	1500	77	1/5	0	clear
5/6/2010	5	Brodie	930	69	2/5	0	clear
5/6/2010	5	Brodie	1100	73	4/7	0	clear
5/6/2010	5	Brodie	1230	75	3/5	0	clear
5/6/2010	5	Brodie	1315	75	4/7	0	clear
5/6/2010	5	Mulligan	900	62	4/7	0	clear
5/6/2010	5	Mulligan	1200	72	3/6	0	clear
5/6/2010	5	Mulligan	1430	75	4/8	0	clear
5/7/2010	5	Mulligan	900	65	6/10	0	clear
5/7/2010	5	Mulligan	1200	74	0/4	0	clear
5/7/2010	5	Mulligan	1245	76	2/4	0	clear
5/7/2010	5	Mulligan	1300	79	2/4	0	clear
5/7/2010	5	Mulligan	1530	82	2/5	0	clear
5/7/2010	5	Faulkner	1300	80	3	0	clear

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed Average/ Maximum (mph)	Cloud Cover (%)	General Sky Condition
5/7/2010	5	Faulkner	1400	80	4	0	clear
5/7/2010	5	Faulkner	1500	80	3	0	clear
5/7/2010	5	Faulkner	1600	78	6	0	clear
5/7/2010	5	Faulkner	1100	76	6	0	clear
5/7/2010	5	Faulkner	1200	80	3	0	clear
5/7/2010	5	Faulkner	1300	80	3	0	clear
5/7/2010	5	Faulkner	900	69	03	0	clear
5/7/2010	5	Faulkner	1000	72	7	0	clear
5/7/2010	5	Faulkner	1100	76	6	0	clear
5/7/2010	5	Couffer	838	72	0/7	0	clear
5/7/2010	5	Couffer	900	73	0/8	0	clear
5/7/2010	5	Couffer	1000	75	0/8	0	clear
5/7/2010	5	Couffer	1100	76	0/6	0	clear
5/7/2010	5	Couffer	1200	83	0/4	0	clear
5/7/2010	5	Couffer	1300	88	0/2	0	clear
5/7/2010	5	Couffer	1400	80	1/6	0	clear
5/7/2010	5	Couffer	1500	84	1/4	0	clear
5/7/2010	5	Powell	1345	79	5/7	0	clear
5/7/2010	5	Powell	1455	78	6/9	0	clear
5/7/2010	5	Powell	845	71	5/6	0	clear
5/7/2010	5	Powell	1000	75	6/8	0	clear
5/7/2010	5	Powell	1245	78	5/8	0	clear
5/7/2010	5	Powell	1335	78	4/6	0	clear
5/8/2010	5	Couffer/McMorran	1215	79	4/11	0	clear
5/8/2010	5	Couffer/McMorran	1300	77	2/6	0	clear
5/8/2010	5	Couffer/McMorran	1400	78	4/14	0	clear
5/8/2010	5	Couffer/McMorran	1500	79	4/9	0	clear
5/8/2010	5	Couffer/McMorran	1520	78	2/7	0	clear
5/8/2010	5	Couffer/McMorran	845	66	0/3	0	clear
5/8/2010	5	Couffer/McMorran	900	71	0/3	0	clear
5/8/2010	5	Couffer/McMorran	1000	72	1/4	0	clear
5/8/2010	5	Couffer/McMorran	1100	72	1/4	0	clear
5/8/2010	5	Couffer/McMorran	1200	74	4/9	0	clear
5/8/2010	5	Powell	830	63	4/6	0	clear
5/8/2010	5	Powell	1025	71	7/8	0	clear
5/8/2010	5	Powell	1210	71	8/12	0	clear
5/8/2010	5	Powell	1430	76	8/11	0	clear
5/8/2010	5	Powell	1515	77	11/14	0	clear
5/8/2010	5	Powell	1520	78	5/7	0	clear
5/8/2010	5	Powell	1620	75	6/9	0	clear
5/11/2010	5	Mulligan	1330	74	2/4	5	clear
5/11/2010	5	Mulligan	1545	74	3/6	0	clear
5/11/2010	5	Mulligan	900	65	0/2	0	clear
5/11/2010	5	Mulligan	1110	75	0/5	0	clear
5/11/2010	5	Mulligan	1300	76	2/5	3	clear
5/12/2010	6	Powell	915	67	4/6	0	clear
5/12/2010	6	Powell	1110	71	5/8	0	clear
5/12/2010	6	Powell	1340	75	4/5	0	clear
5/12/2010	6	Powell	1600	72	6/8	0	clear
5/12/2010	6	Brodie	1100	67	0	0	clear

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed Average/ Maximum (mph)	Cloud Cover (%)	General Sky Condition
5/12/2010	6	Brodie	1220	70	0	0	clear
5/12/2010	6	Brodie	1415	70	0/2	0	clear
5/12/2010	6	Brodie	900	61	0	0	clear
5/12/2010	6	Brodie	1010	65	0	0	clear
5/12/2010	6	Brodie	1100	67	0	0	clear
5/12/2010	6	Brodie	1415	70	0	0	clear
5/12/2010	6	Brodie	1435	71	0/2	0	clear
5/12/2010	6	Brodie	1445	71	2/5	0	clear
5/12/2010	6	Brodie	1600	69	2/6	0	clear
5/12/2010	6	Marquez	1045	71.4	1.2/1.7	0	clear
5/12/2010	6	Marquez	1240	76.3	1.6/4.6	0	clear
5/12/2010	6	Marquez	1400	75.8	2.1/5.4	0	clear
5/12/2010	6	Marquez	1520	70.5	2.8/4.6	0	clear
5/12/2010	6	Marquez	835	65.3	.5/1.2	0	clear
5/12/2010	6	Marquez	945	69	2.2/2.8	0	clear
5/12/2010	6	Marquez	1045	76.3	2.3/5.4	0	clear
5/12/2010	6	Lohstroh	1330	76	3/7	0	clear
5/12/2010	6	Lohstroh	1430	74	3/8	0	clear
5/12/2010	6	Lohstroh	1530	73	3/12	0	clear
5/12/2010	6	Lohstroh	845	63	0/1	0	clear
5/12/2010	6	Lohstroh	1210	74	0/3	0	clear
5/12/2010	6	Lohstroh	1300	79	0/4	0	clear
5/12/2010	6	Couffer	845	65	0	0	clear
5/12/2010	6	Couffer	857	67	0/1	0	clear
5/12/2010	6	Couffer	1400	72	3/5	0	clear
5/12/2010	6	Couffer	1500	73	3/11	0	clear
5/12/2010	6	Couffer	900	67	0/1	0	clear
5/12/2010	6	Couffer	1000	71	0/2	0	clear
5/12/2010	6	Couffer	1100	72	1/4	0	clear
5/12/2010	6	Couffer	1200	74	1/3	0	clear
5/12/2010	6	Couffer	1300	73	1/4	0	clear
5/12/2010	6	Couffer	1345	72	3/5	0	clear
5/12/2010	6	Faulkner	1200	79	4	0	clear
5/12/2010	6	Faulkner	1300	79	4	10	clear
5/12/2010	6	Faulkner	1400	77	4	10	clear
5/12/2010	6	Faulkner	1500	76	7	0	clear
5/12/2010	6	Faulkner	1600	76	5	0	clear
5/12/2010	6	Faulkner	900	68	1	0	clear
5/12/2010	6	Faulkner	1000	75	1	0	clear
5/12/2010	6	Faulkner	1100	76	0	0	clear
5/12/2010	6	Faulkner	1200	79	4	0	clear
5/13/2010	6	Mulligan	900	67	2/5	1	clear
5/13/2010	6	Mulligan	1115	78	0/4	10	clear
5/13/2010	6	Mulligan	1515	79	3/6	15	clear
5/13/2010	6	Brodie	1230	72	4/8	10-20	clear
5/13/2010	6	Brodie	1330	74	2/8	10-20	clear
5/13/2010	6	Brodie	1600	70	3/6	10-20	clear
5/13/2010	6	Lohstroh	940	74	0/1	0	clear
5/13/2010	6	Lohstroh	1200	78	3/5	20	patchy
5/13/2010	6	Lohstroh	1300	80	0/3	20	patchy

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed Average/ Maximum (mph)	Cloud Cover (%)	General Sky Condition
5/13/2010	6	Lohstroh	1400	81	0/3	30	patchy
5/13/2010	6	Lohstroh	1530	82	0/9	10	patchy
5/13/2010	6	Lohstroh	850	69	0/1	0	clear
5/13/2010	6	Lohstroh	930	72	0/1	0	clear
5/13/2010	6	Brodie	850	60	0	0	clear
5/13/2010	6	Brodie	1015	65	0	0	clear
5/13/2010	6	Brodie	1145	69	2/6	10	clear
5/14/2010	6	Powell	1325	85	4/6	0	clear
5/14/2010	6	Powell	1435	80	5/7	5	clear
5/14/2010	6	Powell	1530	75	6/9	10	clear
5/14/2010	6	Powell	1600	80	4/5	5	clear
5/14/2010	6	Powell	1325	85	4/6	0	clear
5/14/2010	6	Powell	1435	80	5/7	5	clear
5/14/2010	6	Powell	1530	75	6/9	10	clear
5/14/2010	6	Powell	1600	80	4/5	5	clear
5/14/2010	6	Couffer	1030	77	0/3	0	clear
5/14/2010	6	Couffer	1100	78	0/5	0	clear
5/14/2010	6	Couffer	1200	80	0/3	0	clear
5/14/2010	6	Couffer	1230	79	0/3	0	clear
5/14/2010	6	Couffer	1330	74	0/5	0	clear
5/14/2010	6	Couffer	1400	73	0/3	5	clear
5/14/2010	6	Couffer	1500	75	0/3	20	clear
5/14/2010	6	Couffer	1600	75	0/1	20	clear
5/14/2010	6	Couffer	1621	77	0/2	20	clear
5/14/2010	6	Couffer	851	75	0/2	0	clear
5/14/2010	6	Couffer	900	75	0	0	clear
5/14/2010	6	Couffer	1000	81	0/2	0	clear
5/14/2010	6	Mulligan	900	70	2/7	0	clear
5/14/2010	6	Mulligan	1215	75	4/6	10	clear
5/14/2010	6	Mulligan	1515	79	4/6	20	clear
5/14/2010	6	Lohstroh	850	70	0/4	0	clear
5/14/2010	6	Lohstroh	1015	75	0/4	0	clear
5/14/2010	6	Lohstroh	1140	79	0/7	0	clear
5/14/2010	6	Lohstroh	1320	76	3/6	20	patchy
5/14/2010	6	Lohstroh	1430	79	3/5	20	patchy
5/14/2010	6	Lohstroh	1500	78	0/2	30	patchy
5/14/2010	6	Faulkner	1300	74	0	0	clear
5/14/2010	6	Faulkner	1400	75	4	0	clear
5/14/2010	6	Faulkner	1500	77	2	30	patchy
5/14/2010	6	Faulkner	1600	74	2	50	patchy
5/14/2010	6	Faulkner	900	69	5	0	clear
5/14/2010	6	Faulkner	1000	74	3	0	clear
5/14/2010	6	Faulkner	1100	78	2	0	clear
5/14/2010	6	Faulkner	1200	80	5	0	clear
5/14/2010	6	Faulkner	1300	74	0	0	clear
5/14/2010	6	Powell	845	74	4/6	0	clear
5/14/2010	6	Powell	1100	80	3/5	0	clear
5/14/2010	6	Powell	1230	81	7/9	0	clear
5/15/2010	6	Flietner	1210	80	5/8	0	clear
5/15/2010	6	Flietner	1510	80	4/6	5	clear

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed Average/ Maximum (mph)	Cloud Cover (%)	General Sky Condition
5/15/2010	6	Flietner	840	74	6/10	0	clear
5/15/2010	6	Powell	1150	74	5/10	0	clear
5/15/2010	6	Powell	1315	81	5/7	0	clear
5/15/2010	6	Powell	1415	78	7/9	0	clear
5/15/2010	6	Powell	1510	81	3/4	0	clear
5/15/2010	6	Powell	840	72	6/8	0	clear
5/15/2010	6	Powell	1010	73	7/12	0	clear
5/15/2010	6	Powell	1135	76	7/9	0	clear
5/15/2010	6	Couffer	830	74	4/9	0	clear
5/15/2010	6	Couffer	900	74	3/9	0	clear
5/15/2010	6	Couffer	1000	78	0/4	0	clear
5/15/2010	6	Couffer	1100	80	0/5	0	clear
5/15/2010	6	Couffer	1200	76	0/6	0	clear
5/15/2010	6	Couffer	1300	80	0/7	0	clear
5/15/2010	6	Couffer	1400	84	0/4	0	clear
5/15/2010	6	Couffer	1415	84	0/4	0	clear
5/16/2010	6	Powell	1515	80	7/9	0	clear
5/16/2010	6	Powell	1610	81	5/7	0	clear
5/16/2010	6	Powell	845	71	8/11	0	clear
5/16/2010	6	Powell	950	76	6/10	0	clear
5/16/2010	6	Powell	1130	78	6/9	0	clear
5/16/2010	6	Powell	1255	81	5/6	0	clear
5/16/2010	6	Powell	1450	79	4/7	0	clear
5/16/2010	6	Faulkner	900	70	4	0	clear
5/16/2010	6	Faulkner	1000	75	5	0	clear
5/16/2010	6	Faulkner	1100	77	5	0	clear
5/16/2010	6	Faulkner	1200	75	7	0	clear
5/16/2010	6	Faulkner	1300	73	6	0	clear
5/16/2010	6	Faulkner	1400	81	3	0	clear
5/16/2010	6	Faulkner	1500	80	4	0	clear
5/16/2010	6	Faulkner	1600	77	8	0	clear
5/17/2010	6	Flietner	1040	69	3/5	100	overcast
5/17/2010	6	Flietner	1120	73	2/4	100	overcast
5/17/2010	6	Flietner	1600	68	3/6	10	clear
5/17/2010	6	Faulkner	1500	68	8	0	clear
5/17/2010	6	Faulkner	1600	66	11	0	clear
5/17/2010	6	Faulkner	1400	75	8	50	patchy
5/17/2010	6	Faulkner	1500	68	8	0	clear
5/17/2010	6	Faulkner	1100	68	5	100	overcast
5/17/2010	6	Faulkner	1200	69	5	100	overcast
5/17/2010	6	Faulkner	1300	72	4	100	overcast
5/17/2010	6	Faulkner	1400	75	8	50	patchy
5/17/2010	6	Faulkner	1000	69	5	100	overcast
5/17/2010	6	Couffer	1000	69	0/5	100	overcast
5/17/2010	6	Couffer	1100	69	0/3	100	overcast
5/17/2010	6	Couffer	1200	74	0/3	100	overcast
5/17/2010	6	Couffer	1300	70	0/2	100	overcast
5/17/2010	6	Couffer	1400	73	0/3	80	overcast
5/17/2010	6	Couffer	1500	70	2/8	20	patchy
5/17/2010	6	Couffer	1545	69	2/5	20	patchy

Date	Survey Week	Personnel	Time	Temperature (°F)	Wind Speed Average/ Maximum (mph)	Cloud Cover (%)	General Sky Condition
5/17/2010	6	Powell	1050	60	3/5	100	overcast
5/17/2010	6	Powell	1210	65	6/8	100	overcast
5/17/2010	6	Powell	1125	67	6/8	100	overcast
5/17/2010	6	Powell	1300	67	5/10	100	overcast
5/19/2010	6	Couffer	840	668	0/1	0	clear
5/19/2010	6	Couffer	900	69	081	0	clear
5/19/2010	6	Couffer	1000	71	0/1	0	clear
5/19/2010	6	Couffer	1100	85	0/2	0	clear
5/19/2010	6	Couffer	1200	84	0	0	clear
5/19/2010	6	Couffer	1300	82	0/1	0	clear
5/19/2010	6	Powell	930	67	0	0	clear
5/19/2010	6	Powell	1045	82	4/6	0	clear
5/19/2010	6	Powell	1230	84	5/8	0	clear
5/19/2010	6	Lohstroh	1230	74	0/5	0	clear
5/19/2010	6	Lohstroh	1300	78	3/10	0	clear
5/19/2010	6	Lohstroh	1400	81	0/5	0	clear
5/19/2010	6	Lohstroh	1500	83	0/6	0	clear
5/19/2010	6	Lohstroh	1530	86	0/5	0	clear
5/19/2010	6	Lohstroh	845	66	0/1	0	clear
5/19/2010	6	Lohstroh	1000	70	0/3	0	clear
5/20/2010	6	Couffer	848	71	3/4	0	clear
5/20/2010	6	Couffer	900	73	2/4	0	clear
5/20/2010	6	Couffer	1000	78	2/6	0	clear
5/20/2010	6	Couffer	1100	77	2/6	0	clear
5/20/2010	6	Couffer	1200	75	1/5	0	clear
5/20/2010	6	Couffer	1300	80	3/6	0	clear
5/20/2010	6	Couffer	1315	80	3/5	0	clear

APPENDIX B

FIELD DATASHEETS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Osborne Add'l Person: Josh Date: 3/25/2010

Project: Campo Wind Energy Project Map #: "15" Survey Sxn: N/A

GPS Unit : 5 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1121	72	1.0/3	0	clear	patchy	overcast	drizzle	shower
1121	-1140	72	2.8/5		clear	patchy	overcast	drizzle	shower
1215		60	6/10	C	clear	patchy	overcast	drizzle	shower
1240		59	10/12		clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
410		61	1.7/4		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

Butterfly Species	Tally	Total
C. perplexa (Callophrys)	> XXX	~ 32
V. cardui (Vanessa)	2 IIII	9
B. brizo (Erynnis)	1 IIII	6
A. mormo (Apodemia)	1 IIII	6
E. hoyenatis (Euchloe)	1 IIII III	10
A. sara (Anthocharis)	III II	5
Nymphalis californica	I	1
Papilio eurymedon	IIII	4
Celastrina ladon	II	2
Incisalia augustinus	II	2
Moths:		
Euproserpinus phaeton		
Litocala sexigutta		
Leptarctia		
Alypia ridingsi		

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Arctostaphylos sp. common on N end of map 14. (a nectar source)
		Eriodictyon crassifolium (nectar) generally common.
		Map 15 (not used) but covered on

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Andrew Pigniolo Add'l Person: Philip Paipa Date: 3/22/10

Project: Campo Wind Energy Project Map #: 9 Survey Sxn: _____

GPS Unit : #1 QCB Protocol Survey # 1 of 5 .

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1030	61	0-2	20	clear	(patchy)	overcast	drizzle	shower
	1130	61	2-6	60	clear	patchy	(overcast)	drizzle	shower
	1230	63	2-6	85	clear	patchy	(overcast)	drizzle	shower
	1330	57	2-8	95	clear	patchy	(overcast)	drizzle	shower
	~~1430~~				clear	patchy	overcast	drizzle	shower
	~~1530~~				clear	patchy	overcast	drizzle	shower
END	~~1630~~ 1400	58	2-6	100	clear	patchy	(overcast)	drizzle	shower

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

Butterfly Species	Tally	Total
Pale Swallowtail	I	1
Sara Orangetip	|||||	8
Spring White	||||| ||	10
Perplexing Hairstreak	||||| |||||	12
Southern blue	|||	3
Dusky wing skipper	|||||	7
Tortoise Shell	I	1
		42

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)

TOTAL NUMBER OF QCB DETECTED: ∅ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Viviane Marquez Add'l Person: Dave Shupp Date: 3/22/10

Project: Campo Wind Energy Project Map #: 20 Survey Sxn: _____

GPS Unit : 4 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START					clear	patchy	overcast	drizzle	shower
	10:15	66.8	3.4/6.2	10	clear	(patchy)	overcast	drizzle	shower
	11:40	71.2	0.6/11.6	60	clear	(patchy)	overcast	drizzle	shower
	1:00	65.5	4.7/8.7	100%	clear	patchy	(overcast)	drizzle	shower
	2:00	63.8	2.1/4.8	100%	clear	patchy	(overcast)	drizzle	shower
end	2:25	62.9	5.4/9.9	100%	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

Butterfly Species	Tally	Total
Sara's Orangetip	𝍸 𝍸 𝍸 |||	13
Checkered White	𝍸 ||	7
Perplexing hairstreak	𝍸	5
Lady sp.	𝍸 ||	7
Funereal Dusky wing	||	2
VMEP01	excluded polygon dense chaparral	
VMEP02	excluded polygon dense chaparral	
NO QCB		
transferred to second page		

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
VMEP01	excluded polygon	dense chaparral
VMEP02	excluded polygon	dense chaparral

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: M. Heath Add'l Person: Joshua Paipa Date: 3/22/10

Project: Campo Wind Energy Project Map #: 12 Survey Sxn: _____

GPS Unit : 3 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	10:00	61	8/9	10	clear	(patchy)	overcast	drizzle	shower
	11:15	63	7.2/10.5	25%	clear	(patchy)	overcast	drizzle	shower
	12:00	63	9.5/20	75%	clear	patchy	(overcast)	drizzle	shower
	13:00	62	3.5/6.5	95%	clear	patchy	(overcast)	drizzle	shower
	14:00	58.5	5.6/9.9	100%	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

Butterfly Species	Tally	Total
Sara OT Orange Tip	II	2
Blue species	II	2
Acmon Blue	I	1

LOOK. DATA ON BACK!

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Calif Poppy – flowering
		Baby Blue eyes "
		Erodium flowering
MHHL02	Sensitive Sp	Map 12 Coast Horn Lizard $VV
		Goldfields? few
	Mexican	Manzanita flowering – not good host thru
		Buckbrush flowering
		Miner's lettuce flowering

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: BRIAN LOHSTROH Add'l Person: OMAR (Escort) Date: 3/22/10

Project: Campo Wind Energy Project Map #: 19 Survey Sxn: _____

GPS Unit : 6 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0920	61	0-5	10	clear	patchy	overcast	drizzle	shower
	1000	64	0-3	20	clear	patchy	overcast	drizzle	shower
	1100	61	3-5	40	clear	patchy	overcast	drizzle	shower
	1200	61	3-5	60	clear	patchy	overcast	drizzle	shower
	1300	60	3-5	100	clear	patchy	overcast	drizzle	shower
	1400	60	3-5	100	clear	patchy	overcast	drizzle	shower
END	1445	60	3-5	100	clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
orange tip	IIII III	8
common white	IIII I	6
Funereal Duskywing	III	3
Perplexing Hair Streak	IIII III	8
Southern blue	II	2
Cal. Tortoiseshell	IIII II	7
Brown elfin	IIII I	6

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Bush
		RTHa
		Scja
		CaTh
		CORA
		Bobcat scat + track
		SCOC (W. fence Lizard)
		UTST (side-blotch Lizard)
BL DB01	Desert beauty	Desert beauty Linanthus
		Gopher & Nacke
		Anhu
		WCSP
		CALT
		ORJU
		HuVi
		SPTO
BLCP01	Campo pea?	Campo pea, need to verify when blooming, photos
BLJR01	SD BT jackrabbit	2 indiv
		cotton tail

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K. Faulkner Add'l Person: Eugene Pebbles Date: 22 March 2010

Project: Campo Wind Energy Project Map #: 26/25 Survey Sxn: _____

GPS Unit : 2 QCB Protocol Survey # 1 of 5 .

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1000	65	2 W	30	clear	(patchy)	overcast	drizzle	shower
	1100	68	3 W	50	clear	(patchy)	overcast	drizzle	shower
	1200	68	5 W	70	clear	(patchy)	overcast	drizzle	shower
	1300	65	6 W	100	clear	patchy	(overcast)	drizzle	shower
	1400	64	6 W	100	clear	patchy	(overcast)	drizzle	shower
	1500	63	2 W	100	clear	patchy	(overcast)	drizzle	shower
END	1600	59	13 W	100	clear	patchy	(overcast)	drizzle	shower

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

Butterfly Species	Tally	Total
A. Sara	~~HHT~~ ~~HHT~~ I	11
C. perplexa	II	2
N. Californica	III	3
V. Cardui (Worn)	I	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
~~26, DFCH 001~~ DFCH01	1 pt.	Collensia sp. - Common

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Natalie Brodie (Jimmy McMorran) Add'l Person: David Dyche Date: 22 Mar 2010

Project: Campo Wind Energy Project Map #: 15 Survey Sxn: 15

GPS Unit : 5 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1315	66°	2/4	90%	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	1415	64°	8/12	90-100%	clear	patchy	(overcast)	drizzle	shower

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

* ENDED SURVEY DUE TO WEATHER

Butterfly Species	Tally	Total
unidentified lg.	1	1

NO DATA ON BACK

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Natalie Brodie (Jimmy McMorran) Add'l Person: David Dyche Date: 22 Mar 2010

Project: Campo Wind Energy Project Map #: 10 Survey Sxn: 10

GPS Unit : 5 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1015	68°	2 / 6	<10%	(clear)	patchy	overcast	drizzle	shower
	1100	66°	8 / 12	30-40%	clear	(patchy)	overcast	drizzle	shower
	1220	68°	4 / 10	70-80%	clear	(patchy)	overcast	drizzle	shower
	1315	66°	4 / 6	80-90%	clear	patchy	(overcast)	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1315	66°	4 / 6	80-90%	clear	patchy	(overcast)	drizzle	shower

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

Butterfly Species	Tally	Total
Sara orangetip	IIII II	7
Purplering hairstreak	III	3
Pale swallowtail	I	1
Unidentified lady (probably Painted)	I	1
Acmon blue	I	1
Funereal Duskywing	I	1
Southern blue	I	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
NBAR-01	Point	Ant Cou. on slight hillside, few individuals scattered up slope
		CATT
		CORA
		DATI
	Rombback of map	BEWR
		WEBJ
		DEJU
		RTHA
		stripedracer
		ROWR
		SPTO
		NUWO
		ANTH
		BTSP

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: M. Mulligan Add'l Person: S. Innecken, P Paipa Date: 3.24.10

Project: Campo Wind Energy Project Map #: 9 Survey Sxn: _____

GPS Unit : 2 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	10:34	65	3-5	5	(clear)	patchy	overcast	drizzle	shower
	1305	~~68~~	3-5	20	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
dg

Butterfly Species	Tally	Total
SARA'S ORANGE TIP	||	2
? DUSKYWING	||||	4
COMMON WHITE	|||	3
ACMON BLUE	||	2
BROWN ELFIN	||	2
BOISDUVAL'S METALMARK	|||	3
PERPLEXING HAIRSTREAK	||||	4

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MMCS01	sensitive ~~nectar~~ plant	Caulanthus simulans ~250 plants
MMHL01	Sensitive reptile	Horn Lizard
MMHL02	Sensitive reptile	Horn Lizard
MMCS02	Sensitive plant	Caulanthus simulans ~25 plants
	nectar plant	Cryptantha sp.

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: M. Heath Add'l Person: Joshua Paipa Date: 3/24/10

Project: Campo Wind Energy Project Map #: 12 Survey Sxn:

GPS Unit : #3 QCB Protocol Survey # #1 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky				
START 09:30	60	5.6 / 8.6	0%	(clear)	patchy	overcast	drizzle	shower
10:30	63	3.6 / 7.2	0%	(clear)	patchy	overcast	drizzle	shower
11:30	67	2.6 / 4.5	0%	(clear)	patchy	overcast	drizzle	shower
13:00	69.5	2.6 / 6.9	0%	(clear)	patchy	overcast	drizzle	shower
14:00	64.5	2.9 / 7.8	0%	(clear)	patchy	overcast	drizzle	shower
15:00	70	3.0 / 6.4	0%	(clear)	patchy	overcast	drizzle	shower
END 16:00	65	/ 15	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

Butterfly Species	Tally	Total
Painted Lady	𝍸 IIII	10
Blue species	I	1
Dusky wing	I	1
Sheep Hairstreak	IIII III	8
Sara Orange Tip	𝍸 𝍸 IIII I	16
[redacted] Spring white	I	1
White sp?	II	2
Behr's metalmark	IIII III	8
Common Blue	𝍸	5
Wright's Metalmark ?	I	1

40 sq km
2.5 / 1000

Page 1 of 2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Erodium - many flowers
		Goldfields - flowers
		SCJA, CAQU, ACWO, AMCU, CATO, NOFL
		Calif GS, Pocket Gopher
		Audubons Cottontail rabbit
		Buckbrush flowering / bees
		Mexican Mangarita pink/white flowers
		Baby blueeyes
		Calif Poppy
		Grand Lotus? - small yellow flower
		Sagebrush lizard

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Erik LaCoste Add'l Person: _____ Date: 3/24/10

Project: Campo Wind Energy Project Map #: 5 Survey Sxn: _____

GPS Unit : 1 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0950	60	10/15	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	340	65	10/15	5	(clear)	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Painted LADY	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	35
Duskywing SP	1	1
Perplexing hairstreak	𝍸 1	6
Checkered white	1	1
California MARBLE	11	2
Sara ORANGE TIP	𝍸	5
Acmon Blue	11	2
Spring AZURE	1	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Goldfields (Lasthenia.)
		filaree (Erodium sp)
		Baby Blue eyes
		Cryptantha
ELNL01	Point	Lotus sp - small yellow flower.

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Gretchen Cummings Add'l Person: Eugene Date: 3/24/10

Project: Campo Wind Energy Project Map #: 19 Survey Sxn: _____

GPS Unit : 4 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0945	64	4.9/10.1		(clear)	patchy	overcast	drizzle	shower
	1100	70	7.6/10.9		(clear)	patchy	overcast	drizzle	shower
	1300	70	3.0/4.4		clear	(patchy)	overcast	drizzle	shower
	1415	71	2.1/3.0		clear	(patchy)	overcast	drizzle	shower
	[illegible]	[illegible]	[illegible]		clear	(patchy)	overcast	drizzle	shower
					clear	(patchy)	overcast	drizzle	shower
END	1520	75	2.0/6.3		clear	(patchy)	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Callophrys affinis (Green Hairstreak)	𝍸 ||	7
Vanessa cardui (Painted Lady)	𝍸 𝍸 𝍸 𝍸 ||	22
Sphyngid moth	|||	4
Nymphalis californica (California Tortoiseshell)	|	1
Erynnis pacuvius	||	2
Anthocharis sara (Sara's Orangetip)	𝍸 𝍸 𝍸 ||	17
Pontia sp.	|	1
Colias sp.	|	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
GCNL1	Woodrat nest	San Diego Desert Woodrat nest in Yucca
		WEST 1111
		Plagiobothrys sp.
GCBJ1	Jackrabbit fresh pellets	Black-tailed Jackrabbit pellets fresh
		Arctostaphylos sp.
		Amsinckia menzesii
		CORA 111
GCBJ2	Jackrabbit	Jackrabbit between shrubs startled out
		Pectocarya
		BUSH 11
		Thomomys bottae burrows
		CATH 1
		Uta stansburiana 11
		Sylvilagus auduboni 11
		Spermophilus beecheyi 11
		HOWR 1
		Sceloporus orcutti 1111
		Neotoma fuscipes nest under Oak
		Lasthenia sp. (Goldfields)
		Sceloporus occidentalis 111
		LEGO 11
		OATI 11
		SPTO 1
GCNL2	Woodrat Nest	San Diego Desert Woodrat nest in boulders
		Nemophila menziesii lots!
		Descurainia pinnata

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Margie Mulligan Add'l Person: S. Innekin P Paipa Date: 3.24.10

Project: Campo Wind Energy Project Map #: 15 Survey Sxn: _____

GPS Unit : 2 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START					clear	patchy	overcast	drizzle	shower
	1412	72	1-8	20	clear	patchy	overcast	drizzle	shower
	1512	72	5-6	20	clear	patchy	overcast	drizzle	shower
	1630	70	3-5	20	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

Butterfly Species	Tally	Total
BROWN ELFIN	III	3
SARA'S ORANGE TIP	~~IIII~~	5
COMMON WHITE	III	3
LADY — ? FLYING THRU	I	1
PERPLEXING HAIRSTREAK	II	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		PRAIRIE FALCON
		REDTAIL
	NECTAR SOURCE	CRYPTANTHA SP. (INTERMEDIA)
MMCS03	sensitive Plant	Caulanthus simulans - 3 plants scattered
MMCH01	host plants	Collinsia host plants
MMCS04	sensitive plant	Caulanthus simulans - end pt of plants scattered midslope ~~across~~ below ridge - between MMCS03.

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Gretchen Cummings Add'l Person: Eugene Date: 3/24/10

Project: Campo Wind Energy Project Map #: 20 Survey Sxn: _____

GPS Unit : 4 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1520	75	2.0/6.3		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	1600	70	3.6/8.2		clear	(patchy)	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
None		

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
GCEP1	excluded polygon	dense Chaparral - excluded habitat

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: M. Heath Add'l Person: Lewis Connolly Date: 3/25/10

Project: Campo Wind Energy Project Map #: 12, 13 Survey Sxn: NA

GPS Unit: 8 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	11:00	60	3.1/4.9	0%	clear	patchy	overcast	drizzle	shower
	12:20	61	7.2/10.3	0%	clear	patchy	overcast	drizzle	shower
	14:00	61	9.9/17.3	0%	clear	patchy	overcast	drizzle	shower
	15:00	61.5	5.5/14.7	0%	clear	patchy	overcast	drizzle	shower
	16:20	60.5	14.2/21.3	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~~ few nectar sources

	Butterfly Species	Tally	Total
Map 12	Painted Lady	III	3
	Sara Orange Tip	I	1
	Blue sp	I	1
	Cominbt or Spring wt	I	1
Map 13	Behr's Metal Mark	III	3
	Painted Lady	II	2
	Green Hairstreak	I	1
	Woolybear caterpillars	~~IIII~~	5

I saw many dark butterflies flying — probably green hairstreaks

Shirley Sat Ph 8816 514 78912

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Buckbrush flowering
Map 12		Ramona Lilac flowering
		Mexican Manganita "
		Erodium "
		Arabis perennans (Nevada Rock Cress) pic
		~~Popcorn flower~~
		Baby blue eyes
		SCJA, ANHU, RTHA
		Ardubon CT, CAGS, Pocket Gopher / Woodrat Nest Packrat
		Miner's lettuce flower
		Grand lotus "
		Yellow flower unid (picture)
		Mustard - small
MHLI01	Sensitive sp	Mountain Lion Tracks (found 2 wks ago but I forgot to GPS at that time)
		Popcorn flower
		Map 13 - Many large cat tracks this area

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DAVID K. FAULKNER Add'l Person: Eugene Pablo Date: 25 March 2010

Project: Campo Wind Energy Project Map #: 25/24 Survey Sxn: _____

GPS Unit : #7 QCB Protocol Survey # 1 of 5.

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1300	63°	7 W	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
					clear	patchy	overcast	drizzle	shower
END	1400	60	9 W	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

Butterfly Species	Tally	Total
C. perplexa		2
A. Sara		12
J. Cordia		2
N. Californica		1
C. harfordii		1
E. Lota		~~##~~ 3
C. Augustina		2
S. melinus		1
G. L. australis		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
#25 (24)		Nectar Sources: Poppies
		Cryptantha
		Lotus
		Baby blue eyes
		Mustard (native)

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K. Faulkner Add'l Person: Eugene Pablo Date: 25 March 2010

Project: Campo Wind Energy Project Map #: 24 Survey Sxn: _____

GPS Unit : #7 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1400	60°	9 mph W	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
					clear	patchy	overcast	drizzle	shower
END	1600	59°	8 W	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)

Butterfly Species	Tally	Total
N. California		2
C. perplexa		3
A. sara		8
A. virgulti		4

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
#24		Nectar: Lupines, Poppies, Cryptantha } Few annuals in flower yet

TOTAL NUMBER OF QCB DETECTED: 8 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DAVID K. FAULKNER Add'l Person: Eugene Paiz Date: 25 MARCH 2010

Project: Campo Wind Energy Project Map #: 27 Survey Sxn: N/A

GPS Unit : #7 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1100	60	7 W	Ø	(clear)	patchy	overcast	drizzle	shower
	1200	61	6 W	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	1300	63	7	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

Butterfly Species	Tally	Total
C. perplexa		6
V. Cardui		3
A. SARA		15
N. Californica		2
P. ~~sp~~ sisyphi		2
C. Augustinus		3
Pieris sphinx		LOTS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
Map #27		Few Annuals in flower : Cryptantha
		Mustard (native)
		Erodium sp.

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David Fletner Add'l Person: Shirley Innecken Date: 3/25/10

Project: Campo Wind Energy Project Map #: 5 Survey Sxn: ~~#~~ N/A

GPS Unit : 6 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1130	63	4 - 8	0	clear	patchy	overcast	drizzle	shower
	12				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	1200	63	4 - 8	0	clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Acmon blue	5	6
Dusky wing	1	1
Bramble hairstreak	1	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Last cal
		Cam,s last
		coyote
		Add cottentail

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David Fletner Add'l Person: Shirley Innecken Date: 3/25/10

Project: Campo Wind Energy Project Map #: 15 Survey Sxn: _____

GPS Unit : 6 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1220	70	0-3	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	1340	72	0-5	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)

Butterfly Species	Tally	Total
Painted Lady	5	
Dusky Skipper	7	
Acmon blue	2	
Bramble hairstreak	1	
Behrs metalmark	2	
	2	

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
	~~Last c~~	~~Last call~~
		~~Camis bist~~
		~~coyote~~
		~~Aud cotton~~
		Pectocarya sp.
		Cryptantha
		Esch ~~minute~~
		Lotus salsu?
		B. C AGN
		Ams menz
		annual lotus
		Ceanoth cuneatus

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David Fleetner Add'l Person: Shirley Innocken Date: 3/25/10

Project: Campo Wind Energy Project Map #: 19 Survey Sxn: _____

GPS Unit : 6 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Slight haze Sky				
START	1410	72	~~2-4~~ 3-4	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	1645	61	2-4	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

Butterfly Species	Tally	Total
white		2
Behrs metalmark		1
Bramble hair streak		4
~~4~~		

Page 1 of 2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
DFLV01	pt	Lathyrus vestitus
DFCS01	pt	Coulanthus simulans ~20
		Nemoph menz
		~~Plagiobolyps sp~~
		Cryptantha (small)
		deer sign
		Camissonia

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DANE FLIEGNER Add'l Person: SHIRLEY LOVELESS Date: 3/26/10

Project: Campo Wind Energy Project Map #: 16 Survey Sxn: _____

GPS Unit : 2 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1020	63°	0-2	0	clear	patchy	overcast	drizzle	shower
	1240	65°	0-2	0	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1450	72°	0-2	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

Butterfly Species	Tally	Total
Sara orangetip	𝍸 |||	13
Bramble Hairstreak	𝍸	5
Behrs metalmark	𝍸	6
Funereal duskywing		1
common white	𝍸	5
Painted lady		1
Acmon blue	𝍸	6

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Cryptantha/ Plagio
		Camissonia bist
		annual Lotus
		Lisch minut
		Clastonia perfoliata
		Nemop menz
DFCH01	point - 002 0559967, 3616193	Collinsia seedlings (not a positive ID)
DFHL01	point	Horned lizard
		Strep Caudanthus heter
		granite spiny lizard
DFWRG1	point	1 Woodrat nest
		Amsinck menz
DFEP01	excluded poly	dense chaparral

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: M. Heath Add'l Person: Lewis Connolly Date: 3/26/10

Project: Campo Wind Energy Project Map #: 13, 18 Survey Sxn: _____

GPS Unit : 4 QCB Protocol Survey # 1 of 5

Butterflies Flying

TIME (24-hour)		Temp (F°)	Wind (avg/max)	% CC	Sky				
START	10:00	57	1.2 / 2.4	0%	clear	patchy	overcast	drizzle	shower
	11:30	64.7	0-2	0%	clear	patchy	overcast	drizzle	shower
	13:00	64.9	3.0 / 4.3	0%	clear	patchy	overcast	drizzle	shower
	14:30	67.6	2.1 / 4.1	0%	clear	patchy	overcast	drizzle	shower
	16:30	67.8	6.0 / 8.6	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 (few)

Butterfly Species	Tally	Total
Southern Blue	|	1
Green hairstreak	𝍸 𝍸 𝍸 |	21
Painted Lady	𝍸 ||	7
Acmon Blue	𝍸 |	6
Sara Orange Tip	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	35
Blue sp	||	2
Brown Elfin	|	1
Behr's Metalmark	𝍸	5
Dusky wing	𝍸	5
White sp	|||	3
Spring white 2 mating	𝍸 |||	13

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Popcorn flower
		Erodium "
		Mexican Manzanita "
		Baby blue eyes "
		Audubon COTTON TAIL / POCKET GOPHER / WOODRAT NEST SIGN
		SCJA AMCO BUSHTITS CAQU
		Miner's LETTUCE flowering
		MUSTARD-SMALL "
		BUCKBRUSH Flowering
		ANHU
		GOLDFIELDS
		CALIF POPPY
		DESERT WOOLY DAISY
		FIDDLENECK
		PEONY
		WHITE THORN CEANOTHUS
		YUCCA
		BTSP TUVU RTHA
		WESTERN FENCE LIZARD
		TREE FROGS TADPOLES NEARBY / SP??
MHEP220	Map13	Dense Chaparral

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K. Faulkner Add'l Person: Eugene Pablo Date: 27 March 2010

Project: Campo Wind Energy Project Map #: 24 Survey Sxn: _____

GPS Unit : S QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	56	12	0	clear	patchy	overcast	drizzle	shower
	1000	56	10	0	clear	patchy	overcast	drizzle	shower
	1100	67	11	0	clear	patchy	overcast	drizzle	shower
	1200	63	7	0	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1300	61	13	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

Butterfly Species	Tally	Total
Erynnis funeralis		1
A. sara		5
Euchloe ausonides lotta		4
P. Acmon		1
E. phaeton - spring		9
E. c. chalcedona		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
A 24		Nectar = Poppies
		Eriodictyon
		Baby blue eyes
		Amsinkia
		Lupines

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Natalie Brodie Add'l Person: Phillip Date: 29 Mar 2010

Project: Campo Wind Energy Project Map #: 4 Survey Sxn: 4

GPS Unit : #8 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1230	72°	0-2	20%	clear	patchy	overcast	drizzle	shower
	1345	73°	2/4	20-30%	clear	patchy	overcast	drizzle	shower
	1445	72°	2/4	10-20%	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1600	70°	4/6	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

Butterfly Species	Tally	Total
Acmon blue	III	3
Sara orangetip	~~IIII~~	5
Funereal Duskywing	~~IIII~~	5
Marble	~~IIII~~ ~~IIII~~ I	11
Perplexing Hairstreak	II	2
Behr's Metalmark	III	3
Painted lady	II	2
Brown elfin	III	3
Unidentified sulfur	III	3
		37

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Cryptantha sp.
		Goldfields
NBCHJ2	point/host plant	Ceanothus (20+) in bushes (scrub oak & chamise)
NBHL01	point	horned lizard

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Natalie Brodie Add'l Person: Phillip Date: 29 Mar 2010

Project: Campo Wind Energy Project Map #: 3 Survey Sxn: 3

GPS Unit : #8 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0930	64°	0-2	0	(clear)	patchy	overcast	drizzle	shower
	1040	65°	0-2	0	(clear)	patchy	overcast	drizzle	shower
	1130	70°	0-2	10%	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1215	72°	0-2	20% high 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)

Butterfly Species	Tally	Total
Sara orangetip	𝍸 𝍸 |	11
Acmon blue	𝍸 𝍸	10
Perplexing hairstreak	𝍸 |||	8
Brown elfin	||	2
Dain's Metalmark	𝍸	5
Funereal Duskywing	𝍸 |	6
Painted Lady	|	1
Unidentified sulfur	|	1
		44

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
NBAR01	point / host plant	Antirrhinum rosettes. ~3 ground buckwheat
NBCH01	point/host plant	50+ Collinsia in shade of chamise
NBCD01	point/host plant	3 cordylanthus sprouts in crack in asphalt
NBCD02	point/host plant	5+ cordylantus sprouts along road, goldfields

TOTAL NUMBER OF QCB DETECTED: ∅ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: M. Heath Add'l Person: Josh Paipa Date: 3/29/10

Project: Campo Wind Energy Project Map #: 18/8 Survey Sxn: _____

GPS Unit : 4 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	09:00	69.2	0.8/1.6	0%	clear	patchy	overcast	drizzle	shower
	11:00	73.1	2.9/5.8	0%	clear	patchy	overcast	drizzle	shower
	12:00	72.2	3.0/5.6	0%	clear	patchy	overcast	drizzle	shower
	13:30	77	2.3/5.3	0%	clear	patchy	overcast	drizzle	shower
	16:00	72	5.7/14.9	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

Butterfly Species	Tally	Total
Sara Orange Tip	𝍸 𝍸 𝍸 𝍸 𝍸 ||	27
Spring wt	𝍸 ||||	9
Behr's metal mark	|	1
Green hairstreak	𝍸 𝍸 𝍸 𝍸 |||	23
Blue sp	|||	3
Duskywing sp	|	1
Sulphur sp	|	1
Acmon Blue	𝍸 𝍸 𝍸 |||	18
Painted Lady	𝍸 ||	7
Marble	|	1
Gabb CS potential! Orange butterfly		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Erodium flower
		Mustard (small) "
		Fiddleneck "
	Map 18	Baby blue eyes "
		Popcorn "
		BTSP/SCJA/TUVU/WOODPECKER SP ?
		Gold fields "
		DYC's "
		Wild cucumber "
		Cream colored flower "
		White thorn ceanothus "
		Calif. Poppy "
MHPC01	Sensitive sp	Jewel flower yellow Paysons Cand
		" " purple/pink same location ← Shender Pod Jewel
		many plants area of NE map 18
		pocket gopher & coyote sign
MHHL02	Horned lizard	Large Map 8
		Mexican Mongarita flowering
		Scrub oak flowering
MHHL03	"	Small - Tuv Map 8
		Purple lupine - fuzzy leaves - Bajada lupine Small
		Spiny lizard

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Omar Bately Date: 3/29/10

Project: Campo Wind Energy Project Map #: 11 Survey Sxn: _____

GPS Unit : 1 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	9:30	68°	1/5 S	0	(clear)	patchy	overcast	drizzle	shower
	11:00	75°	5/7 SE	0	(clear)	patchy	overcast	drizzle	shower
	12:00	79°	4/8 SW	cirrus	clear	(patchy)	overcast	drizzle	shower
	13:00	77°	7/11 SW	"	clear	(patchy)	overcast	drizzle	shower
	14:00	80°	6/10 SW	"	clear	(patchy)	overcast	drizzle	shower
	15:00	76°	6/12 SW	"	clear	(patchy)	overcast	drizzle	shower
END	16:20	75°	5/10 SW	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

Butterfly Species	Tally	Total
Sara's Orange Tip	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	41
Blue?	𝍸 𝍸	11
Perplexing Hairstreak	𝍸 𝍸	10
Behrs Metalmark	𝍸	8
Acmon Blue	1	1
Tiger Swallowtail	1	1
White?	1	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Amsonkia
		Cryptantha
		Erodium
		Lasthenia
		Mustard ?
		Lupinus
		Viola
		Ceanothus
		Calif Poppy
		Baby Blue
		Monardella
		Eriogonum

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Andrew Pigniolo Add'l Person: Andrew Fisher Louis connily Date: 3/29/10

Project: Campo Wind Energy Project Map #: 16 Survey Sxn: _____

GPS Unit : #7 QCB Protocol Survey # 1 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky				
START 0915	66	0	0	(clear)	patchy	overcast	drizzle	shower
1015	69	0	0	(clear)	patchy	overcast	drizzle	shower
1115	76	0-5	0	~~clear~~	patchy	overcast	drizzle	shower
1215	78	0-6	20	clear	(patchy)	overcast	drizzle	shower
1315	79	0-6	40	clear	(patchy)	overcast	drizzle	shower
1415	81	3-7	10	(clear)	patchy	overcast	drizzle	shower
END 1515	74	2-5	5	(clear)	patchy	overcast	drizzle	shower

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

1615 75 2-6 2 clear

Butterfly Species	Tally	Total
Perplexing Hairstreak	𝍸 𝍸 𝍸

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
APHL01	Sensitive sp Point	Horned Lizard - juvenile
APHL02	↓	" "
APHL03		" "
APHL04		" "
APBJ01		Blacktailed Jackrabbit
		Ceanothus cuneatus blooming
		Arabis sp "
		Erodium cicutarium "
		Nemophila menz "
		Cryptantha sp. "
		Lotthenia sp. Just starting
		Lathrys sp " "
		Bird: HOLA, COHA, WEKI, WEBL, BUSH, BTSP CALT, NOFL,
		Speckled Rattlesnake, Side-blotch Fence Lizard, Granite spiny lizard

TOTAL NUMBER OF QCB DETECTED: ϕ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K Faulkner Add'l Person: Eugene Pablo Date: 3-29-2010

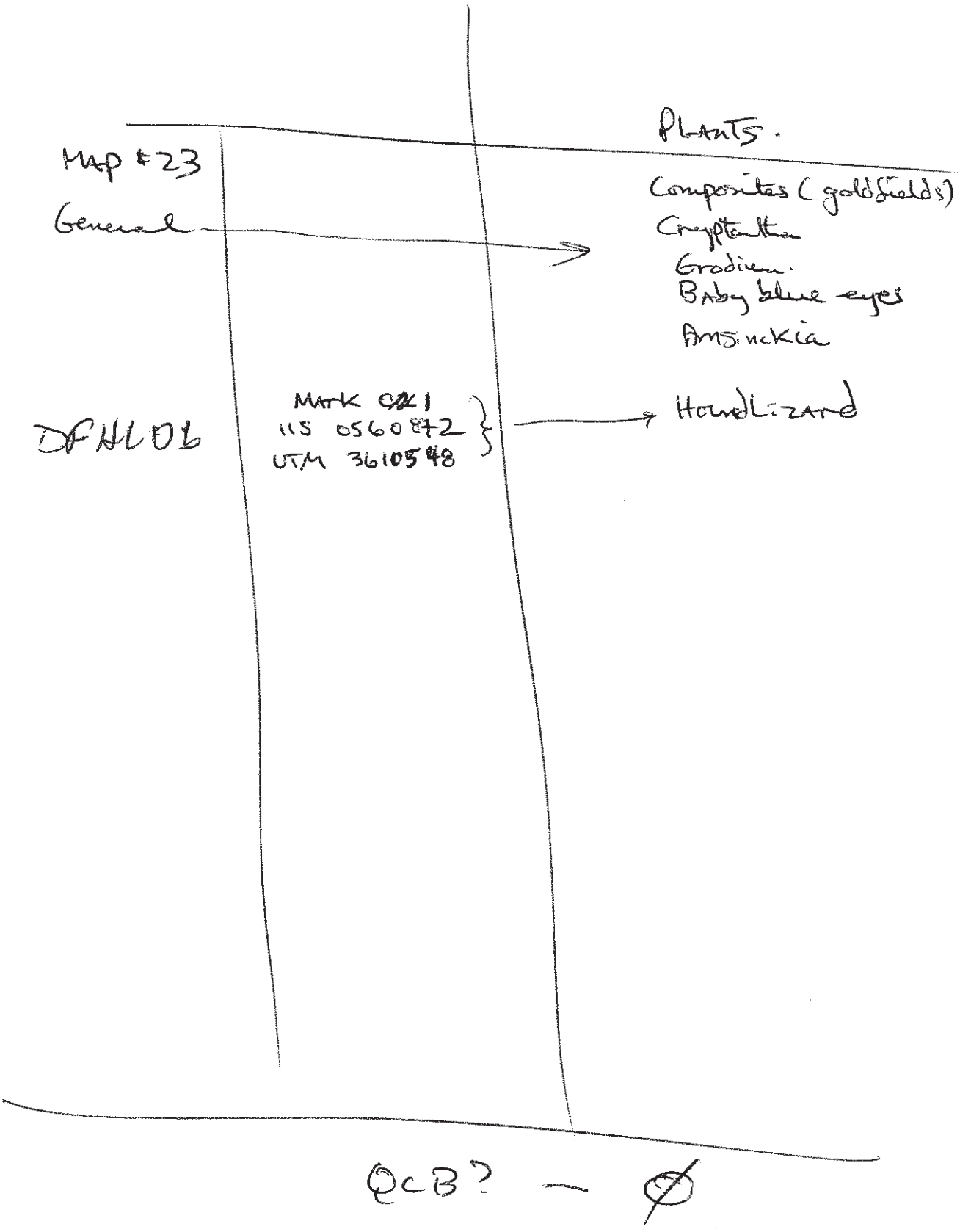
Project: Campo Wind Energy Project Map #: 23 Survey Sxn: _____

GPS Unit : 5 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	69°	1 mph	Ø	(clear)	patchy	overcast	drizzle	shower
	1000	73°	1	Ø	(clear)	patchy	overcast	drizzle	shower
	1100	78°	1	Ø	(clear)	patchy	overcast	drizzle	shower
	1200	81°	1	Ø	clear	patchy	overcast	drizzle	shower
	1300	83	5	50%	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)

Butterfly Species	Tally	Total
A. Sara		25+
A. Virgulti		3
C. perplexa		7
C. Augustinus (elfin)		7
Euchloe h. lotta		8
Erynnis brizo		6
P. Sisyphus		2
N. California		1



		Plants.
Map #23		Composites (goldfields)
General	→	Cryptantha
		Grodium.
		Baby blue eyes
		Amsinckia
DFHL06	Mark 021 115 0560872 UTM 3610548	→ Houndlizard

QCB? — Ø

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DAVID K. FAULKNER Add'l Person: Eugene Pablo Date: 29 MAR 2010

Project: Campo Wind Energy Project Map #: 20 Survey Sxn: _____

GPS Unit : 5 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1400	81°	2 mph	50	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	1500	81°	5 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

Butterfly Species	Tally	Total
Euchloe A. lotta		2
A. sara.		3
A. virgulti		1
C. perplexa		1
Echo blue		1
C. Augustinus		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
#20		Goldfields
		Poppies
		Cryptantha

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K. Faulkner Add'l Person: Eugene Pubis Date: 29 MAR 2010

Project: Campo Wind Energy Project Map #: 21 Survey Sxn: _____

GPS Unit : 5 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1500	81	5	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
					clear	patchy	overcast	drizzle	shower
END	1600	62	15	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

Butterfly Species	Tally	Total
E. h. Lotta		3
A. Sara		2
Erynnis sp. (brizo?)		11

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
21		— Goldfields
		poppies
		Cryptantha

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MARGIE MULLIGAN Add'l Person: _____ Date: 3.30.10

Project: Campo Wind Energy Project Map #: 22 Survey Sxn: _____

GPS Unit : 8 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1040	64	3-6	5	(clear)	patchy	overcast	drizzle	shower
	1205	73	4-6	0	(clear)	patchy	overcast	drizzle	shower
	1335	78	4-7	0	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Behr's Metalmark	TTH IIII	9
Perplexing Hairstreak	TTH III	8
Sara's Orange Tip	TTH I	6
Common White	I	1
California Tortoiseshell	I	1
Pearly Marble	TTH	5

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MMCS01	rare plant pt	Caulanthus simulans - scattered on top ~50
MMHL01	sensitive hop pt	Horn Lizard - 1
	Nectar Sources	Cryptantha sp
		Pectocarya linearis
		Amsinkia menziesii
		Cercocarpus ~~[illegible]~~ betuloides
		Erodium cicutarium
		Escholtzia spp.
		Nemophila menziesii
		(Lasthenia only in bud at site)
		gracilis
MMEP01	polygon	should be excluded. Too dense w/ too
		small of an opening. Did survey for QCB#1.
MMEP02	polygon	should be excluded b/c too dense
		with some open drainages that are very
		small and very steep of DG. Did not see
		any butterflies in habitat. Did survey for
		QCB#1.

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Eugene Pavlo Date: 3/30/10

Project: Campo Wind Energy Project Map #: 1 Survey Sxn: _____

GPS Unit : 1 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	12:35	67°	9/14	0	(clear)	patchy	overcast	drizzle	shower
	13:30	72°	4/7	0	(clear)	patchy	overcast	drizzle	shower
	14:30	68°	7/11	0	(clear)	patchy	overcast	drizzle	shower
	15:30	70°	8/12	0	(clear)	patchy	overcast	drizzle	shower
	16:25	65°	5/9	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)

Butterfly Species	Tally	Total
Perplexing	𝍸 𝍸 |	11
Sara	𝍸 ||||	9
Marble	|||	4
Dusky wing	||	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Baby Blues
		Erodium
		Mustard?
		Manzanita
		Calif Poppy
		Amsinckia
		Cryptantha
DPBJ015		
~~DPBJ01~~	point	Black-tailed Jack Rabbit
DPBJ02	point	" Black-tailed Jack Rabbit
~~DPB~~		

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: M. Heath Add'l Person: Lewis Connolly Date: 3/30/10

Project: Campo Wind Energy Project Map #: 8, 7 Survey Sxn: _____

GPS Unit : 5 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	10:30	63.5	4.5 / 7.2	10%	(clear)	patchy	overcast	drizzle	shower
	12:30	66.0	8.7 / 12.4	20%	(clear)	patchy	overcast	drizzle	shower
	14:30	64.7	15.9 / 19.6	10%	(clear)	patchy	overcast	drizzle	shower
	16:00	60	15.0	10%	(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

Butterfly Species	Tally	Total
Orangetip – Sara	𝍸 𝍸 𝍸 I	16
Painted Lady	𝍸 II	7
Sara Wt	𝍸 𝍸 II	12
Green Hairstreak	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 II	37
Blue sp	II	2
Dusky Wing	III	3
Acmon Blue	𝍸 𝍸 𝍸 II	17
White sp	III	3

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Scrub oak flowering
		Baby blue eyes * — means flowering
		Modern *
		Buckbrush *
		Sun cup *
		Fiddleneck *
		Popcorn *
		SCJA/CAQU/AM CR
		Goldfields *
		Calif poppy *
MHHL04		Horned Lizard juvenile
05		" " "
06		" " "
		Blue Lupine small *
		Mountain Mahogany
MHEP260	Excluded Poly	Dense Chaparra
1	" "	" "
2	" "	" "
3	" "	" "

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Eugene Pablo Date: 3/3/2010

Project: Campo Wind Energy Project Map #: 11 Survey Sxn: _____

GPS Unit : 1 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	10:30	610	4/8	10	clear	patchy	overcast	drizzle	shower
	12:00	700	8/10	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

Butterfly Species	Tally	Total
Perplexing	𝍸 I	6
5 Marble	III	3
Sara	II	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Dainty Blue
		Cryptantha
		Melilotus?
		Erodium
		Pentstemon
		Mimulus
		Calif Poppy
		Amsinckia
DPBJ03 ~~DPBJ03~~		Black-Tailed Jackrabbit

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: BRIAN LOHSTROH Add'l Person: Phillip (Escort) Date: 3/30/10

Project: Campo Wind Energy Project Map #: 16 Survey Sxn: _____

GPS Unit : 7 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1040	61.4	5-8 mph	10	clear	patchy	overcast	drizzle	shower
	1140	65	6-10	0%	clear	patchy	overcast	drizzle	shower
	1240	67	4-7		clear	patchy	overcast	drizzle	shower
	1400	69	6-8		clear	patchy	overcast	drizzle	shower
	1500	70	3-5		clear	patchy	overcast	drizzle	shower
	1600	64	3-7		clear	patchy	overcast	drizzle	shower
END	1610	65	5-10		clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Perplexing Hairstreak	𝍸 𝍸 𝍸 |||	18
Common White	𝍸 𝍸 ||	12
Dusky-wing Skipper (sp.)	𝍸 𝍸 |	11
Brown Elfin	|||	3
Acmon Blue	𝍸 𝍸	10
Painted Lady	||	2
Behr's Metalmark	𝍸 𝍸 𝍸 ||	17
Funereal Duskywing	||	2
S. Orangetip	𝍸	5
Southern Blue	|	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
PP20		HOLA
		CORA
		SCja
		WeKi
		Oafi
		Hofi
		Saph
		RTita
		Lasp
		Anhu
		SPTO
		Wren
		NoWO
		BC SP
		Lego
		California toad larvae (likely)
		Side-blotch Lizard
		Granite spiny Lizard
		W. Fence lizard
		Striped racer
		CA ground squirrel
		Cottontail
BLHL01	Rare Species	Coast horned Lizard
BLHL02	"	Coast horned Lizard
BLPJ01	Rare plant	Payson's jewel flower 2 indiv.
BLPJ02	"	" 40 indiv
BLPJ03	"	" 10 indiv
		Nectar Sources: erodium, Senecio cal, Layfrenia cal, popcorn flower, Amsinkia Nemophila, Beachura, cercocarpus, desert dandelion ca poppy, camissonia, Manzanita

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DAN.D.K.FAULKNER Add'l Person: DAN MASON | ERIN Date: 8 APR 2010

Project: Campo Wind Energy Project Map #: 15 Survey Sxn: CAMPO L

GPS Unit : 8 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1000	68	5	∅	(clear)	patchy	overcast	drizzle	shower
	1100	69	6	∅	(clear)	patchy	overcast	drizzle	shower
	1200	72	7	∅	(clear)	patchy	overcast	drizzle	shower
	1300	77	0	∅	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1400	78	5	∅	(clear)	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
P. Acmon		6
A. Virgulti		25+
C. perplexa		15+
Erynnis sp.		6
Nymphalis californica		2
Euchloe h. lotta		20+
U. cardui		4
A. Sara		3
P. eurydice (Pale Swallow)		1
Southern blue		2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
15	GPS: Mark 1	Collinsia
		goldfields
		Cryptantha
		Composites
		Sugar bush
		Amsinckias
		Erodium
		Mustard
		blue dicks

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DAVID K. FAULKNER Add'l Person: Luis Conley Date: 13 APRIL 2010

Project: Campo Wind Energy Project Map #: 25 Survey Sxn: CAMPO R

GPS Unit: 9 QCB Protocol Survey # ?? of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1100	48°	3	Ø	clear	patchy	overcast	drizzle	shower
	1200	55°	2	Ø	clear	patchy	overcast	drizzle	shower
	1300	58°	2	>5%	clear	patchy	overcast	drizzle	shower
	1400	64	3	>5%	clear	patchy	overcast	drizzle	shower
	1500	55°	8	> 10	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1600	52	9	>10	clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Euchloe h. lotta		15 +
C. perplexa		3
A. Virgulti		8
Arrowhead blue		1
P. Acmon		6
P. Sisymbrii		2
V. Virginensis (Am Lady)		1
C. gabbii		1
Erynnis funeralis		2
E. brizo		6

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
#25	CAMPO-R	Cryptantha
		Goldfields
		Sugar Bush
		Baby Blue Eyes
		Wallflower
		Viola sp.
		[GPS Turned off @ ~1530 - battery]

TOTAL NUMBER OF QCB DETECTED: ∅ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Swinney McMorrow Date: 4/3/10

Project: Campo Wind Energy Project Map #: 27 Survey Sxn:

GPS Unit : 3 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	10:50	59°	8/12	0	(clear)	patchy	overcast	drizzle	shower
	12:10	60°	10/17	0	(clear)	patchy	overcast	drizzle	shower
	12:45	62°	7/15	0	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	(shower)

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

Butterfly Species	Tally	Total
Dusky-wing	III	3
Sara	IIII	4
Purplish Copper	I	1
Lady	IIII	4
Marble	II	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Eriodictyon
		Avolus
		Cryptantha
		Ceanothus
		Menziesia
		Security Guard
		Chris Dines
		Bald Eagle Security Inc.
		Badge 120

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DAVID FLETCHER Add'l Person: LEWIS Date: 4/24/10

Project: Campo Wind Energy Project Map #: 19 Survey Sxn: Campo - O

GPS Unit : 2 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1045	63	0-2	0	(clear)	patchy	overcast	drizzle	shower
	1420	75	0-2	0	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1635	66	2-5	10	(clear)	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Bramble hairstreak	⊠⊠∴	24
Cabbage white	⊠⊏	17
Sara orange-tip	⊠∴	15
Funereal dusky wing	∴	3
W. Tailed blue	⁚	2
Lady sp.	∴	4
Acmon blue	•	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Nemoph menz
		Cryptantha int
		Amsinckia menz
		Camissonia sp.
		Plagiobothrys sp.
		Lasthenia cal
		annual lotus sp.
	point	Eschscholtzia minut
DFC402	Collinsia hetero	~ 20 plants, ~ 3 ft²
↑ (may have been entered as aachO2)		
Note: GPS batteries died for a few minutes ~ noon, so some of survey not tracked		

TOTAL NUMBER OF QCB DETECTED: ∅ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Phillip Paipa Shirley Innecken Date: 4/2/10

Project: Campo Wind Energy Project Map #: 10,15,16 Survey Sxn:

GPS Unit: 3 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	11:40	63°	1/3	0	clear	patchy	overcast	drizzle	shower
	13:00	68°		0	clear	patchy	overcast	drizzle	shower
	14:00	69°	4/8	0	clear	patchy	overcast	drizzle	shower
	15:00	65°		0	clear	patchy	overcast	drizzle	shower
	16:00	61°		0	clear	patchy	overcast	drizzle	shower
	17:0	59°	5/8	0	clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Sara	𝍸 |	6
Common White	|||	3
Bolus 𝍸 𝍸 𝍸 𝍸	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	50
Marbles	𝍸 𝍸 𝍸 𝍸 |||	23
Lady ?	|	1
Checkerspot ?	|	1
Orange Butterfly	||	2
Tiger Swallow Tail	||	2
Perplexing	𝍸 𝍸 𝍸 𝍸 ||	22
Brown Elfin	|	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Cryptantha - microtha
		Erodium
		Mustard ?
		Lotus
		Unknown composite
		Poppies
		Descurainia
		Caulanthus
		Plagiobothrys
		Amsinckia
		Ceanothus
		Dicktesstemma
		Arabis
SI CSO1		Caulanthus simulans Pace
SI CSO2		"
SI CSO3		"
Other Points Don't Count		

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Gretchen Cummings Add'l Person: Josh Date: 4/2/10

Project: Campo Wind Energy Project Map #: 19 Survey Sxn: P

GPS Unit : 1 QCB Protocol Survey # 2 of 5 .

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1040	66	3.3/4.9		(clear)	patchy	overcast	drizzle	shower
	1230	68	3.8/5.4		(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	1245	68	3.8/5.4		(clear)	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Vanessa cardui (Painted Lady)	IIII II	7
Euchloe hyantis (Pearly Marble)	IIII	5
Apodemia mormo virgulti (Mormon's Metalmark)	IIII IIII II	12
Erynnis sp. (Duskywing)	III	3
Icaricia acmon (Acmon Blue)	I	1
Pontia cf. sisymbrii (Spring White)	II	2
Colias harfordii (Harford Sulphur)	I	1
Pholisora catullus (Common Sootywing)	III	3
Callophrys affinis (Green Hairstreak)	III	3

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
GC	Neotoma lepida nest	Desert Woodrat nest
GC	Neotoma lepida nest	Desert Woodrat nest
GC	Neotoma lepida nest	Desert Woodrat nest
		ANHU
		NOFL
		TUVU
		SPTO
		WEST
		RSHA
		CAQU
		BGGN
		BUSH
		CATH
		HOWR
		OATI
		ACWO
		CORA
		Sceloporus orcutti II
		Uta stansburiana IIII
		Plagiobothrys sp.
		Cryptantha sp.
		Lasthenia sp.
		Nemophila menzeisii
		Amsinckia menzeisii
		Pectocarya sp.
		Erodium cicutarium
		Lupinus bicolor

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Gretchen Cummings Add'l Person: Josh Date: 4/2/10

Project: Campo Wind Energy Project Map #: 20 Survey Sxn: P

GPS Unit : 1 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky
START	1245	68	3.8/5.4		(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	1545	62	3.6/8.2		(clear) patchy overcast drizzle shower

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

Butterfly Species	Tally	Total
Vanessa cardui (Painted Lady)	II	2
Callophrys affinis (Green Hairstreak)	IIII	4
Euchloe hyantis (Pearly Marble)	IIII II	7
Apodemia mormo virgulti (Mormon Metalmark)	IIII IIII IIII IIII IIII IIII	30
Erynnis sp. (Duskywing)	II	2
Pontia cf. Sisymbrii (Spring White)	I	1
Anthocharis sara (Sara Orangetip)	IIII IIII IIII	15
Erynnis funeralis	I	1
Callophrys augustinus (Brown Elfin)	I	1
Sphyngid moth	I	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Sceloporus orcutti I
		ANHU
		CORA
		BUSH
		OATI
		Uta stansburiana I
		Thomomys bottae holes
		Sylvilagus auduboni II
		Plagiobothrys sp.
		Cryptantha sp.
		Lasthenia sp.
		Nemophila menzeisi:
		Amsinckia menzeisii
		Tansy Mustard (Descurania sp.)
		Pectocarya sp.
		Erodium cicutarium
		Lupinus bicolor
		Eschscholzia californica (California Poppy)
		Cream Cups

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K. Faulkner Add'l Person: Eugene Pablo Date: 2 APRIL 2010

Project: Campo Wind Energy Project Map #: 23 Survey Sxn: Q

GPS Unit : 8 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1600	67°	9 mph	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
					clear	patchy	overcast	drizzle	shower
END	1700	65°	9 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

Butterfly Species	Tally	Total
Anthocharis Sara		2
Euchloe h. Zoha		4
C. Perplexa (Bramble)		1
Vanessa Cardui		1

Page 1 of 1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
23		Cryptantha
		Baby Blue eyes
		Amsinckia

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DAVID K. FAULKNER Add'l Person: Eugene Pablo Date: 2 APRIL 2010

Project: Campo Wind Energy Project Map #: 22 Survey Sxn: CAMPO 9

GPS Unit : 8 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1300	68°	5 W	Ø	clear	patchy	overcast	drizzle	shower
	1400	69°	4 W	Ø	clear	patchy	overcast	drizzle	shower
	1500	69°	4 W	Ø	clear	patchy	overcast	drizzle	shower
	1600	67°	9 W	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

Butterfly Species	Tally	Total
P. Sisymbrii (Spring white)		11
Vanessa sp. (Lady)		1
V. Cardui (Painted lady)		2
A. Virgulti (B. Metal)		3
A. SARA (Sara orange)		8
E. hyantis (Pearly)		6
C. Augustina (B. Elfin)		3
E. funeralis (Fun Dusky)		2
E. brizo (Sleepy Dusky)		3

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
22		Amsinckia
		cryptantha
		Poppies
		Lupines

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K. Faulkner Add'l Person: Eugene Pavlo Date: 2 APRIL 2010

Project: Campo Wind Energy Project Map #: 26 Survey Sxn: Campo ©

GPS Unit : 8 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1030	59°	3mph W	Ø	(clear)	patchy	overcast	drizzle	shower
	1100	66°	1 W	Ø	(clear)	patchy	overcast	drizzle	shower
	1200	72	Ø W	Ø	(clear)	patchy	overcast	drizzle	shower
	1300	68	5 W	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)

Butterfly Species	Tally	Total
Euchloe hyantis		7
A. Sara		11
C. perplexa		7
A. Virgulti		4
Erynnis brizo		1
C. Dracotalia monstrosus (♂)		1
E. phaeton		20+
Nymphalis californica		1
V. cardui		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
26		Cryptantha
		Amsinckia
		Baby blue eyes
		Basket Bush.
		Wallflower

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 4·6·2010

Project: Campo Wind Energy Project Map #: 4 Survey Sxn: _____

GPS Unit : 9 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1250	65	3-6(9)	0	clear	patchy	overcast	drizzle	shower
	1340	63	5-8	8	clear	patchy	overcast	drizzle	shower
	1420	63	5-8	8	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Acmon Blue	II	2
Pearly Marble	II	2
Painted Lady	I	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MMAD01	sensitive plant pt	Astragalus douglasii var. perstrictus East side of Manzanita Rd. 23 vegetative plants in deep granitic soils. Edge of redshank mostly Artemisia tridentata ssp. tridentata Very disturbed and probably cleared to repair drainage pipe.
MMAD02	sensitive plant pt	Astragalus douglasii var perstrictus West side of Manzanita Rd. 9 vegetative plants in deep granitic soils. Associating w/ Eriogonum fasc, Quercus x acutidens, Ceanothus leucodermis. Edge of oak riparian. Disturbed area by road. & Artemisia tridentata
	Nectar Sources:	Pectocarya sp.
		Cryptantha sp
		Amsonkia menziesii
		Lasthenia (very little!) gracilis
		Nemophila menziesii

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 4.6.10

Project: Campo Wind Energy Project Map #: 3 Survey Sxn: _____

GPS Unit : 9 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1000	60	5-9	0	(clear)	patchy	overcast	drizzle	shower
0930	1107	62	1-4 (8)	0	(clear)	patchy	overcast	drizzle	shower
	1210	63	3-6	0	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Perplexing Hairstreak	𝍸 I	6
Propertius Duskywing	II	2
Acmon Blue	𝍸	5
Pearly Marble	I	1
Painted Lady	II	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
	Nectar Source:	Lasthenia gracilis
	~~Eriogonum microanthum~~	Cryptantha micrantha
		Amsinckia menziesii
		Nemophila menziesii
		Coreopsis californica

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 4·6·2010

Project: Campo Wind Energy Project Map #: 8 Survey Sxn: _____

GPS Unit : 9 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1400	63	4-8	0	(clear)	patchy	overcast	drizzle	shower
	1522	63	4-8	0	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Perplexing Hairstreak	II	2
Propertius Duskywing	IIII	4
Brown Elfin	I	1
Pearly Marble	I	1
Sara's Orangetip	I	1
Acmon Blue	I	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
	Nectar Sources:	Ceanothus greggii perplexans
		Cryptantha sp.
		Cryptantha micrantha
		Amsinkia menziesii
		Lasthenia gracilis
MMGV01		Geraea viscida. East side of Manzanita Rd. 3 plants vegetative. Red Shank, Ceanothus greggii ssp. perplexans, Eriogonum fasciculatum, Chamise, Chamise Chaparral w/ deep granitic soils. No impact but side of road.

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K. Faulkner Add'l Person: Eugene Pablo Date: 6 APRIL 2010

Project: Campo Wind Energy Project Map #: 17 Survey Sxn: CAMPO N

GPS Unit : 8 QCB Protocol Survey # QCB 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1400	64	8 NE	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
					clear	patchy	overcast	drizzle	shower
END	1500	65°	9 NE	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)

Butterfly Species	Tally	Total
Euchloe h. lotta		2
C. perplexa		3
So. Blue		1
P. Acmon		4
A. vinculata		4

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
#17		Cryptantha
		Erodium
		Mustard
		Amsinckia
		Sanger bush

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DAVID K. FAULKNER Add'l Person: Eugene Pablo Date: 6 APRIL 2010

Project: Campo Wind Energy Project Map #: 23 Survey Sxn: CAMPO Q

GPS Unit : 8 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1000	57	7	Ø	clear	patchy	overcast	drizzle	shower
	1100	57	7	Ø	clear	patchy	overcast	drizzle	shower
	1200	63	7	Ø	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1330	61	13	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

Butterfly Species	Tally	Total
Euchloe h. lotta		2
C. Augustina		1
C. perplexa		5
A. SARA		3

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
23		Goldfields
		Composites
		Cryptantha
		Erodium
		Mustard

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David W. Faulkner Add'l Person: Eugene Pablo Date: 6 Apr 2018

Project: Campo Wind Energy Project Map #: 21 Survey Sxn: CAMPO N

GPS Unit : 8 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1200	63	7	Ø	(clear)	patchy	overcast	drizzle	shower
	1380	61	13	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	1400	64	8	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)

Butterfly Species	Tally	Total
Euchloe h. lotta		3
A. SARA		8
Erynnis sp.		4

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
21		Compositae
		cryptantha

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DAVID K FAULKNER Add'l Person: Eugene Pablo Date: 6 APRIL 2010

Project: Campo Wind Energy Project Map #: 18 Survey Sxn: CAMPO N

GPS Unit : 8 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1500	65	9	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
					clear	patchy	overcast	drizzle	shower
END	1600	63	8	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

Butterfly Species	Tally	Total
A. Virgulti		8
A. Sara		2
E. h. Zotta		6
P. Acmon		3
E. brizo		2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
18		Composites
		Goldfields
		Cryptantha
		baby blue eyes

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: BRIAN LOHSTROH Add'l Person: David D. (Escort) Date: 4/6/10

Project: Campo Wind Energy Project Map #: 16 + 19 Survey Sxn: M

GPS Unit : 10 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max) MPH	% CC	Sky				
START	1000	60	5-8	Clear 0%	clear	patchy	overcast	drizzle	shower
	1100	60	10-14	Clear	clear	patchy	overcast	drizzle	shower
	1200	61	4-9	Clear	clear	patchy	overcast	drizzle	shower
	1300	61	4-7	Clear	clear	patchy	overcast	drizzle	shower
	1400	61	8-12	Clear	clear	patchy	overcast	drizzle	shower
	1445	62	7-12	Clear	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

Butterfly Species	Tally	Total
Painted Lady	II	2
Perplexing Hairstreak	IIII	7
pearly Marble	I	1
Dusky wing SP	IIII	4
Acmon Blue	III	3
Behr's Metalmark	III	3
Silvery Blue	I	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
~~CORA~~		CORA
		Scja
		SPTO
		WCSP
BLPF01	Rare bird	PrFa (prarie falcon)
		LaSP
		Oati
		HOLA
		RTHa
		Weki
		Bush
BLCP02	Rare plant	Campo Pea, (Lathyrus splendens) 5 individ.
BLCP03	"	Campo pea, 1 individual
BLCP04	"	Campo Pea, 2 individuals
BLCP01	"	Campo Pea, 2 ind (previously mapped?) confirmed.
BLCP05	"	Campo Pea, 4 individuals
		Jacumba milk vetch? Not mapped, will be
		confirmed by botanists. (S. inectans)

TOTAL NUMBER OF QCB DETECTED: ∅ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K. Faulkner Add'l Person: Dan Hinson / ERIN Date: 8 APR 2010

Project: Campo Wind Energy Project Map #: 16 Survey Sxn: CAMPO-L

GPS Unit : 8 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1500	78	2	0	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1600	78	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)

Butterfly Species	Tally	Total
A. Sara		2
Philosoria catalina		1
Vanessa cardui		2
Euchloe h. Julia		8

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
16.		Coyote Gold Fields

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K. Faulkner Add'l Person: Dan Hason | Erin Date: 8 APR 2010

Project: Campo Wind Energy Project Map #: 18 Survey Sxn: CAMPO N

GPS Unit : 8 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	60°	7 mph	Ø	clear	patchy	overcast	drizzle	shower
	1000	68°	5	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

Butterfly Species	Tally	Total
A. Sara		6
P. Sisymbrii		1
E. brizo		3
A. Virgulti		3

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
18		Grid fields
		Composites

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Eugene Pablo Date: 4/8/10

Project: Campo Wind Energy Project Map #: 16 H. Partially Completed Survey Sxn:

GPS Unit : 10 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	13:30	72°	2/5	0	clear	patchy	overcast	drizzle	shower
	14:35	75°	0/0	0	clear	patchy	overcast	drizzle	shower
	16:25	72°	4/6	0	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
White ?	𝍸	5
Southern Blue	𝍸 II	7
Dusky-wing	𝍸 I	6
Blue ?	IIII	4
Lady ?	III	3
Behrs Metalmark	II	2
~~DEPOT~~		

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Amsinckia
		Mustard?
		Erodium
		LesThenia
		Layia
		Nemophilia
		Caenothus
		Phacelia 2 species
		Arahis
		Eryptantha
		Salvia columbariae
		lupinus
		Eschscholzia
		Plagiobothrys
OPEP01	Excluded Polygon	Sage, Oak.
OPEP02	"	"
OPIP01	Included Polygon	Has native vegetation included

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Eugene Pablo Date: 4/8/10

Project: ~~Manzanita~~ Campo Wind Energy Project Map #: 15 K completed Survey Sxn: _____

GPS Unit : 10 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	8:45	63°	5/7	0	(clear)	patchy	overcast	drizzle	shower
	9:55	67°	10/13	0	(clear)	patchy	overcast	drizzle	shower
	11:30	71°	3/7	0	(clear)	patchy	overcast	drizzle	shower
	12:40	71°	6/9	0	(clear)	patchy	overcast	drizzle	shower
	13:10	74°	5/9	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~~

Butterfly Species	Tally	Total
Sara's Orange Tip	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 I	31
Chalcedon	III	3
Perplexing Hairstreak	𝍸 𝍸 𝍸 𝍸 𝍸	25
Marble	𝍸 III	9
White?	𝍸 𝍸 I	11
Behrs Metalmark	𝍸 𝍸 III	13
Southern Blue	𝍸 𝍸 𝍸 𝍸 𝍸 I	26
Blue?	𝍸 𝍸 IIII	14
Lady?	𝍸	5
Painted Lady	II	2
Dusky-Wing	II	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Amsinckia
		Lupinus
		Erodium
		Eschscholzia
		Cryptantha
		Ceanothus
		Layia
		Mustard?
		Dichelostemma
		Phacelia 2 species
		Mimulus
		Salvia columbariae
		Castilleja
		Nemophila
QPC501		Caulanthus similans
		Arabis
		Penstemon
		Monardella
		Plagiobothrys

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DAVE FLIETNER Add'l Person: ~~Louis~~ Louis Date: 4/8/10

Project: Campo Wind Energy Project Map #: 4/12 (Campo 5) Survey Sxn: _____

GPS Unit : 1 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
~~START~~	0900	57	3-6	0	(clear)	patchy	overcast	drizzle	shower
START	0930	61	3-6	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	1620	70	0-2	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

Butterfly Species	Tally	Total
Funereal dusky wing	5	6
Cabbage white	30	30
~~Sara~~ Lady sp.	8	8
Echo blue	3	3
Ceraon blue	6	6
Sulphur	1	1
Brown elfin	3	3
Behrs metal mark	15	15
Sara orange tip	4	4
Properties (?) Dusky wing	1	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		crypt int
		Nemo menz
		Lupinus bicolor
		Lasth cal
		Amsinck menz
DFHL01	point	1 coast horned lizard
		Lomatium dasycarpum
		Esch calif
		annual lotus

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DAVID FLIETNER Add'l Person: ERIN BERGMAN Date: 4/9/10

Project: Campo Wind Energy Project Map #: Campo R - 25 Survey Sxn: _____

GPS Unit : 8 QCB Protocol Survey # X2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1020	69	0	0	clear	patchy	overcast	drizzle	shower
END	1235	73	0	0	clear	patchy	overcast	drizzle	shower
START	1430	74	~~0~~ 5-8	0	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1550	73	3-6	0	clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Pearly marble	☒	~~12~~ 15
Acmon blue		3
Propertius dusky wing		2
Sara orange tip	☒	~~2~~ 8
Painted lady		3
Behr's metal mark	☒	12
cloudless sulfur ~~bright yellow butterfly~~		1
Funeral dusky wing		2
Perplex ~~B~~ ~~rumble~~ hair streak		1
Anise swallowtail		2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Last cal
		Erys cap
		Cgmis sp
		Nemo menz
		Esch cal
		Cryp ent
		Plagio botrys
DFHL02	point ~~DFCL02~~	DFCL02 coast horned lizard 1
		Gilia sp.
		Salvia columbarian

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: ~~0~~ Date: 9 APRIL, 2010

Project: Campo Wind Energy Project Map #: 16 Survey Sxn: CAMPO H

GPS Unit : 5 QCB Protocol Survey # 12 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1430	74	3->5	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1500	73	1->4	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1600	72	1->6	CLEAR	(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)

Butterfly Species	Tally	Total
BEHR'S METALMARK	TALLY IN FIELD NOTEBOOK	57
DESERT ORANGETIP	"	4
CALIFORNIA MARBLE	"	6
PERPLEXING HAIRSTREAK	"	17

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: Ø Date: 9 APRIL, 2010

Project: Campo Wind Energy Project Map #: 16 Survey Sxn: CAMPO-L

GPS Unit : 5 QCB Protocol Survey # 12 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0930	67	Ø→2	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1000	74	Ø→4	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1100	72	Ø→5	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1200	76	Ø→2	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1300	77	1→4	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1400	73	3→7	CLEAR	(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)

Butterfly Species	Tally	Total
CALIFORNIA MARBLE	TALLY IN FIELD NOTEBOOK	52
PERPLEXING HAIRSTREAK	"	40
FUNEREAL DUSKYWING	"	38
BEHR'S METALMARK	"	97
SARA ORANGETIP	"	2
PAINTED LADY	"	5
BROWN ELFIN	"	11
CALIFORNIA TORTOISESHELL	"	1
DESERT ORANGETIP	"	7

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCHL01	POINT	JUVENILE HORNED LIZARD
MCHL02	POINT	ADULT HORNED LIZARD
MCC001	POINT	HOSTPLANT LOCATION

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: BRIAN LOHSTROH Add'l Person: S. Innecken, Misty Date: 4/13/10

Project: Campo Wind Energy Project Map #: 16, 17, 19 Survey Sxn: N

GPS Unit : #1 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1040	62	2-5	0	(clear)	patchy	overcast	drizzle	shower
	1200	67	2-3	0	(clear)	patchy	overcast	drizzle	shower
	1300	64	0-3	0	(clear)	patchy	overcast	drizzle	shower
	1430	66	0-6	0	(clear)	patchy	overcast	drizzle	shower
	1520	62	3-8	30	clear	(patchy)	overcast	drizzle	shower
	1640	59	3-8	30	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

Butterfly Species	Tally	Total
Common white	II	2
west Coast Lady	II	2
perplexing Hair Streak	~~IIII~~ ~~IIII~~ ~~IIII~~ II	17
Acmon Blue	II	2
Dusky wing	~~IIII~~ ~~IIII~~ I	11
Behr's metal mark	~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ II	32
Spring white	I	1
Brown Elfin	III	3
Gabbs checkerspot	I	1
Painted Lady	III	III
pearly Marble	~~IIII~~ III	8
Southern Blue	I	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		BUSH
		WREN
		CAQU
		SPTO
		CORA
		AMCR
		ORJY
		BHGR
		ATFL
		CALT
		SCJA
		BGGN
		HOWR
		RTHA
		BEWR
		NOHA
BLGV01		Gerea viscida x 10 indiv.
BLCP01		Lathyrus splendens x 2
BLDB02		Linanthus bellus x 10
BLPJ01		Caulanthus simulans x 100
BLDB03		Linanthus bellus x 30
BLDB04		L. bellus x 100s
BLDB05		L. bellus x 10s
BLDB06		L. bellus x 100s
BLNH01		Northern harrier ♀
BLPJ02		Caulanthus simulans x 30

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Dorothy Mecit Date: 4/13/10

Project: Campo Wind Energy Project Map #: 9 Campo Survey Sxn: _____

GPS Unit : 8 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	13:30	62°	3/4	20	clear	patchy	overcast	drizzle	shower
	14:40	61°	4/7	25°	clear	patchy	overcast	drizzle	shower
	15:50	58°	1/3	20°	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
	16:50				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

Butterfly Species	Tally	Total
Behrs Metalmark	𝍸 𝍸 𝍸

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Cryptantha
		Pectinocarya
		Manzanita
		Erodium
		Nemophila
		Eschescholzia
		Viola
		Lasthenia
		Layia
		Lupinus
		Arabis
		Ericameria

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Habitat Assessment
Field Data Sheet

Recorder: Dale Powell Add'l Person: Darlene Mack Date: 4/13/10

Project: Campo Wind Energy Project Map #: 1 GPS Unit : 8

START Time: 10:30 Temperature: 64° Wind Speed (mph)/Direction: 0 %Cloud Cover: 15%

END Time: 12:10 Temperature: 60° Wind Speed (mph)/Direction: 2/4 — %Cloud Cover: 30%

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS/GENERAL SPECIES LIST
		Acmon Blue III
		Blue IIII

Quino Checkerspot Butterfly Habitat Assessment
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS/GENERAL SPECIES LIST
		Manzanita
		Ceanothus
		Erodium
		Nemophila
		Cryptantha
		Lasthenia
		Layia
		Lupinus
		Viola

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Mike Coulter Add'l Person: Ø Date: 13 April 2010

Project: Campo Wind Energy Project Map #: Tile 5 Survey Sxn: Campo "C"

GPS Unit : Garmin 2 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1000	58	Ø->3 mph	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1100	58	Ø->3	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1200	56	Ø->2	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1300	65	Ø->1	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1400	67	1->2	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1500	66	Ø->3	CLEAR	(clear)	patchy	overcast	drizzle	shower
END	1600	63	1->5	CLEAR	(clear)	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Behrs Metalmark	IN FIELD NOTEBOOK	34
California Marble	"	13
Quino Checkerspot Butterfly	"	1
Funereal Dusky Wing	"	18
Brown Elfin	"	2
Acmon Blue	"	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCQB04	Point	Somewhat drab individual on the best-looking hilltop in Campo C.

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Park LaLoste Add'l Person: GEORGINA Date: 4/14/10

Project: ~~Manzanita~~ CAMPO Wind Energy Project Map #: 8 Survey Sxn: F

GPS Unit : 1 QCB Protocol Survey # _____ of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0930	65	3A-7m	5	(clear)	patchy	overcast	drizzle	shower
	130	70	3A-6m	75	clear	patchy	(overcast)	drizzle	shower
Left Ridge	230	67	4A 8m	90	clear	patchy	(overcast)	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	300	66	4A 8m	80	clear	patchy	(overcast)	drizzle	shower

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

Butterfly Species	Tally	Total
* QCB - viewed through Binos - as I approached it, it flew off, effort to refind were negative after 45 mins - no Pics - I would not report it yet - should maybe try to refind later today + Tomorrow -		1
Acmon Blue	////	4
Perplexing Hairstreak	//// //// //// //// ///	23
California Marble	//// //// //// //// //// ////	30
Brown elfin	///	3
Painted Lady	///	3
Behrs Metalmark	//// //// //// //// //// //// 100+	100+
Fun Duskywing	////	5

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
ELAQCB01	Point	QCB Spotting but no Pics - recommend revisit
		Soon For confirmation.
		Lastheria Californica
		Erodium sp.
		Plagiobothrys sp.
		Ceanothus sp.
		Lupinus sp.
		Mimulus Brevipes
		Layia Glandulosa
		Amsinkia menziesii
		Eschscholzia Californica
		Camissonia sp.
		Trogopogon polycholius
		Amsinckia acaulis
		Arabis sp.
		Baby Blue eyes.
		Solanum parryii
		Sanicula arguta
		Chia.

TOTAL NUMBER OF QCB DETECTED: _____ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Gretchen Cummings Add'l Person: Gene Date: 4/14/10

Project: Campo Wind Energy Project Map #: 12 Survey Sxn: G

GPS Unit : 2 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0945	60.3°F	1.0/2.2	20%	clear	(patchy)	overcast	drizzle	shower
1125		68.7°F	3.2/3.8	25%	clear	(patchy)	overcast	drizzle	shower
[illegible]		[illegible]	[illegible]	[illegible]	clear	(patchy)	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1345	70.0°F	2.6/3.9	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)

Butterfly Species	Tally	Total
Callophrys dumosa	𝍸 𝍸	10
Apodemia mormo virgulti	𝍸 𝍸 𝍸 II	17
Erynnis sp. (no white)	𝍸 II	7
Vanessa cardui	IIII	4
Papilio eurymedon	I	1
Euchloe hyantis	IIII	4
Anthocharis sara	IIII	4
Pontia sisymbrii	II	2
Sphygid moth	II	2
Icaricia acmon	𝍸 I	6
Colias harfordii	I	1
Celastrina ladon echo	I	1

Map/GPS label	Point/Polygon Type	Comments / Species List
		Plagiobothrys sp.
		Spotted Towhee
		Cryptantha sp.
		California Thrasher
		Descurainia sp.
		Anna's Hummingbird
GCHL01	Sensitive species Horned Lizard	Horned Lizard
		Lupinus sp
		Lasthenia californica
		Arabis
		American Robin
		Red-tailed Hawk
		Black-chinned Sparrow
		Lupinus bicolor
		California Poppy
		Northern Flicker
		Amsinckia menzeisii
		Western Scrub Jay
		Nemophila menzeisii
		Bushtit
		Gilia sp.
		Black-throated Grey Warbler
		Oak Titmouse
		White-crowned Sparrow

Total # of QCB Detected 0 Individuals

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Gretchen Cummings Add'l Person: Gene Date: 4/14/10

Project: Campo Wind Energy Project Map #: 11 Survey Sxn: 6

GPS Unit : 2 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1420	77°F	2.6/6.2	70%	clear	(patchy)	overcast	drizzle	shower
	1600	74°F	0.8/1.9	80%	clear	(patchy)	overcast	drizzle	shower
				[illegible]	clear	(patchy)	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1645	69°F	1.3/2.1	70%	clear	(patchy)	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Pontia sisymbrii	III	3
Vanessa cardui	I	1
Apodemia mormo virgulti	III	3
Sphygid moth	I	1
Anthocharis sara	I	1
Euchloe hyantis	IIII	6
Blue Undifferentiated	I	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Amsinckia menziesii
		Spotted Towhee
		Cryptantha sp.
		Plagiobothrys
		Lupinus bicolor
		Lasthenia californica
		Descurainia sp.
GCLA01	Sensitive Species Horned Lark	heard Horned Lark
		California Thrasher
		Lark Sparrow
		Anna's Hummingbird
		cf. Ericameria pinifolia
		Arabis
		Phacelia sp.
		Trichostemma sp.

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Margie Mulligan Luis Connelly Date: 4/14/10

Project: Campo Wind Energy Project Map #: 5 Survey Sxn: _____

GPS Unit : 5 + Margie's Personal QCB Protocol Survey # 1 of ~~2~~ 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1015	63°	0/~~2~~	0	(clear)	patchy	overcast	drizzle	shower
	1205	64°	0/6	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)

Butterfly Species	Tally	Total
Acmon Blue	𝍸 𝍸 𝍸 I	~~16~~
Behr's Metalmark	~~𝍸~~ ~~𝍸~~ IIII	~~14~~
Lady?	I	1
Perplexing HairstreaK?	II	2
Southern Marble	II	2
Blue?	I	1
Funeral Dusky-wing	I	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
	Nectar sources:	Ceanothus leucodermis
		C. greggi var. perplexans
		Amsinkia menziesii
		Eschscholtzia californica
		Lupinus concinnus
		Erodium cicutarium
		Cryptantha micrantha

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Margie Mulligan, Laura Connelly Date: 4/14/10

Project: Campo Wind Energy Project Map #: 9-J Survey Sxn: _____

GPS Unit : 5 + Margie's personal QCB Protocol Survey # 2 of 5

TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky
START 13:00	72°	1/3	0	clear patchy overcast drizzle shower
14:30	62°	7/10	75	clear patchy overcast drizzle shower
16:45	70°	3/5	50	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

Butterfly Species	Tally	Total
Behrs Metalmark	𝍸 𝍸 𝍸

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
	Nectar Sources:	Lasthenia gracilis Caulanthus simulans
		Phacelia parryi
		Lupinus bicolor
		L. concinnus
		L. truncatus
		Cryptantha sp.
		Ceanothus leucodermis
		Layia glandulosa
		Eschscholtzia californica
MMCS01	sensitive plant pt	Caulanthus simulans →
MMCS02	"	
MMCS03	"	flowering along ridge 1000s of them
MMCS04	"	and some fruiting
MMCS05	"	
MMCS06	"	
MMCS07	"	
MMCS08	"	
MMGV01	"	Geraea viscida - 1 vegetative plant
		- in a drainage of ridge
DPEP01	Excluded Polygon	Not closed. Closed canopy chaparral

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Margie Mulligan, Luis Connolly Date: 4/14/10

Project: Campo Wind Energy Project Map #: 12 - S5 Survey Sxn: _____

GPS Unit: 5 + Margie's Personal QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky
START	9:45	62°	0/~~2~~	0	(clear) patchy overcast drizzle shower
	10:05	65°	0/2	0	(clear) patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
					clear patchy overcast drizzle shower
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

Butterfly Species	Tally	Total
~~—~~		0

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
	Nectar Source:	Lupinus concinnus
		Cryptantha micrantha
		Lasthenia gracilis
		Cercocarpus betuloides
		Malacothrix californica
		Eschscholzia californica
		Amsinkia menziesii
		Erodium cicutarium

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Luis Connolly Date: 4/15/10

Project: Campo Wind Energy Project Map #: 16 - I and H Survey Sxn: 2

GPS Unit : 2 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	61°	8/11	0	(clear)	patchy	overcast	drizzle	shower
	1015	66°	11/14	0	(clear)	patchy	overcast	drizzle	shower
	1125	68°	7/11	0	(clear)	patchy	overcast	drizzle	shower
	1410	72°	4/7	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

Butterfly Species	Tally	Total
Acmon Blue	II	2
Behr's Metalmark	~~HHT~~ ~~HHT~~ ~~HHT~~ ~~HHT~~ ~~HHT~~ ~~HHT~~	65
White ?	I	1
Marble	~~HHT~~	5
Sara's Orangetip	~~HHT~~ I	6
Blue ?	III	3
Dusky wings	~~HHT~~ I	6

Between 9-10 no butterflies were observed even though the weather conditions were adequate.

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Lasthenia
		Erodium
		Manzanita
		Eschscholzia
		Descurainia
		Cryptantha
		Caenothus
		Lupinus
		Penstemon
		Phacelia
		Arabis
		Salvia columbaria
		Dichloetemma
		Viola
		Amsinckia
		Mimulus
		Nemophilia
DPHL01	Point	San Diego Horned Lizard
DPCS01	Point	Caulanthus ~~[illegible]~~ simulans
DPEP01	Excluded Polygon	Closed Canopy Chaparral
DPEP02	"	"
~~DPEP03~~	~~"~~	~~"~~
DPIN01	Include Polygon	Resurveyed rough terrain
DPIN02	"	
DPIN03	"	
↑		
include		

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K. Faulkner Add'l Person: R. Connelly Date: 15 APRIL 2010

Project: Campo Wind Energy Project Map #: 27 Survey Sxn: CAMPO - R

GPS Unit : 3 QCB Protocol Survey # 2 ? of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky
START	0900	64	6	Ø	(clear) patchy overcast drizzle shower
	1000	67	3	Ø	(clear) patchy overcast drizzle shower
	1100	64	9	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)

Butterfly Species	Tally	Total
Vanessa cardui		1
V. virginiensis		1
Erynnis species		5
Euchloe h. lotta		2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
27		Goldfields
		Sugar bush
		Cryptantha
		Ceanothus

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: Ø Date: 15 APRIL, 2010

Project: Campo Wind Energy Project Map #: TILE 14 Survey Sxn: CAMPO-K

GPS Unit : GARMIN GO QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	67	1->5 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1000	68	1->8 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1100	71	Ø->7 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1200	71	Ø->8 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1300	70	2->0 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1400	71	Ø->3 MPH	50% COVER	clear	(patchy)	overcast	drizzle	shower
~~END~~	1500	70	1->4 MPH	90% COVER	clear	patchy	(overcast)	drizzle	shower

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

END 1530 HRS, 72°F, WIND = 1->4 MPH, 100% COVER

Butterfly Species	Tally	Total
PERPLEXING HAIRSTREAK	TALLY IN FIELD NOTEBOOK	41
PAINTED LADY	"	1
BEHR'S METALMARK	"	158
FUNEREAL DUSKYWING	"	20
ACMON BLUE	"	9
SOUTHERN BLUE	"	11
DESERT ORANGETIP	"	1
CALIFORNIA MARBLE	"	33
CALIFORNIA TORTOISESHELL	"	1
SPRING WHITE	"	5
PALE TIGER SWALLOWTAIL	"	5

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCJEWELFLOWER 01	POINT	SMALL BUT DENSE POPULATION

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: ~~0~~ Date: 16 APRIL, 2010

Project: Campo Wind Energy Project Map #: TILE 5 Survey Sxn: CAMPO - A + C

GPS Unit : GARMIN 7 QCB Protocol Survey # 2 of 5 .

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	67	0->3	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1000	60	2->5	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1100	70	0->3	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1200	73	0->3 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1300	74	1->4 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1400	76	0->3	CLEAR	(clear)	patchy	overcast	drizzle	shower
END	1500	73	2->5	CLEAR	(clear)	patchy	overcast	drizzle	shower

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

1530, 0->3 MPH, CLEAR, 73°F.

Butterfly Species	Tally	Total
BEHR'S METALMARK	IN FIELD NOTEBOOK	120
PERPLEXING HAIRSTREAK	"	25
PAINTED LADY	"	2
BROWN ELFIN	"	8
CALIFORNIA MARBLE	"	19
SPRING AZURE	"	2
GABB'S CHECKERSPOT	"	1
ARROWHEAD BLUE	"	33
ACMON BLUE	"	35
FUNEREAL DUSKYWING	"	10
ALFALFA BUTTERFLY	"	2
GREAT PURPLE HAIRSTREAK	"	1
SPRING WHITE	"	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCHL05	POINT	ADULT HORNED LIZARD
MCHL06	POINT	JUVENILE HORNED LIZARDS
MCSH01	POINT	MATING SPADEFOOT TOADS

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Eugene Pablo Date: 4/16/10

Project: ~~Manzanita~~ Campo Wind Energy Project Map #: 16 Survey Sxn: Campo 6

GPS Unit : 1 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1510	75	4/7	0	clear	patchy	overcast	drizzle	shower
	1700	70	3/6	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

Butterfly Species	Tally	Total
White?	I	1
Behr's Metalmark	IIII II	7
Blue?	II	2
Dusky wing	IIII III	8
Southern Blue	I	1
Painted Lady	I	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
DPHL 01	POINT	San Diego Horned Lizard
		Manzanita
		Lasthenia
		Eriodictyon
		Layia
		Lupinus
		Cryptantha
		Ceanothus
		Amsinckia
		Mimulus
		Eschscholzia
		Phacelia
		Arabis
		Dudleya
		Hirschfeldia
		Nemophila
		Plagiobothrys
DPTP01	Polygon	Open area along ~~[illegible]~~ arroyo
DPEP01	"	Closed Canopy Chaparral

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Eugene Pablo, Raymond Connolly, Bonnie Hendricks Date: 4/16/10

Project: Manzanita Wind Energy Project Map #: 24 R Campo Survey Sxn: Camp R

GPS Unit : 1 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	9:45	60°	2/4	0	(clear)	patchy	overcast	drizzle	shower
	10:55	[illegible]	5/8	0	(clear)	patchy	overcast	drizzle	shower
	12:00	78°	10/13	3	(clear)	patchy	overcast	drizzle	shower
	14:00	72°	5/8	3	(clear)	patchy	overcast	drizzle	shower
	15:45	72°	3/5	0	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Dehe Metalmark	𝍸 𝍸 𝍸 𝍸 ||	22
Mardo	𝍸 𝍸 |||	14
Pale Swallowtail	|||	3
Checkerspot	𝍸 𝍸 𝍸 𝍸 𝍸	25
Sara Orangetip	𝍸 𝍸 ||||	14
Acmon Blue	𝍸 ||	7
Blue?	𝍸 |||	8
Gabbs	𝍸 ||	7
White?	𝍸 |	6
Dusky wing	𝍸 𝍸	10
Perplexing Hairstreak	|	1
Southern Blue	|||	3
Painted Lady	||	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Mazanita
		Lasthenia
		Layia
		Erodium
		Lupinus
		Cryptantha
		Ceanothus
		Amsinckia
		Mimulus
		Eschscholzia
		Phacelia
		Arabis
		Descurainia
		Nemophila
		Plagiobothrys
	Excluded	
DPEP01	Polygon	Closed Canopy Chaparral
DPEP02	"	"
DPEP03	"	"
DPEP04	"	"
DPIP01	Included Polygon	Open Chaparral
DPIP02	"	"

TOTAL NUMBER OF QCB DETECTED: _____ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Bonnie Hendrickson Add'l Person: Raymond escost Date: 4/16/10

Project: Campo Wind Energy Project Map #: 24 & 19 Survey Sxn: Campo R

GPS Unit: Garmin 3 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	9:15	59.5°	2.2/4.4	0	clear	patchy	overcast	drizzle	shower
	10:20	71.5°	1.7/4.3	0	clear	patchy	overcast	drizzle	shower
	11:50	72.0°	1.2/2.5	0	clear	patchy	overcast	drizzle	shower
	12:30	73.0°	2.0/3.0	0	clear	patchy	overcast	drizzle	shower
	1:45	73.5°	6.2/10.3	0	clear	patchy	overcast	drizzle	shower
	3:15	73.7°	1.4/4.2	0	clear	patchy	overcast	drizzle	shower
END	5:00	67.2°	2.3/5.8	0	clear	patchy	overcast	drizzle	shower

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

END 5:45 66.3° 4.5/6.7 0 clear

Butterfly Species	Tally	Total
Dusky wing (small black w/ white dots on fore wing dorsal)	I	1
Duskywing (Erynnis funeralis or tristis)	III	3
Chalcedon Checkerspot	IIII II	7
Quino!	I	1
Gabb's Checkerspot	IIII IIII II	12
Acmon Blue	IIII I	6
Marbled White	IIII III	8
Southern Blue	II	2
Pygmy Blue	I	1
Sara's Orangetip	IIII IIII II	12
Serpentine Hairstreak	III	3
Behr's Metalmark	IIII IIII IIII IIII IIII II	27
Lady sp.	III	3
Duskywing sp.	II	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Bonnie Hendricks 4-16-10

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
BHEP01	Excluded Polygon	Closed Canopy Chaparral
BHIP01	Included Polygon	Open Chaparral
BHQB01	Quino!	Seen nectaring on Layia glandulosa
	10:10	1 photo from far away
	fresh	flew on other side of
	0557013	shrubs Mixed Chaparral
	3610034	lots of nectar, open soils
		within Chaparral
		+ Adfa, + Cerbo, Erfa
BHAR01	host plant	1 plant in bloom
	Nearby	Antirrhinum sp.
		photo
BHAR02-4	host plant	Antirrhinum 4 plant
BHNL01	Mammal	Desert Woodrat Nest
		built in cactus + surrounding nest.
		Nectaring plants:
		Layia glandulosa
		Lasthenia sp.
		Escholtzia sp.
		Cryptantha sp.
		Ceanothus spp.
		Amsinckia sp.

TOTAL NUMBER OF QCB DETECTED: 1 INDIVIDUALS

Over

557209
3610368

3610268
557059

The photo was taken at a distance, but the Quino is visible. You can find it near the center of the photo nectaring on white tidy tips (Layia glandulosa). The butterfly is completely covering the flower in the photo, but you can see another tidy tips just above and to the left. The Quino was fresh with bright color and no nicks or tears in the wings. The habitat was mixed chaparral dominated by chamise (Adenostemma fasciculata), mountain mahogony (Cercocarpus betuloides), and buckwheat (Eriogonum fasiculatum) with openings of bare soil and nectaring plants. One climbing snapdragon (Antirrhinum kellogii) plant in bloom was found nearby, see second photo attached.

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 4.17.10

Project: Campo Wind Energy Project Map #: 11-C & 12-C Survey Sxn: _____

GPS Unit : 2 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	67°	0-3	80% Thin	clear	patchy	overcast	drizzle	shower
	1000	70°	0-4	100%	clear	patchy	overcast	drizzle	shower
	1245	79°	1-5	100%	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

saw a perplexing night array

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

Butterfly Species	Tally	Total
Perplexing Hairstreak	𝍸 II	7
Dusky wing	𝍸 II	7
Pearly Marble	𝍸 𝍸 𝍸 𝍸 II	22
Pale Swallowtail	IIII	4
Behr's Metalmark	𝍸 I	6
Sara's Orangetip	III	3
Acmon Blue	II	2
Checkered White	I	1
Sulphur sp.	I	1
Lady sp.	I	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MMGV01	Sensitive plant pt	Geraea viscida - 3 vegetative plants
~~AREA~~	Nectar Source	Ericameria linearifolia
		Erodium cicutarium
		Lasthenia gracilis
		Cryptantha micrantha
		Ceanothus greggii perplexans & C. leucodermis
		Marah macrocarpus macrocarpus
		Trichostema parishii
		Pectocarya linearis
		Amsinckia menziesii
		Cercocarpus betuloides
		Penstemon spectabilis
		Lupinus concinnus

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Mike Coffee Add'l Person: Ø Date: 17 April, 2010

Project: Campo ~~Manzanita~~ Wind Energy Project Map #: Tile 1 Survey Sxn: Campo - A

GPS Unit : Garmin 3 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	67	Ø -> 4 MPH	100	clear	patchy	overcast	drizzle	shower
	1000	67	Ø -> 2	100	clear	patchy	overcast	drizzle	shower
	1100	70	Ø -> 3	100	clear	patchy	overcast	drizzle	shower
	1200	73	Ø -> 4	100	clear	patchy	overcast	drizzle	shower
	1300	75	Ø -> 5	100	clear	patchy	overcast	drizzle	shower
	1320	75	Ø -> 5	100	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

Butterfly Species	Tally	Total
Behr's Metalmark	Tally in Field Notebook	85
California Marble	"	15
Perplexing Hairstreak	"	8
Acmon Blue	"	8
Funereal Duskywing	"	14
Arrowhead Blue	"	2
Spring White	"	3
Pale Tiger Swallowtail	"	1
Brown Elfin	"	3
Desert Orangetip	"	4
Juba Skipper	"	1
Sara Orangetip	"	7

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MC MORTARHOLE 1	POINT	SEVERAL MORTAR HOLES IN A ROCK
		(NAD 27 CON US) 11S 0560298, 3620234
MCHLO 7	POINT	ADULT HORNED LIZARD

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: — Date: 4/17/10

Project: Campo Manzanita Wind Energy Project Map #: 2 Survey Sxn: Campo D

GPS Unit : 1 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	66°	9/11	90	clear	patchy	overcast	drizzle	shower
	1010	72°	6/8	80% clearing	clear	patchy	overcast	drizzle	shower
	1110	72°	7/9	50%	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

Butterfly Species	Tally	Total
Dusky-wing	II	2
Blue?	I	1
Sara's Orangetip	III	3
White?	HH I	6
Behr's Metalmark	I	1

* Can see hazy shadows

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Erodium
		Ceanothus
		Cryptantha
		Amsinckia
		Descurainia
		Nemophila/ki
		Phacelia
		Manzanita
		Plagiobothrys
DPCS001	POINT	Ceanothus sanctus all along row
DPCS002	"	"
DPHL001	"	San Diego Horned Lizard

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: – Date: 4/17/10

Project: ~~Manzanita~~ Campo Wind Energy Project Map #: 7 Survey Sxn: Campo D

GPS Unit : 1 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	11:25	72°	7/9	50%	clear	patchy	overcast (Slight haze)	drizzle	shower
	13:00	70°	6/9	50%	clear	patchy	overcast (Slight Haze)	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

Butterfly Species	Tally	Total
Painted Lady	II	2
Juskywing	IIII	4
Blue?	III	3
Pale Swallowtail	I	1
Behr's Metalmark	~~IIII~~ IIII	9
Sara's Orange Tip	~~IIII~~ ~~IIII~~ ~~IIII~~ IIII	19
White?	~~IIII~~ ~~IIII~~ III	13
Marble	~~IIII~~ ~~IIII~~ IIII	14

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Erodium
		Ceanothus
		Cryptantha
		Descurainia
		Nemophilia
		Phacelia
		Monzanita
		Amsinckia
		Plagiobothrys

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 4-17-10

Project: Campo Wind Energy Project Map #: 11-H Survey Sxn: _____

GPS Unit : 2 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1300	79°	2-8	100	clear	patchy	(overcast)	drizzle	shower
	1600	80°	2-4	100	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

Butterfly Species	Tally	Total
Pearly Marble	~~HH~~ ~~HH~~ | |	12
Behr's Metalmark	~~HH~~ ~~HH~~ ~~HH~~ ~~HH~~ ~~HH~~ ~~HH~~ ~~HH~~ | | |	38
Funereal Duskywing	| |	2
Checkered White	|	1
Sulphur sp.	|	1
Painted Lady	|	1
Acmon Blue	~~HH~~ ~~HH~~ ~~HH~~ ~~HH~~ | |	22
Sara's Orange Tip	| | |	3

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
☆	Nectar Sources:	Cercocarpus betuloides
		Amsinkia menziesii
		Lianthus bellus
		Lupinus concinnus
		L. bicolor
		Caulanthus simulans
		Cryptantha micrantha
		Plagiobothrys sp.
		Lasthenia gracilis
		Senecio californica
		Anisocoma acaulis
		Lotus strigosus
		Phacelia distans
		Salvia columbariae
		Nemophila menziesii
		Layia glandulosa & platyglossa
		Ceanothus leucodermis & greggii perplexans
		Ericameria linearifolia
MMLB01-04	Sensitive plant pts	Linanthus bellus ≈1000 plants scattered throughout polygon
MMLB05	Sensitive plant pt	Linanthus bellus ≈30 plants
MMHL01	Sensitive lizard pt	Horn lizard - 1
MMHL02	"	"
MMCS01	Sensitive plant pt	Caulanthus simulans - 1 plant
MMAD01	☆ "	Astragalus douglasii var. perstrictus ≈35 plants vegetative
MMDS01	"	Delphinium parishii ssp. subglobosum 50 double check 4 sm budding plants

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: K H Osborne Add'l Person: Georgiana Date: 4/8/2010

Project: Campo Wind Energy Project Map #: B(4) / B(8) Survey Sxn: _____

GPS Unit : #5 QCB Protocol Survey # B-4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START →	9AM	59	2.5/5	0	clear	patchy	overcast	drizzle	shower
	1120	69	1.7/2.8	0	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
	1240	72	calm	0	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	425	74	calm	0	clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Euchloe hyantis	XXXX

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Abundant Cordylanthus on
		map 13-F on edge of
		oak woodlands & Chaparral
		marked on map.
		2 ♂ Quino hill topping
		off-site on walk
		back as indicated

TOTAL NUMBER OF QCB DETECTED: ___Ø___ INDIVIDUALS

2 maps on one data sheet

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: K H Osborne Add'l Person: Georgana Date: 4/15/2010

Project: ~~Manzanita~~ Campo Wind Energy Project Map #: 8 Survey Sxn: 8

GPS Unit : 9 QCB Protocol Survey # _____ of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START					clear	patchy	overcast	drizzle	shower
8B 900		63	2-4		clear	patchy	overcast	drizzle	shower
1030	1130	66	3.9/2-6		clear	patchy	overcast	drizzle	shower
13F 1135					clear	patchy	overcast	drizzle	shower
200		72	2.4/0-6	haze 10%	clear	patchy	overcast	drizzle	shower
400		73	calm	haze 10%	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

Butterfly Species	Tally	Total
P. acmon IIII		5
E. tristis II		2
B. propertius IIII		4
Euchloe hayantis IIII		4
A. mormo IIIXX		24
C. echo III		3
C. perplexa II		2
Papilio polyxenes I (Blackswallow)		1
A. sara IIII		4
* N latitude W. longitude		
E editha ♂ 3:48 pm 32° 41.494 116° 19.728 hill top off project		
♂ #2 357 pm 32 41.487 116 19.752 on walk back		
Photographs of ♂♂ and habitat		
		4
V. atalanta I		1
V. carduii IIII		4
V. annabella I		1
Philosura Catalina I		1

2a

14, 13
Home 10
8/4

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Antonette Gutierrez Add'l Person: Phillip Paipa Date: 4/18/10

Project: ~~Manzanita~~ Campo Wind Energy Project Map #: 8, 3, 4 Survey Sxn: Campo B

GPS Unit : 1 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	76	0	80	clear	patchy	overcast	drizzle	shower
	1000	78	0	40	clear	patchy	overcast	drizzle	shower
	1100	82	0	40	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1600	84	2mph	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

Butterfly Species	Tally	Total
Common butterfly	卌 |||	8
Behr's Metalmark	卌 卌 卌 卌 卌 卌 卌 卌 |||	48
Acmon Blue	卌 ||||	9
Dusky wing	卌 卌 |	11
Perplexing hairstreak	||	2
Sara's Orangetip	卌 |	6
Ca tortoise shell	|	1
Pale Swallowtail	|	1
Tiger Swallowtail	|	1
Southerblue	||	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
AGCH1	Chinese House	x 8 plants
		Erodium cicutarium
		Eucrypta chrysanthemifolia
		Coreopsis californiica
		Malacothrix californica
		Malacothrix clevelandii
		Plagiobothrys collinus
		Phacelia
		Nemophila menziesii
		Eriognum fasiculatum fasiculatum

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Louis Connolly Date: 4/18/10

Project: ~~Manzanita~~ Campo Wind Energy Project Map #: 26 Survey Sxn: Campo Q

GPS Unit : 3 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	8:30	66°	0/0	0	Cirrus clear	patchy	overcast	drizzle	shower
	10:00	77°	0/0	0	clear	patchy	overcast	drizzle	shower
	11:30	80°	2/4	0	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Pipeline Hairstreak	II	2
Bell's Metalmark ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~	~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~	70
Marbla	~~IIII~~ ~~IIII~~ II	12
White?	IIII	4
Funeral Duskwing	III	3
Duskywing ?	~~IIII~~ ~~IIII~~	10
Sara's Orangetip	~~IIII~~ ~~IIII~~ III	13
Orange?	I	1
Yellow?	I	1
Blue ?	IIII	4
Southern Blue	I	1
Acmon Blue	I	1
Pale Swallowtail	I	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Lasthenia
		Castilleja sp (Indian Paintbrush)
		Eriodictyon
		Cryptantha
		Camissonia
		Nemophila
		Arabis
		Dichelostemma
		Lathyrus
		Wall Flower (Erysimum)
		Penstemon
OP BJ01	Point	Black tailed Jack Rabbit

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Louis Connelly Date: 4/18/10

Project: ~~Manzanita~~ Campo Wind Energy Project Map #: 3 Survey Sxn: Campo 9

GPS Unit : 3 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	11:45	80°	3/6	0	(clear)	patchy	overcast	drizzle	shower
	1330	78	4/7	0	(clear)	patchy	overcast	drizzle	shower
	1430	74°	4/7	0	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Behr's Metalmark	𝍸 𝍸 𝍸

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		DeSeavinia
		Lupinus
		Castilleja sp (Indian Paintbrush)
		Erodium
		Cryptantha
		Amsinkia
		Arabis
		Dichlostemma
		Lathyrus
		Penstemon
		Wall Flower (Erysimum?)
DPHLO1	POINT	San Diego Horned Lizard

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Mike Coulter Add'l Person: Ø Date: 18 April, 2010

Project: Campo Wind Energy Project Map #: Tile 20 Survey Sxn: Campo "P"

GPS Unit: Garmin 5 QCB Protocol Survey # 2 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0844	70	Ø	CLEAR	(clear)	patchy	overcast	drizzle	shower
	0900	71	Ø	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1000	75	Ø	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1100	77	Ø→2 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1200	78	Ø→3 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1300	82	Ø→3 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
END	1400	80	Ø→4 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
1500 HRS, 76°F, 1→6 MPH, CLEAR		
1600 HRS, 75°F, 3→7 MPH, 40% COVER		
SOUTHERN BLUE	IN FIELD NOTEBOOK	5
ACMON BLUE	"	9
PAINTED LADY	"	3
BEHR'S METALMARK	"	450
CALIFORNIA MARBLE	"	45
ACMON BLUE WITHOUT ANY ORANGE ON WINGS	"	1
SARA ORANGETIP	"	5
PERPLEXING HAIRSTREAK	"	17
FUNEREAL DUSKY WING	"	48
CHALCEDON CHECKERSPOT	"	2
PALE TIGER SWALLOWTAIL	"	1
BROWN ELFIN	"	3
SPRING AZURE	"	6
GABB'S CHECKERSPOT	"	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCMORTARHOLES R	POINT	3 MORTAR HOLES IN A LONG ROCK
MC WW01	POINT	
MCHL08	POINT	TWO JUVENILE HORNED LIZARDS WITHIN 2 FT OF EACH OTHER.

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Philip Paipa Date: 4/19/10

Project: ~~Manzanita~~ Wind Energy Project Map #: 25 Survey Sxn: Campo R

GPS Unit : 13 QCB Protocol Survey # 3 of ~~4~~ 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1550	76°	3/6	0	(clear)	patchy	overcast	drizzle	shower
	16:35	72°	6/9	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

Butterfly Species	Tally	Total
Southern Blue	111	3
Sara's	11	2
Marble	11	2
Behr's Metalmark	1111 1	6
White ?	111	3

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Lasthenia
		Layia
		Cryptantha
		Monzanita
		Lathyrus
		Plagiobothrys

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K. Faulkner Add'l Person: Eugene Pablo Date: 19 APRIL 2010

Project: Campo Wind Energy Project Map #: 12 Survey Sxn: CAMPO - E.

GPS Unit : #7 QCB Protocol Survey # 3 of 5.

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1500	71°	4	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
					clear	patchy	overcast	drizzle	shower
END	1630	69°	7-8	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

Butterfly Species	Tally	Total
Acmon blue		7
A. Virgulti		4
Euchloe L. Zotta		2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
12	(only Point)	goldfields
		cryptantha
		Composites.

TOTAL NUMBER OF QCB DETECTED: ___0___ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: ERIK LaCoste Add'l Person: _____ Date: 4/19/10

Project: Campo Wind Energy Project Map #: 10 Survey Sxn: I

GPS Unit : 10 QCB Protocol Survey # _____ of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1040	64	2M/4max	30	clear	(patchy)	overcast	drizzle	shower
	1215	62	5A/10m	5	(clear)	patchy	overcast	drizzle	shower
	~~1215~~	76	5A/10m	~~0~~	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	330	70	5A/10m	~~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

Butterfly Species	Tally	Total
Southern Blue	II	2
Sara Orangetip	III	3
Behrs metalmark	200+	200+
Spring White	IIII	4
Painted lady	II	2
Pale swallowtail	III	3
Funereal Duskywing	~~HH~~	5
Afranius Duskywing	II	2
California marble	II	2
Acmon Blue	III	4

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
ELCOLHET01	Point	Collinsia Heterophylla – 100–200
ELCOLHET02	Point	Collinsia Heterophylla - 50–100 but there
		are thousands in the same Drainage
		Further east.
		Erodium sp
		Cal Poppy
		Cream cups
		Plagiobothrys
		Lupine sp.
		Gilia capitatum
		Chia
		Dichelostemma capatatum
		Senecio Cal.
		Mimulus Fremontii
		Antirrhinum orcutti
		Lasthenia Cal.

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Natalie Brodie/Evin Bergman Add'l Person: Mike Carriger Date: 19 Apr 2010

Project: Campo Wind Energy Project Map #: 16 Survey Sxn: _____

GPS Unit : #5 QCB Protocol Survey # 3 of 5 .

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1045	65°	4 / 7 mph	40 %	clear	patchy	overcast	drizzle	shower
	1145	72°	4 / 8 mph	10 %	clear	patchy	overcast	drizzle	shower
	1330	74°	2/5	0	clear	patchy	overcast	drizzle	shower
	1445	75°	2/5	0	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1540	73°	3/6	0	clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Behr's metalmark	𝍸 𝍸 𝍸 𝍸 | | |	23
unidentified white	|	1
unidentified blue	|	1
CA marble	𝍸 𝍸 𝍸 ||||	19
Southern blue	||||	4
Perplexing hairstreak	𝍸 |	6
Funereal Duskywing	𝍸	5
Pale swallowtail	|	1
Acmon blue	𝍸 𝍸 ||	12
Painted lady	|	1

Page 1 of 2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Fiddleneck, Goldfields, popcorn flower
AS EB0102		Astragalus
EB01		Campo pea
EB01		Campo pea 2-6
BJEB01		Black tailed jackrabbit
EBHL01		Horned lizard
EBHL02		Horned lizard (big one!)
		Antirrhinum
EB01		Campo pea 11
AS EB0103		Astragalus 3
AS EB0104		Astragalus 4
EB0105		Astragalus 5
EB0106		Astragalus 6
EB0107		Astragalus 7
EB0108		Astragalus 8
EB0109		Astragalus 9

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Natalie Bradic/Erin Bergman Add'l Person: Mike Carriger Date: 19 Apr 2010

Project: Campo Wind Energy Project Map #: 19 Survey Sxn: Campo - M

GPS Unit : #5 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1200	73°	3/6	Ø	(clear)	patchy	overcast	drizzle	shower
	1300	72°	3/10	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	1330	74°	2/5	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

Butterfly Species	Tally	Total
CA Marble	𝍸 𝍸 𝍸 ||	17
Sara orangetip	||||	4
Funereal Duskywing	𝍸 |	6
Southern blue	|	1
Acmon blue	𝍸 𝍸 𝍸 𝍸 ||||	24
Behrs Metalmark	𝍸 𝍸 𝍸 ||	17
Purplerim Hairstreak	𝍸 𝍸 ||	12
Unidentified sulfur	||	2
Gulf fritillary (?)	|	1
		84

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		goldfields, popcorn flower, fiddleneck
EB01		Campo pea 7
EB0102		Campo pea 5
EB0103		Campo pea 9
EB0104		Campo pea 10

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Philip Paiva Date: 4/14/10

Project: Campo Wind Energy Project Map #: 23 Survey Sxn: Campo 9

GPS Unit : 13 QCB Protocol Survey # 3 of ~~6~~ 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	10:45	69°	2/4	20	~~clear~~	patchy	overcast	drizzle	shower
	12:15	75°	6/8	0	~~clear~~	patchy	overcast	drizzle	shower
	13:30	79°	5/7	0	~~clear~~	patchy	overcast	drizzle	shower
	15:00	81°	6/9	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~~

Butterfly Species	Tally	Total
Behrs Metal Mark	𝍸 𝍸 𝍸

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Lasthenia
		Layia
		Ceanothus
		Phacelia (2)
		Eschscholzia
		Malacothrix
		Plagiobothrys
		Cryptantha
		Nemophila
		Encelia

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: NONE Date: 19 APRIL 2010

Project: Campo Wind Energy Project Map #: TILE 30 Survey Sxn: CAMPO - P (NORTH)

GPS Unit : GARMIN 2 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1100	69	0->6 MPH	45%	clear	(patchy)	overcast	drizzle	shower
	1200	70	1->6	5%	(clear)	patchy	overcast	drizzle	shower
	1300	75	0->5	5%	(clear)	patchy	overcast	drizzle	shower
	1400	75	0->4	5%	(clear)	patchy	overcast	drizzle	shower
	1500	76	0->5	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1600	75	2->6	CLEAR	(clear)	patchy	overcast	drizzle	shower
END	1630	75	0->3	CLEAR	(clear)	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
BEHR'S METALMARK	TALLY IN FIELD NOTEBOOK	195
CALIFORNIA MARBLE	"	17
FUNEREAL DUSKYWING	"	25
PERPLEXING HAIRSTREAK	"	2
PAINTED LADY	"	1
CALIFORNIA DOGFACE (FEMALE)	"	1
QUINO CHECKERSPOT BUTTERFLY	"	2
SPRING WHITE	"	2
SOUTHERN BLUE	"	1
DESERT ORANGETIP	"	1
SARA ORANGETIP	"	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCHL10	POINT	
MCQB05	POINT	CHASING MCQB06. PHOTOS TAKEN
MCQB06	POINT	

TOTAL NUMBER OF QCB DETECTED: 2 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K. Faulkner Add'l Person: Eugene Pablo Date: 19 April 2010

Project: Campo Wind Energy Project Map #: 15 & 16 Survey Sxn: CAMPO-L

GPS Unit : #7 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1000	70°	4	50	(clear)	patchy	overcast	drizzle	shower
	1130	71°	6	30	(clear)	(patchy)	overcast	drizzle	shower
	1200	73°	5	ø	(clear)	patchy	overcast	drizzle	shower
	1330	76°	3	ø	(clear)	patchy	overcast	drizzle	shower
	1400	76	4	ø	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1500				clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Acmon blue		4
C. Augustina		1
E. fumenalis		4
E. species		5
C. perplexa		6
Euchloe h. Zotta		11
A. Sara		4
A. Virgulti		15+
Philosora sp.		2
[Hyles lineata]		1
Colias harfordii		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
15 & 16		Cryptantha
		Blue dicks
		baby blue eyes
		Arabis sp.
		Goldfields
		Ceanothus.

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: NONE Date: 20 APRIL, 2010

Project: Campo Wind Energy Project Map #: MAP TILE 18 Survey Sxn: CAMPO - N

GPS Unit : GARMIN Z QCB Protocol Survey # Z of 5 .

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0945	65	1->5 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1000	64	2->6MPH	0%	(clear)	patchy	overcast	drizzle	shower
	1100	68	2->8 MPH	5%	(clear)	patchy	overcast	drizzle	shower
	1200	68	2->5 MPH	5%	(clear)	patchy	overcast	drizzle	shower
	1300	70	0->4 MPH	5%	(clear)	patchy	overcast	drizzle	shower
	1400	72	0->4 MPH	10%	clear	(patchy)	overcast	drizzle	shower
END	1445	70	2->8 MPH	50%	clear	(patchy)	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
BEHR'S METALMARK	TALLY IN FIELD NOTEBOOK	165
CALIFORNIA MARBLE	"	4
PERPLEXING HAIRSTREAK	"	3
ACMON BLUE	"	7
SOUTHERN BLUE	"	6
HENNE'S CHECKERSPOT	"	1
FUNEREAL DUSKYWING	"	23
SARA ORANGETIP	"	1
WESTERN TAILED BLUE	"	1
PAINTED LADY	"	1
WEST COAST LADY	"	1
DESERT ORANGETIP	"	1
SPRING AZURE	"	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCWW02	POINT	ADULT WHIPTAIL
MCWW03	POINT	ADULT WHIPTAIL

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K. Faulkner Add'l Person: Eugene Pavlo Date: 20 April 2010

Project: Campo Wind Energy Project Map #: 11 & 12 Survey Sxn: Campo E.

GPS Unit : #7 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	59°	3	highclds	(clear)	patchy	overcast	drizzle	shower
	1000	67	1	"	(clear)	patchy	overcast	drizzle	shower
	1100	63	9	"	clear	(patchy)	overcast	drizzle	shower
	1200	64	7	"	clear	(patchy)	overcast	drizzle	shower
	1300	65	9	30	clear	(patchy)	overcast	drizzle	shower
	1400	63	10	50	clear	(patchy)	overcast	drizzle	shower
END	1500	62	9	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

Butterfly Species	Tally	Total
Erynnis species		7
A. Sara		2
P. Acmon		15+
A. virgulti		15+
V. cardui		1
C. perplexa		1
Philosora		1
[E. pheston]		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
11/12		Goldfields
		Amsonia
		Ceanothus
		Compositae
		Cryptantha
		Baby blue eyes
		[Collinsia - not in flower]

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: B. LOHSTROH Add'l Person: D. Faulkner / Eugene Date: 4/20/10
(Nearby) (Escort)

Project: Campo Wind Energy Project Map #: 5, 11, 12 Survey Sxn: C

GPS Unit : #10 QCB Protocol Survey # 3 (?) of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0945	65°F	2-6/12	40%	Hazy clear	patchy	overcast	drizzle	shower
	1045	65	4-10	40%	Hazy clear	patchy	overcast	drizzle	shower
	1200	67	4-8	20%	clear	patchy	overcast	drizzle	shower
	1300	69	6-9/12	40 %	clear	patchy	overcast	drizzle	shower
	1400	64	6-12	40 %	clear	patchy	overcast	drizzle	shower
	1440	67	6-12	50 %	clear	patchy	overcast	drizzle	shower
END	1545	62	8-15	50 %	clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
perplexing Hairstreak		16
Behris Metalmark		26
Funereal Duskywing		3
Gabbs checkerspot		1
Pearly Marble		2
Acmon blue		1
Harford's Sulphur		3
Brown elfin		2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Lego
		BUSH
		SPTO
		WCSP
		WTSW
		BCSP
		BEWR
		SCJa
		sideblotched Lizard, W. whiptail
		cottontail
		Nectar sources
		Anisocoma acaulis, Beechura, Cammissonia
		popcorn flower, erodium, CA poppy,
		Lasthenia californica, cercocarpus, bet,
		Lotus strigosus, Amsinckia, Filia, Phacelia sp,
		Nemophila, mustards, Menzelia sp, Ceanothus,
		Layia glandulosa
BLPJ01	Rare plant	Caulanthus simulans 1 individuals
BLCP01	"	Lathyrus splendens 1 individual
BLGV01	"	Gerea viscidia 7 individuals
BLGV02	"	" 9 individuals
BLJR01	Rare wildlife	Black tailed jackrabbit

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Margie Mulligan Add'l Person: Shirley Innecken Date: 4.20.2010

Project: Campo Wind Energy Project Map #: 3 Survey Sxn: _____

GPS Unit : 5 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1030	65	2-6	20	clear	(patchy)	overcast	drizzle	shower
	1200	65	4-8(14)	30	clear	(patchy)	overcast	drizzle	shower
	1400	64	8-13(15)	50	clear	(patchy)	overcast	drizzle	shower
	1600	66	4-10	50	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

Butterfly Species	Tally	Total
Acmon Blue	See Notebook	12
Behr's Metalmark		100+
Silvery Blue		2
Sara's orangetip		3
Funereal Duskwing		1
Sulphur (Cloudless?) ?		1
Pale Swallowtail		1
Pearly Marble		2
Duskywing		4
Painted Lady		3

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
	Nectar	Phacelia parryi & distans
	Source:	Gilia capitata
		Cercocarpus betuloides
		Layia glandulosa
		Ceanothus leucodermis
		Streptanthus campestris
		Eschscholzia californica
		Coreopsis californica
		Descurainia pinnata
		Collinsia h
		Lotus strigosus
		Ericameria linearifolia
		Caulanthus simulans
		Lupinus bicolor & concinnus & truncatus
S16E01	bird pt	OWL?
MMSC01	sensitive plant pt	S treptanthus campestris - 5 plants
MMSC02	"	"
MMSC03	"	"
MMSC04	"	" - 1 plants
MMDS01	"	Delphinium parishii ssp. subglobosum
MMCS01	"	Caulanthus simulans end pt for ridge
		common on ridge

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Louis Connolly Date: 4/20/10

Project: ~~Manzanita~~ Campo Wind Energy Project Map #: 24 Survey Sxn: Campo R

GPS Unit : 13 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1230	66°	7/10	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					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Funereal Duskywing	1	1
Sara's Orangetip	III	3
Blue?	11	2
White	11	2
Marble	1	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Salvia columbariae
		Monardella
		Erodium
		Plagiobothrys
		Cryptantha
		others

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Louis Connolly Date: 4/20/10

Project: ~~Manzanita~~ Campo Wind Energy Project Map #: 23 Survey Sxn: Campo Q

GPS Unit : 13 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	9:50	64°	4/6	0	(clear)	patchy	overcast	drizzle	shower
	10:45	66°	4/6	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)

Butterfly Species	Tally	Total
Perplexing Hairstreak	I	1
Marble ?	II	2
White ?	II	2
Lady ?	I	1
Behr's Metalmark	IIII	4
Blue ?	I	1
Emeral Duskywing	II	2
Duskywing ?	II	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Lasthenia
		Plagiobothrys
		Cryptantha
		eTHers
DPHL01	Point	San Diego Horned Lizard

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Louis Connolly Date: 4/20/10

Project: Campo Manzanita Wind Energy Project Map #: 25 Survey Sxn: Campo R

GPS Unit : 13 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	11:00	66	4/6	0	(clear)	patchy	overcast	drizzle	shower
	1320	66	7/10	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~~

Butterfly Species	Tally	Total
Funereal Duskywing	1111	4
Sara's Orangetip	1111 1111	9
Blue?	1111 111	8
White?	1111 11	7
Marble	1111 1	6
Pale Swallow Tail	1	1
Southern Blue	1	1
Painted Lady	1	1
Yellow?	1	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Cryptantha
		Plagiobothrys
		Nemophilia
		Lasthenia
		aThrus
DPTP02 or	Point	San Diego Horned Lizard
DPEP01	Exclude Polygon	Not enough area (My own polygon)

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Lorie Connelly Date: 4/20/10

Project: ~~Manzanita~~ Campo Wind Energy Project Map #: 27 Survey Sxn: Campo R

GPS Unit: 13 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1500	67°	8/11	10	clear	patchy	overcast	drizzle	shower
	1615	62°	9/14	10	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Painted Lady	1	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		LasThenia
		Erodium
		Cryptantha
		Plagiobothrys
		Manzanita
		others

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Mike Carriger Date: 4/23/10

Project: Campo Wind Energy Project Map #: 16 Survey Sxn: Campo G+H pasture

GPS Unit : 5 QCB Protocol Survey # 3 of 5.

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1250	58	7/10	10	clear	patchy	overcast	drizzle	shower
	1350	63	8/10	10	clear	patchy	overcast	drizzle	shower
	1505	65	7/10	15	clear	patchy	overcast	drizzle	shower
	1625	60	5/10	10	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

Butterfly Species	Tally	Total
Acmon Blue	1	1
Blue?	11	2
Pale Swallowtail	1111	4
Behris Metalmark	1	1
2	1	1
Chalcedon?	1	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Layia
		Plagiobothrys
		Cryptantha
		Lupinus
		Lasthenia
		Erodium.
		Eschscholzia
		Dichelostemma

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DAVID K. FAULKNER Add'l Person: Josh Pa:pa Date: 23 APR 2010

Project: Campo Wind Energy Project Map #: 21, 17 Survey Sxn: CAMPO - N

GPS Unit : #2 QCB Protocol Survey # 3 of 5 .

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1100	59	4	Ø	(clear)	patchy	overcast	drizzle	shower
	1200	60	6	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	1300	61	9	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

Butterfly Species	Tally	Total
Euchloe h. lotta		1
A. SARA		1
Erynnis sp.		2
Apodemia virgulti		

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
#21		Sugar Bush
		Cryptantha
		Amsinkia
		Gold fields
		Blue Dicks.

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K. Faulkner Add'l Person: Josh Paipa Date: 23 April 2010

Project: Campo Wind Energy Project Map #: 18 Survey Sxn: _____

GPS Unit : #2 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1300	61°	9	0	(clear)	patchy	overcast	drizzle	shower
	1400	62	5	10	clear	(patchy)	overcast	drizzle	shower
	1500	65	3	50	clear	(patchy)	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	(patchy)	overcast	drizzle	shower
END	1600	64	4	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

Butterfly Species	Tally	Total
P. Acmon		10+
A. Virginiensis		15+
Erynnis sp.		4
V. virginiensis		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
# 18		Cryptantha.
		Collensia (in flower)
		goldfields
		baby blue eyes
		Composites (white/yellow)
		Buttercups.
		Ceanothus

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: NONE Date: 23 APRIL, 2010

Project: Campo Wind Energy Project Map #: TILES 1 + 5 Survey Sxn: CAMPO A

GPS Unit : GARMIN 7 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1045	60	2 -> 7 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1100	61	2 -> 6	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1200	63	3 -> 7	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1300	59	3 -> 7	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1400	61	4 -> 9	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1415	59	4 -> 9 MPH	CLEAR	(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)

B Butterfly Species	Tally	Total
BEHR'S METALMARK	IN FIELD NOTEBOOK	2
ACMON BLUE	"	12
ARROWHEAD BLUE	"	37
PAINTED LADY	"	3
PERPLEXING HAIRSTREAK	"	1
CALIFORNIA MARBLE	"	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Bonnie Hendricks Add'l Person: Luis Connolly Date: 4/23/10

Project: Campo Wind Energy Project Map #: 13 Survey Sxn: Campo F

GPS Unit : Garmin 10 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	11:55	59.5°	4.3/8.2	0	clear	patchy	overcast	drizzle	shower
	1:30	62.1	4.3/12.1	0	clear	patchy	overcast	drizzle	shower
	2:15	65.3	2.6/4.9	0	clear	patchy	overcast	drizzle	shower
	3:10	61.5	8.0/15.1	10%	clear	patchy	overcast	drizzle	shower
END	4:15	57.2	4.2/8.1	1%	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

Butterfly Species	Tally	Total
Behrs Metalmark	~~IIII~~ III	8
Perslexing hairstreak	I	1
Marbled White	I	1
Painted Lady	I	1
Duskywing (E. funeralis or tristis)	II	2
Blue		

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Nectarine spp.
		Cryptantha spp.
		Lasthenia sp.
		Ercocarpus bet., Ceanothus cun.
		Layia, Eschaltzia, Amsinckia
BHAR03-15	host plant	Antirrhinum kellogii 15 plants in bloom

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Louis Connelly Date: 4/24/10

Project: Campo Wind Energy Project Map #: 16 Survey Sxn: Compo H+I

GPS Unit : 10 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	8:35	63°	0/0	0	(clear)	patchy	overcast	drizzle	shower
	9:45	68°	1/3	0	(clear)	patchy	overcast	drizzle	shower
	11:30	77°	3/6	0	(clear)	patchy	overcast	drizzle	shower
	13:15	77°	4/6	0	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Acmon Blue	𝍸 ||	7
Funeral Duskywing	𝍸 |	6
Blue?	𝍸 |||	9
Pale Swallowtail		
Behr's McTalmark	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 ||||	65
Yellow?	|	1
Mavida	𝍸 𝍸 ||	13
Sara's Orangetip	𝍸 𝍸	10
Duskywing	𝍸 ||	7

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Erodium
		Lasthenia
		Layia
		Lupinus
		Eschscholzia
		Descurinia
		Manzanita
		Phacelia (2 types)
		Salvia columbarian
		Plagiobothyros
		Cryptantha
		Caenothus
		Dichlostemma
		Amsinckia
		Arabis
DPCS01	Point	Cuvlanthus stimulans
DPHL01	Point	San Diego Horned Lizard
DP HL 02	"	"

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Louis Connolly Date: 4/24/10

Project: Campo Wind Energy Project Map #: 24 Survey Sxn: —

GPS Unit: 10 QCB Protocol Survey # 1 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1340	79°	3/5	0	clear	patchy	overcast	drizzle	shower
	1540	75°	4/6	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

Butterfly Species	Tally	Total
Chalcedona	卌	5
Sara's Orangetip	卌 卌 |||	13
Dusky wing	||||	4
White?	|||	3
Blue?	卌 ||	7
Perplexing Hairstreak	|	1
Funeral Duskywing	||	2
Acmon Blue	卌 卌 ||	12
Marble	||	2
Orange? (Gabbs or Quino - Tootor	卌	5
~~Behr's~~ away to ID)		
Behr's Metalmark	卌 |||	8

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Erodium
		Lasthenia
		Layia
		Lupinus
		Eschscholzia
		Descurainia
		Mancanita
		Phacelia
		Salvia columbariae
		Plagiobothrys
		Cryptantha
		Caenothus
		Dichlostemma
		Amsinckia
		Arabis
DP CH01	Point	Chinese Houses

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: Ø Date: 24 APRIL, 2010

Project: Campo Wind Energy Project Map #: TILE 12 Survey Sxn: CAMPO 5

GPS Unit : GARMIN 72 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky
START					clear patchy overcast drizzle shower
1518		73	2->6 MPH	CLEAR	(clear) patchy overcast drizzle shower
1600		73	1->5 MPH	CLEAR	(clear) patchy overcast drizzle shower
1623		73	1->3 MPH	CLEAR	(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

Butterfly Species	Tally	Total
CALIFORNIA MARBLE	TALLY IN FIELD NOTEBOOK	8
BEHR'S METALMARK	"	40
PAINTED LADY	"	3
SOUTHERN BLUE	"	2
PERPLEXING HAIRSTREAK	"	22
WEST COAST LADY	"	2
SPRING WHITE	"	2
PALE TIGER SWALLOWTAIL	"	3
BROWN ELFIN	"	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: Ø Date: 24 APRIL, 2010

Project: Campo Wind Energy Project Map #: TILE 11 Survey Sxn: CAMPO C

GPS Unit : GARMIN 72 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1240	70	2->9 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1300	77	Ø->4 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1320	82	Ø->3 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1400	77	Ø->2 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1500	73	1->9 MPH	CLEAR	(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

Butterfly Species	Tally	Total
CALIFORNIA MARBLE	TALLY IN FIELD NOTEBOOK	9
PALE TIGER SWALLOWTAIL	"	1
BEHR'S METALMARK	"	84
ORANGE SULPHUR	"	1
PERPLEXING HAIRSTREAK	"	60
FUNEREAL DUSKYWING	"	5
QUINO CHECKERSPOT BUTTERFLY	"	1
PAINTED LADY	"	4
BROWN ELFIN	"	1
SARA ORANGETIP	"	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCQB07	POINT	BADLY WORN INDIVIDUAL ON OLD ROAD.
		(NAD 83) 11S 0560710, 3617216
MCHL11	POINT	

TOTAL NUMBER OF QCB DETECTED: 1 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Mike Couffer Add'l Person: ø Date: 24 April, 2010

Project: Campo Wind Energy Project Map #: Tile 19 Survey Sxn: Camp O

GPS Unit : Garmin 72 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	66	ø	CLEAR	clear	patchy	overcast	drizzle	shower
	1000	70	ø	CLEAR	clear	patchy	overcast	drizzle	shower
	1100	73	ø→3MPH	CLEAR	clear	patchy	overcast	drizzle	shower
	1200	71	ø→3	CLEAR	clear	patchy	overcast	drizzle	shower
	1210	71	ø→3	CLEAR	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

Butterfly Species	Tally	Total
California Marble	Tally in Field Notebook	6
Acmon Blue	"	7
Perplexing Hairstreak	"	9
Arrowhead Blue	"	2
Behr's Metalmark	"	100
Southern Blue	"	3
Funereal Duskywing	"	4
Painted Lady	"	1
Common Sootywing (Pholisora catullus)	"	2
Spring White	"	2
Harford's Sulphur	"	1
Orange Sulphur (Alfalfa Butterfly)	"	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCBJ01	POINT	
MCLA07	POINT	
MCWW01	POINT	

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: Ø Date: 25 APRIL, 2010

Project: Campo Wind Energy Project Map #: MAP TILE 11 Survey Sxn: CAMPO 6

GPS Unit: GARMIN 1 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1150	80	Ø->4 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1200	80	Ø->4 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1300	85	Ø->1 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1400	78	Ø->4 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1500	75	3->7 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1515	75	3->7 MPH	CLEAR	(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)

Butterfly Species	Tally	Total
BEHR'S METALMARK	TALLY IN FIELD NOTEBOOK	105
CALIFORNIA MARBLE	"	8
PERPLEXING HAIRSTREAK	"	29
PAINTED LADY	"	7
FUNEREAL DUSKYWING	"	5
PALE TIGER SWALLOWTAIL	"	3
SOUTHERN BLUE	"	4
SARA ORANGETIP	"	5
ORANGE SULPHUR	"	1
SPRING WHITE	"	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCLA NESTING	POINT	HORNED LARK CHASING OFF OTHER BIRDS IN THE AREA.
MCLA OB	POINT	NEST ASSUMED TO BE IN THE VICINITY OF THIS POINT.
MCLAOX	POINT	

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE GOUFFER Add'l Person: Ø Date: 25APRIL, 2010

Project: Campo Wind Energy Project Map #: TILE 12 Survey Sxn: CAMPO G

GPS Unit : GARMIN 1 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0830	76	Ø	CLEAR	(clear)	patchy	overcast	drizzle	shower
	0900	74	Ø→1 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1000	77	Ø→1 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1100	78	Ø→3 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1130	79	Ø→2 MPH	CLEAR	(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

Butterfly Species	Tally	Total
CALIFORNIA MARBLE	IN FIELD NOTEBOOK	6
FUNEREAL DUSKYWING	"	5
SOUTHERN BLUE	"	2
PERPLEXING HAIRSTREAK	"	40
BEHR'S METALMARK	"	114
SPRING WHITE	"	12
PAINTED LADY	"	5
BROWN ELFIN	"	2
PALE TIGER SWALLOWTAIL	"	1
RED ADMIRAL	"	1
ACMON BLUE	"	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Louis Connolly Date: 4/25/10

Project: Campo Wind Energy Project Map #: 14 Survey Sxn: Comp K

GPS Unit : 10 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1215	79°	3/5	0	(clear)	patchy	overcast	drizzle	shower
	1410	77°	5/7	0	(clear)	patchy	overcast	drizzle	shower
	1615	77°	3/6	0	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Sara's Orange Tip	𝍸 𝍸 𝍸 ||	17
Pale Swallowtail	𝍸 𝍸 ||	12
Acmon Blue	𝍸 ||	7
Blue ?	𝍸 |	6
Marble	𝍸 𝍸 |	11
Behrs Metalmark 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	𝍸 𝍸 𝍸 𝍸 𝍸	25
White ?	𝍸 𝍸 ||	12
Perplexing Hairstreak	𝍸	5
Painted Lady	𝍸 |	6
Orange ?	|||	3
Checkerspot ?	|	1
Common Hairstreak	|	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Lotus scoparius
		Phacelia (2 Types)
		Eschscholzia
		Cryptantha
		Plagiobothyris
		Monzanita
		Ceanothus
		Dichlostemma
		Erodium
		Layia
		Penstemon
		Lupinus (3 types)
		Castilleja (Indian Paintbrush)
DPHL01	Point	San Diego Horned Lizard
DPCS01	Point	Coulterthus simulans
02	"	"
03	"	"

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Louis Connelly Date: 4/25/10

Project: Campo Wind Energy Project Map #: 13 Survey Sxn: Campo F

GPS Unit : 10 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	8:40	69°	0	0	clear	patchy	overcast	drizzle	shower
	10:10	74°	3/5	0	clear	patchy	overcast	drizzle	shower
	11:05	76°	4/5	0	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Painted Lady	𝍸	5
Marble	||	2
White?	𝍸 |	4
Blue?	𝍸 𝍸 |	6
Behr's Metalmark	𝍸 𝍸 𝍸 𝍸 |||	19
Yellow?	|	1
Funeral Duskywing	|	1
Sara's Orangetip	||	2

Page 1 of 2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Castilleja sp. (Indian Paint Brush)
		Plagiobothrys
		Lasthenia
		Cryptantha
		Eriodictyon
		Arabis
		Eschscholzia
		Amsinckia
		Ceanothus
		Manzanita
		Nemophila
		Lupine
		Phacelia
		Salvia columbariae
DPBS01	Point	Black-Tailed Jack Rabbit

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Natalie Brodie Add'l Person: Phillip Paipa Date: 26 April 2010

Project: Campo Wind Energy Project Map #: 19 Survey Sxn: Campo - N

GPS Unit : SM 13 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0930	~~70~~ 69	calm	0	(clear)	patchy	overcast	drizzle	shower
	1030	72°	calm	0	(clear)	patchy	overcast	drizzle	shower
	1130	76°	2/4	0	(clear)	patchy	overcast	drizzle	shower
	1235	75°	calm	0	(clear)	patchy	overcast	drizzle	shower
	1340	76°	calm	0	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1520	74°	calm	0	(clear)	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
CA Marble	𝍸 𝍸 𝍸 |||	18
Perplexing Hairstreak	𝍸 𝍸 ||||	17
Behrs Metalmark	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	55
Southern blue	|	1
Acmon blue	|||	4
Brown elfin	|	1
Anise swallowtail	||	2
Sara orangetip	𝍸 ||||	9
Painted lady	𝍸	5
Funereal Duskywing	||||	4
Unidentified sulfur	||	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		goldfields, popcorn flower, groundpink
NBHL01	point	Horned Lizard
NBHL02		Horned Lizard
NBCH01		Collinsia concolor, ~20 individuals 2x3 m area
NBCH02		Collinsia concolor, ~~100~~ individuals (100+)
NBCH03		Collinsia concolor, 100+ individuals 5x7m

TOTAL NUMBER OF QCB DETECTED: ___Ø___ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Fawell Add'l Person: Bo Willey Date: 4/26/10

Project: Campo Wind Energy Project Map #: 23 Survey Sxn: Campo 9

GPS Unit : 1 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	8:30	72°	0/0	0	(clear)	patchy	overcast	drizzle	shower
	10:25	78°	4/7	0	(clear)	patchy	overcast	drizzle	shower
	11:30	83°	2/4	0	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Sara's Orange Tip	𝍸 𝍸 𝍸 𝍸 𝍸 |||	28
Behr's Metalmark | 𝍸 𝍸 𝍸 𝍸 𝍸	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	56
Acmon Blue	||||	4
Blue?	𝍸 ||||	9
Marble	𝍸 |||	8
Painted Lady	||||	4
?	|	1
Perplexing Hairstreak	||	2
Duskywing	||||	4
Funereal Duskywing	|	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Eriodictyon
		Layia
		Lasthenia
		Lupinus
		Manzanita
		Penstemon
		Cryptantha
		Plagiobothrys
		Lotus
		Nemophila
		Dichelostemma
		Caenothus
		Phacelia
		Castilleja

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David Faulkner Add'l Person: Josh Date: 26 April 2010

Project: Campo Wind Energy Project Map #: 8 Survey Sxn: F (no D)

GPS Unit : 9 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1400	87°	2 mph	5	clear	(patchy)	overcast	drizzle	shower
	1500	80°	6	5	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	1600	75°	5	>5%	clear	(patchy)	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
(GPS died for the)		
A. Vinqueti		11
Euchloe hyatta		4
E. harfordii		1
A. Sara		1
E. brizo		1
V. Cardui		1
P. Atmon		6

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
8		Collensia
		cryptantha
		Coreopsis
		gold fields

TOTAL NUMBER OF QCB DETECTED: ___Ø___ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DAVID K. FAULKNER Add'l Person: Josh Date: 26 APRIL 2010

Project: Campo Wind Energy Project Map #: 15 Survey Sxn: CAMPO - K

GPS Unit : #9 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	75°	Ø	Ø	(clear)	patchy	overcast	drizzle	shower
	1000	77°	2 mph	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	1100	79°	4 mph		clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
V. Cardui		2
A. Sara		2
E. propertius		3
A. Virginiensis		4
So. blue		1
C. augustinus		2
*E. chalcedona (Checker sp.)		2
P. Acmon		7
C. perplexa		2
E. funeralis		3
Euchloe h. Lotta		1
Papilio eurymedon		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
15		Blue dicks
		cryptanth
		Ceanothus
		goldfields

TOTAL NUMBER OF QCB DETECTED: ___Ø___ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K. Faulkner Add'l Person: Josh A Date: 26 April 2010

Project: Campo Wind Energy Project Map #: 11 Survey Sxn: CAMPO - 11

GPS Unit : #9 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1100	79°	4	Ø	(clear)	patchy	overcast	drizzle	shower
	1200	83°	Ø	Ø	clear	patchy	overcast	drizzle	shower
	1300	83°	Ø	5%	clear	(patchy)	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1400	87°	2	5%	clear	(patchy)	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
A. Sara		2
C. perplexa		2
E. funeralis		2
V. cardui		5
V. virginiensis		1
A. vigilata		25+
P. Acmon		3
C. harfordii		1
Euchloe h. Lotta		2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
11		Collensia
		Goldfields
		Antirrhinum
		Ceanothus
		Baby blue eyes.

TOTAL NUMBER OF QCB DETECTED: ___Ø___ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: Ø Date: 26 APRIL, 2010

Project: Campo Wind Energy Project Map #: TILE 23 Survey Sxn: CAMPO Ø

GPS Unit : GARMIN 10 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1335	83	Ø→2 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1400	82	Ø→3 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1500	80	2→4 MPH	5%	(clear)	patchy	overcast	drizzle	shower
	1600	79	2→6 MPH	5%	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
CALIFORNIA MARBLE	TALLY IN FIELD NOTEBOOK	7
PAINTED LADY	"	9
BEHR'S METALMARK	"	170
CALIFORNIA SOOTYWING	"	1
FUNEREAL DUSKYWING	"	14
QUINO CHECKERSPOT BUTTERFLY	"	1
POSSIBLE 2ND QUINO, BUT DID NOT POSITIVELY IDENTIFY.		

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCWW0a	POINT	
MCQB08	POINT	"MIDDLE-AGED" QUINO AT (NAD83) 11S 0560671, 3611605

TOTAL NUMBER OF QCB DETECTED: 1 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: Ø Date: 26 APRIL, 2010

Project: Campo Wind Energy Project Map #: 2 AND 7 Survey Sxn: CAMPO D

GPS Unit : GARMIN 10 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0845	72	1->5 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	0900	73	Ø->3	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1000	72	Ø->3	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1100	80	Ø->6	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1130	82	Ø->2 MPH	CLEAR	(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)

Butterfly Species	Tally	Total
CALIFORNIA MARBLE	TALLY IN FIELD NOTES	8
PAINTED LADY	"	12
BEHR'S METALMARK	"	116
DESERT ORANGETIP	"	1
FUNEREAL DUSKYWING	"	4
ACMON BLUE	"	1
PALE TIGER SWALLOWTAIL	"	1
WEST COAST LADY	"	1
BROWN ELFIN	"	1
CALIFORNIA SOOTYWING	"	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCHL11	Point	Juvenile

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: S. Rink ~~Add'l Person:~~ Escort: Bodo Stokes (Kenny) Date: 4/27/10

Project: ~~Manzanita Wind Energy Project~~ Campo Map #: 8F, 8B Survey Sxn: _____

GPS Unit : 2 QCB Protocol Survey # 4 of ~~3~~

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0912	~70	1-2/5	2-5	clear	patchy	overcast	drizzle	shower
	1030	70	2-3/5	3-5	clear	patchy	overcast	drizzle	shower
	1130	71	2-3/5	5-7	clear	patchy	overcast	drizzle	shower
	1230	73	3-4/5	10-12	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

Butterfly Species	Tally	~~Total~~
Acmon Blue	𝍸	5
Behr's metalmark	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 ||	32
Pontia sp.	𝍸 |||	8
W. C. Lady	𝍸 𝍸 |||	13
Sarah Orangetip	||	2
Duskywing ‖	||||	4

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
SRecc01	pt.	Cal. concolor (n=1)
	pt.	Cal. concolor (n=5)
	pt.	Cal. concolor (n=10)

TOTAL NUMBER OF QCB DETECTED: 2 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: NONE Date: 27 APRIL, 2010

Project: Campo Wind Energy Project Map #: MAP TILE 34 Survey Sxn: CAMPO - R2

GPS Unit: GARMIN 3 QCB Protocol Survey # ~~2~~ 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1200	81	Ø→3 MPH	5%	(clear)	patchy	overcast	drizzle	shower
	1300	80	7→13 MPH	5%	(clear)	patchy	overcast	drizzle	shower
	1400	75	3→7 MPH	10%	(clear)	patchy	overcast	drizzle	shower
	1500	76	Ø→2 MPH	10%	(clear)	patchy	overcast	drizzle	shower
	1600	76	Ø→4 MPH	10%	(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

Butterfly Species	Tally	Total
BEHR'S METALMARK	IN FIELD NOTEBOOKS	20
GABB'S CHECKERSPOT	"	7
ORANGE SULPHUR	"	1
ACMON BLUE	"	17
PAINTED LADY	"	4
CALIFORNIA MARBLE	"	1
HENNE'S CHECKERSPOT	"	40
FUNEREAL DUSKYWING	"	7
PALE TIGER SWALLOWTAIL	"	3
CALIFORNIA SOOTYWING	"	4
QUINO CHECKERSPOT BUTTERFLY	"	3

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCQB09	Point	UPPER LEFT WINGTIP MISSING (NAD83) 11S 0556986, 3609928
MCHL12	Point	
MCQB10	Point	BOTH WINGTIPS INTACT. (NAD83) 11S 0556995, 3609943
MCHL13	Point	
MCQB11	Point	(NAD83) 11S 0557077, 3610140
		59 NUMBERED POINTS ARE COLLINSIA LOCATIONS.

TOTAL NUMBER OF QCB DETECTED: 3 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: Ø Date: 27 APRIL 2010

Project: Campo Wind Energy Project Map #: # 24 Survey Sxn: CAMPO - R1

GPS Unit : GARMIN 3 QCB Protocol Survey # R4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0848	72	Ø	CLEAR	(clear)	patchy	overcast	drizzle	shower
	0900	73	Ø→2	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1000	76	1→5	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1100	77	Ø→3	CLEAR	(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)

Butterfly Species	Tally	Total
BEHRS METALMARK	IN FIELD NOTEBOOK	350
PAINTED LADY	"	7
CALIFORNIA MARBLE	"	5
SPRING WHITE	"	2
RED ADMIRAL	"	1
SARA ORANGETIP	"	2
PERPLEXING HAIRSTREAK	"	2
GABB'S CHECKERSPOT	"	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
NONE		

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Phillip Rapp Date: 4/27/10

Project: Campo Wind Energy Project Map #: 23 Survey Sxn: Campo 9

GPS Unit : 1 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	8:45	~~74°~~	2/4	0	(clear)	patchy	overcast	drizzle	shower
	11:15	77°	3/8	0	~~clear~~	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	~~shower~~
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Sara's Orangetip	𝍸 𝍸 𝍸 𝍸	20
Yellow ?	I	1
Painted Lady	𝍸 I	4
Orange	I	1
Behr's Metalmark	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	160
Mourning Cloak	𝍸 𝍸 𝍸 𝍸	20
Orange ?	I	1
Yellow ?	I	1
Funeral Dusky wing	II	2
Duskywing	𝍸 𝍸 𝍸 𝍸	20
White ?	𝍸 𝍸 𝍸	15
Acmon Blue	𝍸 III	8

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Lasthenia
		Layia
		Plagiobothrys
		Lasthenia
		Erodium
		Manzanita
		Collinsia
		Penstemon
		Nemophilia
		Cryptantha
		Plagiobothrys

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Phillip Paipa Date: 4/27/10

Project: Campo Wind Energy Project Map #: 24 Survey Sxn: Camp R

GPS Unit : 1 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1140	74°	5/7	0	clear	patchy	overcast	drizzle	shower
	1345	72°	6/9	0	clear	patchy	overcast	drizzle	shower
	1500	74°	5/8	0	cirrus clear	patchy	overcast	drizzle	shower
	1555	73°	7/10	0	cirrus 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

Butterfly Species	Tally	Total
Pale Swallowtail	1	1
Behrs Metalmark	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	60
Sara's Orangetip	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Lasthenia
		Layia
		Phacelia
		Coreopsis
		Eriodictyon
		Manzanita
		Collinsia
		Penstemon
		Nemophilia
		Plagiobothrys
		Cryptantha

TOTAL NUMBER OF QCB DETECTED: 1 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Margie Mulligan Add'l Person: Erin Bergman Date: 4.27.2010

Project: Campo Wind Energy Project Map #: 9-J Survey Sxn:

GPS Unit : 13 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0920	67°	0-4	1%	(clear)	patchy	overcast	drizzle	shower
	1200	78	4-8	10%	(clear)	patchy	overcast	drizzle	shower
	1515	78	2-6	20%	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

Butterfly Species	Tally	Total
GABB'S CHECKERSPOT (1 female & 2 males)	III	3
Sara's Orangetip	See Field	2
Behr's Metalmark	Notebook for	155
Pearly Marble	Tallies	8
Pale Swallowtail		9
Painted Lady	(all landed)	4
Spring Azure	photo	1
Funereal Duskywing		2
Duskywing unknowns		6
Acmon Blue		14
Sulphur sp.		1
Spring White		1
Gray Marble	photo	1
Sleepy Duskywing		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
	Nectar Plants	Emmenanthe pendulifera
		Anisocoma acaulis
		Phacelia parryi
		Lotus scoparius brevialatus
		Ceanothus leucodermis & greggii perplexans
		Salvia columbariae
		Lupinus concinnus & bicolor
		Caulanthus simulans & heterophyllus
		Streptanthus campestris
		Cryptantha spp.
		Gilia capitatum
		Lotus argophyllus var. argophyllus
		Layia glandulosa
		Phacelia distans &
MMDS01		Delphinium parishii subglobosum
MMDS02		"
MMSC01		Streptanthus campestris
MMSC02		"
MMSC03		"
MMSC04		"
MMSC05		"

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DAVID K. FAULKNER Add'l Person: CARL Date: 27 April 2010

Project: Campo Wind Energy Project Map #: 15 Survey Sxn: CAMPO - L

GPS Unit : #5 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	65°	1	Ø	(clear)	patchy	overcast	drizzle	shower
	1000	73°	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	1100	73°	4	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)

Butterfly Species	Tally	Total
A. Virginiensis		25+
A. Sara		4
P. Acmon		3
V. Cardui		1
Erynnis brizo		1
Euchloe hyantis lotta		2
C. Augustina		5

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
15-L		Cryptantha
		Goldfields
		Cemottens
		Amsinckia
		Collensia
		Baby blue eyes

TOTAL NUMBER OF QCB DETECTED: ___Ø___ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K. Faulkner Add'l Person: CARL Date: 27 APR 2010

Project: Campo Wind Energy Project Map #: 16 Survey Sxn: Campo L

GPS Unit : #5 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1100	73°	2	∅	(clear)	patchy	overcast	drizzle	shower
	1200	77°	2	∅	(clear)	patchy	overcast	drizzle	shower
	1300	77°	8	10%	clear	(patchy)	overcast	drizzle	shower
	1400	75°	10	50%	clear	(patchy)	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1500	73	11	∅	(clear)	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Apodemia virgulti		25+
P. Acmon		8
A. Sara		3
Vanessa sp.		1
Vanessa atlanta (R. Admiral)		1
Euchloe h. lotta		2
V. Cardui		3
[Hemiargus ammis]		1
Callophrys augustinus		2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
16		Collensia
		Cryptantha
		Blue dicks
		Baby Blue eyes
		Wall flower
		goldfields
		Ceanothus

TOTAL NUMBER OF QCB DETECTED: ___Ø___ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Mike Couffer Add'l Person: Dale Powell Date: 30 April, 2010

Project: Campo Wind Energy Project Map #: Tile 24 Survey Sxn: Campo - RJ

GPS Unit : Garmin 13 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1300	62	2->4 mph	60%	clear	patchy	overcast	drizzle	shower
	1400	61	2->7 mph	50%	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

Butterfly Species	Tally	Total
Gabbs Checkerspot	In Field Notebook	1
Sara Orangetip	"	1
Pale Tiger Swallowtail	"	1
Dale and I hiked South along the Campo RJ ridgetop in order to Determine the validity of the habitat assessment in this area. We also drove to the South end of this survey polygon to inspect habitat and access. We found that in this area, the large expanse of excluded habitat is valid, and need not be surveyed for the Butterfly. See also Dale Powells data sheet.		

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCHL15	POINT	HORNED LIZARD ON ROAD
OTHER POINTS REPRESENT COLLINSIA SP. LOCATIONS ALONG ROOTE.		

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Pownell Add'l Person: Mike Coulter, Kevin Lewis Connolly Date: 4/30/2010

Project: Campo Wind Energy Project Map #: 24 Survey Sxn: Campo R

GPS Unit : 6 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1300	63°	4/6	50	clear	patchy	overcast	drizzle	shower
	1405	61°	4/7	50	~~clear~~	patchy	overcast	drizzle	shower
	1550	55°	5/9	75	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

Map 24 Campo R

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

Butterfly Species	Tally	Total
Funereal Duskywing	1	1
Gabb's	1	1
Sara's Orangetip	1	1
White?	1	1
Pale Swallowtail	1	1
Painted Lady	1	1
Behr's Metalmark	11	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Cryptantha
		Plagiobothyrs
		Collinsia (See Mike Coutter's) Notes)
		Caenothus
		Layia
		Lasthenia
		etc.
		↑
		Abundant
	Habitat survey and possible protocol survey along north	
	south ridgeline on Map 24. (Western area),	
	~557009, ~3609668 to 3608868	
	Inspected same ridge south into Map 27	
	(See Mike Coutter's notes)	
	(Mike noted Collinsia - observed)	
DPIP01	Include Polygon	Open area
DPHL01	POINT	San Diego Horned Lizard

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DAVID K. FAULKNER Add'l Person: Youngbird Date: 30 APRIL 2010

Project: Campo Wind Energy Project Map #: 14 Survey Sxn: Campo-K

GPS Unit : #5 QCB Protocol Survey # 4 of 5 .

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1100	63°	2	30	clear	(patchy)	overcast	drizzle	shower
	1200	65°	1	40	clear	(patchy)	overcast	drizzle	shower
	1300	67°	5	50	clear	patchy	(overcast)	(drizzle)	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1400	62	9	50	clear	patchy	(overcast)	(drizzle)	shower

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

Butterfly Species	Tally	Total
A. Virgulti		6
P. eurymedon		2
P. Acmon		8
V. Cardui		2
P. Lupini		1
Southern Blue (L. Australis)		1
Erynnis Sp.		1
[Stopped @ 1400 - no legs, cool, rain, etc.]		

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
#14	CAMPO-K	Blue dicks
		cryptantha
		goldfields
		baby blue eyes
		yellow yArrow
		Collensia - only a few scattered plants.

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Bonnie Hendricks Add'l Person: Erin Bergman Date: 4/30/10

Project: Campo Wind Energy Project Map #: 1, 5 Survey Sxn: A (Campo)

GPS Unit: Garmin 3 QCB Protocol Survey # 4 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky				
START	11:30	64.7	3.7/7.0	60	clear	(patchy)	overcast	drizzle	shower
	12:15	57.0	4.4/8.8	80	clear	patchy	(overcast)	drizzle	shower
START	13:45	66.4	3.7/9.7	30	clear	(patchy)	overcast	drizzle	shower
	1:50	67.6	5.1/7.5	40	clear	(patchy)	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	2:30	57.7	5.2/8.3	90	clear	patchy	(overcast)	drizzle	shower

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

Butterfly Species	Tally	Total
Painted Lady	I	1
Pearly Marble White	II	2
Nectaring Plants:		
Cryptantha sp.	*	
Malacothrix calif.		
Lasthenia sp.		
Nemophila menziesii		
Layia glandulosa		
Eschscholzia greggii		
C. concordiana		

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Handsicks 4-30-10

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
EBASD001	Population/ Rare Plant	(1 plant)
EBASD002	" "	1 plant
EBASD003	" "	4 plants
" 04	" "	6 "
" 05	" "	150 "
" 06	" "	75 "
" 07	" "	13 "
" 08	" "	25 "
" 09	" "	23 "
" 10	" "	4 "
" 11	" "	30 "
13	" "	3 "
14	" "	3 "
15	" "	5 "
16	" "	6 "

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Mike Connyer Date: 5/1/10

Project: Campo Wind Energy Project Map #: 27 Survey Sxn: Campo R

GPS Unit : 6 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1445	67°	7/9	5	(clear)	patchy	overcast	drizzle	shower
	1605	65°	6/7	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

Butterfly Species	Tally	Total
Orange?	\	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Lasthenia
		Phacelia
		Cryptantha

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Mike Corrigan Date: 5/2/10

Project: Campo Wind Energy Project Map #: 24 + 25 Survey Sxn: Campo R

GPS Unit : 6 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	62	62°	4/6	0	clear	patchy	overcast	drizzle	shower
	6	65°	5/7	0	clear	patchy	overcast	drizzle	shower
	1330	66°	6/9	0	clear	patchy	overcast	drizzle	shower
	1425	67°	6/8	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

Butterfly Species	Tally	Total
Sara's Orangetip	𝍸 𝍸 𝍸 𝍸 𝍸	25
Southern Blue	𝍸 𝍸	5
Blue	𝍸 I	6
Lady?	𝍸	5
West Coast Lady	I	1
Behrs Metalmark	𝍸 𝍸	10
Marble ?	𝍸	5
White ?	𝍸 𝍸	10
Gabbs Checkerspot	𝍸	5
Chalcedon	𝍸 𝍸 𝍸	15
Acmon Blue	𝍸	3
Funeral Duskywing	II	2
Duskywing	I	1

I lost the small MAP TILE maps for 24-25

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Lasthenia
		Phycella 2 Types
		Loyid
		Manzanita
		Cryptantha
		Plagio bothrys
		Erodium
		Arabis
		Dichlostemma
		Mimulus
		Lotus
		Lupinus
		Ceanothus
		Amsinckia
		Eschaltzia
DP CH 01	Point	Collinsia
" 02	"	"
" 03	"	"
" 04	"	"
" 05	"	"
DP BJ 01	Point	Black-Tailed Jack Rabbit

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: ANDREW FISHER Date: 1 MAY, 2010

Project: Manzanita Wind Energy Project Map #: TILE 24 Survey Sxn: CAMPO R

GPS Unit: GARMIN 3 QCB Protocol Survey # 3 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0930	63	Ø->3 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1000	64	2->5	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1100	67	Ø->4	5%	(clear)	patchy	overcast	drizzle	shower
	1200	68	Ø->3	5%	(clear)	patchy	overcast	drizzle	shower
	1300	72	Ø->5	5%	(clear)	patchy	overcast	drizzle	shower
	1400	73	Ø->5	CLEAR	(clear)	patchy	overcast	drizzle	shower
END	1500	68	2->5	CLEAR	(clear)	patchy	overcast	drizzle	shower

Habitat On-site (circle): (open soils) (hilltops) (ridges) (rock outcrops) soil crusts, clay soils, old roads, (various nectar sources)
1600 HRS, 68°F, 2->5 MPH, CLEAR

Butterfly Species	Tally	Total
ACMON BLUE	IN FIELD NOTEBOOK	20
GABB'S CHECKERSPOT	"	27
BEHR'S METALMARK	"	6
SOUTHERN BLUE	"	9
FUNEREAL DUSKYWING	"	14
HENNE'S CHECKERSPOT	"	28
PALE TIGER SWALLOWTAIL	"	1
QUINO CHECKERSPOT BUTTERFLY	"	21

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCQB12	POINT	(NAD 83) 11S 0557061, 3610108 (3180 FT EL)
AFQB01	POINT	FIRST OBSERVED BY ANDREW FISHER (NAD83) 11S 0557076, 3610089 (3192 FT ELEV.)
AFTUVUNESTO1	POINT	NEED TO BE CHECKED BY RAPTOR BIOLOGIST
NUMBERED COORDINATES REPRESENT COLLINSIA LOCATIONS ALONG ROUTE.		
QUINO DETECTED BY ANDREW FISHER WAS IMMEDIATELY VERIFIED BY MIKE COUFFER. THIS QUINO WAS A FRESHER QUINO THAN THE INITIAL QUINO OF THE DAY.		

TOTAL NUMBER OF QCB DETECTED: 2 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: BRIAN LOHSTROH Add'l Person: LOUIS Date: 5/1/10

Project: Campo Wind Energy Project Map #: 14, 15 Survey Sxn: K

GPS Unit : #5 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0930	64	0-3	0	(clear)	patchy	overcast	drizzle	shower
	1130	64	6-10	10	clear	(patchy)	overcast	drizzle	shower
	1300	65	5-13	5	clear	(patchy)	overcast	drizzle	shower
	1400	72	2-8	1	(clear)	patchy	overcast	drizzle	shower
	1520	69	0-10	1	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1550	67	0-10	3	(clear)	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Acmon Blue	(used field book)	8
Perplexing Hairstreak		7
Behr's Metal Mark		23
Painted Lady		9
West Coast Lady		2
Sara's Orangetip		5
Funereal Dusky Wing		5
Pearly Marble		2
Pale Swallowtail		9
Silvery Blue		3
Sleepy dusky Wing		2
Gabb's checkerspot		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
BLSC01	Rare plant point	Streptanthus campestris ~50 individuals
BLCH01	Host plant point	chinese houses ~30 individuals
BLCH02	"	" ~100s individuals
		Nectar sources: Mimulus aurantiacus, popcorn fl,
		erodium, Lotus hamatus, CA poppy,
		chaenactis glabruscula, phacelia parryi, distans
		Desert dandelion, Amsinkia, Keckiella parishii
		ceanothus, Gilia capitatum, Cirsium
		occidentalis, camomastemia, yucca whip,
		Emmenanthe penduliflora, Lotus scoparius
		Eriophyllum wallacei, Antirhinum nuttallianum
		Senecio californica
		Cath
		Scja
		SpTo
		BCSP
		BHGR
		La2b
		wren
		WTSW
		CaQu
		Bush
		COPH
		NoFL
		Oati
		Lego
		Granite night lizard (Xantusia) X2
		Side blotch Lizard
		W. Fence Lizard
		Granite Spiny Lizard
		CA kingsnake, Ringneck snake, Gopher snake

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 5/18 2010

Project: Campo Wind Energy Project Map #: 1 Survey Sxn: _____

GPS Unit : 1 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	60°	2-6	0%	(clear)	patchy	overcast	drizzle	shower
	1200	66°	4-10	40%	clear	(patchy)	overcast	drizzle	shower
	1300	67°	8-12	25%	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

Butterfly Species	Tally	Total
Behr's Metalmark	See notebook	19
Acmon Blue		3
Sara's Orangetip		1
Silvery Blue		1
Funeral Duskwing		2
Perplexing Hairstreak		2
Pearly Marble		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
Nectar Source:		Ceanothus leucodermis & cuneatus
		Lasthenia gracilis
		Layia glandulosa
		Escholtzia californica
		Malacothrix californica
		Trichostemma lanatum
		Eriophyllum wallcei
		Uropappus lindleyi
		Phacelia distans
		Lupinus concinnus & L bicolor
		Leptosiphon lemmoni
		Aniscoma acaule
MMDS01	Sensitive plant pt	Dephinium parishii subglobosum 10 plants
MMLS01	"	Lathyrus splendens 1 on shrub
MMCH01	Host plant pt	Collinsia heterophylla ≈ 10 plants
MMCH02	"	" ≈ 15 plants
MMCH03	"	" ≈ 10 plants
MMGV01	~~[illegible]~~ Sensitive plant pt	Geraea viscida 6 plants
MMEP01		Houses
MMEP02		This is a tall grassland now w/ 20+ dogs.

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 5/1/2010

Project: Campo Wind Energy Project Map #: 5 Survey Sxn: _____

GPS Unit : 1 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1300	67°F	8-12	25%	clear	(patchy)	overcast	drizzle	shower
	1530	67°F	6-8	25%	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

Butterfly Species	Tally	Total
Acmon Blue		6
Behr's Metalmark		9
Pearly Marble		1
Painted lady		2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
Nectar Source:		Layia glandulosa
		Lasthenia gracilis
		Collinsia heterophylla
		Anisocoma acaule
		Lupinus bicolor & L. concinnus
		Lotus strigosus
		Ceanothus leucodermis
		Platystemon californicus
		Erysium capitatum capitatum
		Gilia capitatum capitatum
		Amsinkia menziesii
		Ceanothus leucodermis
		Phacelia distans
		Leptosiphon lemmonii
		Aniso coma acaule
MMDS02	sensitive plant pt	Delphinium parishii subglobosum
MMAD01	↓	Astragalus douglasii perstrictus
MMAD02		"
MMAD03		"
MMAD04		"

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Kenny Stokes Date: 5/2/10

Project: Campo Wind Energy Project Map #: 1 Survey Sxn: Campo A

GPS Unit : _____ QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1230	67°	4/6	0	clear	patchy	overcast	drizzle	shower
	1330	70°	5/7	0	clear	patchy	overcast	drizzle	shower
	1615	72°	4/7	0	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Southern Blue	𝍸 𝍸 III	13
Marble ?	III	3
Behr's Metalmark	𝍸 III	8
Blue ?	𝍸	5
Pale Swallowtail	I	1
Sara's Orangetip	𝍸 II	7
Lady ?	II	2
West Coast Lady	I	1
White ?	𝍸 II	7

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Layia
		Lasthenia
		Cacnothus
		Bradium
		Manzanita
		Collinsia
		Dichlostemma
		Lupinus
DPHL01	Point	San Diego Horned Lizard
DPCH01	Point	Collinsia
" 02	"	"
" 03	"	"
" 04	"	"
" 05	"	"

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: NONE Date: 2 MAY, 2010

Project: Campo Wind Energy Project Map #: TILE 17 Survey Sxn: CAMPO N

GPS Unit : GARMIN 1 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1020	60	Ø->3 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1100	66	Ø->3 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1200	64	Ø->7 MPH	CLEAR	(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)

Butterfly Species	Tally	Total
ACMON BLUE	IN FIELD NOTEBOOK	8
PERPLEXING HAIRSTREAK	"	8
PAINTED LADY	"	5
BEHR'S METALMARK	"	10
FUNEREAL DUSKYWING	"	5

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)

TOTAL NUMBER OF QCB DETECTED: _____ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: NONE Date: 2 MAY, 2010

Project: Campo Wind Energy Project Map #: TILE 18 Survey Sxn: CAMPO-N

GPS Unit : GARMIN 1 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1200	64	0->7 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1300	73	0->3	CLEAR	clear	patchy	overcast	drizzle	shower
	1400	76	0->2	CLEAR	clear	patchy	overcast	drizzle	shower
	1500	74	0->6	CLEAR	clear	patchy	overcast	drizzle	shower
	1600	71	2->8	CLEAR	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)

Butterfly Species	Tally	Total
PAINTED LADY	IN FIELD NOTEBOOK	9
BEHR'S METALMARK	"	90
GABB'S CHECKERSPOT	"	2
SARA ORANGETIP	"	7
SOUTHERN BLUE	"	5
SPRING WHITE	"	2
FUNEREAL DUSKYWING	"	9
DESERT ORANGETIP	"	2
PALE TIGER SWALLOWTAIL	"	3
GRAY HAIRSTREAK	"	3
HENNE'S CHECKERSPOT	"	1
WEST COAST LADY	"	3
RED ADMIRALS	"	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCWW04	POINT	
MCHL16	POINT	
MCWW0X	POINT	

TOTAL NUMBER OF QCB DETECTED: _____ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: F. Dettmers Add'l Person: B. Willey Date: 5/3/10

Project: Campo Wind Energy Project Map #: Tik 5 Survey Sxn: _____

GPS Unit : SM 13 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	900	68.9	2-4 mph	0%	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1332	77°	2-4	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)

Butterfly Species	Tally	Total
Apodemia mormo	IIII I IIII IIII IIII IIII IIII	46
Callophrys Dumetorum	"	2
Icaricia Acmon	III	3
Vanessa Cardui	IIII/III	9
Glaucopsyche lygdamus	II	2
Pontia protodice (Checkered white)	IIII/	5
Erynnis funeralis	1	1
Colias harfordii	1	1
Anthocharis Sara	1	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
FDCOLTE 01	0560455 3620122	POD 6 NW Facing Slope. DG Soil. Buckwheat Scrub OAK.
" 02		
" 03		
" 04		
" 05	0560440 3620142	Pop 200+. Just South of Deep drainage on North Facing Bank
" 06	0560115 3619210	Pop 15 W. Facing Slope in Buckwheat + Ceanothus
		Buckwheat scrub. -
		Collinria - Mapped / GPS.
		Gold fields.
		Ceanothus.
		Chamise Chaparral -
		Manzanita, Mexican / Big Berry
		surveyed from I-8 North to just
		south of La Posta Casino. and East
		of Crestwood Rd.

TOTAL NUMBER OF QCB DETECTED: _____ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Andrew Pigniolo Add'l Person: _____ Date: 5/3/10

Project: Campo Wind Energy Project Map #: 11 Survey Sxn: B

GPS Unit : 7 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1300	74	0-2	0	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
	1400	76	0-2	0	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1530	77	0-2	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

Butterfly Species	Tally	Total
Behr's Metalmark	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	46
Painted Lady	𝍸 I	6
Sara's Orange Tip	II	2
Marble	II	2
Perplexing Hairstreak	IIII	4
Common White	I	1
Gabb's Checkerspot	I	1
Acmon blue	IIII	4
Unident Skipper	I	1
		67

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
APCC08	Point	30+ Collinsia concolor
APCC09	Point	10+ " "

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Andrew Pigniolo Add'l Person: _____ Date: 5/3/10

Project: Campo Wind Energy Project Map #: 8 Survey Sxn: 6

GPS Unit : 7 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0915	60	2-6	0	(clear)	patchy	overcast	drizzle	shower
	1015	66	2-6	0	(clear)	patchy	overcast	drizzle	shower
	1115	69	2-6	0	(clear)	patchy	overcast	drizzle	shower
	1215	69	2-4	0	(clear)	patchy	overcast	drizzle	shower
	~~1315~~				clear	patchy	overcast	drizzle	shower
	~~1415~~				clear	patchy	overcast	drizzle	shower
END	~~1500~~ 1245	68	0-4	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

Butterfly Species	Tally	Total
Behr's Metalmark	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	26
Painted Lady	𝍸 𝍸	11
Dusky wing Skipper	11	2
Perplexing hairstreak	11	2
Sarah Orangetip	111	3
Acmon blue	𝍸 𝍸	11
Common white	1	1
Unident Blue	1	1
		57

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
01 + APCC01	Point	1 Collinsia concolor
APCCCR02	Point	2 Collinsia concolor + 5+ Cordylanthus rigidus
APCC03	Point	2 " "
APBJ04	Point	1 Black tailed jackrabbit
APCC05	Point	15+ Collinsia concolor
APCC06	Point	20+ " "
APCC07	Point	20+ Collinsia concolor

TOTAL NUMBER OF QCB DETECTED: _____ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DAVID FLIETNER Add'l Person: JOHN BOSTICK Date: 5-3-10

Project: Campo Wind Energy Project Map #: 19 Survey Sxn: O

GPS Unit : 12 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky
START	0830	64	5-9	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	1600	77	3-5	0	(clear) patchy overcast drizzle shower

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

Butterfly Species	Tally	Total
Behr's metalmark	𝍸 𝍸 𝍸 𝍸 𝍸	60
Acmon blue	𝍸 11	17
Purplish hairstreak	7	7
Pearly marbled ~~white~~	5	5
lady	𝍸	15
Sara orange tip	8	8

Page 1 of 2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Last cal
		Caem bigt
		Crypt int
		Esch cali
		Lup cand
		Plagiobothrys
		Amsk menz
		Gilia
		Salvia colum
typo		Lotus scop
DFLA01	point	1 Coast live oak
~~APCH01~~	point	~30 Collinsia heter
		Phacelia distans
DFLA01	point	1 Lathyrus splendens growing in Q. agrifolia

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K. Faulkner Add'l Person: Lewis C. Date: 3 May 2018

Project: Campo Wind Energy Project Map #: 11 Survey Sxn: Campo H

GPS Unit : #5 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	67°	5	Ø	(clear)	patchy	overcast	drizzle	shower
	1000	71°	4	Ø	(clear)	patchy	overcast	drizzle	shower
	1100	75°	2	Ø	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1200	76°.	3	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

Butterfly Species	Tally	Total
P. lupini		1
A. virguliti		25+
P. acmon		6
V. cardui		2
C. Augustinus		1
A. sara		3
Erynnis sp.		2
Euchloe hoffita		1
E. proportius		2
Leptotes marina		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
#11, H	Marked as #1.	11S 0560117 Collensia. UTM 3616770 - 100's of Plants
		composites
		Cryptantha
		CHiA

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K. Faulkner Add'l Person: L. Connelly Date: 3 May 2010

Project: Campo Wind Energy Project Map #: 16 Survey Sxn: Campo H

GPS Unit : #5 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1200	76°	3	Ø	(clear)	patchy	overcast	drizzle	shower
	1300	78°	1	Ø	(clear)	patchy	overcast	drizzle	shower
	1400	78°	2	Ø	clear	patchy	overcast	drizzle	shower
	1500	83°	1	Ø	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1600	79	4	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

Butterfly Species	Tally	Total
P. Acmon		25+
A. virgulti		25+
P. protodice		3
P. eurymedon		1
A. sara		12
Erynnis sp.		1
Colias harfordii		1
V. Cardui		5
V. annabella		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
16	Marked as #3	Rare mustard - Southern Jewell flower — 11S 559957 UTM 3616131 — 20+ plants.
	Marked as #4	Collensia — 11S 559968 UTM 3616189 — 10+
		Cryptantha
		goldfields

TOTAL NUMBER OF QCB DETECTED: ___Ø___ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: NONE Date: 3 MAY, 2010

Project: Campo Wind Energy Project Map #: TILES 18 AND 19 Survey Sxn: CAMPO - N

GPS Unit : GARMIN 3 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0835	67	3->6 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	0900	70	3->8	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1000	72	3->10	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1100	74	4->8	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1200	77	Ø->3	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1300	80	Ø->4	CLEAR	(clear)	patchy	overcast	drizzle	shower
END	1400	81	Ø->4 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower

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

1500 HRS, 80°F, Ø->3 MPH, CLEAR

Butterfly Species	Tally	Total
ACMON BLUE	IN FIELD NOTEBOOK	18
BEHR'S METALMARK	"	225
FUNEREAL DUSKYWING	"	10
PAINTED LADY	"	5
WEST COAST LADY	"	2
SOUTHERN BLUE	"	5
SARA ORANGETIP	"	4
GABB'S CHECKERSPOT	"	5
SPRING WHITE	"	3
PALE TIGER SWALLOWTAIL	"	2
ORANGE SULPHUR	"	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCHL18 050310	POINT	
MC GARMIN 06	POINT	FOUND GARMIN # 6 LOST BY > OTHER BIOLOGIST APPROX.
		ONE MONTH AGO. UNIT TURNS ON AND IS IN GOOD CONDITION
ALL NUMBERED	POINTS REPRESENT	COLLINSIA LOCATIONS ALONG TRACK ROUTE >.

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Kevin Bryant Date: 5/3/10

Project: Campo Wind Energy Project Map #: 16 Survey Sxn: Campo I

GPS Unit : 6 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	8:30	65°	7/9	0	clear	patchy	overcast	drizzle	shower
	9:50	67°	7/10	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

Butterfly Species	Tally	Total
Lady?	I	1
Behr's Metalmark	~~IIII~~ III	8
White?	III	3
Blue?	IIII	4

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Castilleja
		Layia
		Lasthenia
		Erodium.
		Deseuveuxia
		Salvia columbariae
		Cryptantha
		Plagiobothrys
		Amsinckia
		Dichelostemma
		Ceanothus
		Lupinus
		Chaenactis
		~~Amsinckia~~ Melocothrix
		Astragalus
DPCH01	Point	Collinsia
V	"	"
10	"	"
DPJF01	Point	C. concolor is
DPJF02	"	C. "
DPJF03	"	C. "

TOTAL NUMBER OF QCB DETECTED: 2 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Kevin Date: 5/3/10

Project: Campo Wind Energy Project Map #: 10, 15 Survey Sxn: Campo I

GPS Unit : 6 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	9:50	67°	2/10	0	clear	patchy	overcast	drizzle	shower
	11:15	75°	4/7	0	clear	patchy	overcast	drizzle	shower
	1430	78°	5/8	0	clear	patchy	overcast	drizzle	shower
	1600	81°	4/6	0	clear	patchy	overcast	drizzle	shower
	1640	79°	7/11	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

Butterfly Species	Tally	Total
Pale Swallowtail	𝍸 𝍸 𝍸 𝍸 I	26
Acmon Blue	𝍸 III	8
Blue?	𝍸 𝍸 𝍸 𝍸 I	26
Behrs Metalmark	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	78
Sara's Orangetip	𝍸 𝍸 𝍸 𝍸 II	22
White?	IIII III	8
Marble	III	3
Orange? (Lady)	IIII	4
Funeral Dusky wing	II	2
Dusky wing	𝍸 III	8
Orange? (Checkerspot?)	I	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Lotus
		Camissonia
		Astragalus
		Layia
		Lasthenia
		Erodium
		Descurainia
		Salvia columbariae
		Amsinckia
		Lupinus
		Caenothus
		Plantago erecta
		Cryptantha

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: BRIAN LOHSTROH Add'l Person: BOE/Escort Date: 5/4/10

Project: Campo Wind Energy Project Map #: 11, 12, 16 Survey Sxn: G

GPS Unit : 7 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0840	68	0-1	0	(clear)	patchy	overcast	drizzle	shower
	1040	78	0-4	0	(clear)	patchy	overcast	drizzle	shower
	1300	80	3-8	0	clear	patchy	overcast	drizzle	shower
	1420	83	3-8	0	(clear)	patchy	overcast	drizzle	shower
	1515	79	4-8	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

Butterfly Species	Tally	Total
Behr's Metalmark		39
Common Sooty Wing		3
Sara Orangetip		5
Painted Lady		3
Acmon Blue		5
Spring Azure		2
Southern Blue		3
Chalcedon checkerspot		1
Common White		1
Hartfordi Sulphur		3
Dearly Marble		3
Perplexing hairstreak		2
Pale Swallowtail		2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
BLHL01		Juv Horned Lizard
BLCH01		chinese houses ~10 ind.
BLLB01		Linanthus bellus 100s ind.
BLCH02		chinese houses ~5 ind.
BLCH03		" 5 ind.
BLLB02		Linanthus bellus 500 ind.
BLHL02		Juv Horned Lizard
BLLB03		Linanthus bellus 500 ind
BLCH04		chinese houses 100 ind.
BLCH05		chinese houses 100 ind.
BLLB06		Linanthus bellus 500 ind
BLLB07		Linanthus bellus 500 ind
BLCH06		chinese houses 50 ind
BLCH07		chinese houses 100 ind
BLHL03		Adult horned Lizard
BLLB08		Linanthus bellus 300 ind
BLCH09		chinese houses 30 ind
BLCH10		chinese houses 50 ind
BLHL 04		Juv horned Lizard
BLCH11		chinese houses 30 ind
BLCH12		" 20 ind
BLCH08		chines houses 300 ind.
		Calt, CAQU, Oati, Wind, ATFL, Eust, CORA
		Scja, Yewa, BCSP, coHu, LaSP SpTO
		Ceth, BHGR, BEWR, Lego, WEBB

Nectar Sources: CA poppy, erodium, Ceanothus, Cammissonia, Lastrenia, Penstemon chia, Linanthus bellus mustards Centranthifolia, spectabilis; Desert dandelion, phacelia distans, parryii; popcorn flower, Linanthus SP, Lemmonii; Lupinus spp, Layia glaberata Mimulus guttatus, Lotus heermanii, mimulus fremontii, Anisocoma acaulis, senecio californica, trichostemma, Gilia capitatum, Eriophyllum spp. Delphium parryii ssp subglobulosum

TOTAL NUMBER OF QCB DETECTED: ∅ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: ~~Kevin~~ None Date: 5/4/10

Project: ~~Manzanita~~ Campo Wind Energy Project Map #: 7 Survey Sxn: Campo D

GPS Unit : 6 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0850	68°	4/3	0	(clear)	patchy	overcast	drizzle	shower
	1020	71°	6/7	0	(clear)	patchy	overcast	drizzle	shower
END	1115	78°	8/13	0	(clear)	patchy	overcast	drizzle	shower
START	1155	75°	7/12	0	(clear)	patchy	overcast	drizzle	shower
~~START~~	1325	78°	5/9	0	(clear)	patchy	overcast	drizzle	shower
	1520	76°	9/13	0	(clear)	patchy	overcast	drizzle	shower
END	1545	76°	8/11	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~~

Butterfly Species	Tally	Total
Behr's Metalmark	~~𝍸~~ ~~𝍸~~ ~~𝍸~~ ~~𝍸~~ ~~𝍸~~ ~~𝍸~~ ~~𝍸~~ ~~𝍸~~ ~~𝍸~~ ~~𝍸~~ ~~𝍸~~	55
Sara's Orange Tip	~~𝍸~~ 𝍸 𝍸 𝍸 𝍸	9
White?	~~𝍸~~ 𝍸	5
Funeral Duskywing	𝍸 𝍸	3
Dusky wing	𝍸 𝍸	4
Blue?	𝍸	1
Orange?	𝍸	1
Lady?	𝍸	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Erodium
		Lasthenia
		Layia
		Ericameria
		Arabis
		Plagiobothrys
		Cryptantha
		Descurainia
		Phacelia
		Dichelostemma
		Nemophila
		Anisocoma
		Penstemon
DPCH11	Point	Collinsia
↓	〃	〃
030	〃	〃

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: None Date: 5/4/10

Project: ~~Manzanita~~ Campo Wind Energy Project Map #: 2 Survey Sxn: Campo D

GPS Unit : 6 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	11:20	78°	8/12	0	(clear)	patchy	overcast	drizzle	shower
	12:45	75°	7/12	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)

Butterfly Species	Tally	Total
Duskywing	II	2
Funeral Duskywing	I	1
Pale Swallow Tail	I	1
Behrs Metalmark	~~IIII~~ III	8
Sulfur ?	I	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Erodium
		Cryptantha
		Plagiobothrys
		Caenothus
		Descurainia
		Phacelia

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K. Faulkner Add'l Person: Daniel Date: 4 May 2010

Project: Campo Wind Energy Project Map #: 11, 12 Survey Sxn: Campo E

GPS Unit : #2 QCB Protocol Survey # 4(?) of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	70°	0	0	(clear)	patchy	overcast	drizzle	shower
	1000	74°	5	0	(clear)	patchy	overcast	drizzle	shower
	1100	77°	4	0	(clear)	patchy	overcast	drizzle	shower
	1200	80°	6-7	0	(clear)	patchy	overcast	drizzle	shower
	1300	83°	8	0	(clear)	patchy	overcast	drizzle	shower
	1400	80°	7	0	(clear)	patchy	overcast	drizzle	shower
END	1500 1600	80° 78°	7 8	0 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

Butterfly Species	Tally	Total
P. lupini		2
V. cardui		4
P. acmon		25+
Erynnis propertius		2
C. perplexa		1
A. virgulti		25+
Phiclossa catulla		5
Erynnis funeralis		4
A. sara		2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
12E.	Mark #2	Collinsia, ~50 plants.
		11S 0561218
		UTM 3618096
12E	No Mark.	Horned-lizard : 11S 0561238
		UTM 3617987
		Nectar: Cryptantha
		Goid fields
		Ceanothus

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DAVID FLIETNER Add'l Person: JOHN ~~PICKLEY~~ BOSTICK Date: 5/4/10

Project: Campo Wind Energy Project Map #: 19 Survey Sxn: P

GPS Unit : 10 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
~~START~~	8:20	58	0-2	0	(clear)	patchy	overcast	drizzle	shower
START	8:50	66	02-4	0	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
		75			clear	patchy	overcast	drizzle	shower
END	10:30	~~75~~	3-5	0	(clear)	patchy	overcast	~~drizzle~~	~~shower~~

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

Butterfly Species	Tally	Total
Acmon blue	::	4
Behr's metalmark	::	4
Sara orange tip	II	~~7~~ 8

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Last cal
		Crypt Int
		Cedros
		Phacelia dist
		Malacothrix
		Lup conc.
		gilia
		Camis cal
		Linanthus
		Salv col
		Layia glandl
		Phacelia minor

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DAVID FLIEVER Add'l Person: JOHN BUSTICK Date: 5/4/10

Project: Campo Wind Energy Project Map #: 20 Survey Sxn: P

GPS Unit : 10 QCB Protocol Survey # 4 of 5.

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	11 00	77	0-3	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	16 30	83	7+10	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

Butterfly Species	Tally	Total
Behrs metalmark	⊠⊠⊠⊠⊠ ---	200
Perp hairstreak	⁚⁚	33
Sara orangetip	⊠⊡	18
Painted lady	⊠⁚	12
Acmon blue	⊔	6
Gubb's checkerspot	·	1
Pearly marble	⁚⁚	3
Funereal dusky wing	⁚	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Lust cal
		Ecsch cal
		Crypt int
		Camis bist
		Salv colum
		Gilia cap.t
DFCH01	point	~ ~~50~~ 100 Collinsia
		Lotus stri
		Amsinck menz
		Lupinus conc
		Phacelia minor
		Linanthus lemmonii
DFCH02	point	~ 200 Collinsia
		Cream puffs
DFCH03	"	
		Caul hetero
DFHL01	"	horned lizard
		Chaenactis glab
		Mimulus (yellow)
		Emmenantho pend
		Linanthus dian
DFCS01	point	1 Caulanthus simulans
		Coreopsis calif
CH3 → CH12 points →		1 GPS ed representative Collinsia
	polygon	locations — these should just
		be made into a polygon

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: NONE Date: 4 MAY, 2010

Project: Campo Wind Energy Project Map #: TILE 21 Survey Sxn: CAMPO-N

GPS Unit : GARMIN 9 QCB Protocol Survey # ?4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1100	78	3->5 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1200	76	7->14	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1300	81	Ø->6	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1400	81	3-8	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1500	81	Ø->5	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1530	80	Ø->5	CLEAR	(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)

Butterfly Species	Tally	Total
SARA ORANGETIP	IN FIELD NOTEBOOK	5
HENNE'S CHECKERSPOT	"	14
PALE TIGER SWALLOWTAIL	"	5
FUNEREAL DUSKYWING	"	11
SOUTHERN BLUE	"	3
BEHR'S METALMARK	"	7
CHECKERED WHITE	"	2
CALIFORNIA MARBLE	"	2
ACMON BLUE	"	4
PERPLEXING HAIRSTREAK	"	4
PAINTED LADY	"	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCHL19 050410	POINT	MEDIUM-SIZED HORNED LIZARD
NUMBERED	POINTS REPRESENT	COLLINSIA LOCATIONS COLLECTED ALONG
ROUTE.		

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: NONE Date: 4 MAY, 2010

Project: Campo Wind Energy Project Map #: TILE 16, 19 Survey Sxn: CAMPO M

GPS Unit : GARMIN 9 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0840	70°	Ø->2	CLEAR	clear	patchy	overcast	drizzle	shower
	0900	69	Ø->2	CLEAR	clear	patchy	overcast	drizzle	shower
	1000	73	Ø->3	CLEAR	clear	patchy	overcast	drizzle	shower
	1015	73°F	Ø->2 MPH	CLEAR	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~~

Butterfly Species	Tally	Total
BEHRS METALMARK	IN FIELD NOTEBOOK	95
ACMON BLUE	"	1
BROWN ELFIN	"	1
SPRING WHITE	"	1
CHECKERED (COMMON WHITE)	"	2
PAINTED LADY	"	5
FUNEREAL DUSKYWING	"	7
SARA ORANGETIP	"	1
CALIFORNIA MARBLE	"	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Natalie Brodie Add'l Person: Dede Date: 4 May 2010

Project: Campo Wind Energy Project Map #: 11 Survey Sxn: Campo - C

GPS Unit : Garmin 3 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	64°	calm	0	(clear)	patchy	overcast	drizzle	shower
	1005	68°	2/5	0	(clear)	patchy	overcast	drizzle	shower
	1110	70°	6/11	0	(clear)	patchy	overcast	drizzle	shower
	1200	75°	5/10	0	(clear)	patchy	overcast	drizzle	shower
	1305	73°	4/9	0	(clear)	patchy	overcast	drizzle	shower
	1415	73°	4/12	0	(clear)	patchy	overcast	drizzle	shower
END	1515	69°	6/13	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

Butterfly Species	Tally	Total
Sara orangetip	𝍸 𝍸	10
Behrs metalmark	𝍸 𝍸 𝍸

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		goldfields, popcorn flower, groundpink
~~[illegible]~~ NPCP01		~~[illegible]~~ Please disregard - not campo pea
NBCH01		Collinsia sp., 10+ individuals
NBCH02		Collinsia sp., 5+ plants
NBAR01		Antirrhinum, 10+ individuals
NBCH03		Collinsia sp 5 individuals on road margin
NBCH04		Collinsia sp. 25+
NBCD01		Cordylanthus 5+
NBCD02		Cordylanthus 15+
NBHL01		Horned lizard
NBCD03		Cordylanthus 45+
NBCH05		Collinsia sp. 1+
NBCD04		Cordylanthus 25+

TOTAL NUMBER OF QCB DETECTED: ∅ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Antonette Gutierrez Add'l Person: Lawrence Date: 5/4/2010

Project: Manzanita Wind Energy Project Map #: Campo 8 Survey Sxn: F

GPS Unit : 1 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1115	76	1.5/3	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	1300	78	25/10	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)

Butterfly Species	Tally	Total
Acmon blue	𝍸 II	7
Behr's Metalmark	𝍸 𝍸 𝍸 I	16
Common White	I	1
Painted Lady	III	3
Sara's Orangetip	II	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
Camp F 8/AGCH3	Chinese Houses	plant pop 50-100 hilltop
F 8/AGBJ1	Bikeland Jackrabbit	Chamise
F8/AGCH5	Chinese Houses	plant pop 10-50 road side
F8/AGCH6	" "	" " 50-100 roadside
F8/AGCH7	Chinese Houses	" " 10-50 road side
		Lasthenia Californica
		Cryptantha
		Ground pink
		Buckwheat
		Plagiobothrys
		Tidytips
		Calistigia lemmonii
		Salvia columbie

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 5.4.10

Project: Campo Wind Energy Project Map #: 4 Survey Sxn: _____

GPS Unit : 13 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1345	80	2-5	0	clear	patchy	overcast	drizzle	shower
	1530	80	3-6	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

Butterfly Species	Tally	Total
Painted Lady		1
Sara's Orangetip		4
Pale Swallowtail		2
Pearly Marble		1
Behr's Metalmark		12
Dusky wing		2
Acmon Blue		1
Buckeye		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MMLB03	Sensitive plant pt	Linanthus bellus 50 plants
MMDP06	"	Delphinium parishii subglobosum 10 plants
MMDP07	"	" 5
MMDP08	"	" 25
MMDP09	"	" 10
MMDP10	"	" 5
MMDP11	"	" 20
MMAD05	"	Astragalus douglasii parishii 1 plant
Nectar Source:		Dendromecon rigida
		Leptosiphon lemmonii
		Lasthenia gracilis
		Salvia columbariae
		Eschscholtzia californica
		Coreopsis californicus
		Layia glandulosa
		Phacelia distans
		Lotus strigosus
		Delphinium parishii subglobosum
		Linanthus bellus
		Mimulus guttatus
		Lupinus bicolor
		Minuartia douglasii

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Kenny Stokes Date: 5/2/10

Project: Campo Wind Energy Project Map #: 25 Survey Sxn: Campo R

GPS Unit : 6 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1055	59°	4/6	80	(clear)	patchy	overcast	drizzle	shower
	1200	62°	5/7	80	(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~~

Butterfly Species	Tally	Total
White?	II	2
Lady ?	II	2
Behr's Metalmark	IIII IIII IIII	15
Blue?	II	2
Dark ?	I	1
Sara's Metalmark	I	1
Yellow?	I	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Layia
		Lasthenia
		Cacnothrus
		Bradium
		Menzanita

TOTAL NUMBER OF QCB DETECTED: _____ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 5.4.10

Project: Campo Wind Energy Project Map #: 5 Survey Sxn: _____

GPS Unit : 13 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	75°F	0-2	0	(clear)	patchy	overcast	drizzle	shower
	1200	80°F	3-6	0	(clear)	patchy	overcast	drizzle	shower
	1330	80°F	4-6	0	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Spring White		1
Perplexing Hairstreak		2
Behr's Metalmark		23
Pale Swallowtail		3
Funeral Duskywing		1
Duskywing		2
Sleepy Duskywing		1
Pearly Marble		2
Checkered White		2
Sara's Orangetip		2
Buckeye		2
Painted Lady		2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MMCH01	Nectar pt	Collinsia heterophylla
MMCH02	Nectar pt	"
MMCH03	Nectar pt	"
MMCH04	"	"
MMCH05	"	"
MMAD01	Sensitive plant pt	Astragalus douglassii parishii 1 plant
MMAD02	"	" 1 plant
MMAD03	Sensitive plant pt	" 2 plants
MMAD04	"	" 30 plants
MMDS01	"	Delphinium parishii subglobosum 3 plants
MMDS02	"	" 50 plants
MMGV01	"	Gorazia viscida 30 plants
MMGV02	"	" 3 plants
MMLB01	"	Linanthus bellus 50 plants
MMLB02	"	" 30 plants
→		Delphinium & Linanthus common along entire ridge.
Nectar Source:		Anisocoma acaule
		Ericameria linearifolia
		Lasthenia gracilis
		Platystemon californicus
		Layia glandulosa
		Phacelia distans
		Leptosiphon lemmonii
		Lupinus concinnus & L. bicolor
		Delphinium parishii subglobosum
		Linanthus bellus
		~~Mimulus guttatus~~
		Collinsia heterophylla
		Malacothrix californica
		Salvia columbariae

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Aubrey Helgoth Add'l Person: Lawrence Date: 4-5-10

Project: ~~Manzanita~~ Campo Wind Energy Project Map #: Campo 1 Survey Sxn: ~~5~~ 13

GPS Unit : 1 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	900	72	0	0	clear	patchy	overcast	drizzle	shower
	1000	76	0/2	0	clear	patchy	overcast	drizzle	shower
stop	1100	78	2/5	0	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
start	1310	78	2.5/10	0	clear	patchy	overcast	drizzle	shower
END	~~3~~ 400	78	2.5/10	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

Butterfly Species	Tally	Total
Behr's Metalmark	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	35
Mournful Duskywing	1	1
Umid blue	1	1
Umid Sulphur	1	1
~~Pyr~~ Funereal Dusky Wing	1	1
Painted Lady	11	2
Sara's Orange ~~tip~~	11	2
Acmon blue	𝍸 1	4

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		SPTO, CATH, PSFL, COBU, NOFL, WREN, CAQU,
		Cryptomeria WESJ
		gilia
		Eugrypta
		False Dandelion
campo F AGNL 1	Woodratnest	In oak
AGNL 2	woodratnest	in dead chamise
AGCATH 1	California Thrasher	In chamise
AGHL 1	Horned Lard	in chamise chap
AGCH 1	Chinese Houses	plant pop ~~10-50~~ 1000's on hilltop
AGNL 4	~~[illegible]~~ woodratnest	Rock outcrop
AGCH 2	Chinese Houses	10-50

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Bo Willey Date: 5/5/10

Project: ~~Manzanita~~ Campo Wind Energy Project Map #: 22-23 ~85% complete 23 23 Survey Sxn: Campo 4

GPS Unit : 6 complete QCB Protocol Survey # 4 Varies of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1145	76°	4/7	8	(clear)	patchy	overcast	drizzle	shower
	1400	78°	3/5	6	(clear)	patchy	overcast	drizzle	shower
	1515	78°	3/6	6	(clear)	patchy	overcast	drizzle	shower
	1625	78°	5/8	6	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Sara's Orangetip	1	6
Behr's Metalmark	45	45
Pale Swallowtail	5	5
White?	4	4
Blue?	2	2
Orange? (Checkerspot)	1	1
Brown Elfin	2	2
West Coast Lady?	1	1
Checkered White	1	1
Yellow?	1	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Erodium
		Collinsia
		Penstemon
		Astragalus
		Penstemon
		Lasthenia
		Layia
		Cryptantha
		Sisyrn
		Phacelia
		Delphinium
		Lotus
		Plagiobothrys
		Mimulus
QPHL01	Point	San Diego Horned Lizard
" 02		
" 03		
" 04		
" 06		

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: NONE Date: 5 MAY, 2010

Project: Campo Wind Energy Project Map #: TILE 21 Survey Sxn: CAMPO N

GPS Unit : GARMIN 12 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900 HRS	68	1-4 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1000	73	2→6	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1100	76	1→4	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1130	73	5→13 MPH	CLEAR	(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

Butterfly Species	Tally	Total
ACMON BLUE	IN FIELD NOTEBOOK	7
CHECKERED WHITE	"	1
BEHR'S METALMARK	"	3
PERPLEXING HAIRSTREAK	"	2
SARA ORANGETIP	"	5
PALE TIGER SWALLOWTAIL	"	2
FUNEREAL DUSKYWING	"	1
JUBA SKIPPER	"	1
GABB'S CHECKERSPOT	"	1
SPRING AZURE	"	1
SOUTHERN BLUE	"	1
PAINTED LADY	"	3
HENNE'S CHECKERSPOT	"	2
CALIFORNIA MARBLE	"	2
HARFORDS SULPHUR	"	1
CALIFORNIA SOOTYWING	"	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
NUMBERED	POINTS REPRESENT	COLLINSIA SP. LOCATIONS. NUMBERS
1 -> 385	FOLLOW ALL LOGGED	TRACKS ON THIS MAP AND CAMPO Q, MAP
FILE 23.		

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Natalie Brodie Add'l Person: Daniel Date: 5 May 2010

Project: Campo Wind Energy Project Map #: 7 Survey Sxn: F

GPS Unit : 2 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1130	75°	7/11	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
					clear	patchy	overcast	drizzle	shower
END	1230	76°	6/11	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

Butterfly Species	Tally	Total
Behrs metalmark	𝍸 𝍸 |	11
Sara orangetip	||	2
Acmon blue	|	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		goldfields, popcorn flower,
NBCH10		Collinsia sp. 30+
NBCH11		Collinsia sp. 25+ on rock outcrop

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Natalie Brodie Add'l Person: Daniel Date: 5 May 2010

Project: Campo Wind Energy Project Map #: 13 Survey Sxn: F

GPS Unit : 2 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky
START	1330	72°	4/9	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	1435	75°	5/10	6	(clear) patchy overcast drizzle shower

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

Butterfly Species	Tally	Total
Behrs Metalmark	𝍸	2
Sulfur	1	1
Painted lady	1	1
Pale Swallowtail	𝍸	5
Sara orangetip	𝍸	4
Propertius Duskywing	1	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		goldfields, fiddleneck, phacelia, popcorn flower
NBHL01		horned lizard
NBHL02		horned lizard.

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Viviane Marquez-Waller Add'l Person: Phillip Date: 5/5/10

Project: Campo Wind Energy Project Map #: 5 Survey Sxn: 5 Campo A

GPS Unit : # 5 C/M Garmin QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	9:15	70.7	2.6/4.3	0	(clear)	patchy	overcast	drizzle	shower
	10:15	69.0	2.1/4.4	0	(clear)	patchy	overcast	drizzle	shower
	11:40	72.0°	3.8/5.4	0	(clear)	patchy	overcast	drizzle	shower
	12:55	75.5°	5.3/6.8	0	(clear)	patchy	overcast	drizzle	shower
	1:55	75.1°	6.2/8.5	0	(clear)	patchy	overcast	drizzle	shower
	~~2:55~~				clear	patchy	overcast	drizzle	shower
END	2:55	74.9°	7.6/9.8	0	(clear)	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Behr's Metalmark	𝍸 𝍸	24
Painted Lady	𝍸 𝍸 𝍸 𝍸	4
Southern Blue	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	9
Funereal Duskywing	𝍸 𝍸	2
Cabbage White	𝍸	1
Common White	𝍸 𝍸	2
Acmon Blue	𝍸 𝍸	2
Grey Hairstreak	𝍸	1
Sulfur sp.	𝍸 𝍸	2
Buckeye, Common	𝍸	1
Gabb's Checkerspot	𝍸	1
Perplexing Hairstreak	𝍸	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
VMCH01		3 plants in chamise chaparral opening
VMCH02		7 plants near hilltop
VMCH03		about 10 plants
VMMD01		scat Mule Deer
		Collinsia heterophylla
		Cryptantha sp.
		erodium cicutarium
		Scrub jay
		Crow
		amsinckia intermedia
		Black-chinned Sparrow
		Spotted Towhee
		Goldfields ++++
		Chia
		Lupine sp.
		Annual lotus
		Peppergrass sp.
		Nemophila
		(#5)
		Note: GPS + trackup may have
		been turned off in morning -

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Natalie Brodie Add'l Person: Daniel Date: 5 May 2010

Project: Campo Wind Energy Project Map #: 1 Survey Sxn: A

GPS Unit : Garmin 2 QCB Protocol Survey # 45 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	68°	3/7	0	(clear)	patchy	overcast	drizzle	shower
	1015	69°	3/9	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	1100	72°	4/10	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

Butterfly Species	Tally	Total
Acmon blue	III	3
Behrs Metalmark	IIII IIII IIII II	17
Sara orangetip	II	2
Funereal Duskywing	I	1
Propertius Duskywing	I	1
Painted lady	I	1
Perplexing Hairstreak	I	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		goldfields, popcorn flower,
NBCH01		Collinsia sp., 5+
NBCH02		Collinsia sp. 6+
NBCH03		Collinsia sp. 60+, scattered throughout
NBCH04		Collinsia sp. 100+
NBCH05		Collinsia sp. 200+ interspersed w/ goldfields
NBCH06		Collinsia sp. 150+
NBCH07		Collinsia sp. 50+
NBCH08		Collinsia sp. 50+ scattered
NBAR01		Antirrhinum sp. 5+ individuals
NBCH09		Collinsia sp ~~5~~ 100+ scattered

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Margie Mulligan Add'l Person: Shirley Ivnkeken Date: 5.5.10

Project: Campo Wind Energy Project Map #: J-9 Survey Sxn:

GPS Unit : 1 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	76°	4	0%	(clear)	patchy	overcast	drizzle	shower
	1200	80°	6-10	3%	(clear)	patchy	overcast	drizzle	shower
	1500	81°	5-9	5%	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Pearly Marble		1
Behr's Metalmark		50+
Spring Azure		2
Acmon Blue		16
Pale Swallowtail		8
Spring ~~Anara~~ White		2
Sara's Orangetip		5
Painted Lady		2
Gabb's Checkerspot		3
Funereal Duskywing		3
Duskywing		7

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
Nectar Source:		Malacothrix clevelandii
		M. californica
		Escholtzia californica
		Anisocoma acaule
		Mimulus aurantiacus
		Ericameria linearifolia
		Salvia columbariae
		Gilia capitatum c.
		Eriophyllum confertiflorum
		E. wallecei
		Phacelia distans
		Collinsia heterophylla
		Penstemon clevelandii
		Layia glandulosa
		Chaenactis glabriscula & C. artemisiifolia
		Lupinus truncatus, concinnus, bicolor, hirsutissimus
MMCH01-06	Nectar plant pt	Collinsia heterophylla
MMHL01	Sensitive Lizard pt	Horn Lizard 1
MMDS01	Sensitive plant pt	Delphinium parishii subglobosum 100 plants
MMDS02	"	" 10 plants
MMDS03		" 30 plants
MMDS04		" 50 plants
MMSC01		Streptanthus campestris 15 plants
MMSC02		" 10 plants
MMSC03		" 5 plants

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: KH Osborne Add'l Person: Lewis Connolly Date: 5/5/2010

Project: Campo Wind Energy Project Map #: Campo-L Survey Sxn: L

GPS Unit: #10 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	906	70	calm	°	clear	patchy	overcast	drizzle	shower
906.					clear	patchy	overcast	drizzle	shower
1015		77	1.5/5.8	°	clear	patchy	overcast	drizzle	shower
140		72	8.5/14	°	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	357	71	9.9/14.7	-	clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Plebejus acmon	//	2
I. augustinus (Brown Elfin	//	2
A. mormo	~~////~~ XX	34
A. cara	~~////~~	5
V cardui	//	2
Hesperia juba	/	1
Glaucopsyche lygdamus	/	1
Erynnis brizo	/	1
Philosora catalus	////	4
Plebejus lupini 1	////	4
Erynnis funeralis	/	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
	Cordylanthus	0559605/3614716 general area 30x30 m
	"	of subunderstand Cordylanthus rigidum.
	"	0559468/3615121 = hundreds C. rigidum.
	"	0559853/3615103 = ~50 Collinsia
#5	QCB Hosts (thousands)	0559496/3615156 to = ~ten thousand C. rigidus 0559345/3615126
#6	~3 of thousand	0559265/3615122 to = ~ one thousand C. rigidum 0559319/3615123
7	Cordylanthus	0558997/3614961 to = ~200 C. rigidus 0558995/3614903
	Collinsia	0560010/3614974 ~ 100 Collinsia in 2 M²
	"	0560002/3614963 ~ " " 1 M²
	"	0559800/3614717 ~ " " 1 M²
	"	0559850/3614653 ~ 200 " " in 110 M²
	"	0559538/3614573 ~ 500 " " in 100 M²

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: NONE Date: 5 MAY, 2010

Project: Campo Wind Energy Project Map #: MAP TILE 23 Survey Sxn: CAMPO Q

GPS Unit : GARMIN 12 QCB Protocol Survey # ~~4~~ 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1200	82	1->7 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1300	77	2->10	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1400	78	3->10	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1500	78	3->10	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1548	77	3->13	5% COVER	(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

Butterfly Species	Tally	Total
SPRING WHITE	IN FIELD NOTEBOOK	2
HARFORD SULPHUR	"	1
BEHR'S METALMARK	"	107
FUNEREAL DUSKYWING	"	8
CALIFORNIA MARBLE	"	2
ACMON BLUE	"	2
SARA ORANGETIP	"	3
PAINTED LADY	"	1
SPRING AZURE	"	2
WEST COAST LADY	"	1
SOUTHERN BLUE	"	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCHL20	POINT	
MCHL21	POINT	
NUMBERED POINTS REPRESENT		COLLINSIA SP. LOCATIONS. NUMBERS 1→385
FOLLOW ALL LOGGED TRACKS ON		THIS MAP AND CAMPO N, MAP TILE 21
MC CORIZANTSP. POINT		A SPINEFLOWER NOT CURRENTLY FLOWERING,
		BUT IF A SPECIAL STATUS SPINEFLOWER
		IS IN THE AREA, THIS LOCATION SHOULD BE
		CHECKED.

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Fawell Add'l Person: Bo Willy Date: 5/5/10

Project: ~~Manzanita~~ Campo Wind Energy Project Map #: 21 Survey Sxn: Campo 9

GPS Unit : 6 QCB Protocol Survey # 5 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky				
START	845	72°	3/5	0	(clear)	patchy	overcast	drizzle	shower
	1015	72°	5/6	0	(clear)	patchy	overcast	drizzle	shower
	1120	73	9/13	0	(clear)	patchy	overcast	drizzle	shower
	1135				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

Butterfly Species	Tally	Total
Sara Orangetip	11	2
Acmon Blue	1	1
Dusky wing	11	2
Funereal Duskywing	M	3
Behrs Metalmark	1	1
White?	11	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Dichelostemma
		Erodium
		Collinsia
		Penstemon
		Astragalus
		Lasthenia
		Layia
		Cryptantha
		Cirsium
		Phacelia
		Delphinium
		Lotus
		Plagiobothrys
		Eschscholzia
		Ericameria
		Mimulus
DPSF01	Point	C. campestris
001	~ Point	Collinsia
↓		"
		"
011		"

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Erik LaCostz Add'l Person: — Date: 5/5/10

Project: Campo Wind Energy Project Map #: ~~14~~, 15 Survey Sxn: K

GPS Unit : 7 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0845	64	3-6	0	(clear)	patchy	overcast	drizzle	shower
	1100	71	4-8	0	(clear)	patchy	overcast	drizzle	shower
	1130	72	8-12	0	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	2 30	76	6-10	10	(clear)	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Chalcedon checkerspot	1111 1	6
Acmon Blue	1111	5
Persp Hairstreak	11	2
Behrs Metalmark	1111 1111 1111 1111 1111 100+	100+
Southern Blue	1111	5
Sara orangetip	1111	5
Pale Swallowtail	1111 1111	10
Dark Duskywing	1	1
Funereal Duskywing	1111 111	8
Cal Marble	1	1
Brown Elfin	1	1
Painted lady	111	3

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
ELCOHE01	P.	Collinsia 10-20 individuals.
ELCOHE02	P	Collinsia 300-400 individuals.
		erodium sp
		Plagiobothrys sp
		Mustard sp.
		Lupine sp.
		AMSMEN
		Cammisonia sp.
		LASCAL
		KETANT
		YUCWHI
		ERICON
		Phacelia sp
		SALCOL
		Chanactis
		PHATAN
		ESCCAL
		DICCAP
		MIMAUR
		UROLIN
		LAYGIA
		LOTARG
		PENCLE
		CASFOL
		DELHES
		Lupinus excubitas
		CAU HET
		LINDIA
		ERILAN.

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: KH Osborne Add'l Person: Lawrence Date: 5/6/2010

Project: Campo Wind Energy Project Map #: 17, 19, 18 Survey Sxn: N

GPS Unit : 61 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	905	67	1.8/4.4	0	(clear)	patchy	overcast	drizzle	shower
~~1030~~	1030	71	1.5/4.4	0	(clear)	patchy	overcast	drizzle	shower
~~102~~	102	73	3.7/13.5	0	(clear)	patchy	overcast	drizzle	shower
Railroad	300	75	4.3/9.3	0	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	355	74	4/9.2	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

Butterfly Species	Tally	Total
P. acmon	III	3
A. mormo	VIIIXXXXXXX	68
P. catalus	I	1
A. sara	IIII IIII	9
I.E. agustina	IIII	5
C. perplexa	II	2
C. sabbus	III (2 ♀) photographed	3
E. bvizzo	III	3
P. eurymedon	IIII	5
V. cardui	II	2
P. lupini	II	2
E. Lunaris	II	2
E. tristis	I	1
P. protodice	I	1
C.Z. cesonia	I	1
E. hayantis (pearly)	I	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
KOCol01	QCB Host Collinsia track around	@ 0559807/3613966 walked around ~500 M² w/ 1000 plants
KOCol02	Collinsia	2 plants
KOCol03	"	~ 1000 Collinsia ~ 400M²
KOCol04	"	~ 100 in 1 M²
KOCol05	"	~ 200 in 50 M²
KOCol06	"	~ 500 in 50 M²
KOCol07	"	~ 5000 in 50 M² N facing slope

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Toby Bostick Date: 5/6/10

Project: ~~Manzanita~~ Campo Wind Energy Project Map #: 23 Survey Sxn: Campo 9

GPS Unit : 6 QCB Protocol Survey # Varies of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	8:30	60°	2/4	0	(clear)	patchy	overcast	drizzle	shower
	9:45	730	1/3	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~~

Butterfly Species	Tally	Total
Behr's Metalmark	~~HH~~ ~~HH~~ |||	13
Southern Blue	||	2
Acmon Blue	||	2
Checkered White	|	1
White	||	2
Pale Swallowtail	|	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Erodium
		Lasthenia
		Layia
		Lupinus
		Cryptantha
001	~Point	Collinsia
↓		
005		

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell (Campo) Add'l Person: John Bostick Date: 5/6/10

Project: ~~Manzanita~~ Wind Energy Project Map #: 25 Survey Sxn: Campo R

GPS Unit : 6 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky
START	1010	~~74~~ °	3/5	0	(clear) patchy overcast drizzle shower
	1215	78 °	6/9	0	(clear) patchy overcast drizzle shower
	1430	76 °	4/6	0	(clear) patchy overcast drizzle shower
	1515	77°	7/9	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~~

Butterfly Species	Tally	Total
Gabb's Checkerspot	II	2
Sara's Orange Tip	𝍸 𝍸	10
Behr's Metalmark	𝍸 𝍸 𝍸 𝍸	20
Pale Swallowtail	II	2
Brown Elfin	I	1
Lady?	𝍸	5
Southern Blue	II	2
White?	III	3
Blue?	𝍸 𝍸 II	12
Acmon Blue	𝍸 I	6
Perplexing Hairstreak	I	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Layia
		Lasthenia
		Lupinus
		Camothus
		Erodium
		Phacelia
		Cryptantha
		Dichelostemma
		Mimulus
		Salvia columbariae
		Cynoum
		Chaenactis
DPBJ01	Point	Black-Tailed Jack Rabbit
7	Point-	Collinsia
↓		
10		

TOTAL NUMBER OF QCB DETECTED: _____ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Natalie Brodie Add'l Person: Phillip Date: 6 May 2010

Project: Campo Wind Energy Project Map #: 19 Survey Sxn: Campo - P

GPS Unit : Garmin 12 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1345	75°	3/5	0	(clear)	patchy	overcast	drizzle	shower
	1500	74°	3/6	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	1540	73°	3/7	6	(clear)	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Funereal Duskywing	𝍸 I	6
Acmon blue	𝍸	5
checkered white	I	1
unidentified skipper (common?)	I	1
Behrs metalmark	II	2
Painted lady	I	1
Spring azure	II	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		gold fields, popcorn flower, gilia

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: NONE Date: 6 MAY, 2010

Project: Campo Wind Energy Project Map #: TILE 24 Survey Sxn: CAMPO RD

GPS Unit : GARMIN 13 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0830	69	Ø	CLEAR	(clear)	patchy	overcast	drizzle	shower
	0900	70	1->3	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1000	71	1->3	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1100	73	1->5	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1200	76	Ø->5	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1300	81	Ø->4	CLEAR	(clear)	patchy	overcast	drizzle	shower
END	1400	83	Ø->3	CLEAR	(clear)	patchy	overcast	drizzle	shower

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

1500 HRS, 77°F, 1->5 MPH, CLEAR

Butterfly Species	Tally	Total
GABBS CHECKERSPOT	IN FIELD NOTEBOOK	14
HENNE'S CHECKERSPOT	"	61
ACMON BLUE	"	65
PAINTED LADY	"	7
BEHR'S METALMARK	"	11
SARA ORANGETIP	"	21
SOUTHERN BLUE	"	6
PALE TIGER SWALLOWTAIL	"	6
SPRING AZURE	"	8
CALIFORNIA SOOTYWING	"	2
WEST COAST LADY	"	1
SPRING WHITE	"	6

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCQB13	Point	
MCQB14	Point	THIS WAS A VERY SMALL, FRESH QUINO POSSIBLY OBSERVED
MCHL22	Point	BY ANTONETTE GUTIERREZ EARLIER IN THE MORNING.
MCHL23		
MCQB15	Point	

TOTAL NUMBER OF QCB DETECTED: 3 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Natalie Brodie Add'l Person: Phillip Date: 6 May 2010

Project: Campo Wind Energy Project Map #: 20 Survey Sxn: P

GPS Unit : Garmin 12 QCB Protocol Survey # 4 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0930	69°	2/5	Ø	(clear)	patchy	overcast	drizzle	shower
	1100	73	4/7	Ø	(clear)	patchy	overcast	drizzle	shower
	1230	75°	3/5	Ø	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1315	75°	4/7	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

Butterfly Species	Tally	Total
Behrs metalmark	𝍸 𝍸 𝍸

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
NBCH01		Collinsia sp. 35+
		goldfields, popcorn flower, gilia cap.,
NBCH02		Collinsia sp. 5+
NBCH03		Collinsia sp. 15+, scattered
NBCH04		Collinsia sp. 30+, scattered w/in patches of goldfields
NBHL01		~~Horned~~ Lizard
NBHL02		Horned lizard
NBCH05		Collinsia sp. 40+, Antirrhinum sp. scattered (15+)
NBAR01		Antirrhinum sp. 20+
NBAR02		Antirrhinum sp. 5+

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 5.6.2010

Project: Campo Wind Energy Project Map #: 19-0 Survey Sxn: _____

GPS Unit : 2 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	62°	4-7	0%	(clear)	patchy	overcast	drizzle	shower
	1200	72°	3-6	0%	(clear)	patchy	overcast	drizzle	shower
	1430	75°	4-8	0%	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Pale Swallowtail		1
Painted Lady		1
Acmon Blue		21
Sara's Orangetip		6
Funereal Duskywing		2
Behr's Metalmark		32
Checkered White		4
Sulphur sp.		2
Duskywing		2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
Nectar		Cryptantha spp.
Source:		Eschscholtzia californica
		Amsinkia menziesii
		Lasthenia gracilis
		Trichostemma lanatum
		Lupinus bicolor
		L. concinnus
		Astragalus douglasii perstrictus
		Marah macrocarpus m.
MMCH01	~~Host~~plant pt	Collinsia concolor
MMGV01	Sensitiveplant pt	Geraea viscida 30 plants
MMGV02	"	" 1 plant
MMAD01	"	Astragalus douglasii perstrictus 50 plants
MMADP02	"	" 40 plants
MMADP03	"	" 2 plants
MMADP04	"	" 1 plant
MMADP05	"	" 25 plants
MMADP06	"	" 1 plant

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 5.7.2010

Project: Campo Wind Energy Project Map #: 11-H Survey Sxn: _____

GPS Unit : 5 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	65°F	6-10	0%	(clear)	patchy	overcast	drizzle	shower
	1200	74°F	0-4	0%	(clear)	patchy	overcast	drizzle	shower
	1245	76°F	2-4	0%	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Behr's Metalmark		37
Funeral Duskywing		2
Acmon Blue		11
Pearly Marble		1
Checkered White		3
Painted Lady		3
Sara's Orange Tip		3

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
Nectar plants:		Cryptantha spp.
		Plagiobothrys spp.
		Salvia columbariae
		Mimulus aurantiacus
		Ceanothus leucodermis
		Uropappus lindleyi
		Leptosiphon lemmonii
		Lupinus concinnus
		Collinsia concolor
		Amsinkia menziesii
		Layia glandulosa
MMCH01	~~Host plant pt~~	Collinsia
MMCH02		"
MMCH03		"
MMCH04		"
MMCH05		"
MMDS01 ~~MMDS02~~		Delphinium parishii subglobosum ~~15~~ 20 plants
MMDS03		" 25 plants
MMDS04		35 plants
MMDS05		25 plants
MMDS06		20 plants
MMDS07		10 plants
MMDS08		~~25~~ plants
MMDS09		25 plants
MMDS10		10 plants
MMSC01		~~Chlorogalum~~ Streptanthus campestris 25 plants
MMSC02		10 plants

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 5.7.2010

Project: Campo Wind Energy Project Map #: 16-H Survey Sxn: _____

GPS Unit : 5 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1300	79°	2-4	0	(clear)	patchy	overcast	drizzle	shower
	1530	82°	2-5	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

Butterfly Species	Tally	Total
Behr's Metalmark		17
Pale Swallowtail		3
Acmon Blue		12
~~Checkerspot~~ Chalcedon Checkerspot		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MMCH06	Host plant pt	Collinsia
MMCH07		
MMCH08		
~~MMCH09~~		
MMCH10		
MMCH11		
MMCH12		
MMADO1	Sensitive plant pt	Astragalus douglasii porstictus 5 plants
MMADO2	↓	" 10 plants
MMDP01		15 plants
MMDP02		10 plants
MMDP03		10 plants
Nectar		Phacelia parryi
Source:		Salvia columbariae
		Chaenactis glabriscula
		C. artemisiifolia
		Cryptantha spp.
		Gilia capitatum c.
		Lupinus truncatus
		L. bicolor
		L. concinnus
		Lasthenia gracilis
		Collinsia concolor
		Layia glandulosa

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DAVID S. FAULKNER Add'l Person: Thomas Date: 7 May 2010

Project: Campo Wind Energy Project Map #: 16 Survey Sxn: CAMPO 6

GPS Unit : #2 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1300	80	3	0	(clear)	patchy	overcast	drizzle	shower
	1400	80	4	0	(clear)	patchy	overcast	drizzle	shower
	1500	80	3	0	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1600	78	6		(clear)	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
A. Virgulti		3
A. Sara		3
P. Acmon		1
V. Cardui		2
E. Propertius		1
E. H. Lotta		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
16 "G"	11S 0560572 UTM 3616257	Collinsia ~100+ plants
	11S0560562 UTM 3615515	Collinsia ~ 100+ plants
		Blue Dicks
		Cryptantha

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K. Faulkner Add'l Person: Thornes Date: 7 May 2010

Project: Campo Wind Energy Project Map #: 11 Survey Sxn: CAMPO G

GPS Unit : #2 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1100	76	6	Ø	clear	patchy	overcast	drizzle	shower
	1200	80	3	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	1300	80	3	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

Butterfly Species	Tally	Total
A. virgulti		25+
P. Acmon		7
A. Sara		2
P. protodice		1
E. funeralis		2
E. hyantis Zotta		2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
11 "G"	11S 0560359 UTM 3616924	Collinsia ~50 plants Potential host Larval
	11S 0560647 UTM 3616926	Horned Lizard. Juvenile
	11S 056774 UTM 3616771	Collinsia ~25 plants
	11S 0560718 UTM 3616418	Collinsia ~100 plants.

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DAVID K. FAULKNER Add'l Person: Thomas Date: 7 May 2010

Project: Campo Wind Energy Project Map #: 12 Survey Sxn: CAMPO G

GPS Unit : #2 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	69	3	∅	(clear)	patchy	overcast	drizzle	shower
	1000	72	7	∅	(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	1100	76	6	∅	(clear)	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
P. Acmon		6
A. Vialis		5
E. funeralis		6
A. Sara		3

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
12	11S 0561129 UTM 3617395	Collensia ~50 plants potential larval HOST
12	11S 0561368 UTM 3617481	Collensia ~30 plants
		Cryptantha
		Goldfields
		Collensia

TOTAL NUMBER OF QCB DETECTED: ___Ø___ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: NONE Date: 7 MAY, 2010

Project: Manzanita Wind Energy Project Map #: MAP TILE 24 Survey Sxn: CAMPO - R)

GPS Unit : GARMIN 10 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0838	72	Ø->7 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	0900	73	Ø->8	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1000	75	Ø->8	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1100	76	Ø->6	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1200	83	Ø->4	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1300	88	Ø->2	CLEAR	(clear)	patchy	overcast	drizzle	shower
END	1400	80	1->6	CLEAR	(clear)	patchy	overcast	drizzle	shower

Habitat On-site (circle): (open soils) (hilltops) (ridges) (rock outcrops) soil crusts, clay soils, (old roads) (various nectar sources)
1500HRS, 84°F, 1->4 MPH, CLEAR

Butterfly Species	Tally	Total
ACMON BLUE	IN FIELD NOTEBOOK)	64
SARA ORANGETIP	"	25
HENNE'S CHECKERSPOT	"	54
PALE TIGER SWALLOWTAIL	"	3
CALIFORNIA MARBLE	"	1
PAINTED LADY)	"	6
CALIFORNIA SOOTYWING	"	3
FUNEREAL DUSKYWING	"	8
GABB'S CHECKERSPOT	"	13
WEST COAST LADY)	"	1
BEHR'S METALMARK	"	2
HARFORDS SULPHUR)	"	4
QUINO CHECKERSPOT BUTTERFLY)	"	1
SPRING WHITE	"	2
SPRING AZURE	"	8
PERPLEXING HAIRSTREAK	"	2
GORGON COPPER) (LYCAENA GORGON)	"	2
SOUTHERN BLUE	"	1
BUCKEYE	"	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCQB16	POINT	DRAB, OLDER INDIVIDUAL, IN A DIFFERENT AREA FROM PREVIOUS INDIVIDUALS

TOTAL NUMBER OF QCB DETECTED: 1 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: John Bostick Date: 5/7/10

Project: ~~Manzanita~~ Campo Wind Energy Project Map #: 15-16 Survey Sxn: Camp

GPS Unit : 6 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1345	79°	5/7	0	~~clear~~	patchy	overcast	drizzle	shower
	1455	78°	6/9	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~~

Butterfly Species	Tally	Total
Behr's Metalmark	HH	5
Acmon Blue	M	3
Blue ?	HH	4
Southern Blue	1	1
Dusky wing	1	1
Sonora Checkerspot	II	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Layia
		Lasthenia
		Eschscholzia
		Eriodictyon
		Plagiobothrys
		Cryptantha
		Phacelia
		Descurainia

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: John Bostick Date: 5/7/10

Project: ~~Manzanita~~ Campo Wind Energy Project Map #: 18 Survey Sxn: Campo N

GPS Unit : 6 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	8:45	71°	5/6	0	clear	patchy	overcast	drizzle	shower
	10:00	75°	6/8	0	clear	patchy	overcast	drizzle	shower
	12:45	78°	5/8	0	clear	patchy	overcast	drizzle	shower
	13:35	78	4/6	0	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Bahr's Metal Mark	卌 卌 卌 卌 II	22
Lady?	III	3
West Coast Lady	I	1
Blue?	卌 IIII	9
Duskywing	IIII	4
Acmon Blue	卌 卌 I	11
White?	III	3
Sara's Orangetip	卌 I	6

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Layia
		Lasthenia
		Erodium*
		Physcalia (2)
		Descurainia
		Collinsia
		Dichlostemma
		Eschscholzia
		Delphinium
		Cryptantha
		Plagiobothrys
001	Points	Collinsia
↓		
023		

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: JIMMY McMORRAN Date: 8 MAY, 2010

Project: Campo Wind Energy Project Map #: MAP TILE 11 Survey Sxn: CAMPO - C

GPS Unit : GARMIN 2 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1215 HRS	79	4→11	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1300	77	2→6	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1400	78	4→14	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1500	79	4→9	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1520	78	2→7	CLEAR	(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)

Butterfly Species	Tally	Total
ACMON BLUE	IN FIELD NOTEBOOK	10
BEHR'S METALMARK	"	25
FUNEREAL DUSKYWING	"	2
PERPLEXING HAIRSTREAK	"	60
SPRING AZURE	"	1
SARA ORANGETIP	"	1
PALE TIGER SWALLOWTAIL	"	1
GABB'S CHECKERSPOT	"	1
GRAY HAIRSTREAK	"	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCHL26	POINT	
MCHL27	POINT	
MCHL28	POINT	
MCHL29	POINT	
MCHL30	POINT	
NUMBERED POINTS REPRESENT		POINTS WHERE COLLINSIA SP. WAS MARKED.

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: JIMMY MCMORRAN Date: 8 MAY, 2010

Project: Campo Wind Energy Project Map #: MAP TILE 5 Survey Sxn: CAMPO - C

GPS Unit : GARMIN 2 QCB Protocol Survey # _____ of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0845 HRS	66	0→3 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	0900	71	0→3	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1000	72	1→4	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1100	72	1→4	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1200	74	4→9 MPH	CLEAR	(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)

Butterfly Species	Tally	Total
ACMON BLUE	IN FIELD NOTEBOOK	25
WEST COAST LADY	"	1
BEHR'S METALMARK	"	210
FUNEREAL DUSKYWING	"	7
PERPLEXING HAIRSTREAK	"	15
SPRING AZURE	"	3
CALIFORNIA MARBLE	"	1
SARA ORANGETIP	"	2
SPRING WHITE	"	2
PALE TIGER SWALLOWTAIL	"	4

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCHL24	POINT	
MCHL25	POINT	
NUMBERED POINTS REPRESENT LOCATIONS WHERE COLLINSIA SP. WAS MARKED.		

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: John Bostick Date: 5/8/10

Project: ~~Manzanita~~ Campo Wind Energy Project Map #: 10, 15, 16 Survey Sxn: Campo H+I

GPS Unit : 6 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	8:30	63°	4/6	0	clear	patchy	overcast	drizzle	shower
	1025	71°	7/8	0	clear	patchy	overcast	drizzle	shower
	1210	71°	8/12	0	clear	patchy	overcast	drizzle	shower
	1430	76°	8/11	0	clear	patchy	overcast	drizzle	shower
	1515	77°	11/14	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

Butterfly Species	Tally	Total
Acmon Blue	卌 卌 卌	15
Blue?	卌 卌 卌	15
Pale Swallowtail	卌 卌 II	12
Behr's Metalmark 卌 卌 卌 卌 卌 卌	卌 卌 卌 卌 卌 卌 卌	65
Sara's Orangetip	III	3
Perplexing Hairstreak	I	1
Duskywing	卌 I	6
Calif Sister	I	1
Funeral Duskywing	IIII	4
Gorgon Copper	III	3

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Erodium
		layia -
		Lasthenia
		Cryptantha
		etc
QC1	Point	Collinsia
↓	"	"
QC5	"	"
DP5F01	Point	Coreopsis californica
DP5F02	"	" "

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: John Bostick Date: 5/8/10

Project: ~~Manzanita~~ Campo Wind Energy Project Map #: 16 Survey Sxn: Campo H

GPS Unit : 6 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	15:20	78	5/7	0	(clear)	patchy	overcast	drizzle	shower
	16:20	75	6/9	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

Butterfly Species	Tally	Total
Sara's Orangetip	III	3
Behr's Metalmark	IIII	5
Blue?	IIII I	6
Acmon Blue	II	2
Yellow?	I	1
Purplish Copper	I	1

Page 1 of 2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Elodium
		Layia
		Lasthenia
		Cirsium
		etc
016	Point	Collinsia
017	"	"

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 5/11/2010

Project: Campo Wind Energy Project Map #: 13-F Survey Sxn: _____

GPS Unit : 13 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1330	74°	2-4	5	(clear)	patchy	overcast	drizzle	shower
	1545	74°	3-6	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

Butterfly Species	Tally	Total
Behr's Metalmark		32
Funereal Duskywing		1
Duskywing		2
Acmon Blue		4
Checkered White		3
Pearly Marble		2
Pale Swallowtail		2
Sara's Orangetip		2
Common Sootywing		3

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MMLB01	Sensitive plant pt	100 plants Linanthus bellus
MMMVCA01	"	20 plants Mucronea californica
~~MMASDP01~~	"	~~Astragalus douglasii parishii 2 plants~~
MMHL01	Sensitive Lizard pt	Horn Lizard
MMHL02	"	Horn Lizard
~~MMASDP02~~	~~Sensitive plant pt~~	~~1 plant Astragalus douglasii parishii~~
Nectar Source:		Erysimum capitatum c.
		Mimulus fremontii
		Cryptantha spp.
		Lotus strigosus
		Layia glandulosa
		Lasthenia gracilis

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 5/11/2010

Project: Campo Wind Energy Project Map #: 7 & 8 Survey Sxn: _____

GPS Unit : 13 QCB Protocol Survey # 6 (Map 8-F) 5 (Map 7-F) of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	65°	0-2	0	(clear)	patchy	overcast	drizzle	shower
	1110	75°	0-5	0	(clear)	patchy	overcast	drizzle	shower
	1300	76°	2-5	3	(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)

Butterfly Species	Tally	Total
Behr's Metalmark		35
Checkered White		5
Dusky wing		3
Acmon Blue		16
Sara's Orangetip		4
Funeral Duskywing		1
Becker's White		1
Orange Sulfur		1
Pale Swallowtail		1
Common Sootywing		3
Nectar plants: Phacelia brachyloba		
Cryptantha spp.		
Leastrenia gracilis		
Eriophyllum confertiflorum		
Sysimbrium altissimum		
Salvia columbariae		
Rendromecon rigida		
Escholtzia californica		
Emmenanthe pendulifora		
Lotus strigosus		
Phacelia distans		
Ansiocoma acaule		
Layia glandulosa		
Chaenactis glabriuscula		

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MMCHO1	HOST PLANT PT	50 plants Collinsia
02	"	40 plants "
03	"	50 plants "
04	"	50 plants "
05	"	1 plant "
MMDEPS01	Sensitive plant pt	Delphinium parishii subglobosum 10 plants
02	"	" 20 plants
03	"	25
04	"	15
05	"	15
06	"	20
07	"	100
08	"	50
09	"	25
10	"	50
11	"	50
12	"	25
MMGEVI01	"	Geraea viscida 10 plants
02	"	" 3
03	"	" 10
MMLASP01	"	Lathyrus splendens 1 vine
MMLIBE01	"	Linanthus bellus 50 plants
~~MMDEP~~		
MMASDP01	"	Astragalus douglasii parstrictus 2 plants
MMASP02	"	" 1 plant

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: — Date: 5/12/10

Project: Campo Wind Energy Project Map #: 2, 7 Survey Sxn: Campo D

GPS Unit : 6 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	9 15	67°	4/6	0	clear	patchy	overcast	drizzle	shower
	11 10	71°	5/8	0	clear	patchy	overcast	drizzle	shower
	1340	75°	4/5	0	clear	patchy	overcast	drizzle	shower
	16 00	72°	6/8	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

Butterfly Species	Tally	Total
Sara's Orangetip	𝍸 II	7
Behr's Metalmark	𝍸 𝍸 𝍸 𝍸 𝍸	25
White ?	𝍸 II	7
Blue ?	𝍸 𝍸 I	11
Pale Swallowtail	IIII	4
Lady ?	III	3
Painted Lady ?	𝍸 IIII	9
Acmon Blue	𝍸 III	8
Great White Skipper	I	1
Checkered White	II	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Eriodictyon
		Layia
		Lasthenia
		Ceanothus
		Acanthis
		Ericameria
		Dichostema
		Eryptantha
		Plagiobothrys
		Descurainia
		Phacelia (2)
		Salvia columbariae
B01	Point	Collinsia
↓	"	"
024	"	"

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Natalie Brodie Add'l Person: Josh Date: 12 May 2010

Project: Campo Wind Energy Project Map #: 4 Survey Sxn: B

GPS Unit : Garmin 9 QCB Protocol Survey # 6 of 5 .

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky
START	1100	67°	calm	Ø	(clear) patchy overcast drizzle shower
	1220	70°	calm	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	1415	70°	calm/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)

Butterfly Species	Tally	Total
Funereal Duskywing	IIII	4
Sara orangetip	I	1
Behrs metalmark	IIII IIII IIII IIII III	23
Acmon blue	IIII	4
Spring White	IIII IIII	10
Propertius duskywing	I	1
CA Marble	I	1
Painted lady	II	2
Pale swallowtail	II	2
Tortoiseshell (?)	I	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		groundpink, gold fields, popcorn flower
NBCH05		Collinsia sp. 15+
NBCO01		Cordylanthus 35+, scattered along trail
NBAR01		Antirrhinum cou., 10+ individuals
NBCH06		Collinsia sp. < 10, scattered

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Natalie Bratie Add'l Person: Josh Date: 12 May 2010

Project: Campo Wind Energy Project Map #: 3 Survey Sxn: B

GPS Unit : Garmin 9 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	61°	calm	ø	(clear)	patchy	overcast	drizzle	shower
	1010	65°	calm	ø	(clear)	patchy	overcast	drizzle	shower
stop	1100	67°	calm	ø	clear	patchy	overcast	drizzle	shower
start	1415	70°	calm	ø	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1435	71°	calm / 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)

Butterfly Species	Tally	Total
Bellis metalmark	𝍸 𝍸 𝍸 I	16
Pale swallowtail	II	2
Brown elfin	I	1
Funereal Duskywing	I	1
Sara orangetip	II	2
Spring white	𝍸	5
Acmon blue	𝍸 I	6
Painted lady	I	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		goldfields popcorn flower
NBCH01		collinsia sp., 20+, sparse scatter
NBCH02		Collinsia sp., 6 individuals
NBCH03		Collinsia sp. 5+
NBCH04		Collinsia sp. 10+ scattered
NBC002		Cordylanthus, 20+ on road edge
NBCH07		Collinsia sp. 35+

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Natalie Brudic Add'l Person: Josh Date: 12 May 2010

Project: Campo Wind Energy Project Map #: 8 Survey Sxn: B

GPS Unit : Garmin 9 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1445	71°	2/5	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
					clear	patchy	overcast	drizzle	shower
END	1600	69°	2/6	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

Butterfly Species	Tally	Total
Acmon blue	𝍸 I	6
Spring white	𝍸	5
Behr's metalmark	III	4

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		gold fields. popcorn flower. groundpink

TOTAL NUMBER OF QCB DETECTED: ____ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Viviane Marquez-Walker Add'l Person: John Date: 5/12/16

Project: Campo Wind Energy Project Map #: 16 and 19 Survey Sxn: Campo - M

GPS Unit : Garmin 12 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky
START	10:45	71.4	1.2/1.7	0	(clear) patchy overcast drizzle shower
					clear patchy overcast drizzle shower
	12:40	76.3	1.6/4.6	0	(clear) patchy overcast drizzle shower
					clear patchy overcast drizzle shower
	14:00	75.8	2.1/5.4	0	(clear) patchy overcast drizzle shower
					clear patchy overcast drizzle shower
END	15:20	70.5	2.8/4.6	0	(clear) patchy overcast drizzle shower

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

Butterfly Species	Tally	Total
Funeral Dusky Wing	//	2
Sara's Orangetip	~~////~~	5
Acmon Blue	~~////~~ ~~////~~ ////	15
Southern Blue	////	4
Behr's Metalmark	//// ////	9
Marbled White	/	1
Lady sp	/	1
Marine Blue	/	1
Blue Species	///	3
Common White	/	1
reference (large scale)		
note: lost 16 Map in field of '16		

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
VMCH01	Collinsia heterophylla	5 plants
VMCH02	" "	≅ 15 plants
VMCH03	" "	≅ 100 plants
VMBJ01	Blacktailed Jackrabbit	one seen here
VMBJ02	"	two seen here
		Cryptantha sp.
		Gold fields
		wooly blue curls
		chia
		ground pink
		brassica sp.
		penstemon sp.
		Spotted towhee
		California towhee
		Blackchinned sparrow
		Raven
		California Thrasher
		Scrub jay
		hummingbird sp.
		red-tailed hawk
		Lazuli Bunting
		Lark Sparrow
		Horned larks
		Turkey vulture

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

area surveyed is marked on map 19M

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Viviane Marquez Add'l Person: John Date: 5/12/10

Project: Campo Wind Energy Project Map #: 19 Survey Sxn: O + P (partial) (did in error during survey for M)

GPS Unit : Garmin 12 QCB Protocol Survey # _____ of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	8:35	65.3	0.5/1.2	Ø	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
	9:45	69.0°	2.2/2.8	Ø	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	10:45	76.3°	2.3/5.4	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

Butterfly Species	Tally	Total
Acmon Blue	𝍸 𝍸 ||	7
Marine Blue	|	1
Behrs Metalmark	𝍸 ||	7
Sara's Orangetip	|	1
Pale Swallowtail	|	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		American Crow
		Cryptantha sp.
		erodium sp
		Calif Quail
		Scrub Jay
		Coyote Scat
		Chia
		~~Yucca~~ Goldfields
		California Towhee
		Lesser Goldfinch
		Mourning Dove
		Lupine sp.
		Annual Lotus
		House finch

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: BRIAN Lohstroh Add'l Person: Philip Date: 5/12/10

Project: Campo Wind Energy Project Map #: 21 Survey Sxn: N

GPS Unit : Garmin 1 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1330	76	3-7	0	(clear)	patchy	overcast	drizzle	shower
	1430	74	3-8	0	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1530	75	3-12	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

Butterfly Species	Tally	Total
Painted Lady		1
Southern blue		1
Dusky wing SP		1
Acmon blue		5
Hartfordi Sulphur		1
Orange tip (Sara)		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
BLCH08	host plant patch	300+ ind
BLCH09	"	300+ ind
		Lego
		BCSP
		BEWR
		BCSP
		Webb
		Bush
		WBNH
		Lago
		2 bee swarms
		Nectar sources: cryptantha, Dichlostemma
		lotus scoparius, strigosus Phacelia distans,
		Parryi, cheanactis spp ericameria
		Emmenanthe, Eriophyllum wallacei
		Gilia spp, chia Paintbrush mimulus Aur
		penstemon, Mimulus [illegible] Scroph cal

TOTAL NUMBER OF QCB DETECTED: ∅ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Brian Lohstroh Add'l Person: Philip Date: 5/12/10

Project: Campo Wind Energy Project Map #: 20 Survey Sxn: P

GPS Unit : Garmin 1 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0845	63	0-1	0	(clear)	patchy	overcast	drizzle	shower
	1210	74	0-3	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	1300	79	0-4	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

Butterfly Species	Tally	Total
Behr's Metalmark	~~58~~	58
Painted Lady		2
Acmon		3
Dusky wing		3
Gray hairstreak		1
Pale Swallowtail		1
Sara Orangetip		6
Hartford's Sulpher		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
BLCH01	host plant patch	100+ individuals
BLCH02		30+ "
BLCH03		40+ "
BLCH04		500+ "
BLCH05		500+ "
BLCH06		100+ "
BLCH07		100+ "
~~BLCH08~~		~~200+~~
~~BLCH09~~		~~100+~~
BLHL01	horned Lizard	♀
BLHL02	"	♀
		BCSP ACWO Bush
		CALT SCJA BEWR
		CORA SPTO Wren
		RTHA BHGR
		Coyote + pup + den
		cottontail CA ground squirrel
		Nectar sources: Cheanactis spp cryptantha
		Delphinium Lotus strigosa, Gilia spp
		Lasthenia Linanthus bellus, gracilis
		Lupinus spp, Layia, Senecio Cal Lotus
		agrophyllus

TOTAL NUMBER OF QCB DETECTED: ∅ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: NONE Date: 12 MAY, 2010

Project: Campo Wind Energy Project Map #: TILE 12 Survey Sxn: CAMPO - C

GPS Unit : GARMIN 3 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0845	65	Ø	CLEAR	(clear)	patchy	overcast	drizzle	shower
	0857	67	Ø→1 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	—				clear	patchy	overcast	drizzle	shower
	1400	72	3→5 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1500	73	3→11 MPH	CLEAR	(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)

Butterfly Species	Tally	Total
BEHR'S METALMARK	IN FIELD NOTEBOOK	26
CALIFORNIA MARBLE	"	1
SOUTHERN BLUE	"	1
ACMON BLUE	"	7

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCHL31	Point	Juvenile

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: NONE Date: 12 MAY, 2010

Project: Campo Wind Energy Project Map #: TILE 11, 12 Survey Sxn: CAMPO - E

GPS Unit : GARMIN 3 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	67	Ø->1 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1000	71	Ø->2 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1100	72	1->4 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1200	74	1->3 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1300	73	1->4 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1345	72	3->5 MPH	CLEAR	(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)

Butterfly Species	Tally	Total
BEHR'S METALMARK	IN FIELD NOTEBOOK	60
SARA ORANGETIP	"	2
ACMON BLUE	"	28
FUNEREAL DUSKYWING	"	3
CALIFORNIA MARBLE	"	1
SPRING WHITE	"	6
CALIFORNIA SOOTYWING	"	4
PALE TIGER SWALLOWTAIL	"	1
WEST COAST LADY	"	1
SPRING AZURE	"	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
NUMBERED	POINTS REPRESENT COLLINSIA SP. LOCATIONS	

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: D.R. Faulkner Add'l Person: BO Date: 13 May 2010

Project: Campo Wind Energy Project Map #: 14 Survey Sxn: CAMPO K

GPS Unit : #6 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1200	79	4	Ø	(clear)	patchy	overcast	drizzle	shower
	1300	79	4	10	(clear)	patchy	overcast	drizzle	shower
	1400	77	4	10	(clear)	patchy	overcast	drizzle	shower
	1500	76	7	Ø	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1600	76	5	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

Butterfly Species	Tally	Total
P. eurymedon		5
A. Virgulti		9
P. Acmon		16
A. Sara		1
V. Cardui		2
E. funalis		2
C. Augustino		2
P. a. clara		1
C. gabbii		1
S. melinus		1
Echo blue		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
414	8	horned lizard
	9-10	Antirrhinum.
		Nectar: Blue dicks.
		cryptantha
		Goldfields
		Collinsia
		yellow yarrow
		deer weed

TOTAL NUMBER OF QCB DETECTED: ___Ø___ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DR. FAULKNER Add'l Person: BO Date: 13 MAY 2010

Project: Campo Wind Energy Project Map #: 15 Survey Sxn: CAMPO K

GPS Unit : #6 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	68	1	Ø	(clear)	patchy	overcast	drizzle	shower
	1000	75	1	Ø	(clear)	patchy	overcast	drizzle	shower
	1100	76	Ø	Ø	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1200	79	4	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

Butterfly Species	Tally	Total
Euphydryas fonscalis		3
P. Acmon		15+
A. Virgulti		15+
L. Xanthoides		1
P. eurymedon		2
A. SABA		1
P. protodice		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
15K	Mark 1-3	Antirrhinum → Potential QCB larval hosts
	Mark 4-7	Collensia → Potential QCB larval hosts
		nectar: Deerweed
		Cryptantha
		Blue dicks.
		Collensia

TOTAL NUMBER OF QCB DETECTED: ___Ø___ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 5-13-2010

Project: ~~Campo~~ Wind Energy Project Map #: 9-J Survey Sxn: _____

GPS Unit : 2 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	67	2-5	1%	clear	patchy	overcast	drizzle	shower
	1115	78	0-4	10%	clear	patchy	overcast	drizzle	shower
	1515	79	3-6 (8)	15%	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Acmon Blue		55
Sara's Orangetip		5
Western tailed-Blue		1
Pale Swallowtail		12
Behr's Metalmark		72
Gabb's Checkerspot		3
Painted Lady		3
Brown Elfin		1
Sleepy Duskywing		1
Dusky wing		3
Checkered White		3
Gray Hairstreak		1
Gorgon Copper		1
Sulfur (Hartford's ?)		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MMSTCA01	Sensitive plant pt	Streptanthus campestris
MMSTCA02		" 2 plants
03		" 10 plant
04		" 5 plant
05		" 10 plant
06		" 1 plant
07		" 10 plants
MMHL01	sensitive lizard pt	Horn Lizard
MMAC01	Host plant pt	Antirrhinum coulterianum 10 plants

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Natalie Brodie Add'l Person: Phillip Date: 13 May 2010

Project: Campo Wind Energy Project Map #: 1 Survey Sxn: A

GPS Unit : Garmin 9 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1230	72°	4/8	10-20%	(clear)	patchy	overcast	drizzle	shower
	1330	74°	2/8	10-20%	(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	1600	70°	3/6	10-20%	clear	(patchy)	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Behr's metalmark	𝍸 𝍸 𝍸

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		goldfields, popcorn flower
NBAR01		Antirrhinum 10+
NBAR02		Antirrhinum 5+
NBAR03		Antirrhinum 25+
NBAR04		Antirrhinum 20+

TOTAL NUMBER OF QCB DETECTED: ___Ø___ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: B. Lohstroh Add'l Person: John (Escort) Date: 5/13/10

Project: Campo Wind Energy Project Map #: 17, 18, 19 Survey Sxn: N

GPS Unit : 1 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0940	74°F	0-1	0		clear	patchy	overcast	drizzle	shower
	1200	78	3-5	20	thin	clear	patchy	overcast	drizzle	shower
	1300	80	0-3	20	thin	clear	patchy	overcast	drizzle	shower
	1400	81	0-3	30	thin	clear	patchy	overcast	drizzle	shower
						clear	patchy	overcast	drizzle	shower
						clear	patchy	overcast	drizzle	shower
END	1530	82	0-9	10	thin	clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Acmon blue		13
Behr's metal mark		23
perplexing hairstreak		2
Pale swallowtail		4
Sara Orangetip		3
Gorgon's copper		2
Common sootywing		1
Southern blue		1
Hartford's sulpher		1
Painted Lady		1
West Coast Lady		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
BLHL01	point	Horned Lizard adult Sunning on Branch
BLHL02	"	Adult Horned Lizard
BLCH01	~~Host~~ Host plant patch	Colinsia patch 100 + individuals
BLCH02	"	" 300 + "
BLCH03	"	" 1000 + "
BLCH04	"	" 100 + "
BLCH05	"	" 100 + "
		SCja BHGR WREN BeWR Webk BGGN
		SPTO BTSP CALT RTHa CoHa Welci
		HOFI CAQU
		W. Whiptail, Coast horned lizard, W. Fence Lizard
		S. Pacific Rattlesnake, CA Toad (dead)
		Cottontail, CA ground squirrel
		Nectar Sources:
		Erodium, Lupinus, penstemons, cryptantha,
		Camissonia, trichostema, Blue dicks,
		Eriophyllum conveniflorum, chia Gilia spp,
		Lotus spp, mimulus bar wiper, Pincushion spp,
		Senecio CAlifornia Lepto siphon sp.

TOTAL NUMBER OF QCB DETECTED: ϕ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: B. Lohstroh Add'l Person: John (Escort) Date: 5/13/10

Project: Campo Wind Energy Project Map #: 21 Survey Sxn: N

GPS Unit : 1 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0850	69	0-1	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	0930	72°F	0-1	0	clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Painted Lady		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		BCWR
		Scja
		BCSP
		WAVi
		cotton tail, Coyote track
		side-blotched Lizard
		W. Fence Lizard
		Nectar Sources: Eriophyllum wallacei, Cryptantha, Erodium, Lupinus concinus Camissonia

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Natalie Brodie Add'l Person: Phillip Date: 13 May 2010

Project: Campo Wind Energy Project Map #: 13 Survey Sxn: F

GPS Unit: Garmin 9 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0850	60°	calm	0	(clear)	patchy	overcast	drizzle	shower
	1015	65°	calm	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	1145	69°	2/6	10%	(clear)	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Behrs metalmark	𝍸 𝍸 𝍸

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		goldfields, popcorn flower Gilia sp., tidy tips,
		groundpink
NBGH01		Collinsia sp. <50
NBCH02		Collinsia sp. ~30 individuals
NBCH03		Collinsia sp. ~30
NBCØ1		Cordylanthus, 35-40
NBCH04		Collinsia sp. ~30
NBHL01		Horned lizard

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: John Bostick Date: 5/14/10

Project: Campo Wind Energy Project Map #: 26 Survey Sxn: Campo [redacted]9

GPS Unit : 11 QCB Protocol Survey # 5 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1325	85°	4/6	0	clear	patchy	overcast	drizzle	shower
	1535	80°	5/7	5%	clear	patchy	overcast	drizzle	shower
	1530	75	6/9	10%	clear	patchy	overcast	drizzle	shower
	1600	80°	4/5	5%	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Jaras Dotted Skipper	IIII III	8
Behr's Metalmark	IIII IIII IIII IIII IIII IIII IIII III	38
Acmon Blue	IIII IIII I	11
Blue?	IIII IIII III	13
White?	III	3
Dusky-wing	IIII II	13
Funereal Dusky-wing	IIII	4
Gabb's	II	2
Orange?	I	1
Hoffman's Sulfur	II	2
Southern Blue	II	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Layia
		Lasthenia
		Plagio borthys
		Cryptantha
		Pterostemon
		Delphinium
		Eschscholzia
		Salvia columbariae
		Chaenactis
		Cirsium.
		Phacelia
006	Point	Collinsia
↓	"	"
0025	"	"
PH602	Point	San Diego Horned Lizard
03	"	
05	"	

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: NONE Date: 14 MAY, 2010

Project: Campo Wind Energy Project Map #: MAP TILE 19 Survey Sxn: CAMPO-N

GPS Unit : GARMIN 3 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1030	77	Ø->3 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1100	78	Ø->5 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1200	80	Ø->3 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1230	79	Ø->3 MPH	CLEAR	(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)

Butterfly Species	Tally	Total
ACMON BLUE	IN FIELD NOTEBOOK	3
BEHRS METALMARK	"	50
FUNEREAL DUSKYWING	"	4
RED ADMIRAL	"	1
PERPLEXING HAIRSTREAK	"	3
SARA ORANGETIP	"	4
PALE TIGER SWALLOWTAIL	"	20
SPRING AZURE	"	20
SPRING WHITE	"	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCWW06	POINT	
MCLA09	POINT	
COLLINSIA SP.	MARKED AS NUMBERED POINTS IN GARMIN MEMORY. WHERE POINTS	
CREATE CIRCULAR POLYGONS THAT END AT THE SAME START POINT, THIS REPRESENTS		
A PATCH OF COLLINSIA WITHIN THE CIRCLE.		

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE GOUFFER Add'l Person: NONE Date: 14 MAY, 2010

Project: Campo Wind Energy Project Map #: TILE 5 Survey Sxn: CAMPO - A

GPS Unit : GARMIN 3 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1330	74	Ø→5 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1400	73	Ø→3 MPH	5%	(clear)	patchy	overcast	drizzle	shower
	1500	75	Ø→3 MPH	20%	(clear)	patchy	overcast	drizzle	shower
	1600	75	Ø→1 MPH	20%	(clear)	patchy	overcast	drizzle	shower
	1621	77	Ø→2 MPH	20%	(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)

Butterfly Species	Tally	Total
ACMON BLUE	IN FIELD NOTEBOOK	11
FUNEREAL DUSKYWING	"	6
SARA ORANGETIP	"	4
BEHR'S METALMARK	"	49
ARROWHEAD BLUE	"	16
PAINTED LADY	"	4
WEST COAST LADY	"	1
GRAY HAIRSTREAK	"	1
HARFORD SULPHUR	"	2
SPRING WHITE	"	1
SOUTHERN BLUE	"	9

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCHL33	POINT	JUVENILE
MCHL34	POINT	ADULT
COLLINSIA SP. PLANTS MARKED AS NUMBERED POINTS IN GARMIN MEMORY. WHERE POINTS CREATE A ROUGH CIRCLE, THIS REPRESENTS A PATCH OF COLLINSIA WITHIN THE CIRCLE.		

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Mike Couffer Add'l Person: None Date: 14 May, 2010

Project: Campo Wind Energy Project Map #: Tile 19 Survey Sxn: Campo - P

GPS Unit : Garmin 3 QCB Protocol Survey # 60 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0851	75	Ø->2 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	0900	75	Ø	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1000	81	Ø->2MPH	CLEAR	(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)

Butterfly Species	Tally	Total
Acmon Blue	In Field Notebook	7
Behrs Metalmark	"	5
Funereal Duskywing	"	2
Painted Lady	"	1
Sara Orangetip	"	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCWW01	POINT	
MCWW02	POINT	
MCWW03	POINT	
MCWW04	POINT	
MCWW05	POINT	
NO COLLINSIA PLANTS WERE OBSERVED OR RECORDED IN THIS SURVEY SECTION		

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Margie Mulligan Add'l Person: _____ Date: 5.14.2010

Project: Campo Wind Energy Project Map #: 10, 15, 16-I Survey Sxn: _____

GPS Unit : 12 QCB Protocol Survey # 6 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	70°	2-7	0%	(clear)	patchy	overcast	drizzle	shower
	1215	75°	4-6	10%	(clear)	patchy	overcast	drizzle	shower
	1515	79°	4-6	20%	(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)

Butterfly Species	Tally	Total
Acmon Blue		42
Pale Swallowtail		7
Sara's Orangetip		4
Spring Azure		7
Brown Elfin		1
Behr's Metalmark		28
Common White		2
Duskywing		4
Sulphur sp.		1
Nectar Plants:		
Chaenactis artemsiifolia & C. glabruscula		
salvia clevelandii		
Emmenanthe pendulifera		
Camissonia californica		
Eschscholtzia californica		
Cryptantha spp.		
Gilia capitata ssp. c.		
Lupinus concinnus, L. truncatus & L. bicolor		
Stylomecon		
Platystemon californicus		

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MMAC01	Host plant pt	Antirrhinum coultenianum 8 plants
02	"	10 plants
03	"	3 plants
MMCH01	Sensitive plant pt	Collinsia concolor 25 plants
02	"	" 10 plants
03	"	" 40 plants
04	"	" 100 plants
05	"	" 30 plants
06	"	" 20 plants
~~MMDP01~~ MMDPS01	"	Delphinium parishii subglobosum
MMDPS02		20 plants
03		25 plants
04		30 plants
05		50 plants
06		100 plants
07		10 plants
08		15 plants
09		20
10		30
11		15
12		10
13		50
14		20
15		10
MMLB01		1500 plants
MMSC01		3 plants
MMSC02		25 plants
MMSC03		5 plants
04		5 plants
05		15 plants
06		10 plants
07		15 plants
08		20 plants
09		5 plants

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: B. Lohstroh Add'l Person: Raymond (Escort) Date: 5/14/10

Project: Campo Wind Energy Project Map #: 11, 12, 16 Survey Sxn: G

GPS Unit : 2 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0850	70	0-4	0	(clear)	patchy	overcast	drizzle	shower
	1015	75	0-4	0	(clear)	patchy	overcast	drizzle	shower
	1140	79	0-7	0	(clear)	patchy	overcast	drizzle	shower
	1320	76	3-6	20 thin	clear	(patchy)	overcast	drizzle	shower
	1430	79	3-5	20 thin	clear	(patchy)	overcast	drizzle	shower
	[illegible]				clear	patchy	overcast	drizzle	shower
END	1500	78	0-2	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

Butterfly Species	Tally	Total
Behr's metal mark		15
Acmon Blue		18
Pale swallowtail		3
Southern blue		1
Sara orangetip		7
Hartfords sulfer		5
Painted lady		3
Beckers white		2
Dusky wing sp		2
Square spotted blue		$2
Melissa blue		5
checkered skipper		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
BLBB01	host plant patch	cordylanthus 300+ individuals
BLCH01	"	Collinsia concolor 50+ "
BLCH02	"	100+ "
BLCH03	"	200+ "
BLCH04	"	100+ "
	Birds:	BGGN CATH BCSP SPTO NOFL BEWR COLT GRPO LASP TUVU HOFI SCJA RSHA CORA BHGR CAQU Oati
	Herps:	UTST SCOC BUBO-larvae CNTI
	Mammals:	cottontail, Jackrabbit
	Nectars:	Erodium, Malacothrix spp, Lasthenia Leptosiphon spp, Layia, collinsia, Cryptantha Delphinium, Lotus argophyllus, Amsinkia Linanthus, Lupinus spp, Phacelia parryi, distans, Gilia spp, Mustards, hypocaris glab. Camissonia spp, chia, trichostemma, Senecio CAL; Eriophyllum convert, wallacei. Circium occidentalis, cheanactis spp, Anisocoma acaulis, Dichlostemma capitatum CA poppy

TOTAL NUMBER OF QCB DETECTED: ϕ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K. Faulkner Add'l Person: NONE Date: 14 MAY 2010

Project: Campo Wind Energy Project Map #: 16 Survey Sxn: CAMPO H

GPS Unit : #9 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1300	74	Ø	Ø	clear	patchy	overcast	drizzle	shower
	1400	75	4	Ø	clear	patchy	overcast	drizzle	shower
	1500	77	2	30%	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1600	74	2	50%	clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
P. Acmon		25+
A. Vinquetti		12
H. ericetorum		1
P. protodice		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (~~NECTAR~~ SOURCES, GENERAL WILDLIFE LIST)
16 H	Mark: 19	Collensia
	20	" 100's
	21	Antirrhynum 15+
	22	Collensia
	23	" + Jewel flower (S. bicolor)
	24	"
	25	Antirrhynum
	26	Collensia 100+

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DAVID K. FAULKNER Add'l Person: NONE Date: 14 MAY 2010

Project: Campo Wind Energy Project Map #: 11 Survey Sxn: CAMPO H

GPS Unit : #9 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	69	5	Ø	(clear)	patchy	overcast	drizzle	shower
	1000	74	3	Ø	(clear)	patchy	overcast	drizzle	shower
	1100	78	2	Ø	(clear)	patchy	overcast	drizzle	shower
	1200	80	5	Ø	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1300	74	Ø	Ø	(clear)	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
A. Vigulti		25+
P. eurydamon		1
P. Acmon		25+
E. funeralis		1
V. Cardui		1
Echo BLUE		1
A. SARA		5
E. Propertius		1
P. protodice		2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
#11 H	MARK #1	Horn Lizard (ADULT)
	2	Horn Lizard (ADULT)
	3	Collonsia 100+
	4	"
	5	"
	6	"
	7,8,9,10	" 1000's
	11	" 100's
	12	"
	13	"
	14	"
	15	Cordylanthus
	16	Collonsia
	17	" 100+
	18	"
		Compositos
		Cryptantha
		Blue dicks
		yellow yarrow

TOTAL NUMBER OF QCB DETECTED: ___Ø___ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Mike Coulter, John Bostick Date: 5/14/10

Project: Campo Wind Energy Project Map #: 19 Survey Sxn: Campo NOP

GPS Unit : 11 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	845	74°	4/6	0	clear	patchy	overcast	drizzle	shower
	1100	80°	3/5	0	clear	patchy	overcast	drizzle	shower
	1230	81°	7/9	0	clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Hartford's Sulfur	I	1
Behr's Metalmark	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 II	32
Acmon Blue	𝍸 𝍸	10
Pale Swallowtail	I	1
Blue?	𝍸 𝍸	15
Sara's Orangetip	𝍸 II	7
White?	III	3
Duskywing	𝍸	5
Funeral Duskywing	III	3

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Layia,
		Lasthenia
		Plagio bothrys
		Cryptantha
		Penstemon
		Pelphinium
		Eschscholzia
		Salvia columbariae
		Chaenactis
		Cirsium
		Phacelia
001	Point	Callisto
↓	"	"
004	"	"
DPHL01	"	San Diego Horned Lizard

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dave Fletcher Add'l Person: John Bostick Date: 5-15-10

Project: Campo Wind Energy Project Map #: 16 Survey Sxn: M

GPS Unit : 11 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	~~12:10~~	80	5-8	0	(clear)	patchy	overcast	drizzle	shower
	12:10				clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	15:10	80	4-6	5	(clear)	patchy	overcast	drizzle	~~shower~~

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

Butterfly Species	Tally	Total
Behrs metalmark	1	
white	1	1
Lupine blue	1	1
Southern (?) blue	2	2
Acmon blue	1	1
(dotted) blue	2	2
Sara orangetip	2	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Esch calif
		Lup cone
		Crypt int
		Malocothrix
		Plagiobothrys
		-Phacelia imbricata ssp patula (not flowering, but of note)
		Lupinus succ
		Linanthus lemmonii
		Delphinium sp.
		Layia glandulosa
		Lasthenia calif
DFOC01	point	1 Castilleja exserta
DFCH01	point	10 Collinsia
		Gilia sp.
DFCH03	point	~~30~~ 50 Collinsia
DFHL03	point	, horned horned lizard

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: ~~Dave F, J~~ Dave Fletner Add'l Person: John Bostick Date: 5-15-10

Project: Campo Wind Energy Project Map #: 19 Survey Sxn: M

GPS Unit : 11 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	8:40	74	6-10	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
	12:10				clear	patchy	overcast	drizzle	shower
END	~~12:10~~	80	5-8	0	(clear)	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Harford's sulfur	:	2
White	::	4
Sara orange tip	·	1
Behrs metalmark	⊠⊠	20
Southern (?) or boisd blue	::	4
Fun dusky wing	⊡	8
Acmon blue	⊠::	14
Painted lady	-	1
Propertius dusky wing	::	3
~~Ottoa~~ Pale swallowtail	·	1
Common scotywing	-	1
Lupine blue	:	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Cryp int
		Malo cothrix
		Cam bist
		Dich cap
		Lup trunc
		Lotus str
		Penstemon (purple)
		Salv colum
		Laothenia cali
DF CP01	point	1 Lathyrus splendens ~~cal~~ in Quac
DF CP02	point	~~3~~ 9 " " " "
DF CP03	"	~18 " " " "
DF CP04	"	~3 " " " "
DF CH01	"	~9 Collinsia
		Linanthus
		Gilia capitatum
DF CP05	"	4 ~~3~~ Lathyrus in Quac
DF CP06	"	3 " " " "
		Mimulus brev
		Amsinckia menz
		Caulanthus heterophylla

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Bo Wiley Date: 5/15/10

Project: Campo Wind Energy Project Map #: 5 Survey Sxn: Campo C

GPS Unit : 9 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1452	74°	5/10	0	clear	patchy	overcast	drizzle	shower
	1515	81°	5/7	0	clear	patchy	overcast	drizzle	shower
	1415	78°	7/9	8	clear	patchy	overcast	drizzle	shower
	1510	81°	3/4	8	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

Butterfly Species	Tally	Total
Harford's Sulfur	I	1
Yellow ?	III	3
Behr's Metalmark	𝍸 𝍸 𝍸 𝍸 𝍸	30
Acmon Blue	III	3
Blue ?	𝍸 𝍸	15
Lady ?	II	2
Sara's Orangetip	II	2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Layia
		Lasthenia
		Cryptantha
		Penstemon
		Plagiobothrys
		Erodium
012	Point	Collinsia
↓	"	"
020	"	"

TOTAL NUMBER OF QCB DETECTED: 3 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Bo Wilkey Date: 5/15/10

Project: Campo Wind Energy Project Map #: 11 Survey Sxn: Campo C

GPS Unit : 9 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	8:40	72°	6/8	0	clear	patchy	overcast	drizzle	shower
	10:10	730	7/12	0	clear	patchy	overcast	drizzle	shower
	11:35	76°	7/9	0	clear	patchy	overcast	drizzle	shower
	11:45				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

Butterfly Species	Tally	Total
Harford's Sulfur	I	1
Yellow?	I	1
Sara's Orangetip	III	3
White?	I	1
Checked White	II	2
Behrs Metalmark	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	35
Lady?	I	1
Acmon Blue ♀	II	2
Blue?	𝍸 I	6
Southern Blue	I	7

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Layia
		Lasthenia
		Cryptantha
		Penstemon
		Plagiobothrys
		Erodium
001	Point	Collinsia
↓	"	"
011	"	"
DPBT01	Point	Black Tailed Jack Rabbit

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: NONE Date: 15 MAY, 2010

Project: Campo Wind Energy Project Map #: TILES 15+16 Survey Sxn: CAMPO-L

GPS Unit : GARMIN 12 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0830	74	4→9 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	0900	74	3→9 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1000	78	Ø→4 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1100	80	Ø→5 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1200	76	Ø→6 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1300	80	Ø→7 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
END	1400	84	Ø→4 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower

Habitat On-site (circle): (open soils), (hilltops), (ridges), (rock outcrops), soil crusts, clay soils, (old roads), (various nectar sources)
1415HRS, 84°F, WIND=Ø→4 MPH, CLEAR

Butterfly Species	Tally	Total
BEHR'S METALMARK	IN FIELD NOTEBOOK	93
ACMON BLUE	"	39
PAINTED LADY	"	1
MARINE BLUE	"	3
CERAUNUS BLUE	"	1
SPRING AZURE	"	6
CALIFORNIA SOOTYWING	"	3
SARA ORANGETIP	"	4
FUNEREAL DUSKYWING	"	6
SPRING WHITE	"	4
HARFORD SULPHUR	"	2
PALE TIGER SWALLOWTAIL	"	2
GORGON COPPER	"	1
PERPLEXING HAIRSTREAK	"	1
SOUTHERN BLUE	"	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
MCHL35	Juvenile (Point)	
All numbered Points Represent		Collinsia sp. Locations

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: John Bostick Date: 5/16/10

Project: ~~Manzanita~~ Campo Wind Energy Project Map #: 6 Survey Sxn: Campo B

GPS Unit : 6 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	15:15	80°	7/9	0	(clear)	patchy	overcast	drizzle	shower
	16:40	81°	5/7	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)

Butterfly Species	Tally	Total
White 3	M	3
Southern Blue	1	1
Acmon Blue	1	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: John Bostick Date: 5/16/10

Project: ~~Manzanita~~ Campo Wind Energy Project Map #: 2, 7 Survey Sxn: Campo D

GPS Unit : 6 QCB Protocol Survey # 6 of 5

	TIME (24-hour)	Temp (F°):	Wind (avg/max)	% CC	Sky				
START	8:45	71°	8/11	0	clear	patchy	overcast	drizzle	shower
	9:50	76°	6/10	0	clear	patchy	overcast	drizzle	shower
	11:30	78°	6/9	0	clear	patchy	overcast	drizzle	shower
	12:55	81°	5/6	0	clear	patchy	overcast	drizzle	shower
	14:50	79°	4/7	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

Butterfly Species	Tally	Total
Behrs Metalmark	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	30
Lady?	𝍸	2
Pale Swallowtail	𝍸	1
Blue?	𝍸 𝍸	7
Sulfur?	𝍸	2
Sara's Orangetip	𝍸	2
White	𝍸	3
Acmon Blue	𝍸	3

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
DPHL01	Point	San Diego Horned Lizard

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K. Faulkner Add'l Person: Lewis C. Date: 16 May 2010

Project: Campo Wind Energy Project Map #: 11/12 E Survey Sxn: CAMPO E

GPS Unit : #5 QCB Protocol Survey # 6 of 5 .

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0900	70	4	∅	(clear)	patchy	overcast	drizzle	shower
	1000	75	5	∅	(clear)	patchy	overcast	drizzle	shower
	1100	77	5	∅	(clear)	patchy	overcast	drizzle	shower
	1200	75	7	∅	(clear)	patchy	overcast	drizzle	shower
	1300	73	6	∅	(clear)	patchy	overcast	drizzle	shower
	1400	81	3	∅	(clear)	patchy	overcast	drizzle	shower
END	1500	80	4	∅	(clear)	patchy	overcast	drizzle	shower

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

	1600	77	8	∅	○				

Butterfly Species	Tally	Total
Plebejus Acmon		25+
Apodemia virgulti		25+
Anthocharis SARA		4
Celastrina echo		2
Erynnis funeralis		2
Colias harfordii		2
Pontia protodice		6
Leptotes marina		1
Euphilotes bernardino		1
Papilio eurymedon		1
Plebejus melissa		1
* Eurema nicippe		1
Vanessa cardui		2
Brephidium exilis		1
Euptoieta claudia *		1
*UNUSUAL		

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
#11,12 E	MARK: 1.	Collensia (100+)
	2.	" (100+)
	3.	" (~50)
	4	" (100's)
	5.	HORNED LIZARD
		NECTAR: CRYPTANTHA
		BLUE DICKS
		GOLDFIELDS
		MISC. COMPOSITES
		COLLENSIA

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DAVID FLETCHER Add'l Person: JOSH PAPA Date: 5-17-10

Project: Campo Wind Energy Project Map #: 20 Survey Sxn: P

GPS Unit : 6 (2) QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
~~START~~	10:40	69	3-5	100	clear	patchy	(overcast)	drizzle	shower
START	11:20	73	2-4	100	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	16:00	68	3-6	10	(clear)	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
Acmon blue	::	2
Funereal dusky wing	:::	3
Behrs metalmark	⊠⊠	20
Marine blue	::	4
Melissa blue	⊠	10
Sara orange-tip	·	
~~Western tailed blue~~	←	
Dainty Sulfur	·	1
Checkered White	·	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
		Last col
		Cryt int
		Salv col
		Camis bist
		Mimulus brevipes
		Esch calif
		Filago calif
CH → CH X		popns of Collinsia – probably can unite many to form polygon
DFHL01	point	Horned lizard
		Chaenactis glab
		Erysisimum cap
		Eriophyllum wallacei
		Linanthus diand
		Delphinium
		Eriastrum sap
		Lotus strig
		Camissonia campestris
		Phacelia minor
		Layia gland
		Cereopsis calif? (10-12 rays)

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K. Faulkner Add'l Person: _____ Date: 17 May 2010

Project: Campo Wind Energy Project Map #: 7 Survey Sxn: F

GPS Unit : SM #13 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1500	68	8	0	(clear)	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1600	66	11	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

Butterfly Species	Tally	Total
A. m. Uhleyulti		2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST ~~(NECTAR~~ SOURCES, GENERAL WILDLIFE LIST)
7 F		Cryptantha
		Gold fields

TOTAL NUMBER OF QCB DETECTED: Ø INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DAVID K. FAULKNER Add'l Person: _____ Date: 17 MAY 2010

Project: Campo Wind Energy Project Map #: 8 Survey Sxn: CAMPO - B

GPS Unit : SM # 13 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1400	75	8	50	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	1500	68	8	0	(clear)	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
A. Morma Virgulti		8
P. Acmon		2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
8-B		Cryptanth
		Blue Dicks
		Goldfields

TOTAL NUMBER OF QCB DETECTED: ___Ø___ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: DAVID K. FAULKNER Add'l Person: _____ Date: 17 MAY 2010

Project: Campo Wind Energy Project Map #: 13 Survey Sxn: CAMPO F

GPS Unit : SM #13 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1100	68	5	100	clear	patchy	(overcast)	drizzle	shower
	1200	69	5	100	clear	patchy	(overcast)	drizzle	shower
	1300	72	4	100	clear	patchy	(overcast)	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END	1400	75	8	50	clear	(patchy)	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
P. Acmon		3
A. Virgulti		4
L. Marina		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
13 F	MARKS # 255	Collensia
	256	"
	257	" 100's
	258	
	259	Horned Lizard (juvenile)
	260 - 264	Collensia
		Cryptantha
		Blue Dicks
		Goldfields

TOTAL NUMBER OF QCB DETECTED: ___Ø___ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: David K. Faulkner Add'l Person: _____ Date: 17 May 2010

Project: Campo Wind Energy Project Map #: 12 Survey Sxn: C

GPS Unit : SM # 13 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1000	69	5	100	clear	patchy	(overcast)	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
					clear	patchy	overcast	drizzle	shower
END					clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
P. Acmon		2

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
12C		Cryptantha
		Goldfields

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE COUFFER Add'l Person: ERIN BERGMAN Date: 17 MAY, 2010

Project: Campo Wind Energy Project Map #: TILE 24 Survey Sxn: CAMPO - R

GPS Unit: GARMIN 12 QCB Protocol Survey # 6 of 6

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1000	69	Ø->5 MPH	100	clear	patchy	overcast	drizzle	shower
	1100	69	Ø->3 MPH	100	clear	patchy	overcast	drizzle	shower
	1200	74	Ø->3 MPH	100	clear	patchy	overcast	drizzle	shower
	1300	70	Ø->2 MPH	100	clear	patchy	overcast	drizzle	shower
	1400	73	Ø->3 MPH	80	clear	patchy	overcast	drizzle	shower
	1500	70	2->8 MPH	20	clear	patchy	overcast	drizzle	shower
END	1545	69	2->5 MPH	20	clear	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
ACMON BLUE	IN FIELD NOTEBOOK	140
BEHR'S METALMARK	"	7
HENNE'S CHECKERSPOT	"	48
SARA ORANGETIP	"	32
GABB'S CHECKERSPOT	"	6
CALIFORNIA SOOTYWING	"	2
BROWN ELFIN	"	10
MARINE BLUE	"	6
FUNEREAL DUSKYWING	"	9
PALE TIGER SWALLOWTAIL	"	3
SPRING AZURE	"	9
RED ADMIRAL	"	1
PERPLEXING HAIRSTREAK	"	2
PAINTED LADY	"	1
DAINTY SULPHUR	"	1
GORGON COPPER	"	5

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
NUMBERED	POINTS REPRESENT	COLLINSIA AND COULTER'S SNAPDRAGON LOCATIONS.

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Lawrence Moore Date: 5/17/10

Project: Campo Wind Energy Project Map #: 26 Survey Sxn: Camp 9

GPS Unit : 11 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	10:50	60°	3/5	100	clear	patchy	(overcast)	drizzle	shower
	12:10	65°	6/8	100	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

Butterfly Species	Tally	Total
Hoffman's Sulphur	1	1
Common Blue		1
Too Cold		

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)

TOTAL NUMBER OF QCB DETECTED: 7 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: Lawrence Moore Date: 5/17/10

Project: Campo Wind Energy Project Map #: 22 Survey Sxn: Campo 9

GPS Unit : ij QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	11:25	67°	6/8	100	Slight shadows clear	patchy	overcast	drizzle	shower
	13:00	67°	5/10	100	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

Butterfly Species	Tally	Total
Behr's Metalmark	1	1
Too Cold		

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Mike Coulter Add'l Person: None Date: 19 May, 2010

Project: Campo Wind Energy Project Map #: Tile 24, 25 Survey Sxn: Campo-R2

GPS Unit: Garmin II QCB Protocol Survey # Co of 6

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0840	68	Ø→1 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	0900	69	Ø→1 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1000	71	Ø→1 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1100	85	Ø→2 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1200	84	Ø	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1300	82	Ø→1 MPH	CLEAR	(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)

Butterfly Species	Tally	Total
Acmon Blue	In Field Notebook	140
Henne's Checkerspot	"	43
Sara Orangetip	"	24
Pale Tiger Swallowtail	"	4
Gabb's Checkerspot	"	13
Gorgon Copper	"	13
California Sister	"	1
Harford's Sulphur	"	3
Painted Lady	"	1
Behr's Metalmark	"	6
Marine Blue	"	2
Spring Azure	"	8
Funereal Duskywing	"	5
Spring White	"	2
California Marble	"	1
Cloudless Sulphur	"	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
NUMBERED POINTS REPRESENT COLLINSIA POINTS.		

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Dale Powell Add'l Person: John Bostick Date: 5/19/10

Project: Campo Wind Energy Project Map #: 23 Survey Sxn: 6

GPS Unit : 6 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0930	67°	0/0	0	~~clear~~	patchy	overcast	drizzle	shower
	1045	82°	4/6	0	~~clear~~	patchy	overcast	drizzle	shower
	1230	84°	5/8	0	~~clear~~	patchy	overcast	drizzle	shower
	1240 end				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

Butterfly Species	Tally	Total
Sara's Orangetip	~~HH~~ |	6
Gorgon Copper	||	2
Behr's Metalmark	|||| ~~HH~~ ~~HH~~ ~~HH~~	20
Checkered White	||	2
White ?	|||	3
Acmon Blue	||||	4
Marina Blue	|||	3
Sulfur ?	||||	4
Blue ?	~~HH~~ |||	9
Duskywing	~~HH~~ ~~HH~~	10
Funeral Duskywing	~~HH~~	5

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
001	Point	Antirrhinum coulterianum (100's)
DPH101	Point	San Diego Horned Lizard

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Brian Lohstroh Add'l Person: Daniel Date: 5/19/10

Project: ~~Manzanita~~ Campo Wind Energy Project Map #: 21 Survey Sxn: N

GPS Unit : 6 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	1230	74	0-5	0	(clear)	patchy	overcast	drizzle	shower
	1300	78	3-10	1	(clear)	patchy	overcast	drizzle	shower
	1400	81	0-5	1	(clear)	patchy	overcast	drizzle	shower
	1500	83	0-6	1	(clear)	patchy	overcast	drizzle	shower
	1530	86	0-5	1	(clear)	patchy	overcast	drizzle	shower
	↓			1	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

Butterfly Species	Tally	Total
Orangetip (sara)		3
Dusky wing sp		4
Marine Blue		3
Painted Lady		1
White sp.		1
Chalcedon checkerspot		1
Acmon Blue		2
Sulphur sp.		1
Funereal Duskywing		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
BLSC01	Rare Plant	Streptanthus campestris
	Birds:	BCSP LEGO BEWR WTSW
		WREN SPTO CISW ASFL
		LEGO SCJA COMA CALT
		MODO WBNH HOFI NUWO
		RSHa
	Herps:	side blotched Lizard, W. Whiptail
		W. Fence Lizard
	Nectar Sources	Lupines cryptantha
		erodium ~~xx~~ eriophyllum wallacei
		Gilia SP Lotus scoparius,
		Lotus argophyllus, cheanactis,
		Mimulus SPP, phacelia SPP
		Lasthenia pentstemon, yucca

TOTAL NUMBER OF QCB DETECTED: ___Ø___ INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: Brian Lohstroh Add'l Person: Daniel Date: 5/19/10

Project: Manzanita Wind Energy Project (camp) Map #: 20 Survey Sxn: P

GPS Unit : 6 QCB Protocol Survey # 6 of 5

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	845	66	0-1	0	(clear)	patchy	overcast	drizzle	shower
	1000	70	0-3	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	1230	74	0-5	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

Butterfly Species	Tally	Total
Acmon blue		9
Orange tip		7
Behr's metalmark		18
Square spotted blue		2
Pale swallowtail		2
Marine blue		9
Dusky wing sp.		1
Gabb's checkerspot		2
Funereal Duskywing		1
Gorgon's copper		1
Western Tailed blue		1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
BLCH01	Host plant	500 individuals Collinsia concolor
	Birds:	BCSP ATFL HOFI CALT
		BEWR CORA SCJA BUSH
		OATI CAQU BTHGR BHCO
		RSHA SPTO THVU MODO
		CATH BGGN WREN
	Herps:	side blotched Lizard, W. Whiptail
		W. Fence Lizard, Granite spiny Lizard
	Mammals:	Co Hontail
	Nectar Sources:	Lupines, wallflower, cheanactis
		Lasthenia, Delphinium, Gilia sp.,
		Layia erodium, Amsonia spp,
		cryptantha, Penstemon, collinsia,
		Camissonia spp, Eriophyllum wallacei
		Linanthus bellus, chia

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

Recorder: MIKE GOUFFER Add'l Person: NONE Date: 20 MAY, 2010

Project: Campo Wind Energy Project Map #: TILE 13 Survey Sxn: CAMPO - F

GPS Unit : GARMIN II QCB Protocol Survey # 6 of 6

TIME (24-hour)		Temp (F°):	Wind (avg/max)	% CC	Sky				
START	0848	71°	3→14 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	0900	73°	2→4 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1000	78°	2→6 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1100	77°	2→6 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1200	75°	1→5 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
	1300	80°	3→6 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower
END	1315	80°	3→5 MPH	CLEAR	(clear)	patchy	overcast	drizzle	shower

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

Butterfly Species	Tally	Total
BEHR'S METALMARK	IN FIELD NOTEBOOK	33
CLOUDLESS SULPHUR	"	2
SPRING WHITE	"	4
ACMON BLUE	"	10
MARINE BLUE	"	23
GRAY HAIRSTREAK	"	1
PAINTED LADY	"	2
FUNEREAL DUSKYWING	"	3
PALE TIGER SWALLOWTAIL	"	5
SPRING AZURE	"	9
BROWN ELFIN	"	3
ANISE SWALLOWTAIL	"	1

Quino Checkerspot Butterfly Protocol Survey
Field Data Sheet

MAP/GPS LABEL	POINT/POLYGON TYPE	COMMENTS FOR ALL MAPPED POLYGOS AND GPS POINTS/ SPECIES LIST (NECTAR SOURCES, GENERAL WILDLIFE LIST)
ALL NUMBERED	POINTS REPRESENT	COLLINSIA LOCATIONS.

TOTAL NUMBER OF QCB DETECTED: 0 INDIVIDUALS

APPENDIX C

SUMMARY OF BUTTERFLY SPECIES OBSERVED DURING FOCUSED QUINO CHECKERSPOT BUTTERFLY SURVEYS FOR THE CAMPO WIND ENERGY PROJECT

APPENDIX C
SUMMARY OF BUTTERFLY AND MOTH SPECIES OBSERVED DURING FOCUSED QUINO CHECKERSPOT BUTTERFLY SURVEYS FOR THE CAMPO WIND ENERGY PROJECT

Common Name	Species Name	Survey Week						
		1	2	3	4	5	6	Total
Papilionidae								
Anise swallowtail	*Papilio zelicaon*	0	2	2	0	0	1	**5**
Western tiger swallowtail	*Papilio rutulus*	1	2	1	0	0	0	**4**
Pale swallowtail	*Papilio eurymedon*	8	18	36	85	50	68	**265**
Black swallowtail	*Papilio polyxenes*	0	1	0	0	0	0	**1**
Pieridae								
Cabbage white	*Pieris rapae*	0	47	0	0	1	0	**48**
Spring (California) white	*Pontia sisymbrii*	73	29	24	10	14	41	**191**
Checkered (common) white	*Pontia protodice*	39	7	9	20	21	22	**118**
Becker's white	*Pontia beckerii*	0	0	0	0	1	2	**3**
California (pearly) marble	*Euchloe hyantis*	47	411	201	49	13	4	**725**
Gray marble	*Euchlo lanceloata*	0	4	0	1	0	0	**5**
Desert (Felder's) orangetip	*Anthocharis cethura*	0	10	3	2	0	0	**15**
Sara orangetip	*Anthocharis sara sara*	364	214	170	243	130	168	**1289**
White species	Species unknown	12	43	57	63	11	29	**215**
Marble species	Species unknown	7	87	83	40	0	1	**218**
Orange sulphur	*Colias eurytheme*	0	2	3	3	1	0	**9**
Harford's sulphur	*Colias harfordii*	1	0	7	6	5	27	**46**
California dogface	*Zerene eurydice*	0	0	1	0	1	0	**2**
Cloudless (senna) sulphur	*Phoebus sennae marcellina*	0	0	0	0	0	3	**3**
Sleepy orange	*Eurema nicippe*	0	0	0	0	0	1	**1**
Dainty sulphur	*Nathalis iole*	0	0	0	0	0	2	**2**
Sulphur species	Species unknown	6	3	11	16	5	12	**53**
Orange species	Species unknown	0	14	10	9	0	1	**34**
Daniadae								
Queen	*Danaus gilippus*	0	0	0	1	0	0	**1**
Nymphalidae								
Quino checkerspot	*Euphydryas editha quino*	0	2	4	6	1	0	**13**
Henne's checkerspot	*Euphydryas chalcedona hennei*	1	10	12	136	122	92	**373**
Gabb's checkerspot	*Chlosyne gabbii*	3	23	4	98	39	27	**194**
Checkerspot species	Species unknown	0	1	2	0	0	0	**3**
Red admiral	*Vanessa atalanta*	0	0	1	3	0	2	**6**
Painted lady	*Vanessa cardui*	124	65	90	132	37	34	**482**
West coast lady	*Vanessa annabella*	0	2	4	24	5	2	**37**
American lady	*Vanessa virginiensis*	0	2	2	0	0	0	**4**
Lady species	*Vanessa* species	11	28	1	27	8	9	**84**
Common buckeye	*Junonia coenia*	0	0	0	3	2	0	**5**
California sister	*Adelpha bredowii californica*	0	0	0	0	0	1	**1**
California patch	*Chlosyne californica*	0	0	0	0	0	1	**1**
California tortoiseshell	*Nymphalis californica*	22	1	1	0	0	1	**25**
Gulf fritillary	*Agraulis vanillae*	0	0	1	0	0	0	**1**
Variegated fritillary	*Euptoieta claudia*	0	0	0	0	0	1	**1**
Lycaenidae								
Behr's/Mormon metalmark	*Apodemia mormo virgulti*	89	1226	2404	2206	1009	1074	**8008**
Great copper	*Lycaena xanthoides*	0	0	0	0	0	1	**1**

Common Name	Species Name	Survey Week						
		1	2	3	4	5	6	Total
Gorgon copper	*Lycaena gorgon*	0	0	0	0	5	16	**21**
Brown elfin	*Callophrys augustinus*	37	40	15	11	9	20	**132**
Perplexing (bramble) hairstreak	*Callophrys dumetorum*	297	351	205	47	34	8	**942**
Gray hairstreak	*Strymon melinus*	1	0	0	3	2	5	**11**
Great purple hairstreak	*Atlides halesus*	0	1	0	3	0	0	**4**
Hairstreak sp.	Species unknown	0	0	1	0	0	0	**1**
Southern (silvery) blue	*Glaucopsyche lygdamus australis*	9	55	41	51	29	28	**213**
Arrowhead blue	*Glaucopsyche piasus*	0	36	39	0	0	16	**91**
Melissa blue	*Lycaeides melissa*	0	0	0	0	0	16	**16**
Lupine blue	*Plebejus lupines*	0	0	0	3	6	3	**12**
Acmon blue	*Icaricia acmon acmon*	94	167	192	281	322	760	**1816**
Bernardino blue	*Euphilotes Bernardino*	0	0	0	0	0	7	**7**
Echo blue/Spring azure	*Celastrina ladon echo*	5	12	7	3	26	33	**89**
Western tailed blue	*Everes amyntula*	0	1	1	0	0	2	**4**
Marine blue	*Leptotes marina*	0	0	0	1	0	55	**56**
Ceraunus blue	*Hemiargus ceraunus*	0	0	0	0	0	1	**1**
Pygmy blue	*Brephidium exilis*	0	1	0	0	0	1	**2**
Blue species	Species unknown	22	49	64	48	46	79	**308**
Hesperiidae								
Funereal duskywing	*Erynnis funeralis*	31	127	199	103	72	109	**641**
Mournful duskywing	*Erynnis tristis*	0	3	0	1	1	0	**5**
Pacuvius duskywing	*Erynnis pacuvius*	1	0	0	0	0	0	**1**
Sleepy duskywing	*Erynnis brizo*	23	27	1	5	4	1	**61**
Propertius duskywing	*Erynnis propertius*	0	10	3	5	2	6	**26**
Afranius duskywing	*Erynnis afranius*	0	0	2	0	0	0	**2**
Duskywing species	*Erynnis* species	30	120	79	70	28	56	**383**
Small-checkered skipper	*Pyrgus scriptura*	0	0	0	0	0	1	**1**
Northern white skipper	*Heliopetes ericetorum*	0	0	0	0	0	1	**1**
Common sootywing	*Philosora catalus*	0	0	5	13	16	11	**45**
Skipper species	Species unknown	2	2	0	1	1	0	**6**
Juba skipper	*Hesperia juba*	0	1	0	1	1	0	**3**
Sachem	*Atalopedes campestris*	0	0	0	0	0	1	**1**
Moth Species								
Sphyngid moth	Species unknown	4	4	0	0	0	0	**8**
	Euproserpinus phaeton	1	37	1	0	0	0	**39**
	Litocola sexigueta	1	0	0	0	0	0	**1**
	Leptarctia	1	0	0	0	0	0	**1**
	Alypia ridingsa	1	0	0	0	0	0	**1**
	E. Phaeton sphinx	9	0	0	0	0	0	**9**
	Heliothis belladona	0	3	0	0	0	0	**3**
	Drasteria tejonica	0	3	0	0	0	0	**3**
	Drasteria edwardsi	0	1	0	0	0	0	**1**
	Drasteria biformata	0	1	0	0	0	0	**1**
	Hyles lunesta	0	0	1	0	0	0	**1**
	Hemoris affinis	0	0	1	0	0	0	**1**
Moth species	*Adela* species	0	0	0	0	1	0	**1**
Moth species unknown	Species unknown	17	49	3	0	0	0	**69**

APPENDIX D

WEEKLY FLOWERING PLANT OBSERVATIONS FOR CAMPO WIND ENERGY PROJECT

APPENDIX D
WEEKLY FLOWERING PLANT OBSERVATIONS FOR CAMPO WIND ENERGY PROJECT

Scientific Name	Common Name	Survey Week					
		1	2	3	4	5	6
Achillea millefolium	common yarrow						x
Adenostoma fasciculatum	chamise	x	x	x	x	x	x
Amsinckia menzesii var. *intermedia*	rancher fiddleneck	x	x		x	x	
Anisocoma acaulis	scale-bud		x	x	x	x	x
Antirrhinum coulterianum	Coulter's snapdragon	x	x		x	x	x
Antirrhinum nutallianum ssp. *nutallianum*	snapdragon			x			
Arabis pulchra var. *pulchra*	beautiful rock-cress	x	x	x	x		
Arctostaphylos spp.	manzanita	x	x	x	x		
Artemesia tridentata ssp. *tridentata*	big sagebrush	x	x	x	x	x	x
Astragalus douglasii* var. *perstrictus	**Jacumba milkvetch**		x		x	x	x
Baccharis salicifolia	mulefat		x				
Camissonia spp.	sun-cup	x		x	x	x	x
Caulanthus heterophyllus var. *heterophyllus*	San Diego jewelflower		x				x
Caulanthus simulans	**Payson's jewelflower**	x	x	x	x		
Castilleja ssp.	Indian paintbrush			x	x	x	
Ceanothus cuneatus var. *cuneatus*	buck brush	x		x	x		
Ceanothus greggii var. *perplexans*	cup-leaf-lilac		x		x		
Ceanothus leucodermis	chaparral whitethorn		x	x	x		
Cercocarpus betuloides var. *betuloides*	birch-leaf mountain mahogany	x	x	x			
Chaenactis artemisiifolia	white pincushion					x	x
Chaenactis glabriuscula var. *glabriuscula*	yellow pincushion					x	x
Cirsium occidentale var. *californicum*	California thistle				x	x	x
Claytonia parviflora spp.	miner’s-lettuce	x		x			
Collinsia concolor	Chinese houses	x	x	x	x	x	x
Cordylanthus rigidus ssp. *setigerus*	dark-tip bird’s beak	x	x		x	x	x
Coreopsis californica var. *californica*	California coreopsis		x	x	x	x	x
Cryptantha spp.	cryptantha	x	x	x	x	x	x
Delphinium parishii* ssp. *subglobosum	**oceanblue larkspur**		x	x	x	x	x

Scientific Name	Common Name	Survey Week					
		1	2	3	4	5	6
Dendromecon rigida	bush poppy		x			x	x
Descurainia pinnata ssp. *glabra*	tansey mustard	x	x	x	x	x	
Dichelostemma capitatum	blue dicks		x	x	x	x	x
Emmenanthe penduliflora var. *penduliflora*	whispering bells				x	x	x
Eriastrum sp.	woolly star						x
Ericameria linearifolia	interior goldenbush		x	x		x	
Ericameria sp.	goldenbush		x	x	x	x	x
Eriogonum fasciculatum	buckwheat		x	x		x	
Eriophyllum confertiflorum var. *confertiflorum*	long-stem golden yarrow						x
Eriophyllum wallacei	Wallace's woolly daisy	x			x	x	x
Erodium cicutarium	filaree	x	x	x	x	x	x
Erysimum capitatum ssp. *capitatum*	western wallflower		x	x	x	x	x
Eschscholzia californica	California poppy	x	x	x	x	x	x
Eucrypta chrysanthemifolia var. *bipinnatifida*	spotted hideseed			x			
Filago californica	California filago						x
Geraea viscid	**stickey geraea**		x	x		x	x
Gilia capitata	ball gilia				x	x	x
Gilia spp.	gilia	x		x	x	x	x
Hesperoyucca whipplei	chaparral candle				x	x	
Hirschfeldia incana	short-pod mustard		x				
Lasthenia gracilis	common goldfields	x	x	x	x	x	x
Lathyrus splendens	**Campo pea**		x	x	x		x
Layia glandulosa	white layia		x	x	x	x	x
Lepidium spp.	pepperweed					x	
Leptosiphon lemmonii	Lemmon's linanthus				x	x	x
Linanthus bellus	**desert beauty**	x	x	x	x	x	x
Lomatium dasycarpum ssp. *dasycarpum*	woolly fruit lomatium		x				
Lotus agrophyllus var. *agrophyllus*	silver-leaf lotus				x	x	x
Lotus scoparius	deer weed			x	x	x	x
Lotus strigosus	bishop's lotus		x	x	x	x	x
Lotus sp.	lotus	x	x		x	x	x
Lupinus bicolor	miniature lupine		x	x	x	x	x
Lupinus concinnus	bajada lupine		x	x	x	x	x
Lupinus hirsutissimus	stinging lupine					x	
Lupinus truncatus	collar lupine					x	x
Lupinus spp.	lupine	x	x	x	x	x	x

Scientific Name	Common Name	Survey Week					
		1	2	3	4	5	6
Malacothrix clevelandii	Cleveland's malacothrix			x		x	
Malacothrix californica	California dandelion	x	x	x	x	x	
Malacothrix spp.	dandelion			x	x		x
Marah macrocarpus var. *macrocarpus*	wild cucumber	x	x	x		x	
Minuartia douglasii	Douglas's sandwort					x	x
Nemophila menziesii var. *integrifolia*	baby blue eyes	x	x	x	x	x	
Paeonia californica	California peony	x	x				
Pectocarya spp.	combseed	x	x				
Phacelia brachyloba	short-lobe phacelia						x
Phacelia distans	white-heliotrope		x	x	x	x	x
Phacelia parryi	Parry's phacelia			x	x	x	x
Phacelia spp.	phacelia		x	x	x	x	x
Plagiobothrys spp.	popcornflower	x	x	x	x	x	x
Platystemon californicus	cream cups		x	x	x	x	x
Rhus ovata	sugar bush		x	x			
Rhus trilobata	basket bush		x				
Quercus x *acutidens*	hybrid Engelmann's scrub oak	x	x				
Salvia apiana	white sage						x
Salvia columbariae	chia	x	x	x	x	x	x
Senecio californicus	California butterweed	x	x	x	x	x	x
Sisymbrium altissimum	tumble mustard						x
Sisyrinchium bellum	blue-eyed grass	x					
Streptanthus campestris	**southern jewelflower**			x	x	x	x
Trichostemma parishii	mountain blue curls		x		x	x	x
Uropappas lindleyi	silver puffs				x	x	
Viola purpurea ssp. *quercetorum*	oak yellow violet	x	x				
Yucca schidigera	Mohave yucca	x		x			x

boldface = a sensitive species

APPENDIX E

VERTEBRATE SPECIES OBSERVED DURING QUINO SURVEYS FOR CAMPO WIND ENERGY PROJECT

APPENDIX E
VERTEBRATE SPECIES DETECTED DURING FOCUSED QUINO SURVEYS FOR CAMPO WIND ENERGY PROJECT

Scientific Name	Common Name
REPTILES	
Order Anura	Frogs and Toads
Family Bufonidae	
Bufo boreas halophilus	western toad
Family Hylidae	
Pseudactis cadaverina	California chorus frog
Family Pelobatidae	
Spea hammondii	western spade-foot toad
Bufo boreas	California toad
Order Squamata	Lizards and Snakes
Family Colubridae	
Diadophis punctatus similis	ring-necked snake
Lampropeltis getula californiae	California king snake
Masticophis taeniatus	striped whipsnake
Pituophis catenifer	gopher snake
Family Phrynosomatidae	
Aspidoscelis tigris	western whiptail lizard
Phrynosoma coronatum blainvillii	**coast horned lizard**
Scleloporus occidentalis	western fence lizard
Scleloporus orcutti	granite spiny lizard
Uta stansburiana	side blotched lizard
Family Viperidae	
Crotalus mitchellii	speckled rattlesnake
Crotalus helleri	southern Pacific rattlesnake
Family Xantusidae	
Xantusia henshawi	granite night lizard
BIRDS	
Order Apodiformes	Hummingbirds and Swifts
Family Apodidae	
Aeronautes saxatalis	white-throated swift
Family Trochilidae	
Calypte anna	Anna's hummingbird
Order Ciconiiformes	Eagles, Hawks, and Kites
Family Accipitridae	
Accipiter cooperii	Cooper's hawk
Buteo lineatus	red-shouldered hawk
Buteo jamaicensis	red-tailed hawk
Circus cyaneus	northern harrier
Family Cathartidae	
Cathartes aura	**turkey vulture**
Family Falconidae	
Falco mexicanus	prairie falcon
Order Columbiformes	Pigeons and Doves

Scientific Name	Common Name
Family Columbidae	
Columba livia	rock pigeon
Zenaida macroura	mourning dove
Order Gruiformes	
Family Rallidae	
Fulica americana	American coot
Order Passeriformes	Song Birds
Family Alaudidae	
Eremophila alpestris actia	**California horned lark**
Family Aegithalidae	
Psaltriparis minimus	bushtit
Family Cardinalidae	
Melanocephalus pheucticus	black-headed grosbeak
Passerrina amoena	lazuli bunting
Family Corvidae	
Aphelocoma californica	western scrub jay
Corvus brachyrhynchos	American crow
Corvus corax	common raven
Family Cuculidae	
Geococcyx californianus	roadrunner
Family Emberizidae	
Aimophila ruficeps	**rufous-crowned sparrow**
Amphispiza bilineata	black-throated sparrow
Chondestes grammacus	lark sparrow
Junco hyemalis	dark-eyed junco
Passerculus sandwichensis	savannah sparrow
Pipilo crissalis	California towhee
Pipilo maculates	spotted towhee
Spizella atrogularis	black-chinned sparrow
Zonotrichia leucophrys	white crowned sparrow
Family Fringillidae	
Carpodacus mexicanus	house finch
Carduelis lawrencei	Lawrence's goldfinch
Carduelis psaltria	lesser goldfinch
Family Hirundinidae	
Petrochelidon pyrrhonota	cliff swallow
Family Icteridae	
Molothrus ater	brown-headed cowbird
Sturnella neglecta	western meadowlark
Family Mimidae	
Toxostoma redivivum	California thrasher
Family Odontophoridae	
Callipepla californica	California quail
Family Paridae	
Baeolophis inomatus	oak titmouse
Family Parulidae	
Dendroica coronata	yellow-rumped warbler

Scientific Name	Common Name
Wilsonia pusilla	Wilson's warbler
Family Picidae	
Colaptes auratus	northern flicker
Picoides nuttallii	Nuttall's woodpecker
Melanerpes formicivores	acorn woodpecker
Family Sittidae	
Sitta carolinensis	white-breasted nuthatch
Family Stumidae	
Stumas vulgaris	European starling
Family Sylviidae	
Chamaea fasciata	wrentit
Polioptila caerulea	blue-gray gnatcatcher
Family Turidae	
Sialia mexicana	western bluebird
Family Trochilidae	
Calypte anna	Anna's hummingbird
Family Troglodytidae	
Thryomanes bewickii	Bewick’s wren
Troglodytes aedon	house wren
Family Tyrannidae	
Empidonax difficilis	Pacific slope flycatcher
Myiarchus cinerascens	ash-throated flycatcher
Sayornis nigricans	black phoebe
Tyrannus verticulis	western kingbird
Family Vireoniidae	
Vireo gilvus	warbling vireo
Vireo huttoni	Hutton's vireo
MAMMALS	
Order Carnivora	Carnivores
Family Canidae	
Canis latrans	coyote
Family Felidae	
Puma concolor	mountain lion
Lynx rufus	bobcat
Family Cervidae	
Odocoileus hemionus	mule deer
Order Lagomorpha	Rabbits, Hares, and Pikas
Family Leporidae	
Lepus californicus bennettii	**San Diego black-tailed jackrabbit**
Sylvilagus audubonii	cottontail
Family Sciuridae	Squirrels, Rats, Mice, and Relatives
Spermorphilus beecheyi	California ground squirrel
Family Geomyidae	
Thomomys bottae	Botta’s pocket gopher
Family Muridae	
Neotoma fuscipes	woodrat

boldface = a sensitive species

APPENDIX F

24-HOUR NOTIFICATION LETTERS TO USFWS

APPENDIX F.1
04/08/2010 24-HOUR NOTIFICATION LETTER TO USFWS

AECOM
1420 Kettner Boulevard
Suite 500
San Diego, CA 92101
www.aecom.com

619.233.1454 tel
619.233.0952 fax

April 09, 2010

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

RE: Notification of the First Quino Checkerspot Butterfly Observation for the Campo Wind Energy Project, San Diego County, California

Dear Ms. Marquez:

AECOM is submitting this notification letter to inform you that three Quino checkerspot butterfly (*Euphydryas editha quino*; Quino) individuals were observed at the proposed Campo Wind Energy project site in southeastern San Diego County, California (Figures 1 and 2). On April 08, 2010, AECOM biologists Andrew Fisher and Jimmy McMorran (both supervised under permit number TE-820658) made the observation during a reconnaissance level survey for avian point count locations. Although the project site exists within U.S. Fish and Wildlife (USFWS) Quino Survey Area 2, Mr. Fisher and Mr. McMorran did not collect the specimen for identification according to the USFWS protocol (2002), per the pre-activity notification letter submitted for the proposed project on March 12, 2010. Additionally, both Mr. Fisher and Mr. McMorran are not individually permitted. The sightings are detailed below.

A total of three distinctly unique Quino individuals were detected and observed during the period of 12:40 to 13:15. All three were observed within 100 feet of each other, in open/red-shank chaparral habitat largely dominated by ceanothus (*Ceanothus* sp.), chamise (*Adenostoma fasciculatum*), with sparsely scattered coast live oak trees (*Quercus agrifolia*) (Photos 1 and 2). Weather consisted of clear skies, winds of 1-3 mph blowing from the east/southeast, and a temperature of 68 degrees Fahrenheit.

One female Quino was observed by Mr. Fisher and Mr. McMorran resting on buckwheat (*Eriogonum fasciculatum*) at 12:40 (Photos 3 and 4). This first Quino had a small nick in its right forewing, but otherwise appeared in a fresh condition. Mr. Fisher and Mr. McMorran observed it resting on the same buckwheat shrub for approximately 10 minutes. The second Quino was observed within 50 feet of the first Quino, basking on the trail. This Quino appeared to be somewhat worn and more faded than the first Quino, and quickly took flight after a few photos were taken from a distance (Photos 5 and 6). A third Quino was detected in close proximity to the second Quino, nectaring on baby blue eyes (*Nemophila menziesii*). It was also a fresh individual, and was noticeably smaller than the first fresh Quino detected. This individual also took quickly took flight after Mr. Fisher was able to take photographs from a distance (Photo 7).

This letter is official notification of this sighting and capture as required by the USFWS protocol for this species. Following this transmittal, a hard copy of this letter including maps will be sent as well. If you have any questions or comments, please contact me at (619) 233-1454.

Sincerely,

Barbra Calantas
Wildlife Biologist

Enclosures: Figure 1 Regional Map
Figure 2 Vicinity Map
Figure 3 Quino Observation Location Map

cc: Eric Porter, USFWS
Alison Anderson, USFWS
Kelly Meyer, Invenergy
Monique LaChappa, Chairwoman, Campo Kumeyaay Nation
Deanna Leon, President, Muht-Hei Inc.
Lisa Gover, Campo EPA
Denise Turner Walsh, Campo Tribal Attorney

Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



USFWS 24-hour Notification of Quino Sighting



Source: ESRI 2009

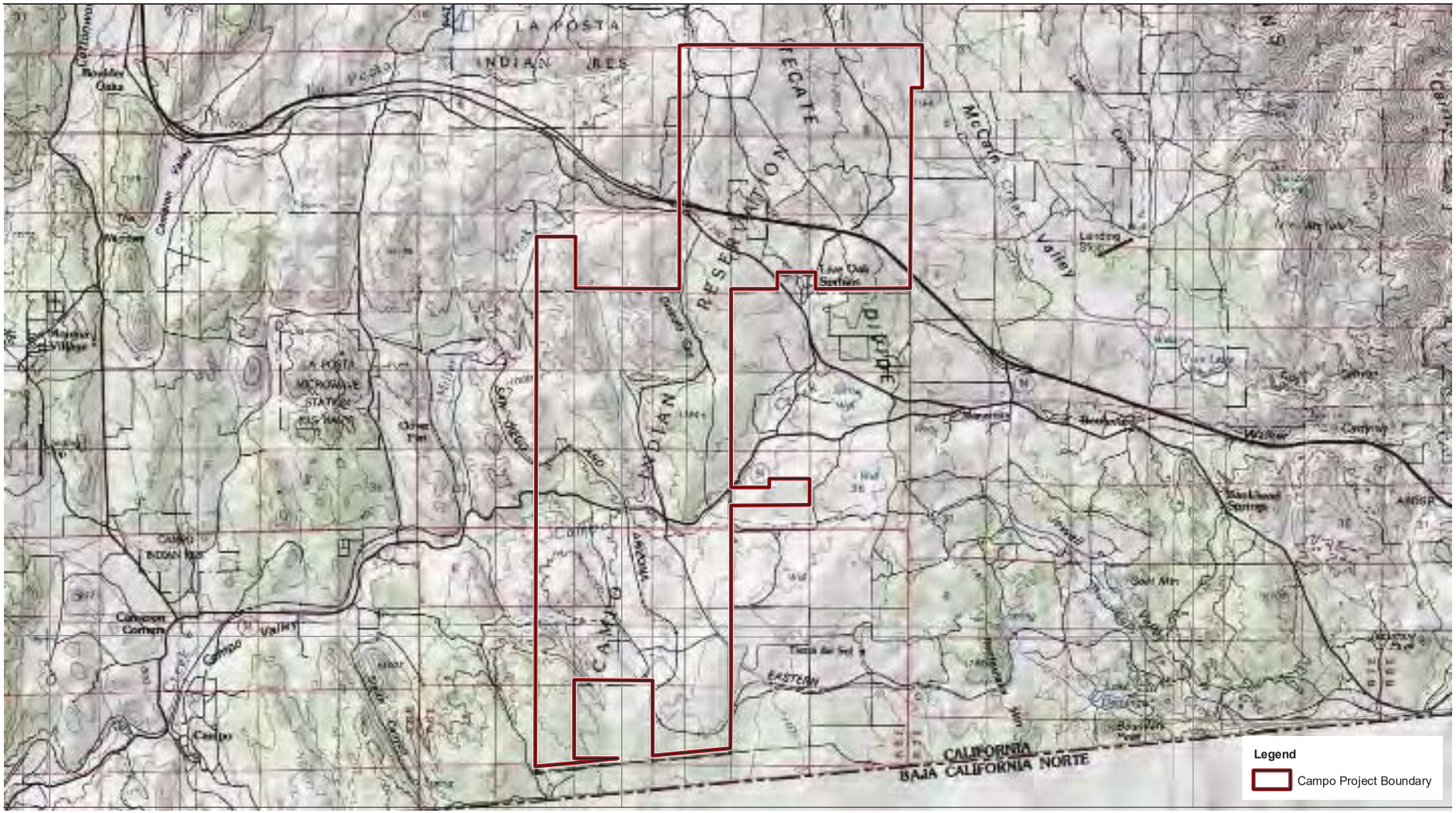
12.8 0 12.8 Miles

Scale: 1 = 805,493.1; 1 inch = 12.7 mile(s)

Figure 1

Regional Map

Path: P:\2009\09080183_Campo_windle\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_24hr\QCBNotification\Fig1Regional_map.mxd, 04/08/10, ShafnS2



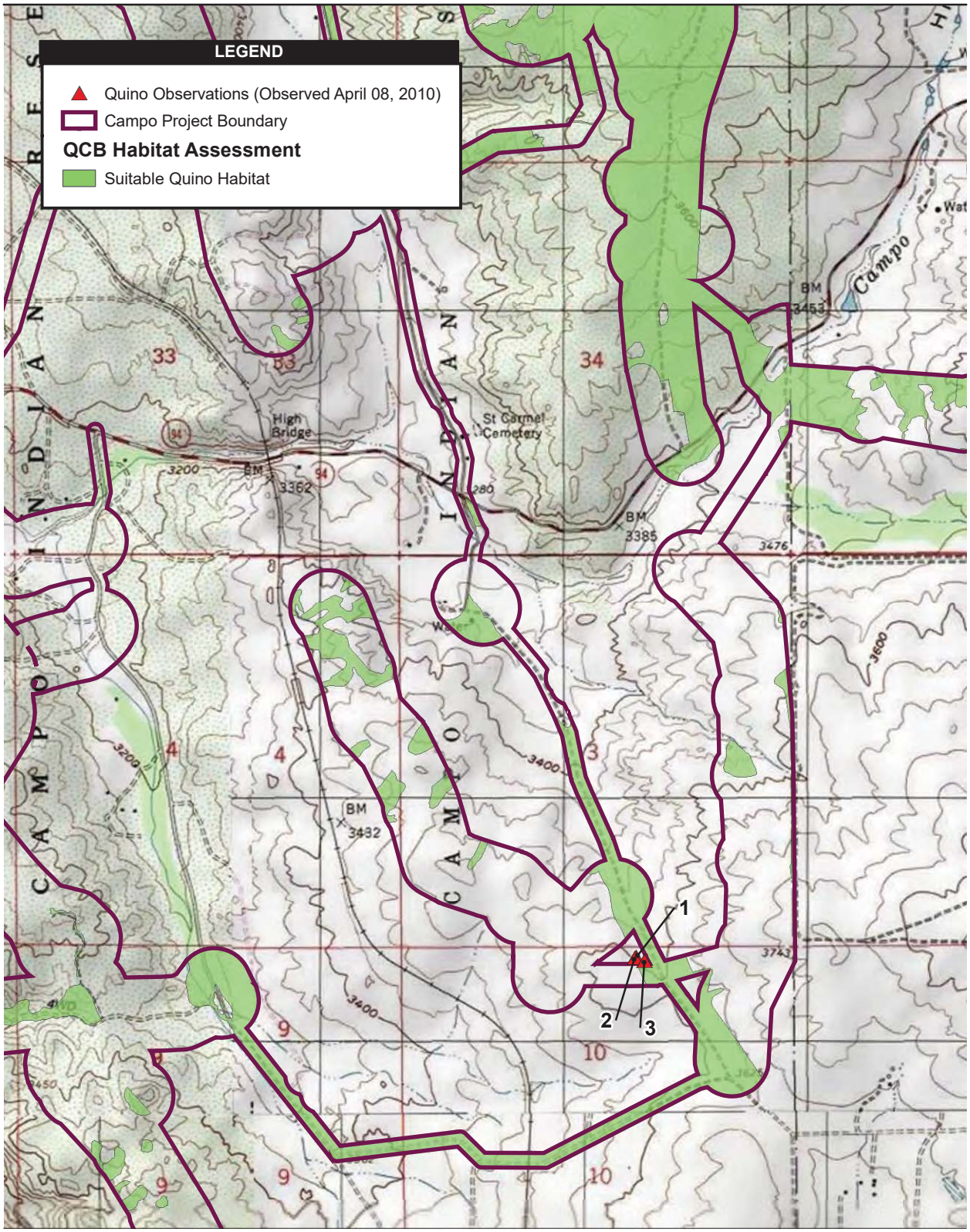
Source: Tierra del Sol 1959; Live Oak Springs 1975; Campo 1959; Cameron Corners 1988

6,500 3,250 0 6,500 Feet

Scale: 1 = 78,000; 1 inch = 6,500 feet

Figure 2
Vicinity Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_ 24hrQCBNotification\Fig2Vicinity.mxd, 04/08/10, ShahS2



Source: DigitalGlobe 2008; SDG&E 2010

2,000 1,000 0 2,000 Feet

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

Figure 3
Quino Detection Location Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_ 24hrQCBNotification\QCB_observation_20100408.mxd, 04/08/10, ShahS2

APPENDIX F.2
04/09/2010 24-HOUR NOTIFICATION LETTER TO USFWS

AECOM
1420 Kettner Boulevard
Suite 500
San Diego, CA 92101
www.aecom.com

619.233.1454 tel
619.233.0952 fax

April 12, 2010

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

RE: Notification of the Second Quino Checkerspot Butterfly Observation for the Campo Wind Energy Project, San Diego County, California

Dear Ms. Marquez:

AECOM is submitting this notification letter to inform you that two Quino checkerspot butterfly (*Euphydryas editha quino*; Quino) individuals were observed at the proposed Campo Wind Energy project site in southeastern San Diego County, California (Figures 1 and 2). On April 09, 2010, David Flietner (TE-008031), a sub-contractor to AECOM and AECOM biologist Erin Bergman (supervised under permit number TE-820658) made the observation during a protocol Quino survey. Although the project site exists within U.S. Fish and Wildlife (USFWS) Quino Survey Area 2, Mr. Flietner and Ms. Bergman did not collect the specimen for identification according to the USFWS protocol (2002), per the pre-activity notification letter submitted for the proposed project on March 12, 2010. The sighting is detailed below.

Two Quino were observed approximately 500 feet southwest of BIA Road 15 on the Campo Reservation (UTM 11S easting:0559472 northing:3612756) (Figure 3) by Mr. Flietner and Ms. Bergman from 13:00 – 13.15. The Quino were detected on an unused or little-used dirt road, an adjacent embankment, and in adjacent open chaparral. The Quino were basking (separately) on open sandy soil within the roadway; as Flietner and Bergman approached to take pictures, the butterflies would fly short distances and alight in other open areas, returning periodically to the same general locations where they were originally observed. Both Quino were in excellent condition, and both observers clearly detected diagnostic markings (abdominal and wing markings; wing shape) on both butterflies. Photos 1 and 2 provide the best images of the butterflies; Photo 3 shows the habitat within the roadway where the Quino alighted.

The surrounding vegetation contains less than 10% shrub cover, consisting of *Adenostoma fasciculata, Rhus ovata, Ceanothus greggii* (in flower*),* and *Cercocarpus betuloides*; a denser stand dominated by *Adenostoma sparsifolium* begins about 50 feet west of the observation point. *Lotus scoparius*, young *Eriogonum fasiculatum* and *Corethrogyne filaginifolia* provide about 20% low (1 – 2 feet tall) cover. Less than 10% herbaceous cover is provided by seedlings of *Erodium cicutarium, Brassica* sp., as well as nectar sources *Plagiobotrys* sp.,

Lasthenia californica, and *Dichelostema capitatum*, which were non-blooming or in early bloom (with most flowers unopened).

This letter is official notification of this sighting and capture as required by the USFWS protocol for this species. Following this transmittal, a hard copy of this letter including maps will be sent as well. If you have any questions or comments, please contact me at (619) 233-1454.

Sincerely,



Barbra Calantas
Wildlife Biologist

Enclosures: Figure 1 Regional Map
Figure 2 Vicinity Map
Figure 3 Quino Observation Location Map

cc: Eric Porter, USFWS
Alison Anderson, USFWS
Kelly Meyer, Invenergy
Monique LaChappa, Chairwoman, Campo Kumeyaay Nation
Deanna Leon, President, Muht-Hei Inc.
Lisa Gover, Campo EPA
Denise Turner Walsh, Campo Tribal Attorney

Photo 1



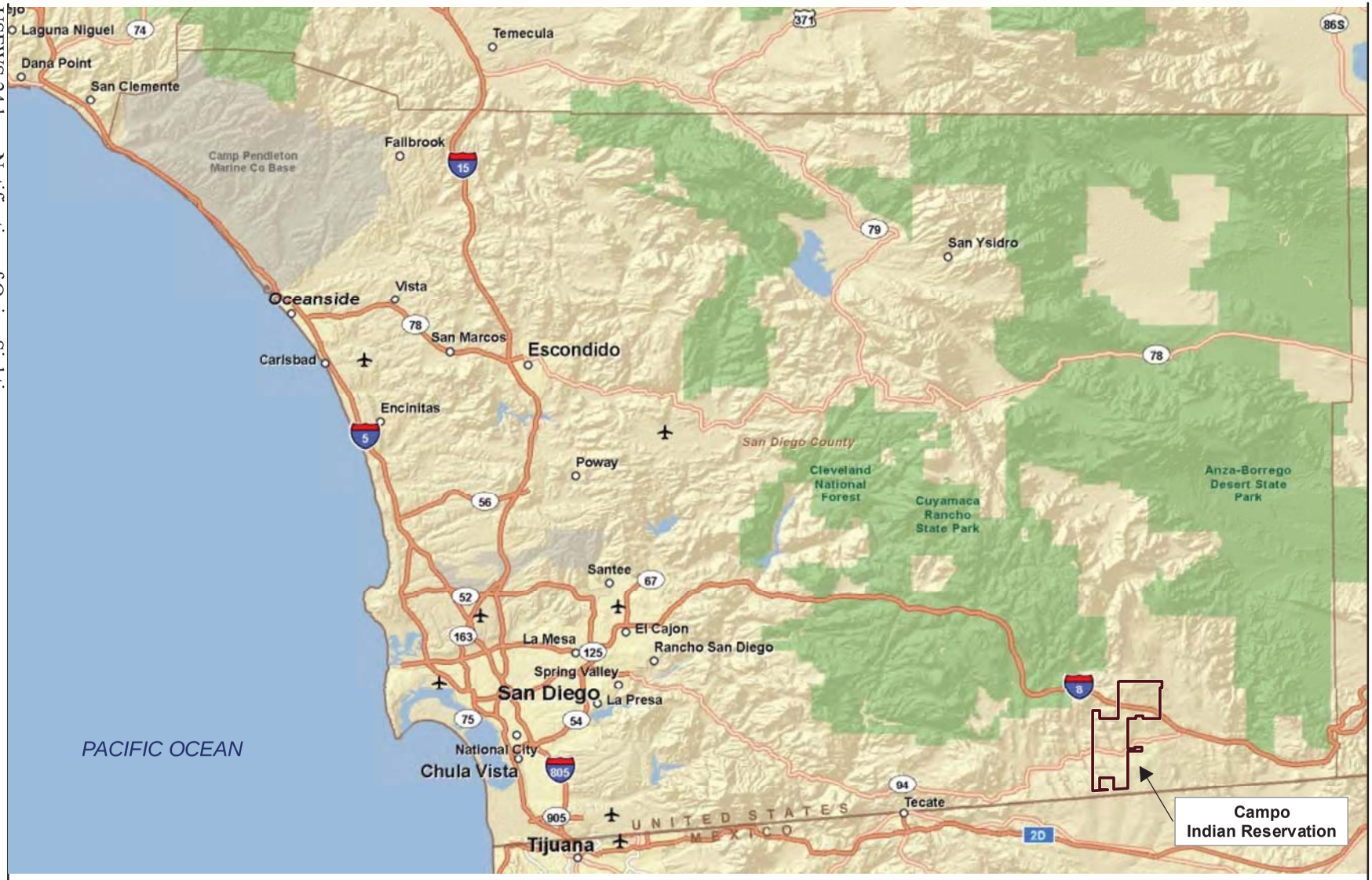
Photo 2



Photo 3



USFWS 24-hour Notification of Quino Sighting



Source: ESRI 2009

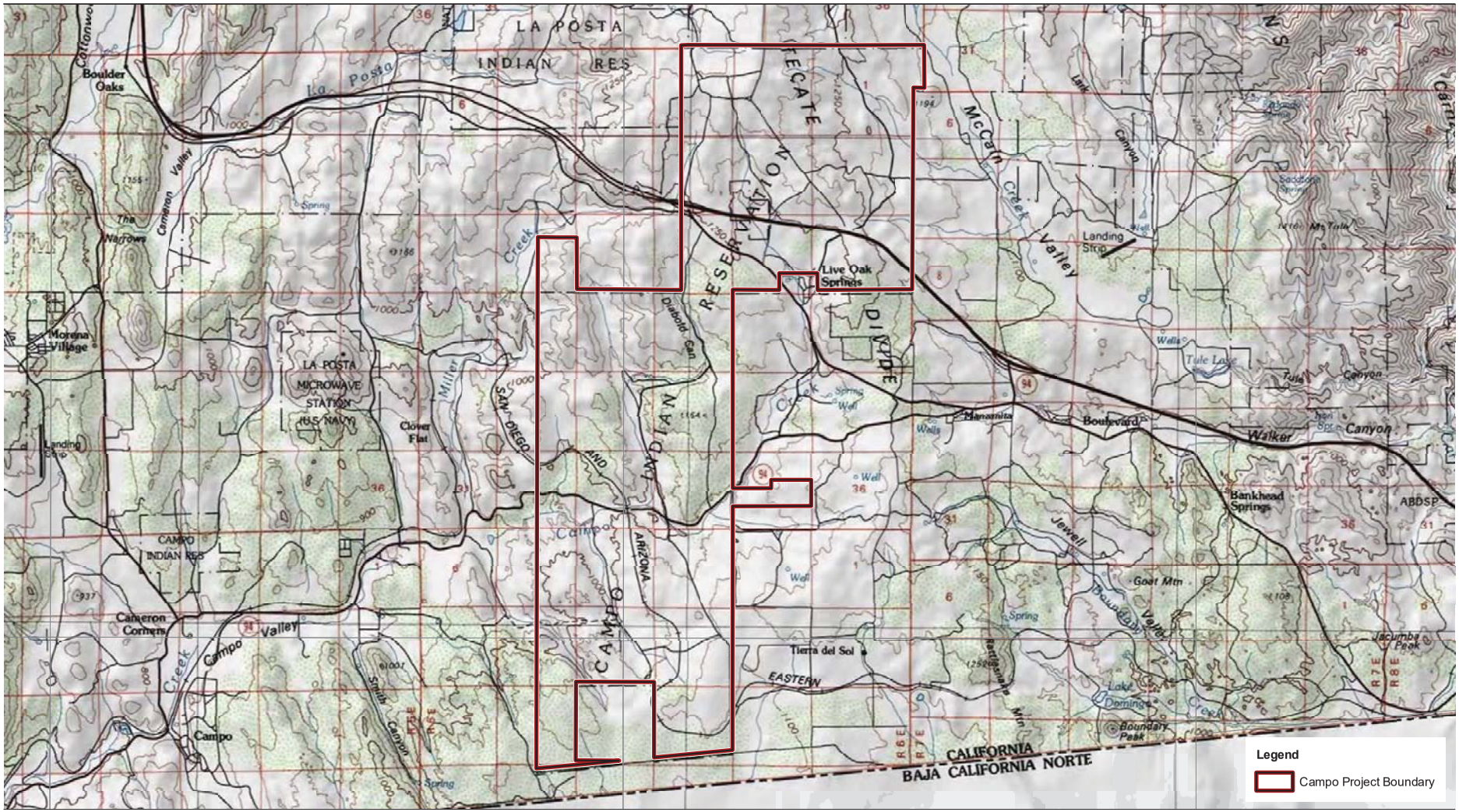
12.8 0 12.8 Miles

Scale: 1 = 805,493.1; 1 inch = 12.7 mile(s)

Figure 1

Regional Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_24hrQCBNotification\Fig1Regional_map.mxd, 04/12/10, johnsonaa



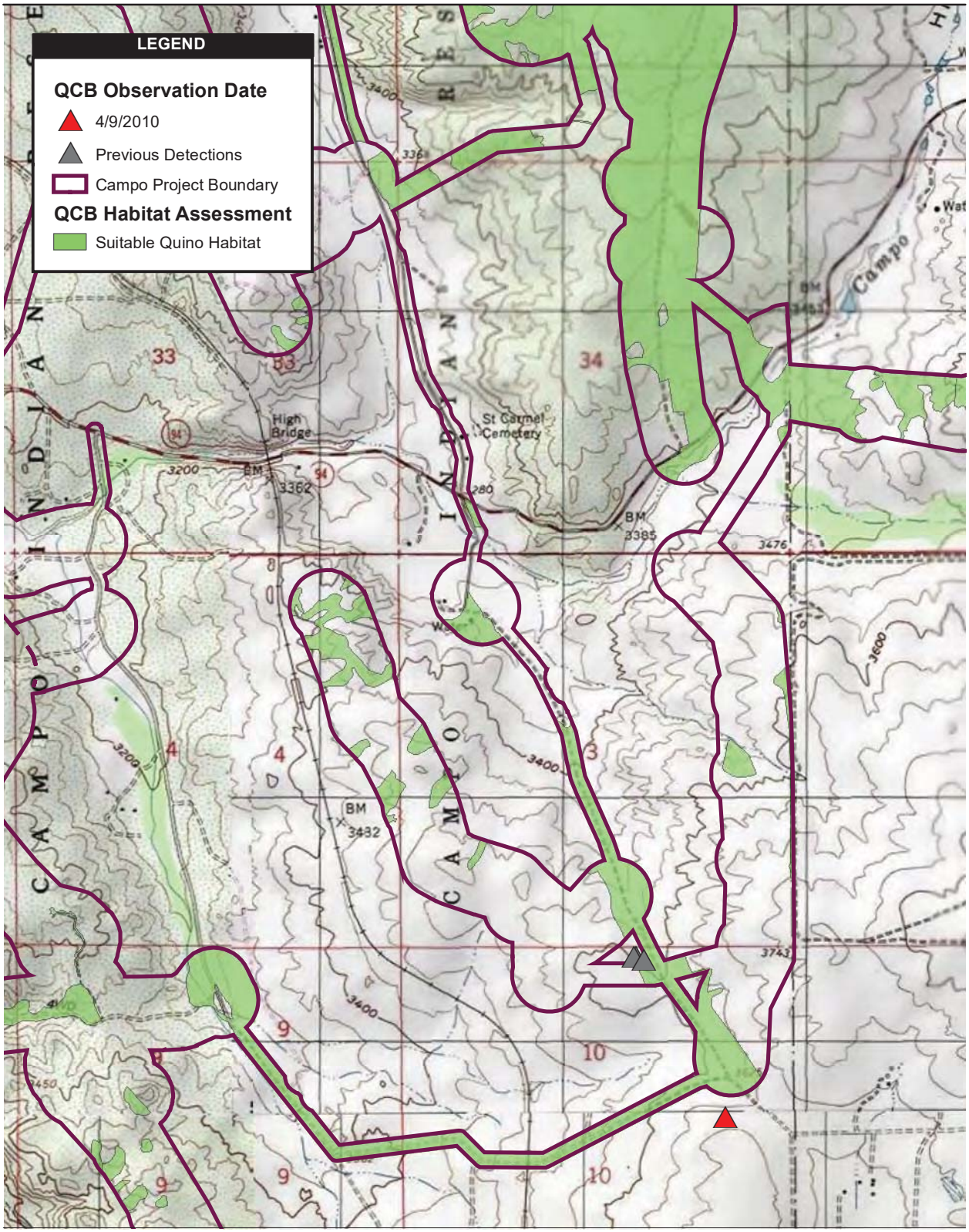
Source: Tierra del Sol 1959; Live Oak Springs 1975; Campo 1959; Cameron Corners 1988

6,500 3,250 0 6,500 Feet

Scale: 1 = 78,000; 1 inch = 6,500 feet

Figure 2
Vicinity Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_ 24hrQCBNotification\Fig2Vicinity.mxd, 04/12/10, johnsonaa



Source: DigitalGlobe 2008; SDG&E 2010

2,000 1,000 0 2,000 Feet

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

Figure 3
Quino Detection Location Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_ 24hrQCBNotification\QCB_observation2_20100408.mxd, 04/12/10, johnsonaa

APPENDIX F.3
04/13/2010 24-HOUR NOTIFICATION LETTER TO USFWS

AECOM
1420 Kettner Boulevard
Suite 500
San Diego, CA 92101
www.aecom.com

619.233.1454 tel
619.233.0952 fax

April 14, 2010

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

RE: Notification of the Third Quino Checkerspot Butterfly Observation for the Campo Wind Energy Project, San Diego County, California

Dear Ms. Marquez:

AECOM is submitting this notification letter to inform you that another Quino checkerspot butterfly (*Euphydryas editha quino*; Quino) individual was observed at the proposed Campo Wind Energy project site in southeastern San Diego County, California (Figures 1 and 2). On April 13, 2010, Consulting Biologist Michael Couffer (permit number TE-782703-8), sub-contractor to AECOM observed a Quino within the project's boundaries during protocol surveys for the species. Although the project site exists within U.S. Fish and Wildlife (USFWS) Quino Survey Area 2, Mr. Couffer did not collect the specimen for identification according to the USFWS protocol (2002), per the pre-activity notification letter submitted for the proposed project on April 2, 2010. The sighting is detailed below.

At 10:30, Mr. Couffer observed a Quino warming itself on bare ground on a hilltop immediately north of Interstate 8, and east of Crestwood Road, at (NAD 83) 11S 0560363, 3619015, at approximately 4295 feet in elevation. Weather at the time was approximately 58 degrees Fahrenheit, with wind speeds around 3 mph and sunny, clear skies. The Quino detected was somewhat drab, with limited fraying of wing edges (Photo 1 and Photo 2). At 12:36 hours, a return visit to the hilltop revealed that this Quino had moved only 8 feet from its initial location. No other Quinos were observed by Mr. Couffer on this date.

This letter is official notification of this sighting and capture as required by the USFWS protocol for this species. Following this transmittal, a hard copy of this letter including maps will be sent as well. If you have any questions or comments, please contact me at (619) 233-1454.

Sincerely,

Barbra Calantas
Wildlife Biologist

Enclosures: Figure 1 Regional Map
Figure 2 Vicinity Map
Figure 3 Quino Observation Location Map

cc: Eric Porter, USFWS
Alison Anderson, USFWS
Kelly Meyer, Invenergy
Monique LaChappa, Chairwoman, Campo Kumeyaay Nation
Deanna Leon, President, Muht-Hei Inc.
Lisa Gover, Campo EPA
Denise Turner Walsh, Campo Tribal Attorney

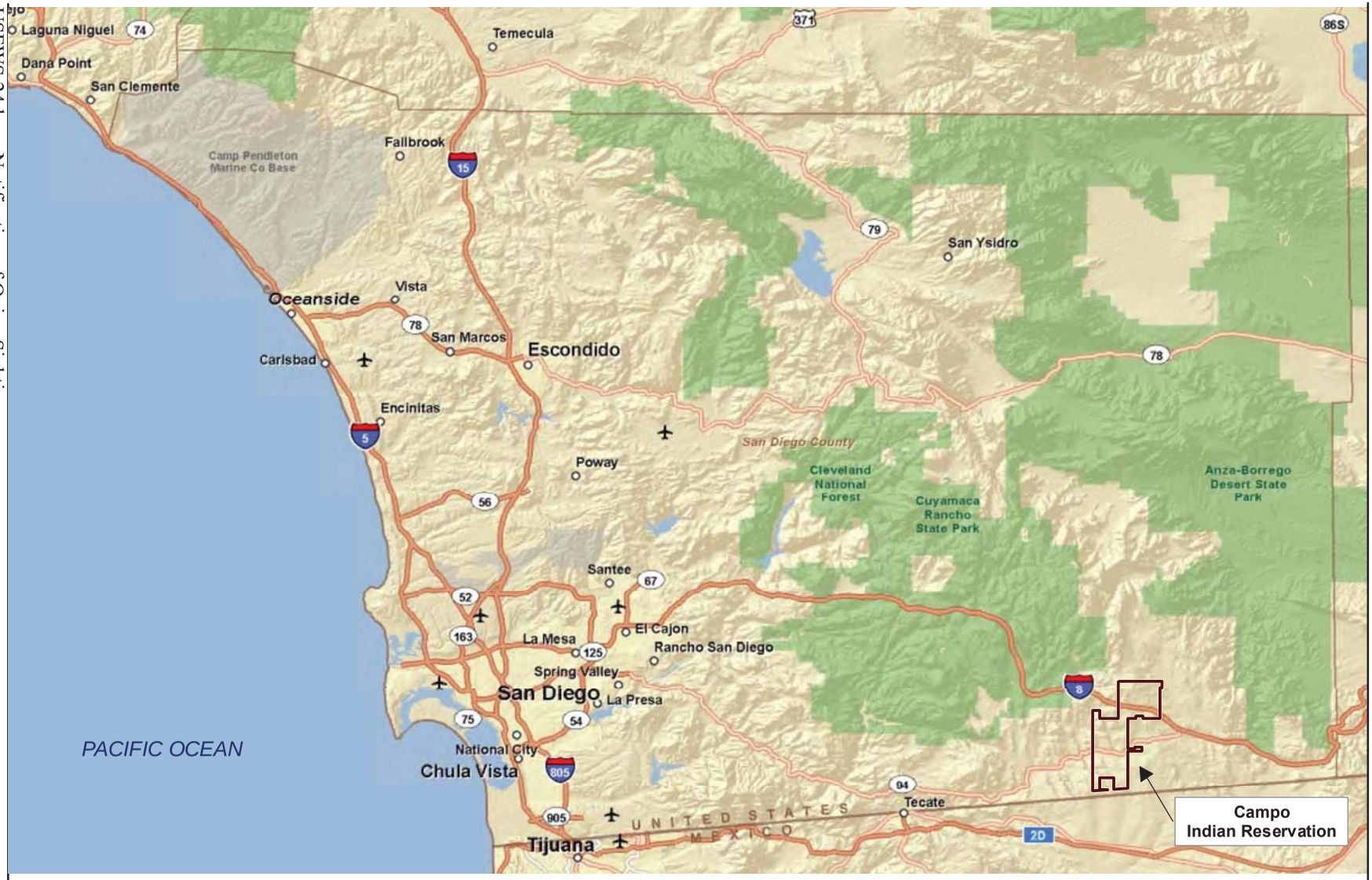
Photo 1



Photo 2



USFWS 24-hour Notification of Quino Sighting



Source: ESRI 2009

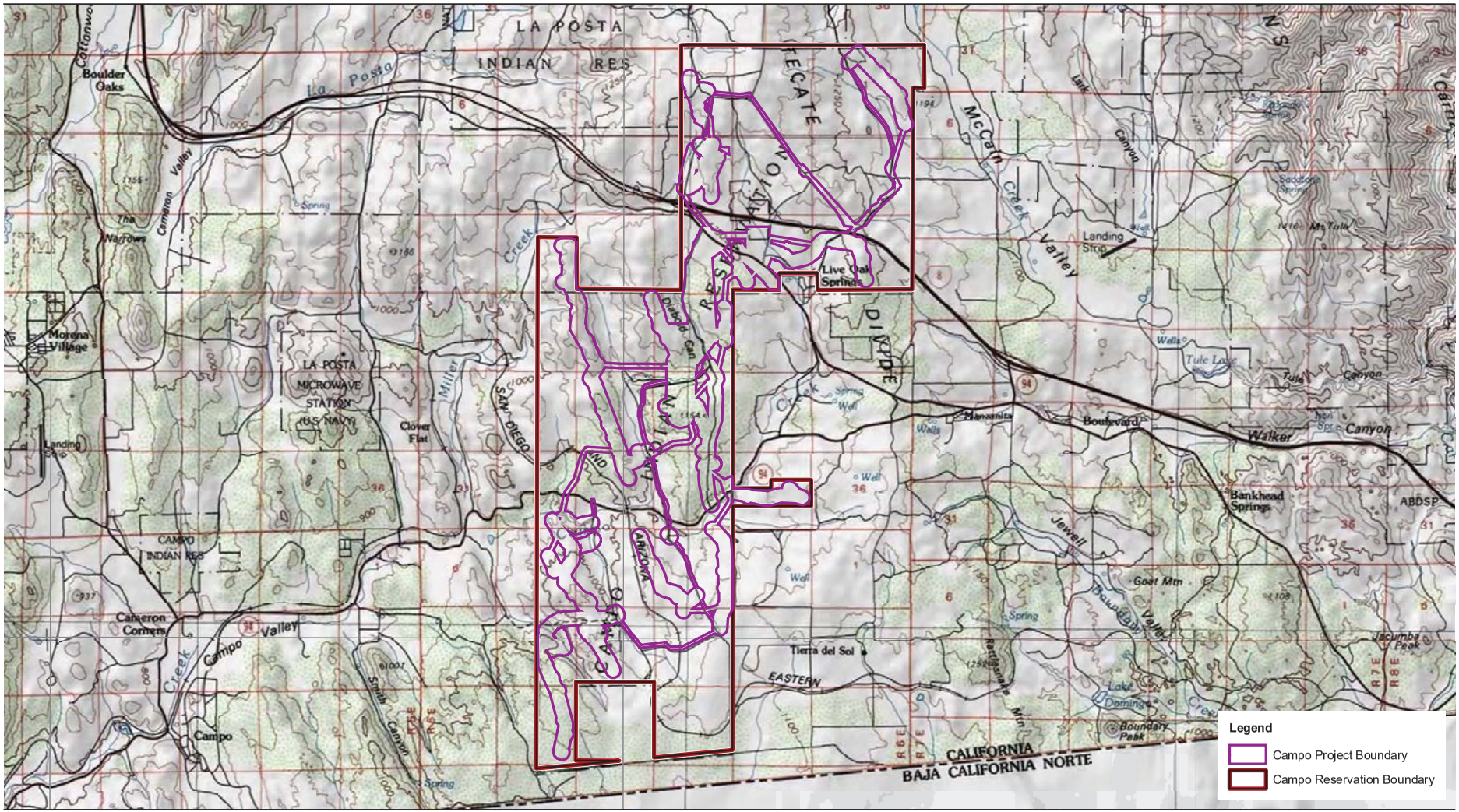
12.8 0 12.8 Miles

Scale: 1 = 805,493.1; 1 inch = 12.7 mile(s)

Figure 1

Regional Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_24hrQCBNotification\Fig1Regional_map.mxd, 04/12/10, johnsonaa



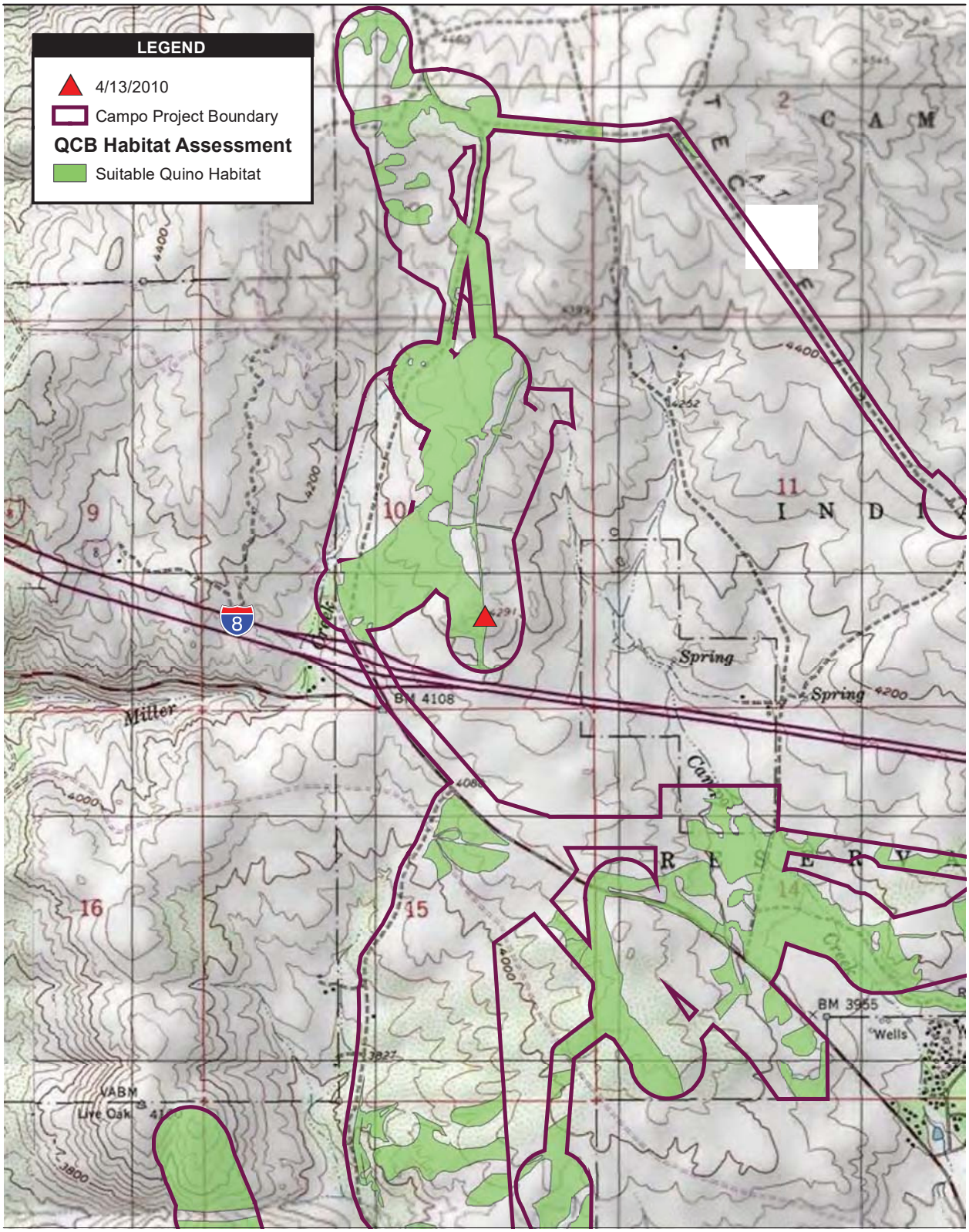
Source: Tierra del Sol 1959; Live Oak Springs 1975; Campo 1959; Cameron Corners 1988

6,500 3,250 0 6,500 Feet

Scale: 1 = 78,000; 1 inch = 6,500 feet

Figure 2
Vicinity Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_ 24hrQCBNotification\Fig2Vicinity.mxd, 04/12/10, johnsonaa



Source: DigitalGlobe 2008; SDG&E 2010

2,000 1,000 0 2,000 Feet

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

Figure 3
Quino Detection Location Map

USFWS 24-hour Notification of Quino Sighting

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_ 24hrQCBNotification\QCB_observation3_20100413.mxd, 04/13/10, johnsonaa

APPENDIX F.4
04/15/2010 24-HOUR NOTIFICATION LETTER TO USFWS

AECOM
1420 Kettner Boulevard
Suite 500
San Diego, CA 92101
www.aecom.com

619.233.1454 tel
619.233.0952 fax

April 16, 2010

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

RE: Notification of the Fourth and Fifth Quino Checkerspot Butterfly Observations for the Campo Wind Energy Project, San Diego County, California

Dear Ms. Marquez:

AECOM is submitting this notification letter to inform you that additional Quino checkerspot butterfly (*Euphydryas editha quino*; Quino) individuals were observed at the proposed Campo Wind Energy project site in southeastern San Diego County, California (Figures 1 and 2). The fourth Quino observation for this project consisted of two observations on April 15, 2010 and the fifth Quino observation took place on April 16, 2010. On April 15, 2010, AECOM biologists Andrew Fisher and Jimmy McMorran (both supervised under permit number TE-820658-4) incidentally observed two Quino individuals during avian surveys. On the same day, Ken Osborne (permit number TE-837760-6), sub-contractor to AECOM, observed two Quino individuals adjacent to the project's boundaries en route to the project survey area, during protocol surveys for the species. On April 16, 2010, AECOM biologist Bonnie Hendricks (TE-820658-4) observed one Quino within project boundaries. Although the project site exists within U.S. Fish and Wildlife (USFWS) Quino Survey Area 2, these biologists did not collect the specimen for identification according to the USFWS protocol (2002), per the pre-activity notification letter submitted for the proposed project on March 12, 2010. The sightings are detailed below.

On April 15, Mr. Fisher observed a Quino individual at 10:15, at UTM coordinates 11S 0559952, 3609757 (Figure 3a, Quino 1). Weather consisted of clear skies with temperatures of 64.4 degrees Fahrenheit with wind speeds of 3.3 mph blowing from the northeast. The Quino had was identified by its characteristic black abdomen with orange bands, and had worn wings. Prior to Mr. Fisher taking a photograph, the wind blew the Quino away. The habitat in the vicinity of the area consisted of semi-open buckwheat scrub intermixed with scrub oak and chamise (Photo 1). The main nectar source in the area was popcorn flower (*Plagiobotrys* sp.) with few other nectar species present. At 13:15, Mr. Fisher and Mr. McMorran observed another Quino in an area where they both previously detected Quino on April 8, 2010 at UTM coordinates 11S 0560211, 3610530 (Figure 3a, Quino 2). This individual was in a worn condition with slight fraying of wing edges (Photo 2). It was observed nectaring on baby blue eyes (*Nemophila menziesii*). Weather was about 72 degrees Fahrenheit, wind was 3.5 mph on average, and gusted up to 8 mph, with overcast skies.

On April 15, another observation was made by Mr. Osborne. From 15:48 to 15:57, Mr. Osborne was walking towards his vehicle after completing surveys for the day and observed two Quino males adjacent to the project area boundaries (Figure 3b, Quino 3 and 4). These Quino were found at UTM coordinates 11S 0562198, 3617293 and 11S 0562881, 3617289. Following a cleared firebreak along a ridgeline east of the community of Live Oak Springs, Mr. Osborne encountered these two males hilltopping. These butterflies were alternately basking on the ground and very actively chasing or being chased by other butterflies such as *Vanessa carduii* and *Euchloe hyantis*. This prominent, rounded hilltop they were detected is also cleared by the firebreak. Both Quino were in a worn condition, faded in color, but with no nicks or tears in the wings. Photographs were taken, but will be provided at a later date.

The fifth Quino observation for the project was made by Ms. Hendricks on April 16. Ms. Hendricks observed one Quino at 10:10 within the project area at UTM coordinates 11S 0557013, 3610034 (Figure 3c, Quino 5). Weather consisted of clear, sunny skies, with a temperature of 71.5 degrees Fahrenheit and wind speeds of 1.7 mph. This Quino was fresh and crisp. It was detected within mixed chaparral habitat dominated by chamise (*Adenostoma fasciculatum*) and mountain mahogany (*Cercocarpus* sp.). Ms. Hendricks attempted to take a photo of the Quino but was not able to prior to it taking flight.

This letter is official notification of this sighting and capture as required by the USFWS protocol for this species. Following this transmittal, a hard copy of this letter including maps will be sent as well. If you have any questions or comments, please contact me at (619) 233-1454.

Sincerely,



Barbra Calantas
Wildlife Biologist

Enclosures: Figure 1 Regional Map
Figure 2 Vicinity Map
Figures 3a, 3b, 3c Quino Observation Location Maps

cc: Eric Porter, USFWS
Alison Anderson, USFWS
Kelly Meyer, Invenergy
Monique LaChappa, Chairwoman, Campo Kumeyaay Nation
Deanna Leon, President, Muht-Hei Inc.
Lisa Gover, Campo EPA
Denise Turner Walsh, Campo Tribal Attorney

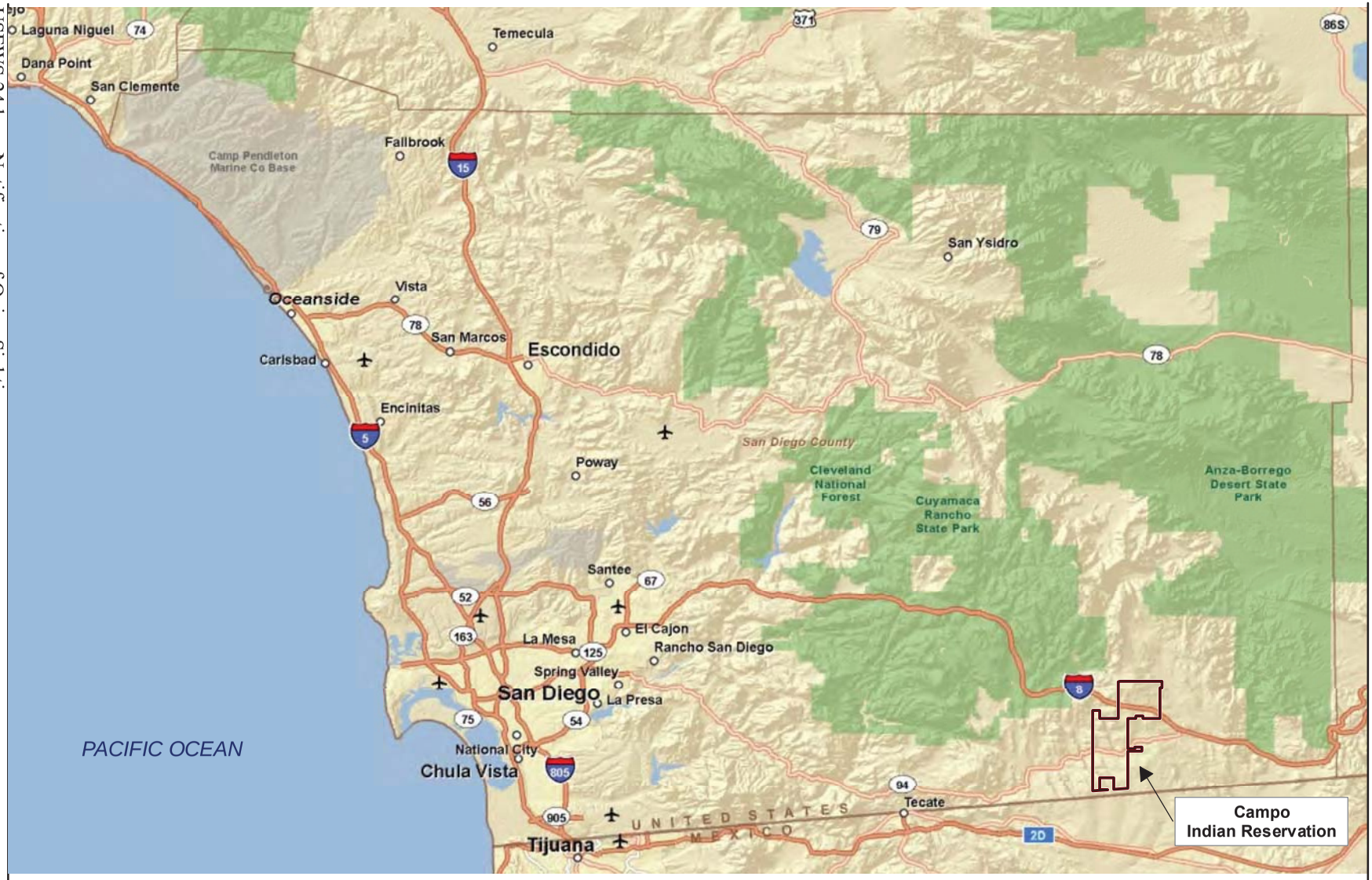
Photo 1



Photo 2



USFWS 24-hour Notification of Quino Sighting



Source: ESRI 2009

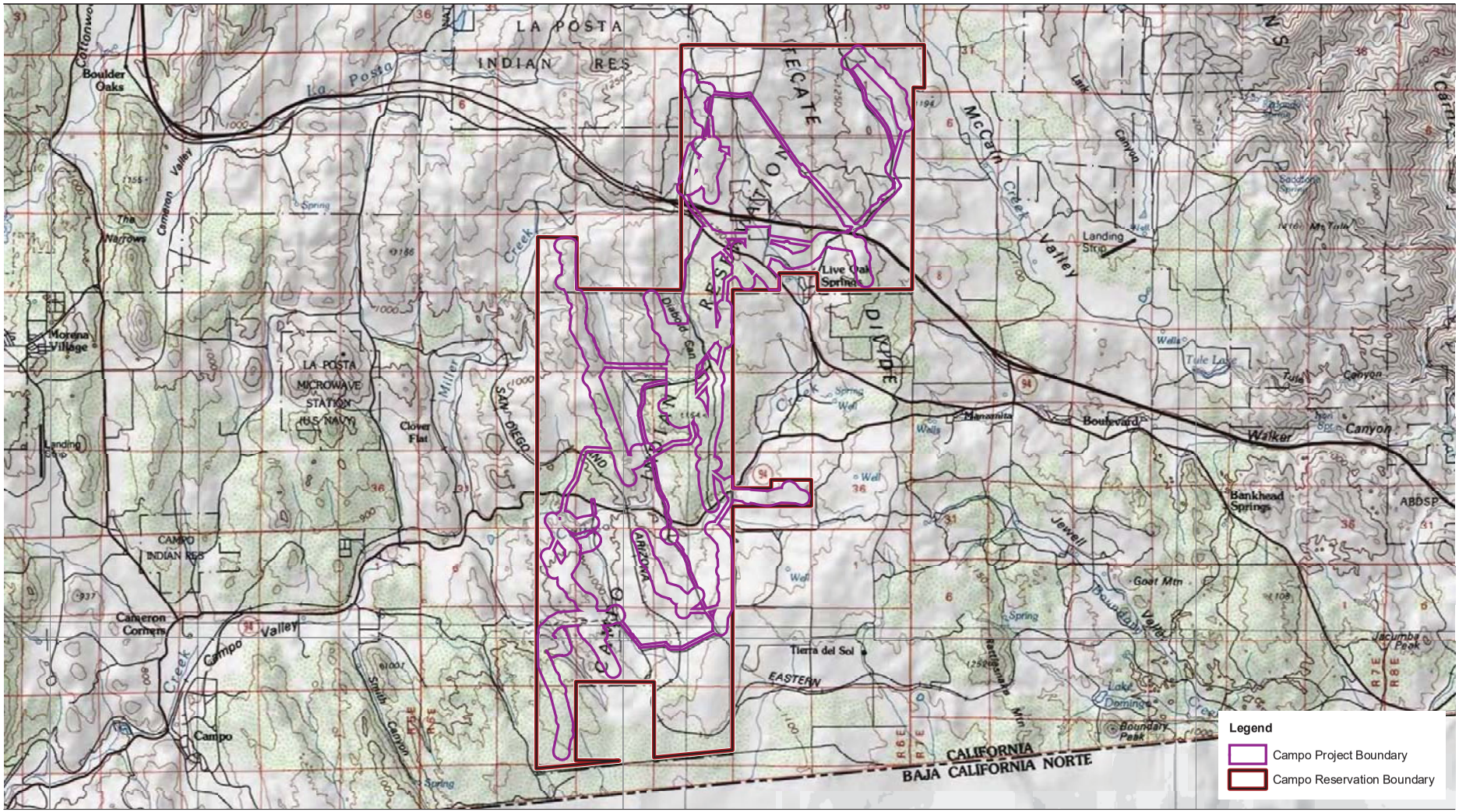
12.8 0 12.8 Miles

Scale: 1 = 805,493.1; 1 inch = 12.7 mile(s)

Figure 1

Regional Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_24hrQCBNotification\Fig1Regional_map.mxd, 04/12/10, johnsonaa



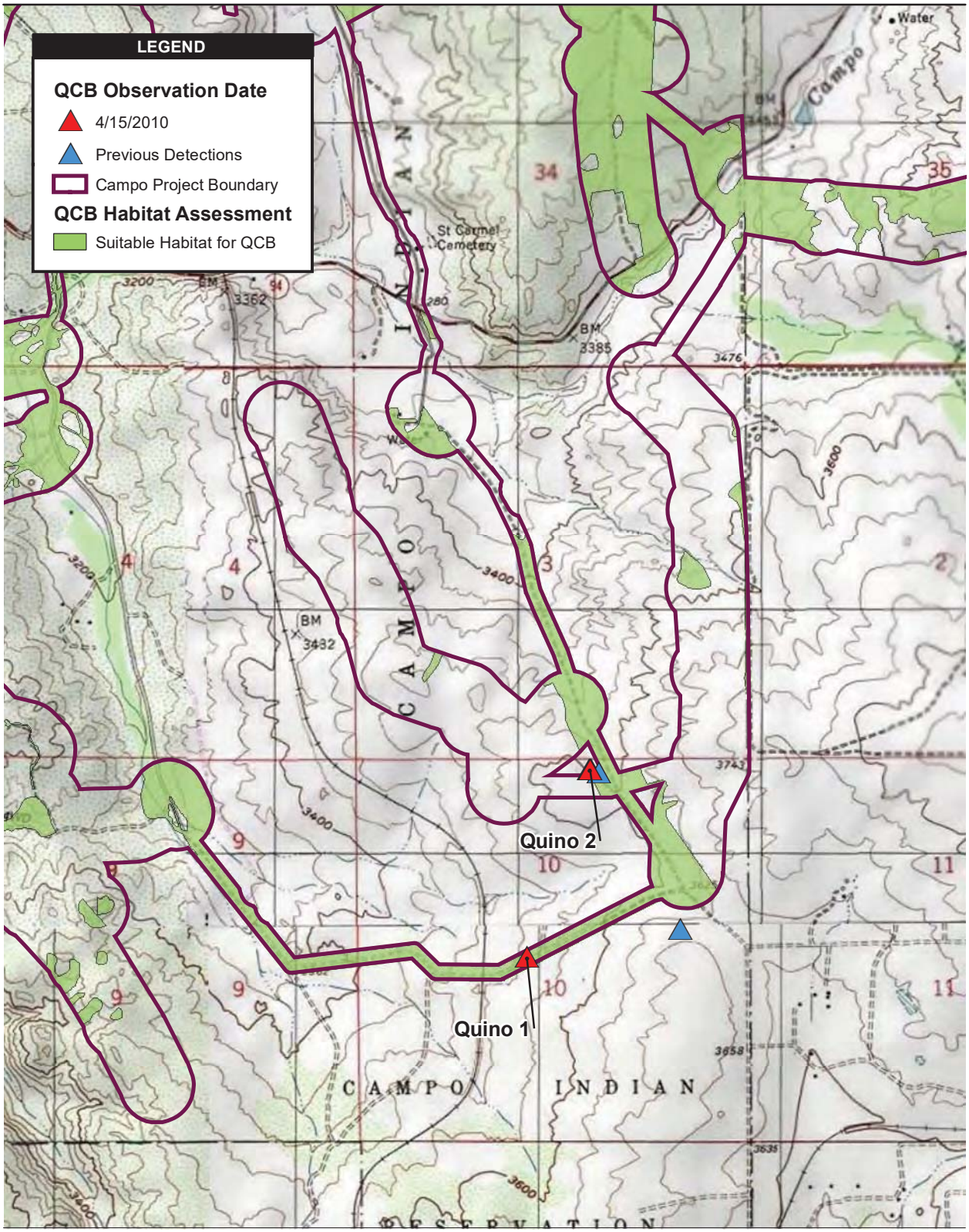
Source: Tierra del Sol 1959; Live Oak Springs 1975; Campo 1959; Cameron Corners 1988

6,500 3,250 0 6,500 Feet

Scale: 1 = 78,000; 1 inch = 6,500 feet

Figure 2
Vicinity Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_ 24hrQCBNotification\Fig2Vicinity.mxd, 04/12/10, johnsonaa



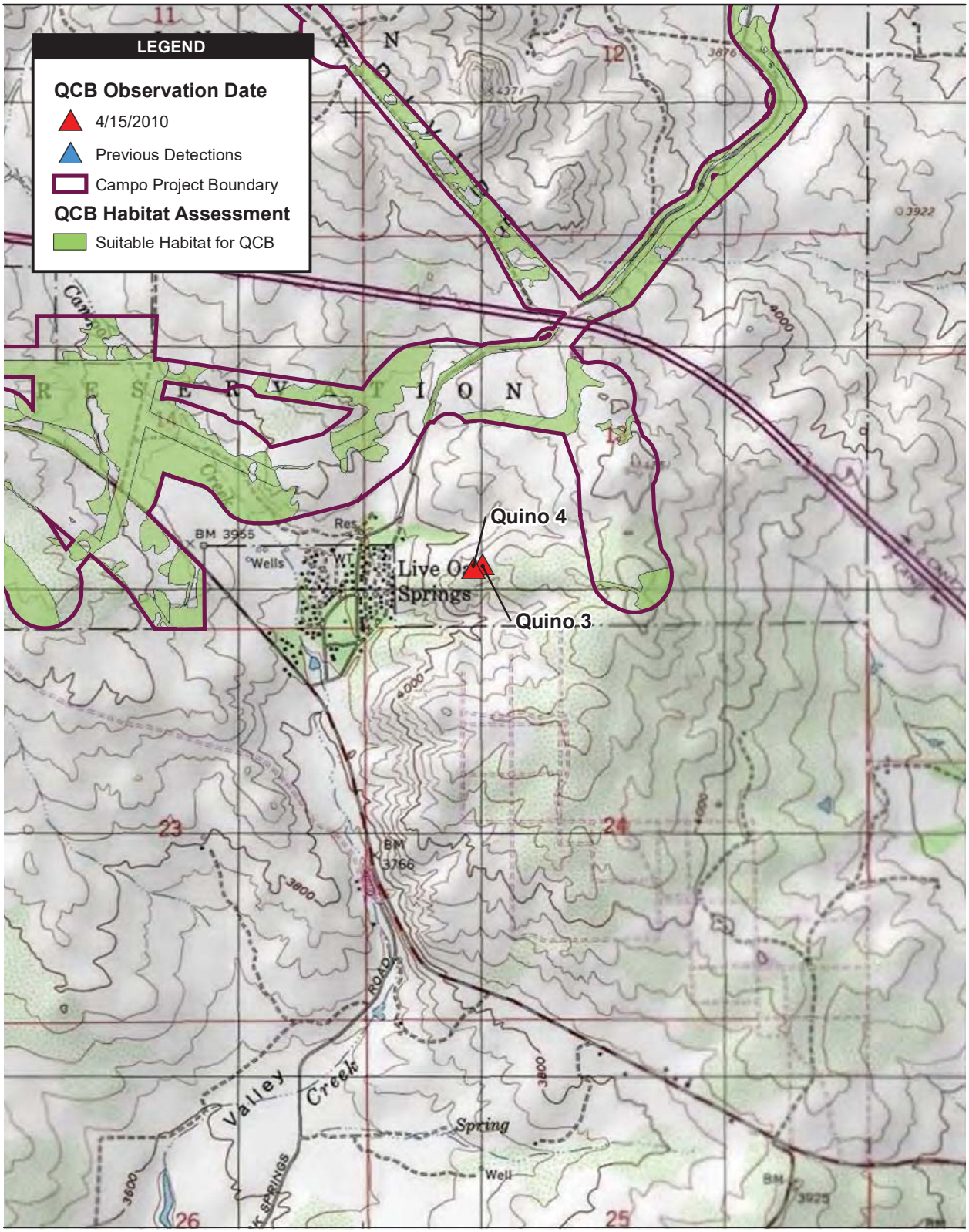
Source: DigitalGlobe 2008; SDG&E 2010

2,000 1,000 0 2,000 Feet

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

Figure 3a
Quino Detection Location Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_ 24hrQCBNotification\QCB_observation4-1_20100415.mxd, 04/16/10, johnsonaa



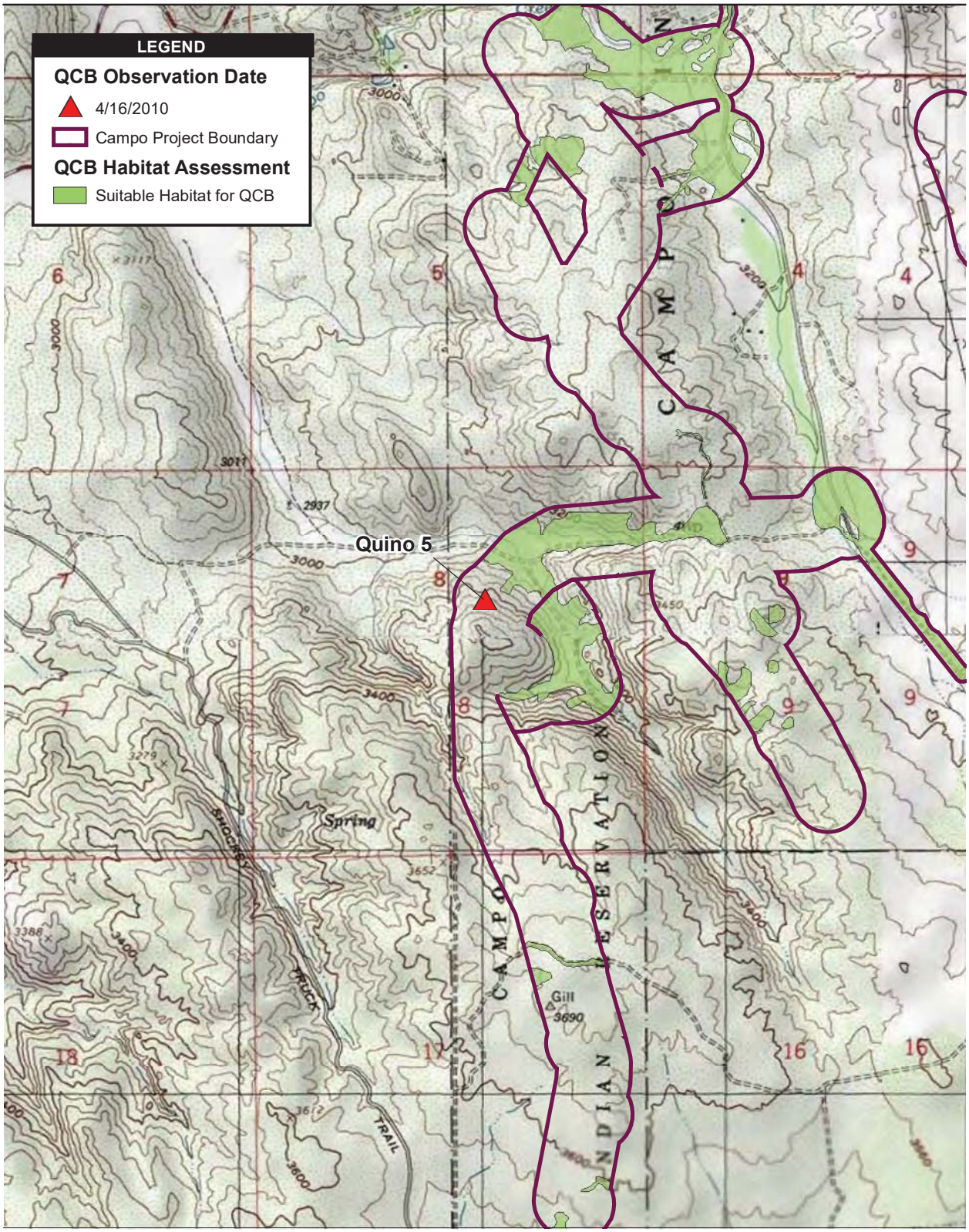
Source: DigitalGlobe 2008; SDG&E 2010

2,000 1,000 0 2,000 Feet

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

Figure 3b
Quino Detection Location Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_ 24hrQCBNotification\QCB_observation4-2_20100415.mxd, 04/16/10, johnsonaa



Source: DigitalGlobe 2008; SDG&E 2010

2,000 1,000 0 2,000 Feet

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

Figure 3c
Quino Detection Location Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_ 24hrQCBNotification\QCB_observation5_20100416.mxd, 04/16/10, johnsonaa

APPENDIX F.5
04/19/2010 24-HOUR NOTIFICATION LETTER TO USFWS

AECOM
1420 Kettner Boulevard
Suite 500
San Diego, CA 92101
www.aecom.com

619.233.1454 tel
619.233.0952 fax

April 19, 2010

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

RE: Notification of the Sixth Quino Checkerspot Butterfly Observation at the Manzanita Wind Energy Project, San Diego County, California

Dear Ms. Marquez:

AECOM is submitting this notification letter to inform you that two additional Quino checkerspot butterflies (*Euphydryas editha quino*; Quino) were observed immediately adjacent to the proposed Campo Wind Energy project site in southeastern San Diego County, California. On April 19, 2010, Consulting Biologist Michael Couffer (permit number TE-782703-8), sub-contractor to AECOM observed two Quino within the Campo Reservation boundaries during protocol surveys for the species. Although the project site exists within U.S. Fish and Wildlife (USFWS) Quino Survey Area 2, Mr. Couffer did not collect the specimen for identification according to the USFWS protocol (2002), per the pre-activity notification letter submitted for the proposed project on April 2, 2010. The sighting is detailed below.

At 13:45 hours, Mr. Couffer observed two Quinos interacting along the eastern fenced border for the Campo Indian Reservation, adjacent to the Campo Wind Energy project's study area. One Quino was observed chasing another Quino across the reservation border fence and entering reservation land at (NAD 83) 11 South 0562494, 3612598, and 0562502, 3612603 (Figure 3). The elevation was approximately 3,730 feet above lower mean sea level. This location was south of SR 94 (Campo Road), east of the north to south-running portion of Shasta Way, north of the east to west-running portion of Shasta Way, and immediately west of Camino del Monte.

One active male Quino chased a second Quino up and down the reservation border road twice, and then onto reservation land at the above coordinates. The Quino being chased appeared to be in good condition, but was not photographed. The active male Quino kept to a patch of bare ground and scattered popcornflower (*Plagiobothrys* sp.), where it chased all other butterflies and bee flies passing overhead. The two attached photos are of the same individual, which was somewhat drab and had tears in the wings (Photos 1 and 2).

This letter is official notification of this sighting and capture as required by the USFWS protocol for this species. Following this transmittal, a fax and a hard copy of this letter including maps will

be sent as well. If you have any questions or comments, please contact me at (619) 233-1454.

Sincerely,

Barbra Calantas
Wildlife Biologist

Enclosures: Figure 1 Regional Map
Figure 2 Vicinity Map
Figure 3 Quino Observation Location Map

cc: Eric Porter, USFWS
Alison Anderson, USFWS
Kelly Meyer, Invenergy
Monique LaChappa, Chairwoman, Campo Kumeyaay Nation
Deanna Leon, President, Muht-Hei Inc.
Lisa Gover, Campo EPA
Denise Turner Walsh, Campo Tribal Attorney

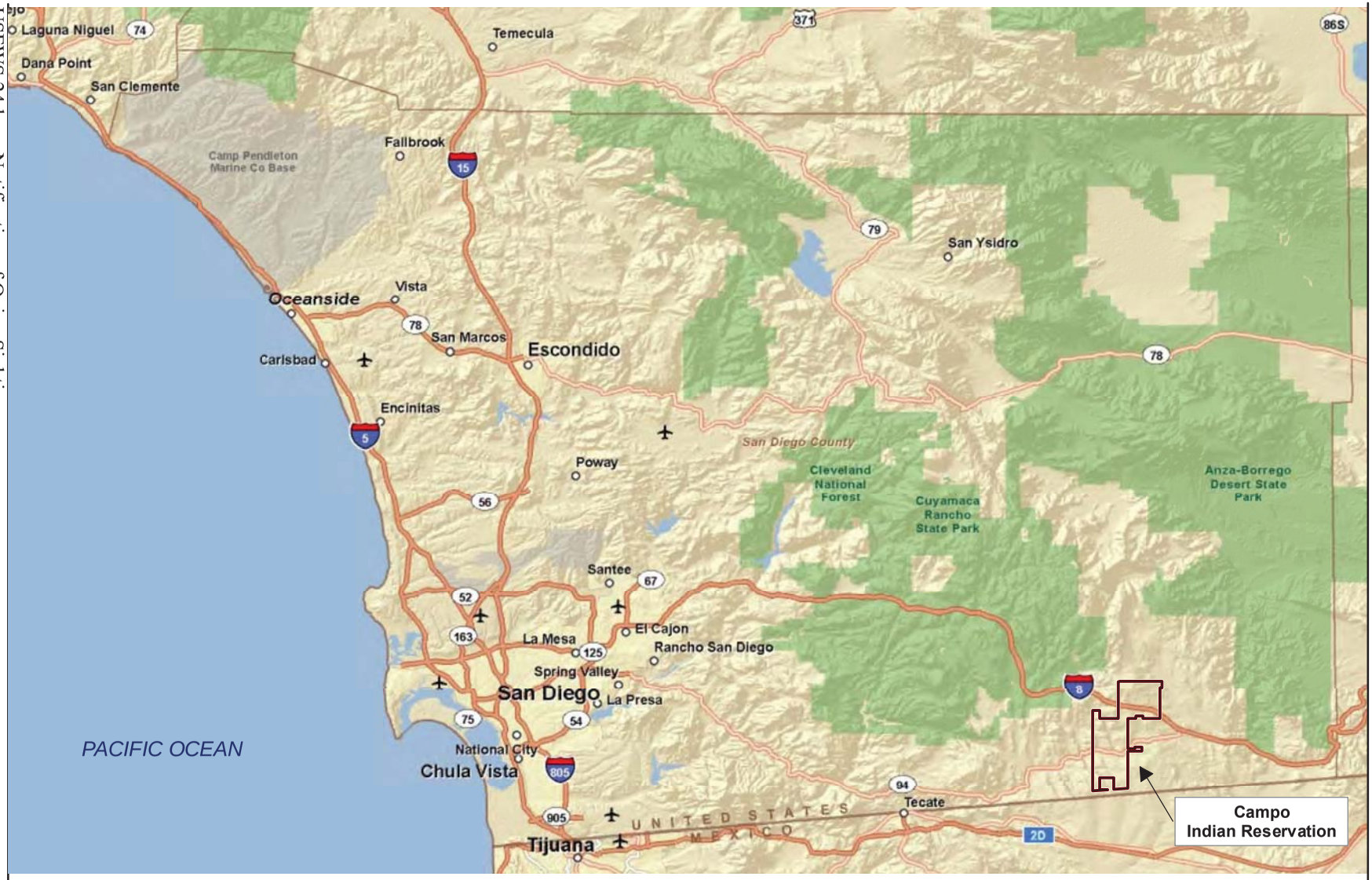
Photo 1



Photo 2



USFWS 24-hour Notification of Quino Sighting



Source: ESRI 2009

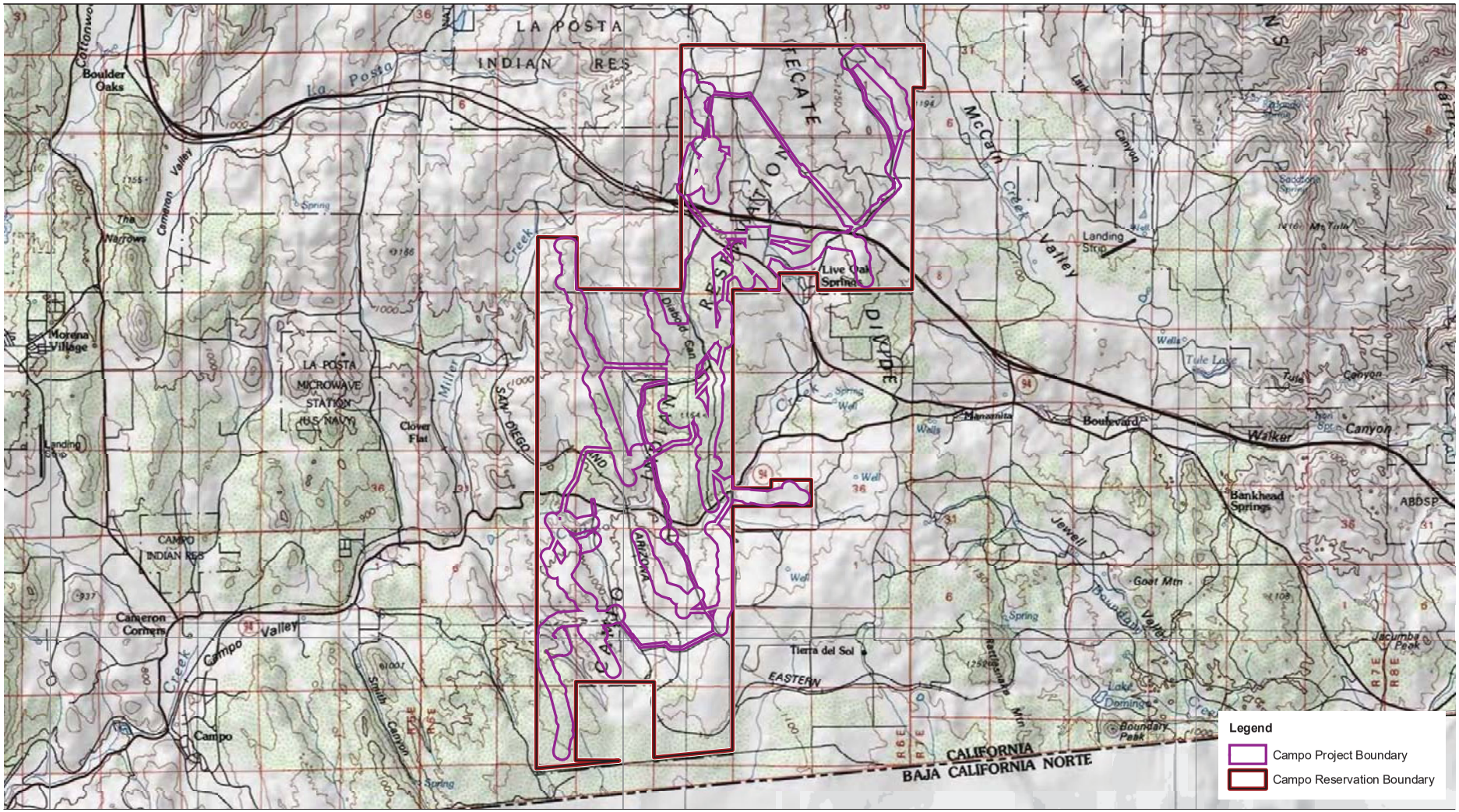
12.8 0 12.8 Miles

Scale: 1 = 805,493.1; 1 inch = 12.7 mile(s)

Figure 1

Regional Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_24hrQCBNotification\Fig1Regional_map.mxd, 04/12/10, johnsonaa



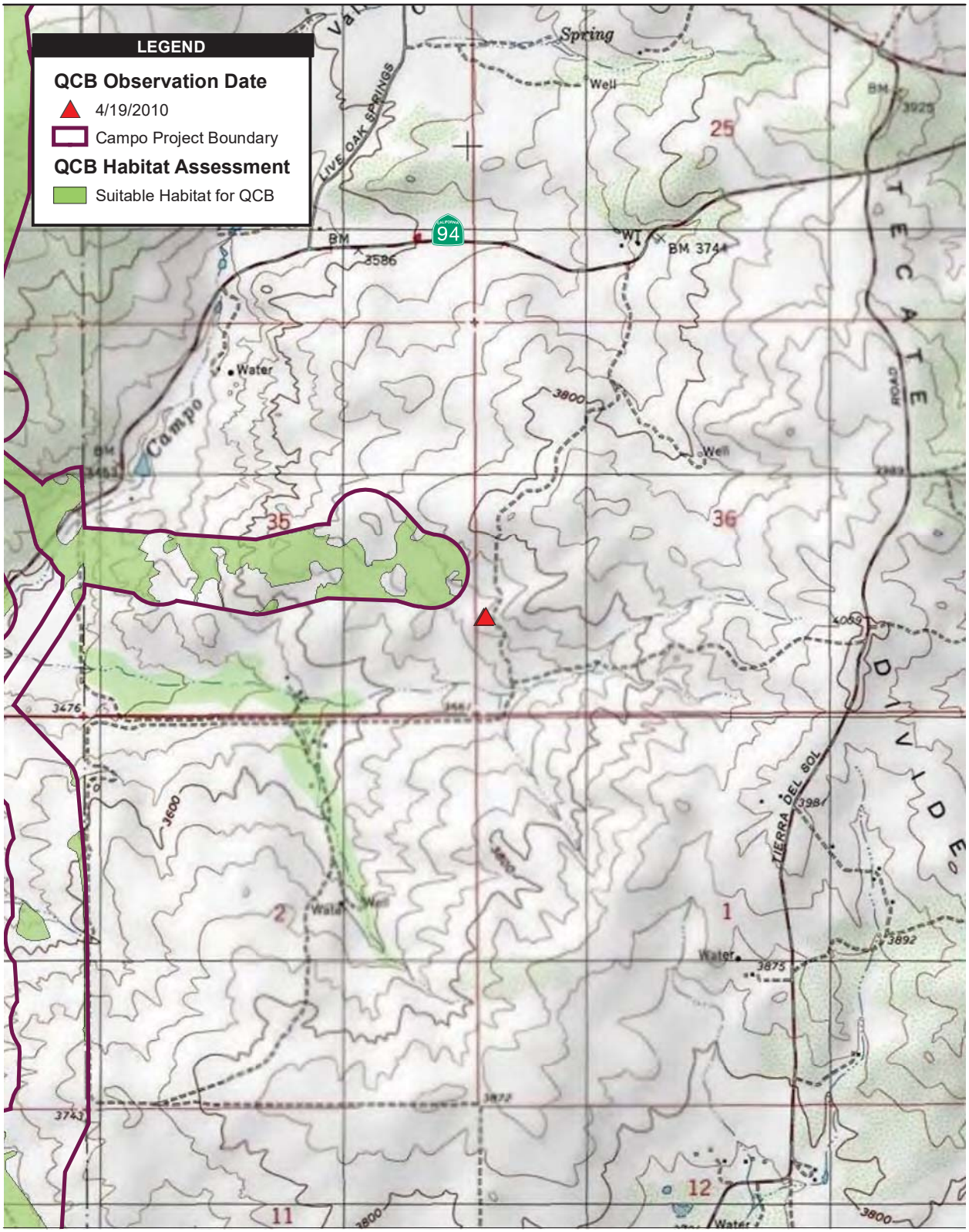
Source: Tierra del Sol 1959; Live Oak Springs 1975; Campo 1959; Cameron Corners 1988

6,500 3,250 0 6,500 Feet

Scale: 1 = 78,000; 1 inch = 6,500 feet

Figure 2
Vicinity Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_ 24hrQCBNotification\Fig2Vicinity.mxd, 04/12/10, johnsonaa



Source: DigitalGlobe 2008; SDG&E 2010

2,000 1,000 0 2,000 Feet

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

Figure 3
Quino Detection Location Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_ 24hrQCBNotification\QCB_observation7_20100419.mxd, 04/20/10, johnsonaa

APPENDIX F.6
04/24/2010 24-HOUR NOTIFICATION LETTER TO USFWS

AECOM
1420 Kettner Boulevard
Suite 500
San Diego, CA 92101
www.aecom.com

619.233.1454 tel
619.233.0952 fax

April 26, 2010

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

RE: Notification of the Seventh Quino Checkerspot Butterfly Observation at the Campo Wind Energy Project, San Diego County, California

Dear Ms. Marquez:

AECOM is submitting this notification letter to inform you that an additional Quino checkerspot butterfly (*Euphydryas editha quino*; Quino) was observed within the proposed Campo Wind Energy project site in southeastern San Diego County, California. On April 24, 2010, Consulting Biologist Michael Couffer (permit number TE-782703-8), sub-contractor to AECOM observed a Quino during protocol surveys for the species. Although the project site exists within U.S. Fish and Wildlife (USFWS) Quino Survey Area 2, Mr. Couffer did not collect the specimen for identification according to the USFWS protocol (2002), per the pre-activity notification letter submitted for the proposed project on April 2, 2010. The sighting is detailed below.

At 13:20 hours, Mr. Couffer observed one Quino approximately 1,312 feet south of Old Highway 80, south of the Golden Acorn Casino, at (NAD 83) 11S 0560710, 3617216 (Figure 3). This location is east of Church Road. The Quino was observed at approximately 4030 feet above lower mean sea level. The species was verified with binoculars, but was not photographed. After the Quino was flushed off bare ground, it landed on a 3-inch-tall popcornflower (*Plagiobothrys* sp.). While approaching closer to photograph the butterfly, it flushed and flew into moderate density chamise chaparral, and was not found again. This was a well-worn, drab individual, that had worn wing edges and faded abdomen stripes.

The butterfly was found on an old, unused dirt road that ran north to south. Because the prevailing winds in the area blow either from the east or from the west, shrubs deflect the wind over the road, causing a long dead air space with abundant bare ground and scattered popcornflowers (Photos 1 and 2). If the road had been oriented east to west, the prevailing winds would blow right down the road much of the time. Photos 1 and 2 are provided in order to attempt to illustrate the quality of this old dirt road as high quality Quino habitat.

This letter is official notification of this sighting and capture as required by the USFWS protocol for this species. Following this transmittal, a fax and a hard copy of this letter including maps will be sent as well. If you have any questions or comments, please contact me at (619) 233-1454.

Sincerely,

Barbra Calantas
Wildlife Biologist

Enclosures: Figure 1 Regional Map
Figure 2 Vicinity Map
Figure 3 Quino Observation Location Map

cc: Eric Porter, USFWS
Alison Anderson, USFWS
Kelly Meyer, Invenergy
Monique LaChappa, Chairwoman, Campo Kumeyaay Nation
Deanna Leon, President, Muht-Hei Inc.
Lisa Gover, Campo EPA
Denise Turner Walsh, Campo Tribal Attorney

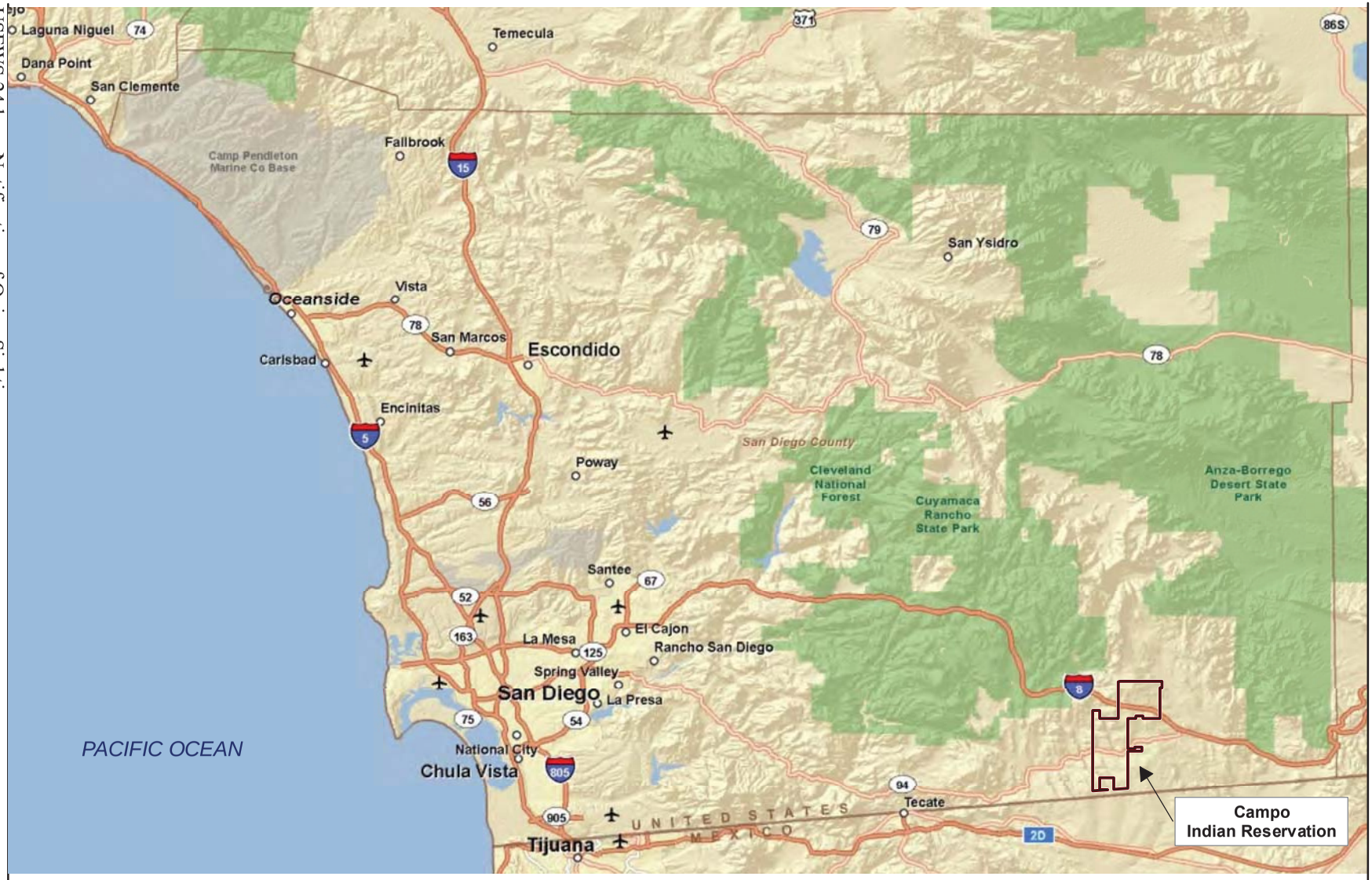
Photo 1



Photo 2



USFWS 24-hour Notification of Quino Sighting



Source: ESRI 2009

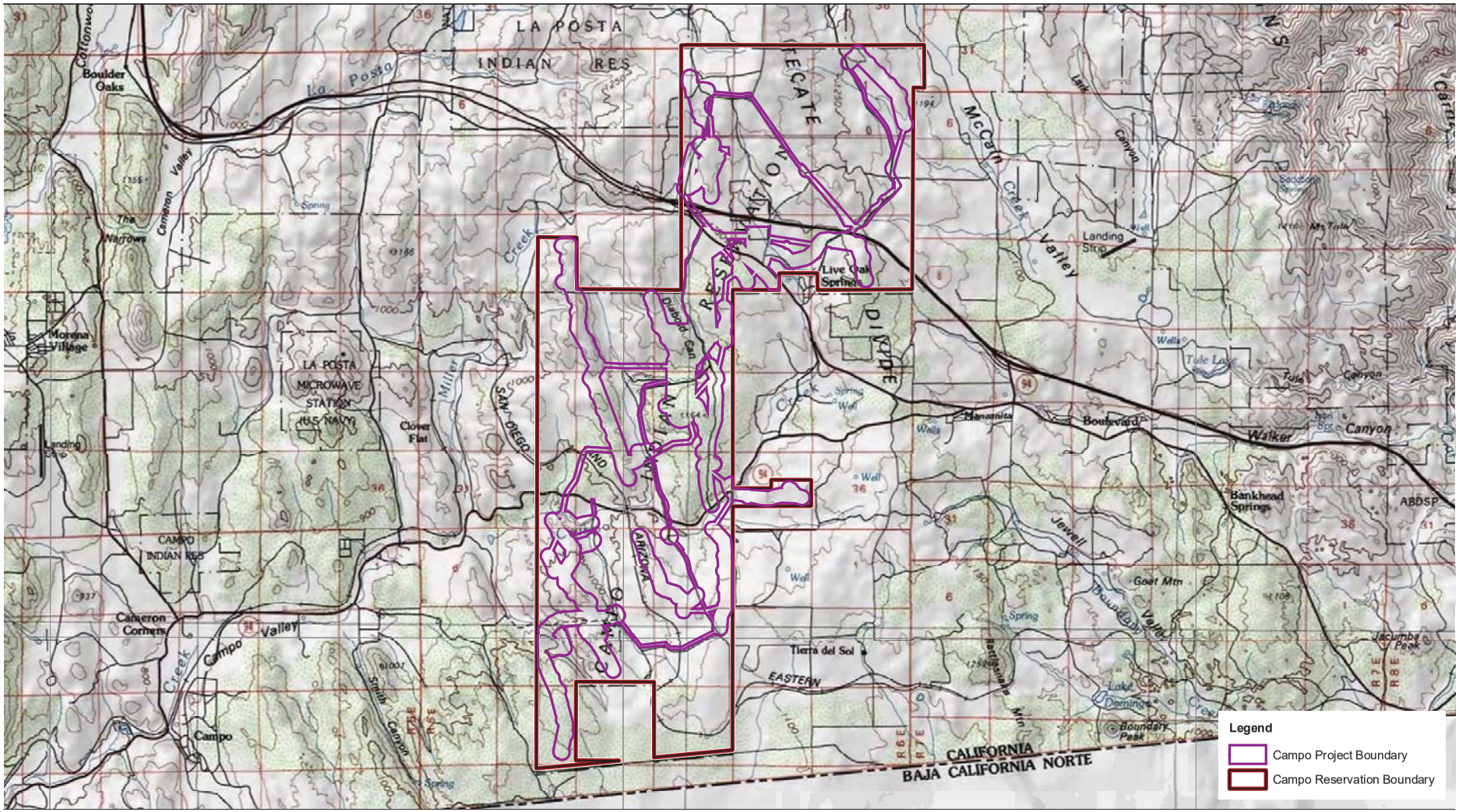
12.8 0 12.8 Miles

Scale: 1 = 805,493.1; 1 inch = 12.7 mile(s)

Figure 1

Regional Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_24hrQCBNotification\Fig1Regional_map.mxd, 04/12/10, johnsonaa



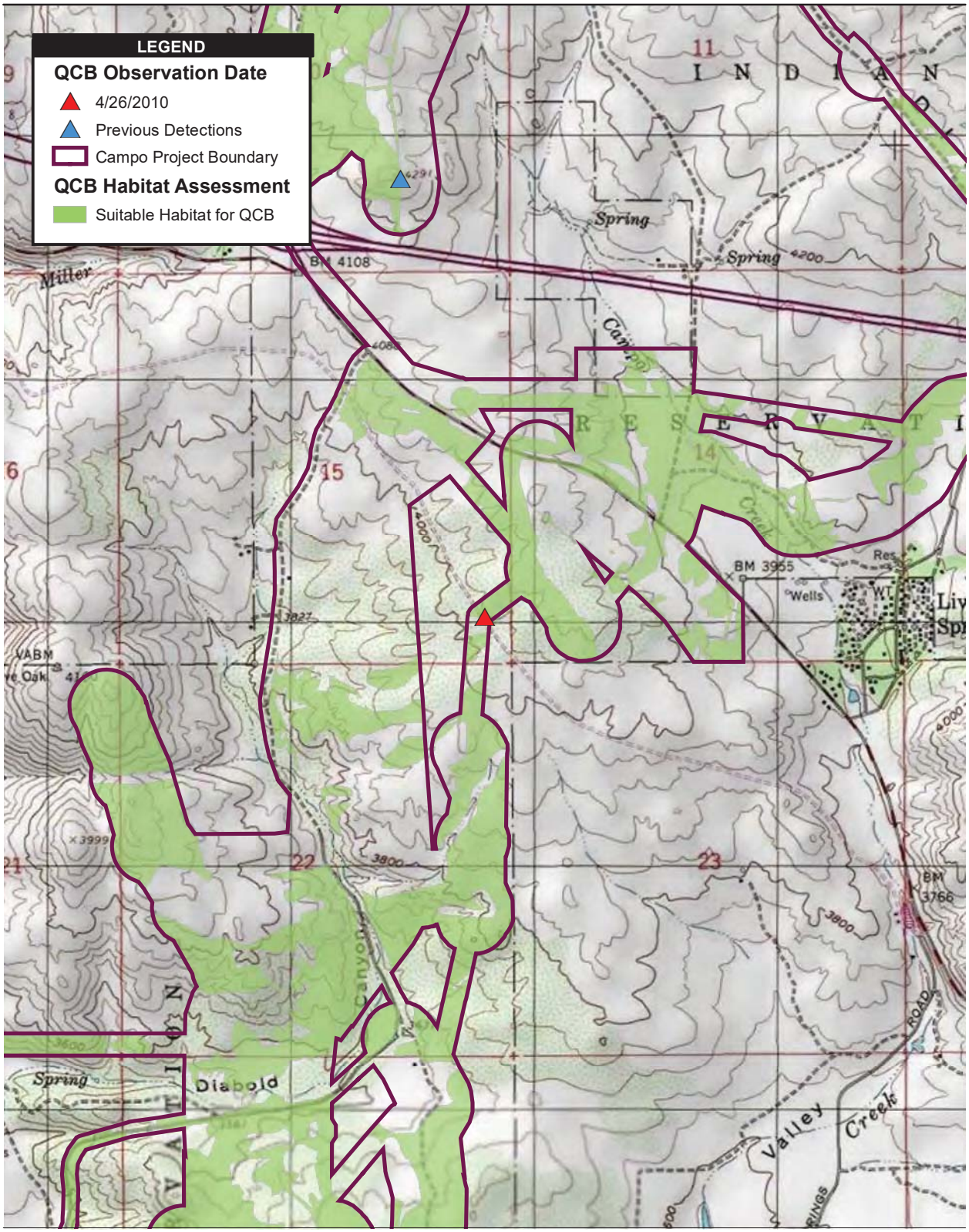
Source: Tierra del Sol 1959; Live Oak Springs 1975; Campo 1959; Cameron Corners 1988

6,500 3,250 0 6,500 Feet

Scale: 1 = 78,000; 1 inch = 6,500 feet

Figure 2
Vicinity Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_ 24hrQCBNotification\Fig2Vicinity.mxd, 04/12/10, johnsonaa



Source: DigitalGlobe 2008; SDG&E 2010

2,000 1,000 0 2,000 Feet

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

Figure 3
Quino Detection Location Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_ 24hrQCBNotification\QCB_observation7_20100426.mxd, 04/26/10, johnsonaa

APPENDIX F.7
04/26/2010 24-HOUR NOTIFICATION LETTER TO USFWS

AECOM
1420 Kettner Boulevard
Suite 500
San Diego, CA 92101
www.aecom.com

619.233.1454 tel
619.233.0952 fax

April 27, 2010

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

RE: Notification of the Eighth Quino Checkerspot Butterfly Observation at the Campo Wind Energy Project, San Diego County, California

Dear Ms. Marquez:

AECOM is submitting this notification letter to inform you that an additional Quino checkerspot butterfly (*Euphydryas editha quino*; Quino) was observed on the proposed Campo Wind Energy project site in southeastern San Diego County, California. On April 26, 2010, Consulting Biologist Michael Couffer (permit number TE-782703-8), sub-contractor to AECOM observed one Quino within the Campo Reservation boundaries during protocol surveys for the species. Although the project site exists within U.S. Fish and Wildlife (USFWS) Quino Survey Area 2, Mr. Couffer did not collect the specimen for identification according to the USFWS protocol (2002), per the pre-activity notification letter submitted for the proposed project on April 2, 2010. The sighting is detailed below.

At 14:13 hours, Mr. Couffer observed one Quino at (NAD 83) 11 South 0560671, 3611605 (Figure 3). The elevation was approximately 3,564 feet above lower mean sea level. This location was south of SR 94 (Campo Road), east of Church Road, northwest of Vista del Cielo, and southwest of Shasta Way. The Quino was not brightly colored but was also not worn, it looked to be in an “in-between” condition. The Quino took flight during an attempt to photograph it.

The Quino was within an extensive sandy inclusion of low density southern mixed chaparral, surrounded on 3 sides by high density chaparral (Photo 1). Nectar sources such as popcornflower were abundant. Large fields of Lasthenia sp. were also present. Collinsia concolor was found to be widely scattered in the area, often growing within buckwheat shrubs (Photo 2).

This letter is official notification of this sighting and capture as required by the USFWS protocol

for this species. Following this transmittal, a fax and a hard copy of this letter including maps will be sent as well. If you have any questions or comments, please contact me at (619) 233-1454.

Sincerely,

Barbra Calantas
Wildlife Biologist

Enclosures: Figure 1 Regional Map
Figure 2 Vicinity Map
Figure 3 Quino Observation Location Map

cc: Eric Porter, USFWS
Alison Anderson, USFWS
Kelly Meyer, Invenergy
Monique LaChappa, Chairwoman, Campo Kumeyaay Nation
Deanna Leon, President, Muht-Hei Inc.
Lisa Gover, Campo EPA
Denise Turner Walsh, Campo Tribal Attorney

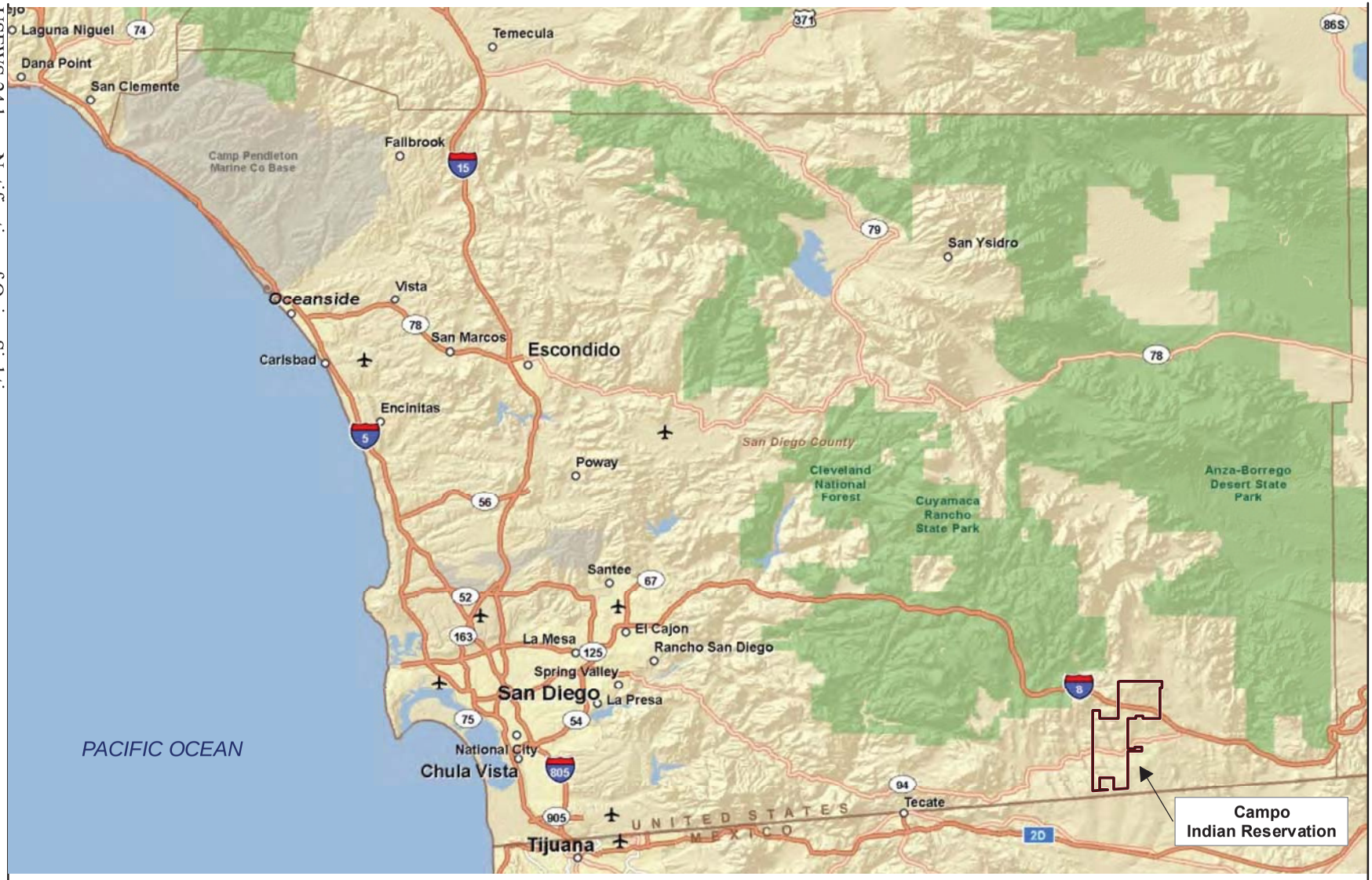
Photo 1



Photo 2



USFWS 24-hour Notification of Quino Sighting



Source: ESRI 2009

12.8 0 12.8 Miles

Scale: 1 = 805,493.1; 1 inch = 12.7 mile(s)

Figure 1

Regional Map

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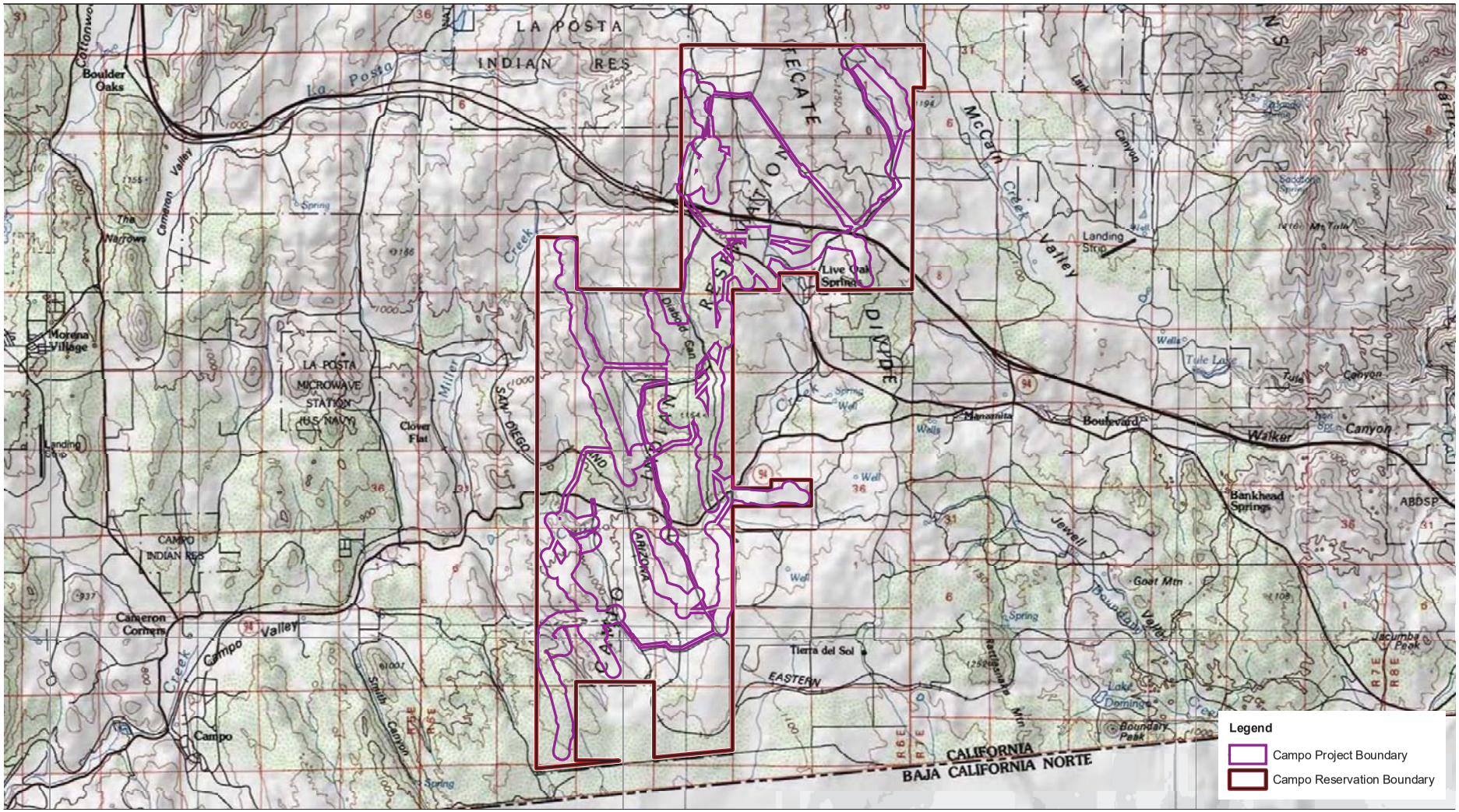


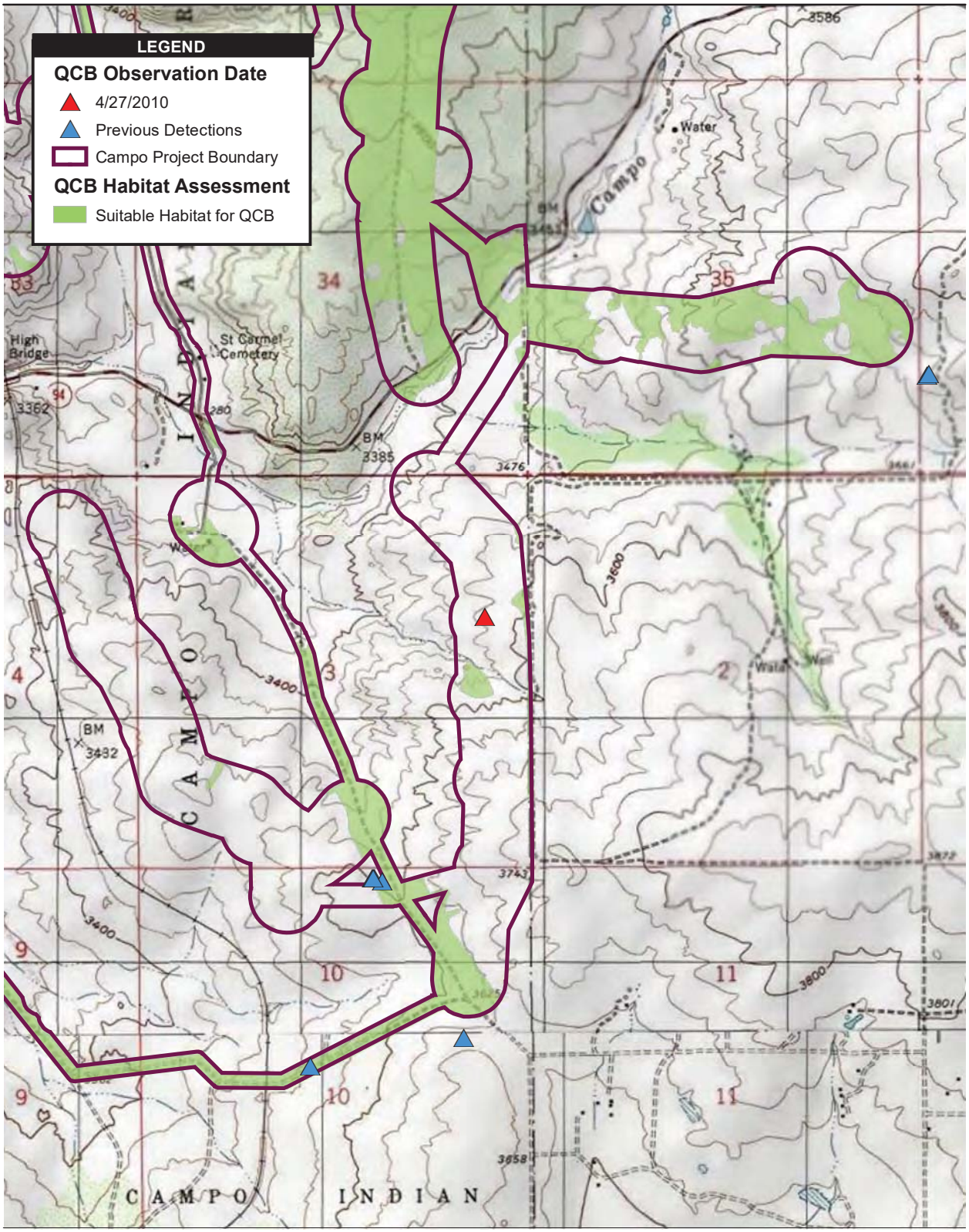
Source: Tierra del Sol 1959; Live Oak Springs 1975; Campo 1959; Cameron Corners 1988

6,500 3,250 0 6,500 Feet

Scale: 1 = 78,000; 1 inch = 6,500 feet

Figure 2
Vicinity Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_ 24hrQCBNotification\Fig2Vicinity.mxd, 04/12/10, johnsonaa



Source: DigitalGlobe 2008; SDG&E 2010

2,000 1,000 0 2,000 Feet

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

Figure 3
Quino Detection Location Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_ 24hrQCBNotification\QCB_observation8_20100427.mxd, 04/27/10, johnsonaa

APPENDIX F.8
04/27/2010 24-HOUR NOTIFICATION LETTER TO USFWS

AECOM
1420 Kettner Boulevard
Suite 500
San Diego, CA 92101
www.aecom.com

619.233.1454 tel
619.233.0952 fax

April 29, 2010

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

RE: Notification of the Ninth Quino Checkerspot Butterfly Observation at the Campo Wind Energy Project, San Diego County, California

Dear Ms. Marquez:

AECOM is submitting this notification letter to inform you that additional Quino checkerspot butterfly (*Euphydryas editha quino*; Quino) individuals were observed on the proposed Campo Wind Energy project site in southeastern San Diego County, California. On April 27, 2010, consulting biologists Michael Couffer (permit number TE-782703-8), and Dale Powell (permit number TE-006559-4), sub-contractors to AECOM, observed four Quino individuals within the Campo Reservation boundaries during protocol surveys for the species. Also, AECOM biologist Andrew Fisher (supervised under TE-820658-4) observed one of Mr. Couffer's Quino at a separate time, independent of Mr. Couffer. Although the project site exists within U.S. Fish and Wildlife (USFWS) Quino Survey Area 2, Mr. Couffer, Mr. Powell, and Mr. Fisher did not collect the specimens for identification according to the USFWS protocol (2002), per the pre-activity notification letter submitted for the proposed project on April 2, 2010. Addtionally, Mr. Fisher is not currently independently authorized for Quino. The sightings are detailed below.

At 12:40 hours, Mr. Couffer observed one Quino nectaring on white layia (*Layia glandulosa*) at (NAD 83) 11 South 0556986, 3609928 (Figure 3; Quino 1), at approximately 3,382 feet above lower mean sea level. The tip of the upper right forewing tip was gone, and this butterfly was drab, but still a strong flyer, and flew off before a photo could be taken. However, earlier that morning at 11:45, Mr. Fisher observed what is highly likely the same Quino 1 that Mr. Couffer while he was conducing an avian survey. Mr. Fisher's Quino was in the same exact location and fit the same physical description as Mr. Couffer's Quino (Photo 1).

At 14:45 hours, Mr. Couffer observed a second Quino was observed nectaring on white layia adjacent to this location at (NAD 83) 11 South 0556995, 3609943 (Figure 3, Quino 2), at approximately 3,372 feet above lower mean sea level. This Quino was a bit drab, and the tip of the upper right wing was intact (Photo 2). The intact wingtip proved that this was a different individual from the Quino previously observed.

From 15:40 to 15:47 hours, Mr. Couffer observed a third Quino. He followed and photographed

it as it nectared on white layia at (NAD 83) 11 South 0557077, 3610140 (Figure 3, Quino 3), at approximately 3,127 feet above lower mean sea level. This Quino lacked the sharp contrast of a newly-emerged individual, but its wing edges were nearly perfect, and it appeared to be in good condition (Photo 3).

At 12:27 hours, Mr. Powell observed a Quino while conducting protocol level surveys when he coincidentally ran into Mr. Fisher in the field. This Quino was found in similar habitat with the same nectar sources abundant, at location (NAD 83) 11 South 0557051, 3610098 (Figure 3, Quino 4). This Quino was in a worn condition, and looked different than the other three Quino previously detected by Mr. Couffer (Photo 4).

The first two Quinos found by Mr. Couffer were found immediately below the crown of a hilltop that rises from approximately 3,000 feet to 3,400 feet in elevation in open chaparral habitat (Photos 5 and 6). The third Quino Mr. Couffer detected was found near the toe of slope of this hill in similar habitat. Purple Chinese houses (*Collinsia concolor*) were observed from the toe of slope to the highest point of the hilltop within both open areas and dense chaparral. Collinsia was found at very low densities as well as at very high densities. The highest densities observed seemed to be near the top of the hill. White layia was found at high densities as well.

The general location was south of SR 94 (Campo Road), north of Tierra del Sol Road, east of Shockey Truck Trail, and west of BIA Road 15.

This letter is official notification of this sighting and capture as required by the USFWS protocol for this species. Following this transmittal, a fax and a hard copy of this letter including maps will be sent as well. If you have any questions or comments, please contact me at (619) 233-1454.

Sincerely,

Barbra Calantas
Wildlife Biologist

Enclosures: Figure 1 Regional Map
Figure 2 Vicinity Map
Figure 3 Quino Observation Location Map

cc: Eric Porter, USFWS
Alison Anderson, USFWS
Kelly Meyer, Invenergy
Monique LaChappa, Chairwoman, Campo Kumeyaay Nation
Deanna Leon, President, Muht-Hei Inc.
Lisa Gover, Campo EPA
Denise Turner Walsh, Campo Tribal Attorney

Photo 1



Photo 2



Photo 3



Photo 4

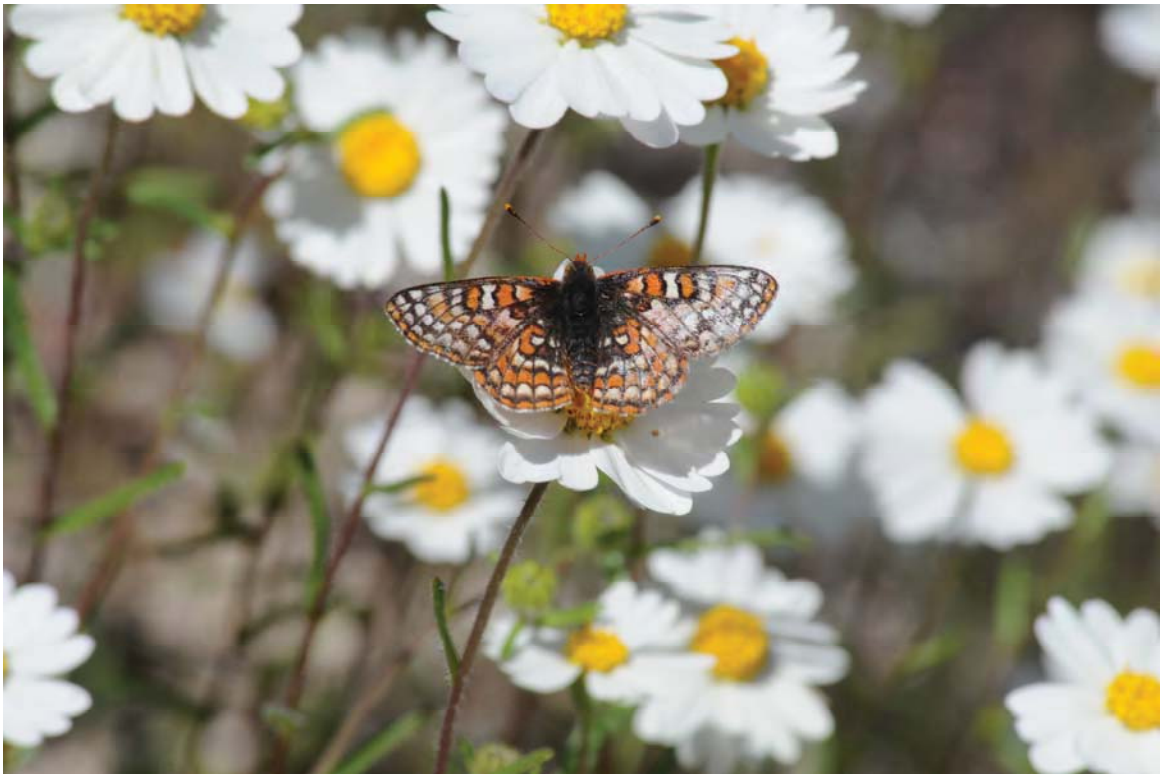


Photo 5



Photo 6



APPENDIX F.9
05/01/2010 24-HOUR NOTIFICATION LETTER TO USFWS

AECOM
1420 Kettner Boulevard
Suite 500
San Diego, CA 92101
www.aecom.com

619.233.1454 tel
619.233.0952 fax

May 2, 2010

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

RE: Notification of the Tenth Quino Checkerspot Butterfly Observation at the Campo Wind Energy Project, San Diego County, California

Dear Ms. Marquez:

AECOM is submitting this notification letter to inform you that two additional Quino checkerspot butterflies (*Euphydryas editha quino*; Quino) were observed on the proposed Campo Wind Energy project site in southeastern San Diego County, California. On May 1, 2010, Consulting Biologist Michael Couffer (permit number TE-782703-8), sub-contractor to AECOM observed two Quino within the Campo Reservation boundaries during protocol surveys for the species. AECOM biologist Andrew Fisher was in the company of Mr. Couffer, and also observed and photographed the Quino. Although the project site exists within U.S. Fish and Wildlife (USFWS) Quino Survey Area 2, Mr. Couffer did not collect the specimen for identification according to the USFWS protocol (2002), per the pre-activity notification letter submitted for the proposed project on April 2, 2010. The sighting is detailed below.

At 09:58 hours, Mr. Couffer observed one Quino nectaring on white layia (*Layia glandulosa*) at (NAD 83) 11 South 0557061, 3610108, at approximately 3,180 feet above lower mean sea level (Figure 3, Quino 1). This butterfly was drab, but otherwise appeared to be in good condition.

At 10:08 hours, a second Quino was discovered and independently identified by Mr. Fisher as it nectared on white layia at (NAD 83) 11 South 0557076, 3610089, at approximately 3,192 feet above lower mean sea level (Figure 3, Quino 2). Mr. Fisher is not currently permitted to identify Quino; however, within 15 seconds of Mr, Fisher's discovery and identification, Mr. Couffer confirmed Mr. Fisher's identification. Mr. Couffer wishes to add that Mr. Fisher located and correctly identified Quino at a location where both Henne's and Gabb's checkerspots were abundant at the time. This second Quino was a younger individual that had much more defined markings than the first butterfly observed (Photo 1). A representative photograph of the habitat where both Quinos were observed is provided (Photo 2).

These Quinos were found approximately half way up the slopes of a hilltop that rises from approximately 3,000 feet to 3,400 feet in elevation. Purple Chinese houses (*Collinsia concolor*) were observed from the toe of slope to the highest point of the hilltop within both open areas

and dense chaparral. Collinsia was found at very low densities as well as at very high densities. White layia was found at high densities as well. The general location was south of SR 94 (Campo Road), north of Tierra del Sol Road, east of Shockey Truck Trail, and west of BIA Road 15.

This letter is official notification of this sighting and capture as required by the USFWS protocol for this species. Following this transmittal, a fax and a hard copy of this letter including maps will be sent as well. If you have any questions or comments, please contact me at (619) 233-1454.

Sincerely,

Barbra Calantas
Wildlife Biologist

Enclosures: Figure 1 Regional Map
Figure 2 Vicinity Map
Figure 3 Quino Observation Location Map

cc: Eric Porter, USFWS
Alison Anderson, USFWS
Kelly Meyer, Invenergy
Monique LaChappa, Chairwoman, Campo Kumeyaay Nation
Deanna Leon, President, Muht-Hei Inc.
Lisa Gover, Campo EPA
Denise Turner Walsh, Campo Tribal Attorney

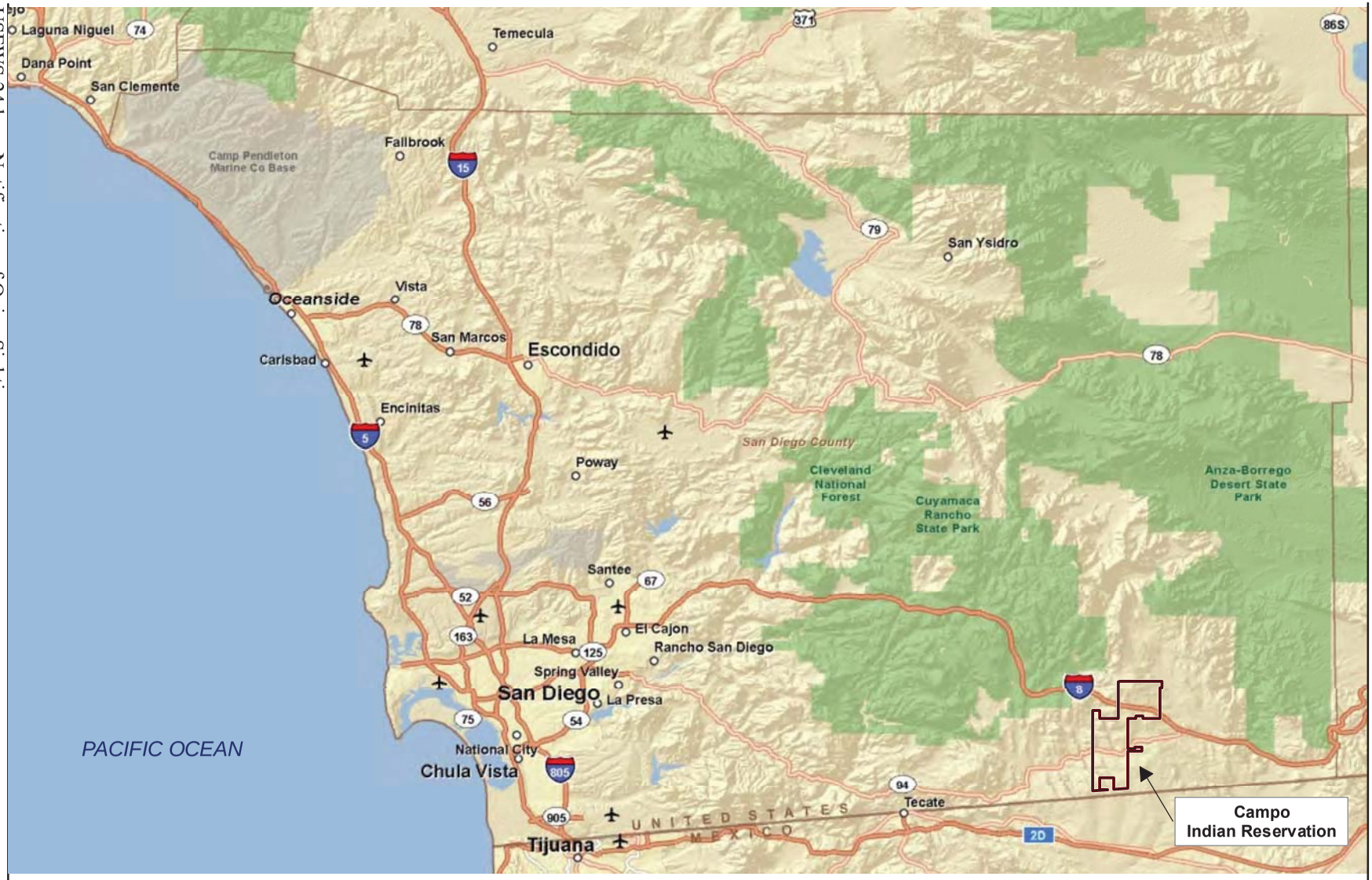
Photo 1



Photo 2



USFWS 24-hour Notification of Quino Sighting



Source: ESRI 2009

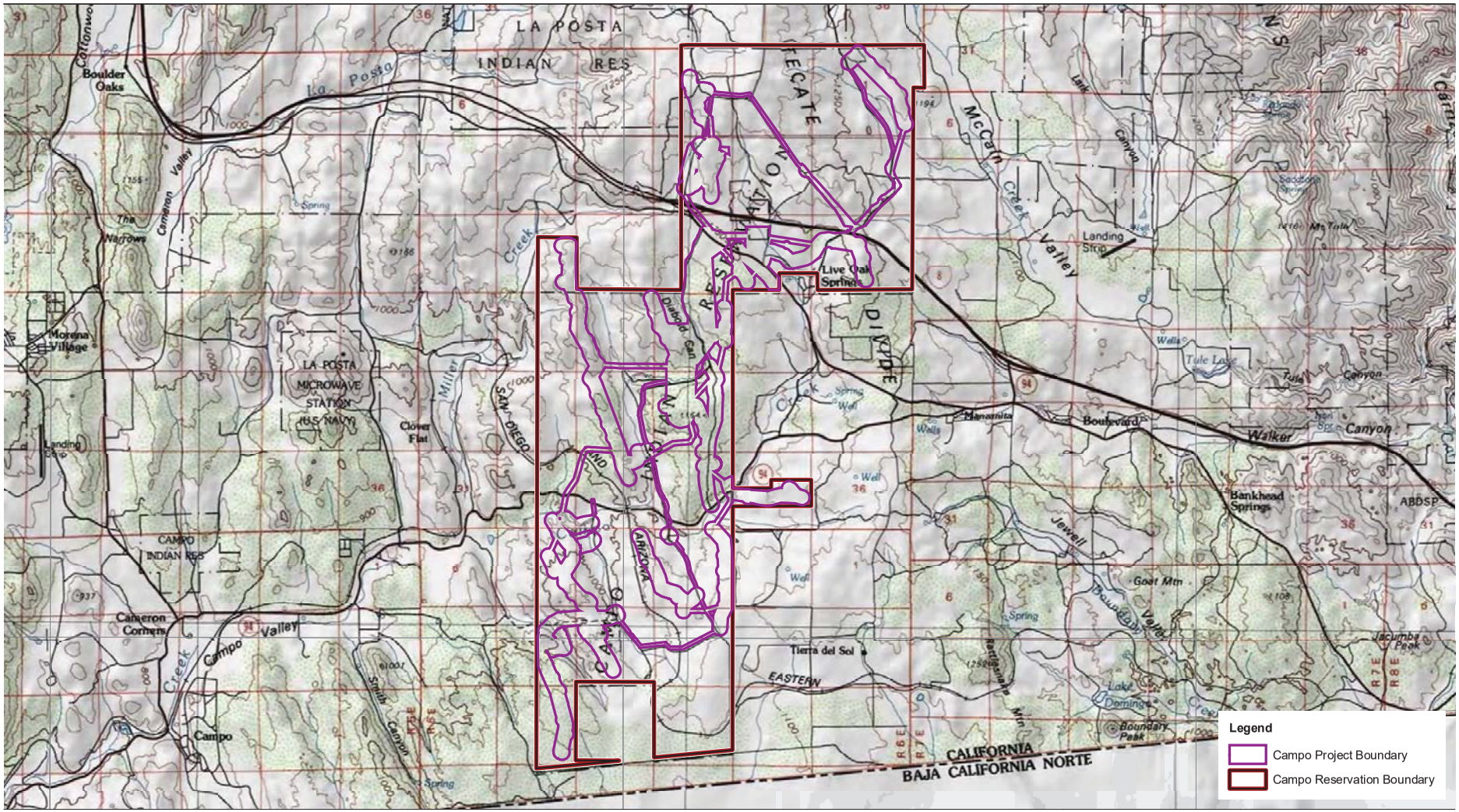
12.8 0 12.8 Miles

Scale: 1 = 805,493.1; 1 inch = 12.7 mile(s)

Figure 1

Regional Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_24hrQCBNotification\Fig1Regional_map.mxd, 04/12/10, johnsonaa



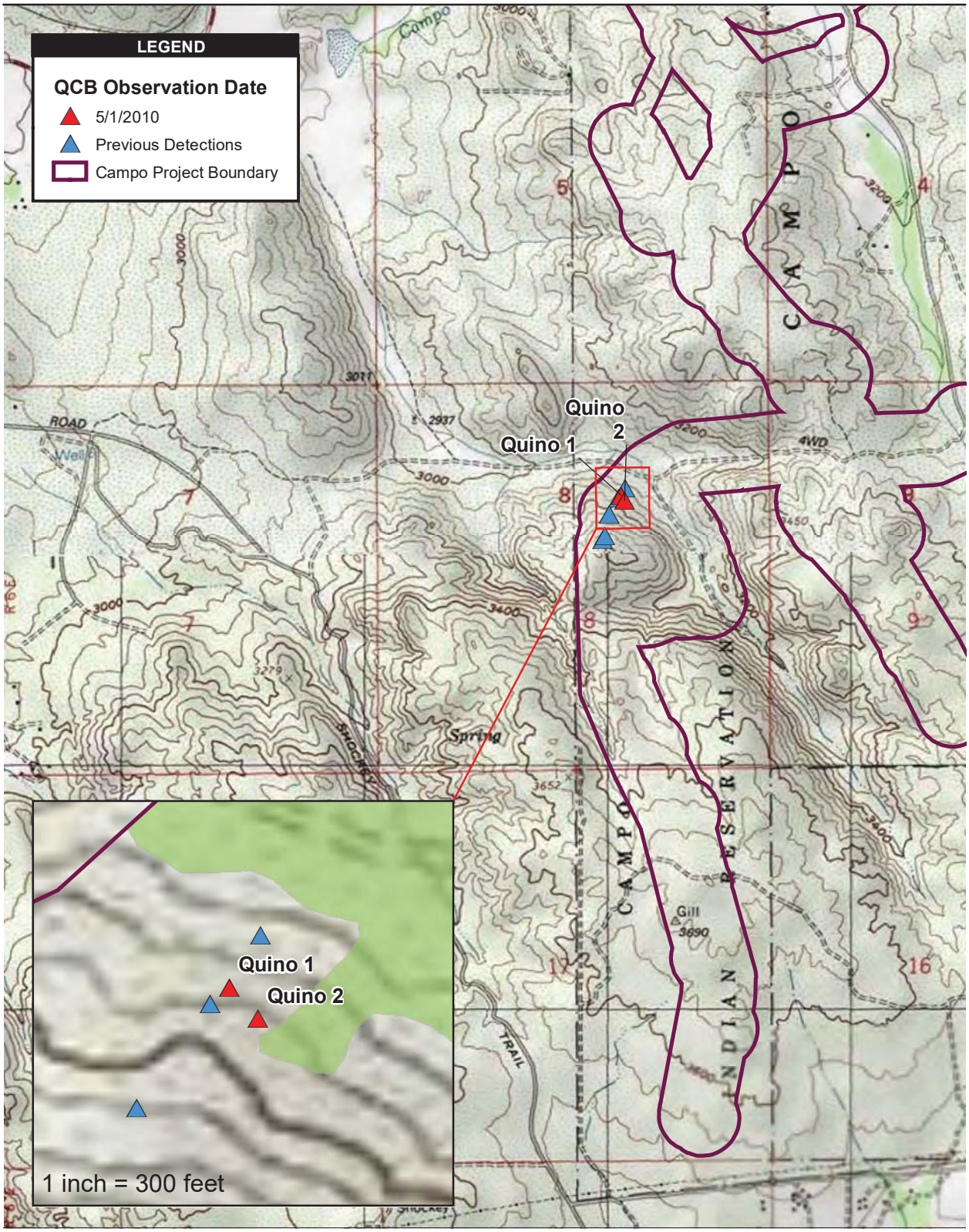
Source: Tierra del Sol 1959; Live Oak Springs 1975; Campo 1959; Cameron Corners 1988

6,500 3,250 0 6,500 Feet

Scale: 1 = 78,000; 1 inch = 6,500 feet

Figure 2
Vicinity Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_ 24hrQCBNotification\Fig2Vicinity.mxd, 04/12/10, johnsonaa



Source: DigitalGlobe 2008; SDG&E 2010

2,000 1,000 0 2,000 Feet

Scale: 1 = 3,600; 1 inch = 300 feet

Figure 3
Quino Detection Location Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_ 24hrQCBNotification\QCB_observation10_20100503.mxd, 05/03/10, johnsonaa

APPENDIX F.10
05/06/2010 24-HOUR NOTIFICATION LETTER TO USFWS

AECOM
1420 Kettner Boulevard
Suite 500
San Diego, CA 92101
www.aecom.com

619.233.1454 tel
619.233.0952 fax

May 7, 2010

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

RE: Notification of the Eleventh Quino Checkerspot Butterfly Observation at the Campo Wind Energy Project, San Diego County, California

Dear Ms. Marquez:

AECOM is submitting this notification letter to inform you that three additional Quino checkerspot butterflies (Euphydryas editha quino; Quino) were observed on the proposed Campo Wind Energy project site in southeastern San Diego County, California. On May 6, 1010, Antonette Gutierrez (permit number TE-797999-6), senior biologist at Merkel and Associates, Inc. and Consulting Biologist Michael Couffer (permit number TE-782703-8), sub-contractor to AECOM observed and photographed three Quino within the Campo Reservation boundaries during protocol surveys for the species. Although the project site exists within U.S. Fish and Wildlife (USFWS) Quino Survey Area 2, neither Ms. Gutierrez nor Mr. Couffer collected specimens for identification according to the USFWS protocol (2002), per the pre-activity notification letter submitted for the proposed project on April 2, 2010. The sightings are detailed below.

At 8:45 hours, Ms. Gutierrez observed and photographed a very small Quino nectaring on white layia (Layia glandulosa) at (NAD 83) 11 South 0557058, 3610103 (Figure 3; Quino 1a). The butterfly appeared to be fresh, and in good condition (Photo 1). Mr. Couffer was surveying a different portion of this hill, and did not observe this butterfly at the time.

At 10:28 hours, Mr. Couffer observed an average-sized Quino nectaring on white layia at (NAD 83) 11 South 0557082, 3610091, at approximately 3,180 feet above lower mean sea level (Figure 3, Quino 2). This butterfly was drab, but otherwise appeared to be in good condition. It chased two passing Henne's checkerspots. No photos were taken of this butterfly.

At 10:44 hours, Mr. Couffer observed a very small Quino nectaring on white layia at (NAD 83) 11 South 0557060, 3610100, at approximately 3,173 feet above lower mean sea level (Figure 3, Quino 1b). This butterfly appeared to be quite fresh, and in good condition. From the small size and overall good condition of the butterfly, Mr. Couffer surmised that this was the same Quino observed by Ms. Gutierrez two hours earlier. Please compare the shape and position of the two black spots in the third cell of the upper left wings of the butterflies shown in Photo 1 (Ms. Gutierrez), and Photo 2 (Mr. Couffer). It is highly likely that this is the same Quino, seen independently by two biologists, two hours apart.

At 12:04 hours, Mr. Couffer observed an average-sized Quino again nectaring on white layia at (NAD 83) 11 South 0557193, 3609859 at approximately 3,343 feet above lower mean sea level (Figure 3; Quino 3). This butterfly was somewhat drab, but otherwise appeared to be in good condition. No photos were taken of this butterfly.

Photographs of the habitat where both Quinos were observed are provided (Photos 3 and 4). These Quinos were found approximately on the slopes of a hilltop that rises from approximately 3,000 feet to 3,400 feet in elevation. Chinese houses (Collinsia sp.) were abundant from the toe of slope to the highest point of the hilltop within both open areas and dense chaparral. Collinsia was found at very low densities as well as at very high densities. White layia was found at high densities as well. The general location was south of SR 94 (Campo Road), north of Tierra del Sol Road, east of Shockey Truck Trail, and west of BIA Road 15.

This letter is official notification of this sighting and capture as required by the USFWS protocol for this species. Following this transmittal, a fax and a hard copy of this letter including maps will be sent as well. If you have any questions or comments, please contact me at (619) 233-1454.

Sincerely,

Barbra Calantas
Wildlife Biologist

Enclosures: Figure 1 Regional Map
Figure 2 Vicinity Map
Figure 3 Quino Observation Location Map

cc: Eric Porter, USFWS
Alison Anderson, USFWS
Kelly Meyer, Invenergy
Monique LaChappa, Chairwoman, Campo Kumeyaay Nation
Deanna Leon, President, Muht-Hei Inc.
Lisa Gover, Campo EPA
Denise Turner Walsh, Campo Tribal Attorney

Photo 1



Photo 2



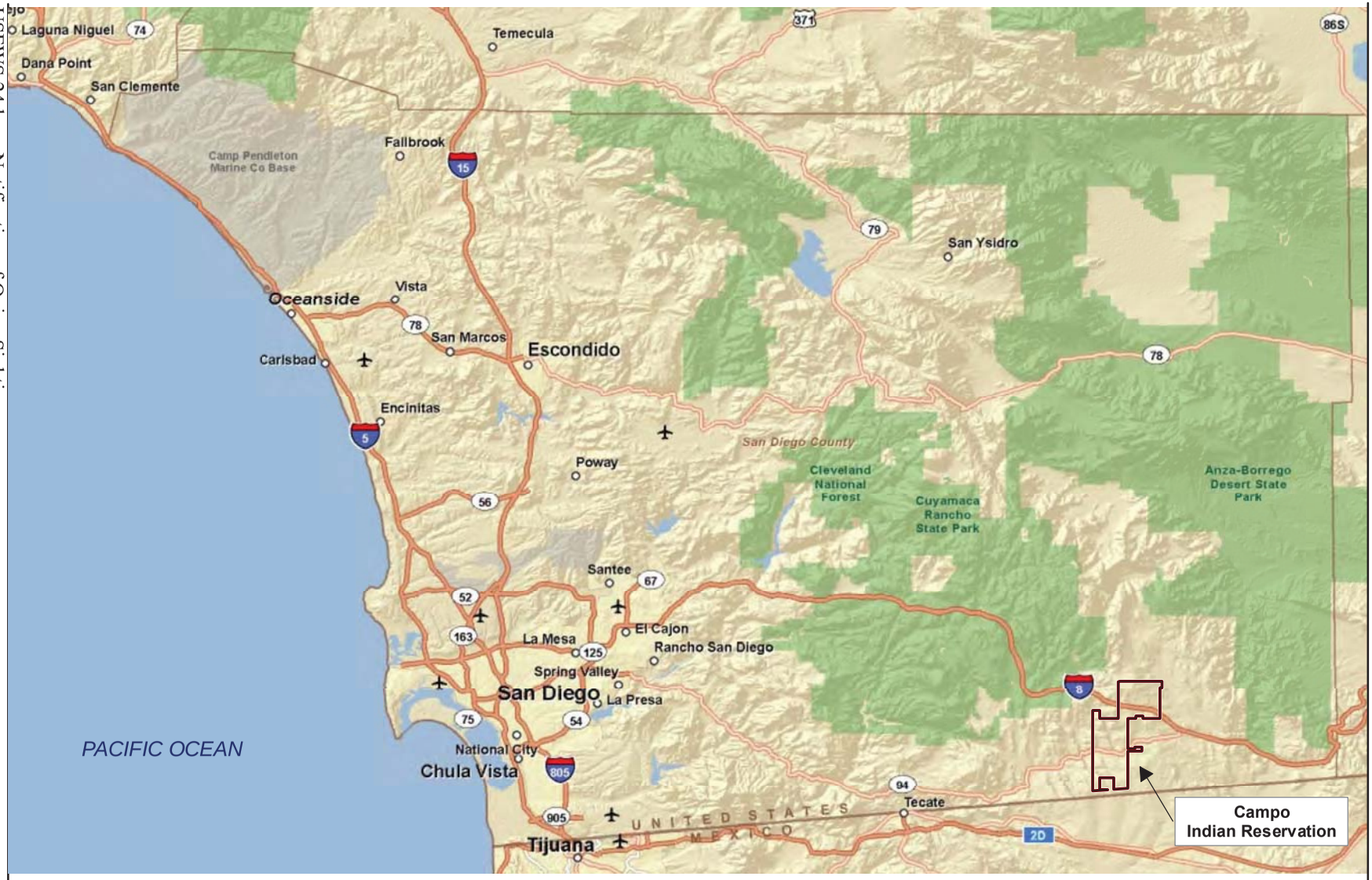
Photo 3



Photo 4



USFWS 24-hour Notification of Quino Sighting



Source: ESRI 2009

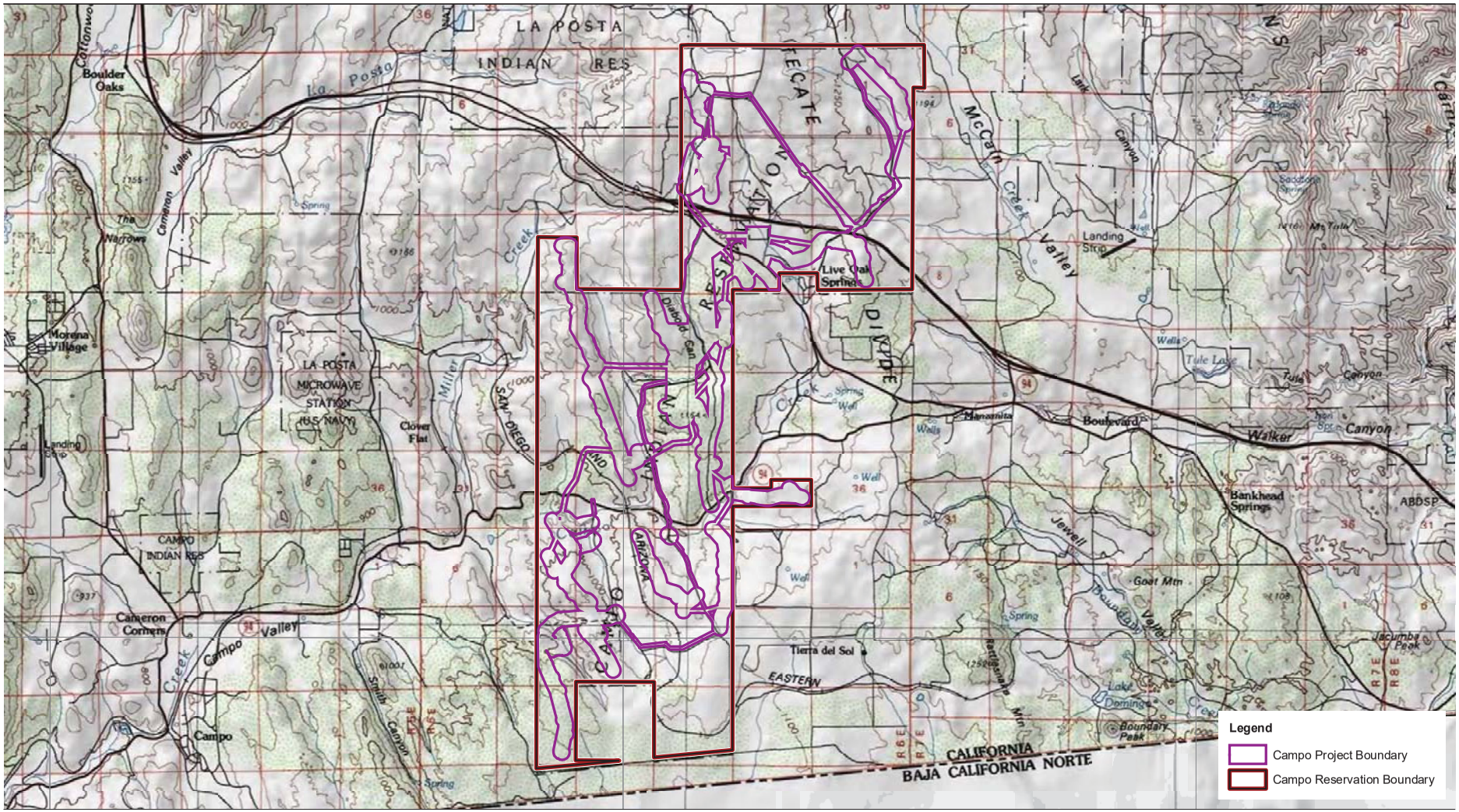
12.8 0 12.8 Miles

Scale: 1 = 805,493.1; 1 inch = 12.7 mile(s)

Figure 1

Regional Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_24hrQCBNotification\Fig1Regional_map.mxd, 04/12/10, johnsonaa



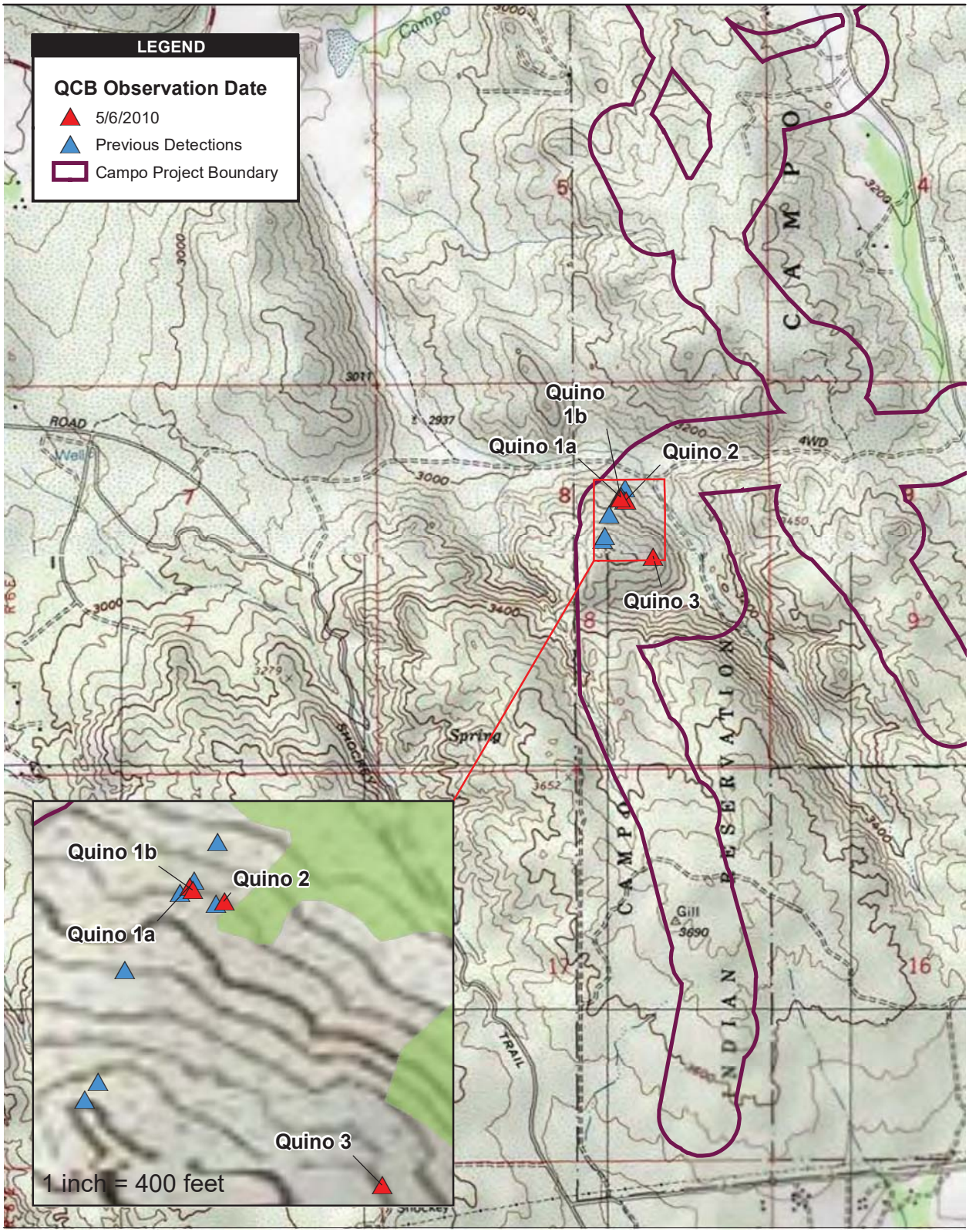
Source: Tierra del Sol 1959; Live Oak Springs 1975; Campo 1959; Cameron Corners 1988

6,500 3,250 0 6,500 Feet

Scale: 1 = 78,000; 1 inch = 6,500 feet

Figure 2
Vicinity Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_ 24hrQCBNotification\Fig2Vicinity.mxd, 04/12/10, johnsonaa



Source: DigitalGlobe 2008; SDG&E 2010; AECOM 2010

2,000 1,000 0 2,000 Feet

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

Figure 3
Quino Detection Location Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_ 24hrQCBNotification\QCB_observation11_20100506.mxd, 05/10/10, johnsonaa

APPENDIX F.11
05/07/2010 24-HOUR NOTIFICATION LETTER TO USFWS

AECOM
1420 Kettner Boulevard
Suite 500
San Diego, CA 92101
www.aecom.com

619.233.1454 tel
619.233.0952 fax

May 7, 2010

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

RE: Notification of the Twelfth Quino Checkerspot Butterfly Observation at the Campo Wind Energy Project, San Diego County, California

Dear Ms. Marquez:

AECOM is submitting this notification letter to inform you that an additional Quino checkerspot butterfly (*Euphydryas editha quino*; Quino) was observed on the proposed Campo Wind Energy project site in southeastern San Diego County, California. On May 7, 2010, Consulting Biologist Michael Couffer (permit number TE-782703-8), sub-contractor to AECOM observed one Quino within the Campo Reservation boundaries during protocol surveys for the species. Although the project site exists within U.S. Fish and Wildlife (USFWS) Quino Survey Area 2, Mr. Couffer did not collect the specimen for identification according to the USFWS protocol (2002), per the pre-activity notification letter submitted for the proposed project on April 2, 2010. The sighting is detailed below.

At 11:25 hours, Mr. Couffer observed one Quino nectaring on white pincushion (*Chaenactis artemisiifolia)*) at (NAD 83) 11 South 0557563, 3610337, at approximately 3,228 feet above lower mean sea level (Figure 3). This butterfly was quite drab, with smooth wing edges. Mr. Couffer was attacked by a bee while stalking the Quino for a photo, and was not able to photograph the buttefly. A photograph of the sighting location is provided (Photo 1).

This Quino was north of a hill and across a drainage ffom the location where several other Quinos have been documented during surveys for this project. This south-facing slope is much dryer, and supports far fewer Chinese houses (*Collinsia* sp.) than the north-facing slope across the drainage where Quino has been more prevalent. The general location was south of SR 94 (Campo Road), north of Tierra del Sol Road, east of Shockey Truck Trail, and west of BIA Road 15.

This letter is official notification of this sighting and capture as required by the USFWS protocol

for this species. Following this transmittal, a fax and a hard copy of this letter including maps will be sent as well. If you have any questions or comments, please contact me at (619) 233-1454.

Sincerely,

Barbra Calantas
Wildlife Biologist

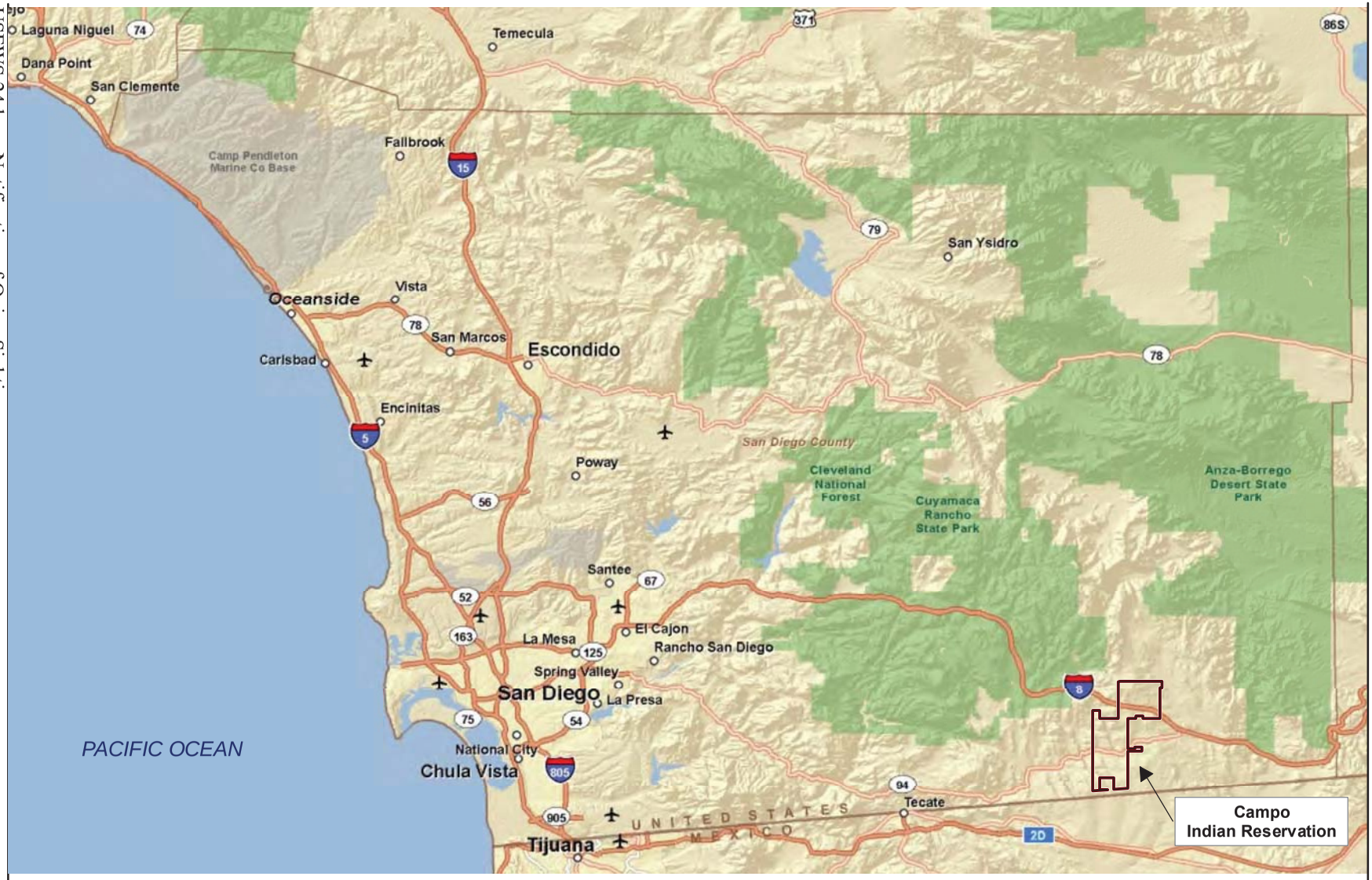
Enclosures: Figure 1 Regional Map
Figure 2 Vicinity Map
Figure 3 Quino Observation Location Map (to be provided on 05/13/2010)

cc: Eric Porter, USFWS
Alison Anderson, USFWS
Kelly Meyer, Invenergy
Monique LaChappa, Chairwoman, Campo Kumeyaay Nation
Deanna Leon, President, Muht-Hei Inc.
Lisa Gover, Campo EPA
Denise Turner Walsh, Campo Tribal Attorney

Photo 1



USFWS 24-hour Notification of Quino Sighting



Source: ESRI 2009

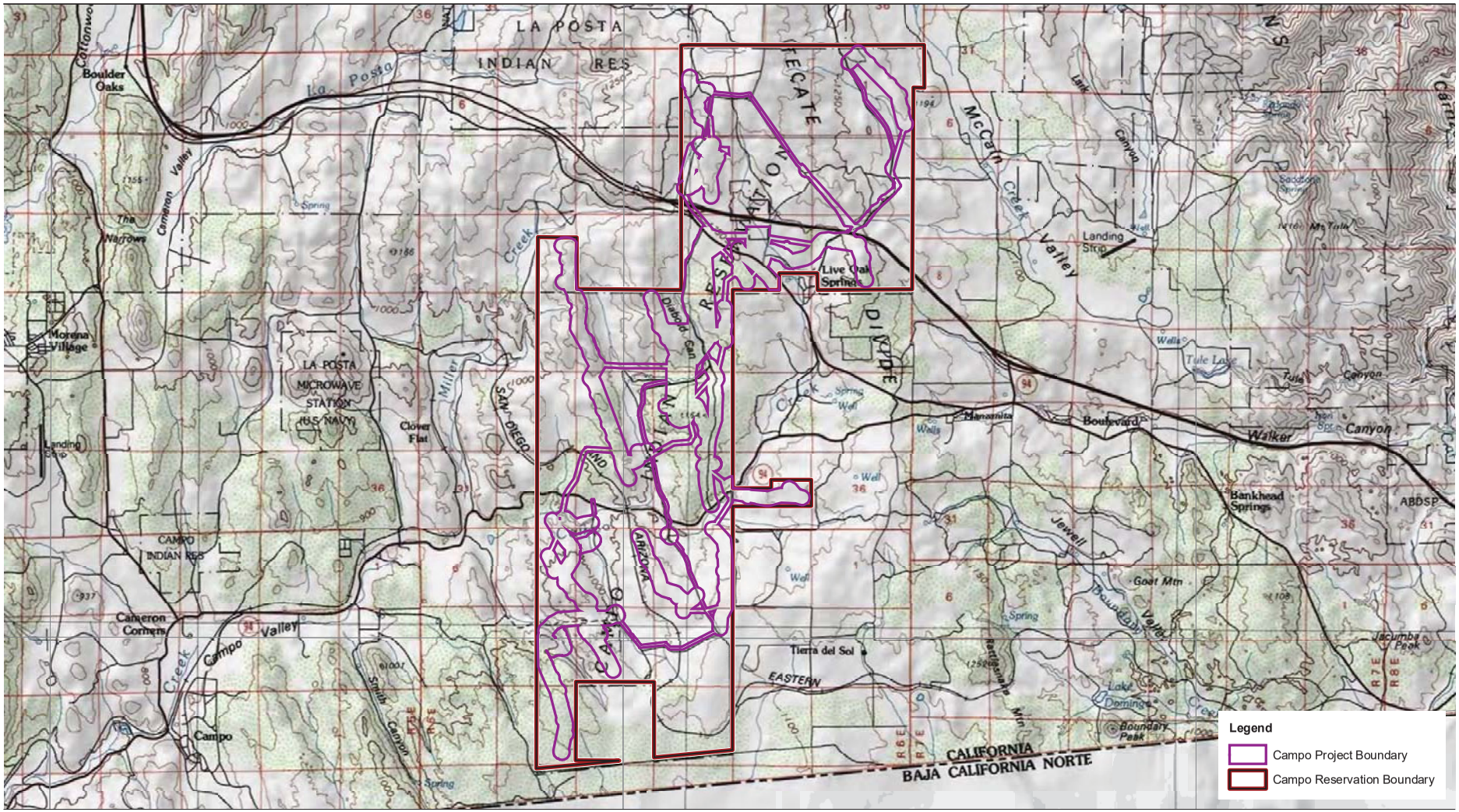
12.8 0 12.8 Miles

Scale: 1 = 805,493.1; 1 inch = 12.7 mile(s)

Figure 1

Regional Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_24hrQCBNotification\Fig1Regional_map.mxd, 04/12/10, johnsonaa



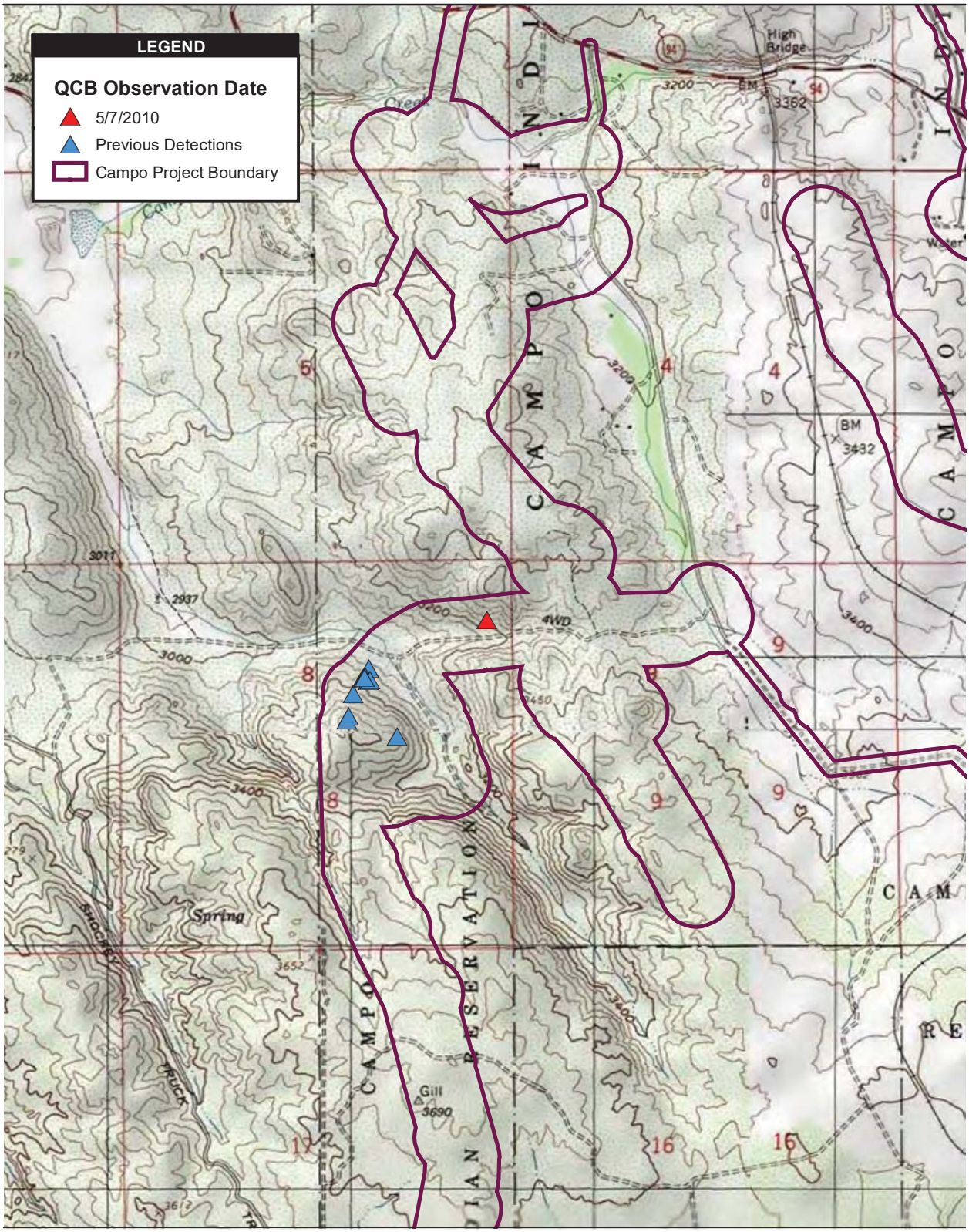
Source: Tierra del Sol 1959; Live Oak Springs 1975; Campo 1959; Cameron Corners 1988

6,500 3,250 0 6,500 Feet

Scale: 1 = 78,000; 1 inch = 6,500 feet

Figure 2
Vicinity Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_ 24hrQCBNotification\Fig2Vicinity.mxd, 04/12/10, johnsonaa



Source: DigitalGlobe 2008; SDG&E 2010; AECOM 2010

2,000 1,000 0 2,000 Feet

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

Figure 3
Quino Detection Location Map

Path: P:\2009\09080183_Campo_wind\6.0 GIS\6.3 Layout\BIO\QCB\USFWS_ 24hrQCBNotification\QCB_observation12_20100507.mxd, 05/10/10, johnsonaa

ATTACHMENT B-1

2018 Focused Quino Checkerspot Butterfly Survey Report for the Torrey Wind Project, Boulevard, San Diego County, California

DUDEK

MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 T 800.450.1818 F 760.632.0164

June 29, 2018 10212

U.S. Fish and Wildlife Service
Attention: Stacey Love, Recovery Permit Coordinator
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

Subject: 2018 Focused Quino Checkerspot Butterfly Survey Report for the Torrey Wind Project, Boulevard, San Diego County, California

Dear Ms. Love:

This letter report documents the spring 2018 results of a focused survey conducted by Dudek for the federally listed endangered Quino checkerspot butterfly (*Euphydryas editha quino*; Quino). This survey was conducted in support of the Torrey Wind project, a proposed wind energy facility project north of the community of Boulevard in southeastern San Diego County, California. This report is intended to satisfy reporting requirements for the following Quino-permitted biologists: Anita Hayworth (TE-781084-9.1), Brock Ortega (TE-813545-6), Callie Amoaku (TE-36118B-1), David Erik LaCoste (TE-027736-6), Diana Saucedo (TE-221287-1), Erin Bergman (TE-813545-5), Jeff Priest (TE-840619-6), Margie Mulligan (TE-88969B-0), Patricia Schuyler (TE-27502B-1), Paul M. Lemons (TE-051248-5), and Tricia Wotipka (working under TE-840619-6).

STUDY AREA AND EXISTING CONDITIONS

The study area is located in southeastern San Diego County north of the community of Boulevard, California (Figure 1, Survey Results – Index). The study area consisted of the anticipated project disturbance areas with a 250-foot buffer (total of 500-foot-wide area) (Figures 2 and 3, Survey Results). In early April, the study area was modified slightly, resulting in 56.9 acres being removed from the study area and 41.9 acres being added to the study area (Figures 2 and 3). The additional areas were slivers of area adjacent to the existing survey areas that were within the line of sight from the Weeks 1 through 4 surveys; therefore, the addition of these areas do not change the conclusion of the report.

The study area is situated north and south of Interstate (I-) 8 and east of Buckman Springs Road, at an elevation between approximately 3,280 feet and 4,120 feet above mean sea level. The landscape north of I-8 consists of a mixture of large-lot rural residences and open space with mountainous terrain consisting of steep slopes, prominent ridgelines, and rock outcroppings.

Existing land uses within the vicinity of the study area can be characterized as predominantly rural, large-lot ranches and single-family homes, with a mixture of small-scale agriculture, recreational, and open space, with the exception of the Campo Band of Kumeyaay Indians Reservation, wind turbines to the north of I-8, and the Tule Wind Project. The 500-kilovolt Sunrise Powerlink traverses the northeast portion of the study area.

The study area is within the U.S. Geological Survey's 7.5-minute Sombrero Peak and Live Oak Springs quadrangle maps within Township 17 South, Range 6 East, Sections 01, 05, and 06; Township 17 South, Range 7 East, Sections 05 and 06; and Township 16 South, Range 6 East, Sections 19, 20, 29, 30, 31, and 32.

According to the U.S. Department of Agriculture, Natural Resources Conservation Service, the following seven soil series were mapped within the study area: Calpine (coarse sandy loam, 5% to 9% slopes); La Posta (loamy coarse sand, 5% to 30% slopes, eroded; rocky loamy coarse sand, 5% to 30% slopes, eroded); loamy alluvial land; Mottsville (loamy coarse sand, 2% to 9% slopes); and Tollhouse (rocky coarse sandy loam, 5% to 30% slopes, eroded) (USDA 2018).

VEGETATION COMMUNITIES

The study area supports chaparral, scrub, grassland, and oak woodland communities.

QUINO CHECKERSPOT BUTTERFLY SURVEY

Background Information

The Quino subspecies was added to the federal Endangered Species List by the U.S. Fish and Wildlife Service (USFWS) on January 16, 1997 (62 FR 2313–2322). The species, Edith's checkerspot (*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 20 subspecies, each of which has its own range and biological and morphological characteristics. In California, there are 12 subspecies (Garth and Tilden 1986), three of which are currently known to occur in Southern California. The Quino is the southwesternmost subspecies of *E. editha* (Mattoni et al. 1997).

The Quino is known to occur in association with a variety of plant communities, soil types, and elevations (up to 5,000 feet above mean sea level). 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).

The Quino is a medium-sized butterfly (approximately 0.8-inch 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 (*Plagiobothrys* spp., *Cryptantha* spp.), whitedaisy tidytips (*Layia glandulosa*), goldenbush (*Ericameria* spp.), pincushion (*Chaenactis* spp.), fiddleneck (*Amsinckia* spp.), chia (*Salvia columbariae*), and bluedicks (*Dichelostemma capitatum*), among others.

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).

A female may lay 20 to 75 eggs at one time and may produce up to 1,200 eggs in her lifetime. 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 dwarf plantain (*Plantago erecta*), Patagonia plantain (*P. patagonica*), Coulter's snapdragon (*Antirrhinum coulterianum*), and Chinese houses (*Collinsia concolor*) as their host plants (Pratt 2009). Stiffbranch bird's beak (*Cordylanthus rigidus*) and exserted Indian paintbrush (*Castilleja exserta*) are considered secondary hosts (USFWS 2002).

After feeding, the early larva enters 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.

The Quino was once common in Southern California. It ranged north into Ventura County, west to the Pacific Ocean, east to the deserts, 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 non-native plants and insects, fire management practices, over collecting, and adverse weather conditions have likely contributed to the species' decline (62 FR 2313–2322).

Methods

Prior to the focused surveys, Dudek biologists conducted a habitat assessment within the study area to identify suitable habitat and exclude unsuitable habitat. Excluded areas consisted of developed areas and densely vegetated chaparral with tall shrubs forming closed canopies. Host plant surveys were performed in concert with the habitat assessment and augmented during the survey effort.

The 2014 USFWS protocol states that focused Quino surveys should begin the third week of February and end the second Saturday in May unless otherwise approved by USFWS. Surveys are to be conducted during the adult flight season by biologists possessing a recovery permit for this species pursuant to Section 10(a)(1)(A) of the federal Endangered Species Act (USFWS 2014). The 2018 focused surveys followed the 2014 USFWS protocol with the exception of an approved amendment included in the 2018 notification (USFWS 2018). The amendment allowed surveys to begin the week of March 12 to account for the location's higher elevation, generally colder conditions, and general later start of Quino emergence.

Focused Quino surveys were conducted over 10 visits from March 13, 2018, through May 12, 2018, per the 2014 USFWS Quino Checkerspot Butterfly Survey Guidelines (see Table 1). The survey area consisted of suitable habitat for Quino checkerspot (Figures 2 and 3). Surveys were conducted by Quino-permitted biologists Anita Hayworth (TE-781084-9.1), Brock Ortega (TE-813545-6), Callie Amoaku (TE-36118B-1), David Erik LaCoste (TE-027736-6), Diana Saucedo (TE-221287-1), Erin Bergman (TE-813545-5), Jeff Priest (TE-840619-6), Margie Mulligan (TE-88969B-0), Patricia Schuyler (TE-27502B-1), Paul M. Lemons (TE-051248-5), and Tricia Wotipka (working under TE-840619-6).

Table 1
Schedule of Focused Quino Checkerspot Butterfly Surveys

Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
N/A	Habitat Assessment	2018-02-16	SC	8:00 AM–5:00 PM	Air temp: 43°F–57°F; ground temp: 70°F–77°F; 80% cloud cover; 0 mph wind	
1	1	2018-03-12	CA, PS	9:45 AM–4:50 PM	Air temp: 62°F–75°F; ground temp: 70°F–77°F; 20%–40% cloud cover; 0–2 mph wind; clear	Survey included area 3
	2	2018-03-19	CA, EB, PS	9:27 AM–2:19 PM	Air temp: 55°F–57°F; ground temp: 55°F–57°F; 20% cloud cover; 0–5 mph wind; clear	
	3	2018-03-28	EB, PS	9:00 AM–12:45 PM	Air temp: 65°F–74°F; ground temp: 76°F; 0% cloud cover; 0–4 mph wind	

Table 1
Schedule of Focused Quino Checkerspot Butterfly Surveys

Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
	4	2018-04-02	CA, PS	9:06 AM–1:14 PM	Air temp: 58°F–68°F; ground temp: 63°F–70°F; 0% cloud cover; 0–8 mph wind; clear	
	5	2018-04-14	CA, EB	9:09 AM–1:18 PM	Air temp: 69°F–71°F; ground temp: 70°F–72°F; 0% cloud cover; 0–4 mph wind; clear	
	6	2018-04-25	JP	8:30 AM–3:30 PM	Air temp: 70°F–80°F; ground temp: 70°F–84°F; 0% cloud cover; 0–14 mph wind	
	7	2018-04-29	JP	8:30 AM–3:30 PM	Air temp: 60°F–66°F; ground temp: 60°F–66°F; 0%–10% cloud cover; 3–14 mph wind	
	8	2018-05-03	PS	8:37 AM–3:40 PM	Air temp: 63°F–74°F; ground temp: 62°F–78°F; 0% cloud cover; 0–5 mph wind; clear	
	9	2018-05-07	JP	9:00 AM–4:00 PM	Air temp: 68°F–86°F; ground temp: 67°F–90°F; 0% cloud cover; 0–12 mph wind	
	10[a]	2018-05-12	MM	8:32 AM–12:43 PM	49°F–53°F; 50%–100% cloud cover; 2–10 mph wind; drizzle to patchy	
2	1	2018-03-09	CA, PS	9:04 AM–2:30 PM	Air temp: 66°F–68°F; ground temp: 70°F; 30%–80% cloud cover; 0–12 mph wind; clear to patchy	Survey included area 5
	2	2018-03-20	CA, EB, PS	2:38 PM–5:19 PM	70°F–75°F; 0–5 mph wind; clear	
	3	2018-03-30	CA, EB	8:55 AM–12:38 PM	Air temp: 73°F–87°F; ground temp: 70°F–92°F; 0% cloud cover; 0–2 mph wind; clear	
	4	2018-04-05	JP	9:00 AM–4:30 PM	Air temp: 67°F–75°F; ground temp: 65°F–77°F; 0%–30% cloud cover; 3–12 mph wind; clear	
	5 (Portion)	2018-04-09	PL	10:00 AM–2:40 PM	Air temp: 76°F–83°F; ground temp: 75°F–79°F; 0%–10% cloud cover; 2–12 mph wind	
	5 (Finish)	2018-04-10	PL	1:15 PM–5:00 PM	Air temp: 89°F–91°F; ground temp: 87°F–88°F; 10% cloud cover; 3–8 mph wind	
	6	2018-04-14	JP	8:30 AM–4:30 PM	Air temp: 62°F–74°F; ground temp: 62°F–76°F; 0% cloud cover; 2–10 mph wind; clear	
	7	2018-04-28	JP	8:30 AM–4:30 PM	Air temp: 64°F–78°F; ground temp: 66°F–80°F; 0% cloud cover; 0–14 mph wind	

Table 1
Schedule of Focused Quino Checkerspot Butterfly Surveys

Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
	8	2018-05-04	CA	8:34 AM–4:26 PM	Air temp: 72°F–79°F; ground temp: 79°F–81°F; 0% cloud cover; 1–3 mph wind; Clear	
	9	2018-05-07	CA, PS	12:40 PM–4:46 PM	Air temp: 86°F–90°F; ground temp: 88°F–93°F; 0% cloud cover; 1–8 mph wind; clear	
	10[a]	2018-05-11	JP	8:45 AM–2:00 PM	Air temp: 62°F–72°F; ground temp: 62°F–79°F; 20% cloud cover; 2–29 mph wind	
3	1	2018-03-12	CA, PS	9:45 AM–4:50 PM	Air temp: 62°F–75°F; ground temp: 70°F–77°F; 20%–40% cloud cover; 0–2 mph wind; clear	Survey included area 1
	2	2018-03-21	CA, EB, PS	11:40 AM–2:00 PM	Air temp: 70°F–74°F; ground temp: 73°F–77°F; 0%–20% cloud cover; 0–2 mph wind; clear	
	3	2018-03-28	EB, PS	12:47 PM–4:17 PM	Air temp: 75°F–78°F; ground temp: 75°F –76°F; 0% cloud cover; 0–3 mph wind; clear	
	4	2018-04-05	PL	9:00 AM–4:00 PM	Air temp: 67°F–80°F; ground temp: 65°F–82°F; 0%–20% cloud cover; 2–10 mph wind	
	5	2018-04-09	EB, PS	9:53 AM–1:24 PM	Air temp: 79°F–83°F; ground temp: 77°F–84°F; 0% cloud cover; 0–5 mph wind; clear	
	6	2018-04-15	JP	8:30 AM–3:30 PM	Air temp: 64°F–77°F; ground temp: 62°F–80°F; 10%–90% cloud cover; 0–12 mph wind	
	7	2018-04-24	CA, PS	9:09 AM–12:44 PM	Air temp: 82°F–86°F; ground temp: 78°F–88°F; 20%–30% cloud cover; 0–1 mph wind; clear	
	8	2018-05-03	AH	10:05 AM–5:15 PM	Air temp: 21°F–62°F; ground temp: 21.5°F–64°F; 0% cloud cover; 3–8 mph wind	
	9	2018-05-07	CA, PS	8:35 AM–12:35 PM	Air temp: 76°F–86°F; ground temp: 70°F–88°F; 0%–10% cloud cover; 0–5 mph wind; clear	
	10[a]	2018-05-11	TW	8:45 AM–2:00 PM	Air temp: 62°F–72°F; ground temp: 62°F–79°F; 1-4 mph wind;; patchy	
4	1 (Portion)	2018-03-09	JP	10:30 AM–4:30 PM	Air temp: 64°F–74°F; ground temp: 68°F–70°F; 30%–90% cloud cover; 3–10 mph wind; patchy to clear	

Table 1
Schedule of Focused Quino Checkerspot Butterfly Surveys

Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
	1 (Finish)	2018-03-13	JP	10:40 AM–12:10 PM	Air temp: 70°F–74°F; ground temp: 74°F–76°F; 100% cloud cover; 1–3 mph wind	
	2	2018-03-21	CA, EB, PS	2:00 PM–4:35 PM	Air temp: 74°F–75°F; ground temp: 77°F–80°F; 50%–90% cloud cover; 0–3 mph wind; patchy to overcast	
	3	2018-03-28	PL	8:00 AM–3:10 PM	Air temp: 64°F–73°F; ground temp: 60°F–70°F; 0% cloud cover; 0–6 mph wind; clear	
	4	2018-04-05	TW	9:30 AM–4:30 PM	68°F–80°F; 0%–20% cloud cover; 0–5 mph wind	
	5	2018-04-09	BO	8:05 AM–4:10 PM	Air temp: 70°F–83°F; ground temp: 69°F–82°F; 0% cloud cover; 0–5 mph wind; clear	
	6	2018-04-20	PL	10:00 AM–4:45 PM	Air temp: 71°F–75°F; ground temp: 69°F–73°F; 0% cloud cover; 0–4 mph wind; clear	
	7	2018-04-25	CA, EB	9:44 AM–3:36 PM	Air temp: 79°F–75°F; ground temp: 78°F; 0%–10% cloud cover; 1–9 mph wind; clear	
	8	2018-05-04	TW	9:15 AM–4:15 PM	Air temp: 74°F–82°F; ground temp: 78°F–84°F; 0% cloud cover; 1–3 mph wind; clear	
	9	2018-05-08	CA	8:59 AM–3:39 PM	Air temp: 84°F–90°F; ground temp: 90°F–92°F; 10% cloud cover; 0–2 mph wind; clear	
	10	2018-05-12	JP	10:00 AM–4:45 PM	Air temp: 54°F–58°F; ground temp: 62°F–64°F; 10% cloud cover; 0–10 mph wind	
5	1	2018-03-09	CA, PS	9:04 AM–2:30 PM	Air temp: 66°F–68°F; ground temp: 70°F; 30%–80% cloud cover; 0–12 mph wind; clear to patchy	Survey included area 2
	2	2018-03-20	CA, EB, PS	12:20 AM–2:38 PM	Air temp: 73°F–75°F; ground temp: 76°F5; clear	
	3	2018-03-30	CA, EB	12:45 PM–4:18 PM	Air temp: 84°F–84.9°F; ground temp: 82.5°F–83°F; 0%–50% cloud cover; 0–3 mph wind; clear to patchy	
	4	2018-04-03	AH	9:40 AM–4:20 PM	Air temp: 61°F–74°F; ground temp: 63°F–76°F; 20% cloud cover; 2–8 mph wind	
	5 (Portion)	2018-04-09	EB, PS	1:30 PM–4:30 PM	Air temp: 78°F–86°F; ground	

Table 1
Schedule of Focused Quino Checkerspot Butterfly Surveys

Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
					temp: 79°F–80°F; 0%–50% cloud cover; 0–5 mph wind; clear	
	5 (Finish)	2018-04-10	EB, PS	9:48 AM–10:52 AM	Air temp: 81°F–87°F; ground temp: 82°F–84°F; 10%–20% cloud cover; 0–2 mph wind; clear	
	6	2018-04-20	EB, PS	9:28 AM–1:21 PM	Air temp: 67°F–72°F; ground temp: 74°F; 0% cloud cover; 0–3 mph wind; clear	
	7 (Portion)	2018-04-25	EB	10:14 AM–12:00 PM	Air temp: 73°F–76°F; ground temp: 77°F; 0% cloud cover; 0–1 mph wind; clear	
	7 (Finish)	2018-04-25	MM	9:55 AM–3:35 PM	75°F–76°F; 0% cloud cover; 3–8 mph wind; Clear	
	8	2018-05-05	DS, EL	8:00 AM–3:35 PM	Air temp: 77°F–85°F; ground temp: 81°F–91°F; 0% cloud cover; 2–7 mph wind; clear	Survey included area 6
	9	2018-05-09	EL	8:00 AM–3:15 PM	Air temp: 78°F–90°F; ground temp: 78°F–95°F; 0%–10% cloud cover; 1–8 mph wind; clear	
	10	2018-05-13	JP	8:30 AM–4:00 PM	Air temp: 58°F–70°F; ground temp: 62°F–76°F; 0% cloud cover; 0–10 mph wind	
6	1	2018-03-19	CA, EB, PS	2:22 PM–4:31 PM	Air temp: 61°F–64°F; ground temp: 63°F–66°F; 10% cloud cover; 0–4 mph wind; clear	
	2	2018-03-21	CA, EB, PS	8:58 AM–11:30 AM	Air temp: 72°F–78°F; ground temp: 75°F; 10%–40% cloud cover; 0–5 mph wind; clear	
	3	2018-03-29	EB, PS	8:55 AM–12:30 PM	Air temp: 74°F–79°F; ground temp: 64°F–80°F; 0% cloud cover; 0–4 mph wind; clear	
	4 (Portion)	2018-04-02	CA, PS	1:31 PM–4:04 PM	Air temp: 67°F–70°F; ground temp: 69°F–72°F; 0% cloud cover; 0–16 mph wind; clear	
	4 (Finish)	2018-04-06	JP	9:15 AM–11:15 AM	Air temp: 64°F–74°F; ground temp: 62°F–74°F; 30%–40% cloud cover; 2–7 mph wind; patchy	
	5	2018-04-10	EB, PS	10:52 AM–3:00 PM	Air temp: 87°F–90°F; ground temp: 82°F–90°F; 10%–20% cloud cover; 0–4 mph wind; clear	
	6	2018-04-18	PL	8:20 AM–4:05 PM	Air temp: 61°F–65°F; ground temp: 60°F–64°F; 3–8 mph wind; clear	

Table 1
Schedule of Focused Quino Checkerspot Butterfly Surveys

Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
	7	2018-04-20	TW	9:50 AM–5:30 PM	Air temp: 64°F–75°F; ground temp: 68°F–74°F; 0%–10% cloud cover; 0–3 mph wind; patchy to clear	
	8 (Portion)	2018-04-24	CA, PS	1:02 PM–5:20 PM	Air temp: 83°F–86°F; ground temp: 88°F; 20%–30% cloud cover; clear	
	8 (Finish)	2018-05-05	DS, EL	8:00 AM–3:35 PM	Air temp: 77°F–85°F; ground temp: 81°F–91°F; 0% cloud cover; 2–7 mph wind; clear	Survey included area 5
	9	2018-05-07	AH	10:28 AM–6:42 PM	Air temp: 78°F–79°F; ground temp: 76°F–83°F; 0% cloud cover; 3–8 mph wind	
	10	2018-05-11	MM	9:04 AM–2:02 PM	Air temp: 60°F–71°F; 2–13 mph wind; clear	
7	1	2018-03-13	CA, PS	10:29 AM–2:45 PM	Air temp: 70°F–71°F; ground temp: 72°F–74°F; 100% cloud cover; 0–3 mph wind; overcast	
	2 (Portion)	2018-03-19	AH, CA, PS	2:03 PM–5:15 PM	Air temp: 61°F–66°F; ground temp: 63°F–69°F; 10%–50% cloud cover; 2–8 mph wind; patchy	
	2 (Finish)	2018-03-20	CA, EB, PS	9:26 AM–12:20 PM	Air temp: 71°F–72°F; ground temp: 76°F; 0%–10% cloud cover; 0–10 mph wind; clear	
	3	2018-03-29	EB, PS	12:30 PM–4:03 PM	Air temp: 80°F–85°F; ground temp: 77°F–81°F; 0% cloud cover; 0–4 mph wind; clear	
	4	2018-04-04	PS	8:31 AM–3:28 PM	Air temp: 66°F–79°F; ground temp: 62°F–84°F; 20% cloud cover; 0–5 mph wind; patchy	
7, 8[b]	5 (Portion)	2018-04-10	EB, PS	2:37 PM–4:09 PM	Air temp: 90°F–94°F; ground temp: 90°F–92°F; 0%–10% cloud cover; 0–4 mph wind; clear	
	5 (Finish)	2018-04-11	EB	9:56 AM–4:09 PM	Air temp: 79°F–82°F; ground temp: 80°F–83.6°F; 0%–10% cloud cover; 0–3 mph wind; clear	
	6	2018-04-17	EB	8:58 AM–5:03 PM	Air temp: 67°F–84°F; ground temp: 67°F–85°F; 0% cloud cover; 0–3 mph wind; clear	
	7 (Portion)	2018-04-22	EB	9:39 AM–1:44 PM	Air temp: 75°F–83°F; ground temp: 79°F–85°F; 0% cloud cover; 0–2 mph wind; clear	
	7 (Finish)	2018-04-20	EB, PS	1:24 PM–4:01 PM	Air temp: 72°F–74°F; ground	

Table 1
Schedule of Focused Quino Checkerspot Butterfly Surveys

Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
					temp: 74°F–75°F; 0% cloud cover; 0–3 mph wind; clear	
	8	2018-04-27	TW	4:00 PM–8:15 AM	Air temp: 61°F–78°F; ground temp: 62°F–74°F; clear	
	9	2018-05-07	EB	9:04 AM–4:59 PM	Air temp: 73°F–74°F; ground temp: 76°F; 0%–20% cloud cover; 0–1 mph wind; clear	
	10[a]	2018-05-11	EL	8:15 AM–1:45 PM	Air temp: 60°F–70°F; ground temp: 63°F–72°F; 0%–10% cloud cover; 3–26 mph wind; clear	
8[b]	1	2018-03-19	AH	10:30 AM–2:00 PM	Air temp: 56°F–61°F; ground temp: 60°F–63°F; 20% cloud cover; 3–12 mph wind	
	2	2018-03-21	PL	8:30 AM–12:40 PM	Air temp: 62°F–71°F; ground temp: 60°F–73°F; 30%–40% cloud cover; 0–6 mph wind	
	3	2018-03-29	PL	8:30 AM–12:10 PM	Air temp: 72°F–75°F; ground temp: 67°F–71°F; 0% cloud cover; 0–5 mph wind; clear	
	4	2018-04-06	JP	11:30 AM–3:00 PM	Air temp: 74°F–78°F; ground temp: 75°F–80°F; 40%–70% cloud cover; 3–14 mph wind; patchy	

AH = Anita Hayworth (TE-781084-9.1); BO = Brock Ortega (TE-813545-6); CA = Callie Amoaku (TE-36118B-1); DS = Diana Saucedo (TE-221287-1); EB = Erin Bergman (TE-813545-5); EL = David Erik LaCoste (TE-027736-6); JP = Jeffrey Priest (TE-840619-6); MM = Margie Mulligan (TE-88969B-0); PL = Paul Lemons (TE-051248-5); PS = Patricia Schuyler (TE-27502B-1); SC = Shana Carey; TW = Tricia Wotipka (TE-840619-6).
N/A = not applicable; mph = miles per hour.
[a] Surveys terminated early due to non-protocol weather conditions.
[b] Survey area 8 was reduced to 7.7 acres after pass 4 and the remaining passes were completed in conjunction with survey area 7.

The biologists were provided with 200-scale (1 inch = 200 feet) aerial maps of the study area. Binoculars were used to aid in detecting and identifying butterfly and other wildlife species. Surveys also focused on identifying Quino host plants; however, only dried host plants from last year were observed. Therefore, no host plants were mapped within the study area.

The survey methods consisted of slowly walking roughly parallel transects spaced approximately 30 feet (10 meters) apart throughout all suitable habitats within the 517-acre study area. The study area was divided into eight survey areas, ranging from 67 acres to 82 acres each (Figures 2 and 3). Survey routes were arranged to thoroughly cover the survey area at a rate of no more than 10 acres per person hour. All wildlife species were recorded and are included in Appendix A.

Surveys were conducted only during acceptable weather conditions (i.e., surveys were not conducted during fog, drizzle, or rain; winds greater than 15 miles per hour measured 4–6 feet above ground level for more than 30 seconds; temperature in the shade at ground level less than 60°F on a clear, sunny day; or temperature in the shade at ground level less than 70°F on an overcast or cloudy day). Survey times, personnel, and conditions during the Quino survey are shown in Table 1. Copies of the surveyors' field notes are included as Appendix B.

Weather conditions varied throughout the survey season, and numerous surveys were postponed or ended early/began late due to high winds, cloud cover, and/or low temperatures. Because of these weather conditions, some areas were surveyed over 2 days to complete the survey. If a survey pass was missed due to sustained inclement weather, a makeup survey was performed on non-consecutive days the following week, in accordance with the 2014 USFWS protocol.

RESULTS

No Quino were observed during the 2018 focused surveys. A total of 33 butterfly species were observed during the surveys. The weeks in which these butterflies were observed are shown in Tables 2A and 2B.

Table 2A
Butterflies Observed on Site Weeks 1–5

Scientific Name	Common Name	Week				
		1	2	3	4	5
Hesperiidae – Skippers						
Erynnis brizo	sleepy duskywing	—	—	—	—	—
Erynnis funeralis	funereal duskywing	X	X	X	X	X
Erynnis propertius	Propertius duskywing	—	—	—	X	X
Hylephila phyleus	fiery skipper	—	—	—	—	—
	duskywing sp.	—	—	—	—	X
Nymphalidae – Brush-Footed Butterflies						
Adelpha bredowii	California sister	—	—	—	—	—
Chlosyne californica	California patch	—	—	—	—	—
Chlosyne gabbii	Gabb's checkerspot	—	—	—	—	—
Danaus gilippus	queen	—	—	—	—	X
Limenitis lorquini	Lorquin's admiral	—	—	—	—	—
Nymphalis californica	California tortoiseshell	—	X	X	—	—
Vanessa cardui	painted lady	—	—	X	—	—
	lady sp.	X	X	—	—	—

Table 2A
Butterflies Observed on Site Weeks 1–5

Scientific Name	Common Name	Week				
		1	*2*	*3*	*4*	*5*
Lycaenidae – Blues and Hairstreaks						
Callophrys augustinus	brown elfin	—	—	X	X	X
Callophrys dumetorum	bramble hairstreak	X	X	X	X	X
Glaucopsyche lygdamus australis	southern blue	X	X	X	—	—
Icaricia acmon acmon	Acmon blue	—	X	X	X	X
Leptotes marina	marine blue	—	—	—	—	—
Philotes sonorensis	Sonoran blue	—	X	—	—	—
Strymon melinus	gray hairstreak	—	—	—	—	—
	blue sp.	X	—	—	X	X
Papilionidae – Swallowtails						
Papilio eurymedon	pale swallowtail	—	—	—	—	—
Papilio rutulus	western tiger swallowtail	X	X	X	—	X
Pieridae – Whites and Sulfurs						
Anthocharis cethura	desert orangetip	—	—	—	X	X
Anthocharis sara	Pacific Sara orangetip	X	X	X	X	X
Colias eurydice	California dogface	X	—	—	X	—
Colias eurytheme	orange sulphur	—	—	—	X	—
Euchloe hyantis lotta	desert pearly marble	—	—	X	X	X
Pontia protodice	checkered white	—	X	X	X	X
Pontia sisymbrii	spring white	—	—	—	X	X
	white sp.	—	X	—	—	—
	sulphur sp.	—	—	—	X	X
Riodinidae – Metalmarks						
Apodemia virgulti	Behr's metalmark	X	X	X	X	X

Table 2B
Butterflies Observed on Site Weeks 6–10

Scientific Name	Common Name	Week				
		6	*7*	*8*	*9*	*10*
Hesperiidae – Skippers						
Erynnis brizo	sleepy duskywing	—	X	—	—	—
Erynnis funeralis	funereal duskywing	X	X	X	X	—
Erynnis propertius	Propertius duskywing	X	X	X	—	X
Hylephila phyleus	fiery skipper	—	—	—	X	—

Table 2B
Butterflies Observed on Site Weeks 6–10

Scientific Name	Common Name	Week				
		6	*7*	*8*	*9*	*10*
	duskywing sp.	—	—	—	—	—
Nymphalidae – Brush-Footed Butterflies						
Adelpha bredowii	California sister	—	—	—	X	X
Chlosyne californica	California patch	—	X	—	—	—
Chlosyne gabbii	Gabb's checkerspot	—	X	X	—	—
Danaus gilippus	Queen	—	—	—	—	—
Limenitis lorquini	Lorquin's admiral	—	—	—	X	X
Nymphalis californica	California tortoiseshell	—	—	—	—	—
Vanessa cardui	painted lady	—	—	—	—	—
	lady sp.	—	X	—	—	—
Lycaenidae – Blues and Hairstreaks						
Callophrys augustinus	brown elfin	X	—	—	—	—
Callophrys dumetorum	bramble hairstreak	X	X	—	X	—
Glaucopsyche lygdamus australis	southern blue	X	X	—	X	—
Icaricia acmon acmon	Acmon blue	X	X	X	X	X
Leptotes marina	marine blue	—	—	—	—	—
Philotes sonorensis	Sonoran blue	—	—	—	—	—
Strymon melinus	gray hairstreak	—	—	—	X	—
	blue sp.	—	—	—	—	—
Papilionidae – Swallowtails						
Papilio eurymedon	pale swallowtail	X	X	X	X	—
Papilio rutulus	western tiger swallowtail	X	—	X	—	—
Pieridae – Whites and Sulfurs						
Anthocharis cethura	desert orangetip	X	—	—	—	—
Anthocharis sara	Pacific Sara orangetip	X	X	X	—	—
Colias eurydice	California dogface	—	—	—	—	—
Colias eurytheme	orange sulphur	—	—	—	—	—
Euchloe hyantis lotta	desert pearly marble	X	X	X	X	—
Pontia protodice	checkered white	X	—	—	—	—
Pontia sisymbrii	spring white	X	X	X	—	X
	white sp.	X	X	—	X	—
	sulphur sp.	—	—	—	—	—
Riodinidae – Metalmarks						
Apodemia virgulti	Behr's metalmark	X	X	X	X	X

No Quino larval host plants were observed within the study area during the habitat assessment or focused surveys. Table 3 includes the known and observed adult Quino nectar plants (according to Mattoni et al. 1997; USFWS 2002, 2003; 67 FR 18355–18395). Larval host plants are also included in Table 3 and are shown in bold print. All plant species that were in bloom were documented in the field notes.

Table 3
Quino Adult Nectar Plants and Larval Food Plants

Scientific Name	Common Name	Observed During Focused Survey
Apiaceae – Carrot Family		
Lomatium dasycarpum ssp. *dasycarpum*	woolly-fruit lomatium	X
Lomatium utriculatum	common lomatium	—
Asteraceae – Sunflower Family		
Achillea millefolium	common yarrow, milfoil	—
Lasthenia californica or *Lasthenia gracilis*	common goldfields	X
Lasthenia coronaria	southern goldfields	—
Layia platyglossa	coastal tidytips, common tidytips	—
Boraginaceae – Borage Family		
Amsinckia menziesii	Menzies' fiddleneck, rancher's fireweed	—
Amsinckia menziesii var. *intermedia*	rancher's fiddleneck	—
Amsinckia menziesii var. *menziesii*	rigid fiddleneck	—
Cryptantha spp. or *Plagiobothrys* spp.	popcorn flower	X
Phacelia distans	distant phacelia, wild-heliotrope	—
Fabaceae – Pea Family		
Acmispon (=Lotus) spp.	deerweed, spanishclover, lotus	—
Hydrophyllaceae – Waterleaf Family		
Eriodictyon crassifolium var. *crassifolium*	thickleaf yerba santa	—
Eriodictyon trichocalyx var. *trichocalyx*	hairy yerba santa	—
Lamiaceae – Mint Family		
Salvia columbariae	chia	X
Plantaginaceae – Plantain Family		
Antirrhinum coulterianum	**Coulter's snapdragon**	—
***Collinsia* sp.**	**Chinese houses**	—
Keckiella antirrhinoides var. *antirrhinoides*	snapdragon penstemon	—
Keckiella cordifolia	heartleaf keckiella, climbing bush penstemon	—
Plantago erecta	**dwarf plantain**	—
Plantago patagonica	**woolly plantain**	—

Table 3
Quino Adult Nectar Plants and Larval Food Plants

Scientific Name	Common Name	Observed During Focused Survey
Polemoniaceae – Phlox Family		
Gilia angelensis	grassland gilia	—
Gilia capitata ssp. *abrotanifolia*	ball gilia	—
Linanthus spp.	ground pink	X
Polygonaceae – Buckwheat Family		
Eriogonum fasciculatum	California buckwheat	—
Orobanchaceae – Broom-Rape Family		
Castilleja exserta	**exserted Indian paintbrush, common owl's-clover**	—
Scrophulariaceae – Figwort Family		
Cordylanthus rigidus* ssp. *setiger	**stiffbranch birds beak, dark-tipped bird's-beak**	—
Liliaceae – Lily Family		
Allium haematochiton	redskin onion	—
Allium peninsulare	Mexicali onion, red-flower onion	—
Allium praecox	early onion	—
Bloomeria clevelandii	San Diego goldenstar	—
Dichelostemma capitatum	bluedicks	—
Muilla maritima	sea muilla, common muilla	—

Sources: List derived from Mattoni et al. 1997; USFWS 2002, 2003; 67 FR 18355–18395 (for *Euphydryas editha*).
Note: Plants listed in **bold print** are known Quino larval host plant species.

Dudek certifies that the information in this survey report and the attached figures and appendices fully and accurately represents the work conducted by the Quino-permitted biologists who conducted this focused survey.

Please feel free to contact Brock Ortega at bortega@dudek.com or Callie Amoaku at cford@dudek.com if you have any questions regarding the contents of this report.

Sincerely,

Anita Hayworth Permit #TE-781084-9.1	Brock Ortega Permit #TE-813545-6	Callie Amoaku Permit #TE-36118B-1	David Erik LaCoste Permit #TE-027736-6
Diana Saucedo Permit #TE-221287-1	Erin Bergman Permit #TE-813545-5	Jeffrey Priest Permit #TE-840619-6	Margie Mulligan Permit #TE-88969B-0
Patricia Schuyler Permit #TE-27502B-1	Paul Lemons Permit #TE-051248-5	Tricia Wotipka Permit #TE-840619-6	

Att: Figure 1, Survey Results – Index Map
Figure 2, Survey Results
Figure 3, Survey Results
Appendix A – List of Wildlife Species Observed during the 2018 Torrey Wind Project Quino Survey
Appendix B – 2018 Torrey Wind Project Quino Survey Field Notes

cc: Brock Ortega, Dudek
Matthew Valerio, Dudek

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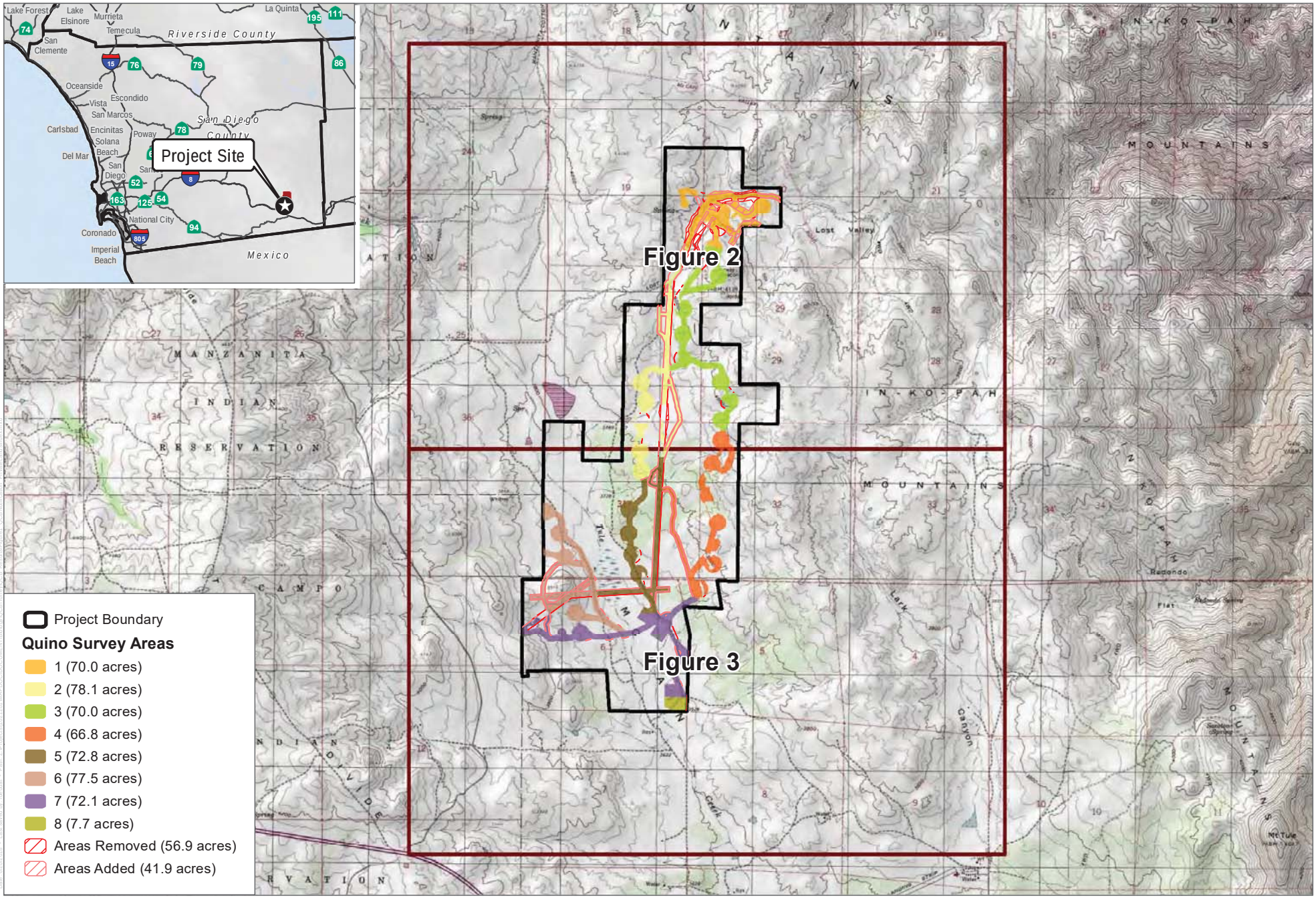


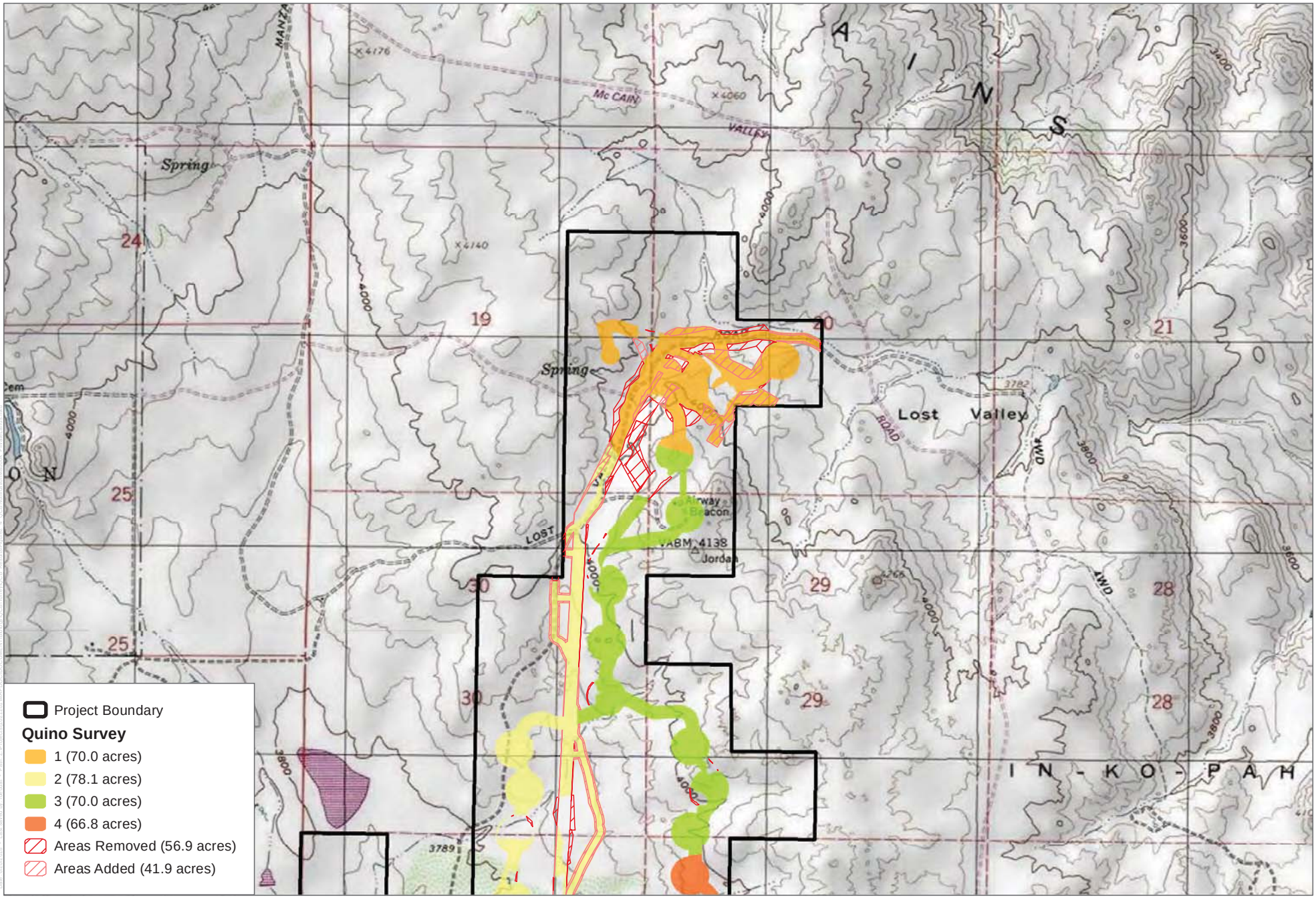
SOURCE: USGS 2018

DUDEK

FIGURE 1

Survey Results - Index

Torrey Wind Project - Results of 2018 Quino Checkerspot Survey



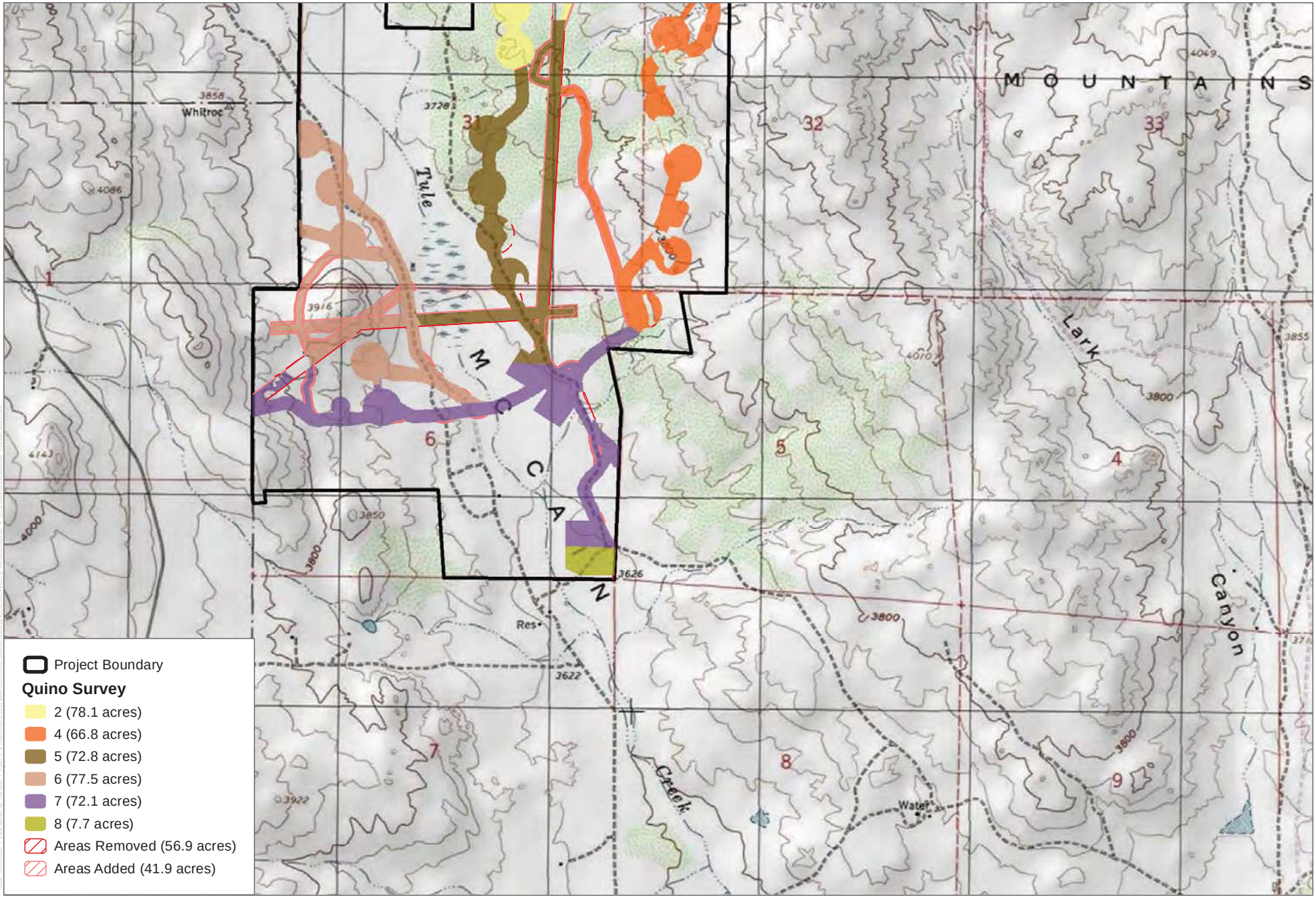
SOURCE: USGS 2018

DUDEK

FIGURE 2

Survey Results

Torrey Wind Project - Results of 2018 Quino Checkerspot Survey



SOURCE: USGS 2018

DUDEK

0 1,000 2,000 Feet

FIGURE 3

Survey Results

Torrey Wind Project - Results of 2018 Quino Checkerspot Survey

APPENDIX A

List of Wildlife Species Observed during the 2018 Torrey Wind Project Quino Survey

APPENDIX A
List of Wildlife Species Observed during the 2018 Torrey Wind Project Quino Survey

BIRD

BLACKBIRDS, ORIOLES, AND ALLIES

ICTERIDAE—BLACKBIRDS

Icterus bullockii—Bullock's oriole
Icterus cucullatus—hooded oriole
Icterus parisorum—Scott's oriole
Sturnella neglecta—western meadowlark
* *Molothrus ater*—brown-headed cowbird

BUSHTITS

AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus—bushtit

CARDINALS, GROSBEAKS, AND ALLIES

CARDINALIDAE—CARDINALS AND ALLIES

Pheucticus melanocephalus—black-headed grosbeak
Piranga ludoviciana—western tanager

FALCONS

FALCONIDAE—CARACARAS AND FALCONS

Falco sparverius—American kestrel

FINCHES

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus—house finch
Spinus lawrencei—Lawrence's goldfinch
Spinus psaltria—lesser goldfinch

FLYCATCHERS

TYRANNIDAE—TYRANT FLYCATCHERS

Contopus sordidulus—western wood-pewee
Empidonax difficilis—Pacific-slope flycatcher
Myiarchus cinerascens—ash-throated flycatcher
Sayornis nigricans—black phoebe

Sayornis saya—Say's phoebe
Tyrannus verticalis—western kingbird
Tyrannus vociferans—Cassin's kingbird

HAWKS

ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES

Accipiter cooperii—Cooper's hawk
Buteo jamaicensis—red-tailed hawk
Buteo lineatus—red-shouldered hawk

HUMMINGBIRDS

TROCHILIDAE—HUMMINGBIRDS

Calypte anna—Anna's hummingbird
Calypte costae—Costa's hummingbird
Selasphorus rufus—rufous hummingbird

JAYS, MAGPIES, AND CROWS

CORVIDAE—CROWS AND JAYS

Aphelocoma californica—California scrub-jay
Corvus brachyrhynchos—American crow
Corvus corax—common raven
Cyanocitta stelleri—Steller's jay

LARKS

ALAUDIDAE—LARKS

Eremophila alpestris—horned lark

MOCKINGBIRDS AND THRASHERS

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Mimus polyglottos—northern mockingbird
Oreoscoptes montanus—sage thrasher
Toxostoma redivivum—California thrasher

NEW WORLD QUAIL

ODONTOPHORIDAE—NEW WORLD QUAIL

Callipepla californica—California quail

NEW WORLD VULTURES

CATHARTIDAE—NEW WORLD VULTURES

Cathartes aura—turkey vulture

OLD WORLD WARBLERS AND GNATCATCHERS

SYLVIIDAE—SYLVIID WARBLERS

Polioptila caerulea—blue-gray gnatcatcher

OWLS

TYTONIDAE—BARN OWLS

Tyto alba—barn owl

STRIGIDAE—TYPICAL OWLS

Bubo virginianus—great horned owl

PIGEONS AND DOVES

COLUMBIDAE—PIGEONS AND DOVES

Zenaida macroura—mourning dove

* *Streptopelia decaocto*—Eurasian collared-dove

QUAILS, PHEASANTS, AND RELATIVES

PHASIANIDAE—PARTRIDGES, GROUSE, TURKEYS, AND OLD WORLD QUAIL

Meleagris gallopavo—wild turkey

ROADRUNNERS AND CUCKOOS

CUCULIDAE—CUCKOOS, ROADRUNNERS, AND ANIS

Geococcyx californianus—greater roadrunner

SILKY FLYCATCHERS

PTILOGONATIDAE—SILKY-FLYCATCHERS

Phainopepla nitens—phainopepla

STARLINGS AND ALLIES

STURNIDAE—STARLINGS

* *Sturnus vulgaris*—European starling

SWALLOWS

HIRUNDINIDAE—SWALLOWS

Petrochelidon pyrrhonota—cliff swallow

SWIFTS

APODIDAE—SWIFTS

Aeronautes saxatalis—white-throated swift

THRUSHES

TURDIDAE—THRUSHES

Sialia mexicana—western bluebird

TITMICE

PARIDAE—CHICKADEES AND TITMICE

Baeolophus inornatus—oak titmouse

VIREOS

VIREONIDAE—VIREOS

Vireo gilvus—warbling vireo

WOOD WARBLERS AND ALLIES

PARULIDAE—WOOD-WARBLERS

Cardellina pusilla—Wilson's warbler
Oreothlypis celata—orange-crowned warbler
Setophaga coronata—yellow-rumped warbler
Setophaga occidentalis—hermit warbler
Setophaga townsendi—Townsend's warbler

WOODPECKERS

PICIDAE—WOODPECKERS AND ALLIES

Colaptes auratus—northern flicker
Melanerpes formicivorus—acorn woodpecker
Picoides nuttallii—Nuttall's woodpecker
Picoides scalaris—ladder-backed woodpecker

WRENS

TROGLODYTIDAE—WRENS

Campylorhynchus brunneicapillus—cactus wren
Salpinctes obsoletus—rock wren
Thryomanes bewickii—Bewick's wren
Troglodytes aedon—house wren

WRENTITS

TIMALIIDAE—BABBLERS

Chamaea fasciata—wrentit

NEW WORLD SPARROWS

PASSERELLIDAE—NEW WORLD SPARROWS

Amphispiza bilineata—black-throated sparrow
Artemisiospiza nevadensis—sagebrush sparrow
Junco hyemalis—dark-eyed junco
Melospiza melodia—song sparrow
Melozone crissalis—California towhee
Pipilo maculatus—spotted towhee
Spizella atrogularis—black-chinned sparrow
Spizella breweri—Brewer's sparrow
Spizella passerina—chipping sparrow
Zonotrichia leucophrys—white-crowned sparrow

INVERTEBRATE

BUTTERFLIES

LYCAENIDAE—BLUES, HAIRSTREAKS, AND COPPERS

Callophrys augustinus—brown elfin
Callophrys dumetorum—bramble hairstreak
Glaucopsyche lygdamus australis—southern blue
Icaricia acmon acmon—Acmon blue
Philotes sonorensis—Sonoran blue
Strymon melinus—gray hairstreak

NYMPHALIDAE—BRUSH-FOOTED BUTTERFLIES

Adelpha bredowii—California sister

Chlosyne californica—California patch
Chlosyne gabbii—Gabb's checkerspot
Danaus gilippus—queen
Limenitis lorquini—Lorquin's admiral
Nymphalis californica—California tortoiseshell
Vanessa annabella—west coast lady
Vanessa cardui—painted lady

RIODINIDAE—METALMARKS

Apodemia mormo virgulti—Behr's metalmark

HESPERIIDAE—SKIPPERS

Erynnis brizo—sleepy duskywing
Erynnis funeralis—funereal duskywing
Erynnis propertius—Propertius duskywing
Hylephila phyleus—fiery skipper

PAPILIONIDAE—SWALLOWTAILS

Papilio eurymedon—pale swallowtail
Papilio rutulus—western tiger swallowtail

PIERIDAE—WHITES AND SULFURS

Anthocharis cethura—desert orangetip
Anthocharis sara sara—Pacific sara orangetip
Colias eurydice—California dogface
Colias eurytheme—orange sulphur
Euchloe hyantis lotta—desert pearly marble
Pontia protodice—checkered white
Pontia sisymbrii—spring white

MAMMAL

CANIDS

CANIDAE—WOLVES AND FOXES

Canis latrans—coyote

CATS

FELIDAE—CATS

Lynx rufus—bobcat

HARES AND RABBITS

LEPORIDAE—HARES AND RABBITS

Lepus californicus bennettii—San Diego black-tailed jackrabbit
Lepus californicus—black-tailed jackrabbit
Sylvilagus audubonii—desert cottontail
Sylvilagus bachmani—brush rabbit

POCKET GOPHERS

GEOMYIDAE—POCKET GOPHERS

Thomomys bottae—Botta's pocket gopher

SQUIRRELS

SCIURIDAE—SQUIRRELS

Ammospermophilus leucurus—white-tailed antelope squirrel
Spermophilus (Otospermophilus) beecheyi—California ground squirrel
Tamias merriami—Merriam's chipmunk
Tamias obscurus—California chipmunk

UNGULATES

CERVIDAE—DEERS

Odocoileus hemionus—mule deer

RATS, MICE, AND VOLES

CRICETIDAE—RATS, MICE, AND VOLES

Neotoma sp.—woodrat

REPTILE

LIZARDS

PHRYNOSOMATIDAE—IGUANID LIZARDS

Callisaurus draconoides—zebra-tailed lizard
Phrynosoma blainvillii—Blainville's horned lizard
Sceloporus occidentalis—western fence lizard
Sceloporus orcutti—granite spiny lizard
Uta stansburiana—common side-blotched lizard

ANGUIDAE—ALLIGATOR LIZARDS

Elgaria multicarinata—southern alligator lizard

TEIIDAE—WHIPTAIL LIZARDS

Aspidoscelis tigris stejnegeri—San Diegan tiger whiptail

SNAKES

COLUBRIDAE—COLUBRID SNAKES

Coluber lateralis—striped racer

Pituophis catenifer—gophersnake

VIPERIDAE—VIPERS

Crotalus oreganus—western rattlesnake

* Signifies introduced (non-native) species

APPENDIX B

2018 Torrey Wind Project Quino Survey
Field Notes

ATTACHMENT B-2

2019 Focused Quino Checkerspot Butterfly Survey for both the Torrey Wind Project and Boulder Brush Facilities, Boulevard, San Diego County, California

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

August 7, 2019 10212

U.S. Fish and Wildlife Service
Attention: Stacey Love, Recovery Permit Coordinator
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

Subject: 2019 Focused Quino Checkerspot Butterfly Survey Report for Proposed Wind Energy Facilities, Boulevard, San Diego County, California

Dear Ms. Love:

This letter report documents the spring 2019 results of a focused survey conducted by Dudek for the federally listed endangered Quino checkerspot butterfly (*Euphydryas editha quino*) (Quino). This survey was conducted in support of proposed wind energy facilities north of the community of Boulevard in southeastern San Diego County, California. This report is intended to satisfy reporting requirements for the following Quino-permitted biologists: Andrew Borcher (TE-092162-4), Antonette Gutierrez (TE-50992B), Brock Ortega (TE-813545-6), Callie Amoaku (TE-36118B-1), David Erik LaCoste (TE-027736-6), Diana Saucedo (TE-221287-1), Erin Bergman (TE-53771B-2), Garrett Huffman (TE-20186A-2.1), Jeff Priest (TE-840619-6), Lindsay Willrick (TE-61175B-0), Margie Mulligan (TE-88969B-0), Patricia Schuyler (TE-27502B-1), and Victor Novik (TE-069534).

Study Area and Existing Conditions

The study area is located in southeastern San Diego County north of the community of Boulevard, California (Figure 1, Survey Results – Index). The study area consisted of the anticipated disturbance areas with an additional 250-foot buffer along the outer edge of anticipated disturbance areas (Figures 2 and 3, Survey Results). The study area includes the disturbances and associated buffer for the Boulder Brush Facilities (a component of the Campo Wind Project) and for the Torrey Wind Project (see Figure 1).

The study area is situated north of the community of Boulevard and Interstate (I-)8 at an elevation between approximately 3,280 feet and 4,120 feet above mean sea level. The landscape consists of a mixture of large-lot rural residences and open space with mountainous terrain consisting of steep slopes, prominent ridgelines, and rock outcroppings.

The study area is located in the McCain Valley area of unincorporated areas of San Diego County, north of the community of Boulevard and I-8. It currently consists of largely undeveloped ranch land, a portion of which has historically been used by private, off-road recreational vehicles. The surrounding area primarily consists of vacant land. The 500 kV Sunrise Powerlink traverses the northeast portion of the study area, and wind turbines associated with the Kumeyaay Wind and Tule Wind facilities are located to the southwest, east, northeast, and north.

The study area is within the U.S. Geological Survey's 7.5-minute Sombrero Peak and Live Oak Springs quadrangle maps within Township 17 South, Range 7 East, Sections 05, 06, 07, and 08; and Township 16 South, Range 7 East, Sections 19, 20, 29, 30, 31, and 32..

According to the U.S. Department of Agriculture, Natural Resources Conservation Service, the following seven soil series were mapped within the study area: Calpine (coarse sandy loam, 5% to 9% slopes); La Posta (loamy coarse sand, 5% to 30% slopes, eroded; rocky loamy coarse sand, 5% to 30% slopes, eroded); loamy alluvial land; Mottsville (loamy coarse sand, 2% to 9% slopes); and Tollhouse (rocky coarse sandy loam, 5% to 30% slopes, eroded) (USDA 2019).

Vegetation Communities

The study area supports chaparral, scrub, grassland, and oak woodland communities.

Quino Checkerspot Butterfly Survey

Background Information

The Quino subspecies was added to the federal Endangered Species List by the U.S. Fish and Wildlife Service (USFWS) on January 16, 1997 (62 FR 2313–2322). The species, Edith's checkerspot (*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 20 subspecies, each of which has its own range and biological and morphological characteristics. In California, there are 12 subspecies (Garth and Tilden 1986), 3 of which are currently known to occur in Southern California. The Quino is the southwestern-most subspecies of *E. editha* (Mattoni et al. 1997).

The Quino is known to occur in association with a variety of plant communities, soil types, and elevations (up to 5,000 feet above mean sea level). 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).

The Quino is a medium-sized butterfly (approximately 0.8-inch to 1.1-inch wingspan) belonging to the family Nymphalidae. The adults are primarily orange-red with white and black markings on the dorsal wing surface. They are active primarily in March and April, but 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 (*Plagiobothrys* spp., *Cryptantha* spp.), whitedaisy tidytips (*Layia glandulosa*), goldenbush (*Ericameria* spp.), pincushion (*Chaenactis* spp.), fiddleneck (*Amsinckia* spp.), chia (*Salvia columbariae*), and bluedicks (*Dichelostemma capitatum*), among others.

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).

A female may lay 20 to 75 eggs at one time and may produce up to 1,200 eggs in her lifetime. The eggs hatch in approximately 10 days under favorable weather conditions and the young larvae will immediately begin to feed upon a host plant. As of 2014, the USFWS considers the following as larval host plants: dwarf plantain (*Plantago erecta*), woolly plantain (*P. patagonica*), Coulter's snapdragon (*Antirrhinum coulterianum*), purple Chinese houses (*Collinsia*

heterophylla), stiffbranch bird's beak (*Cordylanthus rigidus*), and exserted Indian paintbrush (*Castilleja exserta*) (USFWS 2014). In addition, Chinese houses (*Collinsia concolor*) is a potential larval host plant (Pratt and Pierce 2009).

After feeding, the early larva enters 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.

The Quino was once common in Southern California. It ranged north into Ventura County, west to the Pacific Ocean, east to the deserts, and south into northern Baja California. Currently, it is known to occur only in a few, potentially 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 non-native plants and insects, fire management practices, over collecting, and adverse weather conditions have likely contributed to the species' decline (62 FR 2313–2322).

Methods – Habitat Assessment and Host Plant Mapping

Prior to the 2018 focused surveys, Dudek biologists conducted a habitat assessment in 2018 within the study area in order to identify suitable habitat and exclude unsuitable habitat for focused surveys. Exclusion areas, which were based on the 2018 habitat assessment, consisted of densely vegetated chaparral with tall shrubs forming closed canopies. While host plant surveys were performed in concert with the habitat assessment, surveyors also looked for host plants during the 2018 focused surveys to document any changes from the initial host plant mapping effort. No host plants were observed in 2018 during focused surveys (Dudek 2019a, 2019b).

Dudek biologists conducted two passes of Quino host plant mapping surveys between March 6 and May 2, 2019, as shown the schedule provided in Table 1. Botanical surveys were conducted by biologists Patricia Schuyler, Shana Carey, Olivia Koziel, and Margie Mulligan. All surveys were conducted on foot. Approximately 10 person-days were spent conducting host plant mapping within the study area.

The host plant mapping surveys focused on the identification and location of six recognized host plants and one potential host plant for Quino: dwarf plantain, woolly plantain, Coulter's snapdragon, stiffbranch bird's beak, exserted Indian paintbrush, purple Chinese houses, and Chinese houses (USFWS 2014; Pratt and Pierce 2009). However, purple Chinese houses do not have an eastern San Diego County distribution and therefore are not likely to occur within the study area. Nectar plants were recorded each week of surveys.

Table 1. Schedule of 2019 Host Plant Mapping Surveys

Date	Hours	Personnel	Conditions (temperature, cloud cover, wind speed)
2019-03-06	10:30 a.m.–5:00 p.m.	Shana Carey and Patricia Schuyler	51°F–59°F; 20%–70% cloud cover; 12–22 mph wind
2019-03-07	8:29 a.m.–3:59 p.m.	Margie Mulligan	53°F–57°F; 50%–90% cloud cover; 5–20 mph wind
2019-03-07	8:30 a.m.–3:00 p.m.	Shana Carey	48°F–51°F; 50%–80% cloud cover; 8–19 mph wind
2019-04-22	8:20 a.m.–5:00 p.m.	Olivia Koziel	63°F–64°F; 10%–90% cloud cover; 2–8 mph wind

Table 1. Schedule of 2019 Host Plant Mapping Surveys

Date	Hours	Personnel	Conditions (temperature, cloud cover, wind speed)
2019-04-23	8:15 a.m.–4:40 p.m.	Olivia Koziel	67°F–77°F; 0%–10% cloud cover; 1–7 mph wind
2019-04-24	8:00 a.m.–4:15 p.m.	Shana Carey	72°F–79°F; 0% cloud cover; 3–13 mph wind
2019-04-25	9:30 a.m.–5:30 p.m.	Shana Carey	58°F–69°F; 10% cloud cover; 1–10 mph wind
2019-05-03	9:00 a.m.–5:15 p.m.	Shana Carey	57°F–69°F; 0% cloud cover; 1–3 mph wind
2019-05-02	8:00 a.m.–4:30 p.m.	Shana Carey	67°F–74°F; 1% cloud cover; 2–4 mph wind

Dudek biologists recorded locations of Quino host plants using a mobile application for data collection and mapping. Data collected included the surveyor(s) date, species of host plant, and density of the host plant where the host plant was observed. All host plant occurrences were mapped as points. Density was collected using the following classes:

- Very Low: 1–19 plants
- Low: 20–100 plants
- Medium: 100–500 plants
- High: 500–10,000+ plants

Points were collected within patches of host plant at least as close as every 3 meters (10 feet). At the conclusion of surveys, Dudek geographic information systems (GIS) analysts created a GIS coverage map for host plants. After review by a biologist, a geodatabase was created to ensure these data are topologically correct and met final quality control and assurance procedures.

Methods – Quino Protocol Surveys

The 2014 USFWS protocol states that focused Quino surveys should begin the third week of February and end the second Saturday in May, unless otherwise approved by USFWS. Surveys are to be conducted during the adult flight season by biologists possessing a recovery permit for this species pursuant to Section 10(a)(1)(A) of the federal Endangered Species Act (USFWS 2014). The 2019 focused surveys followed the 2014 USFWS protocol with the exception of an approved amendment discussed in the 2019 notification. The amendment allowed surveys to begin the week of March 11 to account for the location's higher elevation, generally colder conditions, and general later start of Quino emergence.

Focused Quino surveys were conducted over nine visits from March 15, 2019, through May 13, 2019, per the 2014 USFWS Quino Checkerspot Butterfly Survey Guidelines (see Table 2). The survey area consisted of suitable habitat for Quino within the anticipated disturbance areas and associated buffer (Figures 2 and 3). Surveys were conducted by Quino-permitted biologists Andrew Borcher (TE-092162-4), Antonette Gutierrez (TE-50992B), Brock Ortega (TE-813545-6), Callie Amoaku (TE-36118B-1), David Erik LaCoste (TE-027736-6), Diana Saucedo (TE-221287-1), Erin Bergman (TE-53771B-2), Garrett Huffman (TE-20186A-2.1), Jeff Priest (TE-840619-6), Lindsay Willrick (TE-61175B-0), Margie Mulligan (TE-88969B-0), Patricia Schuyler (TE-27502B-1), and Victor Novik (TE-069534).

Table 2. Schedule of 2019 Focused Quino Checkerspot Butterfly Surveys

Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
1	1 (Portion)	2019-03-16	VN	11:15 a.m.–6:00 p.m.	Air temp: 59°F–64°F; Ground temp: 61°F–63°F; 0% cloud cover; 4–13 mph wind; Clear	
	1 (Finish)	2019-03-17	AG, VN	9:30 a.m.–1:45 p.m.	Air temp: 62°F–67°F; Ground temp: 60°F–68°F; 0% cloud cover; 5–14 mph wind; Clear	
	2	2019-03-24	AG	9:45 a.m.–4:45 p.m.	Air temp: 65°F–75°F; Ground temp: 0°F–70°F; 0%–10% cloud cover; 0 mph wind; Clear	
	3	2019-03-26	DS, EL, LW	12:00 p.m.–2:10 p.m.	Air temp: 69°F–72°F; Ground temp: 69°F–72°F; 0% cloud cover; 1–4 mph wind; Clear	
	4	2019-04-08	DS, EL	8:30 a.m.–11:48 a.m.	Air temp: 70°F–83°F; Ground temp: 70°F–83°F; 10%–20% cloud cover; 0–4 mph wind; Clear to patchy	
	5	2019-04-14	AG, VN	9:30 a.m.–2:00 p.m.	Air temp: 68°F–80°F; Ground temp: 68°F–80°F; 40% cloud cover; 0–12 mph wind; Overcast	
	6	2019-04-19	EL	8:00 a.m.–2:45 p.m.	Air temp: 70°F–84°F; Ground temp: 71°F–86°F; 10% cloud cover; 2–6 mph wind; Clear	
	7	2019-04-24	DS, EL	11:15 a.m.–2:45 p.m.	Air temp: 80°F–84°F; Ground temp: 84°F–85°F; Clear	
	8	2019-05-03	DS, EL, LW	8:25 a.m.–4:00 p.m.	65°F–84°F; 1–4 mph wind; Clear	Survey includes Area 2
	9	2019-05-10	AG	10:45 a.m.–5:45 p.m.	Air temp: 60°F–61°F; Ground temp: 62°F–70°F; Water temp: null; 40%–100% cloud cover; 0–6 mph wind; Overcast to null	
2	1	2019-03-15	AB	9:01 a.m.–4:01 p.m.	Air temp: 56°F–64°F; Ground temp: 0°F–56°F; 0% cloud cover; 1–14 mph wind; Clear	
	2	2019-03-19	AB	9:30 a.m.–4:32 p.m.	Air temp: 69°F–72°F; Ground temp: 0°F–65°F; 10% cloud cover; 0–3 mph wind; Clear	
	3 (Portion)	2019-03-25	LW	10:15 a.m.–11:45 a.m.	63°F–67°F; 0% cloud cover; 0–2 mph wind; Clear	
	3 (Finish)	2019-03-29	LW, DS, EL	9:45 a.m.–12:00 p.m.	67°F–70°F; 0% cloud cover; 0–3 mph wind; Clear	
	4 (Portion)	2019-04-09	CA, EL, PS	9:00 a.m.–11:30 a.m.	Air temp: 62°F–72°F; Ground temp: 62°F–71°F; 10%–30% cloud cover; 7–14 mph wind; Patchy	
	4 (Finish)	2019-04-10	CA	3:01 p.m.–4:45 p.m.	Air temp: 66°F–72°F; Ground temp: 72°F–78°F; Clear	

Table 2. Schedule of 2019 Focused Quino Checkerspot Butterfly Surveys

Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
	5	2019-04-13	DS, LW	9:30 a.m.–1:00 p.m.	Air temp: 64°F–77°F; Ground temp: 61°F–79°F; 0% cloud cover; 0–4 mph wind; Clear	
	6	2019-04-19	DS, LW	8:00 a.m.–12:00 p.m.	71°F–85°F; 0%–10% cloud cover; 1–3 mph wind; Clear	
	7	2019-04-24	EL, LW	8:00 a.m.–11:15 a.m.	Air temp: 75°F–80°F; Ground temp: 75°F–84°F; 0% cloud cover; 1–6 mph wind; Clear	
	8	2019-05-03	DS, EL, LW	8:25 a.m.–4:00 p.m.	65°F–84°F; 1–4 mph wind; Clear	Survey includes Area 1
	9	2019-05-10	LW	10:45 a.m.–5:15 p.m.	70°F–72°F; 50%–70% cloud cover; 3–13 mph wind; Clear	
3	1	2018-03-17	GH	9:00 a.m.–4:00 p.m.	Air temp: 61°F–73°F; Ground temp: 64°F–75°F; 10% cloud cover; 2–10 mph wind; Clear	
	2	2019-03-22	CA, PS	10:22 a.m.–2:30 p.m.	Air temp: 56.3°F–68°F; Ground temp: 60.1°F–70°F; 10%–20% cloud cover; 0–2 mph wind; Clear	
	3	2019-03-29	DS, EL, LW	2:20 p.m.–4:40 p.m.	Air temp: 67°F–72°F; Ground temp: 70°F–74°F; 10% cloud cover; 2–4 mph wind; Clear	
	4	2019-04-10	JP	9:00 a.m.–3:46 p.m.	Air temp: 60°F–68°F; Ground temp: 65°F–70°F; 0% cloud cover; 0–5 mph wind; Clear	
	5	2019-04-14	AG, VN	2:00 p.m.–5:40 p.m.	Air temp: 72°F–80°F; Ground temp: 72°F–80°F; Water temp: null; 20%–40% cloud cover; 0–12 mph wind; Patchy	
	6	2019-04-19	DS, LW	12:00 p.m.–3:30 p.m.	Air temp: 84°F–85°F; Ground temp: 86.5°F–87°F; 0%–10% cloud cover; 2–11 mph wind; Clear	
	7	2019-04-25	CA, EB, PS	8:14 a.m.–1:31 p.m.	Air temp: 68°F–91°F; Ground temp: 70°F–96°F; 0%–10% cloud cover; 0–3 mph wind; Clear	
	8	2019-05-03	DS, EL, LW	8:00 a.m.–2:30 p.m.	Air temp: 65°F–78°F; Ground temp: 65°F–84°F; 0% cloud cover; 2–9 mph wind; Clear	
	9 (Portion)	2019-05-06	EB	8:03 a.m.–10:55 a.m.	Air temp: 49°F–51°F; Ground temp: 53°F–55°F; Overcast	
	9 (Finish)	2019-05-10	DS	11:00 a.m.–5:45 p.m.	Air temp: 70°F; Ground temp: 74°F–75°F; 50%–70% cloud cover; 6–13 mph wind; Overcast to patchy	

Table 2. Schedule of 2019 Focused Quino Checkerspot Butterfly Surveys

Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
4	1 (Portion)	2019-03-15	VN	11:15 a.m.–5:00 p.m.	Air temp: 57°F; Ground temp: 60°F; 30%–40% cloud cover; 2–14 mph wind	
	1 (Finish)	2019-03-16	VN	10:00 a.m.–11:15 a.m.	Air temp: 58°F–59°F; Ground temp: 60°F–61°F; 0% cloud cover; 8–17 mph wind; Clear	
	2	2019-03-24	DS, VN	9:15 a.m.–1:00 p.m.	Air temp: 60°F–69°F; Ground temp: 60°F–72°F; 0%–30% cloud cover; 0–7 mph wind; Clear	
	3	2019-03-30	AG, VN	9:15 p.m.–1:10 p.m.	Air temp: 62°F–70°F; Ground temp: 60°F–70°F; Water temp: null; null% cloud cover; 0–12 mph wind; Clear	
	4[a]	2019-04-05	LW, DS	11:30 a.m.–12:00 p.m.	63°F–64°F; 90% cloud cover; 5–11 mph wind; Overcast to drizzle	
	4	2019-04-08	DS, EL	12:00 p.m.–3:20 p.m.	Air temp: 82°F–89°F; Ground temp: 83°F–91°F; 20% cloud cover; 2–4 mph wind; Patchy	
	5	2019-04-13	DS, LW	1:00 p.m.–4:35 p.m.	Air temp: 74°F–77°F; Ground temp: 77°F–79°F; 0% cloud cover; 0–1 mph wind; Clear	
	6	2019-04-19	AG	9:00 a.m.–4:00 p.m.	Air temp: 70°F–89°F; Ground temp: 68°F–81°F; Water temp: null; 10% cloud cover; 0–8 mph wind; Clear	
	7	2019-04-24	LW	8:30 a.m.–3:30 p.m.	67°F–73°C; 0% cloud cover; 0–5 mph wind; Clear	
	8	2019-05-02	DS, EL	12:00 p.m.–3:30 p.m.	Air temp: 77°F; Ground temp: 77°F; 40% cloud cover; 4–7 mph wind; Patchy	
	9	2019-05-12	AG	10:00 a.m.–5:00 p.m.	Air temp: 70°F–78°F; Ground temp: 71°F–76°F; Water temp: null; 20%–30% cloud cover; 0–7 mph wind; Patchy	
5	1	2019-03-17	DS, VN	9:30 a.m.–1:45 p.m.	Air temp: 62°F–67°F; Ground temp: 60°F–68°F; 0% cloud cover; 5–14 mph wind; Clear	
	2	2019-03-24	DS, VN	1:00 p.m.–4:30 p.m.	Air temp: 67°F–69°F; Ground temp: 70°F–72°F; 20%–30% cloud cover; 2–8 mph wind; Clear	
	3	2019-03-30	AG, VN	1:10 p.m.–4:40 p.m.	Air temp: 70°F; Ground temp: 63°F–70°F; 0% cloud cover; 2–12 mph wind; Clear	
	4	2019-04-04	DS, VN	10:37 a.m.–3:15 p.m.	Air temp: 59°F–62°F; Ground temp: 60.6°F–61°F; 10%–30% cloud cover; 4–10 mph wind; Patchy to clear	

Table 2. Schedule of 2019 Focused Quino Checkerspot Butterfly Surveys

Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
	5	2019-04-10	LW, MM	9:24 a.m.–1:02 p.m.	63°F–67°F; 0% cloud cover; 4–5 mph wind	
	6	2019-04-21	JP	9:00 a.m.–3:30 p.m.	Air temp: 56°F–68°F; Ground temp: 66°F–75°F; 0% cloud cover; 0–8 mph wind; Clear	
	7	2019-04-25	EL	7:50 a.m.–2:20 p.m.	Air temp: 67°F–90°F; Ground temp: 67°F–93°F; 0% cloud cover; 1–8 mph wind; Clear	
	8	2019-05-02	DS, EL	8:30 a.m.–12:00 p.m.	Air temp: 70°F–73°F; Ground temp: 70°F–74°F; 60%–90% cloud cover; 0–2 mph wind; Overcast to patchy	
	9	2019-05-09	AG, DS	11:15 a.m.–3:30 p.m.	Air temp: 61°F–63°F; Ground temp: 63°F–74°F; Water temp: null; 10%–30% cloud cover; 0–11 mph wind; Patchy	
6	1	2019-03-18	EB	8:51 a.m.–4:44 p.m.	Air temp: 70.2°F–77°F; Ground temp: 71.5°F–78°F; 0% cloud cover; 0–3 mph wind; Clear	
	2	2019-03-22	EB	9:41 a.m.–4:50 p.m.	Air temp: 61.4°F–67°F; Ground temp: 66.5°F–70°F; 0%–20% cloud cover; 0–3 mph wind; Clear	
	3	2019-03-29	CA, EB, PS	8:21 a.m.–12:04 p.m.	Air temp: 60°F–69°F; Ground temp: 60°F–65.7°F; 0% cloud cover; 0–3 mph wind; Clear	
	4	2019-04-04	CA, PS	10:40 a.m.–1:44 p.m.	Air temp: 52°F–61°F; Ground temp: 60°F–62.4°F; 0%–20% cloud cover; 2–7 mph wind; Clear	
	5	2019-04-10	EB	8:17 a.m.–6:09 p.m.	Air temp: 67°F–69°F; Ground temp: 69°F–74°F; 0% cloud cover; 0–4 mph wind; Clear	Survey includes Survey Area 7
	6	2019-04-17	CA, PS	1:25 p.m.–4:29 p.m.	Air temp: 75°F–76°F; Ground temp: 79°F–80°F; 0% cloud cover; 1–4 mph wind; Clear	
	7	2019-04-22	EB	8:54 a.m.–3:57 p.m.	Air temp: 69°F–70°F; Ground temp: 72°F–76°F; 30%–40% cloud cover; 0–3 mph wind; Clear to patchy	
	8	2019-05-02	EB	9:31 a.m.–4:11 p.m.	Air temp: 67°F–77°F; Ground temp: 70°F–84°F; 20%–40% cloud cover; 0–4 mph wind; Patchy to clear	
	9 (Portion)	2019-05-08	EB	8:45 a.m.–10:09 a.m.	Air temp: 50°F–57°F; Ground temp: 59°F–61°F; 100% cloud cover; 0–4 mph wind; Overcast	
	9 (Finish)	2019-05-13	EB	10:01 a.m.–5:02 p.m.	Air temp: 78°F–81°F; Ground temp: 75.2°F–87°F; 10%–60% cloud cover; 0–3 mph wind; Clear	

Table 2. Schedule of 2019 Focused Quino Checkerspot Butterfly Surveys

Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
7	1	2019-03-19	AB, LW	12:30 p.m.–5:15 p.m.	64°F–72°F; 0%–10% cloud cover; 0–5 mph wind; Clear	
	2	2019-03-23	JP	9:30 a.m.–4:30 p.m.	Air temp: 60°F–66°F; Ground temp: 60°F–64°F; 0% cloud cover; 2–14 mph wind; Clear	
	3	2019-03-29	CA, EB, PS	12:04 p.m.–2:54 p.m.	Air temp: 69°F–75°F; Ground temp: 65.7°F–75.7°F; 0%–20% cloud cover; 0–5 mph wind; Clear to patchy	
	4	2019-04-04	CA, PS	1:47 p.m.–5:10 p.m.	Air temp: 58°F–61°F; Ground temp: 60°F–62.4°F; 0%–50% cloud cover; 2–6 mph wind; Clear to Patchy	
	5	2019-04-10	EB, MM, LW	8:17 a.m.–6:09 p.m.	Air temp: 67°F–69°F; Ground temp: 69°F–74°F; 0% cloud cover; 0–4 mph wind; Clear	Survey includes Survey Area 6
	6	2019-04-17	CA, PS	9:48 a.m.–1:18 p.m.	Air temp: 72°F–74°F; Ground temp: 66°F–80°F; 0% cloud cover; 1–5 mph wind; Clear	
	7	2019-04-25	CA, EB, PS	1:40 p.m.–4:23 p.m.	Air temp: 81°F–91°F; Ground temp: 84°F–96°F; 0% cloud cover; 0–6 mph wind; Clear	
	8	2019-05-02	BO	8:01 AM–2:59 AM	Air temp: 70–80°F; Ground temp: 70–78°F; 30–50% cloud cover; 1–5 mph wind; Patchy	
	9	2019-05-09	CA, PS	10:33 a.m.–2:01 p.m.	Air temp: 68°F–70°F; Ground temp: 65°F–77°F; 10%–40% cloud cover; 0–10 mph wind; Patchy to clear	
8	1	2019-03-17	JP	10:00 a.m.–2:30 p.m.	Air temp: 60°F–65°F; Ground temp: 60°F–66°F; 0% cloud cover; 3–12 mph wind; Clear	
	2	2019-03-22	CA, PS	2:44 p.m.–4:49 p.m.	Air temp: 66°F–69°F; Ground temp: 70°F–73°F; 20%–30% cloud cover; 0–2 mph wind; Clear	
	3 (Portion)	2019-03-27	PS	10:00 a.m.–10:58 a.m.	Air temp: 62°F; Ground temp: 63.3°F–64°F; 60%–100% cloud cover; 3–9 mph wind; Patchy to overcast	
	3 (Finish)	2019-03-29	CA, EB, PS	2:58 p.m.–4:34 p.m.	Air temp: 67°F–75°F; Ground temp: 69°F–75.7°F; 10%–20% cloud cover; 0–5 mph wind; Patchy to clear	
	4	2019-04-03	PS	10:16 a.m.–2:27 p.m.	Air temp: 56°F–61°F; Ground temp: 61°F–72°F; 30%–40% cloud cover; 4–12 mph wind; Patchy	
	5	2019-04-08	PS	10:11 a.m.–2:41 p.m.	Air temp: 80.6°F–86°F; ground temp: 79.5°F–89°F; Clear	

Table 2. Schedule of 2019 Focused Quino Checkerspot Butterfly Surveys

Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
	6	2019-04-15	PS	10:02 p.m.–2:26 p.m.	Air temp: 64°F–69.2°F; Ground temp: 69.4°F–71.9°F; 30%–40% cloud cover; 1–10 mph wind; Patchy to clear	
	7	2019-04-25	PS	8:14 a.m.–12:49 p.m.	Air temp: 68°F–92°F; Ground temp: 70°F–96.2°F; 0%–10% cloud cover; 0–2 mph wind; Clear	
	8	2019-05-01	CA, PS	10:05 a.m.–2:32 p.m.	Air temp: 66°F–74°F; Ground temp: 69.1°F–81°F; 0% cloud cover; 0–5 mph wind; Clear	
	9	2019-05-09	CA, PS	2:08 p.m.–4:30 p.m.	Air temp: 65°F–68°F; Ground temp: 70°F–77°F; 10%–30% cloud cover; 2–8 mph wind; Clear	

Notes: AB = Andrew Borcher (TE-092162-4); AG = Antonette Gutierrez (TE-50992B); BO = Brock Ortega (TE-813545-6); CA = Callie Amoaku (TE-36118B-1); DS = Diana Saucedo (TE-221287-1); EB = Erin Bergman (TE-53771B-2); EL = David Erik LaCoste (TE-027736-6); GH = Garrett Huffman (TE-20186A-2.1); JP = Jeffrey Priest (TE-840619-6); LW = Lindsay Willrick (TE-61175B-0); MM = Margie Mulligan (TE-88969B-0); PS = Patricia Schuyler (TE-27502B-1); VN = Victor Novik (TE-069534).

[a] Surveys terminated early due to non-protocol weather conditions.

Dudek biologists were provided with 200-scale (1 inch = 200 feet) aerial maps of the study area. Binoculars were used to aid in detecting and identifying butterfly and other wildlife species.

The survey methods consisted of slowly walking roughly parallel transects spaced approximately 30 feet (10 meters) apart throughout all suitable habitats within the 502-acre study area. The study area was divided into eight survey areas, ranging from 44 acres to 69 acres each (Figures 2 and 3). Survey routes were arranged to thoroughly cover the survey area at a rate of no more than 10 acres per person-hour. All wildlife species were recorded and are included in Appendix A.

Surveys were conducted only during acceptable weather conditions (i.e., surveys were not conducted during fog, drizzle, or rain; winds greater than 15 miles per hour measured 4 to 6 feet above ground level for more than 30 seconds; temperature in the shade at ground level less than 60°F on a clear, sunny day; or temperature in the shade at ground level less than 70°F on an overcast or cloudy day). Survey times, personnel, and conditions during the Quino survey are shown in Table 2. Copies of the surveyors' field notes are included as Appendix B.

Weather conditions varied throughout the survey season, and numerous surveys were postponed or ended early/began late due to high winds, cloud cover, and/or low temperatures. Because of these weather conditions, some areas were surveyed over 2 days to complete the survey. If a survey pass was missed due to sustained inclement weather, a makeup survey was performed on non-consecutive days the following week, in accordance with the 2014 USFWS protocol.

Results – Quino Protocol Survey

A total of five Quino were observed during the 2019 focused surveys by Ms. Erin Bergman on April 10, 2019 within the Boulder Brush Corridor (Figure 2a and 2b) (Appendix C). The Quino were observed in an area with open decomposed granite soils, hilltops, ridges, numerous granitic rock outcrops, and various nectar sources. No host plants were observed within the immediate survey area. Quino spent much of the observation time nectaring on Clearwater cryptantha (*Cryptantha intermedia* var. *intermedia*) and pointed cryptantha (*Cryptantha muricata* var. *jonesii*) for short periods of time (a few seconds), landing on bare ground (a few seconds) and performing hill topping behaviors the majority of the time. These Quino were only observed during this one survey week on this one day. No other Quino were observed during the protocol surveys. While there is suitable habitat within the Torrey Wind Project area, no Quino were observed within the Torrey Wind Project area (Figure 3a and 3b). However, based on communications with the USFWS (pers com 7/10/2019), the USFWS typically considers all suitable habitat within 1km of an observation to be occupied. The Quino observation within the Boulder Brush Corridor was within 1km of suitable habitat within the Torrey Wind Project area.

A total of 53 butterfly species were observed during the surveys. The weeks in which these butterflies were observed are shown in Tables 3A and 3B.

Table 3A. Butterflies Observed Within the Study Area During Weeks 1–5

Scientific Name	Common Name	Week				
		1	2	3	4	5
Hesperiidae – Skippers						
Copaeodes aurantiacus	orange skipperling	–	–	X	–	–
Erynnis funeralis	funereal duskywing	X	X	X	X	X
Erynnis propertius	Propertius duskywing	–	–	X	X	–

Table 3A. Butterflies Observed Within the Study Area During Weeks 1–5

Scientific Name	Common Name	Week				
		1	2	3	4	5
Erynnis tristis	mournful duskywing	–	–	–	–	–
Pholisora catullus	Common sootywing	–	–	X	X	X
Pyrgus albescens	white checkered-skipper	X	–	X	X	–
***Nymphalidae* – Brush-Footed Butterflies**						
Chlosyne californica	California patch	X	–	X	–	–
Chlosyne gabbii	Gabb's checkerspot	–	–	–	–	–
Danaus gilippus	queen	–	–	–	–	–
Danaus plexippus	monarch	–	X	–	–	–
Euphydryas chalcedona chalcedona	Chalcedon variable checkerspot	–	–	–	–	–
Euphydryas editha quino	quino checkerspot butterfly	–	–	–	–	X
Junonia coenia	common buckeye	–	–	–	–	–
Nymphalis antiopa	mourning cloak	–	–	–	–	–
Nymphalis californica	California tortoiseshell	X	X	X	X	X
Vanessa annabella	west coast lady	X	X	X	X	X
Vanessa cardui	painted lady	X	X	X	X	X
	lady sp.	X	X	–	–	X
***Lycaenidae* – Blues and Hairstreaks**						
Atlides halesus	great purple hairstreak	X	–	–	–	X
Brephidium exile	western pygmy-blue	–	X	–	X	–
Callophrys augustinus	brown elfin	X	X	X	X	X
Callophrys dumetorum	bramble hairstreak	X	X	X	X	X
Callophrys dumetorum affinis	immaculate bramble hairstreak	–	–	–	–	–
Callophrys perplexa	Perplexing hairstreak	–	X	–	–	–
Euphilotes battoides bernardino	Bernardino square-spotted blue	–	–	–	–	–
Everes amyntula	western tailed-blue	–	–	–	–	–
Glaucopsyche lygdamus australis	southern blue	–	–	–	–	–
Hemiargus ceraunus gyas	Edward's blue	–	–	X	–	X
Hemiargus isola	Reakirt's blue	–	–	–	–	–
Icaricia acmon acmon	Acmon blue	–	–	X	–	X
Leptotes marina	marine blue	–	–	–	X	X
Lycaeides melissa	Melissa blue	–	–	–	–	–
Strymon melinus	gray hairstreak	–	X	–	X	X
	blue sp.	–	X	–	X	–
***Papilionidae* – Swallowtails**						
Papilio eurymedon	pale swallowtail	–	–	X	–	–

Table 3A. Butterflies Observed Within the Study Area During Weeks 1–5

Scientific Name	Common Name	Week				
		1	2	3	4	5
Pieridae – Whites and Sulfurs						
Anthocharis cethura	desert orangetip	X	X	X	X	–
Anthocharis sara sara	Pacific Sara orangetip	X	X	X	X	X
Colias eurydice	California dogface	–	X	X	X	–
Colias eurytheme	orange sulphur	X	–	X	X	–
Colias harfordii	Harford's sulphur	X	X	–	X	X
Euchloe hyantis	California marble	X	–	–	–	–
Euchloe hyantis lotta	desert pearly marble	X	X	X	X	X
Eurema nicippe	sleepy orange	–	–	–	–	–
Nathalis iole	dainty sulphur	X	X	X	X	X
Phoebis sennae	cloudless sulphur	–	–	X	–	–
Pieris rapae	cabbage white	–	X	–	X	X
Pontia beckerii	Becker's white	–	–	X	X	–
Pontia protodice	checkered white	X	X	X	X	X
Pontia sisymbrii	spring white	X	X	X	X	X
	orangetip sp.	X	–	–	–	–
	sulphur sp.	X	X	X	X	X
	white sp.	–	X	X	–	X
Riodinidae – Metalmarks						
Apodemia mormo virgulti	Behr's metalmark	–	X	X	X	X

Table 3B. Butterflies Observed Within the Study Area During Weeks 6–9

Scientific Name	Common Name	Week			
		6	7	8	9
Hesperiidae – Skippers					
Copaeodes aurantiacus	orange skipperling	–	–	–	–
Erynnis funeralis	funereal duskywing	X	X	X	X
Erynnis propertius	Propertius duskywing	X	X	X	X
Erynnis tristis	mournful duskywing	–	X	–	–
Pholisora catullus	Common sootywing	X	X	–	–
Pyrgus albescens	white checkered-skipper	X	X	–	X
Nymphalidae – Brush-Footed Butterflies					
Chlosyne californica	California patch	–	–	–	–
Chlosyne gabbii	Gabb's checkerspot	X	–	–	–

Table 3B. Butterflies Observed Within the Study Area During Weeks 6–9

Scientific Name	Common Name	Week			
		6	7	8	9
Danaus gilippus	queen	X	–	–	–
Danaus plexippus	monarch	–	–	–	X
Euphydryas chalcedona chalcedona	Chalcedon variable checkerspot	X	–	–	–
Euphydryas editha quino	quino checkerspot butterfly	–	–	–	–
Junonia coenia	common buckeye	–	–	X	–
Nymphalis antiopa	mourning cloak	–	–	X	–
Nymphalis californica	California tortoiseshell	–	–	–	–
Vanessa annabella	west coast lady	X	X	X	–
Vanessa cardui	painted lady	X	X	X	X
	lady sp.	X	X	X	X
Lycaenidae **– Blues and Hairstreaks**					
Atlides halesus	great purple hairstreak	X	X	–	–
Brephidium exile	western pygmy-blue	X	X	X	X
Callophrys augustinus	brown elfin	–	–	X	–
Callophrys dumetorum	bramble hairstreak	X	–	X	–
Callophrys dumetorum affinis	immaculate bramble hairstreak	–	X	–	–
Callophrys perplexa	Perplexing hairstreak	–	–	–	–
Euphilotes battoides bernardino	Bernardino square-spotted blue	–	–	–	X
Everes amyntula	western tailed-blue	–	–	X	X
Glaucopsyche lygdamus australis	southern blue	–	X	–	–
Hemiargus ceraunus gyas	Edward's blue	X	X	X	X
Hemiargus isola	Reakirt's blue	X	–	–	–
Icaricia acmon acmon	Acmon blue	–	X	X	X
Leptotes marina	marine blue	–	X	X	X
Lycaeides melissa	Melissa blue	–	–	–	X
Strymon melinus	gray hairstreak	X	X	X	X
	blue sp.	X	–	X	X
Papilionidae **– Swallowtails**					
Papilio eurymedon	pale swallowtail	X	X	X	–
Pieridae **– Whites and Sulfurs**					
Anthocharis cethura	desert orangetip	X	–	X	–
Anthocharis sara sara	Pacific Sara orangetip	X	X	X	X
Colias eurydice	California dogface	X	–	–	–
Colias eurytheme	orange sulphur	X	X	X	X
Colias harfordii	Harford's sulphur	X	X	X	X

Table 3B. Butterflies Observed Within the Study Area During Weeks 6–9

Scientific Name	Common Name	Week			
		6	7	8	9
Euchloe hyantis	California marble	–	–	–	–
Euchloe hyantis lotta	desert pearly marble	X	X	X	X
Eurema nicippe	sleepy orange	X	–	–	–
Nathalis iole	dainty sulphur	X	X	X	X
Phoebis sennae	cloudless sulphur	–	–	–	–
Pieris rapae	cabbage white	X	–	X	X
Pontia beckerii	Becker's white	X	–	–	X
Pontia protodice	checkered white	X	X	X	X
Pontia sisymbrii	spring white	X	–	–	–
	orangetip sp.	–	–	–	–
	sulphur sp.	X	–	–	X
	white sp.	X	X	X	X
***Riodinidae* – Metalmarks**					
Apodemia mormo virgulti	Behr's metalmark	X	X	X	X

Results – Host Plant Mapping

Three Quino larval host plants, Coulter's snapdragon, Chinese houses, and stiffbranch bird's beak were observed within the study area during the focused surveys (Figures 4a, 4b, 5a, and 5b, Host Plant Mapping). Coulter's snapdragon was mapped with a Very Low density in one location in the southeastern portion of the study area (Figure 5). Chinese houses was the most abundant Quino larval host plant mapped throughout the study area with Very Low, Low, and Medium densities (Figures 4 and 5). The third Quino larval host plant, stiffbranch bird's beak, was mapped in five locations in the central and southern portions of the study area occurring in Very Low and Low densities (Figures 4 and 5). Table 4 includes the known and observed adult Quino nectar plants (according to Mattoni et al. 1997; USFWS 2002, 2003; 67 FR 18355–18395). Larval host plants are also included in Table 4 and are shown in bold print. All plant species that were in bloom during the 2019 surveys were documented in the field notes.

Table 4. Quino Adult Nectar Plants and Larval Food Plants

Scientific Name	Common Name	Observed During Focused Survey
***Apiaceae* – Carrot Family**		
Lomatium dasycarpum ssp. *dasycarpum*	woollyfruit desertparsley	X
Lomatium utriculatum	common lomatium	—
***Asteraceae* – Sunflower Family**		
Achillea millefolium	common yarrow, milfoil	X
Lasthenia californica or *Lasthenia gracilis*	California goldfields or needle goldfields	X
Lasthenia coronaria	royal goldfields	—

Table 4. Quino Adult Nectar Plants and Larval Food Plants

Scientific Name	Common Name	Observed During Focused Survey
Layia platyglossa	coastal tidytips, common tidytips	X
***Boraginaceae* – Borage Family**		
Amsinckia menziesii	Menzies' fiddleneck, rancher's fireweed	X
Amsinckia menziesii var. *intermedia*	rancher's fiddleneck	—
Amsinckia menziesii var. *menziesii*	rigid fiddleneck	—
Cryptantha spp. or *Plagiobothrys* spp.	cryptantha or popcorn flower	X
Phacelia distans	distant phacelia, wild-heliotrope	X
***Fabaceae* – Pea Family**		
Acmispon (=Lotus) spp.	deerweed, spanishclover, lotus	X
***Hydrophyllaceae* – Waterleaf Family**		
Eriodictyon crassifolium var. *crassifolium*	thickleaf yerba santa	—
Eriodictyon trichocalyx var. *trichocalyx*	hairy yerba santa	—
***Lamiaceae* – Mint Family**		
Salvia columbariae	chia	X
***Plantaginaceae* – Plantain Family**		
Antirrhinum coulterianum	**Coulter's snapdragon**	X
Collinsia heterophylla	**Purple Chinese houses**	—
Collinsia concolor	**Chinese houses**	X
Keckiella antirrhinoides var. *antirrhinoides*	snapdragon penstemon	—
Keckiella cordifolia	heartleaf keckiella, climbing bush penstemon	—
Plantago erecta	**dwarf plantain**	—
Plantago patagonica	**woolly plantain**	—
***Polemoniaceae* – Phlox Family**		
Gilia angelensis	chaparral gilia	X
Gilia capitata ssp. *abrotanifolia*	bluehead gilia	—
Linanthus spp.	ground pink	X
***Polygonaceae* – Buckwheat Family**		
Eriogonum fasciculatum	California buckwheat	X
***Orobanchaceae* – Broom-Rape Family**		
Castilleja exserta	**exserted Indian paintbrush, common owl's-clover**	—
***Scrophulariaceae* – Figwort Family**		
Cordylanthus rigidus	**stiffbranch bird's beak**	X
***Liliaceae* – Lily Family**		
Allium haematochiton	redskin onion	—
Allium peninsulare	Mexicali onion, red-flower onion	—

Table 4. Quino Adult Nectar Plants and Larval Food Plants

Scientific Name	Common Name	Observed During Focused Survey
Allium praecox	early onion	—
Bloomeria clevelandii	San Diego goldenstar	—
Dichelostemma capitatum	bluedicks	X
Muilla maritima	sea muilla, common muilla	—

Sources: List derived from Mattoni et al. 1997; USFWS 2002, 2003; 67 FR 18355–18395 (for *Euphydryas editha*).
Note: Plants listed in **bold print** are known Quino larval host plant species.

Dudek certifies that the information in this survey report and the attached figures and appendices fully and accurately represents the work conducted by the Quino-permitted biologists who conducted this focused survey.

Please feel free to contact Brock Ortega at bortega@dudek.com or Callie Amoaku at cford@dudek.com if you have any questions regarding the contents of this report.

Sincerely,

Andrew Borcher
Permit #TE-092162-4

Antonette Gutierrez
Permit #TE-50992B

Brock Ortega
Permit #TE-813545-6

Callie Amoaku
Permit #TE-36118B-1

David Erik LaCoste
Permit #TE-027736-6

Diana Saucedo
Permit #TE-221287-1

Erin Bergman
Permit #TE-53771B-2

Garrett Huffman
Permit #TE-20186A-2.1

Jeffrey Priest
Permit #TE-840619-6

Lindsay Willrick
Permit #TE-61175B-0

Margie Mulligan
Permit #TE-88969B-0

Patricia Schuyler
Permit #TE-27502B-1

Victor Novik
Permit #TE-069534

Att: *Figure 1, Survey Results – Index Map*
Figure 2A, Survey Results – Boulder Brush
Figure 2B, Survey Results – Boulder Brush
Figure 3A, Survey Results - Torrey
Figure 3B, Survey Results - Torrey
Figure 4A, Host Plant Mapping – Boulder Brush
Figure 4B, Host Plant Mapping – Boulder Brush
Figure 5A, Host Plant Mapping - Torrey
Figure 5B, Host Plant Mapping - Torrey
Appendix A – List of Wildlife Species Observed during the 2019 Quino Survey for the Proposed Wind Energy Facilities
Appendix B – Field Notes Collected during the 2019 Quino Survey for the Proposed Wind Energy Facilities
Appendix C – Notification of Observation of Quino Checkerspot Butterfly for the Proposed Wind Energy Facilities
cc: *Brock Ortega, Dudek*
Matthew Valerio, Dudek

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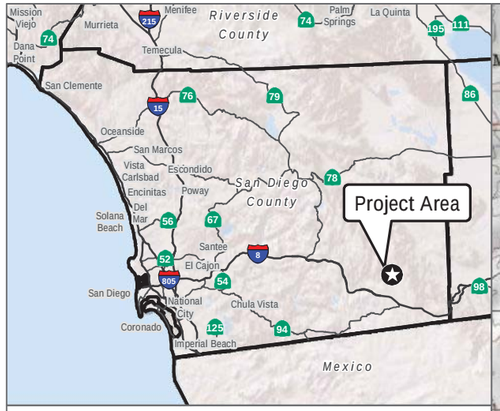


- Project Boundary
- Study Area
- Torrey Wind Project Site
- Boulder Brush Facilities Corridor
- QUINO checkerspot butterfly observation
- Exclusion Areas

Quino Survey Areas

- 1 (67 acres)
- 2 (65 acres)
- 3 (64 acres)
- 4 (67 acres)
- 5 (65 acres)
- 6 (61 acres)
- 7 (69 acres)
- 8 (44 acres)

SOURCE: USGS 7.5-minute Quadrangle

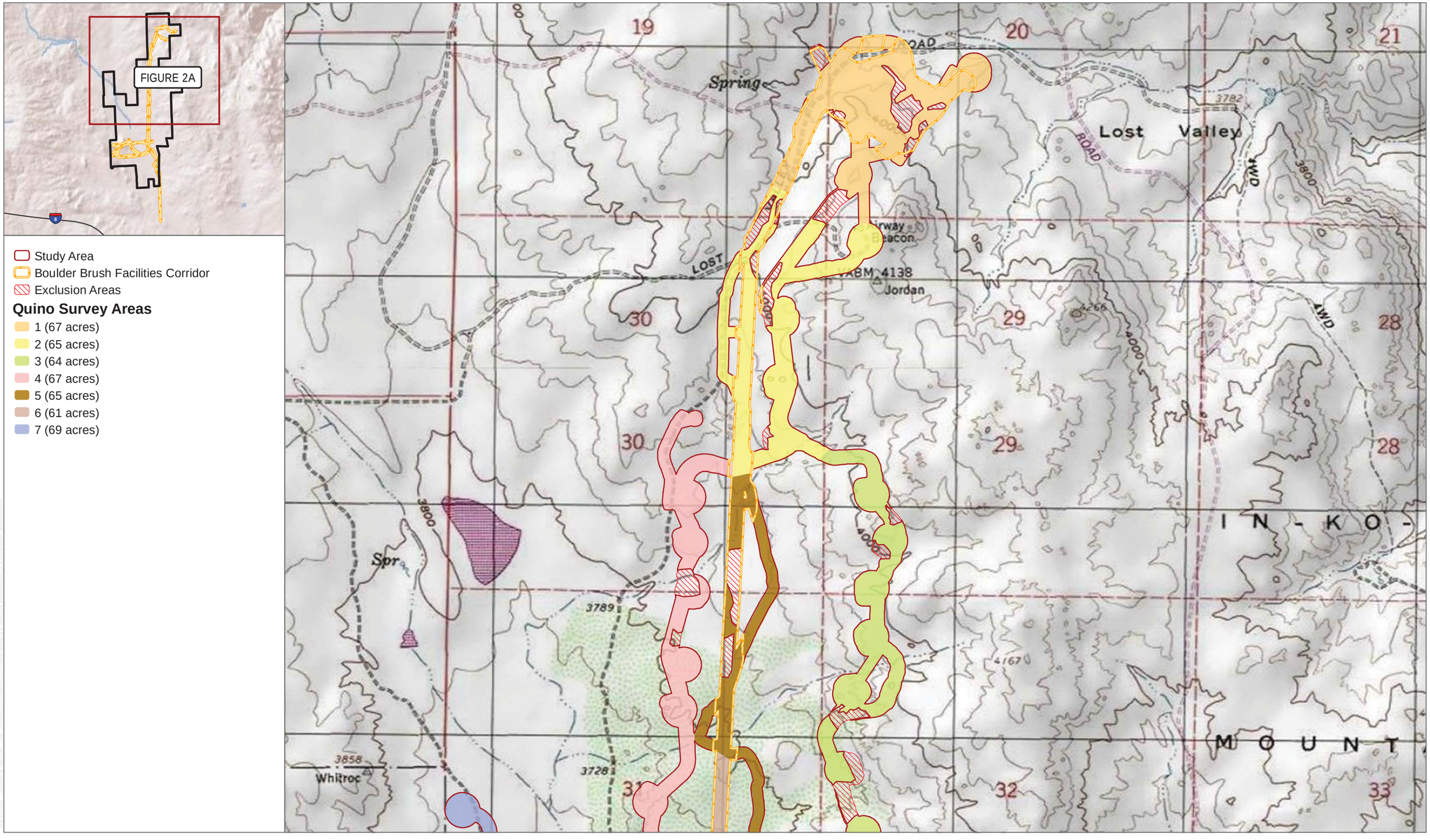
DUDEK

0 1,375 2,750 Feet

FIGURE 1

Survey Results

2019 Focused Quino Checkerspot Butterfly Survey Report



SOURCE: USGS 7.5-minute Quadrangle

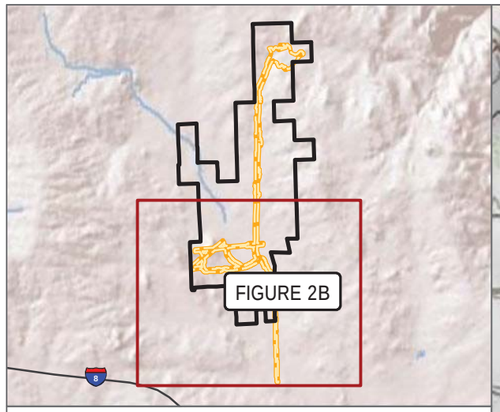
DUDEK

0 625 1,250 Feet

FIGURE 2A

Survey Results - Boulder Brush

2019 Focused Quino Checkerspot Butterfly Survey Report



- Study Area
- Boulder Brush Facilities Corridor
- QUINO checkerspot butterfly observation
- Exclusion Areas

Quino Survey Areas

- 1 (67 acres)
- 2 (65 acres)
- 3 (64 acres)
- 4 (67 acres)
- 5 (65 acres)
- 6 (61 acres)
- 7 (69 acres)
- 8 (44 acres)

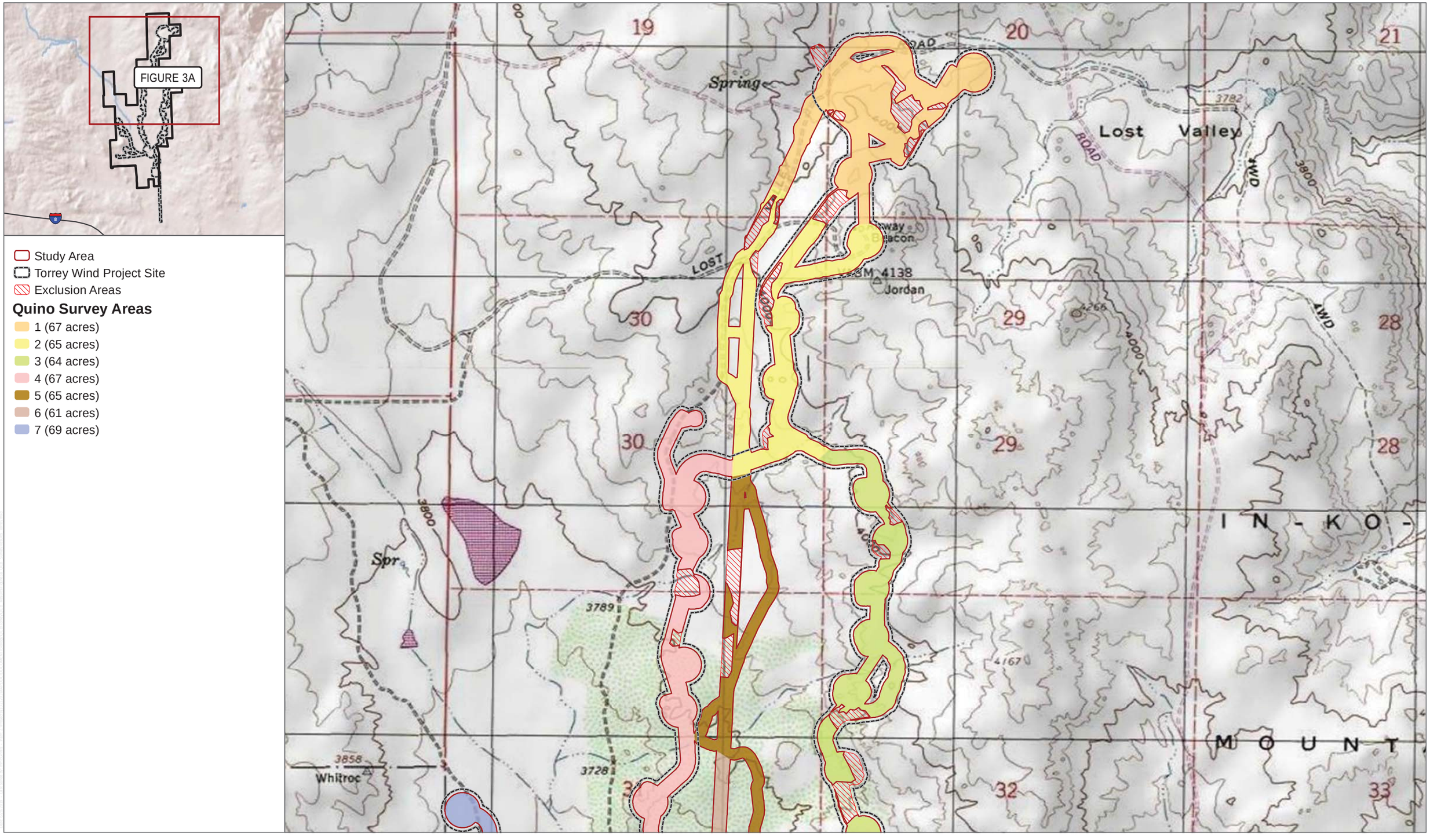
SOURCE: USGS 7.5-minute Quadrangle

DUDEK 0 650 1,300 Feet

FIGURE 2B

Survey Results - Boulder Brush

2019 Focused Quino Checkerspot Butterfly Survey Report



SOURCE: USGS 7.5-minute Quadrangle

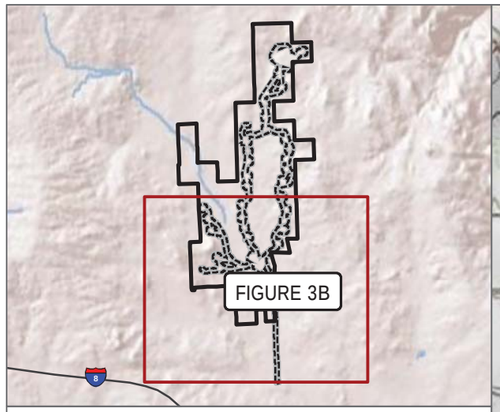
DUDEK

0 625 1,250 Feet

FIGURE 3A

Survey Results - Torrey

2019 Focused Quino Checkerspot Butterfly Survey Report



Study Area
Torrey Wind Project Site
Exclusion Areas

Quino Survey Areas

- 1 (67 acres)
- 2 (65 acres)
- 3 (64 acres)
- 4 (67 acres)
- 5 (65 acres)
- 6 (61 acres)
- 7 (69 acres)
- 8 (44 acres)

SOURCE: USGS 7.5-minute Quadrangle

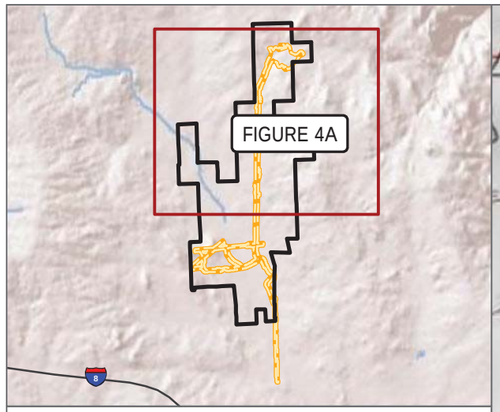
DUDEK

0 650 1,300 Feet

FIGURE 3B

Survey Results - Torrey

2019 Focused Quino Checkerspot Butterfly Survey Report



Study Area
Boulder Brush Facilities Corridor
Exclusion Areas

Quino Survey Areas

- 1 (67 acres)
- 2 (65 acres)
- 3 (64 acres)
- 4 (67 acres)
- 5 (65 acres)
- 6 (61 acres)
- 7 (69 acres)

Host Plants

Chinese houses *(Collinsia concolor)*

- Very Low: 1-19 plants
- Low: 20-100 plants
- Medium: 100-500 plants

SOURCE: USGS 7.5-minute Quadrangle

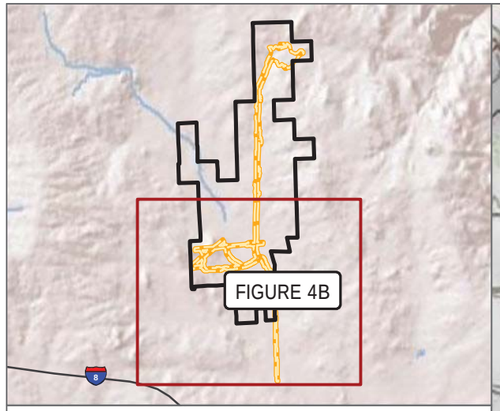
DUDEK

0 625 1,250 Feet

FIGURE 4A

Host Plant Mapping - Boulder Brush

2019 Focused Quino Checkerspot Butterfly Survey Report



- Study Area
- Boulder Brush Facilities Corridor
- QUINO checkerspot butterfly observation
- Exclusion Areas

Quino Survey Areas

- 3 (64 acres)
- 4 (67 acres)
- 5 (65 acres)
- 6 (61 acres)
- 7 (69 acres)
- 8 (44 acres)

Host Plants

Chinese houses *(Collinsia concolor)*

- Very Low: 1-19 plants
- Low: 20-100 plants
- Medium: 100-500 plants

stiffbranch bird's beak *(Cordylanthus rigidus)*

- Very Low: 1-19 plants
- Low: 20-100 plants

SOURCE: USGS 7.5-minute Quadrangle

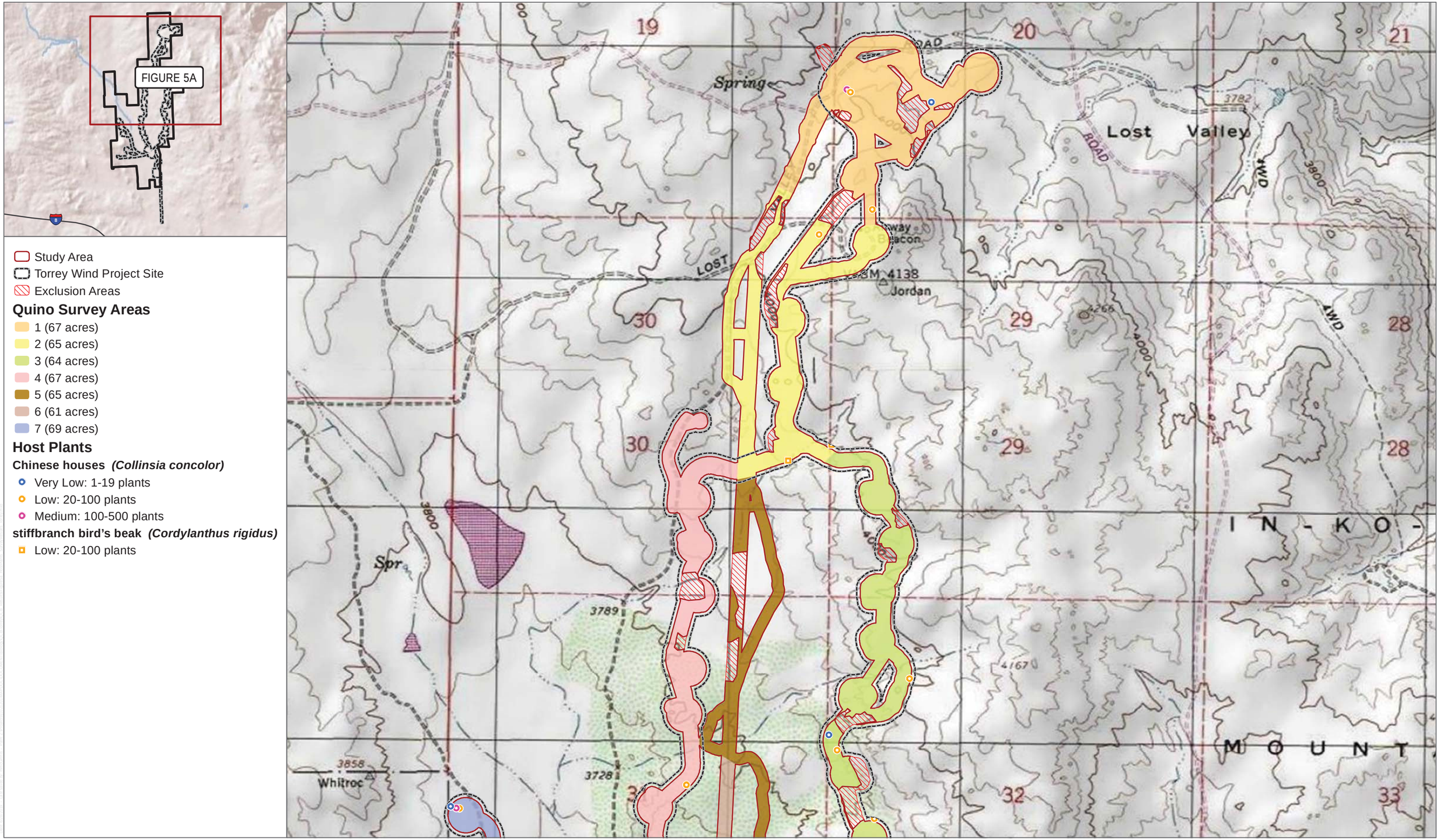
DUDEK

0 650 1,300 Feet

FIGURE 4B

Host Plant Mapping - Boulder Brush

2019 Focused Quino Checkerspot Butterfly Survey Report



SOURCE: USGS 7.5-minute Quadrangle

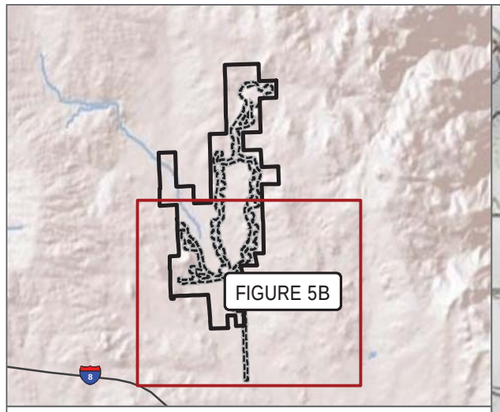
DUDEK

0 625 1,250 Feet

FIGURE 5A

Host Plant Mapping - Torrey

2019 Focused Quino Checkerspot Butterfly Survey Report



Study Area
Torrey Wind Project Site
Exclusion Areas

Quino Survey Areas

- 3 (64 acres)
- 4 (67 acres)
- 5 (65 acres)
- 6 (61 acres)
- 7 (69 acres)
- 8 (44 acres)

Host Plants

Coulter's snapdragon *(Antirrhinum coulterianum)*

- Very Low: 1-19 plants

Chinese houses *(Collinsia concolor)*

- Very Low: 1-19 plants
- Low: 20-100 plants
- Medium: 100-500 plants

stiffbranch bird's beak *(Cordylanthus rigidus)*

- Very Low: 1-19 plants

SOURCE: USGS 7.5-minute Quadrangle

DUDEK

0 650 1,300 Feet

FIGURE 5B

Host Plant Mapping - Torrey

2019 Focused Quino Checkerspot Butterfly Survey Report

Appendix A

List of Wildlife Species Observed during the 2019 Quino Survey for the Proposed Wind Energy Facilities

AMPHIBIAN

TOADS

BUFONIDAE—TRUE TOADS

Anaxyrus boreas—western toad

BIRD

BLACKBIRDS, ORIOLES, AND ALLIES

ICTERIDAE—BLACKBIRDS

Icterus cucullatus—hooded oriole
Icterus parisorum—Scott's oriole
Sturnella neglecta—western meadowlark

BUSHTITS

AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus—bushtit

CARDINALS, GROSBEAKS, AND ALLIES

CARDINALIDAE—CARDINALS AND ALLIES

Pheucticus melanocephalus—black-headed grosbeak
Piranga ludoviciana—western tanager

FALCONS

FALCONIDAE—CARACARAS AND FALCONS

Falco sparverius—American kestrel

FINCHES

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus—house finch
Spinus psaltria—lesser goldfinch

FLYCATCHERS

TYRANNIDAE—TYRANT FLYCATCHERS

Contopus sordidulus—western wood-pewee
Empidonax hammondii—Hammond's flycatcher
Myiarchus cinerascens—ash-throated flycatcher
Sayornis nigricans—black phoebe
Sayornis saya—Say's phoebe
Tyrannus verticalis—western kingbird
Tyrannus vociferans—Cassin's kingbird

GOATSUCKERS

CAPRIMULGIDAE—GOATSUCKERS

Phalaenoptilus nuttallii—common poorwill

HAWKS

ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES

Accipiter cooperii—Cooper's hawk
Buteo jamaicensis—red-tailed hawk

HUMMINGBIRDS

TROCHILIDAE—HUMMINGBIRDS

Archilochus alexandri—black-chinned hummingbird
Calypte anna—Anna's hummingbird
Calypte costae—Costa's hummingbird

JAYS, MAGPIES, AND CROWS

CORVIDAE—CROWS AND JAYS

Aphelocoma californica—California scrub-jay
Corvus brachyrhynchos—American crow
Corvus corax—common raven
Cyanocitta stelleri—Steller's jay

MOCKINGBIRDS AND THRASHERS

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Mimus polyglottos—northern mockingbird
Toxostoma redivivum—California thrasher

NEW WORLD QUAIL

ODONTOPHORIDAE—NEW WORLD QUAIL

Callipepla californica—California quail
Oreortyx pictus—mountain quail

NEW WORLD SPARROWS

PASSERELLIDAE—NEW WORLD SPARROWS

Amphispiza bilineata—black-throated sparrow
Junco hyemalis—dark-eyed junco
Melospiza melodia—song sparrow
Melozone crissalis—California towhee
Pipilo maculatus—spotted towhee
Spizella atrogularis—black-chinned sparrow
Spizella passerina—chipping sparrow
Zonotrichia leucophrys—white-crowned sparrow

NEW WORLD VULTURES

CATHARTIDAE—NEW WORLD VULTURES

Cathartes aura—turkey vulture

NUTHATCHES

SITTIDAE—NUTHATCHES

Sitta carolinensis—white-breasted nuthatch

OLD WORLD WARBLERS AND GNATCATCHERS

SYLVIIDAE—SYLVIID WARBLERS

Polioptila caerulea—blue-gray gnatcatcher

OWLS

TYTONIDAE—BARN OWLS

Tyto alba—barn owl

PIGEONS AND DOVES

COLUMBIDAE—PIGEONS AND DOVES

Patagioenas fasciata—band-tailed pigeon
Zenaida macroura—mourning dove
* *Streptopelia decaocto*—Eurasian collared-dove
Zenaida asiatica—white-winged dove

QUAILS, PHEASANTS, AND RELATIVES

PHASIANIDAE—PARTRIDGES, GROUSE, TURKEYS, AND OLD WORLD QUAIL

Meleagris gallopavo—wild turkey

ROADRUNNERS AND CUCKOOS

CUCULIDAE—CUCKOOS, ROADRUNNERS, AND ANIS

Geococcyx californianus—greater roadrunner

SILKY FLYCATCHERS

PTILOGONATIDAE—SILKY-FLYCATCHERS

Phainopepla nitens—phainopepla

STARLINGS AND ALLIES

STURNIDAE—STARLINGS

* *Sturnus vulgaris*—European starling

SWALLOWS

HIRUNDINIDAE—SWALLOWS

Hirundo rustica—barn swallow

SWIFTS

APODIDAE—SWIFTS

Aeronautes saxatalis—white-throated swift

THRUSHES

TURDIDAE—THRUSHES

Sialia mexicana—western bluebird
Turdus migratorius—American robin

TITMICE

PARIDAE—CHICKADEES AND TITMICE

Baeolophus inornatus—oak titmouse

VIREOS

VIREONIDAE—VIREOS

Vireo gilvus—warbling vireo

WOOD WARBLERS AND ALLIES

PARULIDAE—WOOD-WARBLERS

Oreothlypis celata—orange-crowned warbler
Oreothlypis ruficapilla—Nashville warbler
Setophaga coronata—yellow-rumped warbler
Setophaga occidentalis—hermit warbler
Setophaga petechia—yellow warbler
Setophaga townsendi—Townsend's warbler

WOODPECKERS

PICIDAE—WOODPECKERS AND ALLIES

Colaptes auratus—northern flicker
Melanerpes formicivorus—acorn woodpecker
Dryobates nuttallii—Nuttall's woodpecker
Dryobates scalaris—ladder-backed woodpecker

WRENS

TROGLODYTIDAE—WRENS

Campylorhynchus brunneicapillus—cactus wren
Salpinctes obsoletus—rock wren
Thryomanes bewickii—Bewick's wren

WRENTITS

TIMALIIDAE—BABBLERS

Chamaea fasciata—wrentit

INVERTEBRATE

BUTTERFLIES

LYCAENIDAE—BLUES, HAIRSTREAKS, AND COPPERS

Atlides halesus—great purple hairstreak
Brephidium exile—western pygmy-blue
Callophrys augustinus—brown elfin
Callophrys dumetorum affinis—immaculate bramble hairstreak
Callophrys dumetorum—bramble hairstreak
Euphilotes battoides bernardino—Bernardino square-spotted blue
Everes amyntula—western tailed-blue
Glaucopsyche lygdamus australis—southern blue
Hemiargus ceraunus gyas—Edward's blue
Hemiargus isola—Reakirt's blue
Icaricia acmon acmon—Acmon blue
Leptotes marina—marine blue
Lycaeides melissa—Melissa blue
Strymon melinus—gray hairstreak
Callophrys perplexa—Perplexing hairstreak
—Blue sp.

NYMPHALIDAE—BRUSH-FOOTED BUTTERFLIES

Chlosyne californica—California patch
Chlosyne gabbii—Gabb's checkerspot
Danaus gilippus—queen
Danaus plexippus—monarch
Euphydryas chalcedona chalcedona—Chalcedon variable checkerspot
Euphydryas editha quino—quino checkerspot butterfly
Junonia coenia—common buckeye
Nymphalis antiopa—mourning cloak
Nymphalis californica—California tortoiseshell
Vanessa annabella—west coast lady
Vanessa cardui—painted lady
—Lady sp.

RIODINIDAE—METALMARKS

Apodemia mormo virgulti—Behr's metalmark

HESPERIIDAE—SKIPPERS

Copaeodes aurantiacus—orange skipperling
Erynnis funeralis—funereal duskywing
Erynnis propertius—Propertius duskywing
Erynnis tristis—mournful duskywing
Pholisora catullus—common sootywing
Pyrgus albescens—white checkered-skipper

PAPILIONIDAE—SWALLOWTAILS

Papilio eurymedon—pale swallowtail

PIERIDAE—WHITES AND SULFURS

Anthocharis cethura—desert orangetip
Anthocharis sara sara—Pacific sara orangetip
Colias eurydice—California dogface
Colias eurytheme—orange sulphur
Colias harfordii—Harford's sulphur
Euchloe hyantis lotta—desert pearly marble
Eurema nicippe—sleepy orange
Nathalis iole—dainty sulphur
Phoebis sennae—cloudless sulphur
Pieris rapae—cabbage white
Pontia beckerii—Becker's white
Pontia protodice—checkered white
Pontia sisymbrii—spring white
Euchloe hyantis—California marble
—Orangetip sp.
—Sulphur sp.
—White sp.

MOTHS

SPHINGIDAE—HAWK MOTHS

Hyles lineata—white-lined sphinx moth

MAMMAL

CANIDS

CANIDAE—WOLVES AND FOXES

Canis latrans—coyote

CATS

FELIDAE—CATS

Puma concolor—cougar

HARES AND RABBITS

LEPORIDAE—HARES AND RABBITS

Lepus californicus bennettii—San Diego black-tailed jackrabbit
Lepus californicus—black-tailed jackrabbit
Sylvilagus audubonii—desert cottontail
Sylvilagus bachmani—brush rabbit

KANGAROO RATS

HETEROMYIDAE—POCKET MICE AND KANGAROO RATS

Dipodomys sp.—kangaroo rat

POCKET GOPHERS

GEOMYIDAE—POCKET GOPHERS

Thomomys bottae—Botta's pocket gopher

RATS, MICE, AND VOLES

CRICETIDAE—RATS, MICE, AND VOLES

Neotoma lepida—desert woodrat
Neotoma sp.—woodrat

SQUIRRELS

SCIURIDAE—SQUIRRELS

Ammospermophilus leucurus—white-tailed antelope squirrel
Spermophilus (Otospermophilus) beecheyi—California ground squirrel
Tamias merriami—Merriam's chipmunk

UNGULATES

CERVIDAE—DEERS

Odocoileus hemionus—mule deer

REPTILE

LIZARDS

CROTAPHYTIDAE—COLLARED LIZARDS

Gambelia wislizenii—long-nosed leopard lizard

PHRYNOSOMATIDAE—IGUANID LIZARDS

Phrynosoma blainvillii—Blainville's horned lizard
Sceloporus occidentalis—western fence lizard
Sceloporus orcutti—granite spiny lizard
Uta stansburiana—common side-blotched lizard

SCINCIDAE—SKINKS

Plestiodon gilberti—Gilbert's skink

TEIIDAE—WHIPTAIL LIZARDS

Aspidoscelis tigris stejnegeri—San Diegan tiger whiptail
Aspidoscelis tigris—tiger whiptail

SNAKES

COLUBRIDAE—COLUBRID SNAKES

Coluber lateralis—striped racer
Pituophis catenifer—gophersnake

VIPERIDAE—VIPERS

Crotalus oreganus—western rattlesnake

* signifies introduced (non-native) species

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Appendix B

Field Notes Collected During the 2019 Quino Survey for the Proposed Wind Energy Facilities

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-16
Biologist(s)	Victor Novik
Survey Area	1
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	11:15:00	59	63	0	13	clear	
End	18:00:00	64	61	0	11	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
brown elfin (1)	Saras orangtip (17)	
painted lady (1+)	white checkered-skipper (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Arabis sp.	*Descurainia pinnata*	*Ribes quercetorum*
Camisonia sp.	*Erodium cicutarium*	*Sanicula arguta*
Cryptantha sp.	*Plagiobothrys sp.*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-17
Biologist(s)	Antonette Gutierrez, Victor Novik
Survey Area	1
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:30:00	62	60	0	9	clear	
End	13:45:00	67	68	0	14	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
bramble hairstreak (1)	Pacific sara orangetip (43)	spring white (1)
funereal duskywing (2)	painted lady (1+)	Sulphur sp. (3)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Arctostaphylus sp.	*Descurainia pinnata*	*Plagiobothryus sp.*
Camisonia sp.	*Erodium cicutarium*	*Tropidocarpum gracile*
Cryptantha sp.	*Lasthenia californica*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-24
Biologist(s)	Antonette Gutierrez
Survey Area	1
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:45:00	65	0	0	2	clear	
End	16:45:00	75	70	10	2	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
blue sp. (1)	funereal duskywing (5)	spring white (5)
cabbage white (1)	Pacific sara orangetip (23)	sulphur butterfly sp (1+)
dainty sulphur (1)	painted lady (11)	western bluebird (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
black-chinned sparrow (1+)	common side-blotched lizard (1+)	red-tailed hawk (1+)
California quail (1+)	coyote (1+)	Vanessa butterfly sp. (1+)
California scrub-jay (1+)	granite spiny lizard (1+)	western fence lizard (1+)
California thrasher (1+)	greater roadrunner (1+)	white butterfly sp (6)
common raven (1+)	mule deer (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
Boechera pulchra	*Erodium cicutarium*	*Ranunculus californicus*
Camissoniopsis micrantha	*Gilia diegensis*	*Rhus ovata*
Cercocarpus betuloides var. betuloides	*Lasthenia glabrata*	*Salvia columbariae*
Descurainia pinnata ssp. brachycarpa	*Lomatium mohavense*	*Xylococcus bicolor*
Ericameria pinifolia	*Phacelia parryi*	
Eriogonum fasciculatum var. fasciculatum	*Plagiobothrys bracteatus*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-26
Biologist(s)	Diana Saucedo, Erik LaCoste, Lindsay Willrick
Survey Area	1
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	12:00:00	69	69	0	3	clear	
End	14:10:00	72	72	0	4	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1)	common sootywing (14)	funereal duskywing (2)
California tortoiseshell (7)	desert orangetip (2)	Pacific sara orangetip (11)
checkered white (3)	desert pearly marble (2)	painted lady (40)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Descurainia sophia	*Lomatium dasycarpum*	***Linanthus bellus***
Eriophyllum wallacei	*Plagiobothrys sp.*	
Erodium cicutarium	*Ribes quercetorum*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-08
Biologist(s)	Diana Saucedo, Erik LaCoste
Survey Area	1
Survey Pass	4, Round 4 make up.

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	70	70	10	2	clear	
End	11:48:00	83	83	20	4	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (19)	desert orangetip (5)	orange sulphur (8)
bramble hairstreak (2)	desert pearly marble (34)	Pacific sara orangetip (16)
brown elfin (3)	funereal duskywing (3)	painted lady (50)
California tortoiseshell (6)	gray hairstreak (1)	
common sootywing (1)	Harford's sulphur (2)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Acmispon strigosus	*Descurainia pinnata*	*Oenothera californica*
Amsinckia menziesii	*Erodium sp.*	*Salvia columbariae*
Camissoniopsis pallida	*Gilia angelensis*	***Linanthus bellus***
Ceanothus perplexans	*Gilia diegensis*	
Cryptantha sp.	*Lasthenia sp.*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-14
Biologist(s)	Antonette Gutierrez, Victor Novik
Survey Area	1
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:30:00	68	68	40	1	overcast	
End	14:00:00	80	80	40	12	overcast	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (178)	great purple hairstreak (1)	painted lady (32)
brown elfin (1)	Harford's sulphur (1)	Unidentified lady (32)
checkered white (10)	marine blue (4)	Unidentified sulphur (19)
funereal duskywing (1)	Pacific sara orangetip (24)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Amsinckia menziesii	*Ericameria palmeri*	*Marah macrocarpa*
Arabis sp.	*Erodium cicutarium*	*Oenothera californica*
Camisonia spp.	*Gilia diegensis*	*Penstemon clevelandii*
Ceanothus leucodermis	*Hypochaeris glabra*	*Phacelia distans*
Ceanothus perplexans	*Lasthenia californica*	*Plagibothryus sp.*
Cercocarpus betuloides	*Layia glandulosa*	*Platystemon californicus*
Chamyesecea sp.	*Leptosiphon lemmonii*	*Salvia columbariae*
Cryptantha sp.	*Linanthus sp.*	*Uropappus lindleyi*
Descurainia pinnata	*Lomatium lucidum*	*Yucca schidigera*
Dichelostemma capitatum	*Lupinus concinnus*	
Emmenanthe penduliflora	*Malacothrix californica*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-19
Biologist(s)	Erik LaCoste
Survey Area	1
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:00:00	70	71	10	4	clear	
End	14:45:00	84	86	10	6	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (45)	dainty sulphur (8)	Reakirt's blue (1)
Blue sp. (1+)	desert pearly marble (10)	sleepy orange (2)
bramble hairstreak (1)	orange sulphur (4)	white checkered-skipper (1)
checkered white (2)	Pacific sara orangetip (8)	
common sootywing (2)	painted lady (8)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Sulfur sp. (1+)		

INCIDENTAL PLANT LIST		
Amsinckia menziesii	*Erodium cicutarium*	*Penstemon clevelandii*
Camissonia strigulosa	*Gilia diegensis*	*Phacelia cicutaria*
Ceanothus leucodermis	*Lasthenia glabrata*	*Phacelia parryi*
Delphinium parishii	*Leptosiphon lemmonii*	*Plagiobothrys sp.*
Dichelostemma capitatum	*Lupinus concinnus*	*Salvia columbariae*
Eriophyllum wallacei	*Oenothera californica*	***Linanthus bellus***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-24
Biologist(s)	Diana Saucedo, Erik LaCoste
Survey Area	1
Survey Pass	7

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	11:15:00	80	84	0	6	clear	
End	14:45:00	84	85	0	6	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (3)	Edward's blue (3)	orange sulphur (4)
Behr's metalmark (104)	funereal duskywing (7)	Pacific sara orangetip (27)
dainty sulphur (3)	great purple hairstreak (1)	painted lady (22)
desert pearly marble (11)	Harford's sulphur (3)	pale swallowtail (2)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Checkered white Skipper (1)		

INCIDENTAL PLANT LIST		
Ceanothus leucodermis	*Ericameria sp*	*Phacelia*
Ceanothus perplexans	*Erodium cicutarium*	*Plagiobotrys sp*
Chaenactis sp	*Lasthenia gracilis*	*Salvia columbariae*
Cryptantha micrantha	*Layia platyglossa*	*Tropidocarpum gracile*
Delphinium	*Lupinus concinnus*	***Linanthus bellus***
Descurainia pinnata	*Malacothrix glabrata*	
Descurainia sophia	*Pectocarya recurvata*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-05-10
Biologist(s)	Antonette Gutierrez
Survey Area	1
Survey Pass	9null

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:45:00	61	70	100	0	overcast	not overcast just clouds
End	17:45:00	60	62	40	6		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	funereal duskywing (1+)	painted lady (1+)
checkered white (1+)	gray hairstreak (1+)	
Edward's blue (1+)	Pacific sara orangetip (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Acmispon strigosus	*Descurainia pinnata ssp. brachycarpa*	*Lupinus concinnus*
Adenostoma fasciculatum	*Dichelostemma capitatum ssp. capitatum*	*Oenothera californica ssp. avita*
Anisocoma acaulis	*Emmenanthe penduliflora*	*Phacelia cicutaria var. hispida*
Astragulas sp	*Ephedra californica*	*plagiobothrys sp*
Camissonia sp	*Eriastrum eremicum*	*Rhus aromatica*
Ceanothus leucodermis	*Ericameria linearifolia*	*Rhus ovata*
Chaenactis fremontii	*Eriodictyon crassifolium var. nigrescens*	*Salvia columbariae*
Chaenactis glabriuscula	*Eriogonum fasciculatum var. foliolosum*	*Solanum parishii*
Chorizanthe fimbriata	*Eriophyllum wallacei*	***Geraea viscida***

INCIDENTAL PLANT LIST		
Collinsia concolor	*Erodium cicutarium*	***Linanthus bellus***
cryptantha sp	*Lasthenia glabrata*	
Delphinium parishii ssp. parishii	*Leptosiphon lemmonii*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-16
Biologist(s)	Andrew Borcher
Survey Area	2
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:01:00	56	56	0	5		Pass 1
End	16:01:00	64	0	0	14	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
painted lady (1+)	Sara's orangetip (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Cactus wren (1+)	Turkey vulture (1+)	Western scrub jay (1+)

INCIDENTAL PLANT LIST		
Cryptantha sp.	*Erodium cicutarium*	*Lomatium dasycarpum*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-19
Biologist(s)	Andrew Borcher
Survey Area	2
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:30:00	69	65	10	1	clear	Pass 2
End	16:32:00	72	0	10	3	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Painted Lady (1+)	Sara's orangetip (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Black-throated sparrow (1+)	Dainty sulfur (1+)	Perplexing hairstreak (1+)
California tortoiseshell (1+)	Gilberts skink (1+)	

INCIDENTAL PLANT LIST		
Cammosonia sp.	*Descuriana sp*	*Lomatium*
Chryptantha sp	*Erodium cicutarium*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-29
Biologist(s)	Diana Saucedo, Erik Lacoste, Lindsay Willrick
Survey Area	2
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:45:00	67	0	0	3	clear	
End	12:00:00	70	0	0	3	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Becker's white (3)	common sootywing (24)	painted lady (74)
Behr's metalmark (2)	desert orangetip (5)	pale swallowtail (1)
blue-gray gnatcatcher (1+)	desert pearly marble (10)	spring white (3)
bramble hairstreak (3)	funereal duskywing (7)	west coast lady (3)
California patch (2)	orange skipperling (1)	
California tortoiseshell (23)	Pacific sara orangetip (7)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
oak titmouse (1+)	common raven (1+)	Sulfur sp. (1+)
barn swallow (1+)	coyote (1+)	turkey vulture (1+)
cactus wren (1+)	Nashville warbler (1+)	white-crowned sparrow (1+)
California quail (1+)	red-tailed hawk (1+)	wrentit (1+)
California scrub-jay (1+)	rock wren (1+)	
California thrasher (1+)	spotted towhee (1+)	

INCIDENTAL PLANT LIST		
Caulanthus heterophyllus	*Lasthenia californica*	*Platystemon californicus*
Descurainia sophia	*Leptosyne californica*	*Ribes quercetorum*
Eriophyllum wallacei	*Lomatium dasycarpum*	*Salvia columbariae*
Erodium cicutarium	*Nama demissa*	***Linanthus bellus***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-25
Biologist(s)	Lindsay Willrick
Survey Area	2
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:15:00	63	0	0	2	clear	
End	11:45:00	67	0	0	2	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
California patch (2)	painted lady (3)	
desert orangetip (2)	white checkered-skipper (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
California scrub-jay (1+)	common raven (1+)	white-crowned sparrow (1+)
California thrasher (1+)	cougar (1+)	

INCIDENTAL PLANT LIST		
Erodium cicutarium	*Lomatium dasycarpum*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-10
Biologist(s)	Callie Amoaku
Survey Area	2
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	15:01:00	72	78	0	2	clear	
End	16:45:00	66	72	0	4	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (12)	painted lady (16)	
desert pearly marble (8)	Propertius duskywing (2)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
spotted towhee (1+)	white-crowned sparrow (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-09
Biologist(s)	Callie Amoaku, Erik LaCoste, Patricia Schuyler
Survey Area	2
Survey Pass	5

SURVEY CONDITIONS

Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:00:00	62	62	30	12	patchy	
Mid	10:43:00	72	71	10	14	patchy	
End	11:30:00	72	76	20	21	patchy	Called off early due to heavy winds.

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (27)	checkered white (1)	orange sulphur (1)
Blue sp. (1+)	common sootywing (3)	Pacific sara orangetip (3)
bramble hairstreak (1)	desert orangetip (3)	painted lady (38)
cabbage white (1)	desert pearly marble (5)	Propertius duskywing (1)
California tortoiseshell (3)	funereal duskywing (3)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Boechera pulchra	*Gilia diegensis*	*Plagiobothrys sp*
Descurainia pinnata	*Lasthenia sp.*	*Salvia columbariae*
Erodium sp.	*Lomatium dasycarpum*	***Linanthus bellus***
Gilia angelensis	*Lupinus concinnus*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-13
Biologist(s)	Diana Saucedo, Lindsay Willrick
Survey Area	2
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:30:00	64	61	0	4	clear	
End	13:00:00	77	79	0	1	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	common sootywing (4)	Harford's sulphur (5)
bramble hairstreak (1)	desert pearly marble (17)	Pacific sara orangetip (6)
California tortoiseshell (4)	Edward's blue (3)	painted lady (21)
checkered white (4)	funereal duskywing (6)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Cryptantha micrantha	*Gilia sp*	*Lupinus concinnus*
Descurainia pinnata	*Lasthenia gracilis*	*Salvia columbariae*
Descurainia sophia	*Layia platyglossa*	***Linanthus bellus***
Erodium cicutarium	*Leptosyne californica*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-13
Biologist(s)	Diana Saucedo, Lindsay Willrick
Survey Area	2
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:30:00	64	61	0	4	clear	
End	13:00:00	77	79	0	1	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	common sootywing (4)	Harford's sulphur (5)
bramble hairstreak (1)	desert pearly marble (17)	Pacific sara orangetip (6)
California tortoiseshell (4)	Edward's blue (3)	painted lady (21)
checkered white (4)	funereal duskywing (6)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Cryptantha micrantha	*Gilia sp*	*Lupinus concinnus*
Descurainia pinnata	*Lasthenia gracilis*	*Salvia columbariae*
Descurainia sophia	*Layia platyglossa*	***Linanthus bellus***
Erodium cicutarium	*Leptosyne californica*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-19
Biologist(s)	Diana Saucedo, Lindsay Willrick
Survey Area	2
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:00:00	71	0	0	3	clear	
End	12:00:00	85	0	10	3	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Becker's white (2)	common sootywing (4)	Pacific sara orangetip (11)
Behr's metalmark (95)	dainty sulphur (10)	painted lady (23)
blue-gray gnatcatcher (1+)	desert pearly marble (5)	
checkered white (12)	orange sulphur (11)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
acorn woodpecker (1+)	common raven (1+)	northern flicker (1+)
ash-throated flycatcher (1+)	dark-eyed junco (1+)	orange-crowned warbler (1+)
Bewick's wren (1+)	desert cottontail (1+)	red-tailed hawk (1+)
black-throated sparrow (1+)	European starling (1+)	spotted towhee (1+)
California ground squirrel (1+)	granite spiny lizard (1+)	Steller's jay (1+)
California quail (1+)	greater roadrunner (1+)	warbling vireo (1+)
California scrub-jay (1+)	Hammond's flycatcher (1+)	western fence lizard (1+)
California towhee (1+)	ladder-backed woodpecker (1+)	wild turkey (1+)
chipping sparrow (1+)	mourning dove (1+)	wrentit (1+)
common poorwill (1+)	Nashville warbler (1+)	

INCIDENTAL PLANT LIST		
Ceanothus palmeri	*Eriophyllum wallacei*	*Sisymbrium altissimum*
Cryptantha micrantha	*Layia platyglossa*	***Caulanthus simulans***

INCIDENTAL PLANT LIST		
Descurainia pinnata	*Leptosiphon lemmonii*	***Geraea viscida***
Descurainia sophia	*Platystemon californicus*	***Linanthus bellus***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-24
Biologist(s)	Diana Saucedo, Erik LaCoste
Survey Area	2
Survey Pass	7

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:00:00	75	75	0	2	clear	
End	11:15:00	80	84	0	6	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (4)	Edward's blue (1)	Pacific sara orangetip (13)
Behr's metalmark (66)	funereal duskywing (2)	painted lady (18)
checkered white (8)	gray hairstreak (1)	pale swallowtail (3)
dainty sulphur (5)	Harford's sulphur (3)	
desert pearly marble (6)	orange sulphur (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Ceanothus leucodermis	*Ericameria sp*	*Phacelia*
Ceanothus perplexans	*Erodium cicutarium*	*Plagiobotrys sp*
Chaenactis sp	*Lasthenia gracilis*	*Salvia columbariae*
Cryptantha micrantha	*Layia platyglossa*	*Tropidocarpum gracile*
Delphinium	*Lupinus concinnus*	***Linanthus bellus***
Descurainia pinnata	*Malacothrix glabrata*	
Descurainia sophia	*Pectocarya recurvata*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-24
Biologist(s)	Diana Saucedo, Erik LaCoste
Survey Area	1
Survey Pass	7

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:00:00	75	75	0	2	clear	
End	11:15:00	80	84	0	6	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (4)	Edward's blue (1)	Pacific sara orangetip (13)
Behr's metalmark (66)	funereal duskywing (2)	painted lady (18)
checkered white (8)	gray hairstreak (1)	pale swallowtail (3)
dainty sulphur (5)	Harford's sulphur (3)	
desert pearly marble (6)	orange sulphur (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Ceanothus leucodermis	*Ericameria sp*	*Phacelia*
Ceanothus perplexans	*Erodium cicutarium*	*Plagiobotrys sp*
Chaenactis sp	*Lasthenia gracilis*	*Salvia columbariae*
Cryptantha micrantha	*Layia platyglossa*	*Tropidocarpum gracile*
Delphinium	*Lupinus concinnus*	***Linanthus bellus***
Descurainia pinnata	*Malacothrix glabrata*	
Descurainia sophia	*Pectocarya recurvata*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-05-09
Biologist(s)	Lindsay Willrick
Survey Area	2
Survey Pass	9

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:45:00	70	0	70	13	clear	
End	17:15:00	72	0	50	6	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
San Diegan tiger whiptail (1+)	Bernardino square-spotted blue (1)	gray hairstreak (2)
Acmon blue (3)	checkered white (13)	Harford's sulphur (14)
Becker's white (2)	dainty sulphur (2)	painted lady (4)
Behr's metalmark (35)	Edward's blue (7)	western bluebird (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Costa's hummingbird (1+)	California thrasher (1+)	mourning dove (1+)
oak titmouse (1+)	chipping sparrow (1+)	northern flicker (1+)
yellow warbler (1+)	common side-blotched lizard (1+)	red-tailed hawk (1+)
acorn woodpecker (1+)	cougar (1+)	Say's phoebe (1+)
ash-throated flycatcher (1+)	coyote (1+)	Scott's oriole (1+)
black-chinned hummingbird (1+)	desert cottontail (1+)	spotted towhee (1+)
black-throated sparrow (1+)	granite spiny lizard (1+)	turkey vulture (1+)
bushtit (1+)	ladder-backed woodpecker (1+)	western wood-pewee (1+)
California quail (1+)	long-nosed leopard lizard (1+)	white-throated swift (1+)
California scrub-jay (1+)	Mountain Quail (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
Acmispon strigosus	*Eriophyllum wallacei*	*Navar.etia hamata*
Astragalus didymocarpus	*Erodium cicutarium*	*Pectocarya linearis*

INCIDENTAL PLANT LIST		
Chorizanthe fimbriata	*Euphorbia albomarginata*	*Pectocarya setosa*
Cryptantha micrantha	*Heliotropium curassavicum*	*Salvia columbariae*
Dichelostemma capitatum	*Lasthenia gracilis*	*Sisymbrium altissimum*
Ericameria pinifolia	*Leptosiphon lemmonii*	***Geraea viscida***
Eriogonum fasciculatum	*Lupinus bicolor*	***Linanthus bellus***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-17
Biologist(s)	Garrett Huffman
Survey Area	3
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:00:00	61	64	10	8	clear	
End	16:00:00	73	75	10	10	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
California tortoiseshell (5)	funereal duskywing (3)	painted lady (350)
checkered white (2)	orange sulphur (1)	
dainty sulphur (2)	Pacific sara orangetip (50)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Camissoniopsis pallida	*Erodium ssp./em>*	*Ribes quercetorum*
Cercocarpus betuloides	*Plagiobothrys spp*	*Ziziphus parryi*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-22
Biologist(s)	Callie Amoaku, Patricia Schuyler
Survey Area	3
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:22:00	56.3	60.1	10	1	clear	
End	14:30:00	68	70	20	2		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (7)	California tortoiseshell (61)	Pacific sara orangetip (53)
bramble hairstreak (4)	dainty sulphur (16)	painted lady (94)
brown elfin (1)	desert pearly marble (5)	western pygmy-blue (2)
California dogface (2)	monarch (3)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
common raven (1+)	spotted towhee (1+)	white-crowned sparrow (1+)
dark-eyed junco (1+)	western fence lizard (1+)	White-lined sphyx moth (1)

INCIDENTAL PLANT LIST		
Amsinckia menziesii	*Descurainia pinnata*	*Plagiobothrys sp*
Boechera californica	*Erodium cicutarium*	***Caulanthus simulans***
Camissoniopsis pallida	*Lasthenia gracilis*	
Cryptantha sp	*Lomatium dasycarpum*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-29
Biologist(s)	Diana Saucedo, Erik LaCoste, Lindsay Willrick
Survey Area	3
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	14:20:00	72	74	10	4	clear	High haze
End	16:40:00	67	70	10	4	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Becker's white (6)	dainty sulphur (2)	Pacific sara orangetip (13)
Behr's metalmark (1+)	desert orangetip (9)	painted lady (120)
California tortoiseshell (11)	desert pearly marble (30)	
checkered white (3)	funereal duskywing (6)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Common sootywing (11)		

INCIDENTAL PLANT LIST		
Boechera sp	*Descurainia sophia*	*Prunus ilicifolia*
Ceanothus perplexans	*Eriophyllum wallacei*	*Viola spp*
Coreopsis tinctoria	*Phacelia campanularia*	***Caulanthus simulans***
Descurainia pinnata	*Platystemon californicus*	***Linanthus bellus***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-29
Biologist(s)	Diana Saucedo, Erik LaCoste, Lindsay Willrick
Survey Area	3
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	14:20:00	72	74	10	4	clear	High haze
End	16:40:00	67	70	10	4	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Becker's white (5)	dainty sulphur (1)	Pacific sara orangetip (6)
Behr's metalmark (1+)	desert orangetip (4)	painted lady (85)
California tortoiseshell (6)	desert pearly marble (28)	
checkered white (1)	funereal duskywing (6)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Common sootywing (6)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-10
Biologist(s)	Jeffrey Priest
Survey Area	3
Survey Pass	6

SURVEY CONDITIONS

Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:00:00	60	65	0	5	clear	
Mid day	12:48:00	68	70	0	5	clear	
End	15:46:00	72	72	0	5	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (12)	Pacific sara orangetip (12)	tiger whiptail (1+)
checkered white (18)	painted lady (12)	western pygmy-blue (2)
funereal duskywing (11)	spring white (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
acorn woodpecker (1+)	coyote (1+)	northern flicker (1+)
Bewick's wren (1+)	granite spiny lizard (1+)	red-tailed hawk (1+)
brush rabbit (1+)	greater roadrunner (1+)	spotted towhee (1+)
California quail (1+)	house finch (1+)	turkey vulture (1+)
California scrub-jay (1+)	K-rat sp. (tail-drags/prints sign) (1+)	white-crowned sparrow (1+)
California thrasher (1+)	lesser goldfinch (1+)	wrentit (1+)
common raven (1+)	mourning dove (1+)	
common side-blotched lizard (1+)	mule deer (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-14
Biologist(s)	Antonette Gutierrez, Victor Novik
Survey Area	3
Survey Pass	6null

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	14:00:00	80	80	40	12	patchy	
End	17:40:00	72	72	20	0	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1)	Edward's blue (1)	painted lady (1)
brown elfin (1)	great purple hairstreak (1+)	spring white (1)
checkered white (1)	Pacific sara orangetip (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Acmispon strigosus	*Ericameria brachylepis*	*Malacothrix californica*
Amsinckia intermedia	*Erodium cicutarium*	*Oenothera californica*
Anisocoma acaulis	*Gilia diegensis*	*Pectocarya peninsularis*
Castilleja subinclusa ssp. subinclusa	*Lasthenia glabrata*	*Phacelia distans*
Ceanothus perplexans	*Leptosiphon lemmonii*	*Plagiobothrys bracteatus*
Descurainia pinnata	*Logfia filaginoides*	*Platystemon californicus*
Emmenanthe penduliflora	*Lupinus concinnus*	*Sisymbrium irio*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-19
Biologist(s)	Diana Saucedo, Lindsay Willrick
Survey Area	3
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	12:00:00	85	87	10	3	clear	
End	15:30:00	84	86.5	0	11	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Becker's white (3)	desert pearly marble (9)	painted lady (23)
Behr's metalmark (50)	Edward's blue (2)	pale swallowtail (2)
bramble hairstreak (1)	funereal duskywing (11)	queen (1)
checkered white (10)	orange sulphur (3)	
dainty sulphur (12)	Pacific sara orangetip (4)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Boechera californica	*Erodium cicutarium*	*Platystemon californicus*
Camissoniopsis bistorta	*Lasthenia gracilis*	*Salvia columbariae*
Ceanothus leucodermis	*Layia platyglossa*	*Tropidocarpum gracile*
Cryptantha micrantha	*Lomatium dasycarpum*	***Geraea viscida***
Descurainia pinnata	*Lupinus concinnus*	***Linanthus bellus***
Descurainia sophia	*Malacothrix glabrata*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-25
Biologist(s)	Callie Amoaku, Erin Bergman, Patricia Schuyler
Survey Area	3
Survey Pass	7

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:14:00	68	70	10	2	clear	
Temp check	13:31:00	91	96	0	3	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (10)	Edward's blue (5)	Pacific sara orangetip (29)
Behr's metalmark (188)	Lady species (1+)	painted lady (22)
dainty sulphur (16)	orange sulphur (7)	pale swallowtail (9)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
California towhee (1+)		

INCIDENTAL PLANT LIST		
Acmispon strigosus	*Ericameria linearifolia*	*Leptosiphon lemmonii*
Anisocoma acaulis	*Eriophyllum wallacei*	*Leptosiphon parviflorus*
Calyptridium monandrum	*Erodium cicutarium*	*Nama demissa*
Castilleja foliolosa	*Galium andrewsii*	*Nama demissa var. demissa*
Ceanothus leucodermis	*Gilia angelensis*	*Pectocarya setosa*
Chaenactis glabriuscula	*Gilia capitata*	*Platystemon californicus*
Collinsia concolor	*Gilia diegensis*	*Salvia columbariae*
Cryptantha intermedia var. intermedia	*Lasthenia gracilis*	***Geraea viscida***
Cryptantha micrantha	*Layia glandulosa*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-05-06
Biologist(s)	Erin Bergman
Survey Area	3
Survey Pass	10

SURVEY CONDITIONS

Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:03:00	49	53	100	2	overcast	
Temp check	09:11:00	51	55	100	3	overcast	
Temp check	10:09:00	53	64	100	2	overcast	Too cold too cloudy
End	10:55:00	52	66	100	4	drizzle	Start to rain — headed back to office

BUTTERFLY LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-05-03
Biologist(s)	Diana Saucedo, Erik LaCoste, Lindsay Willrick
Survey Area	3
Survey Pass	9

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:00:00	65	65	0	4	clear	
End	14:30:00	78	84	0	9	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (70)	gray hairstreak (1)	painted lady (4)
checkered white (23)	marine blue (5)	pale swallowtail (1)
dainty sulphur (12)	orange sulphur (3)	Propertius duskywing (1)
funereal duskywing (2)	Pacific sara orangetip (17)	western tailed-blue (1)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Amsinckia menziesii	*Erodium cicutarium*	*Penstemon clevelandii*
Anisocoma acaulis	*Eulobus californicus*	*Plagiobothrys sp.*
Antirrhinum coulterianum	*Gilia capitata*	*Platystemon californicus*
Delphinium parishii	*Lasthenia glabrata*	*Salvia columbariae*
Descurainia sophia	*Layia glandulosa*	*Senecio californicus*
Dichelostemma capitatum	*Leptosiphon lemmonii*	*Uropappus lindleyi*
Ericameria linearifolia	*Oenothera californica*	***Geraea viscida***
Eriodictyon trichocalyx	*Penstemon centranthifolius*	***Linanthus bellus***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-05-10
Biologist(s)	Diana Saucedo
Survey Area	3
Survey Pass	9

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	11:00:00	70	75	70	13	overcast	Clouds breaking
Mid survey check	13:30:00	70	74	50	8	patchy	
End	17:45:00	68	71.4	40	6	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (14)	gray hairstreak (2)	painted lady (7)
checkered white (17)	marine blue (1)	Propertius duskywing (1)
Edward's blue (1)	orange sulphur (1)	
funereal duskywing (1)	Pacific sara orangetip (2)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Antirrhinum coulterianum	*Ericameria pinifolia*	*Layia glandulosa*
Chaenactis sp	*Eriodyction sp*	*Leptosiphon lemmonii*
Collinsia heterophylla	*Eriophyllum confertiflorum var. confertiflorum*	*Leptosiphon parviflorus*
Cryptantha micrantha	*Eriophyllum wallacei*	*Lupinus concinnus*
Cryptantha sp	*Gilia angelensis*	*Malacothrix glabrata*
Descurainia pinnata	*Lasthenia gracilis*	*Solanum parishii*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-16
Biologist(s)	Victor Novik
Survey Area	4
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:00:00	58	60	0	17	clear	Gusts to 18
End	11:15:00	59	61	0	12	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
painted lady (427)	Saras orangetip (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Arctostaphylus sp.	*Descurainia pinnata*	*Plagiobothrys sp.*
Cryptantha sp.	*Erodium cicutarium*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-15
Biologist(s)	Victor Novik
Survey Area	4
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	11:15:00	57	60	40	14		
End	17:00:00	57	60	30	8		

BUTTERFLY LIST *SPECIES (COUNT)*		
desert orangetip (1)	painted lady (99)	Sara's orangetip (11)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Arctostaphylos sp.	*Lasthenia californica*	*Tauschia arguta*
Descurainia pinnata	*Plagiobothrys sp.*	
Erodium cicutarium	*Senecio californicus*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-24
Biologist(s)	Diana Saucedo, Victor Novik
Survey Area	4
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:00:00	60	62	0	4	clear	
End	13:00:00	67	72	30	4	patchy	High haze

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1)	dainty sulphur (2)	painted lady (102)
bramble hairstreak (1)	desert orangetip (8)	Sara orange-tip (15)
brown elfin (1)	funereal duskywing (3)	spring white (10)
checkered white (3)	Harford's sulphur (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Amsinckia menziesii	*Erodium cicutarium*	*Sisymbrium irio*
Arctostaphylos spp	*Lasthenia californica*	*Tropidocarpum gracile*
Camissoniopsis bistorta	*Lomatium dasycarpum*	
Cryptantha spp	*Ribes quercetorum*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-24
Biologist(s)	Diana Saucedo, Victor Novik
Survey Area	4
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:15:00	60	60	0	7	clear	
End	13:00:00	69	72	30	4	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
bramble hairstreak (1)	Pacific sara orangetip (18)	Spring white (8)
dainty sulphur (4)	painted lady (500)	Unidentified sulphur (1)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
White butterfly unidentified (5)		

INCIDENTAL PLANT LIST		
Arabis sp.	*Descurainia pinnata*	*Ribes quercetorum*
Camisonia sp.	*Erodium cicutarium*	*Sanicula arguta*
Ceanothus greggi	*Lasthenia californica*	*Senicio sp.*
Cryptantha sp.	*Plagiobothryus sp.*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-30
Biologist(s)	Antonette Gutierrez, Victor Novik
Survey Area	4
Survey Pass	3null

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:15:00	62	60	0	5	clear	
End	13:10:00	70	70	0	6	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	dainty sulphur (1+)	west coast lady (1+)
blue-gray gnatcatcher (1+)	desert pearly marble (1+)	western bluebird (1+)
bramble hairstreak (1+)	Pacific sara orangetip (1+)	white sp (1+)
brown elfin (1+)	painted lady (1+)	
checkered white (1+)	Propertius duskywing (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
black-chinned sparrow (1+)	California towhee (1+)	southern Pacific rattlesnake (1+)
Bewick's wren (1+)	common raven (1+)	spotted towhee (1+)
California ground squirrel (1+)	desert cottontail (1+)	vanessa sp (1+)
California quail (1+)	greater roadrunner (1+)	wrentit (1+)
California scrub-jay (1+)	ladder-backed woodpecker (1+)	
California thrasher (1+)	mule deer (1+)	

INCIDENTAL PLANT LIST		
Amsinckia intermedia	*Gilia diegensis*	*Platystemon californicus*
Boechera arcuata	*Hypochaeris glabra*	*Salvia columbariae*
Camissoniopsis micrantha	*Lasthenia glaberrima*	*Sanicula arguta*
Ericameria linearifolia	*Leptosyne californica*	*Tauschia arguta*
Erodium cicutarium	*Lomatium dasycarpum*	*Yucca schidigera*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-08
Biologist(s)	Diana Saucedo, Erik LaCoste
Survey Area	4
Survey Pass	4, Round 4 make up day

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	12:00:00	82	83	20	4	patchy	
End	15:20:00	89	91	20	4	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Becker's white (1)	checkered white (15)	marine blue (1)
Behr's metalmark (63)	dainty sulphur (1)	orange sulphur (4)
bramble hairstreak (4)	desert pearly marble (9)	Pacific sara orangetip (12)
California tortoiseshell (7)	funereal duskywing (2)	painted lady (20)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Sootywing (2)		

INCIDENTAL PLANT LIST		
Acmispon strigosus	*Eriophyllum wallacei*	*Lupinus concinnus*
Amsinckia menziesii	*Gilia angelensis*	*Malacothrix californica*
Boechera pulchra	*Gilia diegensis*	*Mentzelia veatchiana*
Ceanothus perplexans	*Lasthenia gracilis*	*Plagiobothrys sp.*
Descurainia pinnata	*Layia glandulosa*	***Linanthus bellus***
Descurainia sophia	*Leptosyne californica*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-05
Biologist(s)	Diana Saucedo, Lindsay Willrick
Survey Area	4
Survey Pass	4

SURVEY CONDITIONS

Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	11:30:00	64	0	90	11	overcast	
End	12:00:00	63	0	90	10	drizzle	

BUTTERFLY LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-13
Biologist(s)	Diana Saucedo, Lindsay Willrick
Survey Area	3
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	13:00:00	77	79	0	1	clear	
End	16:35:00	74	77	0	1	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (40)	common sootywing (1)	funereal duskywing (2)
bramble hairstreak (1)	dainty sulphur (2)	Harford's sulphur (1)
California tortoiseshell (1)	desert pearly marble (13)	Pacific sara orangetip (3)
checkered white (1)	Edward's blue (3)	painted lady (24)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Gre (1+)		

INCIDENTAL PLANT LIST		
Cryptantha micrantha	*Gilia sp*	*Lupinus concinnus*
Descurainia pinnata	*Lasthenia gracilis*	*Salvia columbariae*
Descurainia sophia	*Layia platyglossa*	***Linanthus bellus***
Erodium cicutarium	*Leptosyne californica*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-13
Biologist(s)	Diana Saucedo, Lindsay Willrick
Survey Area	3
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	13:00:00	77	79	0	1	clear	
End	16:35:00	74	77	0	1	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (40)	common sootywing (1)	funereal duskywing (2)
bramble hairstreak (1)	dainty sulphur (2)	Harford's sulphur (1)
California tortoiseshell (1)	desert pearly marble (13)	Pacific sara orangetip (3)
checkered white (1)	Edward's blue (3)	painted lady (24)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Gre (1+)		

INCIDENTAL PLANT LIST		
Cryptantha micrantha	*Gilia sp*	*Lupinus concinnus*
Descurainia pinnata	*Lasthenia gracilis*	*Salvia columbariae*
Descurainia sophia	*Layia platyglossa*	***Linanthus bellus***
Erodium cicutarium	*Leptosyne californica*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-19
Biologist(s)	Antonette Gutierrez
Survey Area	4
Survey Pass	6null

SURVEY CONDITIONS

Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:00:00	68	70	10	0	clear	
End	16:00:00	89	81	10	8	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1)	great purple hairstreak (1)	unidentified blue sp (1)
checkered white (1)	orange sulphur (1)	unidentified sulphur sp (1)
dainty sulphur (1)	Pacific sara orangetip (1)	unidentified white sp (1)
desert pearly marble (1)	painted lady (1)	west coast lady (1)
Edward's blue (1)	Propertius duskywing (1)	
funereal duskywing (1)	queen (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
unidentified Vanessa sp (1)		

INCIDENTAL PLANT LIST		
Achillea millefolium	*Dichelostemma capitatum*	*Phacelia cicutaria*
Amsinckia intermedia	*Emmenanthe penduliflora*	*Phacelia distans*
Anisocoma acaulis	*Ericameria linearifolia*	*Plagiobothrys sp*
Boechera arcuata	*Eriophyllum wallacei*	*Platystemon californicus*
Camissonia sp	*Erodium cicutarium*	*Salvia columbariae*
Castilleja subinclusa ssp. subinclusa	*Gilia diegensis*	*Yucca schidigera*
Ceanothus leucodermis	*Lasthenia glabrata*	***Linanthus bellus***
cryptantha sp	*Leptosiphon lemmonii*	

INCIDENTAL PLANT LIST		
Descurainia pinnata ssp. glabra	*Lupinus concinnus*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-19
Biologist(s)	Antonette Gutierrez
Survey Area	4
Survey Pass	6null

SURVEY CONDITIONS

Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:00:00	70	68	10	0	clear	
End	16:00:00	89	81	10	8	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	Edward's blue (1+)	queen (1+)
blue sp (1+)	funereal duskywing (1+)	sulphur sp (1+)
checkered white (1+)	great purple hairstreak (1+)	west coast lady (1+)
common sootywing (1+)	orange sulphur (1+)	white sp. (1+)
dainty sulphur (1+)	Pacific sara orangetip (1+)	
desert pearly marble (1+)	painted lady (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Vanessa sp. (1+)		

INCIDENTAL PLANT LIST		
Acmispon strigosus	*Ericameria linearifolia*	*Lupinus concinnus*
Amsinckia menziesii	*Eriophyllum wallacei*	*Mimulus palmeri*
Anisocoma acaulis	*Erodium cicutarium*	*Phacelia distans*
Boechera californica	*Gilia diegensis*	*Platystemon californicus*
Castilleja subinclusa ssp. subinclusa	*Lasthenia glabrata*	*Salvia columbariae*
Ceanothus perplexans	*Layia glandulosa*	*Yucca schidigera*
Descurainia pinnata ssp. brachycarpa	*Leptosyne californica*	***Linanthus bellus***
Dichelostemma capitatum	*Lomatium dasycarpum*	

INCIDENTAL PLANT LIST		
Emmenanthe penduliflora	*Lomatium mohavense*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-24
Biologist(s)	Lindsay Willrick
Survey Area	4
Survey Pass	7

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	67	0	0	1	clear	
Midday	11:30:00	73	0		5	clear	
End	15:30:00	84	0	0	8	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
San Diegan tiger whiptail (1+)	dainty sulphur (18)	Harford's sulphur (3)
Behr's metalmark (75)	desert pearly marble (12)	orange sulphur (1)
blue-gray gnatcatcher (1+)	Edward's blue (12)	Pacific sara orangetip (4)
checkered white (27)	gray hairstreak (2)	painted lady (17)
common sootywing (8)	great purple hairstreak (1)	western pygmy-blue (2)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Costa's hummingbird (1+)	California thrasher (1+)	granite spiny lizard (1+)
oak titmouse (1+)	California towhee (1+)	mourning dove (1+)
acorn woodpecker (1+)	chipping sparrow (1+)	northern flicker (1+)
ash-throated flycatcher (1+)	common raven (1+)	red-tailed hawk (1+)
black-throated sparrow (1+)	common side-blotched lizard (1+)	spotted towhee (1+)
bushtit (1+)	coyote (1+)	turkey vulture (1+)
California ground squirrel (1+)	desert cottontail (1+)	western fence lizard (1+)
California quail (1+)	Eurasian collared-dove (1+)	wrentit (1+)
California scrub-jay (1+)	European starling (1+)	

INCIDENTAL PLANT LIST		
Ceanothus perplexans	*Leptosiphon lemmonii*	*Rhus aromatica*

INCIDENTAL PLANT LIST		
Cryptantha micrantha	*Leptosyne californica*	*Salvia columbariae*
Ericameria pinifolia	*Lupinus concinnus*	*Sisymbrium altissimum*
Erodium cicutarium	*Malacothrix glabrata*	***Geraea viscida***
Lasthenia gracilis	*Pectocarya setosa*	***Linanthus bellus***
Layia platyglossa	*Platystemon californicus*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-05-02
Biologist(s)	Diana Saucedo, Erik LaCoste
Survey Area	4
Survey Pass	9

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
End	15:30:00	77	77	40	7	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (63)	funereal duskywing (1)	Pacific sara orangetip (15)
brown elfin (1)	gray hairstreak (1)	painted lady (4)
checkered white (10)	Harford's sulphur (2)	pale swallowtail (1)
dainty sulphur (13)	marine blue (4)	Propertius duskywing (4)
Edward's blue (1)	orange sulphur (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Delphinium parishii	*Erodium cicutarium*	*Mentzelia sp.*
Descurainia pinnata ssp. glabra	*Gilia diegensis*	*Plagiobothrys sp.*
Dichelostemma capitatum	*Lasthenia glabrata*	*Salvia columbariae*
Emmenanthe penduliflora	*Layia glandulosa*	*Senecio californicus*
Ericameria paniculata	*Leptosiphon lemmonii*	***Linanthus bellus***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-05-12
Biologist(s)	Antonette Gutierrez
Survey Area	4
Survey Pass	9null

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:00:00	70	71	20	0	patchy	
End	17:00:00	78	76	30	7	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (1+)	funereal duskywing (1+)	painted lady (1+)
Behr's metalmark (1+)	gray hairstreak (1+)	Propertius duskywing (1+)
checkered white (1+)	marine blue (1+)	unidentified blue sp (1+)
dainty sulphur (1+)	orange sulphur (1+)	unidentified sulphur sp (1+)
Edward's blue (1+)	Pacific sara orangetip (1+)	unidentified white sp (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
unidentified Vanessa sp (1+)		

INCIDENTAL PLANT LIST		
Adenostoma fasciculatum var. obtusifolium	*Dichelostemma capitatum*	*Mentzelia veatchiana*
Anisocoma acaulis	*Emmenanthe penduliflora*	*Monardella nana*
Astragalus sp	*Ericameria linearifolia*	*Orobanche fasciculata*
Camissonia sp	*Eriodictyon trichocalyx*	*Penstemon spectabilis*
Ceanothus leucodermis	*Eriogonum fasciculatum var. foliolosum*	*Plagiobothrys sp.*
Chaenactis fremontii	*Eriophyllum confertiflorum*	*Prunus ilicifolia ssp. ilicifolia*
Chaenactis glabriuscula	*Eriophyllum wallacei*	*Quercus agrifolia*
Chamaesyce sp	*Erodium cicutarium*	*Salvia columbariae*
Chorizanthe fimbriata	*Gilia diegensis*	*Solanum parishii*

INCIDENTAL PLANT LIST		
Collinsia concolor	*Lasthenia glabrata*	*Tauschia arguta*
Cordylanthus rigidus	*Layia glandulosa*	*Yucca schidigera*
Cryptantha sp	*Leptosiphon lemmonii*	***Geraea viscida***
Delphinium parishii	*Leptosyne californica*	***Linanthus bellus***
Descurainia pinnata ssp. glabra	*Lupinus concinnus*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-17
Biologist(s)	Diana Saucedo, Victor Novik
Survey Area	5
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:30:00	62	60	0	9	clear	
End	13:45:00	67	68	0	14	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
brown elfin (1)	funereal duskywing (3)	spring white (1)
dainty sulphur (2)	Pacific sara orangetip (10)	
desert orangetip (5)	painted lady (100)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Camissoniopsis bistorta	*Pentachaeta aurea*	*Tropidocarpum gracile*
Erodium cicutarium	*Sanicula sp*	
Lasthenia gracilis	*Sisymbrium irio*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-17
Biologist(s)	Diana Saucedo, Victor Novik
Survey Area	5
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:30:00	62	60	0	9	clear	
End	13:45:00	67	68	0	14	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
brown elfin (1)	funereal duskywing (3)	spring white (1)
dainty sulphur (2)	Pacific sara orangetip (10)	
desert orangetip (5)	painted lady (100)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Camissoniopsis bistorta	*Pentachaeta aurea*	*Tropidocarpum gracile*
Erodium cicutarium	*Sanicula sp*	
Lasthenia gracilis	*Sisymbrium irio*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-17
Biologist(s)	Diana Saucedo, Victor Novik
Survey Area	5
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:30:00	62	60	0	9	clear	
End	13:45:00	67	68	0	14	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
brown elfin (1)	funereal duskywing (3)	spring white (1)
dainty sulphur (2)	Pacific sara orangetip (10)	
desert orangetip (5)	painted lady (4)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-24
Biologist(s)	Diana Saucedo, Victor Novik
Survey Area	5
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	13:00:00	67	72	30	4	patchy	
End	16:30:00	69	72	20	8	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1)	dainty sulphur (3)	painted lady (102)
bramble hairstreak (1)	desert orangetip (9)	Sara orange-tip (15)
brown elfin (1)	funereal duskywing (3)	spring white (9)
checkered white (5)	Harford's sulphur (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Amsinckia menziesii	*Erodium cicutarium*	*Sisymbrium irio*
Arctostaphylos spp	*Lasthenia californica*	*Tropidocarpum gracile*
Camissoniopsis bistorta	*Lomatium dasycarpum*	
Cryptantha spp	*Ribes quercetorum*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-24
Biologist(s)	Diana Saucedo, Victor Novik
Survey Area	5
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	13:00:00	69	72	30	4	clear	High haze
End	16:30:00	67	70	20	8	clear	Light haze

BUTTERFLY LIST *SPECIES (COUNT)*		
California tortoiseshell (1)	funereal duskywing (1)	Unifentified sulphur (1)
checkered white (7)	Pacific sara orangetip (15)	
dainty sulphur (1)	painted lady (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Unidentified white (3)		

INCIDENTAL PLANT LIST		
Arabis sp.	*Descurainia pinnata*	*Nuttalianthus canadensis*
Brassica sp.	*Erodium cicutarium*	*Plagiobothryus sp.*
Camisonia sp.	*Leptosyne californica*	
Cryptantha sp.	*Mimulus fremontii*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-30
Biologist(s)	Antonette Gutierrez, Victor Novik
Survey Area	5
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	13:10:00	70	70	0	12	clear	
End	16:40:00	70	63	0	7	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (10)	funereal duskywing (1)	spring white (20)
California tortoiseshell (4)	Pacific sara orangetip (47)	
checkered white (24)	painted lady (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Amsinckia menziesii	*Gilia sp.*	*Mimulus fremontii*
Arabis sp.	*Hypochaeris glabra*	*Plagiobothryus sp.*
Ceanothus greggi	*Lasthenia californica*	*Prunus fremontii*
Cryptantha sp.	*Layia glandulosa*	*Sisymbrium irio*
Descurainia pinnata	*Leptosyne californica*	*Tauschia arguta*
Erodium cicutarium	*Lomatium sp.*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-04
Biologist(s)	Diana Saucedo, Victor Novik
Survey Area	5
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:37:00	59	60.6	30	6	patchy	
End	15:15:00	62	61	10	10	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Becker's white (5)	desert orangetip (7)	painted lady (28)
Behr's metalmark (27)	desert pearly marble (60)	spring white (2)
California tortoiseshell (14)	funereal duskywing (6)	Unidentified sulphur (1+)
common sootywing (3)	Pacific sara orangetip (17)	white checkered-skipper (1)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Calandrinia menziesii	*Lasthenia gracilis*	*Mimulus fremontii*
Ceanothus perplexans	*Layia glandulosa*	*Plagiobotrys sp*
Crytantha sp	*Leptosyne californica*	*Platystemon californicus*
Descurainia pinnata	*Lomatium dasycarpum ssp. dasycarpum*	*Sisymbrium irio*
Descurainia sophia	*Lupinus hirsutissimus*	*Tropidocarpum gracile*
Erodium cicutarium	*Malacothrix californica*	***Linanthus bellus***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-10
Biologist(s)	Lindsay Willrick, Margie Mullian
Survey Area	5
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:24:00	63	0	0	6		
End	13:02:00	67	0	0	7		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (26)	common sootywing (4)	gray hairstreak (2)
bramble hairstreak (3)	dainty sulphur (2)	painted lady (33)
California tortoiseshell (2)	desert pearly marble (11)	
checkered white (10)	Edward's blue (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Cordylanthus rigidus	*Layia glandulosa*	*Lupinus concinnus*
Descurainia sophia	*Leptosiphon lemmonii*	*Platystemon californicus*
Erodium botrys	*Leptosyne californica*	*Rhus aromatica*
Lasthenia gracilis	*Lomatium dasycarpum ssp. dasycarpum*	***Linanthus bellus***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-21
Biologist(s)	Jeffrey Priest
Survey Area	5
Survey Pass	7

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:00:00	56	66	0	4	clear	
Mid day	12:08:00	68	75	0	8	clear	
End	15:30:00	67	73	0	12	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (20)	orange sulphur (2)	spring white (1)
checkered white (16)	Pacific sara orangetip (11)	western pygmy-blue (3)
desert orangetip (1)	painted lady (10)	
funereal duskywing (2)	queen (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
acorn woodpecker (1+)	California towhee (1+)	mourning dove (1+)
Bewick's wren (1+)	common raven (1+)	mule deer (1+)
black-tailed jackrabbit (1+)	common side-blotched lizard (1+)	Neotoma sp. (middens) (1+)
brush rabbit (1+)	coyote (1+)	northern mockingbird (1+)
bushtit (1+)	granite spiny lizard (1+)	red-tailed hawk (1+)
California ground squirrel (1+)	greater roadrunner (1+)	spotted towhee (1+)
California quail (1+)	hooded oriole (1+)	turkey vulture (1+)
California scrub-jay (1+)	house finch (1+)	white-crowned sparrow (1+)
California thrasher (1+)	Merriam's chipmunk (1+)	yellow-rumped warbler (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-25
Biologist(s)	Erik LaCoste
Survey Area	5
Survey Pass	7

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	07:50:00	67	67	0	2	clear	
End	14:20:00	90	93	0	8	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (54)	funereal duskywing (2)	Pacific sara orangetip (25)
checkered white (8)	gray hairstreak (1)	painted lady (18)
dainty sulphur (6)	marine blue (1)	Propertius duskywing (1)
Edward's blue (1)	orange sulphur (5)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Amsinckia menziesii	*Ericameria linearifolia*	*Lasthenia glabrata*
Collinsia concolor	*Erodium sp.*	*Leptosiphon lemmonii*
Descurainia pinnata	*Eulobus californicus*	*Plagiobothrys sp.*
Dichelostemma capitatum	*Gilia diegensis*	*Salvia columbariae*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-05-02
Biologist(s)	Diana Saucedo, Erik LaCoste
Survey Area	5
Survey Pass	9

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	70	70	90	1	overcast	
End	12:00:00	73	74	60	2	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (70)	funereal duskywing (1)	Pacific sara orangetip (18)
checkered white (16)	gray hairstreak (3)	painted lady (4)
dainty sulphur (1)	marine blue (14)	
Edward's blue (1)	mourning cloak (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Castilleja subinclusa	*Eriophyllum confertiflorum*	*Plagiobothrys sp.*
Ceanothus leucodermis	*Erodium cicutarium*	*Salvia columbariae*
Descurainia pinnata	*Gilia diegensis*	*Uropappus lindleyi*
Dichelostemma capitatum	*Lasthenia gracilis*	***Geraea viscida***
Emmenanthe penduliflora	*Layia glandulosa*	***Linanthus bellus***
Ericameria linearifolia	*Leptosiphon lemmonii*	
Eriodictyon trichocalyx	*Penstemon centranthifolius*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-05-09
Biologist(s)	Antonette Gutierrez, Diana Saucedonull
Survey Area	5
Survey Pass	9null

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	11:15:00	61	63	30	10	patchy	
End	15:30:00	63	74	10	11	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Becker's white (1+)	funereal duskywing (1+)	painted lady (1+)
Behr's metalmark (1+)	gray hairstreak (1+)	Propertius duskywing (1+)
checkered white (1+)	marine blue (1+)	western tailed-blue (1+)
dainty sulphur (1+)	monarch (1+)	
desert pearly marble (1+)	Pacific sara orangetip (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
unidentified Vanessa Species (1+)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-18
Biologist(s)	Erin Bergman
Survey Area	6
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:51:00	70.2	71.5	0	2	clear	
End	16:44:00	77	78	0	3	clear	Really nice day

BUTTERFLY LIST *SPECIES (COUNT)*		
desert orangetip (1)	Harford's sulphur (1)	Pacific sara orangetip (19)
desert pearly marble (6)	Lady species (15)	painted lady (52)
great purple hairstreak (1)	Orangetip species (1+)	west coast lady (3)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
California quail (1+)	chipping sparrow (1+)	European starling (1+)
California scrub-jay (1+)	common raven (1+)	western meadowlark (1+)

INCIDENTAL PLANT LIST		
Amsinckia menziesii	*Lasthenia gracilis*	
Cryptantha micrantha	*Sisymbrium altissimum*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-22
Biologist(s)	Erin Bergman
Survey Area	6
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:41:00	61.4	66.5	0	2	clear	
End	16:50:00	67	70	20	3	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
brown elfin (2)	desert pearly marble (14)	Pacific sara orangetip (21)
California tortoiseshell (12)	gray hairstreak (1)	painted lady (82)
dainty sulphur (3)	Lady species (5)	west coast lady (2)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
oak titmouse (1+)	California quail (1+)	European starling (1+)
San Diego black-tailed jackrabbit (1+)	California scrub-jay (1+)	red-tailed hawk (1+)
acorn woodpecker (1+)	California thrasher (1+)	turkey vulture (1+)
American robin (1+)	common raven (1+)	wild turkey (1+)

INCIDENTAL PLANT LIST		
Amsinckia menziesii	*Erodium cicutarium*	
Descurainia pinnata	*Nemophila menziesii*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-29
Biologist(s)	Callie Amoaku, Erin Bergman, Patricia Schuyler
Survey Area	6
Survey Pass	3

SURVEY CONDITIONS

Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:21:00	60	60	0	2	clear	
End	12:04:00	69	65.7	0	3	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (3)	desert pearly marble (7)	painted lady (96)
blue-gray gnatcatcher (1+)	funereal duskywing (3)	White species (4)
bramble hairstreak (3)	Pacific sara orangetip (6)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
oak titmouse (1+)	common side-blotched lizard (1+)	red-tailed hawk (1+)
American kestrel (1+)	mule deer (1+)	turkey vulture (1+)
California scrub-jay (1+)	northern flicker (1+)	western kingbird (1+)
common raven (1+)	northern mockingbird (1+)	white-crowned sparrow (1+)

INCIDENTAL PLANT LIST		
Acmispon heermannii	*Erodium cicutarium*	*Phacelia distans*
Acmispon strigosus	*Eschscholzia californica*	*Phacelia imbricata*
Amsinckia menziesii	*Lasthenia gracilis*	*Salvia columbariae*
Anisocoma acaulis	*Lomatium dasycarpum*	*Taraxacum officinale*
Calyptridium monandrum	*Lupinus concinnus*	*Tropidocarpum gracile*
Cryptantha micrantha	*Marah macrocarpa*	***Caulanthus simulans***
Descurainia pinnata	*Nemophila menziesii*	***Streptanthus campestris***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-04
Biologist(s)	Callie Amoaku, Patricia Schuyler
Survey Area	6
Survey Pass	4

SURVEY CONDITIONS

Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:40:00	52	60	20	7	clear	
End	13:44:00	61	62.4	0	5	clear	Gusts at 8-12 but not sustained.

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (23)	dainty sulphur (1)	painted lady (41)
blue-gray gnatcatcher (1+)	desert orangetip (1)	Propertius duskywing (2)
bramble hairstreak (4)	desert pearly marble (32)	
cabbage white (2)	funereal duskywing (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
oak titmouse (1+)	California quail (1+)	Nuttall's woodpecker (1+)
acorn woodpecker (1+)	California scrub-jay (1+)	red-tailed hawk (1+)
American kestrel (1+)	California towhee (1+)	turkey vulture (1+)
ash-throated flycatcher (1+)	common raven (1+)	white-breasted nuthatch (1+)
Bewick's wren (1+)	European starling (1+)	
bushtit (1+)	northern mockingbird (1+)	

INCIDENTAL PLANT LIST		
Boechera pulchra	*Ericameria linearifolia*	*Layia glandulosa*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-17
Biologist(s)	Callie Amoaku, Patricia Schuyler
Survey Area	6
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	13:25:00	75	80	0	4		
End	16:29:00	76	79	0	3	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (90)	Edward's blue (1)	painted lady (15)
cabbage white (13)	Gabb's checkerspot (1)	Propertius duskywing (2)
desert orangetip (3)	Harford's sulphur (1)	Sulphur sp (2)
desert pearly marble (11)	Pacific sara orangetip (1)	western pygmy-blue (1)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-22
Biologist(s)	Erin Bergman
Survey Area	6
Survey Pass	7

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:54:00	70	76	30	3	clear	
End	15:57:00	69	72	40	2	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (1)	great purple hairstreak (4)	Pacific sara orangetip (44)
Behr's metalmark (104)	immaculate bramble hairstreak (6)	painted lady (33)
desert pearly marble (17)	Lady species (1+)	southern blue (14)
funereal duskywing (7)	mournful duskywing (1)	west coast lady (10)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
oak titmouse (1+)	chipping sparrow (1+)	red-tailed hawk (1+)
acorn woodpecker (1)	common raven (1+)	western kingbird (1+)
barn owl (1+)	European starling (1+)	western meadowlark (1)
black-tailed jackrabbit (1+)	mourning dove (1+)	western rattlesnake (1+)
California quail (1+)	northern flicker (1+)	
California scrub-jay (1+)	phainopepla (1+)	

INCIDENTAL PLANT LIST		
Amsinckia intermedia	*Eschscholzia californica*	*Malacothrix glabrata*
Arctostaphylos pungens	*Euphorbia albomarginata*	*Oenothera californica ssp. avita*
Boechera pulchra	*Gilia angelensis*	*Pectocarya setosa*
Calyptridium monandrum	*Gilia diegensis*	*Penstemon centranthifolius*
Ceanothus leucodermis	*Lasthenia gracilis*	*Phacelia distans*
Ceanothus perplexans	*Layia glandulosa*	*Plagiobothrys arizonicus*

INCIDENTAL PLANT LIST		
Collinsia concolor	*Leptosiphon floribundus ssp. glaber*	*Salvia columbariae*
Cryptantha intermedia var. intermedia	*Leptosiphon lemmonii*	*Sisymbrium altissimum*
Cryptantha micrantha	*Leptosiphon parviflorus*	*Sisymbrium irio*
Descurainia pinnata	*Lomatium dasycarpum ssp. dasycarpum*	*Uropappus lindleyi*
Ericameria linearifolia	*Lupinus bicolor*	***Linanthus bellus***
Erodium cicutarium	*Lupinus concinnus*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-05-02
Biologist(s)	Erin Bergman
Survey Area	6
Survey Pass	8

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
End	04:11:00	70	75	20	3	patchy	
Start	09:31:00	67	70	40	4	patchy	Sky clear in my area
Temp check	14:38:00	77	84	20	3	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (2)	desert pearly marble (15)	painted lady (21)
Behr's metalmark (174)	Edward's blue (8)	west coast lady (6)
checkered white (5)	gray hairstreak (16)	White species (1+)
common buckeye (2)	Lady species (1+)	
desert orangetip (2)	Pacific sara orangetip (14)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
acorn woodpecker (1+)	common raven (1+)	red-tailed hawk (1+)
California quail (1+)	European starling (1+)	Townsend's warbler (1+)
California scrub-jay (1+)	mourning dove (1+)	warbling vireo (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-05-08
Biologist(s)	Erin Bergman
Survey Area	6
Survey Pass	10

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:45:00	50	59	100	4	overcast	Can't start too cold and too cloudy
End	09:25:00	57	61	100	3	overcast	Too cold and cloudy
End	10:09:00	58	64	100	3	overcast	Too cold too cloudy going to help others in Jacumba

BUTTERFLY LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-05-13
Biologist(s)	Erin Bergman
Survey Area	6
Survey Pass	10

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:01:00	78	75.2	10	3	clear	
Temp check	13:47:00	81	87	60	3	clear	
Temp check	14:37:00	78	86	50	2	clear	
End	17:02:00	91	86	20	3	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (11)	gray hairstreak (7)	painted lady (42)
Behr's metalmark (45)	Harford's sulphur (1)	Sulphur species (1+)
checkered white (22)	Melissa blue (1)	White species (10)
dainty sulphur (11)	orange sulphur (2)	
funereal duskywing (1)	Pacific sara orangetip (11)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
oak titmouse (1+)	common raven (1+)	mule deer (1)
California scrub-jay (1+)	hooded oriole (1+)	red-tailed hawk (1+)
California towhee (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
Anisocoma acaulis	*Eriastrum eremicum ssp. eremicum*	*Lupinus concinnus*
Antirrhinum coulterianum	*Eriodictyon trichocalyx var. lanatum*	*Oenothera californica ssp. avita*
Calycoseris parryi	*Erodium cicutarium*	*Pectocarya setosa*
Calyptridium monandrum	*Eulobus californicus*	*Penstemon centranthifolius*
Castilleja applegatei	*Euphorbia albomarginata*	*Rhus aromatica*

INCIDENTAL PLANT LIST		
Chaenactis glabriuscula	*Lasthenia gracilis*	*Uropappus lindleyi*
Chenopodium californicum	*Layia glandulosa*	***Astragalus douglasii var. perstrictus***
Chorizanthe fimbriata	*Leptosiphon lemmonii*	***Delphinium parishii ssp. subglobosum***
Cryptantha intermedia var. intermedia	*Leptosiphon parviflorus*	***Geraea viscida***
Cryptantha micrantha	*Lupinus bicolor*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-19
Biologist(s)	Antonette Gutierrez, Victor Novik
Survey Area	7
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	12:30:00	72	0	0	2	clear	
End	17:15:00	64	0	10	5	clear	Wind gusts 8-11

BUTTERFLY LIST *SPECIES (COUNT)*		
brown elfin (1)	California tortoiseshell (3)	Pacific sara orangetip (13)
California patch (2)	dainty sulphur (7)	painted lady (9)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Blainville's horned lizard (1+)	California thrasher (1+)	northern flicker (1+)
oak titmouse (1+)	chipping sparrow (1+)	red-tailed hawk (1+)
acorn woodpecker (1+)	common raven (1+)	western meadowlark (1+)
American kestrel (1+)	dark-eyed junco (1)	white-crowned sparrow (1+)
California marble (4)	European starling (1+)	yellow-rumped warbler (1+)
California quail (1+)	granite spiny lizard (1+)	
California scrub-jay (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
Caulanthus heterophyllus	*Erodium cicutarium*	*Lomatium dasycarpum*
Cryptantha intermedia	*Eschscholzia californica*	*Pectocarya linearis*
Descurainia pinnata	*Lasthenia californica*	*Tropidocarpum gracile*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-23
Biologist(s)	Jeffrey Priest
Survey Area	7
Survey Pass	2

SURVEY CONDITIONS

Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:30:00	60	60	0	7	clear	Less than 5% clouds cover.
Hilltop	12:01:00	66	64	0	14	clear	Wind 8-10 with gusts 10-14. Wind higher on hilltop. Clouds less than 10%.
Mid day	13:16:00	68	70	30	10	patchy	
End	16:30:00	64	66	40	14	patchy	Wind 5-12 with gusts 12-14

BUTTERFLY LIST *SPECIES (COUNT)*		
desert orangetip (2)	Lady sp. butterfly (fly-by) (101)	painted lady (25)
funereal duskywing (2)	Pacific sara orangetip (10)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
oak titmouse (1+)	California towhee (1+)	mourning dove (1+)
acorn woodpecker (1+)	Cassin's kingbird (1+)	mule deer (1+)
American kestrel (1+)	common raven (1+)	Neotoma sp. (midden) (1+)
Bewick's wren (1+)	common side-blotched lizard (1+)	northern mockingbird (1+)
black-tailed jackrabbit (1+)	coyote (1+)	red-tailed hawk (1+)
black phoebe (1+)	granite spiny lizard (1+)	spotted towhee (1+)
bushtit (1+)	house finch (1+)	turkey vulture (1+)
California quail (1+)	K-rat sp. (tail drag sign) (1+)	white-crowned sparrow (1+)
California scrub-jay (1+)	lesser goldfinch (1+)	wild turkey (1+)
California thrasher (1+)	Merriam's chipmunk (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
Erodium cicutarium		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-29
Biologist(s)	Callie Amoaku, Erin Bergman, Patricia Schuyler
Survey Area	7
Survey Pass	3

SURVEY CONDITIONS

Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	12:04:00	69	65.7	0	5	clear	
End	14:54:00	75	75.7	20	2	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
San Diegan tiger whiptail (1+)	desert pearly marble (23)	painted lady (761)
California tortoiseshell (7)	funereal duskywing (5)	Sulphur sp. (1+)
cloudless sulphur (1)	orange sulphur (1)	White sp. (1+)
desert orangetip (1)	Pacific sara orangetip (37)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Blainville's horned lizard (1+)	California thrasher (1+)	red-tailed hawk (1+)
oak titmouse (1+)	European starling (1+)	turkey vulture (1+)
San Diego black-tailed jackrabbit (1+)	granite spiny lizard (1+)	western kingbird (1+)
acorn woodpecker (1+)	mourning dove (1+)	western meadowlark (1+)
California quail (1+)	mule deer (1+)	wild turkey (1+)
California scrub-jay (1+)	northern mockingbird (1+)	

INCIDENTAL PLANT LIST		
Acmispon heermannii	*Eschscholzia californica*	*Phacelia distans*
Acmispon strigosus	*Lasthenia gracilis*	*Phacelia imbricata*
Amsinckia menziesii	*Leptosiphon floribundus*	*Plagiobothrys arizonicus*
Anisocoma acaulis	*Leptosyne californica*	*Platystemon californicus*
Arctostaphylos pungens	*Lupinus concinnus*	*Salvia columbariae*

INCIDENTAL PLANT LIST		
Calyptridium monandrum	*Marah macrocarpa*	*Taraxacum officinale*
Cryptantha micrantha	*Nama demissa*	*Tropidocarpum gracile*
Descurainia pinnata	*Nemophila menziesii*	***Caulanthus simulans***
Erodium cicutarium	*Pectocarya sp.*	***Streptanthus campestris***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-04
Biologist(s)	Callie Amoaku, Patricia Schuyler
Survey Area	7
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	13:47:00	61	62.4	0	5	clear	
End	17:10:00	58	60	50	6	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (10)	desert pearly marble (6)	Propertius duskywing (2)
bramble hairstreak (1)	painted lady (56)	west coast lady (3)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Cooper's hawk (1+)	California scrub-jay (1+)	white-crowned sparrow (1+)
oak titmouse (1+)	desert cottontail (1+)	white-tailed antelope squirrel (1+)
San Diego black-tailed jackrabbit (1+)	European starling (1+)	wild turkey (1+)
California ground squirrel (1+)	red-tailed hawk (1+)	
California quail (1+)	western meadowlark (1+)	

INCIDENTAL PLANT LIST		
Castilleja affinis	*Ericameria linearifolia*	***Caulanthus simulans***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-10
Biologist(s)	Margie Mulligan, Lindsay Willrick
Survey Area	7
Survey Pass	5

SURVEY CONDITIONS

Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
End	05:07:00	72	0	0	7	clear	
Start	13:03:00	66	0	0	7	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (15)	checkered white (4)	painted lady (15)
bramble hairstreak (2)	common sootywing (2)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-17
Biologist(s)	Callie Amoaku, Patricia Schuyler
Survey Area	7
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:48:00	72	66	0	4	clear	
End	13:18:00	74	80	0	5	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (180)	desert pearly marble (22)	painted lady (12)
blue-gray gnatcatcher (1+)	Edward's blue (5)	Propertius duskywing (4)
bramble hairstreak (4)	funereal duskywing (7)	Sulphur sp. (1+)
cabbage white (6)	gray hairstreak (1)	western pygmy-blue (5)
Chalcedon variable checkerspot (1)	great purple hairstreak (2)	white-lined sphinx moth (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
ash-throated flycatcher (1+)	common side-blotched lizard (1+)	wrentit (1+)
California towhee (1+)	red-tailed hawk (1+)	
common raven (1+)	striped racer (1+)	

INCIDENTAL PLANT LIST		
Collinsia concolor	*Penstemon spectabilis*	
Oenothera californica ssp. avita	*Viola pedunculata*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-25
Biologist(s)	Callie Amoaku, Erin Bergman, Patricia Schuyler
Survey Area	7
Survey Pass	7

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	13:40:00	91	96	0	2	clear	
End	16:23:00	81	84	0	6	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (1)	desert pearly marble (7)	painted lady (17)
Behr's metalmark (92)	Edward's blue (6)	Propertius duskywing (2)
checkered white (2)	funereal duskywing (12)	White sp (15)
dainty sulphur (5)	Pacific sara orangetip (17)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Cryptantha micrantha	*Lasthenia gracilis*	*Phacelia distans*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-05-09
Biologist(s)	Callie Amoaku, Patricia Schuyler
Survey Area	7
Survey Pass	9

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:33:00	70	65	40	2	patchy	
End	14:01:00	68	77	10	10	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (1)	Edward's blue (2)	painted lady (5)
Behr's metalmark (37)	Harford's sulphur (1)	Propertius duskywing (2)
Blue spp. (1+)	Lady spp. (1+)	Sulphur spp. (1+)
cabbage white (16)	marine blue (1)	western pygmy-blue (5)
checkered white (8)	Pacific sara orangetip (6)	White spp. (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Blainville's horned lizard (1+)	black-headed grosbeak (1+)	European starling (1+)
ash-throated flycatcher (1+)	bushtit (1+)	orange-crowned warbler (1+)
band-tailed pigeon (1+)	California scrub-jay (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-17
Biologist(s)	Jeffrey Priest
Survey Area	8
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:00:00	60	60	0	12	clear	Wind 4-10 with gusts 10-12
Mid day	12:07:00	65	66	0	12	clear	Wind 3-10 with gusts 12-15
End	14:30:00	64	65	0	12	clear	Wind 3-12, gusts 12-15

BUTTERFLY LIST *SPECIES (COUNT)*		
funereal duskywing (2)	Pacific sara orangetip (2)	painted lady (18)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
oak titmouse (1+)	California quail (1+)	Lasy sp. butterfly fly-by (70)
acorn woodpecker (1+)	California scrub-jay (1+)	mourning dove (1+)
American crow (1+)	California thrasher (1+)	red-tailed hawk (1+)
Bewick's wren (1+)	common raven (1+)	turkey vulture (1+)
brush rabbit (1+)	common side-blotched lizard (1+)	western fence lizard (1+)
California ground squirrel (1+)	coyote (1+)	white-crowned sparrow (1+)

INCIDENTAL PLANT LIST		
Erodium cicutarium		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-22
Biologist(s)	Callie Amoaku, Patricia Schuyler
Survey Area	8
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	14:44:00	69	73	30	2	clear	
End	16:49:00	66	70	20	2	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
California tortoiseshell (2)	Pacific sara orangetip (6)	
desert pearly marble (7)	painted lady (18)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
bushtit (1+)	California scrub-jay (1+)	red-tailed hawk (1+)
California ground squirrel (1+)	desert cottontail (1+)	spotted towhee (1+)
California quail (1+)	granite spiny lizard (1+)	turkey vulture (1+)

INCIDENTAL PLANT LIST		
Cryptantha sp.	*Lasthenia gracilis*	
Erodium cicutarium	*Plagiobothrys sp.*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-29
Biologist(s)	Callie Amoaku, Erin Bergman, Patricia Schuyler
Survey Area	8
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
End	14:58:00	75	75.7	20	2	patchy	
End	16:34:00	67	69	10	5	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (1)	Edward's blue (1)	painted lady (325)
California dogface (1)	funereal duskywing (5)	western bluebird (1+)
desert pearly marble (14)	Pacific sara orangetip (2)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
oak titmouse (1+)	common raven (1+)	western kingbird (1+)
bushtit (1+)	desert cottontail (1+)	white-crowned sparrow (1+)
California ground squirrel (1+)	turkey vulture (1+)	
California scrub-jay (1+)	western fence lizard (1+)	

INCIDENTAL PLANT LIST		
Acmispon strigosus	*Erodium cicutarium*	*Salvia columbariae*
Amsinckia menziesii	*Lasthenia gracilis*	*Tropidocarpum gracile*
Cryptantha micrantha	*Lomatium dasycarpum*	
Descurainia pinnata	*Lupinus concinnus*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-27
Biologist(s)	Patricia Schuyler
Survey Area	8
Survey Pass	3

SURVEY CONDITIONS

Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:00:00	60	63	80	7	patchy	
Start	10:58:00	62	63.3	60	6	patchy	Out of protocol. Survey rescheduled.
End	11:31:00	62	64	100	9	overcast	

BUTTERFLY LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-03
Biologist(s)	Patricia Schuyler
Survey Area	8
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:16:00	56	61	40	10	patchy	Survey area 8
Mid survey	12:01:00	61	72	30	12	patchy	
End	14:27:00	67	72	60	10	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1)	cabbage white (5)	dainty sulphur (1)
bramble hairstreak (1)	California dogface (2)	painted lady (20)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-08
Biologist(s)	Patricia Schuyler
Survey Area	8
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:11:00	80.6	79.5	20	1	clear	
End	14:41:00	86	89	30	4	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (51)	dainty sulphur (2)	Pacific sara orangetip (4)
cabbage white (13)	desert pearly marble (15)	painted lady (24)
California tortoiseshell (1)	funereal duskywing (5)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-15
Biologist(s)	Patricia Schuyler
Survey Area	8
Survey Pass	6

SURVEY CONDITIONS

Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
End	14:26:00	69.2	71.9	30	10	clear	
Start	22:02:00	64	69.4	40	2	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (55)	California dogface (2)	western pygmy-blue (1)
bramble hairstreak (2)	desert pearly marble (4)	
cabbage white (5)	painted lady (23)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-25
Biologist(s)	Patricia Schuyler
Survey Area	8
Survey Pass	7

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:14:00	68	70	10	2	clear	
End	12:49:00	92	96.2	0	2	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (49)	Pacific sara orangetip (28)	southern blue (2)
desert pearly marble (2)	painted lady (10)	White sp (13)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Amsinckia intermedia	*Euphorbia albomarginata*	*Pectocarya setosa*
Arctostaphylos pungens	*Gilia angelensis*	*Phacelia distans*
Boechera pulchra	*Gilia diegensis*	*Salvia columbariae*
Calyptridium monandrum	*Lasthenia gracilis*	*Sisymbrium altissimum*
Cryptantha micrantha	*Lepidium perfoliatum*	*Uropappus lindleyi*
Descurainia pinnata	*Lupinus bicolor*	
Ericameria linearifolia	*Lupinus concinnus*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-05-01
Biologist(s)	Callie Amoaku, Patricia Schuyler
Survey Area	8
Survey Pass	8

SURVEY CONDITIONS

Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:05:00	66	69.1	0	1		
End	14:32:00	74	81	0	5	clear	

BUTTERFLY LIST *SPECIES (COUNT)*

Acmon blue (1)	desert orangetip (8)	Propertius duskywing (6)
Behr's metalmark (56)	Edward's blue (1)	western pygmy-blue (2)
cabbage white (35)	Pacific sara orangetip (7)	
dainty sulphur (4)	painted lady (12)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*

(none)		

INCIDENTAL PLANT LIST

(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-05-09
Biologist(s)	Callie Amoaku, Patricia Schuyler
Survey Area	8
Survey Pass	9

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	14:08:00	68	77	10	8	clear	
End	16:30:00	65	70	30	6	clear	Gusts up to 13

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (14)	Lady spp. (1+)	White spp. (1+)
checkered white (7)	painted lady (5)	
Edward's blue (4)	white checkered-skipper (2)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
ash-throated flycatcher (1+)	California scrub-jay (1+)	orange-crowned warbler (1+)
bushtit (1+)	European starling (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-05-03
Biologist(s)	Diana Saucedo, Erik LaCoste, Lindsay Willrick
Survey Area	1, 2
Survey Pass	8

SURVEY CONDITIONS

Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:25:00	65	0	0	4	clear	
Midday	12:00:00	84	0	0	4	clear	
End	16:00:00	84	0	0	9	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (11)	dainty sulphur (11)	Pacific sara orangetip (13)
Behr's metalmark (105)	desert orangetip (13)	painted lady (8)
bramble hairstreak (2)	Edward's blue (17)	pale swallowtail (7)
brown elfin (2)	gray hairstreak (2)	Propertius duskywing (11)
checkered white (22)	Harford's sulphur (15)	
common buckeye (1)	marine blue (10)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	common side-blotched lizard (1+)	phainopepla (1+)
ash-throated flycatcher (1+)	granite spiny lizard (1+)	red-tailed hawk (1+)
Bewick's wren (1+)	greater roadrunner (1+)	Scott's oriole (1+)
black-throated sparrow (1+)	hermit warbler (1+)	spotted towhee (1+)
bushtit (1+)	house finch (1+)	Townsend's warbler (1+)
California quail (1+)	Kangaroo rat spp. (1+)	western kingbird (1+)
California scrub-jay (1+)	ladder-backed woodpecker (1+)	western tanager (1+)
California thrasher (1+)	long-nosed leopard lizard (1+)	white-crowned sparrow (1+)
California towhee (1+)	mourning dove (1+)	wrentit (1+)
common raven (1+)	northern flicker (1+)	

INCIDENTAL PLANT LIST		
Descurainia sophia	*Heliotropium curassavicum*	*Pectocarya setosa*
Dichelostemma capitatum	*Lasthenia gracilis*	*Platystemon californicus*
Ericameria linearifolia	*Layia glandulosa*	*Salvia columbariae*
Eriodictyon trichocalyx	*Leptosiphon lemmonii*	*Uropappus lindleyi*
Eriophyllum wallacei	*Lupinus concinnus*	***Geraea viscida***
Erodium cicutarium	*Malacothrix glabrata*	***Linanthus bellus***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-24
Biologist(s)	Diana Saucedo, Victor Novik
Survey Area	4, 5
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:00:00	60	62	0	4	clear	
End	16:30:00	69	72	20	8	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1)	dainty sulphur (7)	painted lady (102)
bramble hairstreak (1)	desert orangetip (15)	Sara orange-tip (27)
brown elfin (1)	funereal duskywing (6)	spring white (17)
checkered white (10)	Harford's sulphur (5)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Amsinckia menziesii	*Erodium cicutarium*	*Sisymbrium irio*
Arctostaphylos spp	*Lasthenia californica*	*Tropidocarpum gracile*
Camissoniopsis bistorta	*Lomatium dasycarpum*	
Cryptantha spp	*Ribes quercetorum*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-04-10
Biologist(s)	Erin Bergman
Survey Area	6, 7
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:17:00	67	69	0	4	clear	
End	18:09:00	69	74	0	3	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
quino checkerspot butterfly (5)	desert pearly marble (45)	Pacific sara orangetip (34)
Acmon blue (30)	funereal duskywing (43)	painted lady (82)
Behr's metalmark (87)	gray hairstreak (36)	west coast lady (23)
bramble hairstreak (47)	great purple hairstreak (13)	White species (26)
brown elfin (1)	Lady species (51)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
California quail (1+)	European starling (1+)	wild turkey (1+)
California scrub-jay (1+)	red-tailed hawk (1+)	
chipping sparrow (1+)	turkey vulture (1+)	

INCIDENTAL PLANT LIST		
Acmispon argophyllus var. argophyllus	*Eriophyllum wallacei*	*Lupinus concinnus*
Amsinckia intermedia	*Lasthenia gracilis*	*Salvia columbariae*
Boechera pulchra	*Layia glandulosa*	
Calycoseris parryi	*Lupinus bicolor*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-05-02
Biologist(s)	Brock Ortega
Survey Area	7
Survey Pass	8

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
End	02:59:00	80	78	30	5	patchy	
Start	08:01:00	70	70	50	3	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Blue sp (30)	Edward's blue (11)	painted lady (15)
brown elfin (4)	Lady sp (15)	west coast lady (11)
cabbage white (16)	marine blue (23)	western pygmy-blue (25)
common buckeye (14)	mourning cloak (1+)	
desert pearly marble (6)	Pacific sara orangetip (12)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
song sparrow (1+)	Cassin's kingbird (1+)	house finch (1+)
American kestrel (1+)	common raven (1+)	Kangaroo rat sp (1+)
Botta's pocket gopher (1+)	common side-blotched lizard (1+)	mule deer (1+)
California quail (1+)	coyote (1+)	red-tailed hawk (1+)
California scrub-jay (1+)	desert cottontail (1+)	rock wren (1+)
California thrasher (1+)	desert woodrat (1+)	western toad (1+)
California towhee (1+)	gophersnake (1+)	

INCIDENTAL PLANT LIST		
(none)		

Appendix C

Notification of Observation of Quino Checkerspot Butterfly for the Proposed Wind Energy Facilities

DUDEK

CORPORATE OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 T 800.450.1818 F 760.632.0164

April 11, 2019

U.S. Fish and Wildlife Service
Attn: Recovery Permit Coordinator
2177 Salk Avenue; Suite 250
Carlsbad, CA 92008

Re: Notification of Observation of Quino Checkerspot Butterfly Campo Wind Project, Boulder Brush Portion, Boulevard, County of San Diego, California.

Dear Recovery Permit Coordinator,

The purpose of this letter is to provide the U. S. Fish and Wildlife Service 24-hour written notification of Quino checkerspot butterfly observations on the Boulder Brush portion of the Campo Wind project site. The observation was made on April 10, 2019. A total of five butterflies were identified by Erin Bergman (TE-53771B-0). See attached map.

The Quino was observed around 2:00- 3:00 pm. Ms. Bergman immediately observed it sitting on the ground approximately 3 feet in front of her. Ms. Bergman wanted to confirm the observation with binoculars so she followed quino as it moved up in elevation. As Ms. Bergman moved up in elevation, 5 total were observed performing hill topping behaviors. Ms. Bergman confirmed that all 5 butterflies were quino with binoculars and took a few photos. No other checkerspot species were present but numerous other butterflies were observed hill topping with quino. Since the quino butterflies were hill topping they stayed at the location for over an hour. Callie Amoaku joined Ms. Bergman to observe the butterflies with binoculars and also took photos.

Weather conditions were approximately 77 degrees F., the sky was clear with 0 percent cloud cover and wind speeds were 0-6 miles per hour.

The Quino was observed in an area with open decomposed granite soils, hilltops, ridges, numerous granitic rock outcrops, and various nectar sources. No host plants were observed anywhere within the survey area. Quino spent much of the observation time nectaring on Clearwater cryptantha (*Cryptantha intermedia var. intermedia*) and pointed cryptantha *(Crytantha muricata var. jonesii*) for short periods of time (a few seconds), landing on bare ground (a few seconds) and performing hill topping behaviors the majority of the time.

Please contact me at (760) 274-3927 if there are any questions concerning this observation.

Very truly yours,

DUDEK



_____
Erin Bergman
Biologist



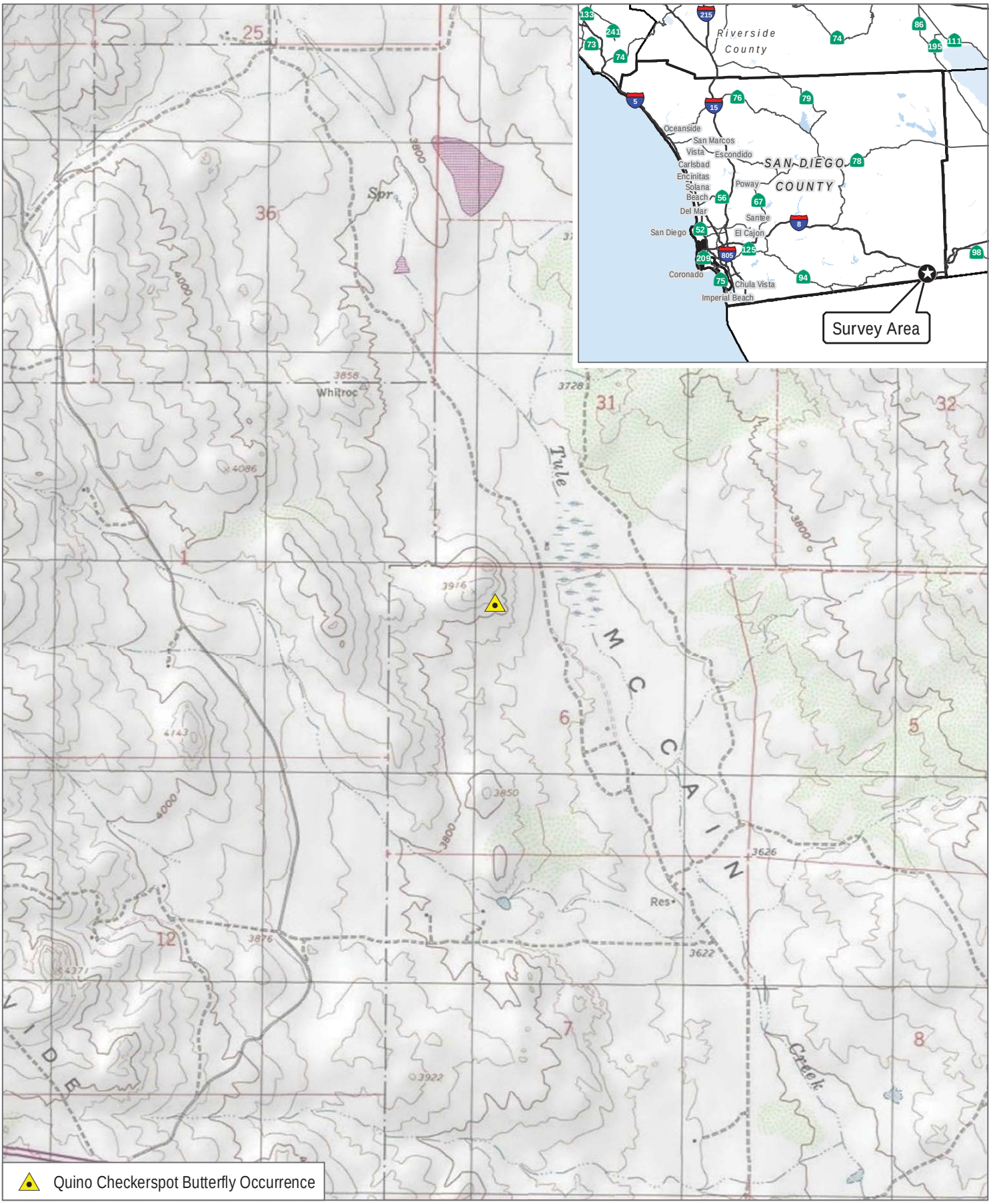
Quino Photo 1



Quino Photo 2



Quino Photo 3



SOURCE: USGS 7.5-Minute Series Live Oak Springs Quadrangle

DUDEK

0 1,000 2,000 Feet

Quino Checkerspot Butterfly Occurrence

ATTACHMENT C

2018 Least Bell's Vireo and Southwestern Willow Flycatcher Focused Survey Report for the Torrey Wind Project, Boulevard, San Diego County, California

DUDEK

MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 T 800.450.1818 F 760.632.0164

October 10, 2018 10212

Recovery Permit Coordinator
U.S. Fish and Wildlife Service
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

Subject: ***2018 Least Bell's Vireo and Southwestern Willow Flycatcher Focused Survey Report for the Torrey Wind Project, Boulevard, San Diego County, California***

Dear Recovery Permit Coordinator:

This report documents the results of protocol-level presence/absence surveys for the state- and federally listed endangered least Bell's Vireo (*Vireo bellii pusillus*; vireo) and the state- and federally listed endangered southwestern willow flycatcher (*Empidonax traillii extimus*; flycatcher). The surveys were conducted in support of the Torrey Wind project (Project), located in the County of San Diego, California. The Project would involve construction and operation of approximately 32 new wind turbines (rated up to 4.2 megawatts each), an underground electrical collection system, a collector substation, an operation and maintenance (O&M) building and associated parking areas, a temporary staging area, a batch plant, meteorological towers, and various access roads. The Project site contains approximately 13.1 acres of potentially suitable vireo and flycatcher habitat that were surveyed in 2018.

The vireo and flycatcher are closely associated with riparian habitats, especially densely vegetated willow scrub and riparian forest vegetation. These species are threatened primarily by loss, degradation, and fragmentation of riparian habitats. They also are impacted by brown-headed cowbird (*Molothrus ater*) nest parasitism.

LOCATION AND EXISTING CONDITIONS

The study area is entirely on private land in southeastern San Diego County, California in the McCain Valley area, north of the community of Boulevard and is accessed via Interstate 8 and Ribbonwood Road (Figure 1, Project Location). The study area is within the U.S. Geological Survey's 7.5-minute Sombrero Peak and Live Oak Springs quadrangle maps within Township 17 South, Range 6 East, Sections 01, 05, and 06; Township 17 South, Range 7 East, Sections 05 and 06; and Township 16 South, Range 6 East, Sections 19, 20, 29, 30, 31, and 32 (Figure 1).

Elevations range from about 3,280 feet above mean sea level to approximately 4,120 feet above mean sea level.

According to the U.S. Department of Agriculture, Natural Resources Conservation Service, the following seven soil series were mapped within the study area: Calpine (coarse sandy loam, 5% to 9% slopes); La Posta (loamy coarse sand, 5% to 30% slopes, eroded; rocky loamy coarse sand, 5% to 30% slopes, eroded); loamy alluvial land; Mottsville (loamy coarse sand, 2% to 9% slopes); and Tollhouse (rocky coarse sandy loam, 5% to 30% slopes, eroded) (USDA 2018).

VEGETATION COMMUNITIES

Approximately 13.1 acres of vireo- and flycatcher-suitable habitat were mapped on the Project site according to Oberbauer et al. (2008) (Figure 2, Least Bell's Vireo and Southwestern Willow Flycatcher Survey Results). Habitats suitable for vireo and flycatcher within the study area include mulefat scrub, mature riparian woodland, and oak woodland.

Mulefat Scrub

Mulefat scrub is a depauperate, tall, herbaceous riparian scrub strongly dominated by mulefat (*Baccharis salicifolia*). This early seral community is maintained by frequent flooding. Site factors include intermittent stream channels with fairly coarse substrate and moderate depth to the water table (Oberbauer et al. 2008). This community type is widely scattered along intermittent streams and near larger rivers.

Riparian Woodland

Riparian woodland is an open to dense riparian woodland dominated by riparian trees, including western sycamore (*Platanus racemosa*), *Populus* species, *Sambucus* species, and other wetland plants (Oberbauer et al. 2008). Riparian woodland is primarily found along streams and rivers.

Oak Woodland

Oak woodland is a forest dominated by oak (*Quercus* sp.) in the tree canopy cover and has a poorly developed shrub layer (Oberbauer et al. 2008). Oak woodland is primarily found along shaded ravines.

METHODS

Suitable habitat areas within the study area were surveyed eight times for vireo and five times for flycatcher. Flycatcher-permitted Dudek wildlife biologist, Brock A. Ortega (Permit # TE813545-

6), conducted all combined flycatcher/vireo surveys (Table 1). The flycatcher-permitted biologist used audio-playback techniques to elicit flycatcher responses. Focused surveys for these species were initiated on May 19, 2018, and continued through July 28, 2018.

Table 1
Vireo and Flycatcher Survey Schedule and Conditions

Survey Pass #/ Focus	Date	Hours	Personnel	Conditions (temperature, cloud cover, wind speed)
1-LBVI 1-SWFL	2018-05-19	6:30 AM–11:00 AM	BAO	60–72°F; 0–20% cc; 0–3 mph wind
2-LBVI	2018-05-28	5:30 AM–10:30 AM	BAO	57–74°F; 0–50% cc; 3–8 mph wind
3-LBVI 2-SWFL	2018-06-07	5:35 AM–10:06 AM	BAO	57–70°F; 20% cc; 3–8 mph wind
4-LBVI 3-SWFL	2018-06-17	6:10 AM–11:05 AM	BAO	60–80°F; 0% cc; 3–5 mph wind
5-LBVI	2018-06-27	5:20 AM–11:10 AM	BAO	55–90°F; 0% cc; 3–8 mph wind
6-LBVI 4-SWFL	2018-07-07	5:30 AM–10:30 AM	BAO	78–95°F; 0% cc; 0–1 mph wind
7-LBVI 5-SWFL	2018-07-17	5:30 AM–10:30 AM	BAO	76–88°F; 20–100% cc; 0–10 mph wind
8-LBVI	2018-07-28	5:45 AM–10:30 AM	BAO	60–89°F; 10–80% cc; 0–3 mph wind

Notes: LBVI = least Bell's vireo; SWFL = Southwestern willow flycatcher; BAO = Brock Ortega; cc = cloud cover; mph = miles per hour; °F = degrees Fahrenheit.

As directed by Stacey Love, United States Fish & Wildlife Service (USFWS) Recovery Permit Coordinator, surveys for vireo and flycatcher were not conducted concurrently. Due to differences in detectability, surveys were conducted sequentially, with surveys for the flycatcher first (i.e., first thing in the morning) and surveys for the vireo conducted afterwards. Additionally, for linear survey routes within a riparian corridor: flycatchers were surveyed from the starting point to the end, and vireos were surveyed on the way back. This route was arranged to cover all suitable habitat on site. A vegetation map (1:2,400 scale; 1 inch=200 feet) of the study area was available to record any detected vireo or flycatcher. Binoculars (7×50, 10×42, 10×50) were used to aid in detecting and identifying wildlife species.

The five surveys conducted for flycatcher followed the currently accepted protocol (*A Natural History Summary and Survey Protocol for the Southwestern Willow Flycatcher* [Sogge et al. 2010]), which states that a minimum of five survey visits is needed to evaluate project effects on flycatchers. It is recommended that one survey is made between May 15 and 31, two surveys between June 1 and June 24, and two surveys between June 25 and July 17. Surveys during the

final period (June 25 and July 17) were separated by at least five days. A tape of recorded flycatcher vocalizations was used, approximately every 50 to 100 feet within suitable habitat, to induce flycatcher responses. If a flycatcher had been detected, playing of the tape would have ceased to avoid harassment.

A Section 10(a)(1)(A) permit is not required to conduct presence/absence surveys for vireo. The eight surveys for vireo followed the currently accepted *Least Bell's Vireo Survey Guidelines* (USFWS, 2001), which states that a minimum of eight survey visits should be made to all riparian areas and any other potential vireo habitats between April 10 and July 31. The site visits are required to be conducted at least 10 days apart to maximize the detection of early and late arrivals, females, non-vocal birds, and nesting pairs. Taped playback of vireo vocalizations were not used during the surveys. Surveys were conducted between dawn and noon and were not conducted during periods of excessive or abnormal cold, heat, wind, rain, or other inclement weather.

Weather conditions, time of day, and season were appropriate for the detection of flycatcher and vireo (Table 1).

RESULTS

No vireo or flycatchers were observed during focused surveys.

Sensitive species observed included yellow warbler (*Dendroica petechia*), a California Department of Fish and Wildlife (CDFW) Species of Special Concern; Cooper's hawk (*Accipiter cooperii*), a CDFW Watch List species; Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), a CDFW Watch List species; and San Diegan tiger whiptail (*Aspidoscelis tigris stejnegeri*), a CDFW Species of Special Concern. However, only yellow warbler was mapped during the focused survey. Sensitive species observation locations are shown in Figure 2. Brown-headed cowbird was also detected within the study area.

Fifty-three wildlife species were observed during the focused surveys. A full list of wildlife species observed during the survey is provided in Appendix A.

Please feel free to contact me at 760.479.4254 with questions or if you require additional information.

I certify that the information in this survey report and attached exhibits fully and accurately represent my work.

Sincerely,

Brock Ortega
Permit #TE813545-6

Att: Figures 1–2
Appendix A

REFERENCES

Oberbauer, Thomas, Meghan Kelly, and Jeremy Buegge. March 2008. Draft Vegetation Communities of San Diego County. Based on "Preliminary Descriptions of the Terrestrial Natural Communities of California", Robert F. Holland, Ph.D., October 1986.

Sogge, M.K., Ahlers, Darrell, and Sferra, S.J., 2010. *A Natural History Summary and Survey Protocol for the Southwestern Willow Flycatcher*. U.S. Geological Survey Techniques and Methods 2A-10, 38 p.

USDA (U.S. Department of Agriculture). 2018. Web Soil Survey [web application]. USDA, Natural Resources Conservation Service. http://websoilsurvey.nrcs.usda.gov/app/.

USFWS. 2001. *Least Bell's Vireo Survey Guidelines*. January 19.

APPENDIX A

Wildlife Species Observed in Study Area

BIRD

BLACKBIRDS, ORIOLES & ALLIES

ICTERIDAE—BLACKBIRDS

Euphagus cyanocephalus—Brewer's blackbird
Icterus cucullatus—hooded oriole
* *Molothrus ater*—brown-headed cowbird

BUSHTITS

AEGITHALIDAE—LONG-TAILED TITS & BUSHTITS

Psaltriparus minimus—bushtit

CARDINALS, GROSBEAKS & ALLIES

CARDINALIDAE—CARDINALS & ALLIES

Piranga ludoviciana—western tanager

FINCHES

FRINGILLIDAE—FRINGILLINE & CARDUELINE FINCHES & ALLIES

Haemorhous mexicanus—house finch
Spinus tristis—American goldfinch

FLYCATCHERS

TYRANNIDAE—TYRANT FLYCATCHERS

Sayornis nigricans—black phoebe
Sayornis saya—Say's phoebe
Tyrannus vociferans—Cassin's kingbird

HAWKS

ACCIPITRIDAE—HAWKS, KITES, EAGLES, & ALLIES

Accipiter cooperii—Cooper's hawk
Buteo jamaicensis—red-tailed hawk

HUMMINGBIRDS

TROCHILIDAE—HUMMINGBIRDS

Archilochus alexandri—black-chinned hummingbird
Calypte anna—Anna's hummingbird

JAYS, MAGPIES & CROWS

CORVIDAE—CROWS & JAYS

Aphelocoma californica—California scrub-jay
Corvus brachyrhynchos—American crow
Corvus corax—common raven

MOCKINGBIRDS & THRASHERS

MIMIDAE—MOCKINGBIRDS & THRASHERS

Toxostoma redivivum—California thrasher

NEW WORLD QUAIL

ODONTOPHORIDAE—NEW WORLD QUAIL

Callipepla californica—California quail

NEW WORLD VULTURES

CATHARTIDAE—NEW WORLD VULTURES

Cathartes aura—turkey vulture

PIGEONS & DOVES

COLUMBIDAE—PIGEONS & DOVES

Zenaida macroura—mourning dove

ROADRUNNERS & CUCKOOS

CUCULIDAE—CUCKOOS, ROADRUNNERS, & ANIS

Geococcyx californianus—greater roadrunner

SILKY FLYCATCHERS

PTILOGONATIDAE—SILKY-FLYCATCHERS

Phainopepla nitens—phainopepla

SWIFTS

APODIDAE—SWIFTS

Aeronautes saxatalis—white-throated swift

THRUSHES

TURDIDAE—THRUSHES

Sialia mexicana—western bluebird

TITMICE

PARIDAE—CHICKADEES & TITMICE

Baeolophus inornatus—oak titmouse

WOOD WARBLERS & ALLIES

PARULIDAE—WOOD-WARBLERS

Cardellina pusilla—Wilson's warbler

Setophaga petechia—yellow warbler

WOODPECKERS

PICIDAE—WOODPECKERS & ALLIES

Colaptes auratus—northern flicker

Dryobates nuttallii—Nuttall's woodpecker

WRENS

TROGLODYTIDAE—WRENS

Salpinctes obsoletus—rock wren

Thryomanes bewickii—Bewick’s wren

Troglodytes aedon—house wren

WRENTITS

TIMALIIDAE—BABBLERS

Chamaea fasciata—wrentit

NEW WORLD SPARROWS

PASSERELLIDAE—NEW WORLD SPARROWS

Aimophila ruficeps canescens—Southern California rufous-crowned sparrow
Aimophila ruficeps—rufous-crowned sparrow
Artemisiospiza nevadensis—sagebrush sparrow
Melospiza melodia—song sparrow
Pipilo maculatus—spotted towhee
Spizella atrogularis—black-chinned sparrow

MAMMAL

CANIDS

CANIDAE—WOLVES & FOXES

Canis latrans—coyote

CATS

FELIDAE—CATS

Lynx rufus—bobcat

HARES & RABBITS

LEPORIDAE—HARES & RABBITS

Lepus californicus—black-tailed jackrabbit
Sylvilagus audubonii—desert cottontail

MUSTELIDS

MEPHITIDAE—SKUNKS

Mephitis mephitis—striped skunk

POCKET GOPHERS

GEOMYIDAE—POCKET GOPHERS

Thomomys bottae—Botta's pocket gopher

SQUIRRELS

SCIURIDAE—SQUIRRELS

Ammospermophilus leucurus—white-tailed antelope squirrel

Spermophilus (Otospermophilus) beecheyi—California ground squirrel

UNGULATES

CERVIDAE—DEERS

Odocoileus hemionus—mule deer

RATS, MICE, & VOLES

CRICETIDAE—RATS, MICE, & VOLES

Neotoma sp.—woodrat

REPTILE

LIZARDS

PHRYNOSOMATIDAE—IGUANID LIZARDS

Sceloporus occidentalis—western fence lizard

Uta stansburiana—common side-blotched lizard

TEIIDAE—WHIPTAIL LIZARDS

Aspidoscelis tigris stejnegeri—San Diegan tiger whiptail

* signifies introduced (non-native) species

ATTACHMENT D

Plant Species Observed

APPENDIX D
Plant Compendium

VASCULAR SPECIES

EUDICOTS

ADOXACEAE—MUSKROOT FAMILY

Sambucus nigra ssp. *caerulea*—blue elderberry

AMARANTHACEAE—AMARANTH FAMILY

* *Amaranthus albus*—prostrate pigweed

ANACARDIACEAE—SUMAC OR CASHEW FAMILY

Malosma laurina—laurel sumac
Rhus aromatica var. *aromatica*—single-leaved skunkbrush
Rhus aromatica var. *simplicifolia*—single-leaved skunkbrush
Rhus ovata—sugarbush

APIACEAE—CARROT FAMILY

* *Apium graveolens*—wild celery
Lomatium dasycarpum ssp. *dasycarpum*—woollyfruit desertparsley
Lomatium lucidum—shiny biscuitroot
Lomatium mohavense—Mojave desertparsley
Lomatium sp.—no common name
Sanicula arguta—sharptooth blacksnakeroot
Tauschia arguta—southern umbrellawort

APOCYNACEAE—DOGBANE FAMILY

Asclepias fascicularis—Mexican whorled milkweed

ASTERACEAE—SUNFLOWER FAMILY

Acamptopappus sphaerocephalus—rayless goldenhead
Achillea millefolium—common yarrow
Acourtia microcephala—sacapellote
Ambrosia acanthicarpa—flatspine bur ragweed
Ambrosia psilostachya—western ragweed
Anisocoma acaulis—scalebud
Artemisia douglasiana—Douglas' sagewort
Artemisia dracunculus—wild tarragon
Artemisia tridentata—big sagebrush
Baccharis pilularis—coyote brush
Baccharis salicifolia ssp. *salicifolia*–mulefat
Baccharis sergiloides—broom baccharis
Calycoseris parryi—yellow tackstem
Chaenactis fremontii—pincushion flower

Chaenactis glabriuscula var. *glabriuscula*—yellow pincushion
Chaenactis sp.—no common name
Cirsium occidentale—cobwebby thistle
* *Coreopsis tinctoria*—golden tickseed
Corethrogyne filaginifolia—common sandaster
Deinandra floribunda—Tecate tarplant
Ericameria brachylepis—chaparral goldenbush
Ericameria cuneata var. *spathulata*—cliff goldenbush
Ericameria linearifolia—narrowleaf goldenbush
Ericameria nauseosa—rubber rabbitbrush
Ericameria palmeri—Palmer's goldenbush
Ericameria paniculata—black-stem rabbitbrush
Ericameria pinifolia—pinebush
Ericameria sp.—no common name
Erigeron foliosus var. *foliosus*—leafy fleabane
Eriophyllum confertiflorum var. *confertiflorum*—golden-yarrow
Eriophyllum wallacei—woolly easterbonnets
Geraea viscida—sticky geraea
Gutierrezia californica—California match weed
Gutierrezia sarothrae—broom snake weed
* *Hypochaeris glabra*—smooth cat's ear
Lasthenia californica—California goldfields
Lasthenia glaberrima—smooth goldfields
Lasthenia glabrata—yellowray goldfields
Lasthenia gracilis—needle goldfields
Lasthenia sp.—no common name
Layia glandulosa—whitedaisy tidytips
Layia platyglossa—coastal tidytips
Leptosyne californica—California tickseed
Lessingia glandulifera—valley lessingia
Logfia filaginoides—California cottonrose
Malacothrix californica—California desertdandelion
Malacothrix glabrata—smooth desertdandelion
* *Matricaria discoidea*—disc mayweed
Pentachaeta aurea—golden chaetopappa
Senecio californicus—California ragwort
Senecio flaccidus—threadleaf ragwort
Stephanomeria exigua—small wirelettuce
Stylocline gnaphaloides—mountain neststraw
* *Taraxacum officinale*—common dandelion
Uropappus lindleyi—Lindley's silverpuffs

BORAGINACEAE—BORAGE FAMILY
Amsinckia intermedia—common fiddleneck
Amsinckia menziesii—Menzies' fiddleneck

Amsinckia tessellata—bristly fiddleneck
Cryptantha intermedia var. *intermedia*—Clearwater cryptantha
Cryptantha micrantha var. *lepida*—redroot cryptantha
Cryptantha micrantha—redroot cryptantha
Cryptantha sp.—no common name
Emmenanthe penduliflora var. *penduliflora*—whisperingbells
Eriodictyon crassifolium var. *nigrescens*—thickleaf yerba santa
Eriodictyon crassifolium—thick leaf yerba santa
Eriodictyon sp.—no common name
Eriodictyon trichocalyx var. *lanatum*—hairy yerba santa
Eriodictyon trichocalyx—hairy yerba santa
Heliotropium curassavicum var. *oculatum*—seaside heliotrope
Heliotropium curassavicum—salt heliotrope
Nama demissa var. *demissa*— Nama
Nemophila menziesii—baby blue eyes
Pectocarya linearis—sagebrush combseed
Pectocarya penicillata—sleeping combseed
Pectocarya peninsularis—peninsular pectocarya
Pectocarya recurvata—curvenut combseed
Pectocarya setosa—moth combseed
Pectocarya sp.—no common name
Phacelia campanularia—desertbells
Phacelia cicutaria var. *hispida*—caterpillar phacelia
Phacelia cicutaria—caterpillar phacelia
Phacelia distans—distant phacelia
Phacelia imbricata var. *imbricata*—no common name
Phacelia parryi—Parry's phacelia
Phacelia ramosissima var. *latifolia*—branching phacelia
Phacelia sp.—no common name
Phacelia tanacetifolia—lacy phacelia
Plagiobothrys arizonicus—Arizona popcornflower
Plagiobothrys bracteatus—bracted popcornflower
Plagiobothrys collinus—Cooper's popcornflower
Plagiobothrys sp.—no common name

BRASSICACEAE—MUSTARD FAMILY

Arabis sp.—no common name
Boechera arcuata—elegant rockcress
Boechera californica—California rockcress
Boechera perennans—perennial rockcress
Boechera pulchra—beautiful rockcress
Boechera sp.—no common name
* *Brassica* sp.—no common name
* *Capsella bursa-pastoris*—shepherd's purse
Caulanthus heterophyllus—San Diego wild cabbage

Descurainia pinnata ssp. *brachycarpa*—western tansymustard
Descurainia pinnata ssp. *glabra*—western tansymustard
* *Descurainia sophia*—herb sophia
Descurainia sp.—no common name
* *Hirschfeldia incana*—shortpod mustard
* *Lepidium perfoliatum*—clasping pepperweed
Lepidium virginicum ssp. *menziesii*—intermediate pepperweed
* *Sisymbrium altissimum*—tall tumblemustard
* *Sisymbrium irio*—London rocket
Streptanthus campestris—southern jewelflower
Tropidocarpum gracile—dobie pod

CACTACEAE—CACTUS FAMILY
Cylindropuntia californica var. *parkeri*—brownspined pricklypear
Cylindropuntia ganderi—Gander's buckhorn cholla
Opuntia phaeacantha—tulip pricklypear

CAPRIFOLIACEAE—HONEYSUCKLE FAMILY
Lonicera subspicata var. *denudata*—Santa Barbara honeysuckle

CARYOPHYLLACEAE—PINK FAMILY
Minuartia douglasii—Douglas' stitchwort

CHENOPODIACEAE—GOOSEFOOT FAMILY
Chenopodium californicum—California goosefoot
* *Chenopodium murale*—nettleleaf goosefoot

CONVOLVULACEAE—MORNING-GLORY FAMILY
Cuscuta californica—chaparral dodder

CRASSULACEAE—STONECROP FAMILY
Dudleya pulverulenta—chalk dudleya

CUCURBITACEAE—GOURD FAMILY
Cucurbita foetidissima—Missouri gourd
Cucurbita palmata—coyote gourd
Marah macrocarpa—Cucamonga manroot

ERICACEAE—HEATH FAMILY
Arctostaphylos glauca—bigberry manzanita
Arctostaphylos pungens—pointleaf manzanita
Arctostaphylos sp.—no common name
Xylococcus bicolor—mission manzanita

EUPHORBIACEAE—SPURGE FAMILY

Croton setiger—dove weed
Euphorbia albomarginata—whitemargin sandmat
* *Euphorbia maculata*—spotted sandmat
Euphorbia polycarpa—smallseed sandmat
* *Euphorbia* sp.—no common name

FABACEAE—LEGUME FAMILY

* *Acacia decurrens*—green wattle
Acmispon argophyllus var. *argophyllus*—silver bird's-foot trefoil
Acmispon glaber var. *brevialatus*—western bird's-foot trefoil
Acmispon heermannii—Heermann's bird's-foot trefoil
Acmispon strigosus—strigose bird's-foot trefoil
Astragalus didymocarpus—dwarf white milkvetch
Astragalus douglasii var. *parishii*—Parish's milkvetch
Astragalus douglasii var. *perstrictus*—Jacumba milk-vetch
Lupinus bicolor—miniature lupine
Lupinus concinnus—bajada lupine
Lupinus excubitus—grape soda lupine
Lupinus hirsutissimus—stinging annual lupine
Lupinus succulentus—hollowleaf annual lupine
Lupinus truncatus—collared annual lupine
Trifolium willdenovii—tomcat clover

FAGACEAE—OAK FAMILY

Quercus ×*acutidens*—hybrid oak
Quercus agrifolia var. *oxyadenia*—coast live oak
Quercus agrifolia—coast live oak
Quercus chrysolepis—Canyon live oak
Quercus cornelius-mulleri—Muller oak

GARRYACEAE—SILK TASSEL FAMILY

Garrya veatchii—canyon silktassel

GENTIANACEAE—GENTIAN FAMILY

Frasera parryi—Coahuila frasera

GERANIACEAE—GERANIUM FAMILY

* *Erodium botrys*—longbeak stork's bill
* *Erodium cicutarium*—redstem stork's bill
* *Erodium* sp.—no common name

GROSSULARIACEAE—GOOSEBERRY FAMILY

Ribes quercetorum—oak gooseberry

LAMIACEAE—MINT FAMILY

Monardella nana—yellow monardella
Salvia clevelandii—fragrant sage
Salvia columbariae—chia
Trichostema lanatum—woolly bluecurls

LOASACEAE—LOASA FAMILY

Mentzelia sp.—no common name
Mentzelia veatchiana—Veatch's blazingstar

MONTIACEAE—MONTIA FAMILY

Calandrinia menziesii—red maids
Calyptridium monandrum—common pussypaws

MYRSINACEAE—MYRSINE FAMILY

* *Lysimachia arvensis*—scarlet pimpernel

NYCTAGINACEAE—FOUR O'CLOCK FAMILY

Abronia villosa var. *aurita*—chaparral sand-verbena
Boerhavia triquetra var. *intermedia*—slender spiderling
Mirabilis multiflora var. *pubescens*—Colorado four o'clock
Mirabilis multiflora—Colorado four o'clock

ONAGRACEAE—EVENING PRIMROSE FAMILY

Camissonia sp.—no common name
Camissonia strigulosa—sandysoil suncup
Camissoniopsis bistorta—southern suncup
Camissoniopsis confusa—San Bernardino suncup
Camissoniopsis micrantha—miniature suncup
Camissoniopsis pallida—paleyellow suncup
Clarkia purpurea—winecup clarkia
Eulobus californicus—California suncup
Oenothera californica ssp. *avita*—California evening primrose

Oenothera californica—California evening primrose

OROBANCHACEAE—BROOM-RAPE FAMILY

Aphyllon fasciculatum—clustered broomrape
Castilleja affinis—coast Indian paintbrush
Castilleja applegatei—wavyleaf Indian paintbrush
Castilleja foliolosa—Texas Indian paintbrush
Castilleja subinclusa ssp. *subinclusa*—longleaf Indian paintbrush
Cordylanthus rigidus—stiffbranch bird's beak

PAEONIACEAE—PEONY FAMILY

Paeonia californica—California peony

PAPAVERACEAE—POPPY FAMILY

Argemone munita—flatbud pricklypoppy
Dendromecon rigida—bush poppy
Eschscholzia californica—California poppy
Platystemon californicus—creamcups

PHRYMACEAE—LOPSEED FAMILY

Diplacus aurantiacus—bush monkeyflower
Diplacus fremontii—Fremont's monkeyflower
Erythranthe guttata—common monkey flower
Erythranthe palmeri—Palmer's monkeyflower
Mimetanthe pilosa—false monkeyflower

PLANTAGINACEAE—PLANTAIN FAMILY

Antirrhinum coulterianum—Coulter's snapdragon
Antirrhinum nuttallianum—violet snapdragon
Collinsia concolor—Chinese houses
Collinsia heterophylla—purple Chinese houses
Penstemon centranthifolius—scarlet bugler
Penstemon clevelandii—Cleveland's beardtongue
Penstemon spectabilis—showy penstemon
* *Veronica anagallis-aquatica*—water speedwell

POLEMONIACEAE—PHLOX FAMILY

Eriastrum densifolium ssp. *elongatum*—giant woollystar
Eriastrum eremicum ssp. *eremicum*—desert woollystar
Eriastrum sapphirinum ssp. *sapphirinum*—sapphire woollystar
Gilia angelensis—chaparral gilia
Gilia capitata ssp. *abrotanifolia*—bluehead gilia
Gilia capitata—bluehead gilia
Gilia diegensis—coastal gilia
Gilia sp.—no common name
Leptosiphon floribundus ssp. *glaber*—manyflower linanthus
Leptosiphon floribundus—many-flower linanthus
Leptosiphon lemmonii—Lemmon's linanthus
Leptosiphon parviflorus—variable linanthus
Linanthus bellus—desert beauty
Linanthus dianthiflorus—fringed linanthus
Linanthus sp.—no common name
Loeseliastrum matthewsii—desert calico
Loeseliastrum schottii—Schott's calico
Navarretia hamata—hooked pincushionplant

Phlox austromontana—mountain phlox
Saltugilia caruifolia—caraway-leaved woodland-gilia

POLYGONACEAE—BUCKWHEAT FAMILY

Chorizanthe fimbriata var. *laciniata*—fringed spineflower
Chorizanthe fimbriata—fringed spineflower
Eriogonum davidsonii—Davidson's buckwheat
Eriogonum elongatum var. *elongatum*—longstem buckwheat
Eriogonum fasciculatum var. *fasciculatum*—California buckwheat
Eriogonum fasciculatum var. *foliolosum*—California buckwheat
Eriogonum fasciculatum var. *polifolium*—California buckwheat
Eriogonum thurberi—Thurber's buckwheat
Eriogonum wrightii var. *membranaceum*—bastardsage

RANUNCULACEAE—BUTTERCUP FAMILY

Clematis ligusticifolia—western white clematis
Clematis pauciflora—ropevine clematis
Delphinium parishii ssp. *parishii*—Parish's larkspur
Delphinium parishii ssp. *subglobosum*—Colorado Desert larkspur
Delphinium parishii—desert larkspur
Delphinium sp.—no common name
Ranunculus californicus—California buttercup

RHAMNACEAE—BUCKTHORN FAMILY

Ceanothus leucodermis—chaparral white thorn
Ceanothus palmeri—Palmer ceanothus
Ceanothus perplexans—desert ceanothus
Frangula californica—California coffee berry
Rhamnus ilicifolia—hollyleaf redberry
Ziziphus parryi—Parry's jujube

ROSACEAE—ROSE FAMILY

Adenostoma fasciculatum var. *obtusifolium*—chamise
Adenostoma fasciculatum—chamise
Adenostoma sparsifolium—redshank
Cercocarpus betuloides var. *betuloides*—birch leaf mountain mahogany
Cercocarpus minutiflorus—smooth mountain mahogany
Prunus fremontii—desert apricot
Prunus ilicifolia ssp. *ilicifolia* —holly leaf cherry

RUBIACEAE—MADDER FAMILY

Galium andrewsii ssp. *andrewsii*—Andrews' bedstraw
Galium angustifolium—narrowleaf bedstraw

SALICACEAE—WILLOW FAMILY

Salix laevigata—red willow
Salix lasiolepis—arroyo willow

SCROPHULARIACEAE—FIGWORT FAMILY

Scrophularia californica—California figwort

SOLANACEAE—NIGHTSHADE FAMILY

Datura wrightii—sacred thorn-apple
Nicotiana attenuata—coyote tobacco
Nicotiana quadrivalvis—Indian tobacco
Solanum douglasii—greenspot nightshade
Solanum parishii—Parish's nightshade
Solanum xanti—chaparral nightshade

TAMARICACEAE—TAMARISK FAMILY

* *Tamarix ramosissima*—tamarisk

URTICACEAE—NETTLE FAMILY

Urtica dioica ssp. *holosericea*—stinging nettle

VIOLACEAE—Violet Family

Viola pedunculata—Johnny-jump-up
Viola sp.—no common name

VISCACEAE—MISTLETOE FAMILY

Phoradendron bolleanum—Bollean mistletoe
Phoradendron californicum—mesquite mistletoe

VASCULAR SPECIES

FERNS AND FERN ALLIES

PTERIDACEAE—BRAKE FAMILY

Pellaea mucronata—birdfoot cliffbrake

VASCULAR SPECIES

GYMNOSPERMS AND GNETOPHYTES

CUPRESSACEAE—CYPRESS FAMILY

Juniperus californica—California juniper

EPHEDRACEAE—EPHEDRA FAMILY

Ephedra californica—California joint fir

PINACEAE—PINE FAMILY

Pinus monophylla—singleleaf pinyons

VASCULAR SPECIES

MONOCOTS

AGAVACEAE—AGAVE FAMILY

Hesperoyucca whipplei—chaparral yucca
Yucca schidigera—Mojave yucca

CYPERACEAE—SEDGE FAMILY

Carex praegracilis—clustered field sedge
Carex spissa—San Diego sedge

JUNCACEAE—RUSH FAMILY

Juncus bufonius—toad rush
Juncus mexicanus—Mexican rush

LILIACEAE—LILY FAMILY

Calochortus concolor—goldenbowl mariposa lily
Calochortus splendens—splendid mariposa lily

POACEAE—GRASS FAMILY

* *Avena barbata*—slender oat
Bothriochloa barbinodis—cane bluestem
* *Bromus diandrus*—ripgut brome
* *Bromus madritensis* ssp. *madritensis*—compact brome
* *Bromus madritensis* ssp. *rubens*—red brome
* *Bromus tectorum*—cheatgrass
Distichlis spicata—salt grass
Elymus elymoides var. *brevifolius*—squirreltail
Elymus glaucus—blue wild rye
* *Festuca myuros*—rat-tail fescue
* *Hordeum murinum* ssp. *glaucum*—smooth barley
* *Hordeum murinum*—mouse barley
Melica imperfecta—smallflower melicgrass
Muhlenbergia rigens—deer grass beds
* *Poa bulbosa* ssp. *bulbosa*—bulbous bluegrass
* *Polypogon monspeliensis*—annual rabbitsfoot grass
* *Schismus barbatus*—common Mediterranean grass
Sporobolus airoides—alkali sacaton

Stipa cernua—nodding needle grass
Stipa lepida—foothill needle grass
Stipa pulchra—purple needle grass
Stipa speciosa—desert needlegrass

THEMIDACEAE—BRODIAEA FAMILY

Dichelostemma capitatum ssp. *capitatum*—bluedicks

* Non-native species

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ATTACHMENT E

Wildlife Species Observed

AMPHIBIAN

TOADS

BUFONIDAE—TRUE TOADS

Anaxyrus boreas—western toad

BIRD

BLACKBIRDS, ORIOLES and ALLIES

ICTERIDAE—BLACKBIRDS

Euphagus cyanocephalus—Brewer's blackbird
Icterus bullockii—Bullock's oriole
Icterus cucullatus—hooded oriole
Icterus parisorum—Scott's oriole
Sturnella neglecta—western meadowlark
* *Molothrus ater*—brown-headed cowbird

BUSHTITS

AEGITHALIDAE—LONG-TAILED TITS and BUSHTITS

Psaltriparus minimus—bushtit

CARDINALS, GROSBEAKS and ALLIES

CARDINALIDAE—CARDINALS and ALLIES

Pheucticus melanocephalus—black-headed grosbeak
Piranga ludoviciana—western tanager

FALCONS

FALCONIDAE—CARACARAS and FALCONS

Falco sparverius—American kestrel

FINCHES

FRINGILLIDAE—FRINGILLINE and CARDUELINE FINCHES and ALLIES

Haemorhous mexicanus—house finch
Spinus lawrencei—Lawrence's goldfinch

Spinus psaltria—lesser goldfinch
Spinus tristis—American goldfinch

FLYCATCHERS

TYRANNIDAE—TYRANT FLYCATCHERS

Contopus sordidulus—western wood-pewee
Empidonax difficilis—Pacific-slope flycatcher
Empidonax hammondii—Hammond's flycatcher
Myiarchus cinerascens—ash-throated flycatcher
Sayornis nigricans—black phoebe
Sayornis saya—Say's phoebe
Tyrannus verticalis—western kingbird
Tyrannus vociferans—Cassin's kingbird

GOATSUCKERS

CAPRIMULGIDAE—GOATSUCKERS

Phalaenoptilus nuttallii—common poorwill

HAWKS

ACCIPITRIDAE—HAWKS, KITES, EAGLES and ALLIES

Accipiter cooperii—Cooper's hawk
Accipiter striatus—sharp-shinned hawk
Aquila chrysaetos—golden eagle
Buteo jamaicensis—red-tailed hawk
Buteo lineatus—red-shouldered hawk
Circus hudsonius—northern harrier

HUMMINGBIRDS

TROCHILIDAE—HUMMINGBIRDS

Archilochus alexandri—black-chinned hummingbird
Calypte anna—Anna's hummingbird
Calypte costae—Costa's hummingbird
Selasphorus rufus—rufous hummingbird
Selasphorus sp.—Allen's/rufous hummingbird

JAYS, MAGPIES and CROWS

CORVIDAE—CROWS and JAYS

Aphelocoma californica—California scrub-jay
Corvus brachyrhynchos—American crow
Corvus corax—common raven
Cyanocitta stelleri—Steller's jay

KINGLETS

REGULIDAE—KINGLETS

Regulus calendula—ruby-crowned kinglet

LARKS

ALAUDIDAE—LARKS

Eremophila alpestris actia—California horned lark

MOCKINGBIRDS and THRASHERS

MIMIDAE—MOCKINGBIRDS and THRASHERS

Mimus polyglottos—northern mockingbird
Oreoscoptes montanus—sage thrasher
Toxostoma redivivum—California thrasher

NEW WORLD QUAIL

ODONTOPHORIDAE—NEW WORLD QUAIL

Callipepla californica—California quail
Oreortyx pictus—mountain quail

NEW WORLD VULTURES

CATHARTIDAE—CARDINALS and ALLIES

Cathartes aura—turkey vulture

NUTHATCHES

SITTIDAE—NUTHATCHES

Sitta carolinensis—white-breasted nuthatch

OLD WORLD WARBLERS and GNATCATCHERS

SYLVIIDAE—SYLVIID WARBLERS

Polioptila caerulea—blue-gray gnatcatcher

OWLS

TYTONIDAE—BARN OWLS

Tyto alba—barn owl

STRIGIDAE—TYPICAL OWLS

Bubo virginianus—great horned owl

PIGEONS and DOVES

COLUMBIDAE—PIGEONS and DOVES

Patagioenas fasciata—band-tailed pigeon

Zenaida macroura—mourning dove

* *Streptopelia decaocto*—Eurasian collared-dove

Zenaida asiatica—white-winged dove

QUAILS, PHEASANTS and RELATIVES

PHASIANIDAE—PARTRIGES, GROUSE, TURKEYS and OLD WORLD QUAIL

Meleagris gallopavo—wild turkey

ROADRUNNERS and CUCKOOS

CUCULIDAE—CUCKOOS, ROADRUNNERS and ANIS

Geococcyx californianus—greater roadrunner

SHRIKES

LANIIDAE—SHRIKES

Lanius ludovicianus—loggerhead shrike

SILKY FLYCATCHERS

PTILOGONATIDAE—SILKY-FLYCATCHERS

Phainopepla nitens—phainopepla

STARLINGS and ALLIES

STURNIDAE—STARLINGS

* *Sturnus vulgaris*—European starling

SWALLOWS

HIRUNDINIDAE—SWALLOWS

Hirundo rustica—barn swallow
Petrochelidon pyrrhonota—cliff swallow
Stelgidopteryx serripennis—northern rough-winged swallow

SWIFTS

APODIDAE—SWIFTS

Aeronautes saxatalis—white-throated swift

THRUSHES

TURDIDAE—THRUSHES

Catharus ustulatus—Swainson's thrush
Sialia mexicana—western bluebird
Turdus migratorius—American robin

TITMICE

PARIDAE—CHICKADEES and TITMICE

Baeolophus inornatus—oak titmouse

VIREOS

VIREONIDAE—VIREOS

Vireo gilvus—warbling vireo

WOOD WARBLERS and ALLIES

PARULIDAE—WOOD-WARBLERS

Cardellina pusilla—Wilson's warbler
Oreothlypis celata—orange-crowned warbler
Oreothlypis ruficapilla—Nashville warbler

Setophaga coronata—yellow-rumped warbler
Setophaga nigrescens—black-throated gray warbler
Setophaga occidentalis—hermit warbler
Setophaga petechia—yellow warbler
Setophaga townsendi—Townsend's warbler

WOODPECKERS

PICIDAE—WOODPECKERS and ALLIES

Colaptes auratus—northern flicker
Melanerpes formicivorus—acorn woodpecker
Picoides nuttallii—Nuttall's woodpecker
Picoides scalaris—ladder-backed woodpecker

WRENS

TROGLODYTIDAE—WRENS

Campylorhynchus brunneicapillus—cactus wren
Catherpes mexicanus—canyon wren
Salpinctes obsoletus—rock wren
Thryomanes bewickii—Bewick's wren
Troglodytes aedon—house wren

WRENTITS

TIMALIIDAE—BABBLERS

Chamaea fasciata—wrentit

NEW WORLD SPARROWS

PASSERELLIDAE—NEW WORLD SPARROWS

Aimophila ruficeps canescens—Southern California rufous-crowned sparrow
Aimophila ruficeps—rufous-crowned sparrow
Amphispiza bilineata—black-throated sparrow
Artemisiospiza belli belli —Bell's sage sparrow
Artemisiospiza nevadensis—sagebrush sparrow
Junco hyemalis—dark-eyed junco
Melospiza melodia—song sparrow
Melozone crissalis—California towhee
Pipilo maculatus—spotted towhee

Spizella atrogularis—black-chinned sparrow
Spizella breweri—Brewer's sparrow
Spizella passerina—chipping sparrow
Zonotrichia leucophrys—white-crowned sparrow

INVERTEBRATE

BUTTERFLIES

LYCAENIDAE—BLUES, HAIRSTREAKS and COPPERS

Atlides halesus—great purple hairstreak
Brephidium exile—western pygmy-blue
Callophrys augustinus—brown elfin
Callophrys dumetorum affinis—immaculate bramble hairstreak
Callophrys dumetorum—bramble hairstreak
Callophrys perplexa—Perplexing hairstreak
Euphilotes battoides bernardino—Bernardino square-spotted blue
Everes amyntula—western tailed-blue
Glaucopsyche lygdamus australis—southern blue
Hemiargus ceraunus gyas—Edward's blue
Hemiargus isola—Reakirt's blue
Icaricia acmon acmon—Acmon blue
Leptotes marina—marine blue
Lycaeides melissa—Melissa blue
Philotes sonorensis—Sonoran blue
Strymon melinus—gray hairstreak
Blue sp.—no common name

NYMPHALIDAE—BRUSH-FOOTED BUTTERFLIES

Adelpha bredowii—California sister
Chlosyne californica—California patch
Chlosyne gabbii—Gabb's checkerspot
Danaus gilippus—queen
Danaus plexippus—monarch
Euphydryas chalcedona chalcedona—Chalcedon variable checkerspot
Euphydryas editha quino—quino checkerspot butterfly
Junonia coenia—common buckeye
Limenitis lorquini—Lorquin's admiral
Nymphalis antiopa—mourning cloak
Nymphalis californica—California tortoiseshell

Vanessa annabella—west coast lady
Vanessa cardui—painted lady
Vanessa sp.—lady

RIODINIDAE—METALMARKS

Apodemia mormo virgulti—Behr's metalmark

HESPERIIDAE—SKIPPERS

Copaeodes aurantiacus—orange skipperling
Erynnis brizo—sleepy duskywing
Erynnis funeralis—funereal duskywing
Erynnis propertius—Propertius duskywing
Erynnis tristis—mournful duskywing
Erynnis sp.—duskywing
Hylephila phyleus—fiery skipper
Pholisora catullus—common sootywing
Pyrgus albescens—white checkered-skipper

PAPILIONIDAE—SWALLOWTAILS

Papilio eurymedon—pale swallowtail
Papilio rutulus—western tiger swallowtail

PIERIDAE—WHITES and SULFURS

Anthocharis cethura—desert orangetip
Anthocharis sara sara—Pacific sara orangetip
Colias eurydice—California dogface
Colias eurytheme—orange sulphur
Colias harfordii—Harford's sulphur
Euchloe hyantis—California marble
Euchloe hyantis lotta—desert pearly marble
Eurema nicippe—sleepy orange
Nathalis iole—dainty sulphur
Phoebis sennae—cloudless sulphur
Pieris rapae—cabbage white
Pontia beckerii—Becker's white
Pontia protodice—checkered white
Pontia sisymbrii—spring white
Orangetip sp.—no common name
Sulphur sp.—no common name
White sp. —no common name

MOTHS

SPHINGIDAE—HAWK MOTHS

Hyles lineata—white-lined phinx moth

ANTS

FORMICIDAE—ANTS

Harvester ant sp.

MAMMALS

BATS

MOLOSSIDAE—FREE-TAILED BATS

Eumops perotis californicus—western mastiff bat
Nyctinomops femorosaccus—pocketed free-tailed bat
Nyctinomops macrotis—big free-tailed bat
Tadarida brasiliensis—Brazilian free-tailed bat

VESPERTILIONIDAE—EVENING BATS

Antrozous pallidus—pallid bat
Corynorhinus townsendii—Townsend's big-eared bat
Eptesicus fuscus—big brown bat
Lasiurus cinereus—hoary bat
Lasiurus xanthinus—western yellow bat
Myotis californicus—Californian myotis
Myotis ciliolabrum—western small-footed myotis
Myotis yumanensis—Yuma myotis
Parastrellus hesperus—canyon bat

CANIDS

CANIDAE—WOLVES and FOXES

Canis latrans—coyote

CATS

FELIDAE—CATS

Lynx rufus—bobcat

Puma concolor—cougar

HARES and RABBITS

LEPORIDAE—HARES and RABBITS

Lepus californicus bennettii—San Diego black-tailed jackrabbit
Lepus californicus—black-tailed jackrabbit
Sylvilagus audubonii—desert cottontail
Sylvilagus bachmani—brush rabbit

KANGAROO RATS

HETEROMYIDAE—POCKET MICE and KANGAROO RATS

Dipodomys sp.—kangaroo rat (sign only)

MUSTELIDS

MEPHITIDAE—SKUNKS

Mephitis mephitis—striped skunk

POCKET GOPHERS

GEOMYIDAE—POCKET GOPHERS

Thomomys bottae—Botta's pocket gopher

SQUIRRELS

SCIURIDAE—SQUIRRELS

Ammospermophilus leucurus—white-tailed antelope squirrel
Spermophilus (Otospermophilus) beecheyi—California ground squirrel
Tamias merriami—Merriam's chipmunk
Tamias obscurus—California chipmunk

UNGULATES

CERVIDAE—DEERS

Odocoileus hemionus—mule deer

RATS, MICE and VOLES

CRICETIDAE—RATS, MICE and VOLES

Neotoma lepida intermedia—San Diego desert woodrat
Neotoma lepida—desert woodrat
Neotoma sp.—woodrat
Microtus sp.—vole

REPTILES

LIZARDS

PHRYNOSOMATIDAE—IGUANID LIZARDS

Callisaurus draconoides—zebra-tailed lizard
Phrynosoma blainvillii—Blainville's horned lizard
Sceloporus occidentalis—western fence lizard
Sceloporus orcutti—granite spiny lizard
Uta stanburiana—common side-blotched lizard

ANGUIDAE—ALLIGATOR LIZARDS

Elgaria multicarinata—southern alligator lizard

SCINCIDAE—SKINKS

Plestiodon gilberti—Gilbert's skink

TEIIDAE—WHIPTAIL LIZARDS

Aspidoscelis tigris stejnegeri—San Diegan tiger whiptail

CROTAPHYTIDAE—COLLARED LIZARDS

Gambelia wislizenii—long-nosed leopard lizard

SNAKES

COLUBRIDAE—COLUBRID SNAKES

Coluber lateralis—striped racer
Pituophis catenifer—gophersnake
Lampropeltis sp.—kingsnake

VIPERIDAE—VIPERS

Crotalus oreganus—western rattlesnake

* Non-native species

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ATTACHMENT F-1

Special-Status Plant Species Detected or Potentially Occurring in the Boulder Brush Corridor

APPENDIX F-1
Special-Status Plant Species Detected or Potentially Occurring in the Boulder Brush Corridor

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego MSCP	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet)	Potential to Occur
Astragalus douglasii var. *perstrictus*	Jacumba milk-vetch	None/None/1B.2	Covered/List A	Chaparral, cismontane woodland, pinyon and juniper woodland, riparian scrub, valley and foothill grassland; rocky/perennial herb/Apr–June/2,950–4,495	Observed. This species was observed throughout the biological study area.
Caulanthus simulans	Payson's jewelflower	None/None/4.2	Covered/List D	Chaparral, coastal scrub; sandy, granitic/annual herb/(Feb)Mar–May(June)/295–7,220	Observed. Payson's jewelflower was observed in March and April 2019 during 2019 the Quino checkerspot butterfly survey season. It was not observed during the 2017 or 2018 rare plant surveys. Its locations were not generally not mapped.
Deinandra floribunda	Tecate tarplant	None/None/1B.2	Covered/List A	Chaparral, coastal scrub/annual herb/Aug–Oct/225–4,005	Observed. This species was observed in numerous washes in the study area, including the eastern and southern portions.
Delphinium parishii ssp. *subglobosum*	Colorado Desert larkspur	None/None/4.3	None/List D	Chaparral, cismontane woodland, pinyon and juniper woodland, Sonoran Desert scrub/perennial herb/Mar–June/1,965–5,905	Observed. This species was observed in several locations throughout the biological study area, including the southern, eastern, and central portions.
Geraea viscida	sticky geraea	None/None/2B.2	Covered/List B	Chaparral (often in disturbed areas)/perennial herb/(Apr)May–June/1,475–5,575	Observed. This species was observed in several locations throughout the biological study area, including the central and northern portions.
Hesperocyparis forbesii	Tecate cypress	None/None/1B.1	Covered/List A	Closed-cone coniferous forest, chaparral; clay, gabbroic or metavolcanic/perennial evergreen tree/N.A./260–4,920	Observed. This species was observed in the northern portion of the biological study area.
Linanthus bellus	desert beauty	None/None/2B.1	Covered/List B	Chaparral (sandy)/annual herb/Apr–May/3,280–4,595	Observed. This species was observed throughout the biological study area.
Streptanthus campestris	southern jewelflower	None/None/1B.3	None/List A	Chaparral, lower montane coniferous forest, pinyon and juniper woodland; rocky/perennial herb/(Apr)May–July/2,950–7,545	Observed. This species was observed in several locations throughout the biological study area.

Status Legend
CRPR: California Rare Plant Rank 1B: Plants rare, threatened, or endangered in California and elsewhere
2B: Plants rare, threatened, or endangered in California, but more common elsewhere
3: Plants about which more information is needed—A Review List
4: Plants of limited distribution—A Watch List
Threat Rank
.1: Seriously threatened in California (more than 80% of occurrences threatened/high degree and immediacy of threat)
.2: Fairly threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)
.3: Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)
County of San Diego Multiple Species Conservation Program (MSCP), East County Plan
Covered: Covered under the plan
None: Not covered
County of San Diego MSCP Listed Species
List A: Plants rare, threatened, or endangered in California or elsewhere
List B: Plants rare, threatened, or endangered in California but more common elsewhere
List D: Plants of limited distribution and are uncommon, but not presently rare or endangered

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ATTACHMENT F-2

Special-Status Plant Species Detected or Potentially Occurring in the Campo Corridor

APPENDIX F-2
Special-Status Plant Species Detected or Potentially Occurring in the Campo Corridor

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego MSCP	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet)	Potential to Occur
Astragalus douglasii var. *perstrictus*	Jacumba milk-vetch	None/None/ 1B.2	Covered/List A	Chaparral, cismontane woodland, pinyon and juniper woodland, riparian scrub, valley and foothill grassland; rocky/perennial herb/Apr–June/2,950–4,495	Observed during surveys conducted in spring and fall of 2010 and spring 2011 for the Shu'luuk Wind Project (AECOM 2012), which is located in the same general area as the study area.
Caulanthus simulans	Payson's jewelflower	None/None/ 4.2	Covered/List D	Chaparral, coastal scrub; sandy, granitic/annual herb/(Feb)Mar–May(June)/295–7,220	Observed during surveys conducted in spring and fall of 2010 and spring 2011 for the Shu'luuk Wind Project (AECOM 2012), which is located in the same general area as the study area.
Chorizanthe leptotheca	Peninsular spineflower	None/None/ 4.2	None/List D	Chaparral, coastal scrub, lower montane coniferous forest; alluvial fan, granitic/annual herb/May–Aug/980–6,235	Observed during surveys conducted in spring and fall of 2010 and spring 2011 for the Shu'luuk Wind Project (AECOM 2012), which is located in the same general area as the study area.
Deinandra floribunda	Tecate tarplant	None/None/ 1B.2	Covered/List A	Chaparral, coastal scrub/annual herb/Aug–Oct/225–4,005	High potential to occur. This species was observed in numerous washes in the Boulder Brush study area and suitable habitat occurs on site.
Delphinium parishii ssp. *subglobosum*	Colorado Desert larkspur	None/None/ 4.3	None/List D	Chaparral, cismontane woodland, pinyon and juniper woodland, Sonoran Desert scrub/perennial herb/Mar–June/1,965–5,905	Observed during surveys conducted in spring and fall of 2010 and spring 2011 for the Shu'luuk Wind Project (AECOM 2012), which is located in the same general area as the study area.
Geraea viscida	sticky geraea	None/None/ 2B.2	Covered/List B	Chaparral (often in disturbed areas)/perennial herb/(Apr)May–June/1,475–5,575	Observed during surveys conducted in spring and fall of 2010 and spring 2011 for the Shu'luuk Wind Project (AECOM 2012), which is located in the same general area as the study area.
Hesperocyparis forbesii	Tecate cypress	None/None/ 1B.1	Covered/List A	Closed-cone coniferous forest, chaparral; clay, gabbroic or metavolcanic/perennial evergreen tree/N.A./260–4,920	Observed during surveys conducted in spring and fall of 2010 and spring 2011 for the Shu'luuk Wind Project (AECOM 2012), which is located in the same general area as the study

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego MSCP	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet)	Potential to Occur
					area.
Lathyrus splendens	pride-of-California	None/None/ 4.3	Covered/List D	Chaparral/perennial herb/Mar–June/655–5,005	Observed during surveys conducted in spring and fall of 2010 and spring 2011 for the Shu'luuk Wind Project (AECOM 2012), which is located in the same general area as the study area.
Linanthus bellus	desert beauty	None/None/ 2B.1	Covered/List B	Chaparral (sandy)/annual herb/Apr–May/3,280–4,595	High potential to occur. This species was observed throughout the biological study area for Boulder Brush and suitable habitat occurs on site.
Streptanthus campestris	southern jewelflower	None/None/ 1B.3	None/List A	Chaparral, lower montane coniferous forest, pinyon and juniper woodland; rocky/perennial herb/(Apr)May–July/2,950–7,545	Observed during surveys conducted in spring and fall of 2010 and spring 2011 for the Shu'luuk Wind Project (AECOM 2012), which is located in the same general area as the study area.

Status Legend
CRPR: California Rare Plant Rank 1B: Plants rare, threatened, or endangered in California and elsewhere
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Threat Rank
.1: Seriously threatened in California (more than 80% of occurrences threatened/high degree and immediacy of threat)
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County of San Diego Multiple Species Conservation Program (MSCP), East County Plan
Covered: Covered under the plan
None: Not covered
County of San Diego MSCP Listed Species
List A: Plants rare, threatened, or endangered in California or elsewhere
List B: Plants rare, threatened, or endangered in California but more common elsewhere
List D: Plants of limited distribution and are uncommon, but not presently rare or endangered

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ATTACHMENT G-1

Special-Status Plant Species with Low Potential or Not Expected to Occur in the Boulder Brush Corridor

APPENDIX G-1
Special-Status Plant Species with Low Potential or Not Expected to Occur in the Boulder Brush Corridor

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Abronia maritima	red sand-verbena	None/None/4.2	None/List D	Coastal dunes/perennial herb/Feb–Nov/0–330	Not expected to occur. Red sand verbena occurs only on well-developed beach dunes (Reiser 2001). Beach dunes are more than 65 miles from the site. Generally, the site is outside of the species' known elevation range and there is no suitable vegetation present. Also, does not occur in vicinity (CDFW 2018; CNPS 2018).
Abronia villosa var. *aurita*	chaparral sand-verbena	None/None/1B.1	None/List A	Chaparral, coastal scrub, desert dunes; sandy/annual herb/(Jan)Mar–Sep/245–5,250	Low potential to occur. Chaparral sand verbena has been documented around Camp Pendleton and near Fallbrook, California (San Diego Plant Atlas 2018). Chaparral sand-verbena is more likely to be found in sandy floodplains (Reiser 2001). This species would have been observed if present; focused surveys were conducted during the species' blooming period.
Acanthomintha ilicifolia	San Diego thorn-mint	FT/SE/1B.1	Covered/List A	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; clay, openings/annual herb/Apr–June/30–3,150	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018). Friable clay soils (cracked clay) are the typical habitat for San Diego thorn-mint (Reiser 2001). Cracked clay soils were not present in the survey area. In addition, San Diego thorn mint is most often associated with small flowered morning glory (*Convolvulus simulans*) (Reiser 2001). Small flowered morning glory was not present within the survey area.
Acmispon haydonii	pygmy lotus	None/None/1B.3	Covered/List A	Pinyon and juniper woodland, Sonoran desert scrub; rocky/perennial herb/Jan–June/1,705–3,935	Low potential to occur. This species would have been observed if present; focused surveys were conducted during the species' blooming period. Pygmy lotus occurs east of Jacumba, California. Pygmy lotus is more likely to occur in the high desert and desert region (San Diego Plant Atlas 2018).

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Acmispon prostratus	Nuttall's acmispon	None/None/1B.1	None/List A	Coastal dunes, coastal scrub (sandy)/annual herb/Mar–June(July)/0–35	Not expected to occur. Nuttall's acmispon occurs west of Interstate (I) 15 (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Adolphia californica	California adolphia	None/None/2B.1	None/List B	Chaparral, coastal scrub, valley and foothill grassland; clay/perennial deciduous shrub/ Dec–May/30–2,430	Not expected to occur. California adolphia occurs west of El Cajon, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Agave shawii var. *shawii*	Shaw's agave	None/None/2B.1	None/List B	Coastal bluff scrub, coastal scrub; maritime succulent scrub/perennial leaf succulent/Sep–May/5–395	Not expected to occur. Shaw's agave occurs west of I-5 near the beach (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Ambrosia chenopodiifolia	San Diego bur-sage	None/None/2B.1	None/List B	Coastal scrub/perennial shrub/Apr–June/180–510	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Ambrosia pumila	San Diego ambrosia	FE/None/1B.1	None/List A	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; sandy loam or clay, often in disturbed areas, sometimes alkaline/perennial rhizomatous herb/Apr–Oct/65–1,360	Not expected to occur. San Diego ambrosia occurs in creek beds and dry drainages with a protective tree canopy (Reiser 2001). San Diego ambrosia occurs west of Crest, California (San Diego Plant Atlas 2018). This habitat was not present in the survey area. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Androsace elongata ssp. *acuta*	California androsace	None/None/4.2	None/List D	Chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, valley and foothill grassland/annual herb/Mar–June/490–4,280	Not expected to occur. California androsace occurs north of Cuyamaca Rancho State Park (San Diego Plant Atlas 2018). California androsace grows in open montane grassy meadows within Cuyamaca Rancho State Park (Reiser 2001). Does not occur in vicinity (CDFW 2018; CNPS 2018).

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Aphanisma blitoides	aphanisma	None/None/1B.2	None/List A	Coastal bluff scrub, coastal dunes, coastal scrub; sandy or gravelly/annual herb/Feb–June/0–1,000	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Arctostaphylos glandulosa ssp. *crassifolia*	Del Mar manzanita	FE/None/1B.1	None/List A	Chaparral (maritime, sandy)/perennial evergreen shrub/Dec–June/0–1,200	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Arctostaphylos otayensis	Otay manzanita	None/None/1B.2	Covered/List A	Chaparral, cismontane woodland; metavolcanic/perennial evergreen shrub/Jan–Apr/900–5,575	Not expected to occur. Otay manzanita occurs west of Dulzura, California, within the Otay area and north up to Rancho San Diego, California (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018). Otay manzanita occurs on metavolcanic peaks and soils that are shallow with exposed rock (Reiser 2001).
Arctostaphylos rainbowensis	Rainbow manzanita	None/None/1B.1	None/List A	Chaparral/perennial evergreen shrub/Dec–Mar/670–2,200	Not expected to occur. Rainbow manzanita occurs north of Escondido, and the majority of the population is near Rainbow, California, and Pala, California (San Diego Plant Atlas 2018). The project site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Artemisia palmeri	San Diego sagewort	None/None/4.2	None/List D	Chaparral, coastal scrub, riparian forest, riparian scrub, riparian woodland; sandy, mesic/perennial deciduous shrub/(Feb)May–Sep/45–3,000	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Asplenium vespertinum	western spleenwort	None/None/4.2	None/List D	Chaparral, cismontane woodland, coastal scrub; rocky/perennial rhizomatous herb/Feb–June/590–3,280	Not expected to occur. The site is outside of the species' known elevation range.

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Astragalus crotalariae	Salton milk-vetch	None/None/4.3	Covered/List D	Sonoran desert scrub (sandy or gravelly)/perennial herb/Jan–Apr/195–820	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Astragalus deanei	Dean's milk-vetch	None/None/1B.1	Covered/List A	Chaparral, cismontane woodland, coastal scrub, riparian forest/perennial herb/Feb–May/245–2,280	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Astragalus insularis var. *harwoodii*	Harwood's milk-vetch	None/None/2B.2	Covered/List B	Desert dunes, Mojavean desert scrub; sandy or gravelly/annual herb/Jan–May/0–2,330	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Astragalus lentiginosus var. *borreganus*	Borrego milk-vetch	None/None/4.3	Covered/List D	Mojavean desert scrub, Sonoran desert scrub; sandy/annual herb/ Feb–May/95–2,935	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Astragalus magdalenae var. *peirsonii*	Peirson's milk-vetch	FT/SE/1B.2	None/List A	Desert dunes/perennial herb/Dec–Apr/195–740	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Astragalus nutans	Providence Mountains milk-vetch	None/None/4.3	None/None	Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland, Sonoran desert scrub; sandy or gravelly/annual herb/Mar–June(Oct)/1,475–6,400	Low potential to occur. This species would have been observed if present; focused surveys were conducted during the species' blooming period. Has been documented within the Sonoran Desert (Calflora 2018). The San Diego Plant Atlas does not have any collections of Providence Mountains milk-vetch within San Diego County (San Diego Plant Atlas 2018).
Astragalus oocarpus	San Diego milk-vetch	None/None/1B.2	Covered/List A	Chaparral (openings), cismontane woodland/perennial herb/May–Aug/1,000–5,000	Low potential to occur. Collections of San Diego milk-vetch are west of State Route (SR) 79 near Cuyamaca Rancho State Park and north of this area (San Diego Plant Atlas 2018). This perennial herb would have been observed during focused surveys if present.

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Astragalus pachypus var. *jaegeri*	Jaeger's bush milk-vetch	None/None/1B.1	None/List A	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland; sandy or rocky/perennial shrub/Dec–June/1,195–3,200	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Astragalus tener var. *titi*	coastal dunes milk-vetch	FE/SE/1B.1	None/List A	Coastal bluff scrub (sandy), coastal dunes, coastal prairie (mesic); often vernally mesic areas/annual herb/Mar–May/0–165	Not expected to occur. Occurs on coastal dunes (Reiser 2001). The site is outside of the species' known elevation range and there is no suitable vegetation present. Also does not occur in vicinity (CDFW 2018; CNPS 2018).
Atriplex coulteri	Coulter's saltbush	None/None/1B.2	None/List A	Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland; alkaline or clay/perennial herb/Mar–Oct/5–1,510	Not expected to occur. Coulter's saltbush is more typical on seabluff habitat (Reiser 2001). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Atriplex pacifica	South Coast saltscale	None/None/1B.2	None/List A	Coastal bluff scrub, coastal dunes, coastal scrub, playas/annual herb/Mar–Oct/0–460	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Atriplex parishii	Parish's brittlescale	None/None/1B.1	None/List A	Chenopod scrub, playas, vernal pools; alkaline/annual herb/June–Oct/80–6,235	Not expected to occur. No suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Atriplex serenana var. *davidsonii*	Davidson's saltscale	None/None/1B.2	None/List A	Coastal bluff scrub, coastal scrub; alkaline/annual herb/Apr–Oct/30–655	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Ayenia compacta	California ayenia	None/None/2B.3	None/List B	Mojavean desert scrub, Sonoran desert scrub; rocky/perennial herb/Mar–Apr/490–3,595	Low potential to occur. This species is only known from areas north of Mount Laguna (San Diego Plant Atlas 2018). Rocky canyons and desert arroyos are the preferred habitat of California ayenia. California ayenia prefers the periphery of sandy washes (Reiser 2001).

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Azolla microphylla	Mexican mosquito fern	None/None/4.2	None/List D	Marshes and swamps (ponds, slow water)/annual / perennial herb/Aug/95–330	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. Also does not occur in vicinity (CDFW 2018; CNPS 2018).
Baccharis vanessae	Encinitas baccharis	FT/SE/1B.1	None/List A	Chaparral (maritime), cismontane woodland; sandstone/perennial deciduous shrub/ Aug,Oct,Nov/195–2,360	Not expected to occur. Generally occurs northwest of Alpine, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Berberis fremontii	Fremont barberry	None/None/2B.3	Covered/List C	Joshua tree woodland, pinyon and juniper woodland; rocky, sometimes granitic/perennial evergreen shrub/Mar–May/3,755–5,645	Low potential to occur. Occurs in high desert chaparral and high desert badlands on fairly level terrain with granitic boulder fields (Reiser 2001). Fremont barberry is extremely rare (Reiser 2001). This perennial evergreen shrub would have been observed during focused surveys if present. Has not been collected in the San Diego Plant Atlas (2018).
Berberis higginsiae	Higgins barberry	None/None/3.2	Covered/None	Chaparral, Sonoran desert scrub; rocky, sometimes granitic/perennial shrub/Mar–Apr/2,620–3,495	Not expected to occur. The site is outside of the species' known elevation range.
Berberis nevinii	Nevin's barberry	FE/SE/1B.1	None/List A	Chaparral, cismontane woodland, coastal scrub, riparian scrub; sandy or gravelly/ perennial evergreen shrub/(Feb)Mar–June/225–2,705	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Bergerocactus emoryi	golden-spined cereus	None/None/2B.2	None/List B	Closed-cone coniferous forest, chaparral, coastal scrub; sandy/perennial stem succulent/May–June/5–1,295	Not expected to occur. Golden-spined cereus occurs near the beach or within Otay (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).

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Bloomeria clevelandii	San Diego goldenstar	None/None/1B.1	Covered/List A	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; clay/perennial bulbiferous herb/Apr–May/160–1,525	Not expected to occur. San Diego goldenstar occurs west of Alpine, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Boechera hirshbergiae	Hirshberg's rockcress	None/None/1B.2	None/List A	Pebble (Pavement) plain/perennial herb/Mar–May/4,590–4,640	Not expected to occur. Occurs north of Cuyamaca Rancho State Park (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range and there is no suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Boykinia rotundifolia	round leaved boykinia	None/None/None	None/None	Streambanks//May–July/0–6,562	Not expected to occur. This species is known north of Julian in San Diego County (San Diego Plant Atlas 2018).
Brodiaea filifolia	thread-leaved brodiaea	FT/SE/1B.1	None/List A	Chaparral (openings), cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools; often clay/perennial bulbiferous herb/Mar–June/80–3,675	Not expected to occur. Thread-leaved Brodiaea occurs north of Rancho Santa Fe, California, and is more likely to be found near Camp Pendleton, California (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Brodiaea orcuttii	Orcutt's brodiaea	None/None/1B.1	Covered/List A	Closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools; mesic, clay/perennial bulbiferous herb/May–July/95–5,550	Low potential to occur. Orcutt's brodiea occurs in vernally moist grasslands and around vernal pools with mina mound topography (Reiser 2001). Vernal pools were not present on site. Occurs west of Sunrise Highway within the southern mountain range and reaches the Pacific Ocean (San Diego Plant Atlas 2018). This annual herb would have been observed during focused surveys if present.
Bursera microphylla	little-leaf elephant tree	None/None/2B.3	Covered/List B	Sonoran desert scrub (rocky)/perennial deciduous tree/June–July/655–2,295	Not expected to occur. Little-leaf elephant plant occurs in the desert and high desert region (San Diego Plant Atlas 2018). Sonoran Desert scrub is the preferred habitat of little-leaf elephant tree, and prefers desert

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					alluvial fan scrub and rocky slopes. Is also associated with desert plants like desert lavender (*Hyptis emoryi*) and smoke tree (*Psorothamnus spinosus*) (Reiser 2001). These associates are typically found in desert environments and were not within the survey area. The site is outside of the species' known elevation range.
Calandrinia breweri	Brewer's calandrinia	None/None/4.2	None/List D	Chaparral, coastal scrub; sandy or loamy, disturbed sites and burns/annual herb/(Jan)Mar–June/30–4,005	Not expected to occur. Brewer's calandrinia occurs west of Pine Valley, California (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).
California macrophylla	round-leaved filaree	None/None/None	None/List B	Cismontane woodland, valley and foothill grassland; clay/annual herb/Mar–May/45–3,935	Low potential to occur. This species is known from west of Alpine, California (San Diego Plant Atlas 2018).
Calliandra eriophylla	pink fairy-duster	None/None/2B.3	Covered/List B	Sonoran desert scrub (sandy or rocky)/perennial deciduous shrub/Jan–Mar/390–4,920	Low potential to occur. This species is known to occur within Anza-Borrego Desert State Park and east of Jacumba, California (San Diego Plant Atlas 2018).
Calochortus catalinae	Catalina mariposa lily	None/None/4.2	None/List D	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/perennial bulbiferous herb/(Feb)Mar–June/45–2,295	Not expected to occur. Catalina mariposa lily occurs in grassland communities (Reiser 2001). The site did not consist of grassland vegetation communities. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Calochortus dunnii	Dunn's mariposa lily	None/SR/1B.2	Covered/List A	Closed-cone coniferous forest, chaparral, valley and foothill grassland; gabbroic or metavolcanic, rocky/perennial bulbiferous herb/ (Feb)Apr–June/605–6,005	Low potential to occur. Dunn's mariposa lily is generally located west of Pine Valley, California, and east of El Cajon, California (San Diego Plant Atlas 2018). Dunn's mariposa lily occurs in gabbroic derived soils and metavolcanic soils (Reiser 2001). Gabbroic and metavolcanic soils are not present on site (UC Davis 2018). This perennial herb would have been observed during focused surveys if present.

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Camissoniopsis lewisii	Lewis' evening-primrose	None/None/3	None/List C	Coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland; sandy or clay/annual herb/Mar–May(June)/0–985	Not expected to occur. Lewis' evening primrose occurs west of Alpine, California, and generally on the coastline (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Carex obispoensis	San Luis Obispo sedge	None/None/1B.2	Covered/None	Closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, valley and foothill grassland; often serpentinite seeps, sometimes gabbro; often on clay soils/perennial herb/ Apr–June/30–2,690	Not expected to occur. San Luis Obispo sedge occurs west of Alpine, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Carlowrightia arizonica	Arizona carlowrightia	None/None/2B.2	Covered/None/List B	Sonoran desert scrub (sandy, granitic alluvium)/perennial deciduous shrub/Mar–May/935–1,410	Not expected to occur. Arizona carlowrightia occurs near Borrego Springs and Agua Caliente. Arizona carlowrightia is found in Anza Borrego Desert State Park (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range.
Castilleja lasiorhyncha	San Bernardino Mountains owl's-clover	None/None/1B.2	None	Chaparral, meadows and seeps, pebble (pavement) plain, riparian woodland, upper montane coniferous forest; mesic/annual herb (hemiparasitic)/May–Aug/4,265–7,840	Not expected to occur. The site is outside of the species' known elevation range.
Ceanothus cyaneus	Lakeside ceanothus	None/None/1B.2	Covered/List A	Closed-cone coniferous forest, chaparral/perennial evergreen shrub/Apr–June/770–2,475	Not expected to occur. Lakeside ceanothus occurs west of Alpine, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).

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Ceanothus otayensis	Otay Mountain ceanothus	None/None/1B.2	None/None	Chaparral (metavolcanic or gabbroic)/perennial evergreen shrub/Jan–Apr/1,965–3,610	Low potential to occur. Otay Mountain ceanothus occurs generally west of Campo, California, but commonly west of Potrero, California (San Diego Plant Atlas 2018). This perennial evergreen shrub would have been observed during focused surveys if present.
Ceanothus verrucosus	wart-stemmed ceanothus	None/None/2B.2	None/List B	Chaparral/perennial evergreen shrub/Dec–May/0–1,245	Not expected to occur. Wart-stemmed ceanothus occurs generally west of I-15. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Centromadia parryi ssp. *australis*	southern tarplant	None/None/1B.1	None/List A	Marshes and swamps (margins), valley and foothill grassland (vernally mesic), vernal pools/annual herb/May–Nov/0–1,575	Not expected to occur. Southern tarplant occurs near Ramona, California; Del Dios, California; and Solana Beach, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Centromadia pungens ssp. *laevis*	smooth tarplant	None/None/1B.1	None/List A	Chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland; alkaline/annual herb/Apr–Sep/0–2,100	Not expected to occur. Smooth tarplant occurs west of the SR-79 and on Camp Pendleton (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Chaenactis carphoclinia var. *peirsonii*	Peirson's pincushion	None/None/1B.3	Covered/List A	Sonoran desert scrub (sandy)/annual herb/Mar–Apr/5–1,640	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	None/None/1B.1	None/List A	Coastal bluff scrub (sandy), coastal dunes/annual herb/Jan–Aug/0–330	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. Also does not occur in vicinity (CDFW 2018; CNPS 2018).
Chaenactis parishii	Parish's chaenactis	None/None/1B.3	None/List A	Chaparral (rocky) /perennial herb/May–July/4,265–8,200	Not expected to occur. The site is outside of the species' known elevation range.

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Chamaebatia australis	southern mountain misery	None/None/4.2	Covered/List D	Chaparral (gabbroic or metavolcanic)/perennial evergreen shrub/Nov–May/980–3,345	Not expected to occur. The site is outside of the species' known elevation range.
Chloropyron maritimum ssp. *maritimum*	salt marsh bird's-beak	FE/SE/1B.2	None/List A	Coastal dunes, marshes and swamps (coastal salt)/annual herb (hemiparasitic)/May–Oct(Nov)/0–100	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. Also does not occur in vicinity (CDFW 2018; CNPS 2018).
Chorizanthe leptotheca	Peninsular spineflower	None/None/4.2	None/List D	Chaparral, coastal scrub, lower montane coniferous forest; alluvial fan, granitic/annual herb/May–Aug/980–6,235	Low potential to occur. Peninsular spineflower has been documented west of Live Oak Springs, California (San Diego Plant Atlas 2018). This species would have been observed if present; focused surveys were conducted during the species' blooming period.
Chorizanthe orcuttiana	Orcutt's spineflower	FE/SE/1B.1	None/List A	Closed-cone coniferous forest, chaparral (maritime), coastal scrub; sandy openings/annual herb/Mar–May/5–410	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Chorizanthe parryi var. *fernandina*	San Fernando Valley spineflower	FC/SE/1B.1	None/List A	Coastal scrub (sandy), valley and foothill grassland/annual herb/Apr–July/490–4,005	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Chorizanthe polygonoides var. *longispina*	long-spined spineflower	None/None/1B.2	Covered/List A	Chaparral, coastal scrub, meadows and seeps, valley and foothill grassland, vernal pools; often clay/annual herb/Apr–July/95–5,020	Low potential to occur. Long-spined spineflower occurs west of Pine Valley, California (San Diego Plant Atlas 2018). This species would have been observed if present; focused surveys were conducted during the species' blooming period.
Cistanthe maritima	seaside cistanthe	None/None/4.2	None/List D	Coastal bluff scrub, coastal scrub, valley and foothill grassland; sandy/annual herb/(Feb)Mar–June(Aug)/15–985	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).

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Clarkia delicata	delicate clarkia	None/None/1B.2	Covered/List A	Chaparral, cismontane woodland; often gabbroic/annual herb/Apr–June/770–3,280	Not expected to occur. Delicate clarkia occurs within or on the periphery of oak woodlands. Locales where delicate clarkia is observed are within shaded tree canopies or the shade of large shrubs where vernally mesic (Reiser 2001). Habitat needed for delicate clarkia was not present on site. Distribution is generally west of Pine Valley, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range.
Clinopodium chandleri	San Miguel savory	None/None/1B.2	None/List A	Chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland; rocky, gabbroic or metavolcanic/perennial shrub/Mar–July/390–3,525	Not expected to occur. San Miguel savory occurs west of Alpine, California (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Colubrina californica	Las Animas colubrina	None/None/2B.3	None/List B	Mojavean Desert scrub, Sonoran Desert scrub/perennial deciduous shrub/Apr–June/30–3,280	Not expected to occur. Los Aminas colubrina occurs in the desert region (San Diego Plant Atlas 2018).The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Comarostaphylis diversifolia ssp. *diversifolia*	summer holly	None/None/1B.2	None/List A	Chaparral, cismontane woodland/perennial evergreen shrub/Apr–June/95–2,590	Not expected to occur. Occurs west of Barret Junction, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Convolvulus simulans	small-flowered morning-glory	None/None/4.2	None/List D	Chaparral (openings), coastal scrub, valley and foothill grassland; clay, serpentinite seeps/annual herb/ Mar–July/95–2,430	Not expected to occur. Small-flowered morning-glory occurs west of Alpine, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).

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Corethrogyne filaginifolia var. *linifolia*	Del Mar Mesa sand aster	None/None/1B.1	None/List A	Coastal bluff scrub, chaparral (maritime, openings), coastal scrub; sandy/perennial herb/May,July,Aug,Sep/45–490	Not expected to occur. Del Mar Mesa sand aster occurs near the beach (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Cryptantha ganderi	Gander's cryptantha	None/None/1B.1	Covered/List A	Desert dunes, Sonoran Desert scrub (sandy)/annual herb/Feb–May/520–1,310	Not expected to occur. Gander's cryptantha occurs in the desert region and is found north of Anza Borrego Desert State Park (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Cylindropuntia californica var. *californica*	snake cholla	None/None/1B.1	None/List A	Chaparral, coastal scrub/perennial stem succulent/Apr–May/95–490	Not expected to occur. Snake cholla is distributed west of El Cajon, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Cylindropuntia fosbergii	pink teddy-bear cholla	None/None/1B.3	Covered/None	Sonoran Desert scrub/perennial stem succulent/Mar–May/275–2,790	Not expected to occur. Pink teddy-bear cholla is distributed north of Mount Laguna (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range.
Cylindropuntia wolfii	Wolf's cholla	None/None/4.3	Covered/List D	Sonoran Desert scrub/perennial stem succulent/Mar–May/325–3,935	Low potential to occur. Wolf's cholla is generally distributed east of Jacumba, California, in the desert region (San Diego Plant Atlas 2018). This perennial succulent would have been observed during focused surveys if present.
Deinandra conjugens	Otay tarplant	FT/SE/1B.1	None/List A	Coastal scrub, valley and foothill grassland; clay/annual herb/(Apr)May–June/80–985	Not expected to occur. Otay tarplant populations occur west of Dulzura, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).

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Deinandra mohavensis	Mojave tarplant	None/SE/1B.3	Covered/List A	Chaparral, coastal scrub, riparian scrub; mesic/annual herb/(May)June–Oct(Jan)/2,095–5,250	Not expected to occur. Populations of Mojave tarplant occur north of Warner Springs, California (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Deinandra paniculata	paniculate tarplant	None/None/4.2	None/List D	Coastal scrub, valley and foothill grassland, vernal pools; usually vernally mesic, sometimes sandy/annual herb/(Mar)Apr–Nov/80–3,085	Not expected to occur. Paniculate tarplant populations are north of Cuyamaca Rancho State Park (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Delphinium hesperium ssp. *cuyamacae*	Cuyamaca larkspur	None/SR/1B.2	Covered/None	Lower montane coniferous forest, meadows and seeps, vernal pools; mesic/perennial herb/May–July/4,000–5,350	Not expected to occur. Cuyamaca larkspur occurs north of Pine Valley, California (San Diego Plant Atlas 2018). No suitable vegetation present.
Dichondra occidentalis	western dichondra	None/None/4.2	None/List D	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/perennial rhizomatous herb/(Jan)Mar–July/160–1,640	Not expected to occur. Western dichondra occurs west of Alpine, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Dicranostegia orcuttiana	Orcutt's bird's-beak	None/None/2B.1	None/List B	Coastal scrub/annual herb (hemiparasitic)/ (Mar)Apr–July(Sep)/30–1,150	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Dieteria asteroides var. *lagunensis*	Mount Laguna aster	None/SR/2B.1	Covered/List B	Cismontane woodland, lower montane coniferous forest/perennial herb/(May)July–Aug/2,590–7,875	Low potential to occur. Mount Laguna aster is known only form the Mount Laguna area north of the biological study area (San Diego Plant Atlas 2018).

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Diplacus aridus	low bush monkeyflower	None/None/4.3	Covered/List D	Chaparral (rocky), Sonoran Desert scrub/perennial evergreen shrub/Apr–July/2,460–3,935	Low potential to occur. Low bush monkey flower occurs in the high and low desert near Jacumba, California, and farther east (San Diego Plant Atlas 2018). This perennial evergreen shrub would have been observed during focused surveys if present.
Diplacus clevelandii	Cleveland's bush monkeyflower	None/None/4.2	None/List D	Chaparral, cismontane woodland, lower montane coniferous forest; gabbroic, often in disturbed areas, openings, rocky/perennial rhizomatous herb/Apr–July/1,475–6,560	Low potential to occur. Cleveland's bush monkeyflower occurs west of Pine Valley, California (San Diego Plant Atlas 2018). This perennial herb would have been observed during focused surveys if present.
Ditaxis serrata var. *californica*	California ditaxis	None/None/3.2	None/List C	Sonoran Desert scrub/perennial herb/Mar–Dec/95–3,280	Not expected to occur. California ditaxis occurs in Anza Borrego Desert State Park (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Downingia concolor var. *brevior*	Cuyamaca Lake downingia	None/SE/1B.1	Covered/List A	Meadows and seeps (vernally mesic), vernal pools/annual herb/May–July/4,525–4,920	Not expected to occur. Cuyamaca Lake downingia occurs north of Cuyamca Rancho State Park (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range and there is no suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Dudleya alainae	Banner dudleya	None/None/3.2	None/List C	Chaparral, lower montane coniferous forest, Sonoran Desert scrub; rocky/ perennial herb/ Apr–July/2,425–3,935	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Dudleya attenuata ssp. *attenuata*	Orcutt's dudleya	None/None/2B.1	None/List B	Coastal bluff scrub, chaparral, coastal scrub; rocky or gravelly/perennial herb/May–July/5–165	Not expected to occur. Orcutt's dudleya occurs near the border in Border Field State Park right next to the ocean (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).

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Dudleya blochmaniae ssp. *Blochmaniae*	Blochman's dudleya	None/None/1B.1	None/List A	Coastal bluff scrub, chaparral, coastal scrub, valley and foothill grassland; rocky, often clay or serpentinite/ perennial herb/Apr–June/15–1,475	Not expected to occur. Blochman's dudleya occurs near the ocean (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Dudleya brevifolia	short-leaved dudleya	None/SE/1B.1	None/List A	Chaparral (maritime, openings), coastal scrub; Torrey sandstone/perennial herb/Apr–May/95–820	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Dudleya multicaulis	many-stemmed dudleya	None/None/1B.2	None/List A	Chaparral, coastal scrub, valley and foothill grassland; often clay/perennial herb/Apr–July/45–2,590	Not expected to occur. Many stemmed dudleya occurs near San Clemente, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Dudleya variegata	variegated dudleya	None/None/1B.2	None/List A	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools; clay/perennial herb/Apr–June/5–1,905	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Dudleya viscida	sticky dudleya	None/None/1B.2	None/List A	Coastal bluff scrub, chaparral, cismontane woodland, coastal scrub; rocky/perennial herb/May–June/30–1,805	Not expected to occur. Sticky dudleya occurs near Oceanside, California, and Camp Pendleton, California (San Diego Plant Atlas 2018).The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Ericameria cuneata var. *macrocephala*	Laguna Mountains goldenbush	None/None/1B.3	Covered/List A	Chaparral (granitic)/perennial shrub/Sep–Dec/3,920–6,070	Low potential to occur. Laguna Mountains goldenbush occurs west of Boulder Oaks and Mount Laguna (San Diego Plant Atlas 2018). Numerous *Ericameria* species were found on site, but not of this variety. This perennial shrub would have been observed during focused surveys if present.

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Ericameria palmeri var. *palmeri*	Palmer's goldenbush	None/None/1B.1	Covered/List B	Chaparral, coastal scrub; mesic/perennial evergreen shrub/(July)Sep–Nov/95–1,970	Not expected to occur. Palmer's goldenbush occurs west of Alpine, California. Numerous *Ericameria* species were found on site, but not this specific species. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Eriogonum evanidum	vanishing wild buckwheat	None/None/1B.1	Covered/List A	Chaparral, cismontane woodland, lower montane coniferous forest, pinyon and juniper woodland; sandy or gravelly/annual herb/July–Oct/3,605–7,300	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Eryngium aristulatum var. *parishii*	San Diego button-celery	FE/SE/1B.1	None/List A	Coastal scrub, valley and foothill grassland, vernal pools; mesic/annual / perennial herb/Apr–June/65–2,035	Not expected to occur. San Diego button celery generally occurs west of Alpine, California (San Diego Plant Atlas 2018).The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Eryngium pendletonense	Pendleton button-celery	None/None/1B.1	None/List A	Coastal bluff scrub, valley and foothill grassland, vernal pools; clay, vernally mesic/perennial herb/Apr–June(July)/45–360	Not expected to occur. Pendleton button celery only occurs on Camp Pendleton (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Erythranthe diffusa	Palomar monkeyflower	None/None/4.3	Covered/List D	Chaparral, lower montane coniferous forest; sandy or gravelly/annual herb/Apr–June/4,000–6,005	Low potential to occur. Palomar monkeyflower occurs west of Mount Laguna (San Diego Plant Atlas 2018). This species would have been observed if present; focused surveys were conducted during the species' blooming period.
Eucnide rupestris	annual rock-nettle	None/None/2B.2	None/List B	Sonoran Desert scrub/annual herb/Dec–Apr/1,640–1,970	Not expected to occur. Annual rock nettle occurs in the desert region and just south of Anza Borrego Desert State Park (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range.

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Euphorbia abramsiana	Abrams' spurge	None/None/2B.2	None/None	Mojavean Desert scrub, Sonoran Desert scrub; sandy/annual herb/(Aug)Sep–Nov/-5–4,300	Low potential to occur. This species is occurs far north of the biological study area in the Anza-Borrego Desert State Park area in San Diego County (San Diego Plant Atlas 2018).
Euphorbia arizonica	Arizona spurge	None/None/2B.3	None/List B	Sonoran Desert scrub (sandy)/perennial herb/Mar–Apr/160–985	Not expected to occur. Arizona spurge occurs west of Borrego Springs (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range.
Euphorbia misera	cliff spurge	None/None/2B.2	None/List B	Coastal bluff scrub, coastal scrub, Mojavean Desert scrub; rocky/perennial shrub/Dec–Aug(Oct)/30–1,640	Not expected to occur. Cliff spurge occurs near the coast and in the Otay area (San Diego Plant Atlas 2018).The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Euphorbia platysperma	flat-seeded spurge	None/None/1B.2	None/List A	Desert dunes, Sonoran Desert scrub (sandy)/annual herb/Feb–Sep/210–330	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Euphorbia revoluta	revolute spurge	None/None/4.3	None/List D	Mojavean Desert scrub (rocky)/annual herb/Aug–Sep/3,590–10,170	Not expected to occur. No suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Ferocactus viridescens	San Diego barrel cactus	None/None/2B.1	None/List B	Chaparral, coastal scrub, valley and foothill grassland, vernal pools/perennial stem succulent/May–June/5–1,475	Not expected to occur. San Diego barrel cactus occurs west of El Cajon, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Frankenia palmeri	Palmer's frankenia	None/None/2B.1	None/List B	Coastal dunes, marshes and swamps (coastal salt), playas/perennial herb/May–July/0–35	Not expected to occur. Palmer's frankenia occurs west of I-5 along the coast in marshes (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range and there is no suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).

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Fremontodendron mexicanum	Mexican flannelbush	FE/SR/1B.1	None/List A	Closed-cone coniferous forest, chaparral, cismontane woodland; gabbroic, metavolcanic, or serpentinite/perennial evergreen shrub/Mar–June/30–2,350	Not expected to occur. Mexican flannelbush occurs generally near the Otay area (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range.
Fritillaria biflora	Chocolate lily	None/None/None	None/List D	Coastal scrub, chaparral, valley and foothill grassland; sometimes clay, cobbly loam/perennial herb/Feb–June/1,030–3,379	Not expected to occur. Chocolate lily occurs west of Descanso, California (San Diego Plant Atlas 2018). Chocolate lily does not occur in the Campo/Boulevard area (San Diego Plant Atlas 2018).The site is outside of the species' known elevation range.
Funastrum utahense	Utah vine milkweed	None/None/4.2	None/List D	Mojavean Desert scrub, Sonoran Desert scrub; sandy or gravelly/perennial herb/(Mar)Apr–June(Sep–Oct)/325–4,710	Not expected to occur. Utah vine milkweed occurs far east and northeast of Jacumba, California (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Galium angustifolium ssp. *borregoense*	Borrego bedstraw	None/SR/1B.3	Covered/List A	Sonoran Desert scrub (rocky)/perennial herb/Mar(May)/1,145–4,100	Low potential to occur. Borrego bedstraw occurs in Anza Borrego Desert State Park and near Borrego Springs, California (San Diego Plant Atlas 2018). This perennial herb would have been observed during focused surveys if present.
Galium angustifolium ssp. *jacinticum*	San Jacinto Mountains bedstraw	None/None/1B.3	None/List A	Lower montane coniferous forest/perennial herb/June–Aug/4,425–6,890	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Galium californicum ssp. *flaccidum*	California bedstraw	None/None/None	Covered/None	Open or dense non-coastal woodland/ perennial herb/Mar–July/1,500–4,921	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).

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Galium johnstonii	Johnston's bedstraw	None/None/4.3	None/List D	Chaparral, lower montane coniferous forest, pinyon and juniper woodland, riparian woodland/ perennial herb/June–July/4,000–7,545	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Githopsis diffusa ssp. *filicaulis*	Mission Canyon bluecup	None/None/3.1	None/List C	Chaparral (mesic, disturbed areas)/annual herb/Apr–June/1,475–2,295	Not expected to occur. Mission canyon bluecup is west of Pine Valley (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Grindelia hallii	San Diego gumplant	None/None/1B.2	Covered/List A	Chaparral, lower montane coniferous forest, meadows and seeps, valley and foothill grassland/ perennial herb/May–Oct/605–5,725	Low potential to occur. San Diego gumplant occurs generally north of Pine Valley, California (San Diego Plant Atlas 2018).This perennial herb would have been observed during focused surveys if present. No Grindelia species were found in the biological study area.
Harpagonella palmeri	Palmer's grapplinghook	None/None/4.2	Covered/List D	Chaparral, coastal scrub, valley and foothill grassland; clay; open grassy areas within shrubland/annual herb/Mar–May/65–3,135	Not expected to occur. Palmer's grapplinghook occurs west of Pine Valley, California, and in the high desert near Jacumba, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range.
Hazardia orcuttii	Orcutt's hazardia	None/ST/1B.1	None/List A	Chaparral (maritime), coastal scrub; often clay/perennial evergreen shrub/Aug–Oct/260–280	Not expected to occur. Orcutt's hazardia occurs near Encinitas, California, and Rancho Santa Fe, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Herissantia crispa	curly herissantia	None/None/2B.3	Covered/List B	Sonoran Desert scrub/annual/perennial herb/(Apr)Aug–Sep/2,295–2,380	Not expected to occur. Curly herissantia occurs near Anza Borrego Desert State Park (San Diego Plant Atlas 2018).The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).

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Hesperocyparis stephensonii	Cuyamaca cypress	None/None/1B.1	Covered/List A	Closed-cone coniferous forest, chaparral, cismontane woodland, riparian forest; gabbroic/perennial evergreen tree/N.A./3,395–5,595	Low potential to occur. Cuyamaca cypress has a narrow distribution just west of Cuyamaca Rancho State Park (San Diego Plant Atlas 2018). This perennial evergreen tree would have been observed during focused surveys if present.
Heterotheca sessiliflora ssp. *sanjacintensis*	Sessileflower false goldenaster	None/None/None	None/List D	Montane habitats; reported to be endemic to Mount Palomar and the San Jacinto Mountains (Reiser 2001)/perennial herb/July–Sep/2,200–7,218	Not expected to occur. The site is outside of the species' known elevation range and is endemic to the Mount Palomar and the San Jacinto Mountains (Reiser 2001).
Heuchera brevistaminea	Laguna Mountains alumroot	None/None/1B.3	Covered/List A	Broadleafed upland forest, chaparral, cismontane woodland, riparian forest; rocky/perennial rhizomatous herb/Apr–July(Sep)/4,490–6,560	Not expected to occur. Laguna Mountains alumroot occurs north of Mount Laguna, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range.
Heuchera rubescens var. *versicolor*	San Diego County alumroot	None/None/3.3	None/List B	Chaparral, lower montane coniferous forest; rocky/perennial rhizomatous herb/May–June/4,920–13,125	Not expected to occur. San Diego county alumroot occurs north of Mount Laguna, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Holocarpha virgata ssp. *elongata*	graceful tarplant	None/None/4.2	Covered/List D	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/annual herb/May–Nov/195–3,610	Not expected to occur. Graceful tarplant occurs west of Alpine, California, and north of Ramona, California (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Hordeum intercedens	vernal barley	None/None/3.2	None/List C	Coastal dunes, coastal scrub, valley and foothill grassland (saline flats and depressions), vernal pools/ annual herb/Mar–June/15–3,280	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).

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Horkelia bolanderi	Bolander's horkelia	None/None/1B.2	None/None	Chaparral, lower montane coniferous forest, meadows and seeps, valley and foothill grassland; edges, vernally mesic areas/perennial herb/(May)June–Aug/1,475–3,610	Low potential to occur. This species is known from north of Mount Laguna (CNPS 2018).
Horkelia cuneata var. *puberula*	mesa horkelia	None/None/1B.1	None/List A	Chaparral (maritime), cismontane woodland, coastal scrub; sandy or gravelly/perennial herb/Feb–July(Sep)/225–2,655	Not expected to occur. Mesa horkelia occurs north of Oceanside, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Horkelia truncata	Ramona horkelia	None/None/1B.3	Covered/List A	Chaparral, cismontane woodland; clay, gabbroic/perennial herb/May–June/1,310–4,265	Not expected to occur. Ramona horkelia occurs west of Pine Valley, California (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Horsfordia newberryi	Newberry's velvet-mallow	None/None/4.3	None/List D	Sonoran Desert scrub (rocky)/perennial shrub/Feb,Apr,Nov,Dec/5–2,625	Not expected to occur. The site is outside of the species' known elevation range.
Hosackia crassifolia var. *otayensis*	Otay Mountain lotus	None/None/1B.1	None/List A	Chaparral (metavolcanic, often in disturbed areas)/perennial herb/May–Aug/1,245–3,295	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Hulsea californica	San Diego sunflower	None/None/1B.3	Covered/List A	Chaparral, lower montane coniferous forest, upper montane coniferous forest; openings and burned areas/perennial herb/Apr–June/3,000–9,565	Low potential to occur. This perennial herb would have been observed during focused surveys if present.

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Hulsea mexicana	Mexican hulsea	None/None/2B.3	Covered/List B	Chaparral (volcanic, often on burns or disturbed areas)/ annual/ perennial herb/Apr–June/3,935–3,935	Low potential to occur. This perennial herb would have been observed during focused surveys if present.
Hulsea vestita ssp. *callicarpha*	beautiful hulsea	None/None/4.2	Covered/None	Chaparral, lower montane coniferous forest; rocky or gravelly, granitic/perennial herb/May–Oct/3,000–10,005	Not expected to occur. Beautiful hulsea occurs north of Warner Springs, California (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Hymenothrix wrightii	Wright's hymenothrix	None/None/4.3	None/List D	Cismontane woodland, lower montane coniferous forest, valley and foothill grassland/perennial herb/June–Oct/4,590–5,085	Not expected to occur. Wright's hymenothrix occurs north of Pine Valley, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Ipomopsis tenuifolia	slender-leaved ipomopsis	None/None/2B.3	None/List B	Chaparral, pinyon and juniper woodland, Sonoran Desert scrub; gravelly or rocky/perennial herb/Mar–May/325–3,935	Low potential to occur. Slender-leaved ipomospsis generally occurs east of Boulevard, California, in the high desert region of Jacumba, California (San Diego Plant Atlas 2018). This perennial herb would have been observed during focused surveys if present.
Isocoma menziesii var. *decumbens*	decumbent goldenbush	None/None/1B.2	None/List A	Chaparral, coastal scrub (sandy, often in disturbed areas)/perennial shrub/Apr–Nov/30–445	Not expected to occur. Decumbent goldenbush occurs west of Alpine, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range.
Iva hayesiana	San Diego marsh-elder	None/None/2B.2	None/List B	Marshes and swamps, playas/perennial herb/Apr–Oct/30–1,640	Not expected to occur. San Diego marsh-elder occurs west of Alpine, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range and there is no suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Johnstonella costata	ribbed cryptantha	None/None/4.3	Covered/List D	Desert dunes, Mojavean Desert scrub, Sonoran Desert scrub; sandy/annual herb/Feb–May/-195–1,640	Not expected to occur. Ribbed cryptantha occurs in the desert region (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).

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Johnstonella holoptera	winged cryptantha	None/None/4.3	None/List D	Mojavean Desert scrub, Sonoran Desert scrub/annual herb/Mar–Apr/325–5,545	Not expected to occur. Winged cryptantha occurs in the desert region (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Juglans californica	Southern California black walnut	None/None/4.2	None/List D	Chaparral, cismontane woodland, coastal scrub, riparian woodland; alluvial/perennial deciduous tree/Mar–Aug/160–2,955	Not expected to occur. Southern California black walnut occurs north of Julian, California, and west of Alpine, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	None/None/4.2	None/List D	Coastal dunes (mesic), meadows and seeps (alkaline seeps), marshes and swamps (coastal salt)/perennial rhizomatous herb/ (Mar)May–June/5–2,955	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. Also does not occur in vicinity (CDFW 2018; CNPS 2018).
Juncus cooperi	Cooper's rush	None/None/4.3	None/List D	Meadows and seeps (mesic, alkaline or saline)/perennial herb/Apr–May(Aug)/-850–5,805	Not expected to occur. Cooper's rush is located just north of Jacumba Hotsprings, California (San Diego Plant Atlas 2018). No suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	None/None/1B.1	None/List A	Marshes and swamps (coastal salt), playas, vernal pools/annual herb/Feb–June/0–4,005	Not expected to occur. Coulter's goldfields occur west of El Cajon, California (San Diego Plant Atlas 2018). No suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Lathyrus splendens	pride-of-California	None/None/4.3	Covered/List D	Chaparral/perennial herb/Mar–June/655–5,005	Low potential to occur. This perennial herb would have been observed during focused surveys if present.
Lepechinia cardiophylla	heart-leaved pitcher sage	None/None/1B.2	None/List A	Closed-cone coniferous forest, chaparral, cismontane woodland/perennial shrub/Apr–July/1,705–4,495	Not expected to occur. Heart-leaved pitcher sage occurs just northeast of Poway, California (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).

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Lepechinia ganderi	Gander's pitcher sage	None/None/1B.3	None/List A	Closed-cone coniferous forest, chaparral, coastal scrub, valley and foothill grassland; gabbroic or metavolcanic/perennial shrub/June–July/1,000–3,295	Not expected to occur. Gander's pitcher sage occurs west of Dulzura, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Lepidium flavum var. *felipense*	Blair Valley pepper-grass	None/None/1B.2	Covered/List A	Pinyon and juniper woodland, Sonoran Desert scrub; sandy/annual herb/Mar–May/1,490–2,755	Not expected to occur. Blair Valley pepper-grass occur in Anza Borrego Desert State Park (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	None/None/4.3	None/List A	Chaparral, coastal scrub/annual herb/Jan–July/0–2,905	Not expected to occur. Robinson's pepper-grass occurs west of Pine Valley, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range.
Leptosiphon floribundus ssp. *hallii*	Santa Rosa Mountains leptosiphon	None/None/1B.3	None/List A	Pinyon and juniper woodland, Sonoran Desert scrub/perennial herb/May–July(Nov)/3,280–6,560	Not expected to occur. Santa Rosa Mountains leptosiphon occurs just west of Borrego Springs, California (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Leptosyne maritima	sea dahlia	None/None/2B.2	None/List B	Coastal bluff scrub, coastal scrub/perennial herb/Mar–May/15–490	Not expected to occur. Sea dahlia occurs west of I-5 along the coast (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Lessingia glandulifera var. *tomentosa*	Warner Springs lessingia	None/None/1B.1	Covered/List A	Chaparral (sandy)/annual herb/Aug,Oct/2,850–4,005	Not expected to occur. Warner Springs lessingia occurs north of Santa Ysabel, California (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Lewisia brachycalyx	short-sepaled lewisia	None/None/2B.2	Covered/List B	Lower montane coniferous forest, meadows and seeps; mesic/perennial	Not expected to occur. Short-sepaled lewisia occurs north of Cuyamaca Rancho State Park (San Diego Plant Atlas 2018). The site is outside of the species'

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				herb/(Feb)Apr–June(July)/4,490–7,545	known elevation range and there is no suitable vegetation present. Also does not occur in vicinity (CDFW 2018; CNPS 2018).
Lilium humboldtii ssp. *ocellatum*	ocellated Humboldt lily	None/None/4.2	Covered/List D	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland; openings/perennial bulbiferous herb/Mar–July(Aug)/95–5,905	Not expected to occur. Ocellated Humboldt lily occurs north and west of Pine Valley, California (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Lilium parryi	lemon lily	None/None/1B.2	Covered/List A	Lower montane coniferous forest, meadows and seeps, riparian forest, upper montane coniferous forest; mesic/perennial bulbiferous herb/July–Aug/4,000–9,005	Not expected to occur. Lemon lily occurs near Palomar Mountain (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Limnanthes alba ssp. *parishii*	Parish's meadowfoam	None/SE/1B.2	Covered/List A	Lower montane coniferous forest, meadows and seeps, vernal pools; vernally mesic/annual herb/Apr–June/1,965–6,560	Not expected to occur. Parish's meadowfoam occurs north of Mount Laguna, California (San Diego Plant Atlas 2018). Occurs in areas devoid of shrubs that consist of high concentrations of annuals and are vernally mesic (Reiser 2001). High concentrations of annuals were not present on site. No suitable vegetation is present.
Linanthus maculatus ssp. *emaculatus*	Jacumba Mountains linanthus	None/None/1B.1	None/None	Desert dunes (edges), Sonoran Desert scrub; sandy or course, opaque-white, decomposed granite soils of washes and on flats near wash margins/annual herb/(Mar)Apr(May)/ 1,295–1,920	Not expected to occur. Jacumba Mountains occurs26us occurs just west of Ocotillo, California, in the desert region (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range.

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Linanthus orcuttii	Orcutt's linanthus	None/None/1B.3	Covered/List A	Chaparral, lower montane coniferous forest, pinyon and juniper woodland; openings/annual herb/May–June/3,000–7,035	Low potential to occur. Orcutt's linanthus occurs north of Boulder Oaks, California (San Diego Plant Atlas 2018). This species would have been observed if present; focused surveys were conducted during the species' blooming period.
Lupinus albifrons var. *medius*	Mountain Springs bush lupine	None/None/1B.3	Covered/List A	Pinyon and juniper woodland, Sonoran Desert scrub/perennial shrub/Mar–May/1,390–4,495	Low potential to occur. This perennial shrub would have been observed during focused surveys if present.
Lycium californicum	California box-thorn	None/None/4.2	None/List D	Coastal bluff scrub, coastal scrub/perennial shrub/(Dec)Mar, June, July, Aug/15–490	Not expected to occur. California box-thorn occurs west of Rancho San Diego (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Lycium parishii	Parish's desert-thorn	None/None/2B.3	Covered/List B	Coastal scrub, Sonoran Desert scrub/perennial shrub/Mar–Apr/440–3,280	Not expected to occur. Parish's desert-thorn occurs near Agua Caliente County Park (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range.
Lyrocarpa coulteri	Palmer's lyrepod	None/None/4.3	None/List D	Sonoran Desert scrub (gravelly or rocky)/perennial herb/Dec–Apr/390–2,610	Not expected to occur. Palmer's lyrepod occurs north of Mount Laguna in Anza Borrego Desert State Park (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Malacothamnus aboriginum	Indian Valley bush-mallow	None/None/1B.2	Covered/List A	Chaparral, cismontane woodland; rocky, granitic, often in burned areas/perennial deciduous shrub/Apr–Oct/490–5,575	Not expected to occur. Indian Valley bush-mallow occurs north of Pine Valley, California (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Malperia tenuis	brown turbans	None/None/2B.3	None/List B	Sonoran Desert scrub (sandy, gravelly)/annual herb/(Feb)Mar–Apr/45–1,100	Not expected to occur. Brown turbans occurs in the desert region (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range.

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Matelea parvifolia	spearleaf	None/None/2B.3	None/List B	Mojavean Desert scrub, Sonoran Desert scrub; rocky/perennial herb/Mar–May(July)/ 1,440–3,595	Low potential to occur. Spearleaf occurs in Anza Borrego Desert State Park (San Diego Plant Atlas 2018). This perennial herb would have been observed during focused surveys if present.
Mentzelia hirsutissima	hairy stickleaf	None/None/2B.3	None/List B	Sonoran Desert scrub (rocky)/annual herb/Mar–May/0–2,295	Not expected to occur. The site is outside of the species' known elevation range.
Microseris douglasii ssp. *platycarpha*	small-flowered microseris	None/None/4.2	None/List D	Cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools; clay/annual herb/Mar–May/45–3,510	Not expected to occur. Small-flowered microseris occurs west of Alpine, California (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Mimulus latidens	vernal pool monkeyflower	None/None/None	None/List A	Vernal pools/annual herb/Apr–June/900–2,953	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Mirabilis tenuiloba	slender-lobed four o'clock	None/None/4.3	None/List D	Sonoran Desert scrub/perennial herb/(Feb)Mar–May/750–3,595	Low potential to occur. Slender lobed four o'clock occurs in the high desert and desert region (San Diego Plant Atlas 2018). This perennial herb would have been observed during focused surveys if present.
Monardella hypoleuca ssp. *lanata*	felt-leaved monardella	None/None/1B.2	Covered/List A	Chaparral, cismontane woodland/perennial rhizomatous herb/June–Aug/980–5,165	Not expected to occur. Felt-leaved monardella occurs west of Pine Valley, California (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Monardella macrantha ssp. *hallii*	Hall's monardella	None/None/1B.3	None/List A	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland/perennial rhizomatous herb/June–Oct/2,395–7,200	Not expected to occur. Hall's monardella occurs on Palomar Mountain (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).

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Monardella nana ssp. *leptosiphon*	San Felipe monardella	None/None/1B.2	Covered/None	Chaparral, lower montane coniferous forest/perennial rhizomatous herb/June–July/3,935–6,085	Low potential to occur. San Felipe monardella is known from north of Julian in San Diego County (San Diego Plant Atlas 2018).
Monardella stoneana	Jennifer's monardella	None/None/1B.2	None/List A	Closed-cone coniferous forest, chaparral, coastal scrub, riparian scrub; usually rocky intermittent streambeds/perennial herb/June–Sep/30–2,590	Not expected to occur. Jennifer's monardella occurs west of Barrett Junction (San Diego Plant Atlas 2018).The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Monardella viminea	willowy monardella	FE/SE/1B.1	None/List A	Chaparral, coastal scrub, riparian forest, riparian scrub, riparian woodland; alluvial ephemeral washes/perennial herb/June–Aug/160–740	Not expected to occur. Willowy monardella occurs west of U.S. Route 67 (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Mucronea californica	California spineflower	None/None/4.2	None/List D	Chaparral, cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland; sandy/annual herb/Mar–July(Aug)/0–4,595	Not expected to occur. California spineflower occurs west of I-5 on the coast (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Myosurus minimus ssp. *apus*	little mousetail	None/None/3.1	None/List C	Valley and foothill grassland, vernal pools (alkaline)/annual herb/Mar–June/65–2,100	Not expected to occur. Little mousetail occurs in the Otay area (San Diego Plant Atlas 2018). Found in deeper portions of vernal pools (Resier 2001). Vernal pools were not present on site. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Nama stenocarpa	mud nama	None/None/2B.2	None/List B	Marshes and swamps (lake margins, riverbanks)/annual/ perennial herb/Jan–July/15–1,640	Not expected to occur. Mud nama has been documented near Lake Henshaw (San Diego Plant Atlas 2018). Found on muddy embankments of lakes (Reiser 2001). The site is outside of the species' known

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					elevation range and there is no suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Nasturtium gambelii	Gambel's water cress	FE/ST/1B.1	None/List A	Marshes and swamps (freshwater or brackish)/perennial rhizomatous herb/Apr–Oct/15–1,085	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Navarretia fossalis	spreading navarretia	FT/None/1B.1	None/List A	Chenopod scrub, marshes and swamps (assorted shallow freshwater), playas, vernal pools/annual herb/Apr–June/95–2,150	Not expected to occur. Spreading navarretia occurs west of Ramona, California (San Diego Plant Atlas 2018). Is found in vernal pools and vernal swales (Reiser 2001). No vernal pools were present on site. The site is outside of the species' known elevation range and there is no suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Navarretia peninsularis	Baja navarretia	None/None/1B.2	Covered/List A	Chaparral (openings), lower montane coniferous forest, meadows and seeps, pinyon and juniper woodland; mesic/annual herb/(May)June–Aug/4,920–7,545	Not expected to occur. Baja navarretia occurs in Cuyamaca Rancho State Park (San Diego Plant Atlas 2018).The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Navarretia prostrata	prostrate vernal pool navarretia	None/None/1B.1	None/List A	Coastal scrub, meadows and seeps, valley and foothill grassland (alkaline), vernal pools; mesic/annual herb/Apr–July/5–3,970	Not expected to occur. Prostrate vernal pool navarretia occurs west of I-15 (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Nemacaulis denudata var. *denudata*	coast woolly-heads	None/None/1B.2	None/List A	Coastal dunes/annual herb/Apr–Sep/0–330	Not expected to occur. Coast woolly-heads occur west of I-15 (San Diego Plant Atlas).The site is outside of the species' known elevation range and there is no suitable vegetation present. Also does not occur in vicinity (CDFW 2018; CNPS 2018).

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Nemacaulis denudata var. *gracilis*	slender cottonheads	None/None/2B.2	None/List B	Coastal dunes, desert dunes, Sonoran Desert scrub/annual herb/(Mar)Apr–May/-160–1,310	Not expected to occur. Slender cottonheads prefer well-developed dune soils (Reiser 2001). Slender cottonheads occur west of I-15 (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Nolina cismontana	chaparral nolina	None/None/1B.2	Covered/List A	Chaparral, coastal scrub; sandstone or gabbro/ perennial evergreen shrub/(Mar)May–July/455–4,185	Not expected to occur. Chaparral 31olina occurs near Alpine, California, Palomar Mountain, and Cleveland National Forest within the central range of San Diego County (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Nolina interrata	Dehesa nolina	None/SE/1B.1	None/List A	Chaparral (gabbroic, metavolcanic, or serpentinite)/perennial herb/June–July/605–2,805	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Ophioglossum californicum	California adder's-tongue	None/None/4.2	None/List D	Chaparral, valley and foothill grassland, vernal pools (margins); mesic/perennial rhizomatous herb/(Dec)Jan–June/195–1,720	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Opuntia wigginsii	Wiggins' cholla	None/None/3.3	None/List C	Sonoran Desert scrub (sandy)/perennial stem succulent/Mar/95–2,905	Not expected to occur. The site is outside of the species' known elevation range.
Orcuttia californica	California Orcutt grass	FE/SE/1B.1	None/List A	Vernal pools/annual herb/Apr–Aug/45–2,165	Not expected to occur. California orcutts grass occurs within vernal pools (Reiser 2001). No vernal pools were present on site. The site is outside of the species' known elevation range and there is no suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).

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Ornithostaphylos oppositifolia	Baja California birdbush	None/SE/2B.1	None/List B	Chaparral/perennial evergreen shrub/Jan–Apr/180–2,625	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Orobanche parishii ssp. *brachyloba*	short-lobed broomrape	None/None/4.2	None/List D	Coastal bluff scrub, coastal dunes, coastal scrub; sandy/perennial herb (parasitic)/Apr–Oct/5–1,000	Not expected to occur. Short-lobed broomrape occurs west of I-5 (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Packera ganderi	Gander's ragwort	None/SR/1B.2	Covered/List A	Chaparral (burns, gabbroic outcrops)/perennial herb/Apr–June/1,310–3,935	Not expected to occur. Gander's ragwort occurs west of Pine Valley (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Pectocarya peninsularis	Baja California bur-comb	None/None/None	None/List D	Sonoran Desert scrub; washes, roadsides, clearings, sandy, silty, or gravelly soil/annual herb/Feb–Apr/300–984	Not expected to occur. Baja California bur-comb occurs in the desert region (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range.
Penstemon clevelandii var. *connatus*	San Jacinto beardtongue	None/None/4.3	None/List D	Chaparral, pinyon and juniper woodland, Sonoran Desert scrub; rocky/perennial herb/Mar–May/1,310–4,920	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Penstemon thurberi	Thurber's beardtongue	None/None/4.2	None/List D	Chaparral, Joshua tree woodland, pinyon and juniper woodland, Sonoran Desert scrub/perennial herb/May–July/1,640–4,005	Not expected to occur. Thurber's beardtongue occurs just west of Anza Borrego Desert State Park (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Pentachaeta aurea ssp. *aurea*	golden-rayed pentachaeta	None/None/4.2	None/List D	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland, valley and foothill grassland/ annual herb/Mar–July/260–6,070	Not expected to occur. Golden rayed pentachaeta occurs west of Mount Laguna, California (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).

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Pentagramma triangularis ssp. *nov.* [described as *P.t. rebmanii*]	goldenback fern	None/None/None	Covered/None	Chaparral, coastal scrub, riparian woodland, cismontane woodland; mesic, sometimes gabbro soils/fern/N.A./1,250–4,101	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Perideridia gairdneri ssp. *gairdneri*	Gairdner's yampah	None/None/4.2	None/List D	Broadleafed upland forest, chaparral, coastal prairie, valley and foothill grassland, vernal pools; vernally mesic/perennial herb/June–Oct/0–2,000	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Petalonyx linearis	narrow-leaf sandpaper-plant	None/None/2B.3	None/None	Mojavean Desert scrub, Sonoran Desert scrub; sandy or rocky canyons/ perennial shrub/(Jan–Feb) Mar–May(June–Dec)/-80–3,660	Low potential to occur. Narrow-leaf sandpaper plant occurs north of Mount Laguna within Anza Borrego Desert State Park (San Diego Plant Atlas 2018). This perennial shrub would have been observed during focused surveys if present.
Phacelia nashiana	Charlotte's phacelia	None/None/1B.2	Covered/None	Joshua tree woodland, Mojavean Desert scrub, pinyon and juniper woodland; usually granitic, sandy/annual herb/Mar–June/1,965–7,220	Not expected to occur. Charlotte's phacelia occurs north of Borrego Springs, California (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Phacelia stellaris	Brand's star phacelia	None/None/1B.1	None/List A	Coastal dunes, coastal scrub/annual herb/Mar–June/0–1,310	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Pholistoma auritum var. *arizonicum*	Arizona pholistoma	None/None/2B.3	Covered/None	Mojavean Desert scrub /annual herb/Mar/900–2,740	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Pilostyles thurberi	Thurber's pilostyles	None/None/4.3	None/List D	Sonoran Desert scrub/perennial herb (parasitic)/Dec–Apr/0–1,200	Not expected to occur. The site is outside of the species' known elevation range.

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Pinus torreyana ssp. *torreyana*	Torrey pine	None/None/1B.2	None/List A	Closed-cone coniferous forest, chaparral; sandstone/perennial evergreen tree/N.A./95–525	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Piperia cooperi	chaparral rein orchid	None/None/4.2	Covered/List D	Chaparral, cismontane woodland, valley and foothill grassland/ perennial herb/Mar–June/45–5,200	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Piperia leptopetala	narrow-petaled rein orchid	None/None/4.3	Covered/List D	Cismontane woodland, lower montane coniferous forest, upper montane coniferous forest/ perennial herb/May–July/1,245–7,300	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Poa atropurpurea	San Bernardino blue grass	FE/None/1B.2	Covered/List A	Meadows and seeps (mesic)/perennial rhizomatous herb/(Apr)May–July(Aug)/4,460–8,055	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Pogogyne abramsii	San Diego mesa mint	FE/SE/1B.1	None/List A	Vernal pools/annual herb/Mar–July/295–655	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Pogogyne nudiuscula	Otay Mesa mint	FE/SE/1B.1	None/List A	Vernal pools/annual herb/May–July/295–820	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Polygala cornuta var. *fishiae*	Fish's milkwort	None/None/4.3	None/List D	Chaparral, cismontane woodland, riparian woodland/perennial deciduous shrub/May–Aug/325–3,280	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).

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Proboscidea althaeifolia	desert unicorn-plant	None/None/4.3	None/List D	Sonoran Desert scrub; gently sloping sandy flats and washes, sometimes roadsides/perennial herb/ May–Sep(Oct)/275–3,280	Not expected to occur. Desert unicorn plant occurs northeast of Mount Laguna, California, in the desert region (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range.
Quercus cedrosensis	Cedros Island oak	None/None/2B.2	None/List B	Closed-cone coniferous forest, chaparral, coastal scrub/perennial evergreen tree/Apr–May/835–3,150	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Quercus dumosa	Nuttall's scrub oak	None/None/1B.1	None/List A	Closed-cone coniferous forest, chaparral, coastal scrub; sandy, clay loam/ perennial evergreen shrub/ Feb–Apr(May–Aug)/45–1,310	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Quercus engelmannii	Engelmann oak	None/None/4.2	Covered/List D	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland/perennial deciduous tree/Mar–June/160–4,265	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Rhus aromatica var. *simplicifolia*	single-leaved skunkbrush	None/None/2B.3	None/List B	Pinyon and juniper woodland; usually granitic/perennial deciduous shrub/Mar–Apr/4,000–4,495	Not expected to occur. No suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Ribes canthariforme	Moreno currant	None/None/1B.3	Covered/List A	Chaparral, riparian scrub/perennial deciduous shrub/Feb–Apr/1,115–3,935	Not expected to occur. Moreno currant occurs west of Pine Valley, California (San Diego Plant Atlas 2018). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Ribes viburnifolium	Santa Catalina Island currant	None/None/1B.2	None/List A	Chaparral, cismontane woodland/perennial evergreen shrub/Feb–Apr/95–1,150	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).

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Romneya coulteri	Coulter's matilija poppy	None/None/4.2	None/List D	Chaparral, coastal scrub; often in burns/perennial rhizomatous herb/Mar–July(Aug)/65–3,935	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Rosa minutifolia	small-leaved rose	None/SE/2B.1	None/List B	Chaparral, coastal scrub/perennial deciduous shrub/Jan–June/490–525	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Rubus glaucifolius var. *ganderi*	Cuyamaca raspberry	None/None/3.1	Covered/List A	Lower montane coniferous forest (gabbroic)/perennial evergreen shrub/May–June/3,935–5,495	Not expected to occur. No suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Rupertia rigida	Parish's rupertia	None/None/4.3	Covered/List D	Chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, pebble (pavement) plain, valley and foothill grassland/perennial herb/June–Aug/2,295–8,200	Low potential to occur. Parish's rupertia occurs north of Pine Valley, California (San Diego Plant Atlas 2018).This perennial herb would have been observed during focused surveys if present.
Saltugilia caruifolia	caraway-leaved woodland-gilia	None/None/4.3	None/List D	Chaparral, lower montane coniferous forest; sandy, openings/annual herb/May–Aug/2,755–7,545	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Salvia eremostachya	desert sage	None/None/4.3	None/List D	Sonoran Desert scrub (rocky or gravelly)/ perennial evergreen shrub/Mar–May/2,295–4,595	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Salvia munzii	Munz's sage	None/None/2B.2	None/List B	Chaparral, coastal scrub/perennial evergreen shrub/Feb–Apr/375–3,495	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).

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Scutellaria bolanderi ssp. *austromontana*	southern mountains skullcap	None/None/1B.2	None/List A	Chaparral, cismontane woodland, lower montane coniferous forest; mesic/perennial rhizomatous herb/June–Aug/1,390–6,560	Low potential to occur. Southern mountains skullcap occurs north of Boulder Oaks and collections are most abundant in the Palomar Mountain area (San Diego Plant Atlas 2018).
Selaginella asprella	bluish spike-moss	None/None/4.3	None/List D	Cismontane woodland, lower montane coniferous forest, pinyon and juniper woodland, subalpine coniferous forest, upper montane coniferous forest; granitic, rocky/perennial rhizomatous herb/July/5,245–8,860	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Selaginella cinerascens	ashy spike-moss	None/None/4.1	None/List D	Chaparral, coastal scrub/perennial rhizomatous herb/N.A./65–2,100	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Selaginella eremophila	desert spike-moss	None/None/2B.2	None/List B	Chaparral, Sonoran Desert scrub (gravelly or rocky)/perennial rhizomatous herb/(May)June(July)/ 655–4,250	Low potential to occur. Desert spike-moss occurs in the high desert region and desert region east of the site (San Diego Plant Atlas 2018). This perennial herb would have been observed during focused surveys if present.
Senecio aphanactis	chaparral ragwort	None/None/2B.2	None/List B	Chaparral, cismontane woodland, coastal scrub; sometimes alkaline/annual herb/Jan–Apr(May)/45–2,625	Not expected to occur. Chaparral ragwort occurs west of Alpine, California (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range.
Senna covesii	Coves' cassia	None/None/2B.2	None/List B	Sonoran Desert scrub; dry, sandy desert washes and slopes/perennial herb/Mar–June(Aug)/ 735–4,250	Low potential to occur. This perennial herb would have been observed during focused surveys if present.

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Sibaropsis hammittii	Hammitt's clay-cress	None/None/1B.2	Covered/List A	Chaparral (openings), valley and foothill grassland; clay/annual herb/Mar–Apr/2,360–3,495	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Spermolepis echinata	bristly scaleseed	None/None/None	None/List B	Sonoran Desert scrub (sandy or rocky)/annual herb/Mar–Apr/1,500–4,921	Not expected to occur. The site is outside of the species' known elevation range.
Spermolepis lateriflora	western bristly scaleseed	None/None/2A	None/None	Sonoran Desert scrub; rocky or sandy/annual herb/Mar–Apr/1,195–2,200	Not expected to occur. The site is outside of the species' known elevation range.
Stemodia durantifolia	purple stemodia	None/None/2B.1	None/List B	Sonoran Desert scrub (often mesic, sandy)/perennial herb/(Jan)Apr, June, Aug, Sep, Oct, Dec/590–985	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Stipa diegoensis	San Diego County needle grass	None/None/4.2	None/List D	Chaparral, coastal scrub; rocky, often mesic/perennial herb/Feb–June/30–2,625	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Streptanthus bernardinus	Laguna Mountains jewelflower	None/None/4.3	None/List D	Chaparral, lower montane coniferous forest/perennial herb/May–Aug/2,195–8,200	Low potential to occur. Laguna Mountains jewelflower occurs north of Mount Laguna, California (San Diego Plant Atlas 2018). This perennial herb would have been observed during focused surveys if present.
Stylocline citroleum	oil neststraw	None/None/1B.1	None/List A	Chenopod scrub, coastal scrub, valley and foothill grassland; clay/annual herb/Mar–Apr/160–1,310	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Suaeda esteroa	estuary seablite	None/None/1B.2	None/List A	Marshes and swamps (coastal salt)/perennial herb/(May)July–Oct(Jan)/0–15	Not expected to occur. Esturary seablite occurs west of Rancho San Diego, California, and is generally close to the coastline (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range and there is no suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Suaeda taxifolia	woolly seablite	None/None/4.2	None/List D	Coastal bluff scrub, coastal dunes, marshes and swamps (margins of coastal salt)/ perennial evergreen shrub/Jan–Dec/0–165	Not expected to occur. Woolly seablite occurs on the coastline and is generally found west of I-5 (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range and there is no suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Symphyotrichum defoliatum	San Bernardino aster	None/None/1B.2	None/None	Cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, valley and foothill grassland (vernally mesic); near ditches, streams, springs/perennial rhizomatous herb/July–Nov/5–6,695	Low potential to occur. San Bernardino sand aster occurs near springs and seeps (Reiser 2001). Springs and seeps were limited on site. This perennial herb would have been observed during focused surveys if present.
Tetracoccus dioicus	Parry's tetracoccus	None/None/1B.2	None/List A	Chaparral, coastal scrub/perennial deciduous shrub/Apr–May/540–3,280	Not expected to occur. The site is outside of the species' known elevation range.
Thermopsis californica var. *semota*	velvety false lupine	None/None/1B.2	Covered/List A	Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland/perennial rhizomatous herb/Mar–June/3,280–6,135	Low potential to occur. Velvety false lupine occurs generally north of Pine Valley (San Diego Plant Atlas 2018). This perennial herb would have been observed during focused surveys if present.
Thysanocarpus rigidus	rigid fringepod	None/None/1B.2	None/None	Pinyon and juniper woodland; dry rocky slopes/annual herb/Feb–May/1,965–7,220	Not expected to occur. No suitable vegetation present.

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Viguiera laciniata	San Diego County viguiera	None/None/4.3	None/List D	Chaparral, coastal scrub/perennial shrub/Feb–June(Aug)/195–2,460	Not expected to occur. The site is outside of the species' known elevation range.
Viguiera purisimae	La Purisima viguiera	None/None/2B.3	None/List A	Coastal bluff scrub, chaparral/shrub/Apr–Sep/1,195–1,395	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Viola purpurea ssp. *aurea*	golden violet	None/None/2B.2	None/List B	Great Basin scrub, pinyon and juniper woodland; sandy/perennial herb/Apr–June/3,280–8,200	Not expected to occur. No suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Xanthisma junceum	rush-like bristleweed	None/None/4.3	Covered/List D	Chaparral, coastal scrub/perennial herb/May–Jan/785–3,280	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Xylorhiza orcuttii	Orcutt's woody-aster	None/None/1B.2	Covered/List A	Sonoran Desert scrub/perennial herb/Mar–Apr/0–1,200	Not expected to occur. Orcutt's woody-aster occurs in Anza Borrego Desert State Park and in the desert all the way to the Salton Sea (San Diego Plant Atlas 2018). The site is outside of the species' known elevation range.

Status Legend
Federal
FC: Federal candidate for listing
FE: Federally listed as endangered
FT: Federally listed as threatened
State
SE: State-listed as endangered
SR: State rare
ST: State-listed as threatened
CRPR: California Rare Plant Rank
1B: Plants rare, threatened, or endangered in California and elsewhere
2A: Plants presumed extirpated in California but common elsewhere
2B: Plants rare, threatened, or endangered in California, but more common elsewhere
3: Plants about which more information is needed—A Review List
4: Plants of limited distribution—A Watch List

APPENDIX G-1
Special-Status Plant Species with Low Potential or Not Expected to Occur in the Boulder Brush Corridor

Threat Rank
.1: Seriously threatened in California (more than 80% of occurrences threatened/high degree and immediacy of threat)
.2: Fairly threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)
.3: Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)
County of San Diego Multiple Species Conservation Program (MSCP), East County Plan
Covered: Covered under the plan
None: Not covered
County of San Diego MSCP Listed Species
List A: Plants rare, threatened, or endangered in California or elsewhere
List B: Plants rare, threatened, or endangered in California but more common elsewhere
List C: Plants that may be quite rare, but more information is needed to determine rarity status
List D: Plants of limited distribution and are uncommon, but not presently rare or endangered
None = not listed
N.A. = not applicable

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ATTACHMENT G-2

Special-Status Plant Species with Low Potential or Not Expected to Occur in the Campo Corridor

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Abronia maritima	red sand-verbena	None/None/4.2	None/List D	Coastal dunes/perennial herb/Feb–Nov/0–330	Not expected to occur. Red sand verbena occurs only on well-developed beach dunes (Reiser 2001), which do not occur on site. Generally, the site is outside of the species' known elevation range and there is no suitable vegetation present. Also, does not occur in vicinity (CDFW 2018; CNPS 2018).
Abronia villosa var. *aurita*	chaparral sand-verbena	None/None/1B.1	None/List A	Chaparral, coastal scrub, desert dunes; sandy/annual herb/(Jan)Mar–Sep/245–5,250	Not expected to occur. Chaparral sand verbena has been documented around Camp Pendleton and near Fallbrook, California (SDNHM 2012). The project site is therefore outside of the geographic range this species would be expected to occur in. In addition, chaparral sand-verbena is more likely to be found in sandy floodplains (Reiser 2001).
Acanthomintha ilicifolia	San Diego thorn-mint	FT/SE/1B.1	Covered/List A	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; clay, openings/annual herb/Apr–June/30–3,150	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Acmispon haydonii	pygmy lotus	None/None/1B.3	Covered/List A	Pinyon and juniper woodland, Sonoran desert scrub; rocky/perennial herb/Jan–June/1,705–3,935	Low potential to occur. Pygmy lotus occurs east of Jacumba, California. Pygmy lotus is more likely to occur in the high desert and desert region (SDNHM 2012).
Acmispon prostratus	Nuttall's acmispon	None/None/1B.1	None/List A	Coastal dunes, coastal scrub (sandy)/annual herb/Mar–June(July)/0–35	Not expected to occur. Nuttall's acmispon occurs west of Interstate (I) 15 (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Adolphia californica	California adolphia	None/None/2B.1	None/List B	Chaparral, coastal scrub, valley and foothill grassland; clay/perennial deciduous shrub/ Dec–May/30–2,430	Not expected to occur. California adolphia occurs west of El Cajon, California (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Agave shawii var. *shawii*	Shaw's agave	None/None/2B.1	None/List B	Coastal bluff scrub, coastal scrub; maritime succulent scrub/perennial leaf succulent/Sep–May/5–395	Not expected to occur. Shaw's agave occurs west of I-5 near the beach (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Ambrosia monogyra	singlewhorl burrobrush	None/None/2B.2	None/None	Chaparral, Sonoran desert scrub; sandy/perennial shrub/Aug–Nov/30–1640	Not expected to occur. The site is outside of the species' known elevation range.
Ambrosia chenopodiifolia	San Diego bur-sage	None/None/2B.1	None/List B	Coastal scrub/perennial shrub/Apr–June/180–510	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Ambrosia pumila	San Diego ambrosia	FE/None/1B.1	None/List A	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; sandy loam or clay, often in disturbed areas, sometimes alkaline/perennial rhizomatous herb/Apr–Oct/65–1,360	Not expected to occur. San Diego ambrosia occurs in creek beds and dry drainages with a protective tree canopy (Reiser 2001). San Diego ambrosia occurs west of Crest, California (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Androsace elongata ssp. *acuta*	California androsace	None/None/4.2	None/List D	Chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, valley and foothill grassland/annual herb/Mar–June/490–4,280	Not expected to occur. California androsace occurs north of Cuyamaca Rancho State Park (SDNHM 2012). California androsace grows in open montane grassy meadows within Cuyamaca Rancho State Park (Reiser 2001). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Aphanisma blitoides	aphanisma	None/None/1B.2	None/List A	Coastal bluff scrub, coastal dunes, coastal scrub; sandy or gravelly/annual herb/Feb–June/0–1,000	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Arctostaphylos glandulosa ssp. *crassifolia*	Del Mar manzanita	FE/None/1B.1	None/List A	Chaparral (maritime, sandy)/perennial evergreen shrub/Dec–June/0–1,200	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Arctostaphylos otayensis	Otay manzanita	None/None/1B.2	Covered/List A	Chaparral, cismontane woodland; metavolcanic/perennial evergreen shrub/Jan–Apr/900–5,575	Not expected to occur. Otay manzanita occurs west of Dulzura, California, within the Otay area and north up to Rancho San Diego, California (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018). Otay manzanita occurs on metavolcanic peaks and soils that are shallow with exposed rock (Reiser 2001).
Arctostaphylos rainbowensis	Rainbow manzanita	None/None/1B.1	None/List A	Chaparral/perennial evergreen shrub/Dec–Mar/670–2,200	Not expected to occur. Rainbow manzanita occurs north of Escondido, and the majority of the population is near Rainbow, California, and Pala, California (SDNHM 2012). The project site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Artemisia palmeri	San Diego sagewort	None/None/4.2	None/List D	Chaparral, coastal scrub, riparian forest, riparian scrub, riparian woodland; sandy, mesic/perennial deciduous shrub/(Feb)May–Sep/45–3,000	Not expected to occur. This species occurs north of Dulzura and west of Descanso (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Asplenium vespertinum	western spleenwort	None/None/4.2	None/List D	Chaparral, cismontane woodland, coastal scrub; rocky/perennial rhizomatous herb/Feb–June/590–3,280	Low potential to occur. This species is recorded west of Morena Village and west of Potrero (SDNHM 2012).
Astragalus crotalariae	Salton milk-vetch	None/None/4.3	Covered/List D	Sonoran desert scrub (sandy or gravelly)/perennial herb/Jan–Apr/195–820	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Astragalus deanei	Dean's milk-vetch	None/None/1B.1	Covered/List A	Chaparral, cismontane woodland, coastal scrub, riparian forest/perennial herb/Feb–May/245–2,280	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Astragalus insularis var. *harwoodii*	Harwood's milk-vetch	None/None/2B.2	Covered/List B	Desert dunes, Mojavean desert scrub; sandy or	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
				gravelly/annual herb/Jan–May/0–2,330	vegetation present.
Astragalus lentiginosus var. *borreganus*	Borrego milk-vetch	None/None/4.3	Covered/List D	Mojavean desert scrub, Sonoran desert scrub; sandy/annual herb/ Feb–May/95–2,935	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Astragalus magdalenae var. *peirsonii*	Peirson's milk-vetch	FT/SE/1B.2	None/List A	Desert dunes/perennial herb/Dec–Apr/195–740	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Astragalus oocarpus	San Diego milk-vetch	None/None/1B.2	Covered/List A	Chaparral (openings), cismontane woodland/perennial herb/May–Aug/1,000–5,000	Low potential to occur. Collections of San Diego milk-vetch are west of State Route (SR) 79 near Cuyamaca Rancho State Park and north of this area (SDNHM 2012).
Astragalus pachypus var. *jaegeri*	Jaeger's bush milk-vetch	None/None/1B.1	None/List A	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland; sandy or rocky/perennial shrub/Dec–June/1,195–3,200	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Astragalus tener var. *titi*	coastal dunes milk-vetch	FE/SE/1B.1	None/List A	Coastal bluff scrub (sandy), coastal dunes, coastal prairie (mesic); often vernally mesic areas/annual herb/Mar–May/0–165	Not expected to occur. Occurs on coastal dunes (Reiser 2001). The site is outside of the species' known elevation range and there is no suitable vegetation present. Also does not occur in vicinity (CDFW 2018; CNPS 2018).
Atriplex coulteri	Coulter's saltbush	None/None/1B.2	None/List A	Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland; alkaline or clay/perennial herb/Mar–Oct/5–1,510	Not expected to occur. Coulter's saltbush is more typical on seabluff habitat (Reiser 2001). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Atriplex pacifica	South Coast	None/None/1B.2	None/List A	Coastal bluff scrub, coastal	Not expected to occur. The site is outside of the

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
	saltscale			dunes, coastal scrub, playas/annual herb/Mar–Oct/0–460	species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Atriplex parishii	Parish's brittlescale	None/None/1B.1	None/List A	Chenopod scrub, playas, vernal pools; alkaline/annual herb/June–Oct/80–6,235	Not expected to occur. No suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Atriplex serenana var. *davidsonii*	Davidson's saltscale	None/None/1B.2	None/List A	Coastal bluff scrub, coastal scrub; alkaline/annual herb/Apr–Oct/30–655	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Ayenia compacta	California ayenia	None/None/2B.3	None/List B	Mojavean desert scrub, Sonoran desert scrub; rocky/perennial herb/Mar–Apr/490–3,595	Low potential to occur. This species is only known from areas north of Mount Laguna (SDNHM 2012). Rocky canyons and desert arroyos are the preferred habitat of California ayenia. California ayenia prefers the periphery of sandy washes (Reiser 2001).
Azolla microphylla	Mexican mosquito fern	None/None/4.2	None/List D	Marshes and swamps (ponds, slow water)/annual / perennial herb/Aug/95–330	Not expected to occur. The site is outside of the species' known elevation range. Also does not occur in vicinity (CDFW 2018; CNPS 2018).
Baccharis vanessae	Encinitas baccharis	FT/SE/1B.1	None/List A	Chaparral (maritime), cismontane woodland; sandstone/perennial deciduous shrub/ Aug,Oct,Nov/195–2,360	Not expected to occur. Generally occurs northwest of Alpine, California (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Berberis fremontii	Fremont barberry	None/None/2B.3	Covered/List C	Joshua tree woodland, pinyon and juniper woodland; rocky, sometimes granitic/perennial evergreen shrub/Mar–May/3,755–5,645	Low potential to occur. No suitable Joshua tree woodland or pinyon and juniper woodland in the study area. This species occurs in high desert chaparral and high desert badlands on fairly level terrain with granitic boulder fields (Reiser 2001). Fremont barberry is extremely rare (Reiser 2001). This species has only been recorded near Jacumba in San Diego County (CCH 2019).
Berberis higginsiae	Higgins barberry	None/None/3.2	Covered/None	Chaparral, Sonoran desert	Not expected to occur. Records of this species are

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
				scrub; rocky, sometimes granitic/perennial shrub/Mar–Apr/2,620–3,495	generally between Boulevard and Jacumba Hot Springs, east of the study area (CCH 2019).
Berberis nevinii	Nevin's barberry	FE/SE/1B.1	None/List A	Chaparral, cismontane woodland, coastal scrub, riparian scrub; sandy or gravelly/ perennial evergreen shrub/(Feb)Mar–June/225–2,705	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Bergerocactus emoryi	golden-spined cereus	None/None/2B.2	None/List B	Closed-cone coniferous forest, chaparral, coastal scrub; sandy/perennial stem succulent/May–June/5–1,295	Not expected to occur. Golden-spined cereus occurs near the beach or within Otay (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Bloomeria clevelandii	San Diego goldenstar	None/None/1B.1	Covered/List A	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; clay/perennial bulbiferous herb/Apr–May/160–1,525	Not expected to occur. San Diego goldenstar occurs west of Alpine, California (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Boechera hirshbergiae	Hirshberg's rockcress	None/None/1B.2	None/List A	Pebble (Pavement) plain/perennial herb/Mar–May/4,590–4,640	Not expected to occur. Occurs north of Cuyamaca Rancho State Park (SDNHM 2012). The site is outside of the species' known elevation range and there is no suitable pebble plain habitat present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Brodiaea filifolia	thread-leaved brodiaea	FT/SE/1B.1	None/List A	Chaparral (openings), cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools; often clay/perennial bulbiferous herb/Mar–June/80–3,675	Not expected to occur. Thread-leaved brodiaea occurs north of Rancho Santa Fe, California, and is more likely to be found near Camp Pendleton, California (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Brodiaea orcuttii	Orcutt's brodiaea	None/None/1B.1	Covered/List A	Closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools; mesic, clay/perennial bulbiferous herb/May–July/95–5,550	Low potential to occur. Orcutt's brodiea occurs in vernally moist grasslands and around vernal pools with mina mound topography (Reiser 2001). Vernal pools were not present on site. Occurs west of Sunrise Highway within the southern mountain range and reaches the Pacific Ocean (SDNHM 2012).
Bursera microphylla	little-leaf elephant tree	None/None/2B.3	Covered/List B	Sonoran desert scrub (rocky)/perennial deciduous tree/June–July/655–2,295	Not expected to occur. The site is outside of the species' known elevation range. Little-leaf elephant plant occurs in the desert and high desert region (SDNHM 2012). Sonoran Desert scrub is the preferred habitat of little-leaf elephant tree, and prefers desert alluvial fan scrub and rocky slopes.
Calandrinia breweri	Brewer's calandrinia	None/None/4.2	None/List D	Chaparral, coastal scrub; sandy or loamy, disturbed sites and burns/annual herb/(Jan)Mar–June/30–4,005	Not expected to occur. Brewer's calandrinia occurs west of Pine Valley, California (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).
California macrophylla	round-leaved filaree	None/None/None	None/List B	Cismontane woodland, valley and foothill grassland; clay/annual herb/Mar–May/45–3,935	Low potential to occur. This species is known from west of Alpine, California (SDNHM 2012).
Calliandra eriophylla	pink fairy-duster	None/None/2B.3	Covered/List B	Sonoran desert scrub (sandy or rocky)/perennial deciduous shrub/Jan–Mar/390–4,920	Low potential to occur. This species is known to occur within Anza-Borrego Desert State Park and east of Jacumba, California (SDNHM 2012).
Calochortus catalinae	Catalina mariposa lily	None/None/4.2	None/List D	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/perennial bulbiferous herb/(Feb)Mar–June/45–2,295	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Calochortus dunnii	Dunn's mariposa lily	None/SR/1B.2	Covered/List A	Closed-cone coniferous forest, chaparral, valley and foothill grassland; gabbroic or metavolcanic, rocky/perennial bulbiferous herb/ (Feb)Apr–June/605–6,005	Low potential to occur. Dunn's mariposa lily is generally located west of Pine Valley, California, and east of El Cajon, California (SDNHM 2012).
Camissoniopsis lewisii	Lewis' evening-primrose	None/None/3	None/List C	Coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland; sandy or clay/annual herb/Mar–May(June)/0–985	Not expected to occur. Lewis' evening primrose occurs west of Alpine, California, and generally on the coastline (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Carlowrightia arizonica	Arizona carlowrightia	None/None/2B.2	Covered/None/List B	Sonoran desert scrub (sandy, granitic alluvium)/perennial deciduous shrub/Mar–May/935–1,410	Not expected to occur. The site is outside of the species' known elevation range. Arizona carlowrightia occurs near Borrego Springs and Agua Caliente. Arizona carlowrightia is found in Anza Borrego Desert State Park (SDNHM 2012).
Ceanothus cyaneus	Lakeside ceanothus	None/None/1B.2	Covered/List A	Closed-cone coniferous forest, chaparral/perennial evergreen shrub/Apr–June/770–2,475	Not expected to occur. Lakeside ceanothus occurs west of Alpine, California (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Ceanothus otayensis	Otay Mountain ceanothus	None/None/1B.2	None/None	Chaparral (metavolcanic or gabbroic)/perennial evergreen shrub/Jan–Apr/1,965–3,610	Low potential to occur. Otay Mountain ceanothus occurs generally west of Campo, California, but commonly west of Potrero, California (SDNHM 2012).
Ceanothus verrucosus	wart-stemmed ceanothus	None/None/2B.2	None/List B	Chaparral/perennial evergreen shrub/Dec–May/0–1,245	Not expected to occur. Wart-stemmed ceanothus occurs generally west of I-15. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Centromadia parryi	southern tarplant	None/None/1B.1	None/List A	Marshes and swamps	Not expected to occur. Southern tarplant occurs near

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ssp. *australis*				(margins), valley and foothill grassland (vernally mesic), vernal pools/annual herb/May–Nov/0–1,575	Ramona, California; Del Dios, California; and Solana Beach, California (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Centromadia pungens ssp. *laevis*	smooth tarplant	None/None/1B.1	None/List A	Chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland; alkaline/annual herb/Apr–Sep/0–2,100	Not expected to occur. Smooth tarplant occurs west of the SR-79 and on Camp Pendleton (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Chaenactis carphoclinia var. *peirsonii*	Peirson's pincushion	None/None/1B.3	Covered/List A	Sonoran desert scrub (sandy)/annual herb/Mar–Apr/5–1,640	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	None/None/1B.1	None/List A	Coastal bluff scrub (sandy), coastal dunes/annual herb/Jan–Aug/0–330	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. Also does not occur in vicinity (CDFW 2018; CNPS 2018).
Chaenactis parishii	Parish's chaenactis	None/None/1B.3	None/List A	Chaparral (rocky) /perennial herb/May–July/4,265–8,200	Not expected to occur. The site is outside of the species' known elevation range. Also does not occur in vicinity (CDFW 2018; CNPS 2018).
Chamaebatia australis	southern mountain misery	None/None/4.2	Covered/List D	Chaparral (gabbroic or metavolcanic)/perennial evergreen shrub/Nov–May/980–3,345	Low potential to occur. This species is only recorded west of Potrero (SDNHM 2012).
Chloropyron maritimum ssp. *maritimum*	salt marsh bird's-beak	FE/SE/1B.2	None/List A	Coastal dunes, marshes and swamps (coastal salt)/annual herb (hemiparasitic)/May–Oct(Nov)/0–100	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. Also does not occur in vicinity (CDFW 2018; CNPS 2018).
Chorizanthe orcuttiana	Orcutt's spineflower	FE/SE/1B.1	None/List A	Closed-cone coniferous forest, chaparral (maritime), coastal scrub; sandy openings/annual herb/Mar–	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).

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				May/5–410	
Chorizanthe parryi var. *fernandina*	San Fernando Valley spineflower	FC/SE/1B.1	None/List A	Coastal scrub (sandy), valley and foothill grassland/annual herb/Apr–July/490–4,005	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Chorizanthe polygonoides var. *longispina*	long-spined spineflower	None/None/1B.2	Covered/List A	Chaparral, coastal scrub, meadows and seeps, valley and foothill grassland, vernal pools; often clay/annual herb/Apr–July/95–5,020	Low potential to occur. Long-spined spineflower occurs west of Pine Valley, California (SDNHM 2012).
Cistanthe maritima	seaside cistanthe	None/None/4.2	None/List D	Coastal bluff scrub, coastal scrub, valley and foothill grassland; sandy/annual herb/(Feb)Mar–June(Aug)/15–985	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Clarkia delicata	delicate clarkia	None/None/1B.2	Covered/List A	Chaparral, cismontane woodland; often gabbroic/annual herb/Apr–June/770–3,280	Low potential to occur. Distribution is generally west of Pine Valley, California (SDNHM 2012).
Clinopodium chandleri	San Miguel savory	None/None/1B.2	None/List A	Chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland; rocky, gabbroic or metavolcanic/perennial shrub/Mar–July/390–3,525	Not expected to occur. San Miguel savory occurs west of Alpine, California (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Colubrina californica	Las Animas colubrina	None/None/2B.3	None/List B	Mojavean Desert scrub, Sonoran Desert scrub/perennial deciduous shrub/Apr–June/30–3,280	Not expected to occur. Los Aminas colubrina occurs in the desert region (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Comarostaphylis diversifolia ssp.	summer holly	None/None/1B.2	None/List A	Chaparral, cismontane woodland/perennial	Not expected to occur. Occurs west of Barret Junction, California (SDNHM 2012). The site is outside of the

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
diversifolia				evergreen shrub/Apr–June/95–2,590	species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Convolvulus simulans	small-flowered morning-glory	None/None/4.2	None/List D	Chaparral (openings), coastal scrub, valley and foothill grassland; clay, serpentinite seeps/annual herb/ Mar–July/95–2,430	Not expected to occur. Small-flowered morning-glory occurs west of Alpine, California (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Corethrogyne filaginifolia var. *incana*	San Diego sand aster	None/None/1B.1	None/None	Coastal bluff scrub, Chaparral, Coastal scrub/perennial herb/June–Sep/5–375	Not expected to occur. The site is outside of the species' known elevation range.
Corethrogyne filaginifolia var. *linifolia*	Del Mar Mesa sand aster	None/None/1B.1	None/List A	Coastal bluff scrub, chaparral (maritime, openings), coastal scrub; sandy/perennial herb/May,July,Aug,Sep/45–490	Not expected to occur. Del Mar Mesa sand aster occurs near the beach (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Cryptantha ganderi	Gander's cryptantha	None/None/1B.1	Covered/List A	Desert dunes, Sonoran Desert scrub (sandy)/annual herb/Feb–May/520–1,310	Not expected to occur. Gander's cryptantha occurs in the desert region and is found north of Anza Borrego Desert State Park (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Cylindropuntia californica var. *californica*	snake cholla	None/None/1B.1	None/List A	Chaparral, coastal scrub/perennial stem succulent/Apr–May/95–490	Not expected to occur. Snake cholla is distributed west of El Cajon, California (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Cylindropuntia fosbergii	pink teddy-bear cholla	None/None/1B.3	Covered/None	Sonoran Desert scrub/perennial stem succulent/Mar–May/275–2,790	Not expected to occur. Pink teddy-bear cholla is distributed north of Mount Laguna (SDNHM 2012). The site is outside of the species' known elevation range.

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Cylindropuntia wolfii	Wolf's cholla	None/None/4.3	Covered/List D	Sonoran Desert scrub/perennial stem succulent/Mar–May/325–3,935	Low potential to occur. Wolf's cholla is generally distributed east of Jacumba, California, in the desert region (SDNHM 2012).
Deinandra conjugens	Otay tarplant	FT/SE/1B.1	None/List A	Coastal scrub, valley and foothill grassland; clay/annual herb/(Apr)May–June/80–985	Not expected to occur. Otay tarplant populations occur west of Dulzura, California (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Deinandra mohavensis	Mojave tarplant	None/SE/1B.3	Covered/List A	Chaparral, coastal scrub, riparian scrub; mesic/annual herb/(May)June–Oct(Jan)/2,095–5,250	Not expected to occur. Populations of Mojave tarplant occur north of Warner Springs, California (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Deinandra paniculata	paniculate tarplant	None/None/4.2	None/List D	Coastal scrub, valley and foothill grassland, vernal pools; usually vernally mesic, sometimes sandy/annual herb/(Mar)Apr–Nov/80–3,085	Not expected to occur. Paniculate tarplant populations are north of Cuyamaca Rancho State Park (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Delphinium hesperium ssp. *cuyamacae*	Cuyamaca larkspur	None/SR/1B.2	Covered/None	Lower montane coniferous forest, meadows and seeps, vernal pools; mesic/perennial herb/May–July/4,000–5,350	Not expected to occur. Cuyamaca larkspur occurs north of Pine Valley, California (SDNHM 2012).
Dichondra occidentalis	western dichondra	None/None/4.2	None/List D	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/perennial rhizomatous herb/(Jan)Mar–July/160–1,640	Not expected to occur. Western dichondra occurs west of Alpine, California (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Dicranostegia	Orcutt's bird's-	None/None/2B.1	None/List B	Coastal scrub/annual herb	Not expected to occur. The site is outside of the

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orcuttiana	beak			(hemiparasitic)/ (Mar)Apr–July(Sep)/30–1,150	species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Dieteria asteroides var. *lagunensis*	Mount Laguna aster	None/SR/2B.1	Covered/List B	Cismontane woodland, lower montane coniferous forest/perennial herb/(May)July–Aug/2,590–7,875	Low potential to occur. Mount Laguna aster is known only form the Mount Laguna area north of the biological study area (SDNHM 2012).
Diplacus aridus	low bush monkeyflower	None/None/4.3	Covered/List D	Chaparral (rocky), Sonoran Desert scrub/perennial evergreen shrub/Apr–July/2,460–3,935	Low potential to occur. Low bush monkey flower occurs in the high and low desert near Jacumba, California, and farther east (SDNHM 2012).
Diplacus clevelandii	Cleveland's bush monkeyflower	None/None/4.2	None/List D	Chaparral, cismontane woodland, lower montane coniferous forest; gabbroic, often in disturbed areas, openings, rocky/perennial rhizomatous herb/Apr–July/1,475–6,560	Low potential to occur. Cleveland's bush monkeyflower occurs west of Pine Valley, California (SDNHM 2012).
Ditaxis serrata var. *californica*	California ditaxis	None/None/3.2	None/List C	Sonoran Desert scrub/perennial herb/Mar–Dec/95–3,280	Not expected to occur. California ditaxis occurs in Anza Borrego Desert State Park (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Downingia concolor var. *brevior*	Cuyamaca Lake downingia	None/SE/1B.1	Covered/List A	Meadows and seeps (vernally mesic), vernal pools/annual herb/May–July/4,525–4,920	Not expected to occur. Cuyamaca Lake downingia occurs north of Cuyamca Rancho State Park (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Dudleya alainae	Banner dudleya	None/None/3.2	None/List C	Chaparral, lower montane coniferous forest, Sonoran Desert scrub; rocky/ perennial herb/ Apr–July/2,425–3,935	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018). Records in San Diego County are near Julian (CCH 2019).

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Dudleya attenuata ssp. *attenuata*	Orcutt's dudleya	None/None/2B.1	None/List B	Coastal bluff scrub, chaparral, coastal scrub; rocky or gravelly/perennial herb/May–July/5–165	Not expected to occur. Orcutt's dudleya occurs near the border in Border Field State Park right next to the ocean (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Dudleya blochmaniae ssp. *blochmaniae*	Blochman's dudleya	None/None/1B.1	None/List A	Coastal bluff scrub, chaparral, coastal scrub, valley and foothill grassland; rocky, often clay or serpentinite/ perennial herb/Apr–June/15–1,475	Not expected to occur. Blochman's dudleya occurs near the ocean (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Dudleya brevifolia	short-leaved dudleya	None/SE/1B.1	None/List A	Chaparral (maritime, openings), coastal scrub; Torrey sandstone/perennial herb/Apr–May/95–820	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Dudleya multicaulis	many-stemmed dudleya	None/None/1B.2	None/List A	Chaparral, coastal scrub, valley and foothill grassland; often clay/perennial herb/Apr–July/45–2,590	Not expected to occur. Many stemmed dudleya occurs near San Clemente, California (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Dudleya variegata	variegated dudleya	None/None/1B.2	None/List A	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools; clay/perennial herb/Apr–June/5–1,905	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Dudleya viscida	sticky dudleya	None/None/1B.2	None/List A	Coastal bluff scrub, chaparral, cismontane woodland, coastal scrub; rocky/perennial herb/May–June/30–1,805	Not expected to occur. Sticky dudleya occurs near Oceanside, California, and Camp Pendleton, California (SDNHM 2012).The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Ericameria cuneata	Laguna	None/None/1B.3	Covered/List A	Chaparral	Low potential to occur. Laguna Mountains goldenbush

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var. *macrocephala*	Mountains goldenbush			(granitic)/perennial shrub/Sep–Dec/3,920–6,070	occurs west of Boulder Oaks and Mount Laguna (SDNHM 2012).
Ericameria palmeri var. *palmeri*	Palmer's goldenbush	None/None/1B.1	Covered/List B	Chaparral, coastal scrub; mesic/perennial evergreen shrub/(July)Sep–Nov/95–1,970	Not expected to occur. Palmer's goldenbush occurs west of Alpine, California. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Eriogonum evanidum	vanishing wild buckwheat	None/None/1B.1	Covered/List A	Chaparral, cismontane woodland, lower montane coniferous forest, pinyon and juniper woodland; sandy or gravelly/annual herb/July–Oct/3,605–7,300	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018). Records from San Diego County are north of Pine Valley (CCH 2019).
Eryngium aristulatum var. *parishii*	San Diego button-celery	FE/SE/1B.1	None/List A	Coastal scrub, valley and foothill grassland, vernal pools; mesic/annual / perennial herb/Apr–June/65–2,035	Not expected to occur. San Diego button celery generally occurs west of Alpine, California (SDNHM 2012).The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Eryngium pendletonense	Pendleton button-celery	None/None/1B.1	None/List A	Coastal bluff scrub, valley and foothill grassland, vernal pools; clay, vernally mesic/perennial herb/Apr–June(July)/45–360	Not expected to occur. Pendleton button celery only occurs on Camp Pendleton (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Erythranthe diffusa	Palomar monkeyflower	None/None/4.3	Covered/List D	Chaparral, lower montane coniferous forest; sandy or gravelly/annual herb/Apr–June/4,000–6,005	Low potential to occur. Palomar monkeyflower occurs west of Mount Laguna (SDNHM 2012).
Eucnide rupestris	annual rock-nettle	None/None/2B.2	None/List B	Sonoran Desert scrub/annual herb/Dec–Apr/1,640–1,970	Not expected to occur. Annual rock nettle occurs in the desert region and just south of Anza Borrego Desert State Park (SDNHM 2012). The site is outside of the species' known elevation range.
Euphorbia	Abrams' spurge	None/None/2B.2	None/None	Mojavean Desert scrub,	Low potential to occur. This species is occurs far north

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abramsiana				Sonoran Desert scrub; sandy/annual herb/(Aug)Sep–Nov/-5–4,300	of the biological study area in the Anza-Borrego Desert State Park area in San Diego County (SDNHM 2012).
Euphorbia arizonica	Arizona spurge	None/None/2B.3	None/List B	Sonoran Desert scrub (sandy)/perennial herb/Mar–Apr/160–985	Not expected to occur. Arizona spurge occurs west of Borrego Springs (SDNHM 2012). The site is outside of the species' known elevation range.
Euphorbia misera	cliff spurge	None/None/2B.2	None/List B	Coastal bluff scrub, coastal scrub, Mojavean Desert scrub; rocky/perennial shrub/Dec–Aug(Oct)/30–1,640	Not expected to occur. Cliff spurge occurs near the coast and in the Otay area (SDNHM 2012).The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Euphorbia platysperma	flat-seeded spurge	None/None/1B.2	None/List A	Desert dunes, Sonoran Desert scrub (sandy)/annual herb/Feb–Sep/210–330	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Euphorbia revoluta	revolute spurge	None/None/4.3	None/List D	Mojavean Desert scrub (rocky)/annual herb/Aug–Sep/3,590–10,170	Not expected to occur. No suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Ferocactus viridescens	San Diego barrel cactus	None/None/2B.1	None/List B	Chaparral, coastal scrub, valley and foothill grassland, vernal pools/perennial stem succulent/May–June/5–1,475	Not expected to occur. San Diego barrel cactus occurs west of El Cajon, California (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Frankenia palmeri	Palmer's frankenia	None/None/2B.1	None/List B	Coastal dunes, marshes and swamps (coastal salt), playas/perennial herb/May–July/0–35	Not expected to occur. Palmer's frankenia occurs west of I-5 along the coast in marshes (SDNHM 2012). The site is outside of the species' known elevation range and there is no suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).

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Fremontodendron mexicanum	Mexican flannelbush	FE/SR/1B.1	None/List A	Closed-cone coniferous forest, chaparral, cismontane woodland; gabbroic, metavolcanic, or serpentinite/perennial evergreen shrub/Mar–June/30–2,350	Not expected to occur. Mexican flannelbush occurs generally near the Otay area (SDNHM 2012). The site is outside of the species' known elevation range.
Fritillaria biflora	Chocolate lily	None/None/None	None/List D	Coastal scrub, chaparral, valley and foothill grassland; sometimes clay, cobbly loam/perennial herb/Feb–June/1,030–3,379	Low potential to occur. Chocolate lily occurs west of Descanso, California (SDNHM 2012). Chocolate lily does not occur in the Campo/Boulevard area (SDNHM 2012).
Funastrum utahense	Utah vine milkweed	None/None/4.2	None/List D	Mojavean Desert scrub, Sonoran Desert scrub; sandy or gravelly/perennial herb/(Mar)Apr–June(Sep–Oct)/325–4,710	Not expected to occur. Utah vine milkweed occurs far east and northeast of Jacumba, California (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Galium angustifolium ssp. *borregoense*	Borrego bedstraw	None/SR/1B.3	Covered/List A	Sonoran Desert scrub (rocky)/perennial herb/Mar(May)/1,145–4,100	Low potential to occur. Borrego bedstraw occurs in Anza Borrego Desert State Park and near Borrego Springs, California (SDNHM 2012).
Galium angustifolium ssp. *jacinticum*	San Jacinto Mountains bedstraw	None/None/1B.3	None/List A	Lower montane coniferous forest/perennial herb/June–Aug/4,425–6,890	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable coniferous forest vegetation present.
Galium johnstonii	Johnston's bedstraw	None/None/4.3	None/List D	Chaparral, lower montane coniferous forest, pinyon and juniper woodland, riparian woodland/ perennial herb/June–July/4,000–7,545	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018). This species is recorded at and north of Mt. Laguna (CCH 2019).
Githopsis diffusa ssp. *filicaulis*	Mission Canyon bluecup	None/None/3.1	None/List C	Chaparral (mesic, disturbed areas)/annual herb/Apr–	Not expected to occur. Mission canyon bluecup is west of Pine Valley (SDNHM 2012). The site is outside of the

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
				June/1,475–2,295	species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Grindelia hallii	San Diego gumplant	None/None/1B.2	Covered/List A	Chaparral, lower montane coniferous forest, meadows and seeps, valley and foothill grassland/ perennial herb/May–Oct/605–5,725	Low potential to occur. San Diego gumplant occurs generally north of Pine Valley, California (SDNHM 2012).
Harpagonella palmeri	Palmer's grapplinghook	None/None/4.2	Covered/List D	Chaparral, coastal scrub, valley and foothill grassland; clay; open grassy areas within shrubland/annual herb/Mar–May/65–3,135	Not expected to occur. Palmer's grapplinghook occurs west of Pine Valley, California, and in the high desert near Jacumba, California (SDNHM 2012).
Hazardia orcuttii	Orcutt's hazardia	None/ST/1B.1	None/List A	Chaparral (maritime), coastal scrub; often clay/perennial evergreen shrub/Aug–Oct/260–280	Not expected to occur. Orcutt's hazardia occurs near Encinitas, California, and Rancho Santa Fe, California (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Herissantia crispa	curly herissantia	None/None/2B.3	Covered/List B	Sonoran Desert scrub/annual/perennial herb/(Apr)Aug–Sep/2,295–2,380	Not expected to occur. Curly herissantia occurs near Anza Borrego Desert State Park (SDNHM 2012).The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Hesperocyparis stephensonii	Cuyamaca cypress	None/None/1B.1	Covered/List A	Closed-cone coniferous forest, chaparral, cismontane woodland, riparian forest; gabbroic/perennial evergreen tree/N.A./3,395–5,595	Low potential to occur. Cuyamaca cypress has a narrow distribution just west of Cuyamaca Rancho State Park (SDNHM 2012).
Heterotheca sessiliflora ssp. *sanjacintensis*	Sessileflower false goldenaster	None/None/None	None/List D	Montane habitats; reported to be endemic to Mount Palomar and the San Jacinto Mountains (Reiser 2001)/perennial herb/July–	Not expected to occur. This species is endemic to the Mount Palomar and the San Jacinto Mountains (Reiser 2001).

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				Sep/2,200–7,218	
Heuchera brevistaminea	Laguna Mountains alumroot	None/None/1B.3	Covered/List A	Broadleafed upland forest, chaparral, cismontane woodland, riparian forest; rocky/perennial rhizomatous herb/Apr–July(Sep)/4,490–6,560	Not expected to occur. Laguna Mountains alumroot occurs north of Mount Laguna, California (SDNHM 2012). The site is outside of the species' known elevation range.
Heuchera rubescens var. *versicolor*	San Diego County alumroot	None/None/3.3	None/List B	Chaparral, lower montane coniferous forest; rocky/perennial rhizomatous herb/May–June/4,920–13,125	Not expected to occur. San Diego county alumroot occurs north of Mount Laguna, California (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Holocarpha virgata ssp. *elongata*	graceful tarplant	None/None/4.2	Covered/List D	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/annual herb/May–Nov/195–3,610	Not expected to occur. Graceful tarplant occurs west of Alpine, California, and north of Ramona, California (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Hordeum intercedens	vernal barley	None/None/3.2	None/List C	Coastal dunes, coastal scrub, valley and foothill grassland (saline flats and depressions), vernal pools/ annual herb/Mar–June/15–3,280	Not expected to occur. No suitable saline habitats present. This species occurs west of Potrero (CCH 2019).
Horkelia cuneata var. *puberula*	mesa horkelia	None/None/1B.1	None/List A	Chaparral (maritime), cismontane woodland, coastal scrub; sandy or gravelly/perennial herb/Feb–July(Sep)/225–2,655	Not expected to occur. Mesa horkelia occurs north of Oceanside, California (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Horkelia truncata	Ramona horkelia	None/None/1B.3	Covered/List A	Chaparral, cismontane woodland; clay, gabbroic/perennial herb/May–June/1,310–4,265	Not expected to occur. Ramona horkelia occurs west of Pine Valley, California (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Horsfordia newberryi	Newberry's velvet-mallow	None/None/4.3	None/List D	Sonoran Desert scrub (rocky)/perennial shrub/Feb,Apr,Nov,Dec/5–2,625	Not expected to occur. The site is outside of the species' known elevation range.
Hosackia crassifolia var. *otayensis*	Otay Mountain lotus	None/None/1B.1	None/List A	Chaparral (metavolcanic, often in disturbed areas)/perennial herb/May–Aug/1,245–3,295	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Hulsea californica	San Diego sunflower	None/None/1B.3	Covered/List A	Chaparral, lower montane coniferous forest, upper montane coniferous forest; openings and burned areas/perennial herb/Apr–June/3,000–9,565	Low potential to occur. There is suitable chaparral habitat for this species, but this species is known from north of Morena Village (SDNHM 2012).
Hulsea mexicana	Mexican hulsea	None/None/2B.3	Covered/List B	Chaparral (volcanic, often on burns or disturbed areas)/ annual/ perennial herb/Apr–June/3,935–3,935	Low potential to occur. This species is recorded from Jacumba and Mt. Laguna and not the Campo area (CCH 2019).
Hymenothrix wrightii	Wright's hymenothrix	None/None/4.3	None/List D	Cismontane woodland, lower montane coniferous forest, valley and foothill grassland/perennial herb/June–Oct/4,590–5,085	Not expected to occur. Wright's hymenothrix occurs north of Pine Valley, California (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Ipomopsis tenuifolia	slender-leaved ipomopsis	None/None/2B.3	None/List B	Chaparral, pinyon and juniper woodland, Sonoran Desert scrub; gravelly or rocky/perennial herb/Mar–May/325–3,935	Low potential to occur. Slender-leaved ipomospsis generally occurs east of Boulevard, California, in the high desert region of Jacumba, California (SDNHM 2012).
Isocoma menziesii var. *decumbens*	decumbent goldenbush	None/None/1B.2	None/List A	Chaparral, coastal scrub (sandy, often in disturbed areas)/perennial shrub/Apr–	Not expected to occur. Decumbent goldenbush occurs west of Alpine, California (SDNHM 2012). The site is outside of the species' known elevation range.

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
				Nov/30–445	
Iva hayesiana	San Diego marsh-elder	None/None/2B.2	None/List B	Marshes and swamps, playas/perennial herb/Apr–Oct/30–1,640	Not expected to occur. San Diego marsh-elder occurs west of Alpine, California (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Johnstonella costata	ribbed cryptantha	None/None/4.3	Covered/List D	Desert dunes, Mojavean Desert scrub, Sonoran Desert scrub; sandy/annual herb/Feb–May/-195–1,640	Not expected to occur. Ribbed cryptantha occurs in the desert region (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Johnstonella holoptera	winged cryptantha	None/None/4.3	None/List D	Mojavean Desert scrub, Sonoran Desert scrub/annual herb/Mar–Apr/325–5,545	Not expected to occur. Winged cryptantha occurs in the desert region (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Juglans californica	Southern California black walnut	None/None/4.2	None/List D	Chaparral, cismontane woodland, coastal scrub, riparian woodland; alluvial/perennial deciduous tree/Mar–Aug/160–2,955	Not expected to occur. Southern California black walnut occurs north of Julian, California, and west of Alpine, California (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	None/None/4.2	None/List D	Coastal dunes (mesic), meadows and seeps (alkaline seeps), marshes and swamps (coastal salt)/perennial rhizomatous herb/ (Mar)May–June/5–2,955	Not expected to occur. The site is outside of the species' known elevation range. Also does not occur in vicinity (CDFW 2018; CNPS 2018).
Juncus cooperi	Cooper's rush	None/None/4.3	None/List D	Meadows and seeps (mesic, alkaline or saline)/perennial herb/Apr–May(Aug)/-850–5,805	Not expected to occur. Cooper's rush is located just north of Jacumba Hot Springs, California (SDNHM 2012). No suitable alkaline or saline meadows and seeps present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Lasthenia glabrata	Coulter's	None/None/1B.1	None/List A	Marshes and swamps	Not expected to occur. Coulter's goldfields occur west

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
ssp. *coulteri*	goldfields			(coastal salt), playas, vernal pools/annual herb/Feb–June/0–4,005	of El Cajon, California (SDNHM 2012). No suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Lepechinia cardiophylla	heart-leaved pitcher sage	None/None/1B.2	None/List A	Closed-cone coniferous forest, chaparral, cismontane woodland/perennial shrub/Apr–July/1,705–4,495	Not expected to occur. Heart-leaved pitcher sage occurs just northeast of Poway, California (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Lepechinia ganderi	Gander's pitcher sage	None/None/1B.3	None/List A	Closed-cone coniferous forest, chaparral, coastal scrub, valley and foothill grassland; gabbroic or metavolcanic/perennial shrub/June–July/1,000–3,295	Not expected to occur. Gander's pitcher sage occurs west of Dulzura, California (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Lepidium flavum var. *felipense*	Blair Valley pepper-grass	None/None/1B.2	Covered/List A	Pinyon and juniper woodland, Sonoran Desert scrub; sandy/annual herb/Mar–May/1,490–2,755	Not expected to occur. Blair Valley pepper-grass occurs in Anza Borrego Desert State Park (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	None/None/4.3	None/List A	Chaparral, coastal scrub/annual herb/Jan–July/0–2,905	Not expected to occur. Robinson's pepper-grass occurs west of Pine Valley, California (SDNHM 2012). The site is outside of the species' known elevation range.
Leptosiphon floribundus ssp. *hallii*	Santa Rosa Mountains leptosiphon	None/None/1B.3	None/List A	Pinyon and juniper woodland, Sonoran Desert scrub/perennial herb/May–July(Nov)/3,280–6,560	Not expected to occur. Santa Rosa Mountains leptosiphon occurs just west of Borrego Springs, California (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Leptosyne maritima	sea dahlia	None/None/2B.2	None/List B	Coastal bluff scrub, coastal scrub/perennial herb/Mar–May/15–490	Not expected to occur. Sea dahlia occurs west of I-5 along the coast (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Lessingia glandulifera var.	Warner Springs lessingia	None/None/1B.1	Covered/List A	Chaparral (sandy)/annual herb/Aug,Oct/2,850–4,005	Not expected to occur. Warner Springs lessingia occurs north of Santa Ysabel, California (SDNHM 2012). Does

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
tomentosa					not occur in vicinity (CDFW 2018; CNPS 2018).
Lewisia brachycalyx	short-sepaled lewisia	None/None/2B.2	Covered/List B	Lower montane coniferous forest, meadows and seeps; mesic/perennial herb/(Feb)Apr–June(July)/4,490–7,545	Not expected to occur. Short-sepaled lewisia occurs north of Cuyamaca Rancho State Park (SDNHM 2012). The site is outside of the species' known elevation range. Also does not occur in vicinity (CDFW 2018; CNPS 2018).
Lilium humboldtii ssp. *ocellatum*	ocellated Humboldt lily	None/None/4.2	Covered/List D	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland; openings/perennial bulbiferous herb/Mar–July(Aug)/95–5,905	Not expected to occur. Ocellated Humboldt lily occurs north and west of Pine Valley, California (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Lilium parryi	lemon lily	None/None/1B.2	Covered/List A	Lower montane coniferous forest, meadows and seeps, riparian forest, upper montane coniferous forest; mesic/perennial bulbiferous herb/July–Aug/4,000–9,005	Not expected to occur. Lemon lily occurs near Palomar Mountain (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Limnanthes alba ssp. *parishii*	Parish's meadowfoam	None/SE/1B.2	Covered/List A	Lower montane coniferous forest, meadows and seeps, vernal pools; vernally mesic/annual herb/Apr–June/1,965–6,560	Low potential to occur. Parish's meadowfoam occurs north of Mount Laguna, California (SDNHM 2012).
Linanthus maculatus ssp. *emaculatus*	Jacumba Mountains linanthus	None/None/1B.1	None/None	Desert dunes (edges), Sonoran Desert scrub; sandy or course, opaque-white, decomposed granite soils of washes and on flats near wash margins/annual herb/(Mar)Apr(May)/ 1,295–1,920	Not expected to occur. Jacumba Mountains occurs just west of Ocotillo, California, in the desert region (SDNHM 2012). The site is outside of the species' known elevation range.

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Linanthus orcuttii	Orcutt's linanthus	None/None/1B.3	Covered/List A	Chaparral, lower montane coniferous forest, pinyon and juniper woodland; openings/annual herb/May–June/3,000–7,035	Low potential to occur. Orcutt's linanthus occurs north of Boulder Oaks, California (SDNHM 2012).
Lupinus albifrons var. *medius*	Mountain Springs bush lupine	None/None/1B.3	Covered/List A	Pinyon and juniper woodland, Sonoran Desert scrub/perennial shrub/Mar–May/1,390–4,495	Low potential to occur. This species occurs east of the project near Jacumba Hot Spring north to Mt. Laguna (CCH 2019).
Lycium californicum	California box-thorn	None/None/4.2	None/List D	Coastal bluff scrub, coastal scrub/perennial shrub/(Dec)Mar, June, July, Aug/15–490	Not expected to occur. California box-thorn occurs west of Rancho San Diego (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Lycium parishii	Parish's desert-thorn	None/None/2B.3	Covered/List B	Coastal scrub, Sonoran Desert scrub/perennial shrub/Mar–Apr/440–3,280	Not expected to occur. Parish's desert-thorn occurs near Agua Caliente County Park (SDNHM 2012).
Lyrocarpa coulteri	Palmer's lyrepod	None/None/4.3	None/List D	Sonoran Desert scrub (gravelly or rocky)/perennial herb/Dec–Apr/390–2,610	Not expected to occur. Palmer's lyrepod occurs north of Mount Laguna in Anza Borrego Desert State Park (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Malacothamnus aboriginum	Indian Valley bush-mallow	None/None/1B.2	Covered/List A	Chaparral, cismontane woodland; rocky, granitic, often in burned areas/perennial deciduous shrub/Apr–Oct/490–5,575	Not expected to occur. Indian Valley bush-mallow occurs north of Pine Valley, California (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Malperia tenuis	brown turbans	None/None/2B.3	None/List B	Sonoran Desert scrub (sandy, gravelly)/annual herb/(Feb)Mar–Apr/45–1,100	Not expected to occur. Brown turbans occurs in the desert region (SDNHM 2012). The site is outside of the species' known elevation range.
Matelea parvifolia	spearleaf	None/None/2B.3	None/List B	Mojavean Desert scrub, Sonoran Desert scrub;	Low potential to occur. Spearleaf occurs in Anza Borrego Desert State Park (SDNHM 2012).

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
				rocky/perennial herb/Mar–May(July)/ 1,440–3,595	
Mentzelia hirsutissima	hairy stickleaf	None/None/2B.3	None/List B	Sonoran Desert scrub (rocky)/annual herb/Mar–May/0–2,295	Not expected to occur. The site is outside of the species' known elevation range.
Microseris douglasii ssp. *platycarpha*	small-flowered microseris	None/None/4.2	None/List D	Cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools; clay/annual herb/Mar–May/45–3,510	Not expected to occur. Small-flowered microseris occurs west of Alpine, California (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Mimulus latidens	vernal pool monkeyflower	None/None/None	None/List A	Vernal pools/annual herb/Apr–June/900–2,953	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vernal pool habitat present.
Mirabilis tenuiloba	slender-lobed four o'clock	None/None/4.3	None/List D	Sonoran Desert scrub/perennial herb/(Feb)Mar–May/750–3,595	Low potential to occur. Slender-lobed four o'clock occurs in the high desert and desert region (SDNHM 2012).
Monardella hypoleuca ssp. *lanata*	felt-leaved monardella	None/None/1B.2	Covered/List A	Chaparral, cismontane woodland/perennial rhizomatous herb/June–Aug/980–5,165	Not expected to occur. Felt-leaved monardella occurs west of Pine Valley, California (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Monardella macrantha ssp. *hallii*	Hall's monardella	None/None/1B.3	None/List A	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland/perennial rhizomatous herb/June–Oct/2,395–7,200	Not expected to occur. Hall's monardella occurs on Palomar Mountain (SDNHM 2012).
Monardella nana ssp. *leptosiphon*	San Felipe monardella	None/None/1B.2	Covered/None	Chaparral, lower montane coniferous forest/perennial	Low potential to occur. San Felipe monardella is known from north of Julian in San Diego County (SDNHM

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
				rhizomatous herb/June–July/3,935–6,085	2012).
Monardella stoneana	Jennifer's monardella	None/None/1B.2	None/List A	Closed-cone coniferous forest, chaparral, coastal scrub, riparian scrub; usually rocky intermittent streambeds/perennial herb/June–Sep/30–2,590	Not expected to occur. Jennifer's monardella occurs west of Barrett Junction (SDNHM 2012).The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Monardella viminea	willowy monardella	FE/SE/1B.1	None/List A	Chaparral, coastal scrub, riparian forest, riparian scrub, riparian woodland; alluvial ephemeral washes/perennial herb/June–Aug/160–740	Not expected to occur. Willowy monardella occurs west of U.S. Route 67 (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Mucronea californica	California spineflower	None/None/4.2	None/List D	Chaparral, cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland; sandy/annual herb/Mar–July(Aug)/0–4,595	Not expected to occur. California spineflower occurs west of I-5 on the coast (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Myosurus minimus ssp. *apus*	little mousetail	None/None/3.1	None/List C	Valley and foothill grassland, vernal pools (alkaline)/annual herb/Mar–June/65–2,100	Not expected to occur. Little mousetail occurs in the Otay area (SDNHM 2012). Found in deeper portions of vernal pools (Resier 2001). Vernal pools were not present on site. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Nama stenocarpa	mud nama	None/None/2B.2	None/List B	Marshes and swamps (lake margins, riverbanks)/annual/ perennial herb/Jan–July/15–1,640	Not expected to occur. Mud nama has been documented near Lake Henshaw (SDNHM 2012). Found on muddy embankments of lakes (Reiser 2001). The site is outside of the species' known elevation range and there is no suitable lake margin habitat present. Does not occur in vicinity (CDFW 2018; CNPS

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
					2018).
Nasturtium gambelii	Gambel's water cress	FE/ST/1B.1	None/List A	Marshes and swamps (freshwater or brackish)/perennial rhizomatous herb/Apr–Oct/15–1,085	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Navarretia fossalis	spreading navarretia	FT/None/1B.1	None/List A	Chenopod scrub, marshes and swamps (assorted shallow freshwater), playas, vernal pools/annual herb/Apr–June/95–2,150	Not expected to occur. Spreading navarretia occurs west of Ramona, California (SDNHM 2012). It is found in vernal pools and vernal swales (Reiser 2001). No vernal pools were present on site. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Navarretia peninsularis	Baja navarretia	None/None/1B.2	Covered/List A	Chaparral (openings), lower montane coniferous forest, meadows and seeps, pinyon and juniper woodland; mesic/annual herb/(May)June–Aug/4,920–7,545	Not expected to occur. Baja navarretia occurs in Cuyamaca Rancho State Park (SDNHM 2012).The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Navarretia prostrata	prostrate vernal pool navarretia	None/None/1B.1	None/List A	Coastal scrub, meadows and seeps, valley and foothill grassland (alkaline), vernal pools; mesic/annual herb/Apr–July/5–3,970	Not expected to occur. Prostrate vernal pool navarretia occurs west of I-15 (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Nemacaulis denudata var. *denudata*	coast woolly-heads	None/None/1B.2	None/List A	Coastal dunes/annual herb/Apr–Sep/0–330	Not expected to occur. Coast woolly-heads occur west of I-15 (SDNHM).The site is outside of the species' known elevation range and there is no suitable coastal dunes present. Also does not occur in vicinity (CDFW 2018; CNPS 2018).
Nemacaulis denudata var.	slender cottonheads	None/None/2B.2	None/List B	Coastal dunes, desert dunes, Sonoran Desert scrub/annual herb/(Mar)Apr–	Not expected to occur. Slender cottonheads prefer well-developed dune soils (Reiser 2001). Slender cottonheads occur west of I-15 (SDNHM 2012). The

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
gracilis				May/-160–1,310	site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Nolina cismontana	chaparral nolina	None/None/1B.2	Covered/List A	Chaparral, coastal scrub; sandstone or gabbro/ perennial evergreen shrub/(Mar)May–July/455–4,185	Not expected to occur. Chaparral nolina occurs near Alpine, California, Palomar Mountain, and Cleveland National Forest within the central range of San Diego County (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Nolina interrata	Dehesa nolina	None/SE/1B.1	None/List A	Chaparral (gabbroic, metavolcanic, or serpentinite)/perennial herb/June–July/605–2,805	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Ophioglossum californicum	California adder's-tongue	None/None/4.2	None/List D	Chaparral, valley and foothill grassland, vernal pools (margins); mesic/perennial rhizomatous herb/(Dec)Jan–June/195–1,720	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Opuntia wigginsii	Wiggins' cholla	None/None/3.3	None/List C	Sonoran Desert scrub (sandy)/perennial stem succulent/Mar/95–2,905	Not expected to occur. The site is outside of the species' known elevation range.
Orcuttia californica	California Orcutt grass	FE/SE/1B.1	None/List A	Vernal pools/annual herb/Apr–Aug/45–2,165	Not expected to occur. California Orcutt grass occurs within vernal pools (Reiser 2001). No vernal pools were present on site. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Ornithostaphylos oppositifolia	Baja California birdbush	None/SE/2B.1	None/List B	Chaparral/perennial evergreen shrub/Jan–Apr/180–2,625	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Orobanche parishii ssp. *brachyloba*	short-lobed broomrape	None/None/4.2	None/List D	Coastal bluff scrub, coastal dunes, coastal scrub; sandy/perennial herb (parasitic)/Apr–Oct/5–1,000	Not expected to occur. Short-lobed broomrape occurs west of I-5 (SDNHM 2012). The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Packera ganderi	Gander's ragwort	None/SR/1B.2	Covered/List A	Chaparral (burns, gabbroic outcrops)/perennial herb/Apr–June/1,310–3,935	Not expected to occur. Gander's ragwort occurs west of Pine Valley (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Pectocarya peninsularis	Baja California bur-comb	None/None/None	None/List D	Sonoran Desert scrub; washes, roadsides, clearings, sandy, silty, or gravelly soil/annual herb/Feb–Apr/300–984	Not expected to occur. Baja California bur-comb occurs in the desert region (SDNHM 2012). The site is outside of the species' known elevation range.
Penstemon clevelandii var. *connatus*	San Jacinto beardtongue	None/None/4.3	None/List D	Chaparral, pinyon and juniper woodland, Sonoran Desert scrub; rocky/perennial herb/Mar–May/1,310–4,920	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Penstemon thurberi	Thurber's beardtongue	None/None/4.2	None/List D	Chaparral, Joshua tree woodland, pinyon and juniper woodland, Sonoran Desert scrub/perennial herb/May–July/1,640–4,005	Not expected to occur. Thurber's beardtongue occurs just west of Anza Borrego Desert State Park (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Pentachaeta aurea ssp. *aurea*	golden-rayed pentachaeta	None/None/4.2	None/List D	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland, valley and foothill grassland/ annual herb/Mar–July/260–6,070	Not expected to occur. Golden-rayed pentachaeta occurs west of Mount Laguna, California (SDNHM 2012). Does not occur in vicinity (CDFW 2018; CNPS 2018).
Perideridia gairdneri ssp. *gairdneri*	Gairdner's yampah	None/None/4.2	None/List D	Broadleafed upland forest, chaparral, coastal prairie, valley and foothill grassland, vernal pools; vernally mesic/perennial herb/June–Oct/0–2,000	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Phacelia stellaris	Brand's star	None/None/1B.1	None/List A	Coastal dunes, coastal	Not expected to occur. The site is outside of the

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
	phacelia			scrub/annual herb/Mar–June/0–1,310	species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Pholistoma auritum var. *arizonicum*	Arizona pholistoma	None/None/2B.3	Covered/None	Mojavean Desert scrub /annual herb/Mar/900–2,740	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Pickeringia montana var. tomentosa	woolly chaparral-pea	None/None/4.3	None/None	Chaparral; Gabbroic, granitic, clay/evergreen shrub/May–Aug/0–5575	Low potential to occur. Records are all west of Potrero or north of Moreno Village (SDNHM 2012).
Pilostyles thurberi	Thurber's pilostyles	None/None/4.3	None/List D	Sonoran Desert scrub/perennial herb (parasitic)/Dec–Apr/0–1,200	Not expected to occur. The site is outside of the species' known elevation range.
Pinus torreyana ssp. *torreyana*	Torrey pine	None/None/1B.2	None/List A	Closed-cone coniferous forest, chaparral; sandstone/perennial evergreen tree/N.A./95–525	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Piperia cooperi	chaparral rein orchid	None/None/4.2	Covered/List D	Chaparral, cismontane woodland, valley and foothill grassland/ perennial herb/Mar–June/45–5,200	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Piperia leptopetala	narrow-petaled rein orchid	None/None/4.3	Covered/List D	Cismontane woodland, lower montane coniferous forest, upper montane coniferous forest/ perennial herb/May–July/1,245–7,300	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Plagiobryoides vinosula	wine-colored tufa moss	None/None/4.2	None/None	Cismontane woodland, Mojavean desert scrub, Meadows and seeps, Pinyon and juniper woodland, Riparian woodland; usually granitic rock or granitic soil	Low potential to occur. This species is restricted to calcareous springs (NatureServe 2018).

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
				along seeps and streams, sometimes clay/moss/N.A./95–5690	
Poa atropurpurea	San Bernardino blue grass	FE/None/1B.2	Covered/List A	Meadows and seeps (mesic)/perennial rhizomatous herb/(Apr)May–July(Aug)/4,460–8,055	Not expected to occur. The site is outside of the species' known elevation range. This species is known from north of Boulder Oaks (CCH 2019).
Pogogyne abramsii	San Diego mesa mint	FE/SE/1B.1	None/List A	Vernal pools/annual herb/Mar–July/295–655	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vernal pool habitat present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Pogogyne nudiuscula	Otay Mesa mint	FE/SE/1B.1	None/List A	Vernal pools/annual herb/May–July/295–820	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Polygala cornuta var. *fishiae*	Fish's milkwort	None/None/4.3	None/List D	Chaparral, cismontane woodland, riparian woodland/perennial deciduous shrub/May–Aug/325–3,280	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Proboscidea althaeifolia	desert unicorn-plant	None/None/4.3	None/List D	Sonoran Desert scrub; gently sloping sandy flats and washes, sometimes roadsides/perennial herb/ May–Sep(Oct)/275–3,280	Not expected to occur. Desert unicorn plant occurs northeast of Mount Laguna, California, in the desert region (SDNHM 2012).
Quercus cedrosensis	Cedros Island oak	None/None/2B.2	None/List B	Closed-cone coniferous forest, chaparral, coastal scrub/perennial evergreen tree/Apr–May/835–3,150	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Quercus dumosa	Nuttall's scrub oak	None/None/1B.1	None/List A	Closed-cone coniferous forest, chaparral, coastal scrub;	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
				sandy, clay loam/ perennial evergreen shrub/ Feb–Apr(May–Aug)/45–1,310	vicinity (CDFW 2018; CNPS 2018).
Quercus engelmannii	Engelmann oak	None/None/4.2	Covered/List D	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland/perennial deciduous tree/Mar–June/160–4,265	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Rhus aromatica var. *simplicifolia*	single-leaved skunkbrush	None/None/2B.3	None/List B	Pinyon and juniper woodland; usually granitic/perennial deciduous shrub/Mar–Apr/4,000–4,495	Not expected to occur. No suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Ribes canthariforme	Moreno currant	None/None/1B.3	Covered/List A	Chaparral, riparian scrub/perennial deciduous shrub/Feb–Apr/1,115–3,935	Not expected to occur. Moreno currant occurs west of Pine Valley, California (SDNHM 2012).
Ribes viburnifolium	Santa Catalina Island currant	None/None/1B.2	None/List A	Chaparral, cismontane woodland/perennial evergreen shrub/Feb–Apr/95–1,150	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Romneya coulteri	Coulter's matilija poppy	None/None/4.2	None/List D	Chaparral, coastal scrub; often in burns/perennial rhizomatous herb/Mar–July(Aug)/65–3,935	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Rosa minutifolia	small-leaved rose	None/SE/2B.1	None/List B	Chaparral, coastal scrub/perennial deciduous shrub/Jan–June/490–525	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Rubus glaucifolius var. *ganderi*	Cuyamaca raspberry	None/None/3.1	Covered/List A	Lower montane coniferous forest (gabbroic)/perennial evergreen shrub/May–June/3,935–5,495	Not expected to occur. No suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Rupertia rigida	Parish's rupertia	None/None/4.3	Covered/List D	Chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, pebble (pavement) plain, valley and foothill grassland/perennial herb/June–Aug/2,295–8,200	Low potential to occur. Parish's rupertia occurs north of Pine Valley, California (SDNHM 2012).
Saltugilia caruifolia	caraway-leaved woodland-gilia	None/None/4.3	None/List D	Chaparral, lower montane coniferous forest; sandy, openings/annual herb/May–Aug/2,755–7,545	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Salvia eremostachya	desert sage	None/None/4.3	None/List D	Sonoran Desert scrub (rocky or gravelly)/ perennial evergreen shrub/Mar–May/2,295–4,595	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Salvia munzii	Munz's sage	None/None/2B.2	None/List B	Chaparral, coastal scrub/perennial evergreen shrub/Feb–Apr/375–3,495	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Scutellaria bolanderi ssp. *austromontana*	southern mountains skullcap	None/None/1B.2	None/List A	Chaparral, cismontane woodland, lower montane coniferous forest; mesic/perennial rhizomatous herb/June–Aug/1,390–6,560	Low potential to occur. Southern mountains skullcap occurs north of Boulder Oaks and collections are most concentrated in the Palomar Mountain area (SDNHM 2012).
Selaginella asprella	bluish spike-moss	None/None/4.3	None/List D	Cismontane woodland, lower montane coniferous forest, pinyon and juniper woodland, subalpine coniferous forest, upper montane coniferous forest; granitic, rocky/perennial rhizomatous herb/July/5,245–8,860	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Selaginella cinerascens	ashy spike-moss	None/None/4.1	None/List D	Chaparral, coastal scrub/perennial rhizomatous herb/N.A./65–2,100	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Selaginella eremophila	desert spike-moss	None/None/2B.2	None/List B	Chaparral, Sonoran Desert scrub (gravelly or rocky)/perennial rhizomatous herb/(May)June(July)/ 655–4,250	Low potential to occur. Desert spike-moss occurs in the high desert region and desert region east of the site (SDNHM 2012).
Senecio aphanactis	chaparral ragwort	None/None/2B.2	None/List B	Chaparral, cismontane woodland, coastal scrub; sometimes alkaline/annual herb/Jan–Apr(May)/45–2,625	Not expected to occur. Chaparral ragwort occurs west of Alpine, California (SDNHM 2012). The site is outside of the species' known elevation range.
Senna covesii	Coves' cassia	None/None/2B.2	None/List B	Sonoran Desert scrub; dry, sandy desert washes and slopes/perennial herb/Mar–June(Aug)/ 735–4,250	Not expected to occur. No suitable desert wash and slope habitat. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Sibaropsis hammittii	Hammitt's clay-cress	None/None/1B.2	Covered/List A	Chaparral (openings), valley and foothill grassland; clay/annual herb/Mar–Apr/2,360–3,495	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Spermolepis echinata	bristly scaleseed	None/None/None	None/List B	Sonoran Desert scrub (sandy or rocky)/annual herb/Mar–Apr/1,500–4,921	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Stemodia durantifolia	purple stemodia	None/None/2B.1	None/List B	Sonoran Desert scrub (often mesic, sandy)/perennial herb/(Jan)Apr, June, Aug, Sep, Oct, Dec/590–985	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Stipa diegoensis	San Diego County needle	None/None/4.2	None/List D	Chaparral, coastal scrub; rocky, often mesic/perennial	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
	grass			herb/Feb–June/30–2,625	vicinity (CDFW 2018; CNPS 2018).
Streptanthus bernardinus	Laguna Mountains jewelflower	None/None/4.3	None/List D	Chaparral, lower montane coniferous forest/perennial herb/May–Aug/2,195–8,200	Low potential to occur. Laguna Mountains jewelflower occurs north of Mount Laguna, California (SDNHM 2012).
Stylocline citroleum	oil neststraw	None/None/1B.1	None/List A	Chenopod scrub, coastal scrub, valley and foothill grassland; clay/annual herb/Mar–Apr/160–1,310	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Suaeda esteroa	estuary seablite	None/None/1B.2	None/List A	Marshes and swamps (coastal salt)/perennial herb/(May)July–Oct(Jan)/0–15	Not expected to occur. Esturary seablite occurs west of Rancho San Diego, California, and is generally close to the coastline (SDNHM 2012). The site is outside of the species' known elevation range and there is no suitable coastal salt marsh habitat present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Suaeda taxifolia	woolly seablite	None/None/4.2	None/List D	Coastal bluff scrub, coastal dunes, marshes and swamps (margins of coastal salt)/ perennial evergreen shrub/Jan–Dec/0–165	Not expected to occur. Woolly seablite occurs on the coastline and is generally found west of I-5 (SDNHM 2012). The site is outside of the species' known elevation range and there is no suitable vegetation present. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Symphyotrichum defoliatum	San Bernardino aster	None/None/1B.2	None/None	Cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, valley and foothill grassland (vernally mesic); near ditches, streams, springs/perennial rhizomatous herb/July–Nov/5–6,695	Low potential to occur. Limited suitable mesic habitat on site. San Bernardino aster generally occurs north and east of the project site. The nearest occurrences of this species are from Morena Village and north of Tierra Del Sol (CCH 2019).

Scientific Name	Common Name	Status (Federal/State/ CRPR)	East County MSCP/ County of San Diego	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Tetracoccus dioicus	Parry's tetracoccus	None/None/1B.2	None/List A	Chaparral, coastal scrub/perennial deciduous shrub/Apr–May/540–3,280	Low potential to occur. The species occurs north of Jamul (SDNHM 2012).
Thermopsis californica var. *semota*	velvety false lupine	None/None/1B.2	Covered/List A	Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland/perennial rhizomatous herb/Mar–June/3,280–6,135	Low potential to occur. Velvety false lupine occurs generally north of Pine Valley (SDNHM 2012).
Thysanocarpus rigidus	rigid fringepod	None/None/1B.2	None/None	Pinyon and juniper woodland; dry rocky slopes/annual herb/Feb–May/1,965–7,220	Not expected to occur. No suitable pinyon and juniper woodland vegetation present.
Viguiera laciniata	San Diego County viguiera	None/None/4.3	None/List D	Chaparral, coastal scrub/perennial shrub/Feb–June(Aug)/195–2,460	Not expected to occur. The site is outside of the species' known elevation range.
Viguiera purisimae	La Purisima viguiera	None/None/2B.3	None/List A	Coastal bluff scrub, chaparral/shrub/Apr–Sep/1,195–1,395	Not expected to occur. The site is outside of the species' known elevation range. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Viola purpurea ssp. *aurea*	golden violet	None/None/2B.2	None/List B	Great Basin scrub, pinyon and juniper woodland; sandy/perennial herb/Apr–June/3,280–8,200	Not expected to occur. Does not occur in vicinity (CDFW 2018; CNPS 2018).
Xanthisma junceum	rush-like bristleweed	None/None/4.3	Covered/List D	Chaparral, coastal scrub/perennial herb/May–Jan/785–3,280	Low potential to occur. Campo is just east of the species' general range (SDNHM 2012).
Xylorhiza orcuttii	Orcutt's woody-aster	None/None/1B.2	Covered/List A	Sonoran Desert scrub/perennial herb/Mar–Apr/0–1,200	Not expected to occur. Orcutt's woody-aster occurs in Anza Borrego Desert State Park and in the desert all the way to the Salton Sea (SDNHM 2012). The site is outside of the species' known elevation range.

Status Legend
Federal
FC: Federal candidate for listing
FE: Federally listed as endangered
FT: Federally listed as threatened
State
SE: State-listed as endangered
SR: State rare
ST: State-listed as threatened
CRPR: California Rare Plant Rank
1B: Plants rare, threatened, or endangered in California and elsewhere
2A: Plants presumed extirpated in California but common elsewhere
2B: Plants rare, threatened, or endangered in California, but more common elsewhere
3: Plants about which more information is needed—A Review List
4: Plants of limited distribution—A Watch List

Threat Rank
.1: Seriously threatened in California (more than 80% of occurrences threatened/high degree and immediacy of threat)
.2: Fairly threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)
.3: Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)
County of San Diego Multiple Species Conservation Program (MSCP), East County Plan
Covered: Covered under the plan
None: Not covered
County of San Diego MSCP Listed Species
List A: Plants rare, threatened, or endangered in California or elsewhere
List B: Plants rare, threatened, or endangered in California but more common elsewhere
List C: Plants that may be quite rare, but more information is needed to determine rarity status
List D: Plants of limited distribution and are uncommon, but not presently rare or endangered
None = not listed
N.A. = not applicable

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ATTACHMENT H-1

Special-Status Wildlife Species Detected or Potentially Occurring in the Boulder Brush Corridor

APPENDIX H-1
Special-Status Wildlife Species Detected or Potentially Occurring in the Boulder Brush Corridor

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
			Amphibians		
Spea hammondii	western spadefoot	None/SSC/Covered	Group 2	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley–foothill woodlands, pastures, and other agriculture	Moderate potential to occur onsite; in general there is a lack of persistent water sources but there could be isolated ponding in drainages, Tule Creek, and road ruts during and after rain events. This species was recorded south of the project site in the Campo Indian Reservation (AECOM 2012).
			Birds		
Accipiter cooperii (nesting)	Cooper's hawk	None/WL/None	Group 1	Nests and forages in dense stands of live oak, riparian woodlands, or other woodland habitats often near water	Observed. This species was observed nesting on site.
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	None/WL/Covered	Group 1	Nests and forages in open coastal scrub and chaparral with low cover of scattered scrub interspersed with rocky and grassy patches	Moderate potential to occur on site. This species has potential to occur on site in the coastal scrub and chaparral habitats. It was not documented during extensive wildlife surveys; however, it has been recorded in the vicinity (Unitt 2004).
Aquila chrysaetos (nesting and wintering)	golden eagle	BCC/FP, WL/Covered	Group 1	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats	A golden eagle was observed flying over the project site during wildlife surveys in 2018. There are no suitable large trees and cliffs present for nesting; therefore, this species is not expected to nest on site. Eagle surveys have been conducted on site in 2017 and 2018 and no golden eagles were observed, indicating that this species does not occur in the project site frequently. Data received from USFWS shows the closest nest approximately 5.5 miles east of the Project site in the Carrizo Gorge area of the Jacumba Mountains; it was noted as active in February 2012 (Dietsch 2018).

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
Artemisiospiza belli belli	Bell's sage sparrow	BCC/WL/Covered	Group 1	Nests and forages in coastal scrub and dry chaparral; typically in large, unfragmented patches dominated by chamise; nests in more dense patches but uses more open habitat in winter	Observed. This species nests in coastal scrub and chaparral and is known to occur in the vicinity (Unitt 2004; AECOM 2012).
Asio otus (nesting)	long-eared owl	None/SSC/Covered	Group 1	Nests in riparian habitat, live oak thickets, other dense stands of trees, edges of coniferous forest; forages in nearby open habitats	Moderate potential to occur. This species is not widespread in San Diego County, but it was documented in the vicinity of the project site (AECOM 2012). There is potential for this species to winter in the oak woodland habitat on site.
Buteo lineatus	red-shouldered hawk	None/None/None	Group 1	Nests in dense riparian areas, especially with adjacent edges, swamps, marshes, and wet meadows for hunting	Observed. There is suitable nesting and foraging habitat on site.
Cathartes aura	turkey vulture	None/None/Covered	Group 1	Rangeland, agriculture, grassland; uses cliffs and large trees for roosting, nesting, and resting throughout most of California during breeding season	Observed foraging throughout the site.
Circus hudsonius (nesting)	northern harrier	None/SSC/Covered	Group 1	Nests in open wetlands (marshy meadows, wet lightly-grazed pastures, old fields, freshwater and brackish marshes); also in drier habitats (grassland and grain fields); forages in grassland, scrubs, rangelands, emergent wetlands, and other open habitats	Observed adjacent to the site. While there is some potential nesting habitat in the meadow habitat along Tule Creek, this species has not been documented nesting in the region (Unitt 2004).
Eremophila alpestris actia	California horned lark	None/WL/Covered	Group 2	Nests and forages in grasslands, disturbed lands, agriculture, and beaches; nests in alpine fell fields of the Sierra Nevada	Observed. There is suitable nesting and foraging habitat on site.

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
Falco columbarius (wintering)	merlin	None/WL/None	Group 2	Forages in semi-open areas, including coastline, grassland, agriculture, savanna, woodland, lakes, and wetlands	One merlin was observed flying over the site in October 2018. This winter visitor to San Diego County is not well-documented in southeast San Diego. Because only one merlin has been observed during the winter months (October – December), it likely is not regularly using the site for wintering. However, it could use the site occasionally for foraging.
Lanius ludovicianus (nesting)	loggerhead shrike	BCC/SSC/Covered	Group 1	Nests and forages in open habitats with scattered shrubs, trees, or other perches	Observed adjacent to the site. There is suitable nesting and foraging habitat on site.
Oreoryx pictus	mountain quail	None/None/None	Group 2	Dense montane chaparral and brushy areas within coniferous forest, pinyon–juniper–yucca associations; uses shrubs, brush stands, and trees on steep slopes for cover	Moderate potential to occur. This species nests in chaparral and is known to occur in the vicinity (Unitt 2004; AECOM 2012).
Setophaga petechia (nesting)	yellow warbler	BCC/SSC/Covered	Group 2	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine, and mixed-conifer habitats	Observed. There is marginal riparian habitat on site. It was observed on the Campo Indian Reservation (AECOM 2012) and is known to nest in the vicinity (Unitt 2004).
Sialia mexicana	western bluebird	None/None/None	Group 2	Nests in old-growth red fir, mixed-conifer, and lodegpole pine habitats near wet meadows used for foraging	Observed. There is nesting and foraging habitat on site.
Tyto alba	barn owl	None/None/None	Group 2	Open habitats including grassland, chaparral, riparian, and other wetlands.	Observed. There is suitable nesting and foraging habitat on site.
Vireo vicinior (nesting)	gray vireo	BCC/SSC/Covered	Group 1	Nests and forages in pinyon–juniper woodland, oak, and chamise and redshank chaparral	Moderate potential to occur in the oak woodland and chaparral habitats on site. This species is known to occur south of the Laguna Mountains and north of I-8 (Unitt 2004).

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
Invertebrates					
Apodemia virgulti peninsularis	Peninsular metalmark	None/None/None	Group 1	Found in mountain meadows usually near the edges of woods, Great Basin sagebrush, and montane buckwheat scrub. Host plant is *Eriogonum wrightii* ssp. *membranaceum* (Faulkner and Klein 2012).	Potentially observed. Behr's metalmark was observed frequently on site which is very similar in appearance to *A.v. peninsularis*. The host plant, *Eriogonum wrightii* ssp. *membranaceum* occurs on site and therefore, this species could have been observed during the surveys. No specimens were collected to confirm its presence on site. This species is found in the San Jacinto, Palomar, and Laguna Mountains (Faulkner and Klein 2012; Butterflies of North America 2018) where its host plant occurs.
Euphydryas editha quino	Quino checkerspot butterfly	FE/None/Covered	Group 1	Annual forblands, grassland, open coastal scrub and chaparral; often soils with cryptogamic crusts and fine-textured clay; host plants include Plantago erecta, Antirrhinum coulterianum, and Plantago patagonica (Silverado Occurrence Complex)	Moderate potential to occur. Focused surveys in 2011 and 2018 were negative. Quino have been documented in the vicinity in past years (USFWS 2018; CDFW 2018; AECOM 2012). Specifically, Quino were documented in the Manzanita Reservation, less than one mile west of the project site in 2010, and Quino were documented on the Campo Indian Reservation south of I-8 in 2005, 2009, and 2010 (USFWS 2018). Based on past observations of this species in the region, there is potential for this species to occur within suitable habitat on the project site.
Mammals					
Antrozous pallidus	pallid bat	None/SSC/Covered	Group 2	Grasslands, shrublands, woodlands, forests; most common in open, dry habitats with rocky outcrops for roosting, but also roosts in man-made structures and trees	Moderate potential to roost on site. There is suitable shrubland, dry habitat, and rocky outcrops present and this species was detected during the 2011/2012 acoustical bat surveys on site as well as on the Campo Indian Reservation (AECOM 2012).

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
Chaetodipus californicus femoralis	Dulzura pocket mouse	None/SSC/None	Group 2	Open habitat, coastal scrub, chaparral, oak woodland, chamise chaparral, mixed-conifer habitats; disturbance specialist; 0 to 3,000 feet above mean sea level	Moderate potential to occur. There is suitable scrub, chaparral, and open habitat present. The closest CNDDB occurrence overlaps the southern portion of the project area (CDFW 2018).
Corynorhinus townsendii	Townsend's big-eared bat	None/SSC/Covered	Group 2	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, man-made structures, and tunnels	Moderate potential to roost on site. There is some riparian forest present onsite. This species was detected during the 2011/2012 acoustical bat surveys on site as well as on the Campo Indian Reservation (AECOM 2012).
Eumops perotis californicus	western mastiff bat	None/SSC/None	Group 2	Chaparral, coastal and desert scrub, coniferous and deciduous forest and woodland; roosts in crevices in rocky canyons and cliffs where the canyon or cliff is vertical or nearly vertical, trees, and tunnels	Moderate potential to roost on site. There are some large trees and snags on site and this species was detected during the 2011/2012 acoustical bat surveys on site as well as on the Campo Indian Reservation (AECOM 2012).
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None/SSC/Covered	Group 2	Arid habitats with open ground; grasslands, coastal scrub, agriculture, disturbed areas, and rangelands	Observed regularly during surveys.
Macrotus californicus	Californian leaf-nosed bat	None/SSC/None	Group 2	Riparian woodlands, desert wash, desert scrub; roosts in mines and caves, occasionally buildings	Moderate potential to roost on site. There are no mines, caves, or buildings present, but some riparian woodland habitat. Potential to forage on site; however, it was not detected during the 2011/2012 acoustical bat surveys on site or on the Campo Indian Reservation (AECOM 2012).
Myotis ciliolabrum	western small-footed myotis	None/None/None	Group 2	Arid woodlands and shrublands, but near water; roosts in caves, crevices, mines, abandoned buildings	High potential to roost on site. There are no caves, crevices, mines, or buildings present; however, there are oak and riparian woodlands on site. This species was detected during the 2011/2012 acoustical bat surveys on site.

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
Myotis evotis	long-eared myotis	None/None/None	Group 2	Brush, woodland, and forest habitats from sea level to 9,000 feet above MSL; prefers coniferous habitats; forages along habitat edges, in open habitats, and over water; roosts in buildings, crevices, under bark, and snags; uses caves as night roosts	Moderate potential to roost on site in tree snags or bark; there are no buildings or crevices present. Potential to forage on site. It was not detected during the 2011/2012 acoustical bat surveys, but it was recorded on the Campo Indian Reservation (AECOM 2012).
Myotis thysanodes	fringed myotis	None/None/None	Group 2	Drier woodlands (oak, pinyon–juniper, and ponderosa pine), desert scrub, mesic coniferous forest, grassland, and sage–grass steppe; sea level to 9,350 ft; roosts in buildings, mines, rocks, cliff faces, bridges, and large, decadent trees and snags	Moderate potential to roost on site. There are some large trees and snags on site and this species was detected on the Campo Indian Reservation (AECOM 2012). Potential to forage on site; however, it was not detected during the 2011/2012 acoustical bat surveys on site.
Neotoma lepida intermedia[1]	San Diego desert woodrat	None/SSC/None	Group 2	Coastal scrub, desert scrub, chaparral, cacti, rocky areas	Observed. Woodrat middens were observed on site. There is suitable desert scrub, chaparral, and rocky areas present.
Nyctinomops femorosaccus	pocketed free-tailed bat	None/SSC/None	Group 2	Pinyon–juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oases; roosts in high cliffs or rock outcrops with drop-offs, caverns, and buildings	Moderate potential to roost on site in the larger rock outcrops. This species was detected during the 2011/2012 acoustical bat surveys as well as on the Campo Indian Reservation (AECOM 2012).
Nyctinomops macrotis	big free-tailed bat	None/SSC/None	Group 2	Rocky areas; roosts in caves, holes in trees, buildings, and crevices on cliffs and rocky outcrops; forages over water	Moderate potential to roost on site. There are some rocky outcrops on site and this species was detected during the 2011/2012 acoustical bat surveys on site at a very low number of minutes (0.6%) as well as on the Campo Indian Reservation (AECOM 2012).

[1] The San Diego Mammal Atlas (Tremor et al. 2017) describes this species as *N. bryanti*, a distinct species from *N. lepida*, with *N. bryanti* occurring in Baja and SoCal west of Imperial and Coachella Valley. However, wildlife agencies still refer to this species as *N. l. intermedia* and therefore, this name is used for this report.

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
Odocoileus hemionus	mule deer	None/None/None	Group 2	Coastal sage scrub, chaparral, riparian, woodlands, and forest; often browses in open area adjacent to cover throughout California, except deserts and intensely farmed areas	Observed. Both individual deer and their sign was observed throughout the project site.
Onychomys torridus ramona	southern grasshopper mouse	None/SSC/Covered	Group 2	Grassland and sparse coastal scrub	Moderate potential to occur. There is suitable scrub vegetation present. The closest CNDDB occurrences overlap the project area in the northern and southern portions (CDFW 2018).
Perognathus longimembris internationalis	Jacumba pocket mouse	None/SSC/Covered	Group 2	Desert scrub and sparse sage scrub in areas with fine sandy soils	Moderate potential to occur. This species is recorded in McCain Valley, just east of the project site. There is suitable habitat in the scrub habitat on site.
Puma concolor	cougar	None/None/None	Group 2	Scrubs, chaparral, riparian, woodland, and forest; rests in rocky areas and on cliffs and ledges that provide cover; most abundant in riparian areas and brushy stages of most habitats throughout California, except deserts	High potential to occur. This species was detected on Campo Indian Reservation (AECOM 2012). There is suitable habitat throughout the project site.
Taxidea taxus	American badger	None/SSC/Covered	Group 2	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	Moderate to high potential to occur. There is suitable open scrub vegetation and friable soils present.
Reptiles					
Anniella stebbinsi	southern California legless lizard	None/SSC/None	Group 2	Coastal dunes, stabilized dunes, beaches, dry washes, valley–foothill, chaparral, and scrubs; pine, oak, and riparian woodlands; associated with sparse vegetation and moist sandy or loose, loamy soils	Moderate potential to occur. There are no records of this species in the vicinity (CDFW 2018); however, this cryptic species could occur in some habitat along Tule Creek.

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
Arizona elegans occidentalis	California glossy snake	None/SSC/None	None	Commonly occurs in desert regions throughout southern California. Prefers open sandy areas with scattered brush. Also found in rocky areas.	Moderate potential to occur. There is suitable sandy areas with scattered brush present. The closest known CNDDB occurrence is 1.3 miles east of the project area along McCain Valley Road (CDFW 2018).
Aspidoscelis tigris stejnegeri	San Diegan tiger whiptail	None/SSC/None	Group 2	Hot and dry areas with sparse foliage, including chaparral, woodland, and riparian areas.	Observed. Suitable habitat throughout the project site.
Coleonyx variegatus abbotti	San Diego banded gecko	None/SSC/None	Group 1	Rocky areas within coastal scrub and chaparral	High potential to occur in the scrub and chaparral habitats where rocky outcrops are present.
Coluber fuliginosus	Baja California coachwhip	None/SSC/None	None	In California restricted to southern San Diego County, where it is known from grassland and coastal sage scrub. Open areas in grassland and coastal sage scrub.	Moderate potential to occur. This species' range is southern San Diego County and into Baja California (Nafis 2018; Stebbins 2003).
Crotalus ruber	red diamondback rattlesnake	None/SSC/Covered	Group 2	Coastal scrub, chaparral, oak and pine woodlands, rocky grasslands, cultivated areas, and desert flats	Moderate potential to occur. There is suitable scrub and chaparral vegetation present.
Diadophis punctatus similis	San Diego ringneck snake	None/None/None	Group 2	Moist habitats including wet meadows, rocky hillsides, gardens, farmland grassland, chaparral, mixed-conifer forest, and woodland habitats	High potential to occur in moister chaparral and woodland habitats on site.
Gambelia copeii	Cope's leopard lizard	None/SSC/Covered	None	Coastal sage scrub, chaparral, oak woodland; prefers flat areas with open space and avoids densely vegetated areas	Moderate potential to occur. This species' range is southern San Diego County and into Baja California (Nafis 2018; Stebbins 2003).
Lichanura trivirgata	rosy boa	None/None/None	Group 2	Desert and chaparral habitats with rocky soils in coastal canyons and hillsides, desert canyons, washes, and mountains	High potential to occur in the chaparral and woodland habitats on site.

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
Phrynosoma blainvillii	Blainville's horned lizard	None/SSC/None	Group 2	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–cypress, juniper, and annual grassland habitats	Observed several times during surveys.
Plestiodon skiltonianus interparietalis	Coronado skink	None/WL/Covered	Group 2	Woodlands, grasslands, pine forests, and chaparral; rocky areas near water	High potential to occur on site. The project site is within this species' range (Nafis 2018) and there is suitable habitat on site.
Salvadora hexalepis virgultea	coast patch-nosed snake	None/SSC/Covered	Group 2	Brushy or shrubby vegetation; requires small mammal burrows for refuge and overwintering sites	High potential to occur on site. The project site is within this species' range (Nafis 2018) and there is suitable habitat on site.
Sceloporus graciosus vandenburgianus	southern sagebrush lizard	None/None/None	Group 2	Montane chaparral, hardwood and conifer forest, juniper, coastal scrub	Moderate potential to occur on site. This species is found in montane habitats, but the project site is within this species' range (Nafis 2018) and there is suitable habitat on site in open chaparral and scrub habitats where rocky areas are present.

Federal
BCC = Bird of Conservation Concern
FE = Federally Endangered
State
FP = Fully Protected
SSC = State Species of Concern
WL = Watch List

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ATTACHMENT H-2

Special-Status Wildlife Species Detected or Potentially Occurring in the Boulder Brush Corridor

APPENDIX H-2
Special-Status Wildlife Species Detected or Potentially Occurring in the Campo Corridor

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
			Amphibians		
Spea hammondii	western spadefoot	None/SSC/Covered	Group 2	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley–foothill woodlands, pastures, and other agriculture	This species was recorded on site (AECOM 2012).
			Birds		
Accipiter cooperii (nesting)	Cooper's hawk	None/WL/None	Group 1	Nests and forages in dense stands of live oak, riparian woodlands, or other woodland habitats often near water	Observed. This species was observed and likely nests on site.
Agelaius tricolor (nesting colony)	tricolored blackbird	BCC/PSE, SSC/Covered	Group 1	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberrry; forages in grasslands, woodland, and agriculture	Moderate potential to nest on site. There is some suitable freshwater emergent wetland present and this species was recorded onsite (AECOM 2012). The closest CNDDB occurrence is 4.0 miles southeast of the project area east of Tule Lake.
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	None/WL/Covered	Group 1	Nests and forages in open coastal scrub and chaparral with low cover of scattered scrub interspersed with rocky and grassy patches	Moderate potential to occur on site. This species has potential to occur on site in the coastal scrub and chaparral habitats. It was not documented during extensive wildlife surveys; however, it has been recorded in the vicinity (Unitt 2004).

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
Aquila chrysaetos (nesting and wintering)	golden eagle	BCC/FP, WL/Covered	Group 1	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats	Eight golden eagles have been observed to date flying over the study area during the 2018 eagle point count surveys. As of December 2018, eagles were observed on site for approximately 20 of 20,000 minutes during the 2018 avian point-count surveys, indicating that this species does not occur in the project site frequently. There are no suitable large trees and cliffs present for nesting; therefore, this species is not expected to nest on site. Data received from USFWS shows the closest nest approximately 7 miles east of the Project site in the Carrizo Gorge area of the Jacumba Mountains; it was noted as active in February 2012 (Dietsch 2018).
Artemisiospiza belli belli	Bell's sage sparrow	BCC/WL/Covered	Group 1	Nests and forages in coastal scrub and dry chaparral; typically in large, unfragmented patches dominated by chamise; nests in more dense patches but uses more open habitat in winter	High potential to occur. This species nests in coastal scrub and chaparral and is known to occur in the vicinity (Unitt 2004; AECOM 2012).
Asio otus (nesting)	long-eared owl	None/SSC/Covered	Group 1	Nests in riparian habitat, live oak thickets, other dense stands of trees, edges of coniferous forest; forages in nearby open habitats	This species was documented nesting on site in 2011 (AECOM 2012). There is potential for this species to nest or winter in the oak woodland habitat on site.
Buteo lineatus	red-shouldered hawk	None/None/None	Group 1	Nests in dense riparian areas, especially with adjacent edges, swamps, marshes, and wet meadows for hunting	Observed. There is suitable nesting and foraging habitat on site.
Cathartes aura	turkey vulture	None/None/Covered	Group 1	Rangeland, agriculture, grassland; uses cliffs and large trees for roosting, nesting, and resting throughout most of California during breeding season	Observed foraging throughout the site.

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
Circus hudsonius (nesting)	northern harrier	None/SSC/Covered	Group 1	Nests in open wetlands (marshy meadows, wet lightly-grazed pastures, old fields, freshwater and brackish marshes); also in drier habitats (grassland and grain fields); forages in grassland, scrubs, rangelands, emergent wetlands, and other open habitats	Observed on site. While there is some potential nesting habitat in the meadow habitats onsite, this species has not been documented nesting in the region (Unitt 2004).
Eremophila alpestris actia	California horned lark	None/WL/Covered	Group 2	Nests and forages in grasslands, disturbed lands, agriculture, and beaches; nests in alpine fell fields of the Sierra Nevada	Observed. There is suitable nesting and foraging habitat on site.
Falco columbarius (wintering)	merlin	None/WL/None	Group 2	Forages in semi-open areas, including coastline, grassland, agriculture, savanna, woodland, lakes, and wetlands	Merlin was observed on site. This winter visitor to San Diego County is not well-documented in southeast San Diego. It could use the site occasionally for foraging.
Falco mexicanus (nesting)	prairie falcon	BCC/WL/None	Group 1	Forages in grassland, savanna, rangeland, agriculture, desert scrub, alpine meadows; nest on cliffs or bluffs	High potential to nest on site in the grassland and emergent as well as forage on site in the grassland and open scrub habitats. This species has been observed on site (CDFW 2018; AECOM 2012).
Lanius ludovicianus (nesting)	loggerhead shrike	BCC/SSC/Covered	Group 1	Nests and forages in open habitats with scattered shrubs, trees, or other perches	Observed on site. There is suitable nesting and foraging habitat on site.
Oreoryx pictus	mountain quail	None/None/None	Group 2	Dense montane chaparral and brushy areas within coniferous forest, pinyon–juniper–yucca associations; uses shrubs, brush stands, and trees on steep slopes for cover	Moderate potential to occur. This species nests in chaparral and is known to occur in the vicinity (Unitt 2004; AECOM 2012).
Setophaga petechia (nesting)	yellow warbler	BCC/SSC/Covered	Group 2	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine, and mixed-conifer habitats	Observed. There is some suitable riparian and oak woodland habitat on site.

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
Sialia mexicana	western bluebird	None/None/None	Group 2	Nests in old-growth red fir, mixed-conifer, and lodegpole pine habitats near wet meadows used for foraging	Observed. There is nesting and foraging habitat on site.
Tyto alba	barn owl	None/None/None	Group 2	Open habitats including grassland, chaparral, riparian, and other wetlands.	Observed. There is suitable nesting and foraging habitat on site.
Vireo vicinior (nesting)	gray vireo	BCC/SSC/Covered	Group 1	Nests and forages in pinyon–juniper woodland, oak, and chamise and redshank chaparral	Moderate potential to occur in the oak woodland and chaparral habitats on site. This species is known to occur south of the Laguna Mountains and north of I-8 (Unitt 2004).
Invertebrates					
Apodemia virgulti peninsularis	Peninsular metalmark	None/None/None	Group 1	Found in mountain meadows usually near the edges of woods, Great Basin sagebrush, and montane buckwheat scrub. Host plant is *Eriogonum wrightii* ssp. *membranaceum* (Faulkner and Klein 2012).	Potentially observed. Behr's metalmark was observed frequently on site which is very similar in appearance to *A.v. peninsularis*. The host plant, *Eriogonum wrightii* ssp. *membranaceum* occurs on site and therefore, this species could have been observed during the surveys. No specimens were collected to confirm its presence on site. This species is found in the San Jacinto, Palomar, and Laguna Mountains (Faulkner and Klein 2012; Butterflies of North America 2018) where its host plant occurs.
Euphydryas editha quino	Quino checkerspot butterfly	FE/None/Covered	Group 1	Annual forblands, grassland, open coastal scrub and chaparral; often soils with cryptogamic crusts and fine-textured clay; host plants include Plantago erecta, Antirrhinum coulterianum, and Plantago patagonica (Silverado Occurrence Complex)	Twenty-seven Quino observations were documented during 2010 USFWS protocol surveys. Approximately 3,803.1 acres (1,539.1 hectares) of suitable habitat was recorded. Observations were concentrated in the southern portion of the 2010 BSA (AECOM 2012). In 2018, updated surveys were conducted for the study Area. No occurrences of Quino were recorded during the focused surveys.

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
Mammals					
Antrozous pallidus	pallid bat	None/SSC/Covered	Group 2	Grasslands, shrublands, woodlands, forests; most common in open, dry habitats with rocky outcrops for roosting, but also roosts in man-made structures and trees	Moderate potential to roost on site. There is suitable shrubland, dry habitat, and rocky outcrops present and this species was detected on site (AECOM 2012).
Chaetodipus californicus femoralis	Dulzura pocket mouse	None/SSC/None	Group 2	Open habitat, coastal scrub, chaparral, oak woodland, chamise chaparral, mixed-conifer habitats; disturbance specialist; 0 to 3,000 feet above mean sea level	Moderate potential to occur. There is suitable scrub, chaparral, and open habitat present. The closest CNDDB occurrence overlaps the southern portion of the project area (CDFW 2018).
Corynorhinus townsendii	Townsend's big-eared bat	None/SSC/Covered	Group 2	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, man-made structures, and tunnels	Moderate potential to roost on site. There is some riparian forest present onsite. This species was detected on site (AECOM 2012).
Eumops perotis californicus	western mastiff bat	None/SSC/None	Group 2	Chaparral, coastal and desert scrub, coniferous and deciduous forest and woodland; roosts in crevices in rocky canyons and cliffs where the canyon or cliff is vertical or nearly vertical, trees, and tunnels	Moderate potential to roost on site. There are some large trees and snags on site and this species was detected during onsite (AECOM 2012).
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None/SSC/Covered	Group 2	Arid habitats with open ground; grasslands, coastal scrub, agriculture, disturbed areas, and rangelands	Observed regularly during surveys.
Macrotus californicus	Californian leaf-nosed bat	None/SSC/None	Group 2	Riparian woodlands, desert wash, desert scrub; roosts in mines and caves, occasionally buildings	Moderate potential to roost on site. There are no mines, caves, or buildings present, but some riparian woodland habitat. Potential to forage on site; however, it was not detected during the 2011/2012 acoustical bat surveys on site or on the Campo Indian Reservation (AECOM 2012).

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
Myotis ciliolabrum	western small-footed myotis	None/None/None	Group 2	Arid woodlands and shrublands, but near water; roosts in caves, crevices, mines, abandoned buildings	High potential to roost on site. There are no caves, crevices, mines, or buildings present; however, there are oak and riparian woodlands on site. This species was detected during the 2011/2012 acoustical bat surveys on site.
Myotis evotis	long-eared myotis	None/None/None	Group 2	Brush, woodland, and forest habitats from sea level to 9,000 feet above MSL; prefers coniferous habitats; forages along habitat edges, in open habitats, and over water; roosts in buildings, crevices, under bark, and snags; uses caves as night roosts	Moderate potential to roost on site in tree snags or bark; there are no buildings or crevices present. It was detected on site (AECOM 2012).
Myotis thysanodes	fringed myotis	None/None/None	Group 2	Drier woodlands (oak, pinyon–juniper, and ponderosa pine), desert scrub, mesic coniferous forest, grassland, and sage–grass steppe; sea level to 9,350 ft; roosts in buildings, mines, rocks, cliff faces, bridges, and large, decadent trees and snags	Moderate potential to roost on site. There are some large trees and snags on site and this species was detected onsite (AECOM 2012).
Neotoma lepida intermedia[1]	San Diego desert woodrat	None/SSC/None	Group 2	Coastal scrub, desert scrub, chaparral, cacti, rocky areas	Likely occurs. Woodrat middens were observed on site. There is suitable desert scrub, chaparral, and rocky areas present.
Nyctinomops femorosaccus	pocketed free-tailed bat	None/SSC/None	Group 2	Pinyon–juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oases; roosts in high cliffs or rock outcrops with drop-offs, caverns, and buildings	Moderate potential to roost on site in the larger rock outcrops. This species was detected on site (AECOM 2012).

[1] The San Diego Mammal Atlas (Tremor et al. 2017) describes this species as *N. bryanti*, a distinct species from *N. lepida*, with *N. bryanti* occurring in Baja and SoCal west of Imperial and Coachella Valley. However, wildlife agencies still refer to this species as *N. l. intermedia* and therefore, this name is used for this report.

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
Nyctinomops macrotis	big free-tailed bat	None/SSC/None	Group 2	Rocky areas; roosts in caves, holes in trees, buildings, and crevices on cliffs and rocky outcrops; forages over water	Moderate potential to roost on site. There are some rocky outcrops on site and this species was detected onsite (AECOM 2012).
Odocoileus hemionus	mule deer	None/None/None	Group 2	Coastal sage scrub, chaparral, riparian, woodlands, and forest; often browses in open area adjacent to cover throughout California, except deserts and intensely farmed areas	Observed. Both individual deer and their sign was observed throughout the project site.
Onychomys torridus ramona	southern grasshopper mouse	None/SSC/Covered	Group 2	Grassland and sparse coastal scrub	Moderate potential to occur. There is suitable scrub vegetation present. The closest CNDDB occurrences overlap the project area in the northern and southern portions (CDFW 2018).
Perognathus longimembris internationalis	Jacumba pocket mouse	None/SSC/Covered	Group 2	Desert scrub and sparse sage scrub in areas with fine sandy soils	Moderate potential to occur. This species is recorded in McCain Valley, east of the project site. There is suitable habitat in the scrub habitat on site.
Puma concolor	cougar	None/None/None	Group 2	Scrubs, chaparral, riparian, woodland, and forest; rests in rocky areas and on cliffs and ledges that provide cover; most abundant in riparian areas and brushy stages of most habitats throughout California, except deserts	This species was detected onsite (AECOM 2012). There is suitable habitat throughout the project site.
Taxidea taxus	American badger	None/SSC/Covered	Group 2	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	Moderate to high potential to occur. There is suitable open scrub vegetation and friable soils present.
			Reptiles		
Anniella stebbinsi	southern California legless lizard	None/SSC/None	Group 2	Coastal dunes, stabilized dunes, beaches, dry washes, valley–foothill, chaparral, and scrubs; pine, oak, and riparian woodlands; associated with sparse vegetation and moist sandy or loose, loamy soils	Moderate potential to occur. There are no records of this species in the vicinity (CDFW 2018); however, this cryptic species could occur in some habitat in the understory of the oak woodland and riparian habitat where leaf litter is present.

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
Aspidoscelis tigris stejnegeri	San Diegan tiger whiptail	None/SSC/None	Group 2	Hot and dry areas with sparse foliage, including chaparral, woodland, and riparian areas.	Observed. Suitable habitat throughout the project site.
Coleonyx variegatus abbotti	San Diego banded gecko	None/SSC/None	Group 1	Rocky areas within coastal scrub and chaparral	High potential to occur in the scrub and chaparral habitats where rocky outcrops are present.
Crotalus ruber	red diamondback rattlesnake	None/SSC/Covered	Group 2	Coastal scrub, chaparral, oak and pine woodlands, rocky grasslands, cultivated areas, and desert flats	Moderate potential to occur. There is suitable scrub and chaparral vegetation present.
Diadophis punctatus similis	San Diego ringneck snake	None/None/None	Group 2	Moist habitats including wet meadows, rocky hillsides, gardens, farmland grassland, chaparral, mixed-conifer forest, and woodland habitats	High potential to occur in moister chaparral and woodland habitats on site.
Gambelia copeii	Cope's leopard lizard	None/SSC/Covered	None	Coastal sage scrub, chaparral, oak woodland; prefers flat areas with open space and avoids densely vegetated areas	Moderate potential to occur. This species' range is southern San Diego County and into Baja California (Nafis 2018; Stebbins 2003).
Lichanura trivirgata	rosy boa	None/None/None	Group 2	Desert and chaparral habitats with rocky soils in coastal canyons and hillsides, desert canyons, washes, and mountains	High potential to occur in the chaparral and woodland habitats on site.
Phrynosoma blainvillii	Blainville's horned lizard	None/SSC/None	Group 2	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–cypress, juniper, and annual grassland habitats	Observed several times during surveys.
Plestiodon skiltonianus interparietalis	Coronado skink	None/WL/Covered	Group 2	Woodlands, grasslands, pine forests, and chaparral; rocky areas near water	High potential to occur on site. The project site is within this species' range (Nafis 2018) and there is suitable habitat on site.
Salvadora hexalepis virgultea	coast patch-nosed snake	None/SSC/Covered	Group 2	Brushy or shrubby vegetation; requires small mammal burrows for refuge and overwintering sites	High potential to occur on site. The project site is within this species' range (Nafis 2018) and there is suitable habitat on site.

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
Sceloporus graciosus vandenburgianus	southern sagebrush lizard	None/None/None	Group 2	Montane chaparral, hardwood and conifer forest, juniper, coastal scrub	Moderate potential to occur on site. This species is found in montane habitats, but the project site is within this species' range (Nafis 2018) and there is suitable habitat on site in open chaparral and scrub habitats where rocky areas are present.

Federal
BCC = Bird of Conservation Concern
FE = Federally Endangered
State
FP = Fully Protected
SSC = State Species of Concern
WL = Watch List

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ATTACHMENT I-1

Special-Status Wildlife Species with Low Potential or Not Expected to Occur in the Boulder Brush Corridor

ATTACHMENT I-1
Special-Status Wildlife Species with Low Potential or Not Expected to Occur in the Project Study Area

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
			Amphibians		
Anaxyrus californicus	arroyo toad	FE/SSC/Covered	Group 1	Semi-arid areas near washes, sandy riverbanks, riparian areas, palm oasis, Joshua tree, mixed chaparral and sagebrush; stream channels for breeding (typically third order); adjacent stream terraces and uplands for foraging and wintering	Low potential to occur. There are no suitable perennial washes or stream channels for breeding present. The closest recorded occurrences are located in Cottonwood Creek, approximately 6.5 miles east of the project site (USFWS 2018). Surveys conducted for the Campo Indian Reservation south of the project site in 2010 were negative (AECOM 2010b).
Anaxyrus punctatus	red-spotted toad	None/None/Covered	None	Rocky desert streams, oases, pools in rocky arroyos, cattle tanks, grassland, oak woodland, scrubland, river floodplains	Not expected to occur. Does not occur in vicinity (CDFW 2018); outside of range.
Batrachoseps major aridus	desert slender salamander	FE/SE/Covered	Group 1	Barren, palm oasis, desert wash, and desert scrub	Not expected to occur. Does not occur in vicinity; the closest records are from the Santa Rosa Mountains to the north (CDFW 2018).
Ensatina klauberi	large-blotched salamander	None/WL/Covered	Group 1	Moist and shaded evergreen and deciduous woodlands	Low potential to occur. This species occurs in the Peninsular Ranges; however, there is no suitable moist evergreen and deciduous woodlands present.
Rana draytonii	California red-legged frog	FT/SSC/Covered	Group 1	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands	Not expected to occur. This species has not been documented in the vicinity (CDFW 2018) and there is no suitable habitat on site; outside of currently known range.
Rana muscosa	mountain yellow-legged frog	FE/SE, WL/Covered	Group 1	Lakes, ponds, meadow streams, isolated pools, and open riverbanks; rocky canyons in narrow canyons and in chaparral	Not expected to occur. Does not occur in vicinity; the closest record is in Doane Valley in Palomar Mountain in 1975 (CDFW 2018).
*Taricha torosa (*Monterey Co. south only*)*	California newt	None/SSC/Covered	Group 2	Wet forests, oak forests, chaparral, and rolling grassland	Not expected to occur. Does not occur in vicinity (CDFW 2018).

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
			Birds		
Accipiter striatus (nesting)	sharp-shinned hawk	None/WL/None	Group 1	Nests in coniferous forests, ponderosa pine, black oak, riparian deciduous, mixed conifer, Jeffrey pine; winters in lowland woodlands and other habitats	Sharp-shinned hawks do not nest in San Diego County (Unitt 2004). This species could occur during winter or migration and forage on site, and has been observed in the area (AECOM 2012).
Aechmophorus occidentalis	western grebe	None/None/None	Group 1	Winters in sheltered bays or estuaries on the coast and on large freshwater lakes, rarely on rivers.	Not expected to occur. Does not occur in vicinity (CDFW 2018) and there is no suitable habitat on site.
Agelaius tricolor (nesting colony)	tricolored blackbird	BCC/PSE, SSC/Covered	Group 1	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberrry; forages in grasslands, woodland, and agriculture	Low potential to occur. There is no suitable freshwater emergent wetland present. The closest CNDDB occurrence is 4.0 miles southeast of the project area east of Tule Lake; however, this species was recorded on the Campo Indian Reservation (AECOM 2012).
Ammodramus savannarum (nesting)	grasshopper sparrow	None/SSC/Covered	Group 1	Nests and forages in moderately open grassland with tall forbs or scattered shrubs used for perches	Not expected to occur. Does not occur in vicinity (CDFW 2018; Unitt 2004).
Anas strepera	gadwall	None/None/None	Group 2	Interior valleys, wetlands, ponds, and streams. Feeds and rests in freshwater lacustrine and emergent habitats, and to a lesser extent, estuarine and saline emergent habitats, and nests in nearby herbaceous and cropland habitats. Common in Central Valley and less common in Coast Range foothills of central and Southern California. Locally common in Imperial Valley and along Colorado River, October to March. Breeds on northeastern plateau and east of Sierra Nevada.	Low potential to occur due to lack of suitable habitat on site.
Anser caerulescens	snow goose	None/None/None	Group 2	Fresh emergent wetlands, adjacent lacustrine waters, and nearby wet croplands, pastures, meadows, and grasslands. Occasionally found in saline (brackish) emergent wetlands and	Not expected to occur. Snow geese are a rare winter visitor to San Diego County and have not been recorded in the vicinity (Unitt 2004; CDFW 2018).

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
				adjacent estuarine waters. Found primarily in Central Valley; less common southward in the interior but abundant in Imperial Valley and locally common along Colorado River. Found regularly only in Southern California along Coast Ranges and immediate coast from mid-November to February.	
Antigone canadensis canadensis (wintering)	lesser sandhill crane	None/SSC/None	Group 2	Winter foraging in cropland, grazed and mowed grassland, pasture, alfalfa fields, and shallow wetlands; roosting sites are flooded and support several inches of water	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Antigone canadensis tabida (nesting & wintering)	greater sandhill crane	None/ST, FP/None	Group 2	Winter foraging in cropland, grazed and mowed grassland, pasture, alfalfa fields, and shallow wetlands; roosting sites are flooded and support several inches of water	Not expected to occur. This species is rarely documented in San Diego County (Unitt 2004).
Ardea herodias (nesting colony)	great blue heron	None/None/None	Group 2	Nests in large trees or snags; forages in wetlands, water bodies, watercourses, and opportunistically in uplands, including pasture and croplands	Not expected to nest on site; the project site is located outside of known breeding areas in San Diego County (Unitt 2004); however, it could occur on site during winter.
Asio flammeus (nesting)	short-eared owl	None/SSC/None	Group 2	Grassland, prairies, dunes, meadows, irrigated lands, and saline and freshwater emergent wetlands	Not expected to occur. Short-eared owl primarily a winter visitor in San Diego County and has not been recorded in the vicinity (Unitt 2004).
Athene cunicularia (burrow sites & some wintering sites)	burrowing owl	BCC/SSC/Covered	Group 1	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	Not expected to occur. Burrowing owl are not known to occur between the Jacumba Valley and Otay areas in San Diego County.
Aythya americana (nesting)	redhead	None/SSC/None	Group 2	Nests in deep (>3 ft) permanent or semi-permanent wetlands of at least 1 acre; 75% open water; emergent tules, Scirpus spp., and Typha spp. 3 feet in height; winters in coastal estuaries and large,	Not expected to occur. Does not occur in vicinity (CDFW 2018) and there is no suitable habitat on site.

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
				deep ponds, lakes, and reservoirs of the interior	
Branta canadensis	Canada goose	None/None/None	Group 2	Lakes, rivers, ponds, and other bodies of water; yards, park lawns, and agricultural fields	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Bucephala islandica (nesting)	Barrow's goldeneye	None/SSC/None	Group 2	Winters in lagoons, bays, and estuaries in coastal areas, and riverine waters, lakes, and reservoirs in the interior	Not expected to occur. Does not occur in vicinity (CDFW 2018) and there is no suitable habitat on site.
Buteo regalis (wintering)	ferruginous hawk	BCC/WL/Covered	Group 1	Winters and forages in open, dry country, grasslands, open fields, agriculture	Low potential to occur during the winter. Ferruginous hawk is an uncommon winter visitor in San Diego County, but it has been observed in the Campo Indian Reservation area (AECOM 2012) and towards Jacumba Valley (Unitt 2004). There is suitable foraging habitat in the grassland and open scrub habitat.
Buteo swainsoni (nesting)	Swainson's hawk	BCC/ST/Covered	Group 1	Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture	Low potential to occur. Swainson's hawks are uncommon in San Diego County; however, two Swainson's hawks were detected during bird count surveys on the Campo Indian Reservation (AECOM 2012). Due to lack of additional observations in the area (Unitt 2004; CDFW 2018), this species has low potential to occur on site during migration.
Butorides virescens	green heron	None/None/None	Group 2	Nests and roosts in valley foothill and desert riparian habitats; feeds in fresh emergent wetland, lacustrine, slow-moving riverine habitats. Resident in foothills and lowlands throughout California; common August to March in southern coastal ranges, in summer along the Colorado River, and found all year at the Salton Sea.	Low potential to occur. There is no suitable habitat on site and this species has not been confirmed nesting in the vicinity (Unitt 2004).
Campylorhynchus brunneicapillus sandiegensis	coastal cactus wren	BCC/SSC/ Covered	Group 1	Southern cactus scrub patches	Not expected to occur. San Diego cactus wren rely on cactus thickets at elevations below 1,500 feet and the species in the Boulevard area are considered the

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
(San Diego & Orange Counties only)					desert subspecies (Unitt 2004). The site is above this elevation range and there are no large patches of *Cylindropuntia* spp. or *Opuntia* spp. on site; however, there are scattered cacti throughout the scrub and chaparral. *C. brunneicapillus* (desert subspecies) was documented on site and on the Campo Indian Reservation (AECOM 2012).
Cerorhinca monocerata (nesting colony)	rhinoceros auklet	None/WL/None	Group 2	Marine pelagic and subtidal habitats	Not expected to occur. Does not occur in vicinity (CDFW 2018).
*Charadrius alexandrinus nivosus (*nesting)	western snowy plover	FT, BCC/SSC/None	Group 1	On coasts nests on sandy marine and estuarine shores; in the interior nests on sandy, barren or sparsely vegetated flats near saline or alkaline lakes, reservoirs, and ponds	Not expected to occur. Does not occur in vicinity (CDFW 2018) and there is no suitable habitat on site.
Charadrius montanus (wintering)	mountain plover	BCC/SSC/None	Group 2	Winters in shortgrass prairies, plowed fields, open sagebrush, and sandy deserts	Not expected to occur. Does not occur in vicinity (CDFW 2018).
*Chlidonias niger (*nesting colony)	black tern	None/SSC/None	Group 2	Freshwater marsh with emergent vegetation; in the Central Valley primarily nests and forages in rice fields and other flooded agricultural fields with weeds and other residual aquatic vegetation	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Coccyzus americanus occidentalis (nesting)	western yellow-billed cuckoo	FT, BCC/SE/Covered	Group 1	Nests in dense, wide riparian woodlands and forest with well-developed understories	Not expected to occur. Does not occur in vicinity (CDFW 2018) and there are no dense wide riparian areas on site.
Contopus cooperi (nesting)	olive-sided flycatcher	BCC/SSC/None	Group 2	Nests in mixed-conifer, montane hardwood–conifer, Douglas-fir, redwood, red fir, and lodgepole pine habitats; usually close to water	Not expected to nest on site due to lack of suitable nesting habitat. This species was observed on the Campo Indian Reservation (AECOM 2012).
Cypseloides niger (nesting)	black swift	BCC/SSC/None	Group 2	Nests in moist crevices, caves, and cliffs behind or adjacent to waterfalls in deep canyons; forages over a wide range of habitats	Not expected to nest on site due to lack of suitable nesting habitat. This species was observed on the Campo Indian Reservation (AECOM 2012).

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
Dendrocygna bicolor (nesting)	fulvous whistling-duck	None/SSC/None	Group 2	Nests in freshwater wetlands, especially shallow impoundments managed for rice production and temporarily flooded grasslands; also nests in pastures, haylands, and small grain fields adjacent to rice fields	Not expected to occur. Does not occur in vicinity (CDFW 2018) and there is no suitable habitat on site.
Egretta rufescens	reddish egret	None/None/None	Group 2	Freshwater marsh with emergent vegetation; in the Central Valley primarily nests and forages in rice fields and other flooded agricultural fields with weeds and other residual aquatic vegetation	Not expected to occur. Does not occur in vicinity (CDFW 2018; Unitt 2004).
Elanus leucurus (nesting)	white-tailed kite	None/FP/Covered	Group 1	Nests in woodland, riparian, and individual trees near open lands; forages opportunistically in grassland, meadows, scrubs, agriculture, emergent wetland, savanna, and disturbed lands	Low potential to occur. This species is more commonly found along the coastal slope in San Diego County, and has not been documented nesting in the vicinity (Unitt 2004; CDFW 2018). This species may occur during migration or winter, and was observed in McCain Valley in the winter (Unitt 2004) and documented on the Campo Indian Reservation (AECOM 2012).
Empidonax traillii extimus (nesting)	southwestern willow flycatcher	FE/SE/Covered	Group 1	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration	Not expected to occur. Does not occur in vicinity (CDFW 2018), and focused protocol surveys conducted in 2018 for this species were negative. There is marginal riparian habitat for this species, which prefers habitat along perennial streams and rivers.
Falco mexicanus (nesting)	prairie falcon	BCC/WL/None	Group 1	Forages in grassland, savanna, rangeland, agriculture, desert scrub, alpine meadows; nest on cliffs or bluffs	Low potential to nest on site due to lack of nesting habitat. Prairie falcon could forage on site in the grassland and open scrub habitats. This species has been observed in the vicinity (CDFW 2018; AECOM 2012).
Falco peregrinus anatum (nesting)	American peregrine falcon	FDL, BCC/SDL, FP/None	Group 1	Nests on cliffs, buildings, and bridges; forages in wetlands, riparian, meadows, croplands, especially where waterfowl are present	Not expected to occur. Peregrine falcons are not known to occur in the vicinity; they are documented along the coast in San Diego County (CDFW 2018; Unitt 2004).
Fratercula cirrhata	tufted puffin	None/SSC/None	Group 2	Nests on offshore rocks and islands free	Not expected to occur. Does not occur in vicinity

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
(nesting colony)				of mammalian predators, either in earthen burrows or crevices on steep rocky slopes	(CDFW 2018).
Gavia immer (nesting)	common loon	None/SSC/None	Group 2	Extirpated as a breeder from California; winters in coastal waters such as bays, channels, coves, and inlets; also winters inland at large, deep lakes and reservoirs	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Gymnogyps californianus	California condor	FE/SE, FP/None	None	Forages on open terrain, foothill grassland, and oak savannah; nests in cavities on steep rocks or burned hallos of old-growth conifers and giant sequoia trees	Low potential to forage and not expected to nest. There is potential foraging habitat, however no suitable nesting vegetation present.
Haliaeetus leucocephalus (nesting & wintering)	bald eagle	FDL, BCC/SE, FP/None	Group 1	Nests in forested areas adjacent to large bodies of water, including seacoasts, rivers, swamps, large lakes; winters near large bodies of water in lowlands and mountains	Not expected to occur. Wintering individuals have been recorded west of the project site (Unitt 2004); however, there are no bodies of water to support foraging habitat for this species.
Icteria virens (nesting)	yellow-breasted chat	None/SSC/None	Group 1	Nests and forages in dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush	Low potential to occur. There is no suitable dense riparian woodland present and there are limited records of this species in southeastern San Diego County (Unitt 2004).
Ixobrychus exilis (nesting)	least bittern	BCC/SSC/Covered	Group 2	Nests in freshwater and brackish marshes with dense, tall growth of aquatic and semi-aquatic vegetation	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Junco hyemalis caniceps (nesting)	gray-headed junco	None/WL/None	Group 2	Nests and forages in pine and juniper–pine forests	Not expected to occur. This species is not documented in vicinity (CDFW 2018; Unitt 2004). Gray-headed junco is rare along the coast and rare to uncommon in the mountains (Unitt 2004).
Larus californicus (nesting colony)	California gull	None/WL/None	Group 2	Nests in alkali and freshwater lacustrine habitats; abundant in coastal and interior lowlands during non-nesting period	Not expected to occur. Does not occur in vicinity (CDFW 2018; Unitt 2004).
Laterallus jamaicensis coturniculus	California black rail	BCC/ST, FP/None	Group 2	Tidal marshes, shallow freshwater margins, wet meadows, and flooded grassy vegetation; suitable habitats are often supplied by canal leakage in Sierra	Not expected to occur. Does not occur in vicinity (CDFW 2018) and there is no suitable habitat on site. The last known nesting black rail in San Diego County was in 1954 (Unitt 2004).

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
				Nevada foothill populations	
Leucophaeus atricilla (nesting colony)	laughing gull	None/WL/None	Group 2	Coastal saltmarsh, bays, and estuaries	Not expected to occur. Does not occur in vicinity (CDFW 2018; Unitt 2004).
Melanerpes lewis (nesting)	Lewis's woodpecker	BCC/None/None	Group 1	Winters in open oak woodland and savanna; nests in open ponderosa pine forest and logged or burned pine forest	Lewis' woodpecker does not nest in San Diego County, but is a winter visitor (Unitt 2004). There is potential for this species to forage on site during the winter, although none have been observed during wildlife surveys.
Mycteria americana	wood stork	None/SSC/None	Group 2	Nests in freshwater and marine-estuarine forested habitats; forages in natural and artificial wetlands; roosts in trees, usually over water	Not expected to occur. This species is a very rare visitor to San Diego County (Unitt 2004); and the site does not support ponded water to support foraging.
*Myiarchus tyrannulus (*nesting)	brown-crested flycatcher	None/WL/Covered	None	Desert riparian habitat along Colorado River and other desert oases; riparian thickets, trees, snags, and shrubs used as perches; nests in woodpecker-excavated cavities	Low potential to nest on site. This species nests in riparian woodland habitat, and has only been documented nesting in San Diego County since 2000; it has not been recorded in the vicinity (CDFW 2018; Unitt 2004).
*Numenius americanus (*nesting)	long-billed curlew	BCC/WL/None	Group 2	Nests in grazed, mixed grass, and short-grass prairies; localized nesting along the California coast; winters and forages in coastal estuaries, mudflats, open grassland, and cropland	Not expected to occur. Long-billed curlews are winter visitors in San Diego County, and the closest migration record is Lake Morena, southwest of the project site (Unitt 2004; CDFW 2018).
*Oceanodroma furcata (*nesting colony)	fork-tailed storm-petrel	None/SSC/None	Group 2	Offshore islands with restricted access and free of mammalian predators; nesting habitat varies across islands from natural crevices in talus slopes to earthen burrows dug by themselves or other species	Not expected to occur. Does not occur in vicinity (CDFW 2018).
*Oceanodroma homochroa (*nesting colony)	ashy storm-petrel	BCC/SSC/None	Group 2	Nests on rocky offshore islands on talus slopes, rock walls, sea caves, cliffs, and under piles of driftwood; they do not excavate their own nesting burrows	Not expected to occur. Does not occur in vicinity (CDFW 2018).
*Oceanodroma melania (*nesting	black storm-petrel	None/SSC/None	Group 2	Nests on small rocky islands or talus slopes of larger islands free of	Not expected to occur. Does not occur in vicinity (CDFW 2018).

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
colony)				mammalian predators; occurs on land only to breed	
Oreothlypis luciae (nesting)	Lucy's warbler	BCC/SSC/ Covered	Group 1	Nests and forages in desert wash and desert riparian habitats, especially dominated by mesquite, but also in other shrubs and tamarisk	Not expected to occur. Does not occur in vicinity (CDFW 2018; Unitt 2004). Breeding has only been documented in the Borrego Valley (Unitt 2004).
Pandion haliaetus (nesting)	osprey	None/WL/None	Group 1	Large waters (lakes, reservoirs, rivers) supporting fish; usually near forest habitats, but widely observed along the coast	Not expected to occur on site due to lack of suitable habitat (i.e., bodies of water). It has been documented as presumed migrants in the vicinity (Unitt 2004), and was recorded on the Campo Indian Reservation (AECOM 2012).
Passerculus sandwichensis beldingi	Belding's savannah sparrow	None/SE/None	Group 1	Nests and forages in coastal saltmarsh dominated by pickleweed (Salicornia spp.)	Not expected to nest on site. Does not occur in vicinity as nesting is documented only along the coast in San Diego County (CDFW 2018; Unitt 2004).
Passerculus sandwichensis rostratus (wintering)	large-billed savannah sparrow	None/SSC/None	Group 2	Nests and forages in open, low saltmarsh vegetation, including low halophytic scrub	Low potential to occur in the marsh habitat in portions of Tule Creek. It is a rare winter visitor in San Diego County (Unitt 2004).
*Pelecanus erythrorhynchos (*nesting colony)	American white pelican	None/SSC/None	Group 2	Nests colonially on sandy, earthen, or rocky substrates on isolated islands in freshwater lakes; minimal disturbance from predators; access to foraging areas on inland marshes, lakes, or rivers; winters on shallow coastal bays, inlets, and estuaries	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Pelecanus occidentalis californicus (nesting colonies & communal roosts)	California brown pelican	FDL/SDL, FP/None	Group 2	Forages in warm coastal marine and estuarine environments; in California, nests on dry, rocky offshore islands	Not expected to occur. Does not occur in vicinity (CDFW 2018).
*Phalacrocorax auritus (*nesting colony)	double-crested cormorant	None/WL/None	Group 2	Nests in riparian trees near ponds, lakes, artificial impoundments, slow-moving rivers, lagoons, estuaries, and open	Not expected to occur. Does not occur in vicinity (CDFW 2018) and there is no suitable habitat on site.

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
				coastlines; winter habitat includes lakes, rivers, and coastal areas	
Piranga rubra (nesting)	summer tanager	None/SSC/ Covered	Group 2	Nests and forages in mature desert riparian habitats dominated by cottonwoods and willows	Not expected to occur. Does not occur in vicinity (CDFW 2018; Unitt 2004).
Plegadis chihi (nesting colony)	white-faced ibis	None/WL/None	Group 1	Nests in shallow marshes with areas of emergent vegetation; winter foraging in shallow lacustrine waters, flooded agricultural fields, muddy ground of wet meadows, marshes, ponds, lakes, rivers, flooded fields, and estuaries	Not expected to occur. Does not occur in vicinity (CDFW 2018; Unitt 2004).
Polioptila californica californica	coastal California gnatcatcher	FT/SSC/Covered	Group 1	Nests and forages in various sage scrub communities, often dominated by California sagebrush and buckwheat; generally avoids nesting in areas with a slope of greater than 40%; majority of nesting at less than 1,000 feet above mean sea level	Not expected to occur. Outside of range; this species has not been documented in San Diego at elevations higher than 2,400 feet (Unitt 2004).
Progne subis (nesting)	purple martin	None/SSC/ Covered	Group 1	Nests and forages in woodland habitats including riparian, coniferous, and valley foothill and montane woodlands; in the Sacramento region often nests in weep holes under elevated freeways	Not expected to occur. Its distribution in San Diego County is limited to the mountains and European starlings have taken over much of their nesting habitat (Unitt 2004).
*Pyrocephalus rubinus (*nesting)	vermilion flycatcher	None/SSC/ Covered	Group 1	Nests in riparian woodlands, riparian scrub, and freshwater marshes; typical desert riparian with cottonwood, willow, mesquite adjacent to irrigated fields, ditches, or pastures	Low potential to occur. Only a single male has been recorded in the vicinity (McCain Valley); no nesting has been documented in the area (Unitt 2004).
Rallus obsoletus levipes	Ridgway's rail	FE/SE, FP/None	Group 1	Coastal wetlands, brackish areas, coastal saline emergent wetlands	Not expected to occur. Does not occur in vicinity and there is no suitable habitat (CDFW 2018).
Riparia riparia (nesting)	bank swallow	None/ST/None	Group 1	Nests in riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with sandy soils; open country and water during migration	No potential to nest on site due lack of nesting habitat and there are currently no known nesting colonies in San Diego County (Unitt 2004). This species was recorded on the Campo Indian Reservation (AECOM 2012) and has potential to

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
					forage on site during migration.
Rynchops niger (nesting colony)	black skimmer	BCC/SSC/None	Group 1	Nests on barrier beaches, shell banks, spoil islands, and saltmarsh; forages over open water; roosts on sandy beaches and gravel bars	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Sternula antillarum browni (nesting colony)	California least tern	FE/SE, FP/None	Group 1	Forages in shallow estuaries and lagoons; nests on sandy beaches or exposed tidal flats	Not expected to occur. Does not occur in vicinity and there is no suitable habitat (CDFW 2018).
Strix occidentalis occidentalis	California spotted owl	BCC/SSC/ Covered	Group 1	Nests and forages in dense, old-growth, multi-layered mixed-conifer, redwood, and Douglas-fir habitats	Not expected to occur. This species typically nests at elevations above 2,500 feet where oak woodlands are dusky-footed woodrats are common (Unitt 2004). The closest known breeding location is in the Laguna Mountains, approximately, 7 miles northwest of the project site (Unitt 2004).
Synthliboramphus scrippsi (nesting colony)	Scripps's murrelet	FC, BCC/ST/None	Group 2	Nests on steep sea slopes, canyons, and cliffs with sparse vegetation	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Thalasseus elegans (nesting colony)	elegant tern	None/WL/None	Group 1	Inshore coastal waters, bays, estuaries, and harbors; forages over open water	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Toxostoma bendirei	Bendire's thrasher	BCC/SSC/None	Group 2	Nests and forages in desert succulent shrub and Joshua tree habitat in Mojave Desert; nests in yucca, cholla, and other thorny scrubs or small trees	Not expected to occur. Outside of range; this species is largely restricted to the Mojave Desert and records in San Diego County are limited (Unitt 2004).
Toxostoma crissale	Crissal thrasher	None/SSC/ Covered	Group 1	Nests and forages in desert riparian and desert wash; dense thickets of sagebrush and other shrubs such as mesquite, iron catclaw acacia, and arrowweed willow within juniper and pinyon–juniper woodlands	Not expected to occur. Does not occur in vicinity (CDFW 2018); this species occurs in the Borrego Valley (Unitt 2004).
Toxostoma lecontei	LeConte's thrasher	BCC/SSC/ Covered	Group 2	Nests and forages in desert wash, desert scrub, alkali desert scrub, desert succulent, and Joshua tree habitats; nests in spiny shrubs or cactus	Not expected to occur. Does not occur in vicinity (CDFW 2018).

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
*Vireo bellii pusillus (*nesting)	least Bell's vireo	FE/SE/Covered	Group 1	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	Low potential to occur. There is no suitable dense riparian thickets along water present and focused protocol surveys conducted in 2018 for this species were negative. Surveys conducted for the Campo Indian Reservation south of the project site in 2010 were negative (AECOM 2010a).
*Xanthocephalus xanthocephalus (*nesting)	yellow-headed blackbird	None/SSC/ Covered	None	Nests in marshes with tall emergent vegetation, often along borders of lakes and ponds; forages in emergent wetlands, open areas, croplands, and muddy shores of lacustrine habitat	Not expected to occur. Does not occur in vicinity (CDFW 2018).
			Fishes		
Cyprinodon macularius	desert pupfish	FE/SE/None	Group 2	Desert springs, small streams, and marshes below 1,515 meters (5,000 feet) above mean sea level; tolerates high salinities, high water temperatures, and low dissolved-oxygen concentrations	Not expected to occur. There are no perennial water sources on the project site that could support this species.
Eucyclogobius newberryi	tidewater goby	FE/SSC/None	Group 1	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County, to the mouth of the Smith River	Not expected to occur. Does not occur in vicinity (CDFW 2018) and there are no perennial water sources on the project site that could support this species.
Gasterosteus aculeatus williamsoni	unarmored threespine stickleback	FE/SE, FP/None	Group 2	Slow-moving and backwater areas	Not expected to occur. There are no perennial water sources on the project site that could support this species, and it is not documented in the vicinity (CDFW 2018).
Gila orcuttii	arroyo chub	None/SSC/None	Group 1	Warm, fluctuating streams with slow-moving or backwater sections of warm to cool streams at depths >40 centimeters (16 inches); substrates of sand or mud	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Oncorhynchus mykiss irideus	southern steelhead - southern California DPS	FE/None/None	Group 1	Clean, clear, cool, well-oxygenated streams; needs relatively deep pools in migration and gravelly substrate to spawn	Not expected to occur. There are no perennial water sources on the project site that could support this species, and it is not documented in the vicinity (CDFW 2018).

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
			Invertebrates		
Ariolimax columbianus stramineus	Palomar banana slug	None/None/Covered	Group 2	Moist forests; dark, damp habitats, such as under logs or other decomposing material	Not expected to occur. Does not occur in vicinity (CDFW 2018); the closest population is located in the Palomar Mountains.
Branchinecta sandiegonensis	San Diego fairy shrimp	FE/None/None	Group 1	Vernal pools, non-vegetated ephemeral pools	Not expected to occur. Does not occur in vicinity; this species' range is much further west in San Diego County (USFWS 2018; CDFW 2018).
Brennania belkini	Belkin's dune tabanid fly	None/None/None	Group 2	Inhabits coastal sand dunes of Southern California	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Callophrys thornei	Thorne's hairstreak	None/None/None	Group 1	Interior cypress woodland dominated by host plant *Hesperocyparis forbesii* (Tecate cypress)	Not expected to occur. No Tecate cypress were observed on site.
Cicindela gabbii	western tidal-flat tiger beetle	None/None/None	Group 2	Inhabits estuaries and mudflats along the coast of Southern California	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Cicindela hirticollis gravida	sandy beach tiger beetle	None/None/None	Group 2	Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Cicindela latesignata latesignata	western beach tiger beetle	None/None/None	Group 2	Mudflats and beaches in coastal Southern California	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Cicindela senilis frosti	senile tiger beetle	None/None/None	Group 2	Inhabits marine shoreline, from Central California coast south to saltmarshes of San Diego; also found at Lake Elsinore	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Cicindela trifasciata sigmoidea	Mudflat tiger beetle	None/None/None	Group 2	Marshes along coast and edges of marshes and rivers.	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Cincindela latesignata obliviosa	Oblivious tiger beetle	None/None/None	Group 2	Inhabited the Southern California coastline, from La Jolla north to the Orange County line. Occupied saline mudflats and moist sandy spots in estuaries of small streams in the lower zone. Has not been observed in 20 years. The oblivious tiger beetle (C. l. obliviosa) is no longer the accepted	Not expected to occur. Does not occur in vicinity (CDFW 2018).

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
				name for this species (ITIS 2016).	
Coelus globosus	globose dune beetle	None/None/None	Group 1	Inhabitant of coastal sand dune habitat; erratically distributed from Ten Mile Creek in Mendocino County south to Ensenada, Mexico	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Euphyes vestris harbisoni	Harbison dun skipper	None/None/Covered	Group 1	Oak riparian drainages and adjacent seeps supporting host plant Carex spissa	Not expected to occur. This species has a very limited distribution and it is unlikely to occur based on estimated range of this species (Marschalek and Deutschman 2015).
Helminthoglypta traski coelata	Peninsular Range shoulderband snail	None/None/Covered	Group 2	Wet habitats	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Linderiella occidentalis	California linderiella	None/None/None	Group 1	Cool soft-water vernal pools in grasslands below 1,000 feet above mean sea level	Not expected to occur. Does not occur at elevations above 1,000 feet.
Lycaena hermes	Hermes copper	FC/None/Covered	Group 1	Mixed woodlands, chaparral, and coastal scrub	Not expected to occur. Known ranges for this species are further west towards Descanso, Jamul, and Potrero (CDFW 2018). Additionally, no *Rhamnus crocea*, this species' host plant, were observed on site.
Megathymus yuccae harbisoni	Coastal giant skipper	None/None/None	Group 2	Coastal dunes, open yucca flats, desert canyons, open woodland, grassland, and old fields. Host plant is Yucca schidigera. Record from eastern San Diego County near Scissors Crossing, Anza-Borrego Desert State Park.	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Panoquina errans	wandering skipper	None/None/None	Group 1	Saltmarsh	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Papilio multicaudata	Two-tailed swallowtail	None/None/None	Group 1	Foothill slopes and canyons, moist valleys, streamsides, woodlands, parks, roadsides, and urban settings. Host plants include Fraxinus, Ptelea, and Prunus species (Butterflies and Moths of North America 2016).	Low potential to occur. There are *Prunus* spp. recorded on site.; however, this conspicuous species was not observed during protocol butterfly species. Flight season for two-tailed swallowtail is March through September (Shiraiwa 2009), and focused butterfly surveys were conducted

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
					between March and June 2018.
Phobetus robinsoni	Robinson's rain beetle	None/None/None	Group 2	Known from two locations in Orange County and only known from Scissors Crossing in San Diego County (43 FR 35636 35643).	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Plebejus saepiolus hilda	Hilda greenish blue	None/None/None	Group 1	At species level: bogs, stream edges, open fields, meadows, open forests, and roadsides. Host plants include species of Trifolium (Butterflies and Moths of North America 2016).	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Pseudocopaeodes eunus eunus	alkali skipper	None/None/ Covered	Group 1	Grassy spots on alkali flats; playa/salt flats	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Pyrgus ruralis lagunae	Laguna Mountains skipper	FE/None/Covered	Group 1	Restricted to montane meadows of Laguna Mountains and Mount Palomar	Not expected to occur. This species' range is restricted to the Laguna Mountains and Mount Palomar. The closest recorded occurrence is approximately 10 miles northeast of the project site (CDFW 2018; USFWS 2018).
Streptocephalus woottoni	Riverside fairy shrimp	FE/None/None	Group 1	Vernal pools, non-vegetated ephemeral pools	Not expected to occur. Does not occur in vicinity; this species' range is much further west in San Diego County (USFWS 2018; CDFW 2018).
Trigonoscuta blaisdelli	Blaisdell trigonoscuta weevil	None/None/None	Group 2	Trigonoscuta sp.: Coastal, desert, or inland sand dunes; wide variety of plant types used; the larvae feed on the roots and the adults on the leaves.	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Tryonia imitator	mimic tryonia (=California brackishwater snail)	None/None/None	Group 2	Inhabits coastal lagoons, estuaries, and saltmarshes, from Sonoma County south to San Diego County	Not expected to occur. Does not occur in vicinity (CDFW 2018).
			Mammals		
Bassariscus astutus	ringtail	None/FP/Covered	Group 2	Mixed forests and shrublands near rocky areas or riparian habitats; forages near water and is seldom found more than 1 kilometer (0.62 mile) from a water source	Low potential to occur. Does not occur in vicinity (CDFW 2018) and there is marginal habitat for this species on site.
Chaetodipus fallax fallax	northwestern San Diego	None/SSC/None	Group 2	Coastal scrub, mixed chaparral, sagebrush, desert wash, desert scrub,	Low potential to occur. There are limited records for this species in southeast San Diego County

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
	pocket mouse			desert succulent shrub, pinyon–juniper, and annual grassland	(Tremor et al. 2017).
Chaetodipus fallax pallidus	pallid San Diego pocket mouse	None/SSC/None	Group 2	Desert wash, desert scrub, desert succulent scrub, and pinyon–juniper woodland	Not expected to occur. No suitable vegetation present.
Choeronycteris mexicana	Mexican long-tongued bat	None/SSC/None	Group 2	Desert and montane riparian, desert succulent scrub, desert scrub, and pinyon–juniper woodland; roosts in caves, mines, and buildings	Not expected to occur. This species occurs further west along the coast and immediately inland (Tremor et al., 2017; CDFW 2018). It was not detected during the 2011/2012 acoustical bat surveys on site or on the Campo Indian Reservation (AECOM 2012).
Dipodomys merriami collinus	Earthquake Merriam's kangaroo rat	None/None/ Covered	None	Riversidean sage scrub, chaparral, and non-native grassland; associated with sandy loam soils	Not expected to occur. Outside of range; this species occurs in the desert (Tremor et al. 2017). No known occurrences within 5 miles of the project area.
Dipodomys merriami trinidadensis	Merriam's kangaroo rat	None/None/ Covered	None	Occurs in the Jacumba and Mountain Springs area	Not expected to occur. Outside of range; this species occurs in the desert (Tremor et al. 2017).
Dipodomys stephensi	Stephens' kangaroo rat	FE/ST/Covered	Group 1	Annual and perennial grassland habitats, coastal scrub or sagebrush with sparse canopy cover, or in disturbed areas	Not expected to occur. Does not occur in vicinity; this species has been documented occurring further northwest near Lake Henshaw and the Ramona area (Tremor et al., 2017; USFWS 2018; CDFW 2018).
Euderma maculatum	spotted bat	None/SSC/None	Group 2	Foothills, mountains, desert regions of southern California, including arid deserts, grasslands, and mixed-conifer forests; roosts in rock crevices and cliffs; feeds over water and along washes	Not expected to occur. Records for this species are very limited in San Diego County (Tremor et al., 2017). It was not detected during the 2011/2012 acoustical bat surveys on site or on the Campo Indian Reservation (AECOM 2012).
Lasiurus blossevillii	western red bat	None/SSC/None	Group 2	Forest, woodland, riparian, mesquite bosque, and orchards, including fig, apricot, peach, pear, almond, walnut, and orange; roosts in tree canopy	Low potential to roost on site. There is oak and riparian woodland habitat on site. Potential to forage on site; however, it was not detected during the 2011/2012 acoustical bat surveys on site or on the Campo Indian Reservation (AECOM 2012).
Lasiurus cinereus	hoary bat	None/None/None	None	Forest, woodland riparian, and wetland habitats; also juniper scrub, riparian	Low potential to roost on site. There are some large willows on site and this species was

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
				forest, and desert scrub in arid areas; roosts in tree foliage and sometimes cavities, such as woodpecker holes	detected during the 2011/2012 acoustical bat surveys on site as well as on the Campo Indian Reservation (AECOM 2012).
Lasiurus xanthinus	western yellow bat	None/SSC/None	None	Valley–foothill riparian, desert riparian, desert wash, and palm oasis habitats; below 2,000 feet above mean sea level; roosts in riparian and palms	Low potential to roost on site. This species was detected during the 2011/2012 acoustical bat surveys on site at a very low acoustical activity index. This species occurs in desert habitat (Tremor et al. 2017) and likely occurs on site only as an occasional migrant.
Myotis volans	long-legged myotis	None/None/None	Group 2	Primarily coniferous forests, but also seasonally in riparian and desert habitats; roosts in crevices in cliffs, caves, mines, buildings, exfoliating tree bark, and snags	Low potential to roost on site. There are no mines, caves, or buildings present, but some riparian woodland habitat. Records for this species are further north in the Laguna Mountains (Tremor et al. 2017). Potential to forage on site; however, it was not detected during the 2011/2012 acoustical bat surveys on site or on the Campo Indian Reservation (AECOM 2012).
Myotis yumanensis	Yuma myotis	None/None/None	Group 2	Riparian, arid scrublands and deserts, and forests associated with water (streams, rivers, tinajas); roosts in bridges, buildings, cliff crevices, caves, mines, and trees	Low potential to roost on site. There are no mines, caves, or buildings present, but some riparian woodland habitat. No ponded water or lakes present and this species is a water and moth specialist. This species is more commonly found along the coast, but there are records in eastern San Diego County (Tremor et al. 2017) and it was detected during the 2011/2012 acoustical bat surveys on site.
Ovis canadensis nelsoni	Nelson's bighorn sheep	None/FP/None	Group 1	Steep slopes and cliffs, rough and rocky topography, sparse vegetation; also canyons, washes, and alluvial fans	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Ovis canadensis nelsoni pop. 2 DPS	Peninsular bighorn sheep DPS	FE/ST, FP/Covered	None	Dry, rocky, low-elevation desert slopes, canyons, and washes; females near water during lambing season	Low potential to occur. This species would have been observed during surveys. The closest CNDDB occurrence is 1.3 miles northeast of the project area within the Jacumba and In-Ko-Pah Mountains in more suitable habitat (CDFW 2018). Habitat on site is too densely vegetated. Scat

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
					surveys conducted in July 2018 focused on detection of bighorn sheep scat and were negative. No sign of this species has been observed on site.
Perognathus longimembris bangsi	Palm Springs pocket mouse	None/SSC/ Covered	None	Creosote scrub, desert scrub, and grasslands; sparse to moderately dense vegetative cover	Not expected to occur. This subspecies inhabits the lower elevations of Anza-Borrego Desert up to 450 meters (1,476 feet) in elevation (Tremor et al., 2017).
Perognathus longimembris brevinasus	Los Angeles pocket mouse	None/SSC/ Covered	Group 2	Lower-elevation grassland, alluvial sage scrub, and coastal scrub	Not expected to occur. There are no records of this subspecies in southeast San Diego County (Tremor et al. 2017).
Perognathus longimembris pacificus	Pacific pocket mouse	FE/SSC/None	Group 1	fine-grained sandy substrates in open coastal strand, coastal dunes, and river alluvium	Not expected to occur. This species occurs along the coast (Tremor et al. 2017).
Puma concolor	cougar	None/None/None	Group 2	Scrubs, chaparral, riparian, woodland, and forest; rests in rocky areas and on cliffs and ledges that provide cover; most abundant in riparian areas and brushy stages of most habitats throughout California, except deserts	High potential to occur. This species was detected on Campo Indian Reservation (AECOM 2012). There is suitable habitat throughout the project site.
Spermophilus (Xerospermophilus) tereticaudus chlorus	Palm Springs round-tailed ground squirrel	None/SSC/ Covered	None	Sandy arid regions of Lower Sonoran Life Zone including creosote bush scrub and creosote–palo verde	Not expected to occur. This species occurs in the desert east of the project site (Tremor et al. 2017).
			Reptiles		
Actinemys marmorata	western pond turtle	None/SSC/ Covered	Group 1	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	Not expected to occur. Does not occur in vicinity (CDFW 2018) and there is no suitable habitat on site.
Anniella pulchra	northern California legless lizard	None/SSC/ Covered	None	Coastal dunes, stabilized dunes, beaches, dry washes, valley–foothill, chaparral, and scrubs; pine, oak, and riparian woodlands; associated with sparse vegetation and sandy or loose,	Not expected to occur. *A. pulchra* does not occur in San Diego.

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
				loamy soils	
Aspidoscelis hyperythra	orange-throated whiptail	None/WL/Covered	Group 2	Low-elevation coastal scrub, chaparral, and valley–foothill hardwood	Low potential to occur. There is suitable scrub and chaparral vegetation present. No known CNDDB occurrences within 5 miles of the project area.
Coleonyx switaki	Switak's banded gecko	None/ST/Covered	Group 2	Rocklands, especially massive rocks and rock formations at the heads of canyons	Not expected to occur. This species occurs near Borrego Springs and south to Baja California (Nafis 2018).
Lampropeltis zonata (pulchra)	California mountain kingsnake (San Diego population)	None/WL/Covered	Group 2	Habitat generalist found in habitats including conifer forest, oak–pine woodlands, riparian woodland, chaparral, manzanita, and coastal scrub, but mostly linked to mountains.	Low potential to occur. There is marginally suitable oak, chaparral, and scrub vegetation present, but the main range for this species is in the more montane areas to the north.
Phrynosoma mcallii	flat-tailed horned lizard	None/SSC/ Covered	Group 1	Desert washes and flats with sparse low-diversity vegetation cover and sandy soils	Not expected to occur. No suitable vegetation present. The closest known CNDDB occurrence is 3.3 miles northeast of the project area between the Jacumba and In-Ko-Pah Mountains (CDFW 2018).
Sauromalus ater	common chuckwalla	None/None/ Covered	Group 2	Rock-dwelling, sheltering in rock crevices or under rocks; inhabits rocky flats and hillsides in the Mojave and Colorado Deserts; found in creosote bush habitats; sea level to 1,800 meters (5,900 feet) above mean sea level	Not expected to occur. This species occurs in desert habitats further east and northeast in the Mojave and Colorado deserts (Nafis 2018).
Thamnophis hammondii	two-striped gartersnake	None/SSC/ Covered	Group 1	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	Not expected to occur due to lack of perennial streams or other water sources where this species is found.
Thamnophis sirtalis ssp. (Coastal plain from Ventura Co. to San Diego Co., from sea level to about 850 m.)	south coast garter snake	None/SSC/None	Group 2	Marsh and upland habitats near permanent water and riparian vegetation	Not expected to occur. This subspecies occurs from sea level to approximately 850 meters (2,788 feet) and the project site is above 3,600 feet.

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
Uma notata	Colorado Desert fringe-toed lizard	None/SSC/ Covered	Group 1	Wind-blown sand dunes, dry lakebeds, sandy beaches, riverbanks, desert washes, and sparse desert scrub	Not expected to occur. This species occurs in the Colorado Desert in desert dune habitat further east from the project site (Nafis 2018).

Federal
BCC = Bird of Conservation Concern
FE = Federally Endangered
State
FP = Fully Protected
SSC = State Species of Concern
WL = Watch List

ATTACHMENT I-2

Special-Status Wildlife Species with Low Potential or Not Expected to Occur in the Campo Corridor

APPENDIX I-2
Special-Status Wildlife Species with Low Potential or Not Expected to Occur in the Campo Corridor

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
			Amphibians		
Anaxyrus californicus	arroyo toad	FE/SSC/Covered	Group 1	Semi-arid areas near washes, sandy riverbanks, riparian areas, palm oasis, Joshua tree, mixed chaparral and sagebrush; stream channels for breeding (typically third order); adjacent stream terraces and uplands for foraging and wintering	Low potential to occur. There are no suitable perennial washes or stream channels for breeding present. The closest known arroyo toad occurrences are located approximately 5.5 miles west of the study area in the Cottonwood Creek area (USFWS 2018), a different watershed. There are no records of arroyo toad east of this location (USFWS 2018; CDFW 2018a). Surveys conducted for the 2010 BSA were negative (AECOM 2012).
Batrachoseps major aridus	desert slender salamander	FE/SE/Covered	Group 1	Barren, palm oasis, desert wash, and desert scrub	Not expected to occur. Does not occur in vicinity; the closest records are from the Santa Rosa Mountains to the north (CDFW 2018).
Ensatina klauberi	large-blotched salamander	None/WL/Covered	Group 1	Moist and shaded evergreen and deciduous woodlands	Low potential to occur. This species occurs in the Peninsular Ranges; however, there is no suitable moist evergreen and deciduous woodlands present.
Rana draytonii	California red-legged frog	FT/SSC/Covered	Group 1	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands	Not expected to occur. This species has not been documented in the vicinity (CDFW 2018) and there is no suitable habitat on site; outside of currently known range.
Rana muscosa	mountain yellow-legged frog	FE/SE, WL/Covered	Group 1	Lakes, ponds, meadow streams, isolated pools, and open riverbanks; rocky canyons in narrow canyons and in chaparral	Not expected to occur. Does not occur in vicinity; the closest record is in Doane Valley in Palomar Mountain in 1975 (CDFW 2018).
Taricha torosa (Monterey Co. south only)	California newt	None/SSC/ Covered	Group 2	Wet forests, oak forests, chaparral, and rolling grassland	Not expected to occur. Does not occur in vicinity (CDFW 2018).
			Birds		
Accipiter striatus (nesting)	sharp-shinned hawk	None/WL/None	Group 1	Nests in coniferous forests, ponderosa pine, black oak, riparian deciduous,	Sharp-shinned hawks do not nest in San Diego County (Unitt 2004). This species could occur during winter or migration and forage on site, and

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				mixed conifer, Jeffrey pine; winters in lowland woodlands and other habitats	has been observed on site (AECOM 2012) and by Dudek in 2017.
Aechmophorus occidentalis	western grebe	None/None/None	Group 1	Winters in sheltered bays or estuaries on the coast and on large freshwater lakes, rarely on rivers.	Not expected to occur. Does not occur in vicinity (CDFW 2018) and there is no suitable habitat on site.
Ammodramus savannarum (nesting)	grasshopper sparrow	None/SSC/ Covered	Group 1	Nests and forages in moderately open grassland with tall forbs or scattered shrubs used for perches	Not expected to occur. Does not occur in vicinity (CDFW 2018; Unitt 2004).
Anas strepera	gadwall	None/None/None	Group 2	Interior valleys, wetlands, ponds, and streams. Feeds and rests in freshwater lacustrine and emergent habitats, and to a lesser extent, estuarine and saline emergent habitats, and nests in nearby herbaceous and cropland habitats. Common in Central Valley and less common in Coast Range foothills of central and Southern California. Locally common in Imperial Valley and along Colorado River, October to March. Breeds on northeastern plateau and east of Sierra Nevada.	Low potential to occur due to lack of suitable habitat on site.
Anser caerulescens	snow goose	None/None/None	Group 2	Fresh emergent wetlands, adjacent lacustrine waters, and nearby wet croplands, pastures, meadows, and grasslands. Occasionally found in saline (brackish) emergent wetlands and adjacent estuarine waters. Found primarily in Central Valley; less common southward in the interior but abundant in Imperial Valley and locally common along Colorado River. Found regularly only in Southern California along Coast Ranges and immediate coast from mid-November to February.	Not expected to occur. Snow geese are a rare winter visitor to San Diego County and have not been recorded in the vicinity (Unitt 2004; CDFW 2018).

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Antigone canadensis canadensis (wintering)	lesser sandhill crane	None/SSC/None	Group 2	Winter foraging in cropland, grazed and mowed grassland, pasture, alfalfa fields, and shallow wetlands; roosting sites are flooded and support several inches of water	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Antigone canadensis tabida (nesting & wintering)	greater sandhill crane	None/ST, FP/None	Group 2	Winter foraging in cropland, grazed and mowed grassland, pasture, alfalfa fields, and shallow wetlands; roosting sites are flooded and support several inches of water	Not expected to occur. This species is rarely documented in San Diego County (Unitt 2004).
Ardea herodias (nesting colony)	great blue heron	None/None/None	Group 2	Nests in large trees or snags; forages in wetlands, water bodies, watercourses, and opportunistically in uplands, including pasture and croplands	Not expected to nest on site; the project site is located outside of known breeding areas in San Diego County (Unitt 2004); however, it was observed on site.
Asio flammeus (nesting)	short-eared owl	None/SSC/None	Group 2	Grassland, prairies, dunes, meadows, irrigated lands, and saline and freshwater emergent wetlands	Not expected to occur. Short-eared owl primarily a winter visitor in San Diego County and has not been recorded in the vicinity (Unitt 2004).
Athene cunicularia (burrow sites & some wintering sites)	burrowing owl	BCC/SSC/ Covered	Group 1	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	Not expected to occur. Burrowing owl are not known to occur between the Jacumba Valley and Otay areas in San Diego County.
Aythya americana (nesting)	redhead	None/SSC/None	Group 2	Nests in deep (>3 ft) permanent or semi-permanent wetlands of at least 1 acre; 75% open water; emergent tules, Scirpus spp., and Typha spp. 3 feet in height; winters in coastal estuaries and large, deep ponds, lakes, and reservoirs of the interior	Not expected to occur. Does not occur in vicinity (CDFW 2018) and there is no suitable habitat on site.
Branta bernicla (wintering & staging)	brant	None/SSC	None	Nesting habitat includes the edges of saltmarshes in the low Arctic region; migratory habitats include shallow marine lakes; winter range includes intertidal mudflats in shallow marine waters with abundant eelgrass and/or green algae	Not expected to nest on site. Observed flying over site (AECOM 2012).

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Branta canadensis	Canada goose	None/None/None	Group 2	Lakes, rivers, ponds, and other bodies of water; yards, park lawns, and agricultural fields	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Bucephala islandica (nesting)	Barrow's goldeneye	None/SSC/None	Group 2	Winters in lagoons, bays, and estuaries in coastal areas, and riverine waters, lakes, and reservoirs in the interior	Not expected to occur. Does not occur in vicinity (CDFW 2018) and there is no suitable habitat on site.
Buteo regalis (wintering)	ferruginous hawk	BCC/WL/Covered	Group 1	Winters and forages in open, dry country, grasslands, open fields, agriculture	Low potential to occur during the winter. Ferruginous hawk is an uncommon winter visitor in San Diego County, but it has been on site (AECOM 2012) and towards Jacumba Valley (Unitt 2004). There is suitable foraging habitat in the grassland and open scrub habitat.
Buteo swainsoni (nesting)	Swainson's hawk	BCC/ST/Covered	Group 1	Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture	Low potential to nest. Swainson's hawks are uncommon in San Diego County; however, two Swainson's hawks were detected during bird count surveys (AECOM 2012). Due to lack of additional observations in the area (Unitt 2004; CDFW 2018), this species has low potential to nest on site.
Butorides virescens	green heron	None/None/None	Group 2	Nests and roosts in valley foothill and desert riparian habitats; feeds in fresh emergent wetland, lacustrine, slow-moving riverine habitats. Resident in foothills and lowlands throughout California; common August to March in southern coastal ranges, in summer along the Colorado River, and found all year at the Salton Sea.	Low potential to occur. There is no suitable habitat on site and this species has not been confirmed nesting in the vicinity (Unitt 2004).
Campylorhynchus brunneicapillus sandiegensis (San Diego & Orange Counties only)	coastal cactus wren	BCC/SSC/ Covered	Group 1	Southern cactus scrub patches	Not expected to occur. San Diego cactus wren rely on cactus thickets at elevations below 1,500 feet and the species in the Boulevard area are considered the desert subspecies (Unitt 2004). The site is above this elevation range and there are no large patches of *Cylindropuntia* spp. or *Opuntia* spp. on site; however, there are scattered cacti throughout the scrub and

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					chaparral. *C. brunneicapillus* (desert subspecies) was documented on site and on the Campo Indian Reservation (AECOM 2012).
Cerorhinca monocerata (nesting colony)	rhinoceros auklet	None/WL/None	Group 2	Marine pelagic and subtidal habitats	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Chaetura vauxi (nesting)	Vaux's swift	None/SSC	None	Late-stage conifer forest and mixed-conifer/deciduous forest; nests in redwood (*Sequoia sempervirens*), Douglas-fir (*Pseudotsuga* spp.), and other conifers, and occasionally buildings and chimneys	Not expected to nest on site due to lack of suitable habitat. Observed flying over site (AECOM 2012).
*Charadrius alexandrinus nivosus (*nesting)	western snowy plover	FT, BCC/SSC/None	Group 1	On coasts nests on sandy marine and estuarine shores; in the interior nests on sandy, barren or sparsely vegetated flats near saline or alkaline lakes, reservoirs, and ponds	Not expected to occur. Does not occur in vicinity (CDFW 2018) and there is no suitable habitat on site.
Charadrius montanus (wintering)	mountain plover	BCC/SSC/None	Group 2	Winters in shortgrass prairies, plowed fields, open sagebrush, and sandy deserts	Not expected to occur. Does not occur in vicinity (CDFW 2018).
*Chlidonias niger (*nesting colony)	black tern	None/SSC/None	Group 2	Freshwater marsh with emergent vegetation; in the Central Valley primarily nests and forages in rice fields and other flooded agricultural fields with weeds and other residual aquatic vegetation	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Coccyzus americanus occidentalis (nesting)	western yellow-billed cuckoo	FT, BCC/SE/Covered	Group 1	Nests in dense, wide riparian woodlands and forest with well-developed understories	Not expected to occur. Does not occur in vicinity (CDFW 2018) and there are no dense wide riparian areas on site.
Contopus cooperi (nesting)	olive-sided flycatcher	BCC/SSC/None	Group 2	Nests in mixed-conifer, montane hardwood–conifer, Douglas-fir, redwood, red fir, and lodgepole pine habitats; usually close to water	This species was observed flying over the site (AECOM 2012).

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Cypseloides niger (nesting)	black swift	BCC/SSC/None	Group 2	Nests in moist crevices, caves, and cliffs behind or adjacent to waterfalls in deep canyons; forages over a wide range of habitats	Not expected to nest on site due to lack of suitable nesting habitat. This species was observed flying over the site (AECOM 2012).
Dendrocygna bicolor (nesting)	fulvous whistling-duck	None/SSC/None	Group 2	Nests in freshwater wetlands, especially shallow impoundments managed for rice production and temporarily flooded grasslands; also nests in pastures, haylands, and small grain fields adjacent to rice fields	Not expected to occur. Does not occur in vicinity (CDFW 2018) and there is no suitable habitat on site.
Egretta rufescens	reddish egret	None/None/None	Group 2	Freshwater marsh with emergent vegetation; in the Central Valley primarily nests and forages in rice fields and other flooded agricultural fields with weeds and other residual aquatic vegetation	Not expected to occur. Does not occur in vicinity (CDFW 2018; Unitt 2004).
*Elanus leucurus (*nesting)	white-tailed kite	None/FP/Covered	Group 1	Nests in woodland, riparian, and individual trees near open lands; forages opportunistically in grassland, meadows, scrubs, agriculture, emergent wetland, savanna, and disturbed lands	Low potential to nest on site. It was documented on site (AECOM 2012). This species likely occurs during migration or winter. This species is more commonly found along the coastal slope in San Diego County, and has not been documented nesting in the vicinity (Unitt 2004; CDFW 2018). It was observed in McCain Valley in the winter (Unitt 2004).
*Empidonax traillii extimus (*nesting)	southwestern willow flycatcher	FE/SE/Covered	Group 1	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration	Does not occur in vicinity (CDFW 2018a), and focused protocol surveys conducted in 2010 for this species were negative. The closest known CNDDB occurrence is 27.8 miles northwest of the project site (CDFW 2018a). There is marginal riparian habitat for this species, which prefers habitat along perennial streams and rivers.
Falco peregrinus anatum (nesting)	American peregrine falcon	FDL, BCC/SDL, FP/None	Group 1	Nests on cliffs, buildings, and bridges; forages in wetlands, riparian, meadows, croplands, especially where waterfowl are present	Not expected to nest. Peregrine falcons are not known to nest in the vicinity; they are documented along the coast in San Diego

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					County (CDFW 2018; Unitt 2004). This species was observed flying over the site.
Fratercula cirrhata (nesting colony)	tufted puffin	None/SSC/None	Group 2	Nests on offshore rocks and islands free of mammalian predators, either in earthen burrows or crevices on steep rocky slopes	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Gavia immer (nesting)	common loon	None/SSC/None	Group 2	Extirpated as a breeder from California; winters in coastal waters such as bays, channels, coves, and inlets; also winters inland at large, deep lakes and reservoirs	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Gymnogyps californianus	California condor	FE/SE, FP/None	None	Forages on open terrain, foothill grassland, and oak savannah; nests in cavities on steep rocks or burned hallos of old-growth conifers and giant sequoia trees	Very Low potential to forage and not expected to nest. There is potential foraging habitat; however, no suitable nesting vegetation present and the only records are at least 15 miles away from the site from 2017 (other years are further from the site) (USFWS 2018).
Icteria virens (nesting)	yellow-breasted chat	None/SSC/None	Group 1	Nests and forages in dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush	Low potential to occur. There is no suitable dense riparian woodland present and there are limited records of this species in southeastern San Diego County (Unitt 2004).
Ixobrychus exilis (nesting)	least bittern	BCC/SSC/ Covered	Group 2	Nests in freshwater and brackish marshes with dense, tall growth of aquatic and semi-aquatic vegetation	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Junco hyemalis caniceps (nesting)	gray-headed junco	None/WL/None	Group 2	Nests and forages in pine and juniper–pine forests	Not expected to occur. This species is not documented in vicinity (CDFW 2018; Unitt 2004). Gray-headed junco is rare along the coast and rare to uncommon in the mountains (Unitt 2004).
Larus californicus (nesting colony)	California gull	None/WL/None	Group 2	Nests in alkali and freshwater lacustrine habitats; abundant in coastal and interior lowlands during non-nesting period	Not expected to nest. There are no nesting colonies in the vicinity (CDFW 2018; Unitt 2004). It was observed on site (AECOM 2012).
Laterallus jamaicensis coturniculus	California black rail	BCC/ST, FP/None	Group 2	Tidal marshes, shallow freshwater margins, wet meadows, and flooded grassy vegetation; suitable habitats are	Not expected to occur. Does not occur in vicinity (CDFW 2018) and there is no suitable habitat on site. The last known nesting black rail in San Diego County was in 1954 (Unitt 2004).

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				often supplied by canal leakage in Sierra Nevada foothill populations	
Leucophaeus atricilla (nesting colony)	laughing gull	None/WL/None	Group 2	Coastal saltmarsh, bays, and estuaries	Not expected to occur. Does not occur in vicinity (CDFW 2018; Unitt 2004).
Melanerpes lewis (nesting)	Lewis's woodpecker	BCC/None/None	Group 1	Winters in open oak woodland and savanna; nests in open ponderosa pine forest and logged or burned pine forest	Lewis' woodpecker does not nest in San Diego County, but is a winter visitor (Unitt 2004). This species was observed on site.
Mycteria americana	wood stork	None/SSC/None	Group 2	Nests in freshwater and marine-estuarine forested habitats; forages in natural and artificial wetlands; roosts in trees, usually over water	Not expected to occur. This species is a very rare visitor to San Diego County (Unitt 2004); and the site does not support ponded water to support foraging.
*Numenius americanus (*nesting)	long-billed curlew	BCC/WL/None	Group 2	Nests in grazed, mixed grass, and short-grass prairies; localized nesting along the California coast; winters and forages in coastal estuaries, mudflats, open grassland, and cropland	Not expected to occur. Long-billed curlews are winter visitors in San Diego County, and the closest migration record is Lake Morena, southwest of the project site (Unitt 2004; CDFW 2018).
*Oceanodroma furcata (*nesting colony)	fork-tailed storm-petrel	None/SSC/None	Group 2	Offshore islands with restricted access and free of mammalian predators; nesting habitat varies across islands from natural crevices in talus slopes to earthen burrows dug by themselves or other species	Not expected to occur. Does not occur in vicinity (CDFW 2018).
*Oceanodroma homochroa (*nesting colony)	ashy storm-petrel	BCC/SSC/None	Group 2	Nests on rocky offshore islands on talus slopes, rock walls, sea caves, cliffs, and under piles of driftwood; they do not excavate their own nesting burrows	Not expected to occur. Does not occur in vicinity (CDFW 2018).
*Oceanodroma melania (*nesting colony)	black storm-petrel	None/SSC/None	Group 2	Nests on small rocky islands or talus slopes of larger islands free of mammalian predators; occurs on land only to breed	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Oreothlypis luciae (nesting)	Lucy's warbler	BCC/SSC/ Covered	Group 1	Nests and forages in desert wash and desert riparian habitats, especially dominated by mesquite, but also in other shrubs and tamarisk	Not expected to occur. Does not occur in vicinity (CDFW 2018; Unitt 2004). Breeding has only been documented in the Borrego Valley (Unitt 2004).

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Pandion haliaetus (nesting)	osprey	None/WL/None	Group 1	Large waters (lakes, reservoirs, rivers) supporting fish; usually near forest habitats, but widely observed along the coast	Not expected to nest on site due to lack of suitable habitat (i.e., bodies of water). It has been documented as presumed migrants in the vicinity (Unitt 2004), and was recorded onsite (AECOM 2012).
Passerculus sandwichensis beldingi	Belding's savannah sparrow	None/SE/None	Group 1	Nests and forages in coastal saltmarsh dominated by pickleweed (Salicornia spp.)	Not expected to nest on site. Does not occur in vicinity as nesting is documented only along the coast in San Diego County (CDFW 2018; Unitt 2004).
Passerculus sandwichensis rostratus (wintering)	large-billed savannah sparrow	None/SSC/None	Group 2	Nests and forages in open, low saltmarsh vegetation, including low halophytic scrub	Low potential to occur in the marsh habitat in portions of Tule Creek. It is a rare winter visitor in San Diego County (Unitt 2004).
*Pelecanus erythrorhynchos (*nesting colony)	American white pelican	None/SSC/None	Group 2	Nests colonially on sandy, earthen, or rocky substrates on isolated islands in freshwater lakes; minimal disturbance from predators; access to foraging areas on inland marshes, lakes, or rivers; winters on shallow coastal bays, inlets, and estuaries	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Pelecanus occidentalis californicus (nesting colonies & communal roosts)	California brown pelican	FDL/SDL, FP/None	Group 2	Forages in warm coastal marine and estuarine environments; in California, nests on dry, rocky offshore islands	Not expected to occur. Does not occur in vicinity (CDFW 2018).
*Phalacrocorax auritus (*nesting colony)	double-crested cormorant	None/WL/None	Group 2	Nests in riparian trees near ponds, lakes, artificial impoundments, slow-moving rivers, lagoons, estuaries, and open coastlines; winter habitat includes lakes, rivers, and coastal areas	Not expected to occur. Does not occur in vicinity (CDFW 2018) and there is no suitable habitat on site.
Piranga rubra (nesting)	summer tanager	None/SSC/ Covered	Group 2	Nests and forages in mature desert riparian habitats dominated by cottonwoods and willows	Not expected to occur. Does not occur in vicinity (CDFW 2018; Unitt 2004).
Plegadis chihi (nesting colony)	white-faced ibis	None/WL/None	Group 1	Nests in shallow marshes with areas of emergent vegetation; winter foraging in	Not expected to occur. Does not occur in vicinity (CDFW 2018; Unitt 2004).

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				shallow lacustrine waters, flooded agricultural fields, muddy ground of wet meadows, marshes, ponds, lakes, rivers, flooded fields, and estuaries	
Polioptila californica californica	coastal California gnatcatcher	FT/SSC/Covered	Group 1	Nests and forages in various sage scrub communities, often dominated by California sagebrush and buckwheat; generally avoids nesting in areas with a slope of greater than 40%; majority of nesting at less than 1,000 feet above mean sea level	Not expected to occur. Outside of range; this species has not been documented in San Diego at elevations higher than 2,400 feet (Unitt 2004).
Progne subis (nesting)	purple martin	None/SSC/ Covered	Group 1	Nests and forages in woodland habitats including riparian, coniferous, and valley foothill and montane woodlands; in the Sacramento region often nests in weep holes under elevated freeways	Not expected to occur. Its distribution in San Diego County is limited to the mountains and European starlings have taken over much of their nesting habitat (Unitt 2004).
*Pyrocephalus rubinus (*nesting)	vermilion flycatcher	None/SSC/ Covered	Group 1	Nests in riparian woodlands, riparian scrub, and freshwater marshes; typical desert riparian with cottonwood, willow, mesquite adjacent to irrigated fields, ditches, or pastures	Low potential to occur. Only a single male has been recorded in the vicinity (McCain Valley); no nesting has been documented in the area (Unitt 2004).
Rallus obsoletus levipes	Ridgway's rail	FE/SE, FP/None	Group 1	Coastal wetlands, brackish areas, coastal saline emergent wetlands	Not expected to occur. Does not occur in vicinity and there is no suitable habitat (CDFW 2018).
Riparia riparia (nesting)	bank swallow	None/ST/None	Group 1	Nests in riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with sandy soils; open country and water during migration	No potential to nest on site due lack of nesting habitat and there are currently no known nesting colonies in San Diego County (Unitt 2004). This species was recorded onsite (AECOM 2012) and has potential to forage on site during migration.
Rynchops niger (nesting colony)	black skimmer	BCC/SSC/None	Group 1	Nests on barrier beaches, shell banks, spoil islands, and saltmarsh; forages over open water; roosts on sandy beaches and gravel bars	Not expected to occur. Does not occur in vicinity (CDFW 2018).
*Sternula antillarum browni (*nesting colony)	California least tern	FE/SE, FP/None	Group 1	Forages in shallow estuaries and lagoons; nests on sandy beaches or exposed tidal flats	Not expected to occur. Does not occur in vicinity and there is no suitable habitat (CDFW 2018).

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Strix occidentalis occidentalis	California spotted owl	BCC/SSC/ Covered	Group 1	Nests and forages in dense, old-growth, multi-layered mixed-conifer, redwood, and Douglas-fir habitats	Not expected to occur. This species typically nests at elevations above 2,500 feet where oak woodlands are dusky-footed woodrats are common (Unitt 2004). The closest known breeding location is in the Laguna Mountains, approximately, 7 miles northwest of the project site (Unitt 2004).
Synthliboramphus scrippsi (nesting colony)	Scripps's murrelet	FC, BCC/ST/None	Group 2	Nests on steep sea slopes, canyons, and cliffs with sparse vegetation	Not expected to occur. Does not occur in vicinity (CDFW 2018).
*Thalasseus elegans (*nesting colony)	elegant tern	None/WL/None	Group 1	Inshore coastal waters, bays, estuaries, and harbors; forages over open water	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Toxostoma bendirei	Bendire's thrasher	BCC/SSC/None	Group 2	Nests and forages in desert succulent shrub and Joshua tree habitat in Mojave Desert; nests in yucca, cholla, and other thorny scrubs or small trees	Not expected to occur. Outside of range; this species is largely restricted to the Mojave Desert and records in San Diego County are limited (Unitt 2004).
Toxostoma crissale	Crissal thrasher	None/SSC/ Covered	Group 1	Nests and forages in desert riparian and desert wash; dense thickets of sagebrush and other shrubs such as mesquite, iron catclaw acacia, and arrowweed willow within juniper and pinyon–juniper woodlands	Not expected to occur. Does not occur in vicinity (CDFW 2018); this species occurs in the Borrego Valley (Unitt 2004).
Toxostoma lecontei	LeConte's thrasher	BCC/SSC/ Covered	Group 2	Nests and forages in desert wash, desert scrub, alkali desert scrub, desert succulent, and Joshua tree habitats; nests in spiny shrubs or cactus	Not expected to occur. Does not occur in vicinity (CDFW 2018).
*Vireo bellii pusillus (*nesting)	least Bell's vireo	FE/SE/Covered	Group 1	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	Focused protocol surveys conducted in 2010 for this species were negative. The closest known CNDDB occurrence is 6 miles west of the project site (CDFW 2018a). There is marginal riparian habitat for this species, which prefers habitat along perennial streams and rivers.
Fishes					

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Cyprinodon macularius	desert pupfish	FE/SE/None	Group 2	Desert springs, small streams, and marshes below 1,515 meters (5,000 feet) above mean sea level; tolerates high salinities, high water temperatures, and low dissolved-oxygen concentrations	Not expected to occur. There are no perennial water sources on the project site that could support this species.
Eucyclogobius newberryi	tidewater goby	FE/SSC/None	Group 1	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County, to the mouth of the Smith River	Not expected to occur. Does not occur in vicinity (CDFW 2018) and there are no perennial water sources on the project site that could support this species.
Gasterosteus aculeatus williamsoni	unarmored threespine stickleback	FE/SE, FP/None	Group 2	Slow-moving and backwater areas	Not expected to occur. There are no perennial water sources on the project site that could support this species, and it is not documented in the vicinity (CDFW 2018).
Gila orcuttii	arroyo chub	None/SSC/None	Group 1	Warm, fluctuating streams with slow-moving or backwater sections of warm to cool streams at depths >40 centimeters (16 inches); substrates of sand or mud	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Oncorhynchus mykiss irideus	southern steelhead - southern California DPS	FE/None/None	Group 1	Clean, clear, cool, well-oxygenated streams; needs relatively deep pools in migration and gravelly substrate to spawn	Not expected to occur. There are no perennial water sources on the project site that could support this species, and it is not documented in the vicinity (CDFW 2018).
Invertebrates					
Ariolimax columbianus stramineus	Palomar banana slug	None/None/ Covered	Group 2	Moist forests; dark, damp habitats, such as under logs or other decomposing material	Not expected to occur. Does not occur in vicinity (CDFW 2018); the closest population is located in the Palomar Mountains.
Branchinecta sandiegonensis	San Diego fairy shrimp	FE/None/None	Group 1	Vernal pools, non-vegetated ephemeral pools	Not expected to occur. Does not occur in vicinity; this species' range is much further west in San Diego County (USFWS 2018; CDFW 2018).
Brennania belkini	Belkin's dune tabanid fly	None/None/None	Group 2	Inhabits coastal sand dunes of Southern California	Not expected to occur. Does not occur in vicinity (CDFW 2018).

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Callophrys thornei	Thorne's hairstreak	None/None/None	Group 1	Interior cypress woodland dominated by host plant *Hesperocyparis forbesii* (Tecate cypress)	Not expected to occur. No Tecate cypress were observed on site.
Cicindela gabbii	western tidal-flat tiger beetle	None/None/None	Group 2	Inhabits estuaries and mudflats along the coast of Southern California	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Cicindela hirticollis gravida	sandy beach tiger beetle	None/None/None	Group 2	Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Cicindela latesignata latesignata	western beach tiger beetle	None/None/None	Group 2	Mudflats and beaches in coastal Southern California	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Cicindela senilis frosti	senile tiger beetle	None/None/None	Group 2	Inhabits marine shoreline, from Central California coast south to saltmarshes of San Diego; also found at Lake Elsinore	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Cicindela trifasciata sigmoidea	Mudflat tiger beetle	None/None/None	Group 2	Marshes along coast and edges of marshes and rivers.	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Cincindela latesignata obliviosa	Oblivious tiger beetle	None/None/None	Group 2	Inhabited the Southern California coastline, from La Jolla north to the Orange County line. Occupied saline mudflats and moist sandy spots in estuaries of small streams in the lower zone. Has not been observed in 20 years. The oblivious tiger beetle (C. l. obliviosa) is no longer the accepted name for this species (ITIS 2016).	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Coelus globosus	globose dune beetle	None/None/None	Group 1	Inhabitant of coastal sand dune habitat; erratically distributed from Ten Mile Creek in Mendocino County south to Ensenada, Mexico	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Danaus plexippus	monarch	None/None/None	Group 2	Wind-protected tree groves with nectar sources and nearby water sources	Low potential to occur. This species was not observed during focused surveys for Quino checkerspot butterfly. Not suitable colonial roosting areas present within the Project site.

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
Euphyes vestris harbisoni	Harbison dun skipper	None/None/ Covered	Group 1	Oak riparian drainages and adjacent seeps supporting host plant Carex spissa	Not expected to occur. This species has a very limited distribution and it is unlikely to occur based on estimated range of this species (Marschalek and Deutschman 2015).
Helminthoglypta traski coelata	Peninsular Range shoulderband snail	None/None/ Covered	Group 2	Wet habitats	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Linderiella occidentalis	California linderiella	None/None/None	Group 1	Cool soft-water vernal pools in grasslands below 1,000 feet above mean sea level	Not expected to occur. Does not occur at elevations above 1,000 feet.
Lycaena hermes	Hermes copper	FC/None/Covered	Group 1	Mixed woodlands, chaparral, and coastal scrub	Not expected to occur. Known ranges for this species are further west towards Descanso, Jamul, and Potrero (CDFW 2018). Additionally, no *Rhamnus crocea*, this species' host plant, were observed on site.
Megathymus yuccae harbisoni	Coastal giant skipper	None/None/None	Group 2	Coastal dunes, open yucca flats, desert canyons, open woodland, grassland, and old fields. Host plant is Yucca schidigera. Record from eastern San Diego County near Scissors Crossing, Anza-Borrego Desert State Park.	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Panoquina errans	wandering skipper	None/None/None	Group 1	Saltmarsh	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Papilio multiculdata	Two-tailed swallowtail	None/None/None	Group 1	Foothill slopes and canyons, moist valleys, streamsides, woodlands, parks, roadsides, and urban settings. Host plants include Fraxinus, Ptelea, and Prunus species (Butterflies and Moths of North America 2016).	Low potential to occur. There are *Prunus* spp. recorded on site.; however, this conspicuous species was not observed during protocol butterfly species. Flight season for two-tailed swallowtail is March through September (Shiraiwa 2009), and focused butterfly surveys were conducted between March and June 2018.
Phobetus robinsoni	Robinson's rain beetle	None/None/None	Group 2	Known from two locations in Orange County and only known from Scissors Crossing in San Diego County (43 FR 35636 35643).	Not expected to occur. Does not occur in vicinity (CDFW 2018).

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
Plebejus saepiolus hilda	Hilda greenish blue	None/None/None	Group 1	At species level: bogs, stream edges, open fields, meadows, open forests, and roadsides. Host plants include species of Trifolium (Butterflies and Moths of North America 2016).	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Pseudocopaeodes eunus eunus	alkali skipper	None/None/ Covered	Group 1	Grassy spots on alkali flats; playa/salt flats	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Pyrgus ruralis lagunae	Laguna Mountains skipper	FE/None/Covered	Group 1	Restricted to montane meadows of Laguna Mountains and Mount Palomar	Not expected to occur. This species' range is restricted to the Laguna Mountains and Mount Palomar. The closest recorded occurrence is approximately 10 miles northeast of the project site (CDFW 2018; USFWS 2018).
Streptocephalus woottoni	Riverside fairy shrimp	FE/None/None	Group 1	Vernal pools, non-vegetated ephemeral pools	Not expected to occur. Does not occur in vicinity; this species' range is much further west in San Diego County (USFWS 2018; CDFW 2018).
Trigonoscuta blaisdelli	Blaisdell trigonoscuta weevil	None/None/None	Group 2	Trigonoscuta sp.: Coastal, desert, or inland sand dunes; wide variety of plant types used; the larvae feed on the roots and the adults on the leaves.	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Tryonia imitator	mimic tryonia (=California brackishwater snail)	None/None/None	Group 2	Inhabits coastal lagoons, estuaries, and saltmarshes, from Sonoma County south to San Diego County	Not expected to occur. Does not occur in vicinity (CDFW 2018).
			Mammals		
Bassariscus astutus	ringtail	None/FP/Covered	Group 2	Mixed forests and shrublands near rocky areas or riparian habitats; forages near water and is seldom found more than 1 kilometer (0.62 mile) from a water source	Low potential to occur. Does not occur in vicinity (CDFW 2018) and there is marginal habitat for this species on site.
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	None/SSC/None	Group 2	Coastal scrub, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon–juniper, and annual grassland	Low potential to occur. There are limited records for this species in southeast San Diego County (Tremor et al. 2017).

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
Chaetodipus fallax pallidus	pallid San Diego pocket mouse	None/SSC/None	Group 2	Desert wash, desert scrub, desert succulent scrub, and pinyon–juniper woodland	Not expected to occur. No suitable vegetation present.
Choeronycteris mexicana	Mexican long-tongued bat	None/SSC/None	Group 2	Desert and montane riparian, desert succulent scrub, desert scrub, and pinyon–juniper woodland; roosts in caves, mines, and buildings	Not expected to occur. This species occurs further west along the coast and immediately inland (Tremor et al., 2017; CDFW 2018). It was not detected during the 2011/2012 acoustical bat surveys on site or on the Campo Indian Reservation (AECOM 2012).
Dipodomys stephensi	Stephens' kangaroo rat	FE/ST/Covered	Group 1	Annual and perennial grassland habitats, coastal scrub or sagebrush with sparse canopy cover, or in disturbed areas	Not expected to occur. Does not occur in vicinity; this species has been documented occurring further northwest near Lake Henshaw and the Ramona area (Tremor et al., 2017; USFWS 2018; CDFW 2018).
Euderma maculatum	spotted bat	None/SSC/None	Group 2	Foothills, mountains, desert regions of southern California, including arid deserts, grasslands, and mixed-conifer forests; roosts in rock crevices and cliffs; feeds over water and along washes	Not expected to occur. Records for this species are very limited in San Diego County (Tremor et al., 2017). It was not detected during the 2011/2012 acoustical bat surveys on site or on the Campo Indian Reservation (AECOM 2012).
Lasiurus blossevillii	western red bat	None/SSC/None	Group 2	Forest, woodland, riparian, mesquite bosque, and orchards, including fig, apricot, peach, pear, almond, walnut, and orange; roosts in tree canopy	Low potential to roost on site. There is oak and riparian woodland habitat on site. Potential to forage on site; however, it was not detected during the 2011/2012 acoustical bat surveys on site or on the Campo Indian Reservation (AECOM 2012).
Myotis volans	long-legged myotis	None/None/None	Group 2	Primarily coniferous forests, but also seasonally in riparian and desert habitats; roosts in crevices in cliffs, caves, mines, buildings, exfoliating tree bark, and snags	Low potential to roost on site. There are no mines, caves, or buildings present, but some riparian woodland habitat. Records for this species are further north in the Laguna Mountains (Tremor et al. 2017). Potential to forage on site; however, it was not detected during the 2011/2012 acoustical bat surveys on site or on the Campo Indian Reservation (AECOM 2012).

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
Myotis yumanensis	Yuma myotis	None/None/None	Group 2	Riparian, arid scrublands and deserts, and forests associated with water (streams, rivers, tinajas); roosts in bridges, buildings, cliff crevices, caves, mines, and trees	Low potential to roost on site. There are no mines, caves, or buildings present, but some riparian woodland habitat. No ponded water or lakes present and this species is a water and moth specialist. This species is more commonly found along the coast, but there are records in eastern San Diego County (Tremor et al. 2017) and it was detected during the 2011/2012 acoustical bat surveys on site.
Ovis canadensis nelsoni	Nelson's bighorn sheep	None/FP/None	Group 1	Steep slopes and cliffs, rough and rocky topography, sparse vegetation; also canyons, washes, and alluvial fans	Not expected to occur. Does not occur in vicinity (CDFW 2018).
Ovis canadensis nelsoni pop. 2 DPS	Peninsular bighorn sheep DPS	FE/ST, FP/Covered	None	Dry, rocky, low-elevation desert slopes, canyons, and washes; females near water during lambing season	Not expected to occur. The Reservation is located in the inner-montane zone of San Diego County, west of the desert slopes occupied by this species and approximately 6 miles (9.6 kilometers) from the western edge of the species' known range (CDFW 2018e). The closest CNDDB occurrence is 3.6 miles northeast of the project site within the Jacumba and In-Ko-Pah Mountains in more-suitable habitat (CDFW 2018a). The Reservation lacks the dry, rocky desert habitat preferred by this species.
Perognathus longimembris brevinasus	Los Angeles pocket mouse	None/SSC/ Covered	Group 2	Lower-elevation grassland, alluvial sage scrub, and coastal scrub	Not expected to occur. There are no records of this subspecies in southeast San Diego County (Tremor et al. 2017).
Perognathus longimembris pacificus	Pacific pocket mouse	FE/SSC/None	Group 1	fine-grained sandy substrates in open coastal strand, coastal dunes, and river alluvium	Not expected to occur. This species occurs along the coast (Tremor et al. 2017).
Puma concolor	cougar	None/None/None	Group 2	Scrubs, chaparral, riparian, woodland, and forest; rests in rocky areas and on cliffs and ledges that provide cover; most abundant in riparian areas and brushy stages of most habitats throughout California, except deserts	High potential to occur. This species was detected on Campo Indian Reservation (AECOM 2012). There is suitable habitat throughout the project site.

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
Reptiles					
Actinemys marmorata	western pond turtle	None/SSC/ Covered	Group 1	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	Not expected to occur. Does not occur in vicinity (CDFW 2018) and there is no suitable habitat on site.
Aspidoscelis hyperythra	orange-throated whiptail	None/WL/Covered	Group 2	Low-elevation coastal scrub, chaparral, and valley–foothill hardwood	Low potential to occur. There is suitable scrub and chaparral vegetation present. No known CNDDB occurrences within 5 miles of the project area.
Coleonyx switaki	Switak's banded gecko	None/ST/Covered	Group 2	Rocklands, especially massive rocks and rock formations at the heads of canyons	Not expected to occur. This species occurs near Borrego Springs and south to Baja California (Nafis 2018).
Lampropeltis zonata (pulchra)	California mountain kingsnake (San Diego population)	None/WL/Covered	Group 2	Habitat generalist found in habitats including conifer forest, oak–pine woodlands, riparian woodland, chaparral, manzanita, and coastal scrub, but mostly linked to mountains.	Low potential to occur. There is marginally suitable oak, chaparral, and scrub vegetation present, but the main range for this species is in the more montane areas to the north.
Phrynosoma mcallii	flat-tailed horned lizard	None/SSC/ Covered	Group 1	Desert washes and flats with sparse low-diversity vegetation cover and sandy soils	Not expected to occur. No suitable vegetation present. The closest known CNDDB occurrence is 3.3 miles northeast of the project area between the Jacumba and In-Ko-Pah Mountains (CDFW 2018).
Sauromalus ater	common chuckwalla	None/None/ Covered	Group 2	Rock-dwelling, sheltering in rock crevices or under rocks; inhabits rocky flats and hillsides in the Mojave and Colorado Deserts; found in creosote bush habitats; sea level to 1,800 meters (5,900 feet) above mean sea level	Not expected to occur. This species occurs in desert habitats further east and northeast in the Mojave and Colorado deserts (Nafis 2018).
Thamnophis hammondii	two-striped gartersnake	None/SSC/ Covered	Group 1	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	Not expected to occur due to lack of perennial streams or other water sources where this species is found.
Thamnophis sirtalis ssp. (Coastal plain from	south coast garter snake	None/SSC/None	Group 2	Marsh and upland habitats near permanent water and riparian vegetation	Not expected to occur. This subspecies occurs from sea level to approximately 850 meters

Scientific Name	Common Name	Status (Federal/State/San Diego MSCP East County (Draft))	San Diego County	Habitat	Potential to Occur
Ventura Co. to San Diego Co., from sea level to about 850 m.)					(2,788 feet) and the project site is above 3,600 feet.
Uma notata	Colorado Desert fringe-toed lizard	None/SSC/ Covered	Group 1	Wind-blown sand dunes, dry lakebeds, sandy beaches, riverbanks, desert washes, and sparse desert scrub	Not expected to occur. This species occurs in the Colorado Desert in desert dune habitat further east from the project site (Nafis 2018).

Federal
BCC = Bird of Conservation Concern
FE = Federally Endangered
State
FP = Fully Protected
SSC = State Species of Concern
WL = Watch List

ATTACHMENT J

2015 and 2016 Golden Eagle Biotelemetry Data

ATTACHMENT K

Data Station Forms

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Torrey Wind Project City/County: Boulevard/San Diego Sampling Date: 7/3/2018

Applicant/Owner: State: CA Sampling Point: 1

Investigator(s): C. Amoaku, P. Schuyler, L. Mobley, J. Marcon Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C - Mediterranean California Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

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

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	5	Yes	FACW
2.			
3.			
4.			
Total Cover:	5 %		
Sapling/Shrub Stratum			
1. *Tamarix ramosissima (T. chinensis)*	10	Yes	FAC
2. *Baccharis salicifolia*	2	No	FAC
3. *Artemisia tridentata*	10	Yes	Not Listed
4.			
5.			
Total Cover:	22 %		
Herb Stratum			
1. *Bromus tectorum*	40	Yes	Not Listed
2. *Hirschfeldia incana*	3	No	Not Listed
3. *Ambrosia psilostachya*	1	No	FACU
4. *Heliotropium curassavicum*	1	No	Not Listed
5.			
6.			
7.			
8.			
Total Cover:	45 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 50 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	5	x 2 =	10
FAC species	12	x 3 =	36
FACU species	1	x 4 =	4
UPL species	54	x 5 =	270
Column Totals:	72 (A)		320 (B)

Prevalence Index = B/A = 4.44

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

SOIL

Sampling Point: 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[3]	Remarks
0-2	10YR 3/1	100					sandy loam	
2-12	10YR 3/3	100					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☒ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: This point is within Tule Creek, and is a feature in the National Wetland Inventory.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Torrey Wind Project | City/County: Boulevard/San Diego | Sampling Date: 7/3/2018

Applicant/Owner: | State: CA | Sampling Point: 2A

Investigator(s): C. Amoaku, P. Schuyler, L. Mobley, J. Marcon | Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): None | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: | Long: | Datum:

Soil Map Unit Name: | NWI classification:

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

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	50	Yes	FACW
2.			
3.			
4.			
Total Cover:	50 %		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	25	Yes	FAC
2. *Artemisia tridentata*	7	No	Not Listed
3. *Baccharis sarothroides*	5	No	Not Listed
4. *Quercus agrifolia*	1	No	Not Listed
5.			
Total Cover:	38 %		
Herb Stratum			
1. *Juncus mexicanus*	98	Yes	FACW
2. *Gutierrezia sarothrae*	1	No	Not Listed
3. *Ambrosia psilostachya*	1	No	FACU
4.			
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 50 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	148	x 2 =	296
FAC species	25	x 3 =	75
FACU species	1	x 4 =	4
UPL species	14	x 5 =	70
Column Totals:	188 (A)		445 (B)

Prevalence Index = B/A = 2.37

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: 2A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	10YR 2/2	100					sandy clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Hardpan

Depth (inches): 6"+

Hydric Soil Present? Yes ○ No ◉

Remarks: No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☒ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: This point is within Tule Creek, and is a feature in the National Wetland Inventory.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Torrey Wind Project City/County: Boulevard/San Diego Sampling Date: 7/3/2018

Applicant/Owner: State: CA Sampling Point: 2B

Investigator(s): C. Amoaku, P. Schuyler, L. Mobley, J. Marcon Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C - Mediterranean California Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

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

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	30	Yes	FACW
2.			
3.			
4.			
Total Cover:	30 %		
Sapling/Shrub Stratum			
1. *Artemisia tridentata*	20	Yes	Not Listed
2. *Baccharis salicifolia*	10	No	FAC
3.			
4.			
5.			
Total Cover:	30 %		
Herb Stratum			
1. *Bromus diandrus*	50	Yes	Not Listed
2. *Bromus tectorum*	10	No	Not Listed
3. *Ambrosia psilostachya*	5	No	FACU
4. *Urtica dioica*	5	No	FAC
5. *Anemopsis californica*	3	No	OBL
6. *Avena barbata*	2	No	Not Listed
7. *Artemisia dracunculus*	2	No	Not Listed
8. *Juncus mexicanus*	1	No	FACW
Total Cover:	78 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 20 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 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	3	x 1 =	3
FACW species	31	x 2 =	62
FAC species	15	x 3 =	45
FACU species	5	x 4 =	20
UPL species	84	x 5 =	420
Column Totals:	138 (A)		550 (B)

Prevalence Index = B/A = 3.99

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

SOIL

Sampling Point: 2B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-4	2.5Y 4/2	100					sandy clay loam	
4-10	2.5Y 2.5/1	100					sandy clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Hardpan

Depth (inches): 10"+

Hydric Soil Present? Yes ○ No ◉

Remarks: No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☒ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: This point is within Tule Creek, and is a feature in the National Wetland Inventory. Minor bed and bank indicator observed.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Torrey Wind Project City/County: Boulevard/San Diego Sampling Date: 7/3/2018

Applicant/Owner: State: CA Sampling Point: 2C

Investigator(s): C. Amoaku, P. Schuyler, L. Mobley, J. Marcon Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C - Mediterranean California Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

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

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Artemisia tridentata*	10	Yes	Not Listed
2.			
3.			
4.			
5.			
Total Cover:	10 %		
Herb Stratum			
1. *Erodium cicutarium*	10	Yes	Not Listed
2. *Hirschfeldia incana*	5	Yes	Not Listed
3. *Gutierrezia sarothrae*	3	No	Not Listed
4. *Bromus tectorum*	1	No	Not Listed
5. *Corethrogyne filaginifolia*	1	No	Not Listed
6. *Heliotropium curassavicum*	1	No	Not Listed
7.			
8.			
Total Cover:	21 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 69 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	31	x 5 =	155
Column Totals:	31 (A)		155 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

SOIL

Sampling Point: 2C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: No soil pit dug because this data station is an upland point for 2A and 2B, which did not have hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Torrey Wind Project | City/County: Boulevard/San Diego | Sampling Date: 9/6/2018

Applicant/Owner: | State: CA | Sampling Point: 3

Investigator(s): Erin Bergman | Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): None | Slope (%): 1.5

Subregion (LRR): C - Mediterranean California | Lat: 32.71070585 | Long: -116.29355287 | Datum:

Soil Map Unit Name: Riverwash | NWI classification: Riverine

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

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Field Data Point is a non-wetland confirmation point. Point of investigation taken within underdeveloped channel that has supported the southern willow riparian forest intermixed with big sagebush. Understory is composed of upland shrub and herbaceous species. Extent of federal jurisdiction remains within the OHWM of ephemeral drainage feature.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	40	Yes	FACW
2.			
3.			
4.			
Total Cover:	40 %		
Sapling/Shrub Stratum			
1. *Artemesia tridentata*	20	Yes	UPL
2.			
3.			
4.			
5.			
Total Cover:	20 %		
Herb Stratum			
1. *Bromus tectorum*	25	Yes	UPL
2. *Heliotropium curassavicum*	15	No	FACU
3. *Ambrosia psilostachya*	10	No	FACU
4. *Sisymbrium altissimum*	5	No	UPL
5.			
6.			
7.			
8.			
Total Cover:	55 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 25 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 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	40	x 2 =	80
FAC species		x 3 =	0
FACU species	25	x 4 =	100
UPL species	50	x 5 =	250
Column Totals:	115 (A)		430 (B)

Prevalence Index = B/A = 3.74

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: Transitional southern willow scrub with upland understory strata. Understory of the riparian community is more indicative of annual conditions. (which are non-wetland) Willows germinated during wetter conditions.

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-20	10YR 3/2	N/A	N/A				Loamy Sand	Fluvial sediments

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Soil unit mapped at the point of investigation is Riverwash which is listed as hydric by the NRCS and is an Entisol (a recently deposited fluvial sediment). Entisols/fluvial sediments rarely present hydric field indicators. Guidance for soil lacking hydric indicators is found in the 2008 Supplement Chapter 3, page 27 and states that 'a soil that meets the definition of a hydric soil is hydric whether or not it exhibits indicators'

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☒ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ◉ No ○ Depth (inches): 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: This point is within a small underdeveloped ephemeral channel and is a feature in the National Wetland Inventory.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Boulder Brush Gen-Tie | City/County: Boulevard/San Diego | Sampling Date: 7/23/2018

Applicant/Owner: | State: CA | Sampling Point: 4a

Investigator(s): Callie Amoaku, Mackenzie Forgey | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): None | Slope (%):

Subregion (LRR): C - Mediterranean California | Lat: | Long: | Datum:

Soil Map Unit Name: | NWI classification:

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

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Sample point on top of bank from willows in channel.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Juncus mexicanus*	80	Yes	FACW
2. *Anemopsis californica*	40	Yes	OBL
3. *Ambrosia psilostachya*	20	Yes	FACU
4. *Bromus diandrus*	5	No	UPL
5. *Distichlis spicata*	5	No	FAC
6.			
7.			
8.			
Total Cover:	150 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	80	x 2 =	160
FAC species	5	x 3 =	15
FACU species	20	x 4 =	80
UPL species	5	x 5 =	25
Column Totals:	150 (A)		320 (B)

Prevalence Index = B/A = 2.13

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: 4a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-12	7.5YR 2.5/1	100					Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Boulder Brush Gen-Tie | City/County: Boulevard/San Diego | Sampling Date: 7/23/2018

Applicant/Owner: | State: CA | Sampling Point: 1b

Investigator(s): Callie Amoaku, Mackenzie Forgey | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): None | Slope (%):

Subregion (LRR): C - Mediterranean California | Lat: | Long: | Datum:

Soil Map Unit Name: | NWI classification:

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

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Upland sample point associated with DS 1a.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus agrifolia*	5	Yes	UPL
2.			
3.			
4.			
Total Cover:	5 %		
Sapling/Shrub Stratum			
1. *Artemisia tridentata*	10	Yes	UPL
2.			
3.			
4.			
5.			
Total Cover:	10 %		
Herb Stratum			
1. *Bromus tectorum*	50	Yes	UPL
2. *Bromus diandrus*	5	No	UPL
3. *Heliotropium curassavicum*	5	No	FACU
4. *Juncus mexicanus*	5	No	FACW
5. *Anemopsis californica*	5	No	OBL
6. *Ambrosia psilostachya*	2	No	FACU
7.			
8.			
Total Cover:	72 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	5	x 2 =	10
FAC species		x 3 =	0
FACU species	7	x 4 =	28
UPL species	70	x 5 =	350
Column Totals:	87 (A)		393 (B)

Prevalence Index = B/A = 4.52

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: 1b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-12	7.5YR 2.5/1	100					Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Boulder Brush Gen-Tie | City/County: Boulevard/San Diego | Sampling Date: 7/23/2018

Applicant/Owner: | State: CA | Sampling Point: 4c

Investigator(s): Callie Amoaku, Mackenzie Forgey | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): None | Slope (%):

Subregion (LRR): C - Mediterranean California | Lat: | Long: | Datum:

Soil Map Unit Name: | NWI classification:

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

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	60	Yes	FACW
2.			
3.			
4.			
Total Cover:	60 %		
Sapling/Shrub Stratum			
1. *Artemisia tridentata*	5	Yes	UPL
2. *Quercus agrifolia (sapling)*	1	No	UPL
3.			
4.			
5.			
Total Cover:	6 %		
Herb Stratum			
1. *Ambrosia psilostachya*	40	Yes	FACU
2. *Anemopsis californica*	5	No	OBL
3. *Juncus mexicanus*	5	No	FACW
4. *Apium graveolens*	1	No	UPL
5. *Artemisia dracunculus*	1	No	UPL
6.			
7.			
8.			
Total Cover:	52 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 15 % | % 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	5	x 1 =	5
FACW species	65	x 2 =	130
FAC species		x 3 =	0
FACU species	40	x 4 =	160
UPL species	8	x 5 =	40
Column Totals:	118 (A)		335 (B)

Prevalence Index = B/A = 2.84

Hydrophytic Vegetation Indicators:

- [ ] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: 4c

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-12	10YR 2/2	99	2.5YR 3/6	1	C	PL	Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Oxidized rhizospheres along dead roots only.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Boulder Brush Gen-Tie | City/County: Boulevard/San Diego | Sampling Date: 7/23/2018

Applicant/Owner: | State: CA | Sampling Point: 4d

Investigator(s): Callie Amoaku, Mackenzie Forgey | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): None | Slope (%):

Subregion (LRR): C - Mediterranean California | Lat: | Long: | Datum:

Soil Map Unit Name: | NWI classification:

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

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Artemisia tridentata*	5	Yes	UPL
2. *Baccharis salicifolia*	1	No	FAC
3.			
4.			
5.			
Total Cover:	6 %		
Herb Stratum			
1. *Juncus mexicanus*	80	Yes	FACW
2. *Distichlis spicata*	80	Yes	FAC
3. *Ambrosia psilostachya*	10	No	FACU
4. *Anemopsis californica*	5	No	OBL
5.			
6.			
7.			
8.			
Total Cover:	175 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	80	x 2 =	160
FAC species	81	x 3 =	243
FACU species	10	x 4 =	40
UPL species	5	x 5 =	25
Column Totals:	181 (A)		473 (B)

Prevalence Index = B/A = 2.61

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: 4d

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-12	7.5YR 2.5/1	100					Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☒ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Tule Creek floodplain

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Boulder Brush Gen-Tie City/County: Boulevard/San Diego Sampling Date: 7/23/2018

Applicant/Owner: State: CA Sampling Point: 4e

Investigator(s): Callie Amoaku, Mackenzie Forgey Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): None Slope (%):

Subregion (LRR): C - Mediterranean California Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

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

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Salix laevigata*	5	Yes	FACW
2. *Artemisia tridentata*	5	Yes	UPL
3. *Baccharis pilularis*	3	No	UPL
4. *Baccharis salicifolia*	1	No	FAC
5.			
Total Cover:	14 %		
Herb Stratum			
1. *Asclepias fascicularis*	1	No	FAC
2. *Ambrosia psilostachya*	8	No	FACU
3. *Bromus diandrus*	5	No	UPL
4. *Distichlis spicata*	50	Yes	FAC
5. *Hirschfeldia incana*	1	No	UPL
6. *Anemopsis californica*	2	No	OBL
7. *Juncus mexicanus*	10	No	FACW
8. *Heliotropium curassavicum var. oculatum*	2	No	UPL
Total Cover:	79 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	15	x 2 =	30
FAC species	52	x 3 =	156
FACU species	8	x 4 =	32
UPL species	16	x 5 =	80
Column Totals:	93 (A)		300 (B)

Prevalence Index = B/A = 3.23

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

SOIL

Sampling Point: 4e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-10	10 YR 2/2	100					sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☒ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Tule Creek floodplain

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Boulder Brush Gen-Tie | City/County: Boulevard/San Diego | Sampling Date: 7/23/2018

Applicant/Owner: | State: CA | Sampling Point: 4f

Investigator(s): Callie Amoaku, Mackenzie Forgey | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): None | Slope (%):

Subregion (LRR): C - Mediterranean California | Lat: | Long: | Datum:

Soil Map Unit Name: | NWI classification:

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

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

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Upland point for DS 1e.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Tamarix rammossissima (T. chinensis)*	3	No	FAC
2.			
3.			
4.			
5.			
Total Cover:	3 %		
Herb Stratum			
1. *Bromus tectorum*	30	Yes	UPL
2. *Heliotropium curassavicum*	25	Yes	FACU
3. *Distichlis spicata*	5	No	FAC
4.			
5.			
6.			
7.			
8.			
Total Cover:	60 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 40 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	8	x 3 =	24
FACU species	25	x 4 =	100
UPL species	30	x 5 =	150
Column Totals:	63 (A)		274 (B)

Prevalence Index = B/A = 4.35

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: 4f

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-12	10YR 2/2	100					loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

APPENDIX H

Cumulative Projects List

APPENDIX H: Cumulative Projects List

Cumulative – Future State and Private Projects

Project	Type	Status	Distance from Project	Project-Related Impacts
TULE WIND FARM: 12,239 acres of public lands, 186 MW, with 57 wind turbines. The Project would deliver power through the Project substation via a 138-kilovolt (kV) transmission line to run south to an interconnection with the proposed San Diego Gas & Electric (SDG&E) Rebuilt Boulevard Substation.	PF-W	Phase 1 = C Phase 2 = A	Approx. 0.25 miles	Air Quality, Biological Resources, Cultural Resources, Public Services, and Hazards and Hazardous Materials (Fire)
RUGGED SOLAR: Major Use Permit Modification MUP-12-007W1, MUP-12-007TE; MUP for the construction and operation of a 74 MW solar energy system on an approximately 765-acre site.	PF-S	UR	Approx. 5 miles	Aesthetics, Air Quality, Biological Resources, Cultural Resources, Hydrology/ Water Quality, Noise, Public Services, and Hazards and Hazardous Materials (Fire)
FREEDOM RANCH: Major Use Permit; MUP 74-011W2; Expand existing facilities from 50 beds to 125 in four phases. (Alcohol/Drug Treatment and Recovery Facility)	R	A	Approx. 12 miles	Aesthetics, Air Quality, Biological Resources, Cultural Resources, Noise, Public Services, Utilities, and Hazards and Hazardous Materials (Fire)
ROUGH ACRES FOUNDATION CAMPGROUND FACILITY; Major Use Permit; MUP-12-021; MUP for a campground/conference center. (wellness center and campground facility)	O	UR	Approx. 2 miles	Aesthetics, Air Quality, Biological Resources, Cultural Resources, Noise, Public Services, Utilities, and Hazards and Hazardous Materials (Fire)
JCSD Capacity Increase: Project would involve creation of new well at existing monitoring well site (Park Well) to increase capacity of JCSD water supply.	O	A	Approx. 11 miles	Hydrology Water Quality
BOULEVARD SOLAR: Major Use Permit Modification: MUP-12-010W1 MUP-12-010TE; MUP for the construction and operation of a 60 MW solar energy system on an approximately 420-acre site.	PF-S	UR	Approx. 9 miles	TBD pending completion of environmental analysis
BOULEVARD ENERGY STORAGE: Minor Use Permit; ZAP-17-006; ZAP for the construction and operation of a 100 MW energy storage facility on a 2-acre footprint.	PF	UR	Approx. 6 miles	TBD pending completion of environmental analysis
JVR SOLAR: Major Pre-Application; MPA-17-016; Proposed construction and operation of a 100 MW solar energy system on an approximately 571-acre site.	PF-S	UR	Approx. 10 miles	TBD pending completion of environmental analysis

Cumulative – Future State and Private Projects

Project	Type	Status	Distance from Project	Project-Related Impacts
CAMERON SOLAR: Major use Permit; MUP-18-004; MUP for the construction and operation of a 1.7 MW solar energy system consisting of approximately 19 acres on a 164.7-acre parcel.	PF-S	UR	Approx. 13 miles	TBD pending completion of environmental analysis
TORREY WIND: Construction and operation of a 126-MW wind energy generation facility consisting of 30 wind turbines on approximately 700 acres. Torrey Wind site overlaps with the proposed Boulder Brush Facilities and both would use the new substation and switchyard to connect to Sunrise Powerlink.	PF-W	UR	Adjacent to Project Site	TBD pending completion of environmental analysis
VZW I-8 BOULEVARD: Site Plan; PDS2014-STP-14-011; Site Plan for the construction and operation of 12 antennas mounted to a new 35 foot faux water tank, an associated equipment shelter, and an emergency generator.	PF	A	Approx. 2.25 miles	Biological Resources, Hazards & Hazardous Materials

APPENDIX I

Quino Checkerspot Butterfly Impact Sheets

	Acreage	Component	Excluded by Dudek & AECOM	Within 1km	200m of QCB	200m of host plants	Not Surveyed but thought negative	Reviewed
0	2.88	C-36		x	x			
0	2.88	C-67		x	x			
0	2.88	C-68		x	x			
0	24.63	Road - 200m of QCB and plants		x	x	x		
0	7.57	GenTie - 200m of QCB only		x	x			
0	8.6	Batch Plant		x	x			
	49.44							

	Acreage	Component	Excluded by Dudek & AECOM	Within 1km	200m of QCB	200m of host plants	Not Surveyed but thought negative	Reviewed
1	2.88	C-1		x		x		
1	2.88	C-8		x		x		
1	2.88	C-9		x		x		
1	2.88	C-12		x		x		
1	2.88	C-34	x-not ae area	x	x			
1	2.88	C-35	x-not ae area	x	? - w/in 300m			
1	2.88	C-36		x	x			
1	2.88	C-37		x	? - w/in 300m			
1	2.88	C-38		x	? - w/in 300m			
1	2.88	C-39		x	? - w/in 400m			
1	2.88	C-56		x		x		
1	2.88	C-57		x		x		
1	2.88	C-58		x		x		
1	2.88	C-59		x		x		
1	3.31	C-60		x		x		
1	2.88	C-67		x	x			
1	2.88	C-68		x	x			
1	2.88	C-69		x		x		
1	2.88	C-70		x		x		
1	2.88	C-71		x		x		
1	2.88	C-72		x		x		
1	2.88	C-73		x		x		
1	81.8	Road - 1km, 200m host plants		x		x		
1	24.63	Road - 200m of QCB and plants		x	x	x		
1	3.14	Road - 200m of QCB only		x	x			
1	32.75	GenTie - 1km, 200m host plants		x		x		

1	0	GenTie - 200m of QCB and plants		x	x	x		
1	7.57	GenTie - 200m of QCB only		x	x			
1	8.6	Batch Plant		x	x			
1	19.85	Laydown Yard		x	x			
	242.13							

	Acreage	Component	Excluded by Dudek & AECOM	Within 1km	200m of QCB	200m of host plants	Not Surveyed but thought negative	Reviewed
2	2.88	C-32		x				
2	2.88	C-33		x				
2	2.88	C-40		x				
2	2.88	C-41		x				
2	2.88	C-42		x				
2	2.88	C-66		x				
2	2.88	C-75		x				
2	56.64	Road - 1km only		x				
2	5.9	GenTie - 1km only		x				
2	7.79	O&M Building		x				
	90.49							

	Acreage	Component	Excluded by Dudek & AECOM	Within 1km	200m of QCB	200m of host plants	Not Surveyed but thought negative	Reviewed
3	116.25	Road - Not Suitable						x
3	22.5	GenTie - Not Suitable						x
	138.75							

	Acreage	Component	Excluded by Dudek & AECOM	Within 1km	200m of QCB	200m of host plants	Not Surveyed but thought negative	Reviewed
4	2.88	C-2	x	x				
4	2.88	C-3	x	x				
4	2.88	C-10	x	x				
4	2.88	C-11	x	x				
4	2.88	C-53	x-not ae area					x
	14.4							

	Acreage	Component	Excluded by Dudek & AECOM	Within 1km	200m of QCB	200m of host plants	Not Surveyed but thought negative	Reviewed
5	2.88	C-61					x	
5	2.88	C-62					x	
5	2.88	C-63					x	
5	2.88	C-64					x	
5	2.88	C-65					x	
	14.4							

	Acreage	Component	Excluded by Dudek & AECOM	Within 1km	200m of QCB	200m of host plants	Not Surveyed but thought negative	Reviewed
	2.88	C-4						x
	2.88	C-5						x
	2.88	C-6						x
	2.88	C-7						x
	2.88	C-13						x
	2.88	C-14						x
	2.88	C-15						x
	2.88	C-16						x
	2.88	C-17						x
	2.88	C-18						x
	2.88	C-19						x
	2.88	C-20						x
	2.88	C-21						x
	2.88	C-22						x
	2.88	C-23				x		
	2.88	C-24				x		
	2.88	C-25						x
	2.88	C-26						x
	2.88	C-27						x
	2.88	C-28				x		
	2.88	C-29				x		
	2.88	C-30						x
	2.88	C-31						x
	2.88	C-43						x
	2.88	C-44				x		
	2.88	C-45				x		
	2.88	C-46				x		
	2.88	C-47				x		
	2.88	C-48						x
	2.88	C-49						x
	2.88	C-50						x

	2.88	C-51				x? - on border		
	2.88	C-52						x
	2.88	C-54						x
	2.88	C-55						x
	2.88	C-74						x
	2.88	C-76						x
	125.8	Road - not 1km						x
	27.91	GenTie - not 1km						x
	1.77	High Voltage Substation						x
	20.48	Switchyard (BBF Only)						x
	10.07	Collector Substation						x
	15.5	Paved Access Road (BBF)						x
	308.09							

	Acreage	Component	Excluded by Dudek & AECOM	Within 1km	200m of QCB	200m of host plants	Not Surveyed but thought negative	Reviewed
	2.88	C-4						x
	2.88	C-5						x
	2.88	C-6						x
	2.88	C-7						x
	2.88	C-13						x
	2.88	C-14						x
	2.88	C-15						x
	2.88	C-16						x
	2.88	C-17						x
	2.88	C-18						x
	2.88	C-19						x
	2.88	C-20						x
	2.88	C-21						x
	2.88	C-22						x
	2.88	C-23				x		
	2.88	C-24				x		
	2.88	C-25						x
	2.88	C-26						x
	2.88	C-27						x
	2.88	C-28				x		
	2.88	C-29				x		
	2.88	C-30						x
	2.88	C-31						x
	2.88	C-43						x
	2.88	C-44				x		
	2.88	C-45				x		
	2.88	C-46				x		
	2.88	C-47				x		
	2.88	C-48						x
	2.88	C-49						x
	2.88	C-50						x

	2.88	C-51				x? - on border		
	2.88	C-52						x
	2.88	C-54						x
	2.88	C-55						x
	2.88	C-74						x
	2.88	C-76						x
	125.8	Road - not 1km						x
	27.91	GenTie - not 1km						x
	1.77	High Voltage Substation						x
	20.48	Switchyard (BBF Only)						x
	10.07	Collector Substation						x
	15.5	Paved Access Road (BBF)						x
	308.09							