

APPENDIX P-2
Part 3
Biological Assessment

APPENDIX D

*2018 Focused Quino Checkerspot Butterfly
Survey Report for the Campo Wind Project, Campo,
San Diego County, California*

July 11, 2018 (Resubmitted April 2, 2019)

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 Campo Wind Project, Campo, 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 Campo Wind project located within the community of Campo, San Diego County, California. This report is intended to satisfy reporting requirements for the following Quino-permitted biologists: Anita Hayworth (TE-781084-9.1), Callie Amoaku (TE-36118B-1), Darin Busby (initially working under Melissa Busby's permit until permit renewal of TE-115373-4), David Erik LaCoste (TE-027736-6), Diana Saucedo (TE-221287-1), Erin Bergman (TE-53771B), Jeff Priest (TE-840619-6), Margie Mulligan (TE-88969B-0), Melissa Busby (TE-0807792-3), Patricia Schuyler (TE-27502B-1), Paul M. Lemons (TE-051248-5), and Tricia Wotipka (working under TE-840619-6).

PROJECT LOCATION AND EXISTING CONDITIONS

The proposed project site is located on tribal lands within the community of Campo in San Diego County, California, on Assessor's Parcel Numbers 608-101-01, 608-110-06, 608-110-07, 608-120-01, 608-120-02, 608-120-03, 608-120-04, 608-120-05, 609-020-08, 609-040-16, 609-050-15, 609-050-16, 609-110-01, 609-130-16, 609-140-01, 609-150-01, 610-020-05, 610-020-06, 610-080-08, 610-080-09, 610-080-17, 610-110-23, 610-130-01, 610-130-02, 610-130-03, 610-130-04, 610-130-05, 610-130-06, 610-130-07, 657-020-06, 657-030-01, 657-030-02, 657-080-09, 657-100-01, 657-100-02, 657-110-01, 657-110-02, 658-010-01, 658-070-03, 658-070-16, 658-130-01, 658-130-02, 760-120-12, and 760-120-13 (Figure 1, Survey Results – Index). The study area consisted of the proposed wind turbine locations with a 250-foot-wide buffer (total of 500-foot-wide area), and associated roads and infrastructure. In early April, the study area was modified slightly, resulting in 0.6 acres being removed from the study area and 45.7 acres being added (Figures 2 and 3, Survey Results). The additional areas were slivers of land 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 does not change the conclusions of the report.

The project site is located on the Campo Band of Kumeyaay Indians Reservation in southeastern San Diego County, approximately 60 miles east of the City of San Diego, California, in the vicinity of the unincorporated communities of Campo, Boulevard, and Live Oak Springs. The project site's elevation is between approximately 3,153 and 4,168 feet above mean sea level. The Campo Band of Kumeyaay Indians Reservation includes lands both north and south of Interstate 8 along the Tecate Divide, extending from the southern boundary of the Manzanita Indian Reservation to the north and south to 0.25 miles north of the U.S. international border with Mexico. The project site is within the U.S. Geological Survey's 7.5-minute Live Oak Springs, Cameron Corners, Tierra Del Sol, and Campo quadrangle maps within Township 17 South, Range 6 East, Sections 01, 12, 13, 14, 15, 20, 21, 22, 23, 27, 28, 33, and 34; Township 17 South, Range 7 East, Section 06; and Township 18 South, Range 6 East, Sections 03, 04, 05, 08, 09, 10, 11, 14, 15, 16, 17, 20, and 21.

The project site includes undeveloped land as well as paved and dirt roads. Additionally, the site is characterized by rural, large-lot ranches and single-family homes, as well as an old sand mine.

According to the U.S. Department of Agriculture, Natural Resources Conservation Service, the following seven soil series were mapped on site: Calpine (coarse sandy loam, 5% to 9% slopes, eroded); Kitchen Creek (loamy coarse sand, 5% to 9% slopes; loamy coarse sand, 9% to 15% slopes, eroded); La Posta (loamy coarse sand, 5% to 30% slopes, eroded; loamy coarse sand, 5% to 30% slopes, severely eroded; rocky loamy coarse sand, 5% to 30% slopes, eroded); loamy alluvial land; Mottsville (loamy coarse sand, 0% to 2% slopes; loamy coarse sand, 2% to 9% slopes; loamy coarse sand, 9% to 15% slopes); and Tollhouse (rocky coarse sandy loam, 30% to 65% slopes; rocky coarse sandy loam, 5% to 30% slopes, eroded) (USDA 2018).

VEGETATION COMMUNITIES

Vegetation communities are currently being mapped and the data is not yet finalized. In general, the project site supports chaparral, scrub, grassland, and oak woodland communities.

QUINO CHECKERSPOT BUTTERFLY SURVEY

Background Information

The Quino was added to the federal Endangered Species List by the U.S. Fish and Wildlife Service 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 other subspecies of *E. editha* are currently known to occur in Southern California. The Quino (*E. editha 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-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 tidytops (*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 on 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).

The 2014 U.S. Fish and Wildlife Service protocol states that focused Quino surveys begin the third week of February and end the second Saturday in May unless otherwise approved by the FWS. Surveys must 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 Endangered Species Act (USFWS 2014). The 2018 focused surveys followed the 2014 U.S. Fish and Wildlife Service protocol with the addition of an amendment included in the 2018 notification (USFWS 2018). The approved amendment allowed for surveys to begin the week of March 12 to account for the location's higher elevation, generally colder conditions, and generally later start of Quino emergence.

Methods

Prior to the focused surveys, Dudek biologists conducted host plant mapping as well as a habitat assessment within the study area in order to identify suitable habitat and exclude unsuitable habitat. Excluded areas consisted of developed areas and 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 focused surveys to document any changes from the initial host plant mapping effort.

Focused Quino surveys were conducted over 10 visits between March 3, 2018, and May 15, 2018, per the Quino survey guidelines published on December 15, 2014 (USFWS 2014).¹ The survey area consisted of suitable habitat for Quino (Figures 2 and 3). Surveys were conducted by Quino-permitted biologists Anita Hayworth (TE-781084-9.1), Callie Amoaku (TE-36118B-1), Darin

¹ Only nine passes were completed at survey area 1 due to weather-related survey cancellations.

Recovery Permit Coordinator

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Busby (initially working under Melissa Busby's permit until permit renewal of TE-115373-4), David Erik LaCoste (TE-027736-6), Diana Saucedo (TE-221287-1), Erin Bergman (TE-53771B), Jeff Priest (TE-840619-6), Margie Mulligan (TE-88969B-0), Melissa Busby (TE-0807792-3), Patricia Schuyler (TE-27502B-1), Paul M. Lemons (TE-051248-5), and Tricia Wotipka (working under TE-840619-6).

The biologists were provided with 200-scale (1 inch = 200 feet) aerial maps of the survey 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 on site.

The survey methods consisted of slowly walking roughly parallel transects spaced approximately 30 feet (10 meters) apart throughout all suitable habitats within the 699-acre study area. The site was divided into 10 survey areas, ranging from 62 acres to 82 acres (Figures 2 through 6, Survey Results). Survey routes were arranged to thoroughly cover the survey area at a rate of no more than 5 to 10 acres per person hour. All wildlife species observed were recorded and are listed 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 1. Copies of the surveyors' field notes are included as Appendix B.

Weather conditions at the project site 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 in order 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 protocol (USFWS 2014).

Table 1
Schedule of Focused Quino Checkerspot Butterfly Surveys

Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
N/A	Habitat assessment	2018-02-21	EB	8:00 AM–5:00 PM	45°F–63°F; 20%–30% cloud cover; 0–4 mph wind; clear	
N/A	Habitat Assessment	2018-02-22	SC	8:00 AM–3:30 PM	45°F–63°F; 20%–30% cloud cover; 0–4 mph wind; clear	
N/A	Habitat Assessment	2018-02-28	SC, MF	8:00 AM–3:30 PM	47°F–66°F; 10%–50% cloud cover; 0–4 mph wind	
1	1	2018-03-12	MM	9:40 AM–4:08 PM	Air temp: 63°F–73°F; ground temp: 60°F–75°F; 20%–30% cloud cover; 3–5 mph wind; patchy	
	2	2018-03-20	EL, MM	9:40 AM–4:08 PM	Air temp: 65°F–70°F; ground temp: 0°F–75°F; 0%–20% cloud cover; 1–4 mph wind; clear to patchy	Survey included area 2
	3	2018-03-28	EL, MB	9:20 AM–4:15 PM	Air temp: 65°F–66°F; ground temp: 0°F–65°F; 0% cloud cover; 1–10 mph wind; clear	Survey included area 2
	4	2018-04-04	EL, MM	9:30 AM–4:15 PM	Air temp: 73°F; ground temp: 73°F–74°F; 30%–50% cloud cover; 0–10 mph wind; patchy	Survey included area 2
	5	2018-04-23	DS	9:05 AM–4:20 PM	Air temp: 73°F–85°F; ground temp: 73°F–87°F; 0%–50% cloud cover; 0–7 mph wind; clear to patchy	
	6	2018-04-27	DB, EL	8:45 AM–3:30 PM	Air temp: 71°F–78°F; ground temp: 69°F–82°F; 0% cloud cover; 1–15 mph wind; clear	Survey included area 4
	7	2018-05-04	JP	9:40 AM–5:00 PM	Air temp: 73°F–80°F; ground temp: 72°F–82°F; 0% cloud cover; 2–8 mph wind	
	8	2018-05-07	EL	8:45 AM–3:30 PM	Air temp: 73°F–83°F; ground temp: 68°F–88°F; 0%–10% cloud cover; 1–17 mph wind; clear	
	9	2018-05-15	DS	9:15 AM–12:40 PM	Air temp: 67°F–78°F; ground temp: 67°F–76°F; 0% cloud cover; 5–8 mph wind; clear	
2	1	2018-03-13	MM	9:50 AM–4:05 PM	Air temp: 62°F–69°F; ground temp: 65°F–69°F; 100% cloud cover; 1–4 mph wind	

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Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
	2	2018-03-20	EL, MM	9:40 AM–4:08 PM	Air temp: 63°F–70°F; ground temp: 65°F–73°F; 0%–20% cloud cover; 1–4 mph wind; clear to patchy	Survey included area 1
	3	2018-03-28	EL, MB	9:20 AM–4:15 PM	Air temp: 65°F–66°F; ground temp: 0°F–65°F; 0% cloud cover; 1–10 mph wind; clear	Survey included area 1
	4	2018-04-04	EL, MM	9:30 AM–4:15 PM	Air temp: 73°F; ground temp: 73°F–74°F; 30%–50% cloud cover; 0–10 mph wind; patchy	Survey included area 1
	5	2018-04-09	DB	8:30 AM–4:00 PM	Air temp: 71°F–76°F; ground temp: 68°F–78°F; 0% cloud cover; 6–14 mph wind; clear	
	6	2018-04-20	MM	9:25 AM–4:30 PM	60°F–75°F; 0% cloud cover; 2–9 mph wind; clear	
	7	2018-04-25	EL	8:45 AM–3:15 PM	Air temp: 66°F–75°F; ground temp: 66°F–75°F; 0% cloud cover; 6–13 mph wind; clear	
	8	2018-05-08	DS, EL	8:45 AM–4:15 PM	Air temp: 75°F–88°F; ground temp: 71°F–92°F; 0% cloud cover; 1–8 mph wind; clear	Survey included area 7
	9	2018-05-10	JP	8:40 AM–4:40 PM	Air temp: 76°F–82°F; ground temp: 74°F–88°F; 0% cloud cover; 3–10 mph wind	
	10	2018-05-16	DS	8:45 AM–4:00 PM	Air temp: 67°F–74°F; ground temp: 68°F–73°F; 0% cloud cover; 5–13 mph wind; clear	
3	1	2018-03-12	EL	9:35 AM–3:25 PM	Air temp: 58°F; ground temp: 58°F–62°F; 40%–50% cloud cover; 3–8 mph wind; patchy	
	2	2018-03-20	DB, MB	9:30 AM–1:00 PM	Air temp: 62°F–74°F; ground temp: 64°F–78°F; 0%–20% cloud cover; 3–6 mph wind; clear to patchy	
	3	2018-03-29	DS, EL	9:45 AM–3:50 PM	Air temp: 67°F–75°F; ground temp: 65°F–70°F; 0% cloud cover; 1–3 mph wind; clear	Survey included area 4
	4 (Portion)	2018-04-03	DS, EL	9:30 AM–4:00 PM	Air temp: 62°F–78°F; ground temp: 62°F–78°F; 0%–10% cloud cover; 0–4 mph wind; clear	Survey included area 4

Recovery Permit Coordinator

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Table 1
Schedule of Focused Quino Checkerspot Butterfly Surveys

Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes	
	4 (Finish)	2018-04-05	MM	9:13 AM–4:05 PM	Air temp: 64°F–73.5°F; ground temp: 65°F–74°F; 10%–20% cloud cover; 2–8 mph wind; clear to patchy	Survey included area 9	
	5	2018-04-10	DS	8:30 AM–4:30 PM	Air temp: 70°F–83°F; ground temp: 62°F–78°F; 0% cloud cover; 1–16 mph wind; clear		
	6	2018-04-24	EL	8:45 AM–3:42 PM	Air temp: 66°F–73°F; ground temp: 65°F–74°F; 10%–30% cloud cover; 1–8 mph wind; clear to patchy		
	7	2018-05-03	JP	8:45 AM–4:35 PM	Air temp: 54°F–58°F; ground temp: 54°F–57°F; 0% cloud cover; 3–10 mph wind		
	8	2018-05-09	JP	8:45 AM–5:00 PM	Air temp: 74°F–86°F; ground temp: 70°F–88°F; 0%–20% cloud cover; 0–8 mph wind		
	9	2018-05-14	JP	8:50 AM–5:05 PM	Air temp: 62°F–70°F; ground temp: 64°F–73°F; 0% cloud cover; 0–10 mph wind		
	10	2018-05-17	JP	8:45 AM–5:00 PM	Air temp: 62°F–68°F; ground temp: 62°F–72°F; 0% cloud cover; 0–15 mph wind		
	4	1	2018-03-13	DB, MB	1:10 PM–4:00 PM	Air temp: 70°F; ground temp: 70°F; 100% cloud cover; 1–7 mph wind; overcast	
	2	2018-03-20	DB, MB	1:00 PM–4:15 PM	Air temp: 70°F–74°F; ground temp: 72°F–78°F; 20% cloud cover; 3–6 mph wind; patchy		
	3	2018-03-29	DS, EL	9:45 AM–3:50 PM	Air temp: 67°F–75°F; ground temp: 65°F–70°F; 0% cloud cover; 1–3 mph wind; clear	Survey included area 3	
4	2018-04-03	DS, EL	9:30 AM–4:00 PM	Air temp: 62°F–78°F; ground temp: 62°F–78°F; 0%–10% cloud cover; 0–4 mph wind; clear	Survey included area 3		
5	2018-04-18	EB	8:30 AM–4:24 PM	Air temp: 67°F–74°F; ground temp: 67.5°F–75°F; 0% cloud cover; 0–2 mph wind; clear			
6	2018-04-20	EL	9:40 AM–4:30 PM	Air temp: 60°F–75°F; ground temp: 60°F–75°F; 0% cloud cover; 1–9 mph wind; clear			

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Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
	7	2018-04-27	DB, EL	8:45 AM–3:30 PM	Air temp: 71°F–78°F; ground temp: 69°F–82°F; 0% cloud cover; 1–15 mph wind; clear	Survey included area 1
	8	2018-05-08	JP	8:45 AM–4:15 PM	Air temp: 76°F–84°F; ground temp: 70°F–88°F; 40%–60% cloud cover; 2–6 mph wind	
	9	2018-05-15	JP	8:40 AM–3:25 PM	Air temp: 60°F–76°F; ground temp: 65°F–78°F; 0% cloud cover; 2–8 mph wind	
	10	2018-05-18	DS, EL, MM	8:45 AM–4:15 PM	Air temp: 60°F–69°F; ground temp: 63°F–79°F; 0% cloud cover; 2–8 mph wind; clear	Survey included areas 6, 8, 10
5	1	2018-03-13	DB, MB	10:15 AM–1:10 PM	Air temp: 68°F–70°F; ground temp: 68°F–70°F; 100% cloud cover; 1–7 mph wind; overcast	
	2	2018-03-21	MM	9:30 AM–3:48 PM	Air temp: 67°F–70°F; ground temp: 67°F; 50%–60% cloud cover; 1–4 mph wind; patchy	
	3	2018-03-29	MM	9:20 AM–4:10 PM	Air temp: 72°F–78°F; ground temp: 72°F–82°F; 0% cloud cover; 1–4 mph wind; clear	
	4	2018-04-04	DS	9:20 AM–4:00 PM	Air temp: 73°F–83°F; ground temp: 71.1°F–85°F; 10% cloud cover; 0–5 mph wind; clear to patchy	
	5	2018-04-11	DS	9:00 AM–2:00 PM	73°F–83°F; 0%–20% cloud cover; 1–14 mph wind; clear to patchy	
	6	2018-04-20	CA	9:00 AM–4:07 PM	Air temp: 62.6°F–73°F; ground temp: 66°F–76°F; 0% cloud cover; 0–3 mph wind; clear	
	7	2018-04-26	JP	8:50 AM–3:05 AM	Air temp: 69°F–80°F; ground temp: 70°F–84°F; 30%–50% cloud cover; 0–10 mph wind	
	8	2018-05-09	DS	8:45 AM–3:30 PM	Air temp: 77°F–95°F; ground temp: 79°F–98°F; 0% cloud cover; 0–4 mph wind; clear	
	9	2018-05-14	AH	8:45 AM–3:42 PM	Air temp: 63°F–74°F; ground temp: 64°F–76°F	

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Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
	10	2018-05-17	DS	8:45 AM–3:27 PM	Air temp: 63°F–64°F; ground temp: 65°F–73°F; 0% cloud cover; 0–13 mph wind; clear	
6	1	2018-03-20	PL	9:15 AM–4:30 PM	Air temp: 61°F–70°F; ground temp: 61°F–69°F; 10%–30% cloud cover; 0–6 mph wind; clear to patchy	
	2	2018-03-28	JP, DS	9:37 AM–1:35 PM	Air temp: 66°F–72°F; ground temp: 65°F–70°F; 0% cloud cover; 1–12 mph wind	
	3	2018-03-30	JP	9:40 AM–4:00 PM	Air temp: 74°F–82°F; ground temp: 68°F–82°F; 0%–70% cloud cover; 2–12 mph wind	
	4	2018-04-03	JP	11:00 AM–5:45 PM	Air temp: 68°F–70°F; ground temp: 68°F–72°F; 30% cloud cover; 3–12 mph wind	
	5	2018-04-09	JP	8:30 AM–3:15 AM	Air temp: 72°F–78°F; ground temp: 68°F–82°F; 0%–30% cloud cover; 2–10 mph wind; clear	
	6	2018-04-18	EL	8:45 AM–3:30 PM	Air temp: 63°F–87°F; ground temp: 62°F–85°F; 0%–30% cloud cover; 5–7 mph wind; clear to patchy	
	7	2018-04-25	DB	8:40 AM–3:20 PM	Air temp: 69°F–81°F; ground temp: 71°F–87°F; 0% cloud cover; 1–10 mph wind; clear	
	8	2018-05-10	DS, MM	9:09 AM–4:30 PM	74°F–88°F; 0%–10% cloud cover; 2–7 mph wind; clear	Survey included area 7
	9	2018-05-15	PS	9:00 AM–2:46 PM	Air temp: 64°F–78°F; ground temp: 64°F–81°F; 0%–10% cloud cover; 0–5 mph wind; clear	
	10	2018-05-18	DS, EL, MM	8:45 AM–4:15 PM	Air temp: 60°F–69°F; ground temp: 63°F–79°F; 0% cloud cover; 2–8 mph wind; clear	Survey included areas 4, 8, 10
7	1 (Portion)	2018-03-12	JP	1:10 PM–4:30 PM	Air temp: 70°F–72°F; ground temp: 68°F–70°F; 40%–70% cloud cover; 1–6 mph wind	

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Table 1
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	1 (Finish)	2018-03-13	JP	1:00 PM–5:00 AM	Air temp: 67°F–70°F; ground temp: 70°F–74°F; 100% cloud cover; 2–8 mph wind; overcast	
	2	2018-03-20	JP, TW	9:20 AM–2:00 PM	Air temp: 64°F–74°F; ground temp: 60°F–76°F; 0%–50% cloud cover; 1–5 mph wind; clear	
	3	2018-03-30	DS	9:30 AM–4:00 PM	Air temp: 71°F–78°F; ground temp: 74°F–80°F; 0% cloud cover; 1–8 mph wind; clear	
	4	2018-04-04	JP	9:15 AM–4:15 PM	Air temp: 68°F–74°F; ground temp: 64°F–76°F; 10%–30% cloud cover; 1–9 mph wind	
	5	2018-04-10	JP	8:30 AM–3:15 PM	Air temp: 67°F–86°F; ground temp: 63°F–92°F; 10%–40% cloud cover; 0–6 mph wind	
	6	2018-04-18	DS	9:00 AM–3:35 PM	Air temp: 63°F–69°F; ground temp: 63°F–71°F; 0% cloud cover; clear	
	7	2018-04-24	DB	8:45 AM–3:20 PM	Air temp: 67°F–84°F; ground temp: 65°F–88°F; 10%–20% cloud cover; 0–8 mph wind; patchy	
	8	2018-05-08	DS, EL	8:45 AM–4:15 PM	Air temp: 75°F–88°F; ground temp: 71°F–92°F; 0% cloud cover; 1–8 mph wind; clear	Survey included area 2
	9	2018-05-10	DS, MM	9:09 AM–4:30 PM	Air temp: 72°F–85°F; ground temp: 74°F–88°F; 0%–10% cloud cover; 2–7 mph wind; clear	Survey included area 6
	10	2018-05-15	EL	8:40 AM–3:10 PM	Air temp: 64°F–78°F; ground temp: 64°F–85°F; 0% cloud cover; 1–12 mph wind; clear	
8	1	2018-03-12	MB	9:30 AM–3:50 PM	Air temp: 62°F–73°F; ground temp: 65°F–75°F; 10%–60% cloud cover; 1–3 mph wind; patchy	
	2 (Portion)	2018-03-20	JP, TW	2:00 PM–4:00 PM	Air temp: 72°F–74°F; ground temp: 72°F–76°F; 50% cloud cover; 1–6 mph wind	
	2 (Finish)	2018-03-21	JP	10:30 AM–3:15 PM	Air temp: 72°F–76°F; ground temp: 70°F–78°F; 80%–90% cloud cover; 1–8 mph wind	

Recovery Permit Coordinator

Subject: 2018 Focused Quino Checkerspot Butterfly Survey Report for the Campo Wind Project, Campo, San Diego County, California

Table 1
Schedule of Focused Quino Checkerspot Butterfly Surveys

Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes	
	3	2018-03-30	MM	9:28 AM–3:22 PM	Air temp: 83°F–84°F; ground temp: 82°F–87°F; 0%–70% cloud cover; 1–4 mph wind; clear to overcast		
	4	2018-04-16	DB, MB	9:30 AM–1:10 PM	Air temp: 54°F–66°F; ground temp: 62°F–66°F; 20% cloud cover; 9–19 mph wind; patchy		
	5	2018-04-20	DS	9:10 AM–3:40 PM	Air temp: 61°F–76°F; ground temp: 63°F–76°F; 0% cloud cover; 1–7 mph wind; clear		
	6	2018-04-23	DB, MB	8:45 AM–3:15 PM	Air temp: 73°F–86°F; ground temp: 75°F–88°F; 0%–30% cloud cover; 1–10 mph wind; clear to patchy	Survey included area 10	
	7	2018-04-27	EB	8:30 AM–4:33 PM	Air temp: 66°F–75°F; ground temp: 67°F–78°F; 0% cloud cover; 0–1 mph wind; clear		
	8	2018-05-03	EL, MB	12:17 PM–4:00 PM	Air temp: 73°F–79°F; ground temp: 71°F–83°F; 0% cloud cover; 3–8 mph wind; clear		
	9	2018-05-14	EL, MB	8:45 AM–3:30 PM	Air temp: 62°F–70°F; ground temp: 62°F–82°F; 0% cloud cover; 2–12 mph wind; clear	Survey included area 9	
	10	2018-05-18	DS, EL, MM	8:45 AM–4:15 PM	Air temp: 60°F–69°F; ground temp: 63°F–79°F; 0% cloud cover; 2–8 mph wind; clear	Survey included areas 4, 6, 10	
	9	1	2018-03-19	DB, DS	11:15 AM–1:00 PM	Air temp: 60°F–66°F; ground temp: 60°F–66°F; 10%–20% cloud cover; 4–10 mph wind; clear	
		2	2018-03-21	DS	9:35 AM–4:35 PM	Air temp: 64°F–73°F; ground temp: 62.2°F–73°F; 20%–40% cloud cover; 1–5 mph wind; patchy	
3		2018-03-28	CA	9:07 AM–3:53 PM	Air temp: 63°F–66°F; ground temp: 65°F–69°F; 0% cloud cover; 0–4 mph wind; clear		
4		2018-04-02	DB, EL	9:40 AM–4:00 PM	Air temp: 56°F–62°F; ground temp: 61°F–62°F; 10% cloud cover; 5–9 mph wind; clear	Survey included area 10	

Recovery Permit Coordinator

Subject: 2018 Focused Quino Checkerspot Butterfly Survey Report for the Campo Wind Project, Campo, San Diego County, California

Table 1
Schedule of Focused Quino Checkerspot Butterfly Surveys

Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
	5	2018-04-11	CA	8:15 AM–3:43 PM	Air temp: 78°F–79°F; ground temp: 70°F–79°F; 0%–10% cloud cover; 0–2 mph wind; clear	
	6	2018-04-17	DB, DS, EL, MB	9:45 AM–2:30 PM	Air temp: 58°F–60°F; ground temp: 62°F–63°F; 0% cloud cover; 3–16 mph wind; clear	Survey included area 10
	7	2018-04-24	DS	8:50 AM–3:25 PM	Air temp: 72°F–87°F; ground temp: 72°F–89°F; 20%–30% cloud cover; 0–2 mph wind; patchy	
	8	2018-05-04	EL	11:20 AM–4:20 PM	Air temp: 78°F–86°F; ground temp: 82°F–88°F; 0% cloud cover; 2–8 mph wind; clear	
	9	2018-05-14	EL, MB	8:45 AM–3:30 PM	Air temp: 62°F–70°F; ground temp: 62°F–82°F; 0% cloud cover; 2–12 mph wind; clear	Survey included area 8
	10	2018-05-18	JP	8:30 AM–4:05 PM	Air temp: 55°F–58°F; ground temp: 56°F–60°F; 0% cloud cover; 1–8 mph wind	
10	1 (Portion)	2018-03-13	EL	9:59 AM–3:33 PM	Air temp: 66°F; ground temp: 63°F–66°F; 100% cloud cover; 0–1 mph wind; overcast	
	1 (Finish)	2018-03-19	DB, DS	1:15 PM–4:00 PM	Air temp: 66°F; ground temp: 66°F; 10% cloud cover; 4–8 mph wind; clear to patchy	
	2	2018-03-20	DS	9:50 AM–3:15 PM	Air temp: 66°F–76°F; ground temp: 63°F–74°F; 0%–40% cloud cover; 1–8 mph wind; clear to patchy	
	3	2018-03-29	JP	9:15 AM–3:30 PM	Air temp: 68°F–77°F; ground temp: 66°F–78°F; 0% cloud cover; 0–8 mph wind	
	4	2018-04-02	DB, EL	9:40 AM–4:00 PM	Air temp: 56°F–62°F; ground temp: 61°F–62°F; 10% cloud cover; 5–9 mph wind; clear	Survey included area 9
	5	2018-04-17	DB, DS, EL, MB	9:45 AM–2:30 PM	Air temp: 58°F–60°F; ground temp: 62°F–63°F; 0% cloud cover; 3–16 mph wind; clear	Survey included area 9
	6	2018-04-17	DB, DS, EL, MB	9:45 AM–2:30 PM	Air temp: 58°F–60°F; ground temp: 62°F–63°F; 0% cloud cover; 3–16 mph wind; clear	Survey included area 9

Recovery Permit Coordinator

Subject: 2018 Focused Quino Checkerspot Butterfly Survey Report for the Campo Wind Project, Campo, San Diego County, California

Table 1
Schedule of Focused Quino Checkerspot Butterfly Surveys

Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
	7	2018-05-03	EL, MB	9:41 AM–12:13 PM	Air temp: 63°F–73°F; ground temp: 63°F–71°F; 0% cloud cover; 4–8 mph wind; clear	
	8	2018-05-07	DB	8:45 AM–3:03 PM	Air temp: 73°F–86°F; ground temp: 73°F–89°F; 0%–10% cloud cover; 1–8 mph wind; clear	
	9	2018-05-10	EL	8:45 AM–3:00 PM	Air temp: 78°F–88°F; ground temp: 74°F–89°F; 0% cloud cover; 2–12 mph wind; clear	
	10	2018-05-16	EL	8:40 AM–3:00 PM	Air temp: 68°F–78°F; ground temp: 67°F–80°F; 0% cloud cover; 1–8 mph wind; clear	

AH = Anita Hayworth (TE-781084-9.1); CA = Callie Amoaku (TE-36118B-1); DB = Darin Busby (initially working under Melissa Busby's permit until permit renewal of TE-115373-4); DS = Diana Saucedo (TE-221287-1); EB = Erin Bergman (TE-53771B); EL = David Erik LaCoste (TE-027736-6); JP = Jeffrey Priest (TE-840619-6); MB = Melissa Busby (TE-0807792-3); MF = Mackenzie Forgey; 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-840619-2).

RESULTS

No Quino were observed during the 2018 focused surveys. In total, 55 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
<i>Hesperiidae – Skippers</i>						
<i>Erynnis afranius</i>	Afranius duskywing	—	X	—	—	—
<i>Erynnis brizo</i>	sleepy duskywing	—	X	—	X	X
<i>Erynnis funeralis</i>	funereal duskywing	X	X	X	X	X
<i>Erynnis propertius</i>	Propertius duskywing	X	X	X	X	X
<i>Hylephila phyleus</i>	fiery skipper	—	X	—	—	—
<i>Pholisora catullus</i>	common sootywing	—	—	—	—	X
	duskywing sp.	—	X	—	—	—
<i>Nymphalidae – Brush-Footed Butterflies</i>						
<i>Adelpha bredowii</i>	California sister	—	—	—	—	X
<i>Chlosyne californica</i>	California patch	—	—	—	—	X

Table 2A
Butterflies Observed on Site Weeks 1–5

Scientific Name	Common Name	Week				
		1	2	3	4	5
<i>Chlosyne gabbii</i>	Gabb's checkerspot	—	—	—	—	—
<i>Coenonympha tullia californica</i>	common California ringlet	X	X	—	—	—
<i>Danaus gilippus</i>	queen	—	—	—	—	—
<i>Euphydryas chalcedona chalcedona</i>	chalcedon variable checkerspot	—	—	—	X	X
<i>Euphydryas chalcedona</i>	variable checkerspot	—	—	—	—	X
<i>Junonia coenia</i>	common buckeye	—	—	—	—	—
<i>Limenitis lorquini</i>	Lorquin's admiral	—	—	—	—	—
<i>Nymphalis antiopa</i>	mourning cloak	—	—	—	—	X
<i>Nymphalis californica</i>	California tortoiseshell	X	X	X	X	X
<i>Phyciodes mylitta</i>	Mylitta crescent	—	—	—	—	X
<i>Vanessa annabella</i>	west coast lady	—	—	—	X	—
<i>Vanessa atalanta</i>	red admiral	—	—	X	—	—
<i>Vanessa cardui</i>	painted lady	X	X	—	—	—
<i>Lycaenidae – Blues and Hairstreaks</i>						
<i>Atalides haesus</i>	great purple hairstreak	—	—	—	—	—
<i>Brephidium exile</i>	western pygmy-blue	—	X	X	—	—
<i>Callophrys augustinus</i>	brown elfin	X	X	X	X	X
<i>Callophrys dumetorum</i>	bramble hairstreak	X	X	X	X	X
<i>Celastrina ladon [argiolus] echo</i>	echo blue	X	X	X	X	X
<i>Euphilotes battoides bernardino</i>	Bernardino square-spotted blue	—	—	—	—	—
<i>Everes amyntula</i>	western tailed-blue	—	—	—	X	—
<i>Glauopsyche lygdamus australis</i>	southern blue	X	X	X	X	X
<i>Hemiargus ceraunus gyas</i>	Edward's blue	—	—	—	—	X
<i>Icaricia acmon acmon</i>	Acmon blue	X	X	X	X	X
<i>Leptotes marina</i>	marine blue	—	—	—	—	—
<i>Lycaeides melissa</i>	Melissa blue	—	—	—	—	—
<i>Lycaena gorgon</i>	Gorgon copper	—	—	—	—	—
<i>Philotes sonorensis</i>	Sonoran blue	—	—	—	—	—
<i>Satyrium saepium</i>	hedgerow hairstreak	—	—	—	—	—
<i>Strymon melinus</i>	gray hairstreak	—	—	—	—	—
	blue sp.	—	—	—	—	—
<i>Papilionidae – Swallowtails</i>						
<i>Papilio eurymedon</i>	pale swallowtail	X	X	X	X	X
<i>Papilio rutulus</i>	western tiger swallowtail	X	X	—	X	—
<i>Papilio zelicaon</i>	anise swallowtail	X	—	X	X	X
<i>Pieridae – Whites and Sulfurs</i>						
<i>Anthocharis cethura</i>	desert orangetip	—	X	X	X	X

Table 2A
Butterflies Observed on Site Weeks 1–5

Scientific Name	Common Name	Week				
		1	2	3	4	5
<i>Anthocharis sara</i>	Pacific Sara orangetip	X	X	X	X	X
<i>Colias eurytheme</i>	orange sulphur	—	—	X	—	X
<i>Colias harfordii</i>	Harford's sulphur	—	—	—	—	—
<i>Copaeodes aurantiacus</i>	orange skipperling	—	—	—	—	—
<i>Euchloe hyantis lotta</i>	desert pearly marble	X	X	X	X	X
<i>Philotes sonorensis</i>	cloudless sulphur	—	—	X	—	X
<i>Pieris rapae</i>	cabbage white	—	—	—	X	—
<i>Pontia protodice</i>	checkered white	X	X	X	—	X
<i>Pontia sisymbrii</i>	spring white	X	X	X	X	X
	sulphur sp.	—	X	—	X	—
	white sp.	—	—	—	—	X
<i>Riodinidae – Metalmarks</i>						
<i>Apodemia virgulti</i>	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
<i>Hesperiidae – Skippers</i>						
<i>Erynnis afranius</i>	Afranius duskywing	—	—	—	—	—
<i>Erynnis brizo</i>	sleepy duskywing	X	—	—	—	—
<i>Erynnis funeralis</i>	funereal duskywing	X	X	X	X	X
<i>Erynnis propertius</i>	Propertius duskywing	X	X	X	X	X
<i>Hylephila phyleus</i>	fiery skipper	—	—	X	—	X
<i>Pholisora catullus</i>	common sootywing	X	X	—	X	—
	duskywing sp.	—	X	—	—	—
<i>Nymphalidae – Brush-Footed Butterflies</i>						
<i>Adelpha bredowii</i>	California sister	—	X	X	X	X
<i>Chlosyne californica</i>	California patch	—	X	X	—	—
<i>Chlosyne gabbii</i>	Gabb's checkerspot	X	X	X	X	X
<i>Coenonympha tullia californica</i>	common California ringlet	—	X	X	—	—
<i>Danaus gilippus</i>	queen	—	—	X	—	—
<i>Euphydryas chalcedona chalcedona</i>	chalcedon variable checkerspot	X	X	X	X	X
<i>Euphydryas chalcedona</i>	variable checkerspot	X	—	X	—	X
<i>Junonia coenia</i>	common buckeye	—	—	X	—	—

Table 2B
Butterflies Observed on Site Weeks 6–10

Scientific Name	Common Name	Week				
		6	7	8	9	10
<i>Limenitis lorquini</i>	Lorquin's admiral	—	X	X	X	—
<i>Nymphalis antiopa</i>	mourning cloak	—	—	—	—	—
<i>Nymphalis californica</i>	California tortoiseshell	X	—	—	—	—
<i>Phyciodes mylitta</i>	Mylitta crescent	—	—	—	—	—
<i>Vanessa annabella</i>	west coast lady	—	—	—	—	—
<i>Vanessa atalanta</i>	red admiral	—	—	—	—	—
<i>Vanessa cardui</i>	painted lady	X	—	X	—	—
<i>Lycaenidae – Blues and Hairstreaks</i>						
<i>Atlides halesus</i>	great purple hairstreak	X	—	—	—	—
<i>Brephidium exile</i>	western pygmy-blue	—	—	—	X	X
<i>Callophrys augustinus</i>	brown elfin	X	X	X	X	X
<i>Callophrys dumetorum</i>	bramble hairstreak	X	X	X	—	—
<i>Celastrina ladon [argiolus] echo</i>	echo blue	X	X	X	—	X
<i>Euphilotes battoides bernardino</i>	Bernardino square-spotted blue	—	—	X	X	X
<i>Everes amyntula</i>	western tailed-blue	X	X	X	X	—
<i>Glaucopsyche lygdamus australis</i>	southern blue	X	—	X	—	—
<i>Hemiargus ceraunus gyas</i>	Edward's blue	v	X	X	X	X
<i>Icaricia acmon acmon</i>	Acmon blue	X	X	X	X	X
<i>Leptotes marina</i>	marine blue	X	X	X	X	X
<i>Lycaeides melissa</i>	Melissa blue	—	—	—	X	X
<i>Lycaena gorgon</i>	Gorgon copper	—	—	—	—	X
<i>Philotes sonorensis</i>	Sonoran blue	—	—	X	—	—
<i>Satyrium saepium</i>	hedgerow hairstreak	—	—	—	X	—
<i>Strymon melinus</i>	gray hairstreak	—	—	—	X	—
	blue sp.	X	—	—	—	—
<i>Papilionidae – Swallowtails</i>						
<i>Papilio eurymedon</i>	pale swallowtail	X	X	X	X	X
<i>Papilio rutulus</i>	western tiger swallowtail	X	—	X	—	—
<i>Papilio zelicaon</i>	anise swallowtail	—	—	X	—	—
<i>Pieridae – Whites and Sulfurs</i>						
<i>Anthocharis cethura</i>	desert orangetip	X	X	—	X	—
<i>Anthocharis sara</i>	Pacific Sara orangetip	X	X	X	X	—
<i>Colias eurytheme</i>	orange sulphur	X	X	X	X	X
<i>Colias harfordii</i>	Harford's sulphur	—	—	X	X	X
<i>Copaeodes aurantiacus</i>	orange skipperling	—	—	—	—	X
<i>Euchloe hyantis lotta</i>	desert pearly marble	X	X	X	X	—
<i>Philotes sonorensis</i>	cloudless sulphur	—	—	X	—	—

Table 2B
Butterflies Observed on Site Weeks 6–10

Scientific Name	Common Name	Week				
		6	7	8	9	10
<i>Pieris rapae</i>	cabbage white	v	X	—	X	—
<i>Pontia protodice</i>	checkered white	X	X	X	—	X
<i>Pontia sisymbrii</i>	spring white	X	X	X	X	—
	sulphur sp.	X	—	—	—	—
	white sp.	X	X	—	—	—
<i>Riodinidae – Metalmarks</i>						
<i>Apodemia virgulti</i>	Behr's metalmark	X	X	X	X	X

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 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
<i>Apiaceae – Carrot Family</i>		
<i>Lomatium dasycarpum</i> ssp. <i>dasycarpum</i>	woolly-fruit lomatium	—
<i>Lomatium utriculatum</i>	common lomatium	—
<i>Asteraceae – Sunflower Family</i>		
<i>Achillea millefolium</i>	common yarrow, milfoil	—
<i>Lasthenia californica</i> or <i>Lasthenia gracilis</i>	common goldfields	X
<i>Lasthenia coronaria</i>	southern goldfields	X
<i>Layia platyglossa</i>	coastal tidytips, common tidytips	—
<i>Boraginaceae – Borage Family</i>		
<i>Amsinckia menziesii</i>	Menzies' fiddleneck, rancher's fireweed	X
<i>Amsinckia menziesii</i> var. <i>intermedia</i>	rancher's fiddleneck	—
<i>Amsinckia menziesii</i> var. <i>menziesii</i>	rigid fiddleneck	—
<i>Cryptantha</i> spp. or <i>Plagiobothrys</i> spp.	popcorn flower	X
<i>Phacelia distans</i>	distant phacelia, wild-heliotrope	—
<i>Fabaceae – Pea Family</i>		
<i>Acmispon</i> (=Lotus) spp.	deerweed, spanishclover, lotus	X
<i>Hydrophyllaceae – Waterleaf Family</i>		
<i>Eriodictyon crassifolium</i> var. <i>crassifolium</i>	thickleaf yerba santa	—
<i>Eriodictyon trichocalyx</i> var. <i>trichocalyx</i>	hairy yerba santa	—

Table 3
Quino Adult Nectar Plants and Larval Food Plants

Scientific Name	Common Name	Observed During Focused Survey
<i>Lamiaceae – Mint Family</i>		
<i>Salvia columbariae</i>	chia	X
<i>Plantaginaceae – Plantain Family</i>		
<i>Antirrhinum coulterianum</i>	Coulter's snapdragon	—
<i>Collinsia</i> sp.	Chinese houses	—
<i>Keckiella antirrhinoides</i> var. <i>antirrhinoides</i>	snapdragon penstemon	—
<i>Keckiella cordifolia</i>	heartleaf keckiella, climbing bush penstemon	—
<i>Plantago erecta</i>	dwarf plantain	—
<i>Plantago patagonica</i>	woolly plantain	—
<i>Polemoniaceae – Phlox Family</i>		
<i>Gilia angelensis</i>	grassland gilia	—
<i>Gilia capitata</i> ssp. <i>abrotanifolia</i>	ball gilia	—
<i>Linanthus</i> spp.	ground pink	X
<i>Polygonaceae – Buckwheat Family</i>		
<i>Eriogonum fasciculatum</i>	California buckwheat	—
<i>Orobanchaceae – Broom-rape Family</i>		
<i>Castilleja exserta</i>	exserted Indian paintbrush, common owl's-clover	—
<i>Scrophulariaceae – Figwort Family</i>		
<i>Cordylanthus rigidus</i> ssp. <i>setiger</i>	stiffbranch bird's beak, dark-tipped bird's-beak	—
<i>Liliaceae – Lily Family</i>		
<i>Allium haematochiton</i>	red-skin onion	—
<i>Allium peninsulare</i>	Mexicali onion, red-flower onion	—
<i>Allium praecox</i>	early onion	—
<i>Dichelostemma capitatum</i>	bluedicks	—
<i>Muilla clevelandii</i>	San Diego goldenstar	—
<i>Muilla maritima</i>	sea muilla, common muilla	—

Sources: 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.

No Quino host plants were observed within the survey areas; however, surveyors did observe some dead *Cordylanthus rigidus* remaining from the previous year's rainfall; however, since only live host plants are mapping during this effort, these locations were not recorded. Surveyors also looked for host plants during the focused surveys and none were observed. Host plants were observed

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within portions of the survey areas during the 2010 Quino host plant mapping effort (AECOM 2010).

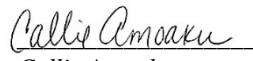
Dudek certifies that the information in this survey report and attached figures and appendices fully and accurately represents the work conducted by the Quino-permitted biologists who conducted this focused survey.

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.

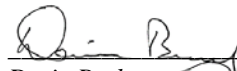
Sincerely,



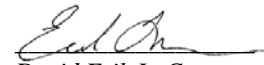
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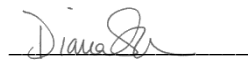
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Darin Busby
Permit #TE-115373-4



David Erik LaCoste
Permit #TE-027736-6



Diana Saucedo
Permit #TE-221287-1



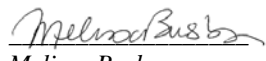
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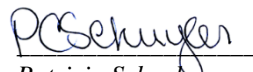
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Margie Mulligan
Permit #TE-88969B-0



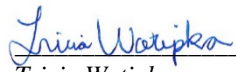
Melissa Busby
Permit #TE-0807792-3



Patricia Schuyler
Permit #TE-27502B-1



Paul Lemons
Permit #TE-051248-5



Tricia Wotipka
Permit #TE-840619-6

Att: *Figure 1, Survey Results – Index*
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Figure 4, Survey Results
Figure 5, Survey Results
Figure 6, Survey Results
Appendix A – List of Wildlife Species Observed during the 2018 Campo Wind Project Quino Survey
Appendix B – 2018 Campo Wind Project Quino Survey Field Notes

CC: *Brock Ortega, Dudek*
Matthew Valerio, Dudek

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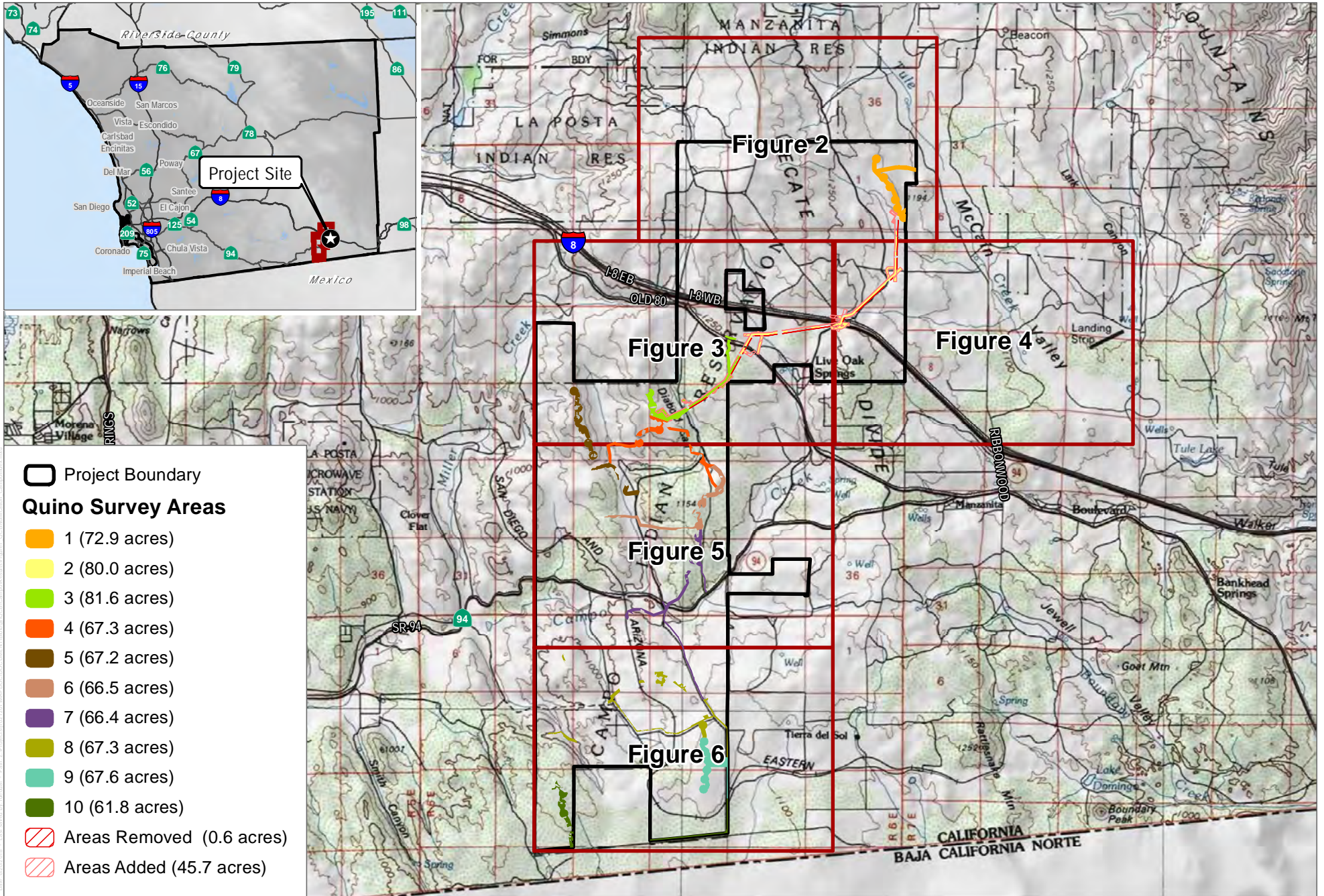
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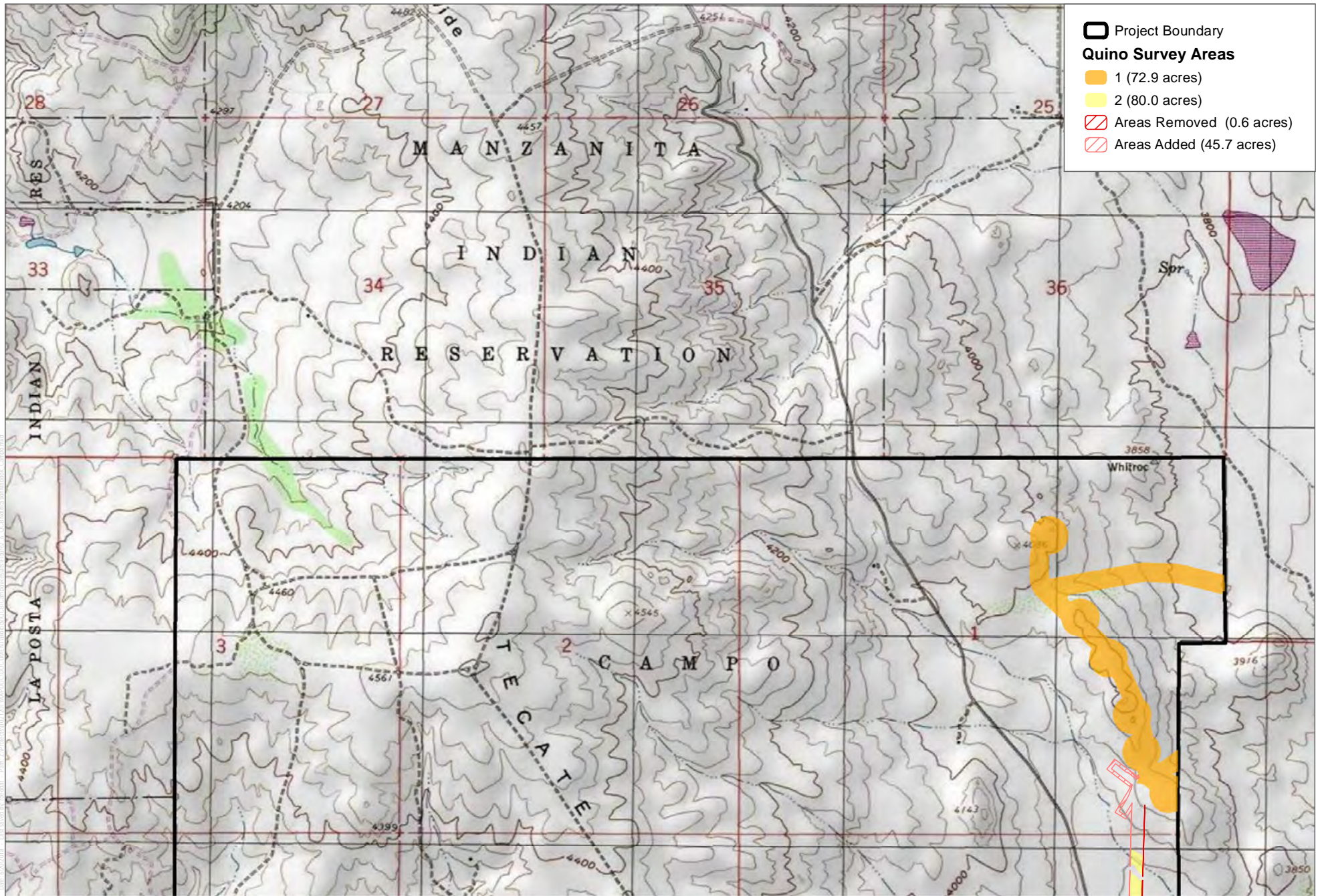
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SOURCE: USGS 2018

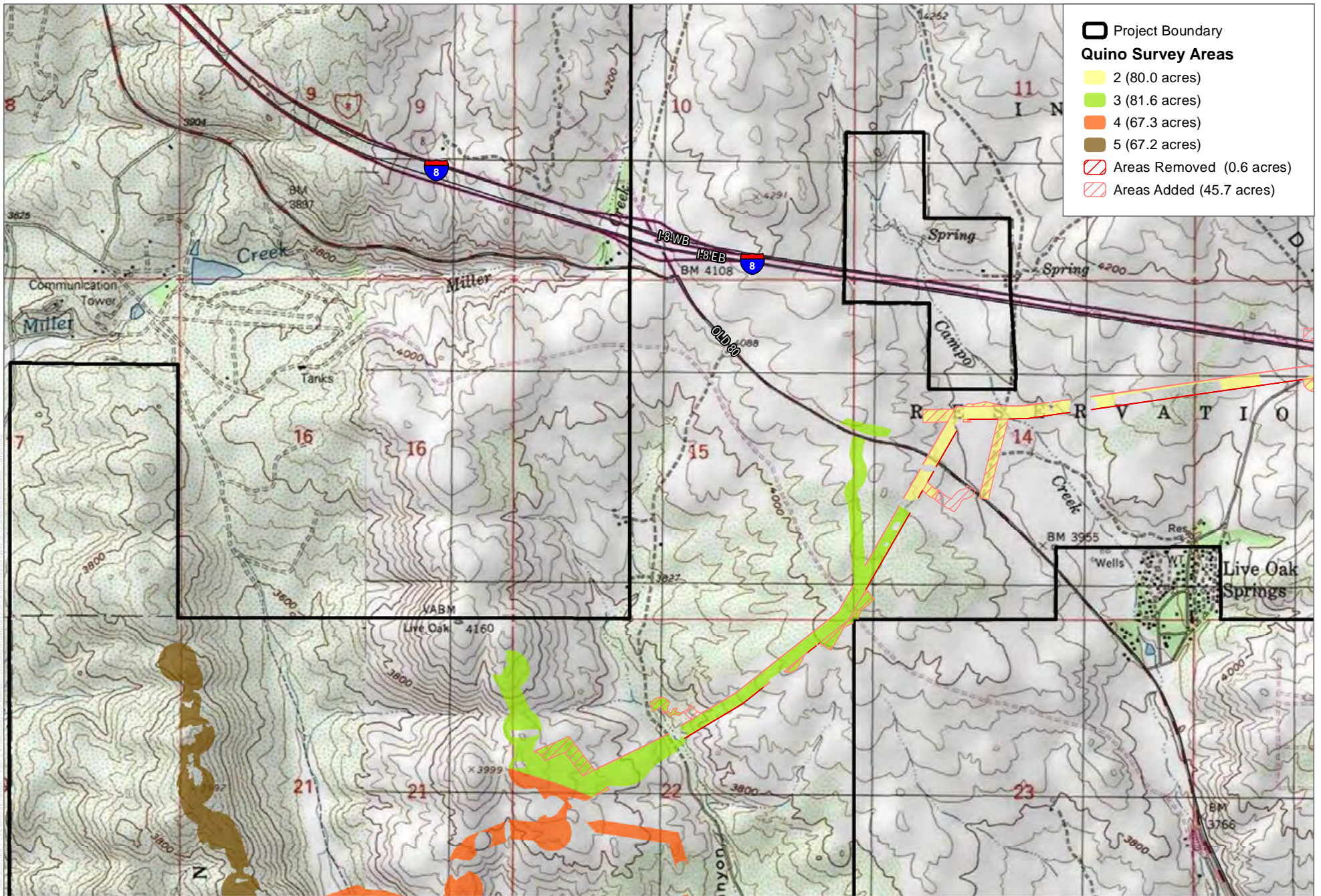


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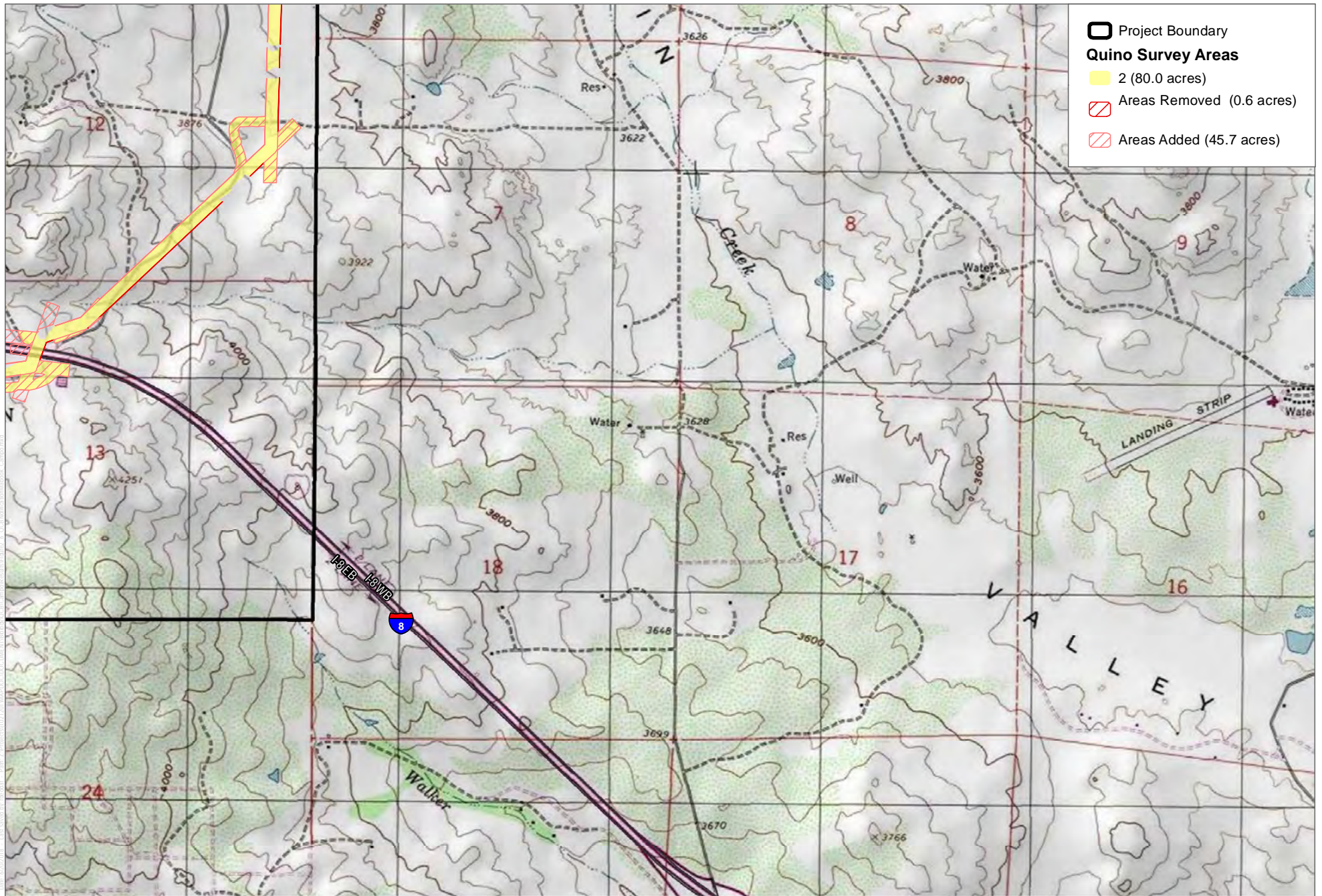


FIGURE 2
Survey Results

Campo Wind Project - Results of 2018 Quino Checkerspot Survey



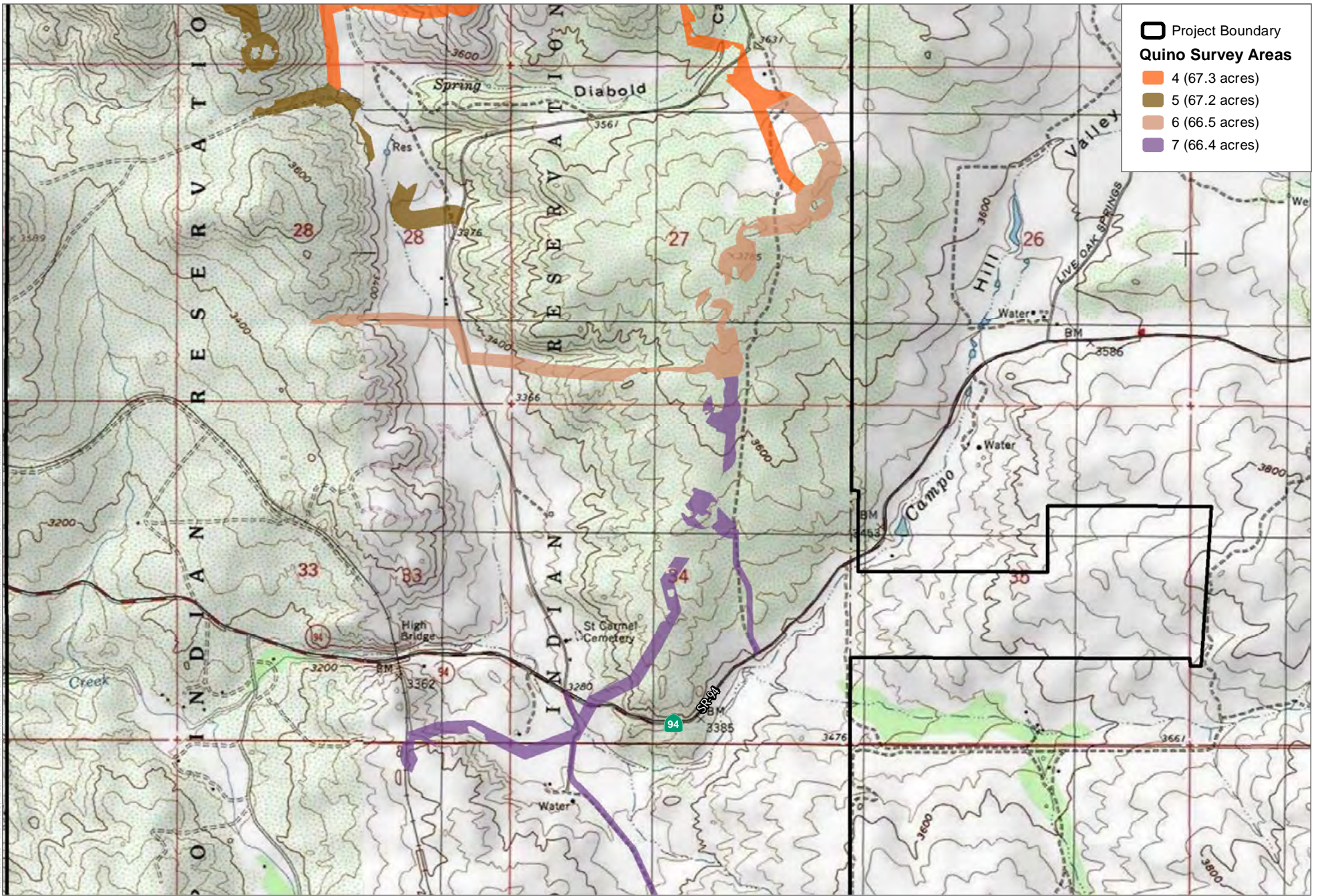
SOURCE: USGS 2018



SOURCE: USGS 2018



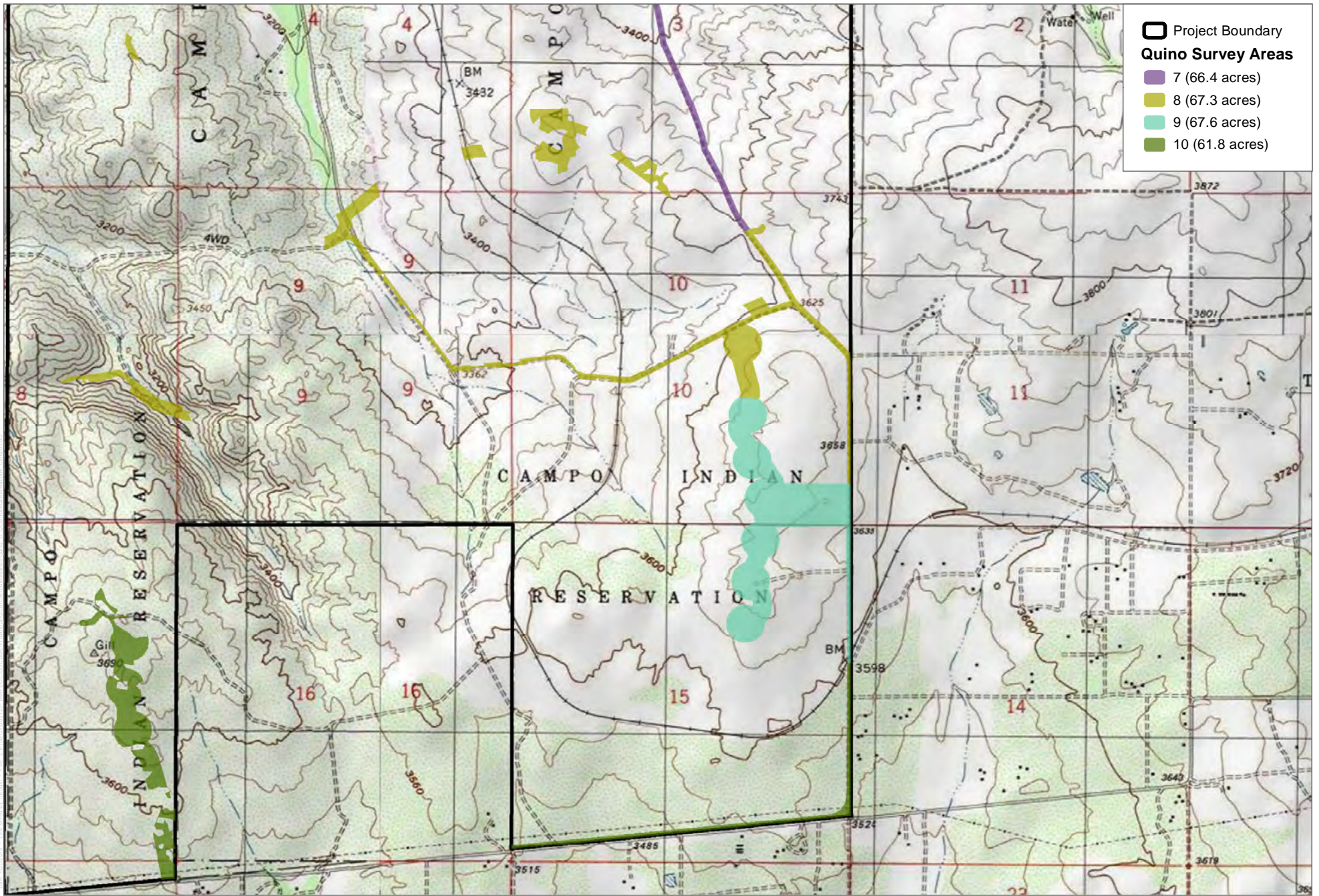
FIGURE 4
Survey Results



SOURCE: USGS 2018



FIGURE 5
Survey Results
Campo Wind Project - Results of 2018 Quino Checkerspot Survey



SOURCE: USGS 2018



FIGURE 6
Survey Results
Campo Wind Project - Results of 2018 Quino Checkerspot Survey

APPENDIX A

*List of Wildlife Species Observed during the 2018
Campo Wind Project Quino Survey*

APPENDIX A
List of Wildlife Species Observed during the 2018
Campo Wind Project Quino Survey

BIRD

BLACKBIRDS, ORIOLES, AND ALLIES

ICTERIDAE—BLACKBIRDS

Agelaius phoeniceus—red-winged blackbird

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

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

Myiarchus cinerascens—ash-throated flycatcher

Sayornis saya—Say's phoebe

Tyrannus verticalis—western kingbird

Tyrannus vociferans—Cassin's kingbird

APPENDIX A (Continued)

GOATSUCKERS

CAPRIMULGIDAE—GOATSUCKERS

Chordeiles acutipennis—lesser nighthawk

HAWKS

ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES

Accipiter cooperii—Cooper’s hawk

Buteo jamaicensis—red-tailed hawk

Circus hudsonius—northern harrier

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

LARKS

ALAUDIDAE—LARKS

Eremophila alpestris—horned lark

MOCKINGBIRDS AND THRASHERS

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Mimus polyglottos—northern mockingbird

Toxostoma redivivum—California thrasher

NEW WORLD QUAIL

ODONTOPHORIDAE—NEW WORLD QUAIL

Callipepla californica—California quail

APPENDIX A (Continued)

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

STRIGIDAE—TYPICAL OWLS

Bubo virginianus—great horned owl

PIGEONS AND DOVES

COLUMBIDAE—PIGEONS AND DOVES

Zenaida macroura—mourning dove

ROADRUNNERS AND CUCKOOS

CUCULIDAE—CUCKOOS, ROADRUNNERS, AND ANIS

Geococcyx californianus—greater roadrunner

SILKY FLYCATCHERS

PTILOGONATIDAE—SILKY-FLYCATCHERS

Phainopepla nitens—phainopepla

SWALLOWS

HIRUNDINIDAE—SWALLOWS

Petrochelidon pyrrhonota—cliff swallow

Stelgidopteryx serripennis—northern rough-winged swallow

APPENDIX A (Continued)

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 huttoni—Hutton's vireo

WOOD WARBLERS AND ALLIES

PARULIDAE—WOOD-WARBLERS

Geothlypis trichas—common yellowthroat

WOODPECKERS

PICIDAE—WOODPECKERS AND ALLIES

Colaptes auratus—northern flicker

Melanerpes formicivorus—acorn woodpecker

Picoides nuttallii—Nuttall's woodpecker

WRENS

TROGLODYTIDAE—WRENS

Catherpes mexicanus—canyon wren

Salpinctes obsoletus—rock wren

Thryomanes bewickii—Bewick's wren

Troglodytes aedon—house wren

APPENDIX A (Continued)

WRENTITS

TIMALIIDAE—BABBLERS

Chamaea fasciata—wrentit

NEW WORLD SPARROWS

PASSERELLIDAE—NEW WORLD SPARROWS

Amphispiza bilineata—black-throated sparrow

Artemisiospiza belli—Bell's sparrow

Artemisiospiza nevadensis—sagebrush sparrow

Melospiza crissalis—California towhee

Pipilo maculatus—spotted towhee

Spizella atrogularis—black-chinned 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—bramble hairstreak

Celastrina ladon [argiolus] echo—echo blue

Euphilotes battoides bernardino—Bernardino square-spotted blue

Everes amyntula—western tailed-blue

Glaucopsyche lygdamus australis—southern blue

Hemiargus ceraunus gyas—Edward's blue

Icaricia acmon acmon—Acmon blue

Leptotes marina—marine blue

Lycaeides melissa—Melissa blue

Lycaena gorgon—Gorgon copper

Philotes sonorensis—Sonoran blue

Satyrium saepium—hedgerow hairstreak

Strymon melinus—gray hairstreak

NYMPHALIDAE—BRUSH-FOOTED BUTTERFLIES

Adelpha bredowii—California sister

APPENDIX A (Continued)

Chlosyne californica—California patch
Chlosyne gabbii—Gabb’s checkerspot
Coenonympha tullia californica—common California ringlet
Danaus gilippus—queen
Euphydryas chalcedona chalcedona—chalcedon variable checkerspot
Euphydryas chalcedona—variable checkerspot
Junonia coenia—common buckeye
Limenitis lorquini—Lorquin’s admiral
Nymphalis antiopa—mourning cloak
Nymphalis californica—California tortoiseshell
Phyciodes mylitta—Mylitta crescent
Vanessa annabella—west coast lady
Vanessa atalanta—red admiral
Vanessa cardui—painted lady

RIODINIDAE—METALMARKS

Apodemia mormo virgulti—Behr’s metalmark

HESPERIIDAE—SKIPPERS

Copaeodes aurantiacus—orange skipperling
Erynnis afranius—Afranius duskywing
Erynnis brizo—sleepy duskywing
Erynnis funeralis—funereal duskywing
Erynnis propertius—Propertius duskywing
Hylephila phyleus—fiery skipper
Pholisora catullus—common sootywing

PAPILIONIDAE—SWALLOWTAILS

Papilio eurymedon—pale swallowtail
Papilio rutulus—western tiger swallowtail
Papilio zelicaon—anise swallowtail

PIERIDAE—WHITES AND SULFURS

Anthocharis cethura—desert orangetip
Anthocharis sara sara—Pacific sara orangetip
Colias eurytheme—orange sulphur
Colias harfordii—Harford’s sulphur
Euchloe hyantis lotta—desert pearly marble
Phoebis sennae—cloudless sulphur
Pieris rapae—cabbage white

APPENDIX A (Continued)

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—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

Spermophilus (Otospermophilus) beecheyi—California ground squirrel

Tamias merriami—Merriam's chipmunk

UNGULATES

CERVIDAE—DEERS

Odocoileus hemionus—mule deer

APPENDIX A (Continued)

REPTILE

LIZARDS

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 skiltonianus—western skink

TEIIDAE—WHIPTAIL LIZARDS

Aspidoscelis tigris stejnegeri—San Diegan tiger whiptail

Aspidoscelis tigris—tiger whiptail

SNAKES

COLUBRIDAE—COLUBRID SNAKES

Pituophis catenifer—gophersnake

Rhinocheilus lecontei—long-nosed snake

BOIDAE—BOAS

Lichanura trivirgata—rosy boa

VIPERIDAE—VIPERS

Crotalus oreganus—western rattlesnake

APPENDIX B

*2018 Campo Wind Project Quino Survey
Field Notes*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-12
Biologist(s)	Margie Mulligan
Survey Area	Tribal 1
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:40:00	63	60	50	2	patchy	
Mid day	11:47:00	70	0	30	5	patchy	
End	16:08:00	73	75	20	5	patchy	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (2)	desert pearly marble (12)	pale swallowtail (2)
brown elfin (1)	echo blue (5)	Propertius duskywing (6)
California tortoiseshell (1)	painted lady (1)	spring white (8)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
<i>Ribes quercetorum</i>		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-13
Biologist(s)	Margie Mulligan
Survey Area	Tribal 2
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:50:00	62	65	100	4		Walked around site
Protocol begins	10:59:00	68	70	100	2		
End	16:05:00	69	69	80	3	overcast	

BUTTERFLY LIST <small>SPECIES (COUNT)</small>		
bramble hairstreak (2)	California tortoiseshell (1)	Pacific sara orangetip (3)
brown elfin (1)	echo blue (1)	spring white (1)

INCIDENTAL WILDLIFE LIST <small>SPECIES (COUNT)</small>		
(none)		

INCIDENTAL PLANT LIST		
<i>Dendromecon rigida</i>	<i>Erodium cicutarium</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-12
Biologist(s)	Erik LaCoste
Survey Area	Tribal 3
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:35:00	58	58	50	5	patchy	
	10:03:00	58	62	40	8	patchy	
	10:37:00	64	64	20	6	patchy	
	13:58:00	75	80	20	3	patchy	
End	15:25:00	73	74	10	4	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behrs metalmark (3)	funereal duskywing (2)	Sara Orangetip (4)
bramble hairstreak (3)	pale swallowtail (1)	southern blue (3)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
sagebrush sparrow (1+)	Spring azure (4)	Spring white (1)

INCIDENTAL PLANT LIST		
<i>(none)</i>		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-13
Biologist(s)	Darin Busby, Melissa Busby
Survey Area	Tribal 4
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	13:10:00	70	70	100	7	overcast	Hazy
End	16:00:00	70	70	100	6	overcast	Hazy

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (5)	brown elfin (3)	Pacific sara orangetip (3)
bramble hairstreak (1)	echo blue (8)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-13
Biologist(s)	Darin Busby, Melissa Busby
Survey Area	Tribal 5
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:15:00	68	68	100	3	overcast	Hazy and sun showing through clouds creating shadows
End	13:10:00	70	70	100	7	overcast	Hazy and sun showing through to create shadows

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (3)	common california ringlet (1)	southern blue (1)
Behr's metalmark (1)	echo blue (7)	western tiger swallowtail (1)
bramble hairstreak (2)	Pacific sara orangetip (4)	
brown elfin (3)	pale swallowtail (1)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-20
Biologist(s)	Paul Lemons
Survey Area	Tribal 6
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:15:00	61	61	10	6	clear	
End	16:30:00	70	69	30	3	patchy	

BUTTERFLY LIST SPECIES (COUNT)		
anise swallowtail (1+)	brown elfin (1+)	Pacific sara orangetip (1+)
Behr's metalmark (1+)	checkered white (1+)	painted lady (1+)
bramble hairstreak (1+)	funereal duskywing (1+)	southern blue (1+)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
oak titmouse (1+)	desert cottontail (1+)	northern flicker (1+)
American crow (1+)	Five-striped sparrow (1+)	red-tailed hawk (1+)
California ground squirrel (1+)	granite spiny lizard (1+)	white-crowned sparrow (1+)
California scrub-jay (1+)	greater roadrunner (1+)	wrentit (1+)
California thrasher (1+)	lesser goldfinch (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-12
Biologist(s)	Jeffrey Priest
Survey Area	Tribal 7
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	13:10:00	72	70	70	5		Protocol conditions at 1310. Area in Valley with limited view of sky and colder temperatures. Spoke with Brock and he confirmed I should stay out to see if it hits protocol conditions before 2pm. Prior conditions: 0911, 90%cc, w 2-6 with gusts 6-8 mph, air 64 F, ground 62 F. 0945, 90%cc, ground 62 F. 1015, 90% cc, ground 62 F. 1045, ground 64 F, 80% cc. 1116, ground 65, 80% cc. 1140, ground 64, 80%cc. 1207, ground 66, 70%cc. 1239, ground 66, 80%cc. 1256, ground 66, 90%cc / haze. Protocol conditions: 1310, ground 70F, air 72F, 70%cc, w 1-5 mph.
End	16:30:00	70	68	40	6		

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (6)	funereal duskywing (8)	southern blue (2)
Behr's metalmark (1)	Pacific sara orangetip (12)	
bramble hairstreak (2)	painted lady (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
acorn woodpecker (1+)	California scrub-jay (1+)	lesser goldfinch (1+)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
American crow (1+)	California thrasher (1+)	mourning dove (1+)
American kestrel (1+)	California towhee (1+)	phainopepla (1+)
Anna's hummingbird (1+)	common raven (1+)	spotted towhee (1+)
Bewick's wren (1+)	common side-blotched lizard (1+)	western meadowlark (1+)
Botta's pocket gopher (1+)	coyote (1+)	white-crowned sparrow (1+)
brush rabbit (1+)	granite spiny lizard (1+)	wrentit (1+)
bushtit (1+)	greater roadrunner (1+)	
California ground squirrel (1+)	house finch (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-13
Biologist(s)	Jeffrey Priest
Survey Area	Tribal 7
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	13:00:00	70	74	100	8	overcast	
End	17:00:00	67	70	100	7	overcast	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (1)	brown elfin (1)	Pacific sara orangetip (10)
Behr's metalmark (7)	funereal duskywing (6)	southern blue (1)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
bobcat (1+)	common side-blotched lizard (1+)	red-tailed hawk (1+)
brush rabbit (1+)	granite spiny lizard (1+)	Say's phoebe (1+)
bushtit (1+)	greater roadrunner (1+)	Woodrat sp. (midden) (1+)
California thrasher (1+)	lesser goldfinch (1+)	
common raven (1+)	northern flicker (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-12
Biologist(s)	Melissa Busby
Survey Area	Tribal 8
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:30:00	62	65	60	2	patchy	
End	15:50:00	73	75	10	3	patchy	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (6)	brown elfin (4)	Proterpius duskywing (1+)
Behr's metalmark (2)	funereal duskywing (5)	southern blue (6)
bramble hairstreak (9)	Pacific sara orangetip (11)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-19
Biologist(s)	Darin Busby, Diana Saucedo
Survey Area	Tribal 9
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:15:00	60	60	20	10	clear	
End	13:00:00	66	66	10	8	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
ACBL (1)	brown elfin (3)	funereal duskywing (1)
Behr's metalmark (3)	echo blue (2)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
PSOR (1)		

INCIDENTAL PLANT LIST		
<i>Erodium sp.</i>	<i>Ceanothus sp.</i>	
<i>Rhus ovata</i>	<i>Xylococcus bicolor</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-13
Biologist(s)	Erik LaCoste
Survey Area	Tribal 10
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:59:00	66	63	100	1	overcast	
	10:30:00	66	66	100	1	overcast	
	11:30:00	67	74	100	1	overcast	
	12:27:00	70	75	100	4	overcast	
	13:48:00	72	73	80	6	overcast	
End	15:33:00	67	69	70	6	overcast	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
bramble hairstreak (3)	echo blue (3)	pale swallowtail (2)
brown elfin (4)	painter lady (2)	Saras orangetip (1)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-19
Biologist(s)	Darin Busby, Diana Saucedo
Survey Area	Tribal 10
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	13:15:00	66	66	10	8	clear	Surveyed a small portion of survey area 10, including the north-south running road in eastern portion of survey area.
End	16:00:00	66	66	10	8	patchy	Hazy

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
<i>Arctostaphylos sp.</i>	<i>Ceanothus sp.</i>	<i>Erodium sp.</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-20
Biologist(s)	Margie Mulligan
Survey Area	Tribal 1, Tribal 2
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:40:00	63	65	0	2	clear	
	13:59:00	70	70	20	4	patchy	
End	16:07:00	70	73	40	2	patchy	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (1)	California tortoiseshell (1)	Pacific sara orangetip (2)
Behr's metalmark (3)	desert pearly marble (5)	pale swallowtail (1)
bramble hairstreak (4)	echo blue (4)	Propertius duskywing (3)
brown elfin (3)	funereal duskywing (2)	spring white (1)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
Sulfur (1)		

INCIDENTAL PLANT LIST		
<i>Lasthenia gracilis</i>		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-20
Biologist(s)	Erik LaCoste
Survey Area	Tribal 1, Tribal 2
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:40:00	65	0	0	2	clear	
Mid day	13:56:00	70	75	20	4	patchy	
End	16:08:00	73	81	30	3	patchy	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (1)	California tortoiseshell (1)	pale swallowtail (1)
Behr's metalmark (5)	desert pearly marble (3)	Propertius duskywing (2)
bramble hairstreak (4)	echo blue (3)	Sara orangetip (2)
brown elfin (3)	funereal duskywing (1)	spring white (1)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-20
Biologist(s)	Darin Busby, Melissa Busby
Survey Area	Tribal 3
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:30:00	62	64	0	6	clear	
End	13:00:00	74	78	20	6	patchy	

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (6)	common california ringlet (1)	pale swallowtail (1)
Blue sp. (4)	desert pearly marble (3)	Propertius duskywing (1)
bramble hairstreak (8)	fiery skipper (2)	western tiger swallowtail (1)
brown elfin (3)	Pacific sara orangetip (4)	White sp. (2)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
Moth sp. (2)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-20
Biologist(s)	Darin Busby, Melissa Busby
Survey Area	Tribal 4
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	13:00:00	74	78	20	6	patchy	
End	16:15:00	70	72	20	5	patchy	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (13)	common california ringlet (4)	Pacific sara orangetip (4)
Behr's metalmark (3)	desert pearly marble (2)	western pygmy-blue (2)
bramble hairstreak (2)	echo blue (1)	White sp. (3)
brown elfin (4)	funereal duskywing (3)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
Duskywing sp. (3)		

INCIDENTAL PLANT LIST		
<i>Arctostaphylos sp.</i>	<i>Erodium sp.</i>	
<i>Ceanothus sp.</i>	<i>Ceanothus leucodermis</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-21
Biologist(s)	Margie Mulligan
Survey Area	Tribal 5
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:30:00	67	67	60	2	patchy	
	10:59:00	70	0	50	4	patchy	
End	15:48:00	71	0	40	4	patchy	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (2)	brown elfin (1)	Pacific sara orangetip (3)
Behr's metalmark (12)	desert pearly marble (4)	pale swallowtail (7)
bramble hairstreak (5)	echo blue (11)	Propertius duskywing (4)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-28
Biologist(s)	Jeffrey Priest
Survey Area	Tribal 6
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:37:00	66	65	0	5		
End	13:35:00	72	70	0	12		

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (2)	California tortoiseshell (1)	Pacific sara orangetip (16)
Behr's metalmark (13)	desert orangetip (1)	pale swallowtail (1)
bramble hairstreak (8)	desert pearly marble (2)	spring white (2)
brown elfin (2)	funereal duskywing (4)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
northern harrier (1+)	California scrub-jay (1+)	lesser goldfinch (1+)
American crow (1+)	California towhee (1+)	mule deer (1+)
Bewick's wren (1+)	common raven (1+)	Neotoma sp. (midden) (1+)
Botta's pocket gopher (1+)	common side-blotched lizard (1+)	phainopepla (1+)
brush rabbit (1+)	coyote (1+)	red-tailed hawk (1+)
bushtit (1+)	granite spiny lizard (1+)	spotted towhee (1+)
California ground squirrel (1+)	greater roadrunner (1+)	turkey vulture (1+)
California quail (1+)	house finch (1+)	western meadowlark (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-20
Biologist(s)	Jeffrey Priest
Survey Area	Tribal 7
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:20:00	64	60	0	4	clear	5% cloud cover
End	14:00:00	74	76	50	5		

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (6)	desert pearly marble (1)	pale swallowtail (1)
Behr's metalmark (11)	funereal duskywing (7)	southern blue (3)
bramble hairstreak (7)	Pacific sara orangetip (12)	western bluebird (1+)
checkered white (1)	painted lady (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
acorn woodpecker (1+)	California quail (1+)	coyote (1+)
American crow (1+)	California scrub-jay (1+)	granite spiny lizard (1+)
American kestrel (1+)	California thrasher (1+)	red-tailed hawk (1+)
Botta's pocket gopher (1+)	California towhee (1+)	western fence lizard (1+)
brush rabbit (1+)	common raven (1+)	western meadowlark (1+)
bushtit (1+)	common side-blotched lizard (1+)	Woodrat sp. (midden) (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-20
Biologist(s)	Jeffrey Priest
Survey Area	Tribal 8
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	14:00:00	74	76	50	5		
End	16:00:00	72	72	50	6		

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (3)	funereal duskywing (2)	
California tortoiseshell (2)	Pacific sara orangetip (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
Lawrence's goldfinch (1+)	red-tailed hawk (1+)	Say's phoebe (1+)

INCIDENTAL PLANT LIST		
<i>(none)</i>		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-21
Biologist(s)	Jeffrey Priest
Survey Area	Tribal 8
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:30:00	72	70	90	5		Did not reach protocol temperatures until 1030. Conditions: 0930, 62 F ground, 75% cc. 0956, ground 62 F, air 67, 75% cc. 1017, 66 F ground, 75% cc.
End	15:15:00	76	78	80	8		

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (6)	checkered white (2)	Pacific sara orangetip (9)
Behr's metalmark (12)	desert pearly marble (5)	painted lady (1)
bramble hairstreak (8)	funereal duskywing (4)	southern blue (2)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
Blainville's horned lizard (1+)	California scrub-jay (1+)	Neotoma sp. (midden) (1+)
acorn woodpecker (1+)	California towhee (1+)	northern flicker (1+)
American crow (1+)	common raven (1+)	red-tailed hawk (1+)
Anna's hummingbird (1+)	common side-blotched lizard (1+)	rock wren (1+)
Botta's pocket gopher (1+)	coyote (1+)	spotted towhee (1+)
brush rabbit (1+)	greater roadrunner (1+)	turkey vulture (1+)
bushtit (1+)	house finch (1+)	wrentit (1+)
California ground squirrel (1+)	lesser goldfinch (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-21
Biologist(s)	Diana Saucedo
Survey Area	Tribal 9
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:35:00	64	62.2	20	5	patchy	High haze
End	16:35:00	73	73	40	5	patchy	High thin clouds

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (2)	California tortoiseshell (5)	Pacific sara orangetip (3)
Behr's metalmark (5)	desert pearly marble (1)	sleepy duskywing (1)
bramble hairstreak (7)	funereal duskywing (11)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-20
Biologist(s)	Diana Saucedo
Survey Area	Tribal 10
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:50:00	66	63	0	2	clear	
End	15:15:00	76	74	40	8	patchy	
End	15:40:00	76	74	40	9	patchy	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (5)	bramble hairstreak (3)	funereal duskywing (7)
Afranius duskywing (3)	brown elfin (7)	Pacific sara orangetip (3)
Behr's metalmark (3)	echo blue (5)	pale swallowtail (2)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-28
Biologist(s)	Erik LaCoste, Melissa Busby
Survey Area	Tribal 1, Tribal 2
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:20:00	65	65	0	2	clear	
	12:01:00	66	0	0	10	clear	
End	16:15:00	68	0	0	11	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (2)	desert pearly marble (5)	pale swallowtail (2)
Behr's metalmark (6)	echo blue (5)	Propertius duskywing (8)
bramble hairstreak (14)	funereal duskywing (1)	spring white (6)
brown elfin (4)	Pacific sara orangetip (13)	western pygmy-blue (1)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-29
Biologist(s)	Erik LaCoste
Survey Area	Tribal 3, Tribal 4
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:46:00	67	0	0	3	clear	
End	15:50:00	75	0	0	3	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (6)	California tortoiseshell (1)	pale swallowtail (3)
Behr's metalmark (2)	desert pearly marble (8)	Propertius duskywing (6)
bramble hairstreak (4)	echo blue (1)	spring white (2)
brown elfin (3)	Pacific sara orangetip (11)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-29
Biologist(s)	Diana Saucedo, Erik LaCoste
Survey Area	Tribal 3, Tribal 4
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:45:00	67	65	0	3	clear	
End	15:50:00	75	70	0	3	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (3)	California tortoiseshell (1)	Pacific sara orangetip (12)
Behr's metalmark (10)	cloudless sulphur (1)	pale swallowtail (3)
bramble hairstreak (5)	desert pearly marble (3)	Propertius duskywing (3)
brown elfin (2)	echo blue (2)	spring white (1)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-29
Biologist(s)	Margie Mulligan
Survey Area	Tribal 5
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:20:00	72	72	0	3	clear	
End	16:10:00	78	82	0	4	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (4)	desert pearly marble (4)	Propertius duskywing (8)
Behr's metalmark (12)	echo blue (9)	spring white (12)
bramble hairstreak (9)	Pacific sara orangetip (9)	
brown elfin (6)	pale swallowtail (11)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Caulanthus simulans</i>	<i>Ceanothus cuneatus var. cuneatus</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-28
Biologist(s)	Diana Saucedo
Survey Area	Tribal 6
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:45:00	66	65	0	5	clear	
End	13:30:00	72	70	0	12	clear	

BUTTERFLY LIST SPECIES (COUNT)		
anise swallowtail (3)	California tortoiseshell (3)	Pacific sara orangetip (11)
Behr's metalmark (10)	desert orangetip (3)	pale swallowtail (1)
bramble hairstreak (17)	echo blue (2)	Propertius duskywing (7)
brown elfin (6)	funereal duskywing (8)	spring white (2)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-30
Biologist(s)	Jeffrey Priest
Survey Area	Tribal 6
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:40:00	74	68	0	8		
End	16:00:00	82	82	70	12		

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (1+)	desert orangetip (1+)	Pacific sara orangetip (15)
anise swallowtail (1+)	desert pearly marble (11)	pale swallowtail (1)
Behr's metalmark (8)	funereal duskywing (1+)	southern blue (1+)
bramble hairstreak (7)	orange sulphur (1+)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
Blainville's horned lizard (1+)	California ground squirrel (1+)	house finch (1+)
American crow (1+)	California quail (1+)	mourning dove (1+)
Anna's hummingbird (1+)	California scrub-jay (1+)	mule deer (1+)
Bewick's wren (1+)	California towhee (1+)	red-tailed hawk (1+)
black-tailed jackrabbit (1+)	common raven (1+)	spotted towhee (1+)
Botta's pocket gopher (1+)	common side-blotched lizard (1+)	turkey vulture (1+)
brush rabbit (1+)	granite spiny lizard (1+)	western meadowlark (1+)
bustitit (1+)	greater roadrunner (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-30
Biologist(s)	Diana Saucedo
Survey Area	Tribal 7
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:30:00	71	0	0	3	clear	
End	16:00:00	78	0	0	8	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (8)	desert pearly marble (2)	Propertius duskywing (1)
Behr's metalmark (27)	echo blue (1)	red admiral (1)
bramble hairstreak (3)	funereal duskywing (3)	spring white (7)
California tortoiseshell (3)	Pacific sara orangetip (39)	
desert orangetip (6)	pale swallowtail (3)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
<i>Amsinckia intermedia</i>	<i>Nemophila menziesii</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-30
Biologist(s)	Margie Mulligan
Survey Area	Tribal 8
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:28:00	83	82	0	3	clear	
End	15:22:00	84	87	70	4	overcast	

BUTTERFLY LIST <small>SPECIES (COUNT)</small>		
Acmon blue (2)	California tortoiseshell (1)	pale swallowtail (1)
Behr's metalmark (23)	desert orangetip (20)	Propertius duskywing (5)
bramble hairstreak (14)	desert pearly marble (14)	southern blue (1)
brown elfin (3)	Pacific sara orangetip (22)	spring white (2)

INCIDENTAL WILDLIFE LIST <small>SPECIES (COUNT)</small>		
(none)		

INCIDENTAL PLANT LIST		
<i>Amsinckia intermedia</i>		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-30
Biologist(s)	Margie Mulligan
Survey Area	Tribal 8
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:28:00	83	82	0	3	clear	
End	15:22:00	84	87	70	4	overcast	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (2)	California tortoiseshell (1)	pale swallowtail (1)
Behr's metalmark (23)	desert orangetip (20)	Propertius duskywing (5)
bramble hairstreak (14)	desert pearly marble (14)	southern blue (1)
brown elfin (3)	Pacific sara orangetip (22)	spring white (2)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Pectocarya sp.</i>	<i>Amsinckia intermedia</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-28
Biologist(s)	Callie Amoaku
Survey Area	Tribal 9
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:07:00	63	65	0	0	clear	
2	11:11:00	66	69	0	4	clear	
2	12:50:00	70	72	0	3	clear	
3	15:03:00	68	71	0	5	clear	
End	15:53:00	68	71	0	2	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (2)	California tortoiseshell (5)	Pacific sara orangetip (24)
Behr's metalmark (17)	checkered white (1)	southern blue (2)
bramble hairstreak (4)	desert pearly marble (2)	White sp. (1+)
brown elfin (1)	funereal duskywing (4)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
American kestrel (1+)	California quail (1+)	spotted towhee (1+)
Bell's sparrow (1+)	California scrub-jay (1+)	turkey vulture (1+)
black-tailed jackrabbit (1+)	California towhee (1+)	white-crowned sparrow (1+)
bobcat (1+)	common raven (1+)	wrentit (1+)
bushy (1+)	northern flicker (1+)	
California ground squirrel (1+)	northern rough-winged swallow (1+)	

INCIDENTAL PLANT LIST		
<i>(none)</i>		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-03-29
Biologist(s)	Jeffrey Priest
Survey Area	Tribal 10
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:15:00	68	66	0	1		
End	15:30:00	77	78	0	8		

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (2)	California tortoiseshell (1)	funereal duskywing (1)
Behr's metalmark (5)	checkered white (7)	Pacific sara orangetip (13)
bramble hairstreak (4)	desert orangetip (4)	spring white (1)
brown elfin (1)	desert pearly marble (10)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
acorn woodpecker (1+)	California scrub-jay (1+)	house finch (1+)
American crow (1+)	California towhee (1+)	lesser goldfinch (1+)
bobcat (1+)	common raven (1+)	mourning dove (1+)
Botta's pocket gopher (1+)	common side-blotched lizard (1+)	mule deer (1+)
brush rabbit (1+)	coyote (1+)	phainopepla (1+)
bushtit (1+)	gophersnake (1+)	red-tailed hawk (1+)
California ground squirrel (1+)	granite spiny lizard (1+)	western kingbird (1+)
California quail (1+)	greater roadrunner (1+)	white-crowned sparrow (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-04
Biologist(s)	Margie Mulligan
Survey Area	Tribal 1, Tribal 2
Survey Pass	4

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:30:00	73	74	50	1	patchy	
Mid	12:46:00	73	0	30	10	patchy	
End	16:16:00	78	79	10	4	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (5)	desert pearly marble (16)	Propertius duskywing (6)
Behr's metalmark (14)	echo blue (4)	spring white (1)
bramble hairstreak (4)	Pacific sara orangetip (8)	western tailed-blue (1)
brown elfin (6)	pale swallowtail (1)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
<i>Cryptantha sp.</i>	<i>Lasthenia gracilis</i>	<i>Senecio californicus</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-04
Biologist(s)	Erik LaCoste
Survey Area	Tribal 1, Tribal 2
Survey Pass	4

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:30:00	73	74	50	1	patchy	
Mid.	12:46:00	73	73	30	10	patchy	
End	16:15:00	79	79	10	4	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (6)	desert pearly marble (14)	southern blue (1)
Behr's metalmark (12)	Pacific sara orangetip (6)	spring white (1)
bramble hairstreak (4)	pale swallowtail (1)	western tailed-blue (1)
brown elfin (6)	Propertius duskywing (2)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-03
Biologist(s)	Diana Saucedo
Survey Area	Tribal 3, Tribal 4
Survey Pass	4

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:30:00	62	62	0	4	clear	
End	16:00:00	78	78	10	1	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (2)	desert orangetip (6)	Propertius duskywing (5)
Behr's metalmark (16)	desert pearly marble (9)	sleepy duskywing (1)
bramble hairstreak (6)	funereal duskywing (3)	southern blue (3)
brown elfin (2)	Pacific sara orangetip (11)	spring white (8)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Ceanothus leucodermis</i>	<i>Erodium cicutarium</i>	<i>Plagiobothrys collinus</i>
<i>Ceanothus perplexans</i>	<i>Eschscholzia californica</i>	
<i>Descurainia pinnata</i>	<i>Nemophila menziesii</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-03
Biologist(s)	Erik LaCoste
Survey Area	Tribal 3, Tribal 4
Survey Pass	4

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:30:00	62	62	0	4	clear	
End	16:00:00	78	78	10	2	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (3)	desert pearly marble (15)	Southern blue (1)
Behrs metalmark (24)	Pacific sara orangetip (16)	spring white (2)
bramble hairstreak (5)	pale swallowtail (1)	
brown elfin (1)	Propertius duskywing (5)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-05
Biologist(s)	Margie Mulligan
Survey Area	Tribal 3, Tribal 9
Survey Pass	4

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:13:00	64	65	10	8	clear	
End	16:05:00	73.5	74	20	5	patchy	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (1)	Chalcedon variable checkerspot (1)	Pacific sara orangetip (16)
Behr's metalmark (25)	desert pearly marble (12)	Propertius duskywing (9)
bramble hairstreak (6)	echo blue (1)	spring white (7)
brown elfin (4)	funereal duskywing (2)	western tiger swallowtail (1)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
Colias sp. (2)		

INCIDENTAL PLANT LIST		
<i>Cryptantha</i> sp.	<i>Amsinckia menziesii</i>	
<i>Pectocarya</i> sp.	<i>Lasthenia gracilis</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-04
Biologist(s)	Diana Saucedo
Survey Area	Tribal 5
Survey Pass	4

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:20:00	73	71.1	10	2	clear	
End	16:00:00	83	0	10	5	patchy	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (17)	desert orangetip (4)	Pacific sara orangetip (21)
Behr's metalmark (33)	desert pearly marble (9)	pale swallowtail (11)
bramble hairstreak (8)	echo blue (3)	spring white (18)
brown elfin (1)	funereal duskywing (9)	west coast lady (1)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Amsinckia menziesii</i>	<i>Ephedra californica</i>	<i>Nemophila menziesii</i>
<i>Ceanothus leucodermis</i>	<i>Erodium cicutarium</i>	<i>Solanum douglasii</i>
<i>Ceanothus perplexans</i>	<i>Eschscholzia californica</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-03
Biologist(s)	Jeffrey Priest
Survey Area	Tribal 6
Survey Pass	4

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	11:00:00	70	72	30	12		
End	17:45:00	68	68	30	8		

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (8)	brown elfin (1)	Pacific sara orangetip (17)
anise swallowtail (1)	desert orangetip (4)	pale swallowtail (1)
Behr's metalmark (8)	desert pearly marble (1)	Propertius duskywing (4)
bramble hairstreak (7)	funereal duskywing (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
rufous hummingbird (1+)	California towhee (1+)	mule deer (1+)
American crow (1+)	Cassin's kingbird (1+)	Neotoma sp. (midden) (1+)
Bewick's wren (1+)	common raven (1+)	red-tailed hawk (1+)
Botta's pocket gopher (1+)	common side-blotched lizard (1+)	turkey vulture (1+)
bushtit (1+)	coyote (1+)	western meadowlark (1+)
California quail (1+)	granite spiny lizard (1+)	
California scrub-jay (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-04
Biologist(s)	Jeffrey Priest
Survey Area	Tribal 7
Survey Pass	4

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:15:00	68	64	30	4		
End	16:15:00	74	76	10	9		

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (5)	brown elfin (5)	Pacific sara orangetip (23)
Behr's metalmark (19)	desert orangetip (7)	Propertius duskywing (1)
bramble hairstreak (6)	funereal duskywing (1)	spring white (4)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
American crow (1+)	common raven (1+)	northern flicker (1+)
Botta's pocket gopher (1+)	common side-blotched lizard (1+)	red-tailed hawk (1+)
brush rabbit (1+)	coyote (1+)	spotted towhee (1+)
bushtit (1+)	K-rat sp. (burrows amd tail-drag sign) (1+)	western meadowlark (1+)
California ground squirrel (1+)	lesser goldfinch (1+)	
California towhee (1+)	Neotoma sp. (midden) (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-16
Biologist(s)	Darin Busby, Melissa Busby
Survey Area	Tribal 8
Survey Pass	4

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:30:00	54	62	20	18	patchy	Hazy skies; average wind = 11mph
End	13:10:00	66	66	20	19	patchy	Hazy skies; average wind = 16mph

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (14)	desert pearly marble (3)	Propertius duskywing (1)
Behr's metalmark (22)	Orangetip sp. (1)	Sulphur sp. (2)
bramble hairstreak (1)	Pacific sara orangetip (7)	
Chalcedon variable checkerspot (45)	pale swallowtail (6)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-02
Biologist(s)	Darin Busby, Erik LaCoste
Survey Area	Tribal 9, Tribal 10
Survey Pass	4

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:40:00	56	61	10	8	clear	
Mid	11:09:00	62	62	10	9	clear	
Mid. Start area 10	13:00:00	67	67	0	12	clear	
End	16:00:00	67	69	10	14	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
anise swallowtail (1)	cabbage white (1)	Pacific sara orangetip (36)
Behr's metalmark (10)	California tortoiseshell (1)	Propertius duskywing (11)
bramble hairstreak (13)	desert pearly marble (19)	
brown elfin (1)	funereal duskywing (1)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
Spring white (1)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-23
Biologist(s)	Diana Saucedo
Survey Area	Tribal 1
Survey Pass	5

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:05:00	73	73	0	1	clear	
End	16:20:00	85	87	50	7	patchy	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (4)	desert orangetip (7)	Pacific sara orangetip (3)
Behr's metalmark (22)	desert pearly marble (6)	pale swallowtail (4)
bramble hairstreak (2)	funereal duskywing (5)	Propertius duskywing (1)
brown elfin (2)	mourning cloak (1)	spring white (7)
checkered white (10)	orange sulphur (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Amsinckia intermedia</i>	<i>Gilia capitata ssp. abrotanifolia</i>	<i>Linanthus bellus</i>
<i>Ceanothus perplexans</i>	<i>Lasthenia gracilis</i>	<i>Nemophila menziesii</i>
<i>Ericameria linearifolia</i>	<i>Leptosiphon lemmonii</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-09
Biologist(s)	Darin Busby
Survey Area	Tribal 2
Survey Pass	5

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:30:00	71	68	0	12	clear	
Weather check	11:30:00	76	78	0	14	clear	
End	16:00:00	82	82	0	10	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (5)	desert orangetip (12)	spring white (10)
Behr's metalmark (26)	desert pearly marble (11)	Sulphur sp. (1)
Blue sp. (1)	Mylitta crescent (2)	White sp. (9)
brown elfin (4)	Pacific sara orangetip (24)	
California patch (1)	Propertius duskywing (3)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
Duskywing sp. (4)		

INCIDENTAL PLANT LIST		
<i>Arctostaphylos sp.</i>	<i>Boechna perennans</i>	<i>Lasthenia gracilis</i>
<i>Cryptantha sp.</i>	<i>Ceanothus leucodermis</i>	<i>Layia glandulosa</i>
<i>Ericameria sp.</i>	<i>Ceanothus perplexans</i>	<i>Phacelia parryi</i>
<i>Erodium sp.</i>	<i>Dendromecon rigida</i>	<i>Trichostema lanatum</i>
<i>Penstemon sp.</i>	<i>Eschscholzia californica</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-10
Biologist(s)	Diana Saucedo
Survey Area	Tribal 3
Survey Pass	5

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:30:00	70	0	0	2	clear	
End	16:30:00	83	0	0	16	clear	High winds beginning

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (10)	desert pearly marble (30)	sleepy duskywing (5)
Behr's metalmark (51)	funereal duskywing (16)	spring white (9)
bramble hairstreak (10)	Pacific sara orangetip (53)	
desert orangetip (8)	pale swallowtail (3)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Cryptantha spp</i>	<i>Amsinckia intermedia</i>	<i>Nemophila menziesii</i>
<i>Plagiobotrys spp</i>	<i>Lasthenia gracilis</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-18
Biologist(s)	Erin Bergman
Survey Area	Tribal 4
Survey Pass	5

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:30:00	67	67.5	0	2	clear	
Temp check	10:16:00	74	75	0	1	clear	
End	16:24:00	72	73	0	1	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (5)	Pacific sara orangetip (7)	White species (7)
Behr's metalmark (23)	pale swallowtail (1)	
desert pearly marble (3)	spring white (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
Bewick's wren (1+)	California towhee (1+)	turkey vulture (1+)
California quail (1+)	common raven (1+)	western meadowlark (1+)
California scrub-jay (1+)	mourning dove (1+)	white-crowned sparrow (1+)
California thrasher (1+)	red-tailed hawk (1+)	

INCIDENTAL PLANT LIST		
<i>Cryptantha species</i>	<i>Eulobus californicus</i>	<i>Penstemon centranthifolius</i>
<i>Amsinckia intermedia</i>	<i>Lasthenia gracilis</i>	<i>Phacelia parryi</i>
<i>Camissoniopsis confusa</i>	<i>Leptosyne californica</i>	<i>Salvia columbariae</i>
<i>Ceanothus leucodermis</i>	<i>Lupinus bicolor</i>	<i>Sisymbrium altissimum</i>
<i>Chaenactis glabriuscula</i> var. <i>glabriuscula</i>	<i>Nemophila menziesii</i>	
<i>Erodium cicutarium</i>	<i>Paeonia californica</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-11
Biologist(s)	Diana Saucedo
Survey Area	Tribal 5
Survey Pass	5

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:00:00	73	0	0	5	clear	HWA DAY
Interim	14:00:00	83	0	0	14.5	clear	Butterflies still flying
End	15:45:00	83	0	20	14	patchy	HWA

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (21)	California tortoiseshell (1)	Pacific sara orangetip (22)
anise swallowtail (1)	desert pearly marble (16)	pale swallowtail (13)
Behr's metalmark (19)	echo blue (2)	spring white (15)
bramble hairstreak (8)	funereal duskywing (14)	variable checkerspot (1)
brown elfin (8)	orange sulphur (2)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
<i>Ceanothus leucodermis</i>	<i>Lasthenia gracilis</i>	
<i>Ceanothus perplexans</i>	<i>Nemophila menziesii</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-09
Biologist(s)	Jeffrey Priest
Survey Area	Tribal 6
Survey Pass	5

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:30:00	72	68	0	8	clear	
End	15:15:00	78	82	30	10		

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (5)	Edward's blue (1)	Proterpterus duskywing (1)
Behr's metalmark (17)	funereal duskywing (2)	spring white (8)
bramble hairstreak (9)	Pacific sara orangetip (3)	
Chalcedon variable checkerspot (1)	pale swallowtail (2)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
	California scrub-jay (1+)	granite spiny lizard (1+)
Blainville's horned lizard (1+)	California towhee (1+)	house finch (1+)
Anna's hummingbird (1+)	common raven (1+)	Neotoma sp. (midden) (1+)
Botta's pocket gopher (1+)	common side-blotched lizard (1+)	red-tailed hawk (1+)
bushtit (1+)	coyote (1+)	

INCIDENTAL PLANT LIST		
<i>(none)</i>		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-10
Biologist(s)	Jeffrey Priest
Survey Area	Tribal 7
Survey Pass	5

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:30:00	67	63	40	1		
End	15:15:00	86	92	10	6		

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (8)	desert orangetip (10)	pale swallowtail (3)
Behr's metalmark (24)	funereal duskywing (2)	Propertius duskywing (2)
bramble hairstreak (6)	orange sulphur (1)	spring white (9)
checkered white (1)	Pacific sara orangetip (22)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
American crow (1+)	common side-blotched lizard (1+)	mourning dove (1+)
brush rabbit (1+)	coyote (1+)	red-tailed hawk (1+)
bushtit (1+)	greater roadrunner (1+)	turkey vulture (1+)
California towhee (1+)	horned lark (1+)	
common raven (1+)	K-rat sp. (tail-drags and burrows) (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-20
Biologist(s)	Diana Saucedo
Survey Area	Tribal 8
Survey Pass	5

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:10:00	61	63	0	2	clear	
End	15:40:00	76	76	0	7	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (13)	common sootywing (4)	Pacific sara orangetip (30)
Behr's metalmark (20)	desert orangetip (1)	pale swallowtail (5)
bramble hairstreak (10)	desert pearly marble (9)	southern blue (1)
brown elfin (1)	echo blue (3)	spring white (3)
California sister (1)	funereal duskywing (4)	variable checkerspot (55)
cloudless sulphur (1)	orange sulphur (3)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Ceanothus perplexans</i>	<i>Layia platyglossa</i>	
<i>Lasthenia gracilis</i>	<i>Rhus ovata</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-11
Biologist(s)	Callie Amoaku
Survey Area	Tribal 9
Survey Pass	5

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:15:00	79	70	0	1	clear	
2	10:56:00	78	79	10	2	clear	
3	12:48:00	80	86	0	9	clear	
4	14:31:00	77	84	0	12	clear	Gusts
End	15:43:00	81	82	0	12	clear	Gusts

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (5)	checkered white (2)	Propertius duskywing (9)
Behr's metalmark (43)	desert pearly marble (14)	sleepy duskywing (2)
bramble hairstreak (5)	funereal duskywing (9)	southern blue (2)
brown elfin (2)	Pacific sara orangetip (68)	spring white (8)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
Bewick's wren (1+)	coyote (1+)	western rattlesnake (1+)
bushtit (1+)	red-tailed hawk (1+)	white-crowned sparrow (1+)
California scrub-jay (1+)	sagebrush sparrow (1+)	wrentit (1+)
common raven (1+)	spotted towhee (1+)	

INCIDENTAL PLANT LIST		
<i>Cryptantha sp.</i>	<i>Lasthenia sp.</i>	<i>Amsinckia intermedia</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-17
Biologist(s)	Darin Busby, Diana Saucedo, Erik LaCoste, Melissa Busby
Survey Area	Tribal 9, Tribal 10
Survey Pass	5, 6

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:45:00	60	63	0	7	clear	
Weather check	11:00:00	58	62	0	16	clear	Average wind speed = 13mph
Weather check	12:30:00	60	62	0	12	clear	
End	14:30:00	61	69	0	10	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (8)	brown elfin (2)	Pacific sara orangetip (15)
Blue sp. (1)	checkered white (5)	pale swallowtail (1)
bramble hairstreak (7)	desert pearly marble (11)	Propertius duskywing (6)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-20
Biologist(s)	Margie Mulligan
Survey Area	Tribal 2
Survey Pass	6

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:25:00	60	0	0	6	clear	
End	16:30:00	75	0	0	9	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (4)	bramble hairstreak (1)	Pacific sara orangetip (4)
Behr's metalmark (15)	desert pearly marble (6)	southern blue (1)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
<i>Layia glandulosa</i>	<i>Linathus gracilis</i>	<i>Leptosiphon parviflorus</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-24
Biologist(s)	Erik LaCoste
Survey Area	Tribal 3
Survey Pass	6

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:45:00	66	65	10	2	clear	
Mid	10:23:00	73	74	30	8	patchy	
End	15:42:00	78	80	40	11	patchy	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (12)	desert pearly marble (1)	pale swallowtail (6)
Behr's metalmark (14)	funereal duskywing (4)	Propertius duskywing (5)
bramble hairstreak (2)	orange sulphur (1)	spring white (6)
California tortoiseshell (1)	Pacific sara orangetip (7)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-20
Biologist(s)	Erik LaCoste
Survey Area	Tribal 4
Survey Pass	6

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:40:00	60	60	0	2	clear	
End	16:30:00	75	75	0	9	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (1)	desert pearly marble (2)	Proterpius duskywing (3)
Behr's metalmark (2)	Pacific sara orangetip (4)	spring white (3)
bramble hairstreak (1)	pale swallowtail (7)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-20
Biologist(s)	Callie Amoaku
Survey Area	Tribal 5
Survey Pass	6

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:00:00	62.6	66	0	1	clear	
2	13:06:00	73	76	0	4	clear	
End	16:07:00	73	76	0	3	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (5)	desert pearly marble (1+)	Propertius duskywing (1)
Behr's metalmark (17)	funereal duskywing (2)	sleepy duskywing (1+)
bramble hairstreak (9)	Gabb's checkerspot (1+)	southern blue (1+)
brown elfin (1+)	Pacific sara orangetip (3)	spring white (8)
Chalcedon variable checkerspot (1)	pale swallowtail (2)	western tiger swallowtail (1+)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
Blainville's horned lizard (1+)	common yellowthroat (1+)	northern rough-winged swallow (1+)
California quail (1+)	house finch (1+)	red-tailed hawk (1+)
California scrub-jay (1+)	lesser goldfinch (1+)	red-winged blackbird (1+)
common raven (1+)	northern mockingbird (1+)	turkey vulture (1+)

INCIDENTAL PLANT LIST		
<i>(none)</i>		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-18
Biologist(s)	Erik LaCoste
Survey Area	Tribal 6
Survey Pass	6

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:45:00	63	62	0	4	clear	
End	15:30:00	87	85	30	7	patchy	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (2)	echo blue (1)	Proterpius duskywing (5)
Behr's metalmark (3)	funereal duskywing (1)	spring white (10)
bramble hairstreak (4)	great purple hairstreak (1)	variable checkerspot (2)
brown elfin (2)	Pacific sara orangetip (8)	
desert pearly marble (6)	pale swallowtail (4)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-18
Biologist(s)	Diana Saucedo
Survey Area	Tribal 7
Survey Pass	6

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:00:00	63	63	0	0	clear	
End	15:35:00	69	71	0	7	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (13)	desert pearly marble (8)	painted lady (2)
Behr's metalmark (31)	echo blue (5)	pale swallowtail (1)
bramble hairstreak (7)	funereal duskywing (10)	Propertius duskywing (7)
brown elfin (3)	orange sulphur (3)	spring white (8)
desert orangetip (1)	Pacific sara orangetip (30)	variable checkerspot (1)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Amsinckia intermedia</i>	<i>Lasthenia gracilis</i>	<i>Nemophila menziesii</i>
<i>Ceanothus leucodermis</i>	<i>Layia platyglossa</i>	<i>Rhus ovata</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-23
Biologist(s)	Darin Busby, Melissa Busby
Survey Area	Tribal 8, Tribal 10
Survey Pass	6

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:45:00	73	75	0	5	clear	
End	15:15:00	86	88	30	10	patchy	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (43)	Chalcedon variable checkerspot (132)	pale swallowtail (7)
Behr's metalmark (44)	checkered white (6)	Propertius duskywing (13)
Blue sp. (10)	desert orangetip (7)	Sulphur sp. (2)
bramble hairstreak (10)	desert pearly marble (12)	White sp. (10)
brown elfin (3)	Pacific sara orangetip (35)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Anagallis arvensis</i>	<i>Castilleja affinis</i>	<i>Phacelia cicutaria</i> var. <i>hispid</i>
<i>Arctostaphylos</i> sp.	<i>Ceanothus leucodermis</i>	<i>Plagiobothrys nothofulvus</i>
<i>Brassica</i> sp.	<i>Eschscholzia californica</i>	<i>Rhus aromatica</i>
<i>Chaenactis</i> sp.	<i>Lasthenia gracilis</i>	<i>Rhus ovata</i>
<i>Erodium</i> sp.	<i>Linanthus dianthiflorus</i>	<i>Sambucus nigra</i>
<i>Lupinus</i> sp.	<i>Penstemon centranthifolius</i>	<i>Trichostema lanatum</i>
<i>Amsinckia menziesii</i>	<i>Penstemon spectabilis</i>	<i>Yucca schidigera</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-27
Biologist(s)	Darin Busby, Erik LaCoste
Survey Area	Tribal 1, Tribal 4
Survey Pass	6, 7

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:45:00	71	69	0	4	clear	
End	15:30:00	78	82	0	15	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (8)	desert pearly marble (8)	western tailed-blue (1)
Behr's metalmark (10)	marine blue (1)	White sp. (1+)
brown elfin (1)	pale swallowtail (5)	
common sootywing (2)	Propertius duskywing (4)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Acmispon argophyllus</i> var. <i>argophyllus</i>	<i>Ericameria linearifolia</i>	<i>Mimulus aurantiacus</i>
<i>Amsinckia menziesii</i>	<i>Eriophyllum confertiflorum</i> var. <i>confertiflorum</i>	<i>Penstemon clevelandii</i>
<i>Anisocoma acaulis</i>	<i>Eriophyllum wallacei</i>	<i>Penstemon spectabilis</i>
<i>Chaenactis glabriuscula</i> var. <i>glabriuscula</i>	<i>Eschscholzia californica</i>	<i>Phacelia parryi</i>
<i>Dichelostemma capitatum</i>	<i>Lasthenia gracilis</i>	<i>Salvia columbariae</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-05-04
Biologist(s)	Jeffrey Priest
Survey Area	Tribal 1
Survey Pass	7

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:40:00	73	72	0	7		
Mid day conditions	13:10:00	80	82	0	8		
End	17:00:00	75	78	0	8		

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (3)	desert orangetip (1)	pale swallowtail (1)
Behr's metalmark (8)	desert pearly marble (1)	
blue-gray gnatcatcher (1+)	Lorquin's admiral (1)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
Blainville's horned lizard (1+)	California ground squirrel (1+)	house finch (1+)
oak titmouse (1+)	California quail (1+)	lesser goldfinch (1+)
acorn woodpecker (1+)	California scrub-jay (1+)	mourning dove (1+)
American crow (1+)	California thrasher (1+)	mule deer (1+)
ash-throated flycatcher (1+)	California towhee (1+)	northern flicker (1+)
Botta's pocket gopher (1+)	common raven (1+)	spotted towhee (1+)
brush rabbit (1+)	common side-blotched lizard (1+)	western skink (1+)
bushtit (1+)	granite spiny lizard (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-25
Biologist(s)	Erik LaCoste
Survey Area	Tribal 2
Survey Pass	7

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:45:00	66	66	0	9	clear	
Mid	10:37:00	75	75	0	13	clear	
Mid	12:57:00	79	79	0	15	clear	
End	15:15:00	78	76	10	15	patchy	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (10)	funereal duskywing (1)	pale swallowtail (1)
Behr's metalmark (1)	Pacific sara orangetip (3)	Propertius duskywing (1)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
Spring white (1)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-05-03
Biologist(s)	Jeffrey Priest
Survey Area	Tribal 3
Survey Pass	7

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Not protocol yet.	08:45:00	54	57	0	9		Not protocol yet.
Not protocol yet.	09:15:00	58	54	0	10		Not protocol yet.
Not protocol yet.	09:40:00	60	56	0	10		Not protocol yet.
Start	10:00:00	62	60	0	10		Protocol conditions reached at 1000.
Mid afternoon conditions on a ridge.	14:00:00	70	72	0	10		Winds 6-10 with gusts 10-18 on ridge.
End	16:35:00	70	72	0	10		

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (8)	checkered white (5)	orange sulphur (1)
Behr's metalmark (18)	common california ringlet (1)	spring white (7)
bramble hairstreak (2)	desert pearly marble (11)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
Blainville's horned lizard (1+)	California quail (1+)	house finch (1+)
oak titmouse (1+)	California scrub-jay (1+)	lesser goldfinch (1+)
acorn woodpecker (1+)	California thrasher (1+)	mourning dove (1+)
American crow (1+)	California towhee (1+)	northern flicker (1+)
Anna's hummingbird (1+)	cliff swallow (1+)	phainopepla (1+)
ash-throated flycatcher (1+)	common raven (1+)	red-tailed hawk (1+)
brush rabbit (1+)	common side-blotched lizard (1+)	spotted towhee (1+)
bushtit (1+)	granite spiny lizard (1+)	turkey vulture (1+)
California ground squirrel (1+)	greater roadrunner (1+)	white-throated swift (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-26
Biologist(s)	Jeffrey Priest
Survey Area	Tribal 5
Survey Pass	7

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
End	03:05:00	80	84	30	10		
Start	08:50:00	69	70	50	2		

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (16)	checkered white (4)	pale swallowtail (24)
Behr's metalmark (23)	Edward's blue (2)	Proteropterus duskywing (1)
brown elfin (1)	funereal duskywing (1)	tiger whiptail (1+)
cabbage white (3)	orange sulphur (1)	
California patch (1)	Pacific sara orangetip (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
Blainville's horned lizard (1+)	California towhee (1+)	lesser goldfinch (1+)
Anna's hummingbird (1+)	common raven (1+)	mourning dove (1+)
Botta's pocket gopher (1+)	common side-blotched lizard (1+)	mule deer (1+)
brush rabbit (1+)	coyote (1+)	red-tailed hawk (1+)
bushtit (1+)	desert cottontail (1+)	rock wren (1+)
California ground squirrel (1+)	granite spiny lizard (1+)	spotted towhee (1+)
California quail (1+)	great horned owl (1+)	turkey vulture (1+)
California scrub-jay (1+)	house finch (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-25
Biologist(s)	Darin Busby
Survey Area	Tribal 6
Survey Pass	7

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:40:00	69	71	0	4	clear	
End	15:20:00	81	87	0	10	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (11)	desert pearly marble (20)	pale swallowtail (4)
Behr's metalmark (34)	funereal duskywing (8)	Propertius duskywing (5)
bramble hairstreak (3)	Gabb's checkerspot (4)	spring white (2)
brown elfin (1)	Pacific sara orangetip (12)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-24
Biologist(s)	Darin Busby
Survey Area	Tribal 7
Survey Pass	7

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:45:00	67	65	10	1	patchy	
End	15:20:00	84	88	20	8	patchy	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (9)	California sister (1)	Pacific sara orangetip (12)
Behr's metalmark (26)	Chalcedon variable checkerspot (4)	Propertius duskywing (8)
bramble hairstreak (4)	checkered white (3)	White sp. (5)
brown elfin (3)	desert pearly marble (16)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-27
Biologist(s)	Erin Bergman
Survey Area	Tribal 8
Survey Pass	7

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:30:00	66	67	0	1	clear	
End	16:33:00	75	78	0	1	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (37)	desert pearly marble (10)	spring white (4)
Behr's metalmark (62)	orange sulphur (2)	White species (6)
California patch (2)	Pacific sara orangetip (16)	
Chalcedon variable checkerspot (69)	pale swallowtail (4)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
California quail (1+)	chipping sparrow (1+)	rosy boa (1+)
California scrub-jay (1+)	Duskywing species (1)	wrentit (1+)

INCIDENTAL PLANT LIST		
<i>Amsinckia intermedia</i>	<i>Lupinus bicolor</i>	<i>Sisymbrium altissimum</i>
<i>Hirschfeldia incana</i>	<i>Paeonia californica</i>	
<i>Lasthenia gracilis</i>	<i>Penstemon centranthifolius</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-04-24
Biologist(s)	Diana Saucedo
Survey Area	Tribal 9
Survey Pass	7

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:50:00	72	72	20	2	patchy	
End	15:25:00	87	89	30	0	patchy	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (1)	desert pearly marble (11)	Pacific sara orangetip (6)
Behr's metalmark (14)	echo blue (1)	Propertius duskywing (5)
bramble hairstreak (1)	Edward's blue (3)	spring white (3)
checkered white (3)	funereal duskywing (1)	
desert orangetip (3)	orange sulphur (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Cordylanthus (dead)</i>	<i>Ceanothus perplexans</i>	<i>Rhus ovata</i>
<i>Phacelia</i>	<i>Dichelostemma capitatum</i>	<i>Salvia columbariae</i>
<i>Amsinckia intermedia</i>	<i>Gilia capitata</i>	
<i>Arctostaphylos glauca</i>	<i>Layia platyglossa</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-05-03
Biologist(s)	Erik LaCoste, Melissa Busby
Survey Area	Tribal 10
Survey Pass	7

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:41:00	63	63	0	8	clear	
End	12:13:00	73	71	0	7	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (2)	brown elfin (1)	Pacific sara orangetip (1)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-05-07
Biologist(s)	Erik LaCoste
Survey Area	Tribal 1
Survey Pass	8

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:45:00	73	68	10	4	clear	
Mid day	12:40:00	83	88	0	17	clear	
End	15:30:00	88	92	0	15	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (2)	California sister (2)	marine blue (1)
Behr's metalmark (5)	echo blue (3)	Propertius duskywing (2)
brown elfin (1)	funereal duskywing (1)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-05-08
Biologist(s)	Diana Saucedo, Erik LaCoste
Survey Area	Tribal 2, Tribal 7
Survey Pass	8

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:45:00	75	71	0	3	clear	
End	16:15:00	88	92	0	8	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (12)	checkered white (2)	Pacific sara orangetip (2)
Behr's metalmark (17)	cloudless sulphur (3)	pale swallowtail (3)
brown elfin (1)	desert pearly marble (4)	Proterpius duskywing (1)
California sister (2)	marine blue (13)	queen (1)
Chalcedon variable checkerspot (8)	orange sulphur (3)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-05-09
Biologist(s)	Jeffrey Priest
Survey Area	Tribal 3
Survey Pass	8

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:45:00	74	70	0	2		
Mid day	12:08:00	86	88	20	8		
End	17:00:00	92	94	10	6		

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (16)	funereal duskywing (2)	pale swallowtail (2)
Behr's metalmark (13)	Lorquin's admiral (2)	Propertius duskywing (1)
brown elfin (1)	marine blue (6)	southern blue (2)
desert pearly marble (1)	orange sulphur (1)	
Edward's blue (3)	painted lady (1)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
acorn woodpecker (1+)	cliff swallow (1+)	northern mockingbird (1+)
American crow (1+)	common raven (1+)	northern rough-winged swallow (1+)
Anna's hummingbird (1+)	common side-blotched lizard (1+)	red-tailed hawk (1+)
ash-throated flycatcher (1+)	coyote (1+)	rock wren (1+)
black-throated sparrow (1+)	granite spiny lizard (1+)	spotted towhee (1+)
Botta's pocket gopher (1+)	greater roadrunner (1+)	turkey vulture (1+)
brush rabbit (1+)	lesser goldfinch (1+)	white-throated swift (1+)
California scrub-jay (1+)	Merriam's chipmunk (1+)	wrentit (1+)
California thrasher (1+)	mourning dove (1+)	
California towhee (1+)	mule deer (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-05-08
Biologist(s)	Jeffrey Priest
Survey Area	Tribal 4
Survey Pass	8

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:45:00	76	70	40	4		
Mid day	13:36:00	84	88	60	6		
End	16:15:00	89	92	20	8		

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (4)	common california ringlet (1)	Propertius duskywing (1)
Behr's metalmark (1)	Edward's blue (2)	western tiger swallowtail (1)
blue-gray gnatcatcher (1+)	orange sulphur (1)	
Chalcedon variable checkerspot (1)	pale swallowtail (3)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
acorn woodpecker (1+)	common raven (1+)	mourning dove (1+)
Anna's hummingbird (1+)	common side-blotched lizard (1+)	northern flicker (1+)
ash-throated flycatcher (1+)	coyote (1+)	red-tailed hawk (1+)
black-throated sparrow (1+)	granite spiny lizard (1+)	spotted towhee (1+)
California quail (1+)	greater roadrunner (1+)	turkey vulture (1+)
California scrub-jay (1+)	house finch (1+)	western meadowlark (1+)
California thrasher (1+)	lesser goldfinch (1+)	western rattlesnake (1+)
California towhee (1+)	Merriam's chipmunk (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-05-09
Biologist(s)	Diana Saucedo
Survey Area	Tribal 5
Survey Pass	8

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:45:00	77	79	0	1	clear	
End	15:30:00	95	98	0	4	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (30)	desert pearly marble (4)	pale swallowtail (12)
anise swallowtail (1)	fiery skipper (1)	Propertius duskywing (1)
Behr's metalmark (15)	funereal duskywing (2)	spring white (4)
California patch (2)	Harford's sulphur (3)	variable checkerspot (5)
California sister (3)	marine blue (15)	
common buckeye (1)	orange sulphur (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Cryptantha spp</i>	<i>Castilleja foliolosa</i>	<i>Malacothrix glabrata</i>
<i>Phacelia sp</i>	<i>Ceanothus perplexans</i>	
<i>Plagiobotrys spp</i>	<i>Eriophyllum confertiflorum</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-05-03
Biologist(s)	Erik LaCoste, Melissa Busby
Survey Area	Tribal 8
Survey Pass	8

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	12:17:00	73	71	0	8	clear	
End	16:00:00	79	83	0	6	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (26)	Chalcedon variable checkerspot (70)	orange sulphur (3)
Behr's metalmark (14)	desert pearly marble (1)	Southern blue (2)
bramble hairstreak (3)	Gabb's checkerspot (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-05-04
Biologist(s)	Erik LaCoste
Survey Area	Tribal 9
Survey Pass	8

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	11:20:00	78	82	0	8	clear	
End	16:15:00	86	88	0	8	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (4)	Propertius duskywing (2)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-05-07
Biologist(s)	Darin Busby
Survey Area	Tribal 10
Survey Pass	8

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:45:00	73	73	10	3	clear	
End	15:03:00	86	89	0	8	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (3)	California sister (2)	western tiger swallowtail (2)
Blue sp. (5)	Chalcedon variable checkerspot (5)	White sp. (6)
bramble hairstreak (5)	echo blue (2)	
brown elfin (1)	marine blue (2)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Erysimum sp.</i>	<i>Eriophyllum confertiflorum</i>	<i>Penstemon centranthifolius</i>
<i>Castilleja affinis</i>	<i>Eschscholzia californica</i>	<i>Trichostema lanatum</i>
<i>Eriastrum sapphirinum</i>	<i>Lasthenia gracilis</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-05-10
Biologist(s)	Diana Saucedo, Margie Mulligan
Survey Area	Tribal 6, Tribal 7
Survey Pass	8, 9

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:09:00	72	74	10	6	clear	
End	16:30:00	85	88	0	7	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (21)	Chalcedon variable checkerspot (11)	orange sulphur (1)
Behr's metalmark (11)	funereal duskywing (2)	Pacific sara orangetip (1)
Bernardino square-spotted blue (20)	Gabb's checkerspot (1)	pale swallowtail (2)
brown elfin (1)	Harford's sulphur (2)	western tailed-blue (1)
California sister (2)	marine blue (5)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-05-15
Biologist(s)	Diana Saucedo
Survey Area	Tribal 1
Survey Pass	9

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:15:00	67	67	0	7	clear	Great day for wind, bad day for butterflies.
Windy	12:40:00	74	0	0	13	clear	Sustained winds above 10-13 mph
End	16:35:00	78	76	0	8	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (14)	California sister (4)	pale swallowtail (2)
Behr's metalmark (1)	hedgerow hairstreak (1)	Propertius duskywing (1)
Bernardino square-spotted blue (14)	Melissa blue (4)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
<i>Cryptantha sp</i>		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-05-10
Biologist(s)	Jeffrey Priest
Survey Area	Tribal 2
Survey Pass	9

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:40:00	76	74	0	8		
End	16:40:00	82	88	0	10		

BUTTERFLY LIST SPECIES (COUNT)		
San Diegan tiger whiptail (1+)	desert orangetip (1)	orange sulphur (1)
Acmon blue (13)	Lorquin's admiral (4)	
Behr's metalmark (4)	marine blue (3)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
Cooper's hawk (1+)	California scrub-jay (1+)	lesser goldfinch (1+)
American kestrel (1+)	California towhee (1+)	long-nosed snake (1+)
Botta's pocket gopher (1+)	common side-blotched lizard (1+)	mule deer (1+)
brush rabbit (1+)	granite spiny lizard (1+)	red-tailed hawk (1+)
bushtit (1+)	greater roadrunner (1+)	turkey vulture (1+)
California ground squirrel (1+)	house finch (1+)	
California quail (1+)	house wren (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-05-14
Biologist(s)	Jeffrey Priest
Survey Area	Tribal 3
Survey Pass	9

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:50:00	62	64	0	3		
Mid day	12:08:00	70	73	0	10		
End	17:05:00	70	72	0	10		

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (20)	brown elfin (1)	Edward's blue (4)
Behr's metalmark (8)	cabbage white (1)	pale swallowtail (1)
blue-gray gnatcatcher (1+)	Chalcedon variable checkerspot (1)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
Anna's hummingbird (1+)	gophersnake (1+)	lesser goldfinch (1+)
Botta's pocket gopher (1+)	granite spiny lizard (1+)	mourning dove (1+)
brush rabbit (1+)	great horned owl (1+)	phainopepla (1+)
California towhee (1+)	house finch (1+)	spotted towhee (1+)
common side-blotched lizard (1+)	house wren (1+)	turkey vulture (1+)

INCIDENTAL PLANT LIST		
<i>(none)</i>		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-05-15
Biologist(s)	Jeffrey Priest
Survey Area	Tribal 4
Survey Pass	9

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:40:00	60	65	0	5		
Mid day	12:08:00	76	78	0	8		
End	15:25:00	75	80	0	8		

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (13)	blue-gray gnatcatcher (1+)	Edward's blue (3)
Behr's metalmark (1)	brown elfin (1)	marine blue (6)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
Blainville's horned lizard (1+)	bushtit (1+)	house finch (1+)
Costa's hummingbird (1+)	California scrub-jay (1+)	lesser goldfinch (1+)
acorn woodpecker (1+)	California towhee (1+)	mourning dove (1+)
American crow (1+)	common raven (1+)	red-tailed hawk (1+)
Anna's hummingbird (1+)	common side-blotched lizard (1+)	rock wren (1+)
Bewick's wren (1+)	granite spiny lizard (1+)	spotted towhee (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-05-14
Biologist(s)	Anita Hayworth
Survey Area	Tribal 5
Survey Pass	9

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:45:00	63	64	0	6		
End	15:42:00	74	76	0	9		

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (1)	desert pearly marble (1+)	marine blue (1)
Behr's metalmark (1+)	Harford's sulphur (1)	pale swallowtail (1)
Chalcedon variable checkerspot (1+)	Lorquin's admiral (1)	spring white (1)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
black-chinned sparrow (1+)	California towhee (1+)	Nuttall's woodpecker (1+)
Costa's hummingbird (1+)	canyon wren (1+)	red-tailed hawk (1+)
Anna's hummingbird (1+)	common raven (1+)	red-winged blackbird (1+)
Bewick's wren (1+)	house finch (1+)	rock wren (1+)
black-headed grosbeak (1+)	Hutton's vireo (1+)	Say's phoebe (1+)
bushtit (1+)	lesser goldfinch (1+)	spotted towhee (1+)
California quail (1+)	mourning dove (1+)	turkey vulture (1+)
California scrub-jay (1+)	northern flicker (1+)	wrentit (1+)
California thrasher (1+)	northern rough-winged swallow (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-05-15
Biologist(s)	Patricia Schuyler
Survey Area	Tribal 6
Survey Pass	9

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:00:00	64	64	0	2	clear	
End	14:46:00	78	81	10	5	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (20)	Behr's metalmark (1)	Gabb's checkerspot (2)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
California scrub-jay (1+)	common raven (1+)	turkey vulture (1+)
California towhee (1+)	spotted towhee (1+)	white-crowned sparrow (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-05-14
Biologist(s)	Erik LaCoste, Melissa Busby
Survey Area	Tribal 8, Tribal 9
Survey Pass	9

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:45:00	62	62	0	5	clear	
Mid	13:35:00	70	82	0	12	clear	
End	15:30:00	71	77	0	9	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (6)	funereal duskywing (2)	pale swallowtail (1)
Bernardino square-spotted blue (67)	Gabb's checkerspot (2)	Propertius duskywing (2)
California sister (2)	gray hairstreak (4)	western pygmy-blue (1)
Chalcedon variable checkerspot (84)	marine blue (2)	
common sootywing (1)	orange sulphur (8)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-05-10
Biologist(s)	Erik LaCoste
Survey Area	Tribal 10
Survey Pass	9

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:45:00	78	74	0	5	clear	
End	15:00:00	88	89	0	12	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (2)	funereal duskywing (1)	
Chalcedon variable checkerspot (1)	marine blue (3)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-05-16
Biologist(s)	Diana Saucedo
Survey Area	Tribal 2
Survey Pass	10

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:45:00	67	68	0	7	clear	Breeze sustained above 7 mph
End	16:00:00	74	73	0	13	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (5)	California sister (1)	pale swallowtail (1)
Behr's metalmark (3)	Harford's sulphur (1)	
Bernardino square-spotted blue (15)	Melissa blue (2)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Cryptantha sp</i>		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-05-15
Biologist(s)	Erik LaCoste
Survey Area	Tribal 7
Survey Pass	10

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:40:00	64	64	0	2	clear	
End	15:10:00	78	85	0	12	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (2)	California sister (2)	funereal duskywing (1)
Behr's metalmark (4)	Chalcedon variable checkerspot (3)	marine blue (4)
Bernardino square-spotted blue (12)	checkered white (2)	orange sulphur (2)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-05-18
Biologist(s)	Jeffrey Priest
Survey Area	Tribal 9
Survey Pass	10

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Not protocol yet	08:30:00	55	56	0	8		
Start	09:15:00	58	60	0	5		
End	16:05:00	70	74	0	8		

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (8)	Bernardino square-spotted blue (24)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
Blainville's horned lizard (1+)	common raven (1+)	red-tailed hawk (1+)
American kestrel (1+)	common side-blotched lizard (1+)	rock wren (1+)
black-tailed jackrabbit (1+)	coyote (1+)	turkey vulture (1+)
bushtit (1+)	house finch (1+)	western meadowlark (1+)
California towhee (1+)	lesser nighthawk (1+)	white-throated swift (1+)
cliff swallow (1+)	mule deer (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Tribal Land)
Survey Date	2018-05-16
Biologist(s)	Erik LaCoste
Survey Area	Tribal 10
Survey Pass	10

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:40:00	68	67	0	3	clear	
End	15:00:00	78	80	0	8	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (1)	Chalcedon variable checkerspot (2)	
Bernardino square-spotted blue (5)	checkered white (1)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

APPENDIX E

*2018 Focused Quino Checkerspot Butterfly Survey
Report for the Torrey Wind Project, Boulevard,
San Diego County, California*

June 29, 2018 (Resubmitted April 2, 2019)

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-53771B), 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.

Ms. Stacey Love, Recovery Permit Coordinator

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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).

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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 host plant mapping as well as a habitat assessment within the study area in order to identify suitable habitat and exclude unsuitable habitat. Excluded areas consisted of developed areas and 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 focused surveys to document any changes from the initial host plant mapping 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-53771B), 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

Ms. Stacey Love, Recovery Permit Coordinator

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Table 1
Schedule of Focused Quino Checkerspot Butterfly Surveys

Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
	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	
	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	

Ms. Stacey Love, Recovery Permit Coordinator

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Table 1
Schedule of Focused Quino Checkerspot Butterfly Surveys

Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
	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	
	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	

Ms. Stacey Love, Recovery Permit Coordinator

Subject: 2018 Focused Quino Checkerspot Butterfly Survey Report for the Campo Wind Project, Boulevard, San Diego County, California

Table 1
Schedule of Focused Quino Checkerspot Butterfly Surveys

Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
	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	
	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

Ms. Stacey Love, Recovery Permit Coordinator

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Table 1
Schedule of Focused Quino Checkerspot Butterfly Surveys

Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
	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 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	

Ms. Stacey Love, Recovery Permit Coordinator

Subject: 2018 Focused Quino Checkerspot Butterfly Survey Report for the Campo Wind Project, Boulevard, San Diego County, California

Table 1
Schedule of Focused Quino Checkerspot Butterfly Surveys

Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
	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	
	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	

Ms. Stacey Love, Recovery Permit Coordinator

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Table 1
Schedule of Focused Quino Checkerspot Butterfly Surveys

Survey Area	Survey Pass	Survey Date	Biologist	Survey Time	Conditions	Notes
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 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-53771B); 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
<i>Hesperiidae – Skippers</i>						
<i>Erynnis brizo</i>	sleepy duskywing	—	—	—	—	—
<i>Erynnis funeralis</i>	funereal duskywing	X	X	X	X	X
<i>Erynnis propertius</i>	Propertius duskywing	—	—	—	X	X

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Table 2A
Butterflies Observed on Site Weeks 1–5

Scientific Name	Common Name	Week				
		1	2	3	4	5
<i>Hylephila phyleus</i>	fiery skipper	—	—	—	—	—
	duskywing sp.	—	—	—	—	X
<i>Nymphalidae – Brush-Footed Butterflies</i>						
<i>Adelpha bredowii</i>	California sister	—	—	—	—	—
<i>Chlosyne californica</i>	California patch	—	—	—	—	—
<i>Chlosyne gabbii</i>	Gabb's checkerspot	—	—	—	—	—
<i>Danaus gilippus</i>	queen	—	—	—	—	X
<i>Limenitis lorquini</i>	Lorquin's admiral	—	—	—	—	—
<i>Nymphalis californica</i>	California tortoiseshell	—	X	X	—	—
<i>Vanessa cardui</i>	painted lady	—	—	X	—	—
	lady sp.	X	X	—	—	—
<i>Lycaenidae – Blues and Hairstreaks</i>						
<i>Callophrys augustinus</i>	brown elfin	—	—	X	X	X
<i>Callophrys dumetorum</i>	bramble hairstreak	X	X	X	X	X
<i>Glaucopsyche lygdamus australis</i>	southern blue	X	X	X	—	—
<i>Icaricia acmon acmon</i>	Acmon blue	—	X	X	X	X
<i>Leptotes marina</i>	marine blue	—	—	—	—	—
<i>Philotes sonorensis</i>	Sonoran blue	—	X	—	—	—
<i>Strymon melinus</i>	gray hairstreak	—	—	—	—	—
	blue sp.	X	—	—	X	X
<i>Papilionidae – Swallowtails</i>						
<i>Papilio eurymedon</i>	pale swallowtail	—	—	—	—	—
<i>Papilio rutulus</i>	western tiger swallowtail	X	X	X	—	X
<i>Pieridae – Whites and Sulfurs</i>						
<i>Anthocharis cethura</i>	desert orangetip	—	—	—	X	X
<i>Anthocharis sara</i>	Pacific Sara orangetip	X	X	X	X	X
<i>Colias eurydice</i>	California dogface	X	—	—	X	—
<i>Colias eurytheme</i>	orange sulphur	—	—	—	X	—
<i>Euchloe hyantis lotta</i>	desert pearly marble	—	—	X	X	X
<i>Pontia protodice</i>	checkered white	—	X	X	X	X
<i>Pontia sisymbrii</i>	spring white	—	—	—	X	X
	white sp.	—	X	—	—	—
	sulphur sp.	—	—	—	X	X
<i>Riodinidae – Metalmarks</i>						
<i>Apodemia virgulti</i>	Behr's metalmark	X	X	X	X	X

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Table 2B
Butterflies Observed on Site Weeks 6–10

Scientific Name	Common Name	Week				
		6	7	8	9	10
<i>Hesperiidae – Skippers</i>						
<i>Erynnis brizo</i>	sleepy duskywing	—	X	—	—	—
<i>Erynnis funeralis</i>	funereal duskywing	X	X	X	X	—
<i>Erynnis propertius</i>	Propertius duskywing	X	X	X	—	X
<i>Hylephila phyleus</i>	fiery skipper	—	—	—	X	—
	duskywing sp.	—	—	—	—	—
<i>Nymphalidae – Brush-Footed Butterflies</i>						
<i>Adelpha bredowii</i>	California sister	—	—	—	X	X
<i>Chlosyne californica</i>	California patch	—	X	—	—	—
<i>Chlosyne gabbii</i>	Gabb's checkerspot	—	X	X	—	—
<i>Danaus gilippus</i>	Queen	—	—	—	—	—
<i>Limenitis lorquini</i>	Lorquin's admiral	—	—	—	X	X
<i>Nymphalis californica</i>	California tortoiseshell	—	—	—	—	—
<i>Vanessa cardui</i>	painted lady	—	—	—	—	—
	lady sp.	—	X	—	—	—
<i>Lycaenidae – Blues and Hairstreaks</i>						
<i>Callophrys augustinus</i>	brown elfin	X	—	—	—	—
<i>Callophrys dumetorum</i>	bramble hairstreak	X	X	—	X	—
<i>Glaucopsyche lygdamus australis</i>	southern blue	X	X	—	X	—
<i>Icaricia acmon acmon</i>	Acmon blue	X	X	X	X	X
<i>Leptotes marina</i>	marine blue	—	—	—	—	—
<i>Philotes sonorensis</i>	Sonoran blue	—	—	—	—	—
<i>Strymon melinus</i>	gray hairstreak	—	—	—	X	—
	blue sp.	—	—	—	—	—
<i>Papilionidae – Swallowtails</i>						
<i>Papilio eurymedon</i>	pale swallowtail	X	X	X	X	—
<i>Papilio rutulus</i>	western tiger swallowtail	X	—	X	—	—
<i>Pieridae – Whites and Sulfurs</i>						
<i>Anthocharis cethura</i>	desert orangetip	X	—	—	—	—
<i>Anthocharis sara</i>	Pacific Sara orangetip	X	X	X	—	—
<i>Colias eurydice</i>	California dogface	—	—	—	—	—
<i>Colias eurytheme</i>	orange sulphur	—	—	—	—	—
<i>Euchloe hyantis lotta</i>	desert pearly marble	X	X	X	X	—
<i>Pontia protodice</i>	checkered white	X	—	—	—	—
<i>Pontia sisymbrii</i>	spring white	X	X	X	—	X
	white sp.	X	X	—	X	—

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Table 2B
Butterflies Observed on Site Weeks 6–10

Scientific Name	Common Name	Week				
		6	7	8	9	10
	sulphur sp.	—	—	—	—	—
<i>Riodinidae – Metalmarks</i>						
<i>Apodemia virgulti</i>	Behr's metalmark	X	X	X	X	X

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
<i>Apiaceae – Carrot Family</i>		
<i>Lomatium dasycarpum</i> ssp. <i>dasycarpum</i>	woolly-fruit lomatium	X
<i>Lomatium utriculatum</i>	common lomatium	—
<i>Asteraceae – Sunflower Family</i>		
<i>Achillea millefolium</i>	common yarrow, milfoil	—
<i>Lasthenia californica</i> or <i>Lasthenia gracilis</i>	common goldfields	X
<i>Lasthenia coronaria</i>	southern goldfields	—
<i>Layia platyglossa</i>	coastal tidytops, common tidytops	—
<i>Boraginaceae – Borage Family</i>		
<i>Amsinckia menziesii</i>	Menzies' fiddleneck, rancher's fireweed	—
<i>Amsinckia menziesii</i> var. <i>intermedia</i>	rancher's fiddleneck	—
<i>Amsinckia menziesii</i> var. <i>menziesii</i>	rigid fiddleneck	—
<i>Cryptantha</i> spp. or <i>Plagiobothrys</i> spp.	popcorn flower	X
<i>Phacelia distans</i>	distant phacelia, wild-heliotrope	—
<i>Fabaceae – Pea Family</i>		
<i>Acmispon</i> (=Lotus) spp.	deerweed, spanishclover, lotus	—
<i>Hydrophyllaceae – Waterleaf Family</i>		
<i>Eriodictyon crassifolium</i> var. <i>crassifolium</i>	thickleaf yerba santa	—
<i>Eriodictyon trichocalyx</i> var. <i>trichocalyx</i>	hairy yerba santa	—
<i>Lamiaceae – Mint Family</i>		
<i>Salvia columbariae</i>	chia	X
<i>Plantaginaceae – Plantain Family</i>		
<i>Antirrhinum coulterianum</i>	Coulter's snapdragon	—

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Table 3
Quino Adult Nectar Plants and Larval Food Plants

Scientific Name	Common Name	Observed During Focused Survey
<i>Collinsia</i> sp.	Chinese houses	—
<i>Keckiella antirrhinoides</i> var. <i>antirrhinoides</i>	snapdragon penstemon	—
<i>Keckiella cordifolia</i>	heartleaf keckiella, climbing bush penstemon	—
<i>Plantago erecta</i>	dwarf plantain	—
<i>Plantago patagonica</i>	woolly plantain	—
<i>Polemoniaceae – Phlox Family</i>		
<i>Gilia angelensis</i>	grassland gilia	—
<i>Gilia capitata</i> ssp. <i>abrotanifolia</i>	ball gilia	—
<i>Linanthus</i> spp.	ground pink	X
<i>Polygonaceae – Buckwheat Family</i>		
<i>Eriogonum fasciculatum</i>	California buckwheat	—
<i>Orobanchaceae – Broom-Rape Family</i>		
<i>Castilleja exserta</i>	exserted Indian paintbrush, common owl's-clover	—
<i>Scrophulariaceae – Figwort Family</i>		
<i>Cordylanthus rigidus</i> ssp. <i>setiger</i>	stiffbranch birds beak, dark-tipped bird's-beak	—
<i>Liliaceae – Lily Family</i>		
<i>Allium haematochiton</i>	redskin onion	—
<i>Allium peninsulare</i>	Mexicali onion, red-flower onion	—
<i>Allium praecox</i>	early onion	—
<i>Bloomeria clevelandii</i>	San Diego goldenstar	—
<i>Dichelostemma capitatum</i>	bluedicks	—
<i>Muilla maritima</i>	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.

No Quino larval host plants were observed within the study area during the habitat assessment or focused surveys; however, surveyors did observe some dead *Cordylanthus rigidus* remaining from the previous year's rainfall; however, since only live host plants are mapping during this effort, these locations were not recorded. Surveyors also looked for host plants during the focused surveys and none were observed. One species of host plant was observed within portions of the survey areas during the 2011 Quino host plant mapping effort (Dudek 2011).

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.

Ms. Stacey Love, Recovery Permit Coordinator

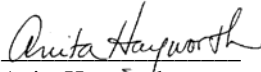
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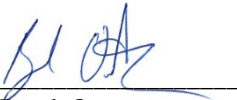
Ms. Stacey Love, Recovery Permit Coordinator

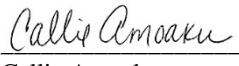
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Boulevard, San Diego County, California

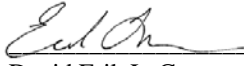
Please feel free to contact Brock Ortega at bortega@dudek.com or Callie Amoaku at cford@dudek.com if you have any questions regarding the contents of this report.

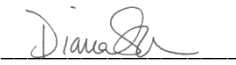
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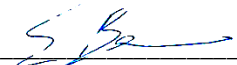

Anita Hayworth
Permit #TE-781084-9.1

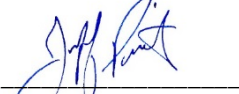

Brock Ortega
Permit #TE-813545-6

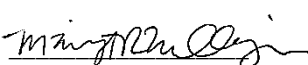

Callie Amoaku
Permit #TE-36118B-1

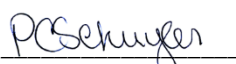

David Erik LaCoste
Permit #TE-027736-6

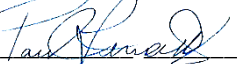

Diana Saucedo
Permit #TE-221287-1

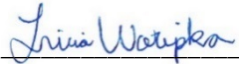

Erin Bergman
Permit #TE-53771B


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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Subject: 2018 Focused Quino Checkerspot Butterfly Survey Report for the Campo Wind Project, Boulevard, San Diego County, California

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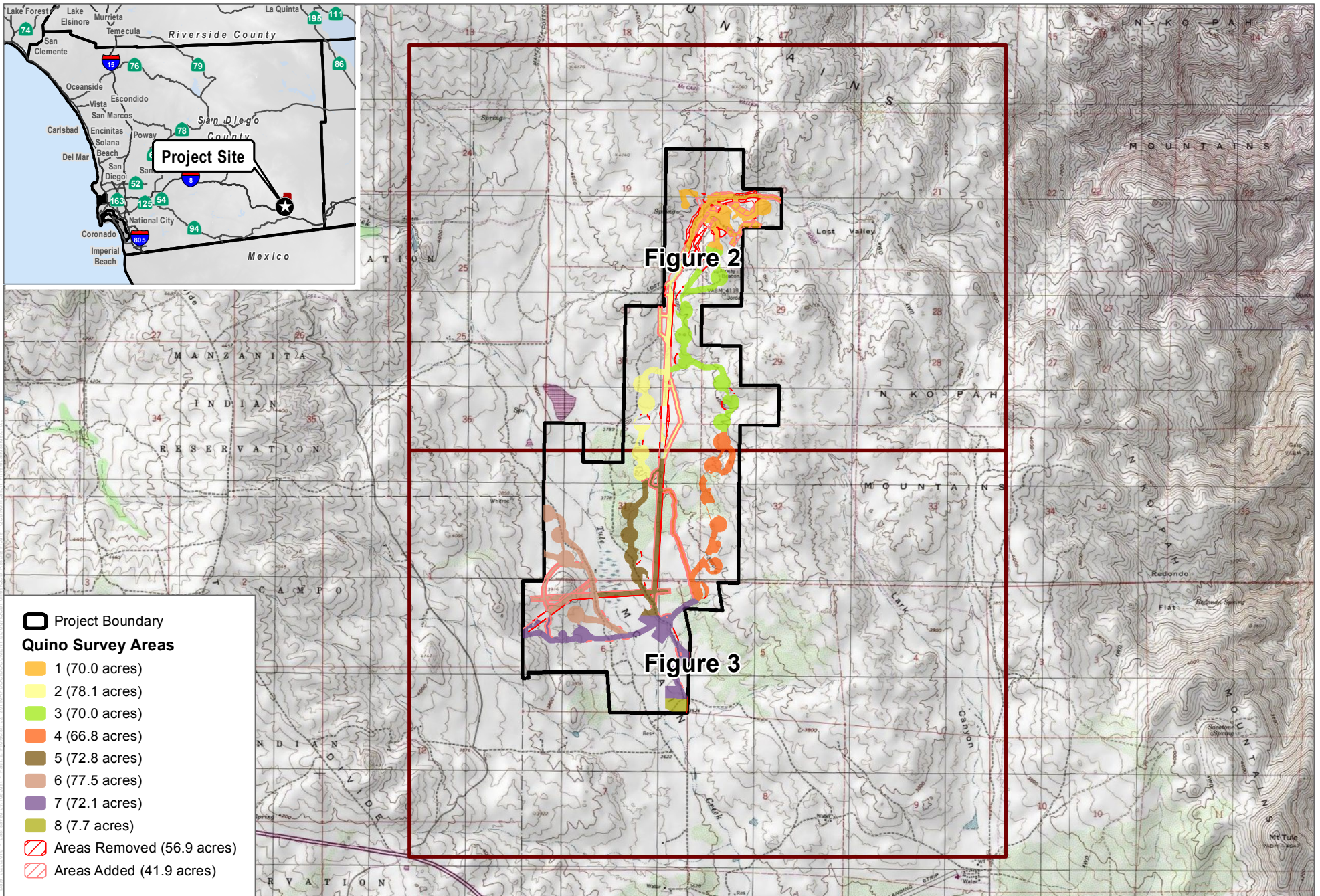
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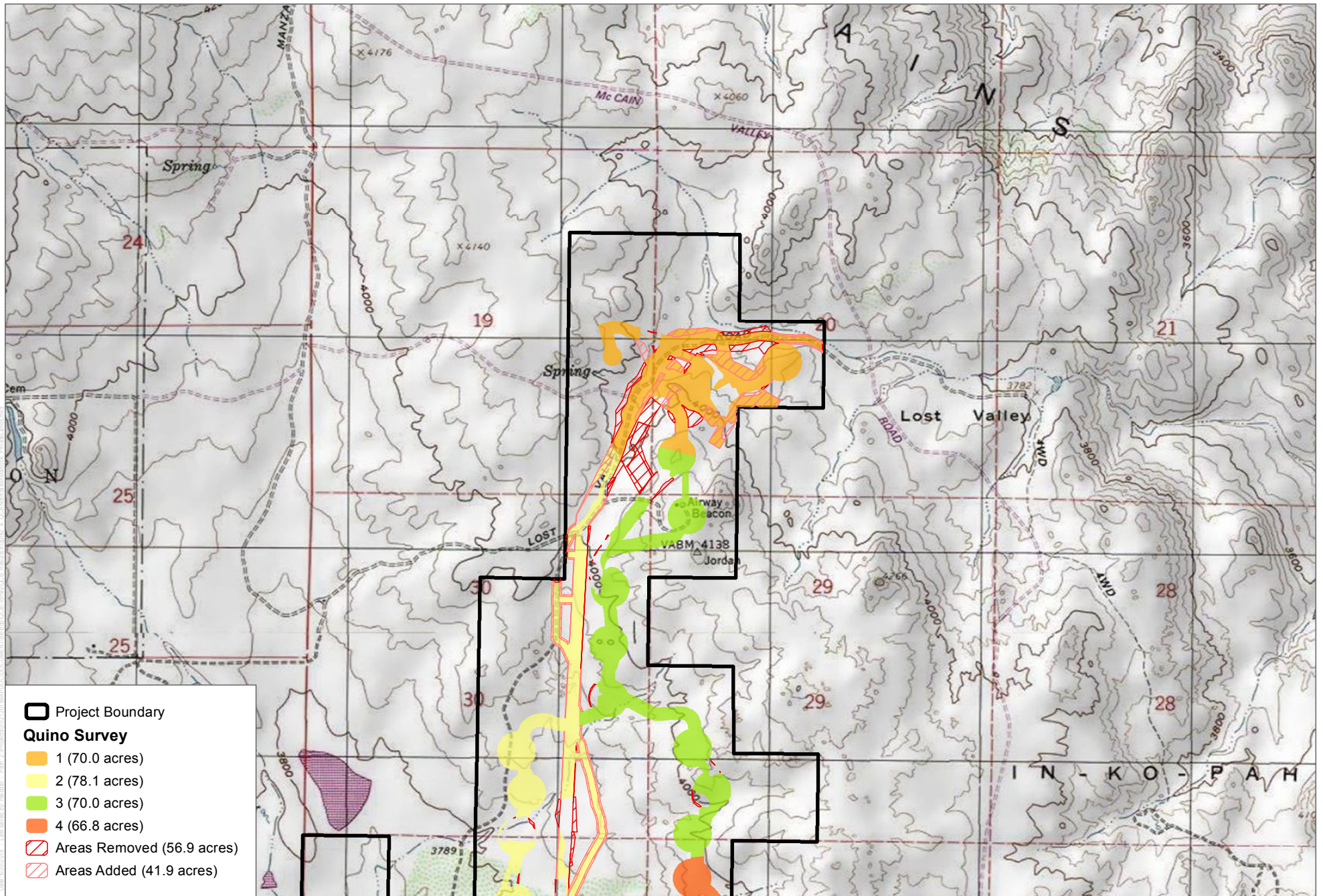
USFWS. 2018. Email from E. Porter (USFWS) to P. Schuyler (Dudek), B. Ortega (Dudek), D. Stadlander (USFWS), and S. Love (USFWS). March 12, 2018.



SOURCE: USGS 2018

FIGURE 1

Survey Results - Index

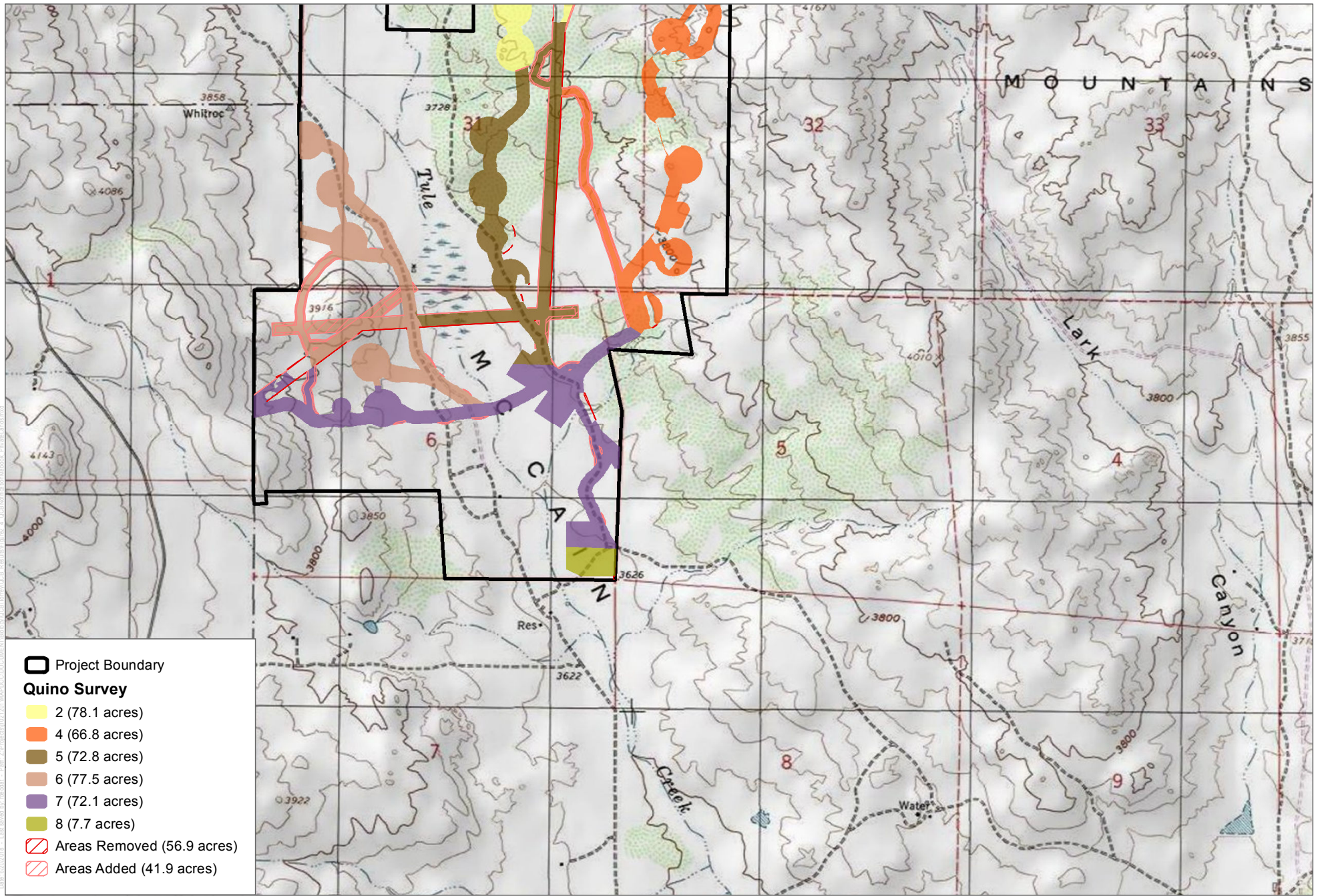


SOURCE: USGS 2018



FIGURE 2
Survey Results

Torrey Wind Project - Results of 2018 Quino Checkerspot Survey



SOURCE: USGS 2018



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

Miarchus cinerascens—ash-throated flycatcher

Sayornis nigricans—black phoebe

APPENDIX A (Continued)

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

Apelocoma 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

APPENDIX A (Continued)

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

APPENDIX A (Continued)

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

APPENDIX A (Continued)

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*—wren tit

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
- Melospiza 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

APPENDIX A (Continued)

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

APPENDIX A (Continued)

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

APPENDIX A (Continued)

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*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-12
Biologist(s)	Callie Amoaku, Patricia Schuyler
Survey Area	Private 1, Private 3
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:45:00	62	70	40	2	clear	
2	11:45:00	75	77	20	2	clear	
3	13:06:00	72	76	20	2	patchy	
4	14:56:00	74	78	40	2	patchy	
End	16:50:00	71	74	50	1	patchy	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (19)	Lady sp. (1+)	western tiger swallowtail (1)
bramble hairstreak (9)	Pacific sara orangetip (4)	
funereal duskywing (5)	southern blue (1)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-09
Biologist(s)	Callie Amoaku, Patricia Schuyler
Survey Area	Private 2, Private 5
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:04:00	66	70	30	2	clear	
1100	11:00:00	76	79	30	4	clear	Gusts 10mph
1300	13:00:00	72	76	40	5	patchy	Gusts 10mph
1430	14:30:00	73	76	60	10	patchy	Gusts 15mph
End	15:30:00	68	70	80	12	patchy	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (30)	bramble hairstreak (2)	southern blue (1)
Blue sp. (1+)	Pacific sara orangetip (2)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-09
Biologist(s)	Jeffrey Priest
Survey Area	Private 4
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:30:00	74	70	30	10	patchy	
End	16:30:00	64	68	90	10		Conditions at 4:00 pm: air 66, wind 8-12 with gusts 8-15 mph, could cover 90%.

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (3)	Pacific sara orangetip (8)	west coast lady (1)
funereal duskywing (1)	southern blue (3)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
Bewick's wren (1+)	California towhee (1+)	mourning dove (1+)
Botta's pocket gopher (1+)	common raven (1+)	mule deer (1+)
bushtit (1+)	common side-blotched lizard (1+)	northern flicker (1+)
California chipmunk (1+)	coyote (1+)	phainopepla (1+)
California ground squirrel (1+)	greater roadrunner (1+)	red-tailed hawk (1+)
California scrub-jay (1+)	house finch (1+)	turkey vulture (1+)
California thrasher (1+)	lesser goldfinch (1+)	western meadowlark (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-13
Biologist(s)	Jeffrey Priest
Survey Area	Private 4
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:40:00	70	74	100	3		Protocol temperatures reached at 1040. Previous conditions: 0940, air 64 F, ground 66 F, 100% cc. 1000, air 64 F, ground 66 F, 100% cc. 1017, air 68 F, ground 68 F, 100% cc.
End	12:10:00	74	76	100	3		

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (3)	bramble hairstreak (1)	Pacific sara orangetip (7)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
acorn woodpecker (1+)	California ground squirrel (1+)	mourning dove (1+)
American crow (1+)	California quail (1+)	mule deer (1+)
Anna's hummingbird (1+)	California scrub-jay (1+)	red-tailed hawk (1+)
black-tailed jackrabbit (1+)	common raven (1+)	turkey vulture (1+)
Botta's pocket gopher (1+)	coyote (1+)	western meadowlark (1+)
brush rabbit (1+)	house finch (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-19
Biologist(s)	Callie Amoaku, Erin Bergman, Patricia Schuyler
Survey Area	Private 6
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	14:22:00	64	66	10	4	clear	
End	16:31:00	61	63	10	3	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (7)	funereal duskywing (1)	southern blue (1)
bramble hairstreak (5)	Pacific sara orangetip (1)	western bluebird (1+)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
song sparrow (1+)	California quail (1+)	red-tailed hawk (1+)
American kestrel (1+)	California scrub-jay (1+)	turkey vulture (1+)
black-throated sparrow (1+)	common raven (1+)	western meadowlark (1+)
bobcat (1+)	phainopepla (1+)	
bushtit (1+)	red-shouldered hawk (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-13
Biologist(s)	Callie Amoaku, Patricia Schuyler
Survey Area	Private 7
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:29:00	71	74	100	0	overcast	
2	11:43:00	70	73	100	2	overcast	
3	13:38:00	76	75	100	2	overcast	
End	14:44:00	70	72	100	3	overcast	
End	14:45:00	72	70	100	5	overcast	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (15)	California dogface (2)	Pacific sara orangetip (19)
Blue sp. (1+)	funereal duskywing (6)	southern blue (4)
bramble hairstreak (6)	Lady sp. (1+)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-19
Biologist(s)	Anita Hayworth
Survey Area	Private 8
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:30:00	56	60	20	12		
End	14:00:00	61	63	20	8		

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (4)	funereal duskywing (1)	western bluebird (1+)
bramble hairstreak (3)	Pacific sara orangetip (4)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
oak titmouse (1+)	California towhee (1+)	northern flicker (1+)
black-tailed jackrabbit (1+)	common raven (1+)	western fence lizard (1+)
black phoebe (1+)	European starling (1+)	white-crowned sparrow (1+)
bushtit (1+)	house finch (1+)	
California scrub-jay (1+)	lesser goldfinch (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-19
Biologist(s)	Callie Amoaku, Erin Bergman, Patricia Schuyler
Survey Area	Private 1
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:27:00	55	55	20	4	clear	Still too cold to start
End	10:43:00	57	57	20	5	clear	Still cold
End	11:41:00	59.7	66	10	9	clear	Start 11:42
End	12:46:00	62	68	10	10	clear	
End	14:19:00	64		10	10	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (15)	funereal duskywing (3)	
bramble hairstreak (14)	Pacific sara orangetip (1)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
song sparrow (1+)	California quail (1+)	phainopepla (1+)
black-throated sparrow (1+)	California scrub-jay (1+)	wrentit (1+)
bush-tit (1+)	common raven (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-20
Biologist(s)	Callie Amoaku, Erin Bergman, Patricia Schuyler
Survey Area	Private 2
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	14:38:00	75	0		5		
End	17:19:00	70	0	10	5	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (54)	funereal duskywing (1)	White species (1)
bramble hairstreak (9)	Pacific sara orangetip (3)	
California tortoiseshell (1)	southern blue (2)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
California scrub-jay (1+)	coyote (1+)	wrentit (1+)
chipping sparrow (1+)	mule deer (1+)	
common raven (1+)	red-tailed hawk (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-21
Biologist(s)	Callie Amoaku, Erin Bergman, Patricia Schuyler
Survey Area	Private 3
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	11:40:00	70	73	20	2	clear	Warm day
End	14:00:00	74	77	0	2	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (56)	checkered white (2)	western bluebird (1+)
bramble hairstreak (19)	Pacific sara orangetip (8)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
California scrub-jay (1+)	red-tailed hawk (1+)	white-tailed antelope squirrel (1+)
chipping sparrow (1+)	spotted towhee (1+)	wrentit (1+)
common raven (1+)	turkey vulture (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-21
Biologist(s)	Callie Amoaku, Erin Bergman, Patricia Schuyler
Survey Area	Private 4
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	14:00:00	74	77	50	3	patchy	
2	15:04:00	75	80	90	3	overcast	
End	16:35:00	70	74	90	3	overcast	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (37)	checkered white (2)	
bramble hairstreak (8)	Pacific sara orangetip (8)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
Blainville's horned lizard (1+)	California scrub-jay (1+)	red-tailed hawk (1+)
oak titmouse (1+)	California towhee (1+)	turkey vulture (1+)
black-tailed jackrabbit (1+)	chipping sparrow (1+)	white-tailed antelope squirrel (1+)
bushtit (1+)	common raven (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-20
Biologist(s)	Callie Amoaku, Erin Bergman, Patricia Schuyler
Survey Area	Private 5
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	00:20:00	73	0	0	8	clear	
End	14:38:00	75	76	50	2	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (22)	funereal duskywing (4)	Sonoran blue (1)
bramble hairstreak (4)	Lady sp. (1+)	
California tortoiseshell (1)	Pacific sara orangetip (2)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
black-tailed jackrabbit (1+)	common raven (1+)	mule deer (1+)
bushtit (1+)	common side-blotched lizard (1+)	western meadowlark (1+)
California ground squirrel (1+)	greater roadrunner (1+)	
California scrub-jay (1+)	house finch (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-21
Biologist(s)	Callie Amoaku, Erin Bergman, Patricia Schuyler
Survey Area	Private 6
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:58:00	72	75	40	5	clear	
End	11:30:00	78	0	10	4	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (2)	checkered white (6)	western bluebird (1+)
Behr's metalmark (28)	Pacific sara orangetip (4)	western tiger swallowtail (2)
bramble hairstreak (5)	southern blue (2)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
oak titmouse (1+)	dark-eyed junco (1+)	southern alligator lizard (1+)
acorn woodpecker (1+)	granite spiny lizard (1+)	western meadowlark (1+)
Bewick's wren (1+)	northern flicker (1+)	wrentit (1+)
California quail (1+)	Nuttall's woodpecker (1+)	yellow-rumped warbler (1+)
California scrub-jay (1+)	phainopepla (1+)	
California towhee (1+)	red-tailed hawk (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-19
Biologist(s)	Anita Hayworth
Survey Area	Private 7
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	14:03:00	61	63	10	5		
End	16:04:00	61	63	50	8		

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Pacific sara orangetip (1+)		

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
oak titmouse (1+)	California thrasher (1+)	white-crowned sparrow (1+)
California scrub-jay (1+)	common raven (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-19
Biologist(s)	Callie Amoaku, Patricia Schuyler
Survey Area	Private 7
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	16:40:00	66	69	30	3	patchy	
End	17:15:00	64	67	30	3	patchy	

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (1)	Lady sp (1)	Pacific sara orangetip (1)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-20
Biologist(s)	Callie Amoaku, Erin Bergman, Patricia Schuyler
Survey Area	Private 7
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:26:00	71		10	9	clear	
End	12:20:00	72		0	10	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (25)	funereal duskywing (2)	
bramble hairstreak (6)	Pacific sara orangetip (8)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
Blainville's horned lizard (1+)	California quail (1+)	phainopepla (1+)
song sparrow (1+)	California scrub-jay (1+)	red-tailed hawk (1+)
acorn woodpecker (1+)	common side-blotched lizard (1+)	
bushtit (1+)	northern flicker (1+)	

INCIDENTAL PLANT LIST		
<i>Deinandra floribunda</i>		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-21
Biologist(s)	Paul Lemons
Survey Area	Private 8
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:30:00	62	60	40	3		
End	12:40:00	71	73	30	6		

BUTTERFLY LIST SPECIES (COUNT)		
bramble hairstreak (1+)	funereal duskywing (1+)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
acorn woodpecker (1+)	California towhee (1+)	rock wren (1+)
American kestrel (1+)	Cassin's kingbird (1+)	white-crowned sparrow (1+)
Botta's pocket gopher (1+)	common raven (1+)	woodrat (1+)
bushtit (1+)	desert cottontail (1+)	wrentit (1+)
California quail (1+)	Eurasian collared-dove (1+)	
California scrub-jay (1+)	European starling (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-28
Biologist(s)	Erin Bergman, Patricia Schuyler
Survey Area	Private 1
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:00:00	65	0	0	4		
End	12:45:00	74	0	0	4		

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (25)	funereal duskywing (2)	painting lady (2)
bramble hairstreak (9)	Pacific sara orangetip (9)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
black-throated sparrow (1+)	chipping sparrow (1+)	turkey vulture (1+)
California quail (1+)	common raven (1+)	
California scrub-jay (1+)	phainopepla (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-30
Biologist(s)	Callie Amoaku, Erin Bergman
Survey Area	Private 2
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:55:00	73	70	0	1	clear	
2	10:40:00	87	92	0	2	clear	
End	12:38:00	84	83	0	2	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (134)	California tortoiseshell (1)	funereal duskywing (3)
bramble hairstreak (13)	checkered white (11)	Pacific sara orangetip (35)
brown elfin (1)	desert pearly marble (8)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
Cooper's hawk (1+)	California towhee (1+)	spotted towhee (1+)
Bewick's wren (1+)	chipping sparrow (1+)	wrentit (1+)
California quail (1+)	common raven (1+)	
California scrub-jay (1+)	red-tailed hawk (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-28
Biologist(s)	Erin Bergman, Patricia Schuyler
Survey Area	Private 3
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	12:47:00	75	75	0	3	clear	
End	16:17:00	78	76	0	3	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (43)	funereal duskywing (1)	
bramble hairstreak (12)	Pacific sara orangetip (12)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
California quail (1+)	California scrub-jay (1+)	California towhee (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-28
Biologist(s)	Paul Lemons
Survey Area	Private 4
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:00:00	64	60	0	2	clear	
End	15:10:00	73	70	0	6	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (1+)	bramble hairstreak (1+)	Pacific sara orangetip (1+)
blue-gray gnatcatcher (1+)	funereal duskywing (1+)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
Bewick's wren (1+)	dark-eyed junco (1+)	northern flicker (1+)
bushtit (1+)	granite spiny lizard (1+)	sage thrasher (1+)
California quail (1+)	greater roadrunner (1+)	western fence lizard (1+)
California scrub-jay (1+)	house finch (1+)	white-crowned sparrow (1+)
California thrasher (1+)	ladder-backed woodpecker (1+)	wrentit (1+)
common raven (1+)	Merriam's chipmunk (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-30
Biologist(s)	Callie Amoaku, Erin Bergman
Survey Area	Private 5
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	12:45:00	84	83	0	2	clear	
End	16:18:00	84.9	82.5	50	3	patchy	

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (52)	brown elfin (4)	Sulphur sp. (1+)
blue-gray gnatcatcher (1+)	desert pearly marble (7)	
bramble hairstreak (11)	Pacific sara orangetip (18)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
oak titmouse (1+)	dark-eyed junco (1+)	western kingbird (1+)
bushtit (1+)	gophersnake (1+)	western rattlesnake (1+)
California scrub-jay (1+)	greater roadrunner (1+)	white-crowned sparrow (1+)
California towhee (1+)	mule deer (1+)	white-tailed antelope squirrel (1+)
chipping sparrow (1+)	northern mockingbird (1+)	
common raven (1+)	spotted towhee (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-29
Biologist(s)	Erin Bergman, Patricia Schuyler
Survey Area	Private 6
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:55:00	74	64	0	4	clear	
End	12:30:00	79	80	0	4	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (5)	funereal duskywing (1)	western tiger swallowtail (1)
Behr's metalmark (48)	Pacific sara orangetip (27)	
bramble hairstreak (8)	southern blue (2)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
American kestrel (1+)	California scrub-jay (1+)	western kingbird (1+)
Bewick's wren (1+)	phainopepla (1+)	western meadowlark (1+)
California quail (1+)	red-tailed hawk (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-29
Biologist(s)	Erin Bergman, Patricia Schuyler
Survey Area	Private 7
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	12:30:00	80	77	0	3	clear	
End	16:03:00	85	81	0	4	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (37)	brown elfin (1)	Pacific sara orangetip (21)
bramble hairstreak (9)	desert pearly marble (2)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
oak titmouse (1+)	California towhee (1+)	turkey vulture (1+)
acorn woodpecker (1+)	chipping sparrow (1+)	western fence lizard (1+)
California quail (1+)	common raven (1+)	white-crowned sparrow (1+)

INCIDENTAL PLANT LIST		
<i>Cordylanthus rigidus</i>		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-03-29
Biologist(s)	Paul Lemons
Survey Area	Private 8
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:30:00	72	67	0	1	clear	
End	12:10:00	75	71	0	5	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
checkered white (1+)	funereal duskywing (1+)	Pacific sara orangetip (1+)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
oak titmouse (1+)	common raven (1+)	red-tailed hawk (1+)
acorn woodpecker (1+)	desert cottontail (1+)	western fence lizard (1+)
American kestrel (1+)	Eurasian collared-dove (1+)	western kingbird (1+)
brown-headed cowbird (1+)	European starling (1+)	white-crowned sparrow (1+)
California ground squirrel (1+)	granite spiny lizard (1+)	wrentit (1+)
California quail (1+)	greater roadrunner (1+)	
California scrub-jay (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-02
Biologist(s)	Callie Amoaku, Patricia Schuyler
Survey Area	Private 1
Survey Pass	4

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:06:00	58	63	0	1	clear	
2	10:28:00	68	70	0	8	clear	
End	13:14:00	73	71	0	6	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (64)	brown elfin (2)	Pacific sara orangetip (31)
blue-gray gnatcatcher (1+)	checkered white (3)	Sulphur sp. (1+)
bramble hairstreak (10)	desert pearly marble (11)	White sp. (1+)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
bushtit (1+)	California quail (1+)	red-tailed hawk (1+)
cactus wren (1+)	California scrub-jay (1+)	

INCIDENTAL PLANT LIST		
<i>Cryptantha micrantha</i>		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-05
Biologist(s)	Jeffrey Priest
Survey Area	Private 2
Survey Pass	4

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:00:00	67	65	0	8	clear	
End	16:30:00	75	77	30	12	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (25)	funereal duskywing (2)	spring white (2)
bramble hairstreak (7)	orange sulphur (1)	western bluebird (1+)
brown elfin (4)	Pacific sara orangetip (14)	
desert orangetip (2)	Propertius duskywing (3)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
acorn woodpecker (1+)	common side-blotched lizard (1+)	Merriam's chipmunk (1+)
black-headed grosbeak (1+)	dark-eyed junco (1+)	mourning dove (1+)
black-tailed jackrabbit (1+)	desert cottontail (1+)	mule deer (1+)
Botta's pocket gopher (1+)	granite spiny lizard (1+)	red-tailed hawk (1+)
California scrub-jay (1+)	greater roadrunner (1+)	rock wren (1+)
California thrasher (1+)	house finch (1+)	turkey vulture (1+)
California towhee (1+)	K-rat sp. (burrows and tail-drag sign) (1+)	white-crowned sparrow (1+)
common raven (1+)	lesser goldfinch (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-05
Biologist(s)	Paul Lemons
Survey Area	Private 3
Survey Pass	4

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:00:00	67	65	0	4		
	13:15:00	80	82	20	10		
End	16:00:00	78	79	30	10		

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (1+)	checkered white (1+)	Propertius duskywing (1+)
blue-gray gnatcatcher (1+)	desert orangetip (1+)	western bluebird (1+)
brown elfin (1+)	Pacific sara orangetip (1+)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
black-headed grosbeak (1+)	dark-eyed junco (1+)	red-tailed hawk (1+)
bushtit (1+)	desert cottontail (1+)	rock wren (1+)
California ground squirrel (1+)	greater roadrunner (1+)	western fence lizard (1+)
California scrub-jay (1+)	mourning dove (1+)	white-crowned sparrow (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-05
Biologist(s)	Tricia Wotipka
Survey Area	Private 4
Survey Pass	4

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:30:00	68	0	0	3		
End	16:30:00	80	0	20	5		

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (1+)	funereal duskywing (1+)	
bramble hairstreak (1+)	Pacific sara orangetip (1+)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
bushtit (1+)	common side-blotched lizard (1+)	Merriam's chipmunk (1+)
California quail (1+)	dark-eyed junco (1+)	white-crowned sparrow (1+)
California scrub-jay (1+)	granite spiny lizard (1+)	wrentit (1+)
California thrasher (1+)	greater roadrunner (1+)	
common raven (1+)	house finch (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-03
Biologist(s)	Anita Hayworth
Survey Area	Private 5
Survey Pass	4

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:40:00	61	63	20	5		
End	16:20:00	74	76	20	8		

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (1+)	funereal duskywing (1+)	western bluebird (1+)
bramble hairstreak (1+)	Pacific sara orangetip (1+)	
desert pearly marble (1+)	spring white (1+)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
black-chinned sparrow (1+)	California towhee (1+)	phainopepla (1+)
Blainville's horned lizard (1+)	common raven (1+)	red-tailed hawk (1+)
Brewer's sparrow (1+)	dark-eyed junco (1+)	rock wren (1+)
oak titmouse (1+)	desert cottontail (1+)	Scott's oriole (1+)
acorn woodpecker (1+)	European starling (1+)	Townsend's warbler (1+)
Bewick's wren (1+)	greater roadrunner (1+)	warbling vireo (1+)
black-throated sparrow (1+)	house finch (1+)	western fence lizard (1+)
bushtit (1+)	lesser goldfinch (1+)	western kingbird (1+)
California ground squirrel (1+)	mourning dove (1+)	western meadowlark (1+)
California quail (1+)	northern flicker (1+)	white-crowned sparrow (1+)
California scrub-jay (1+)	orange-crowned warbler (1+)	wrentit (1+)
California thrasher (1+)	Pacific-slope flycatcher (1+)	yellow-rumped warbler (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-02
Biologist(s)	Callie Amoaku, Patricia Schuyler
Survey Area	Private 6
Survey Pass	4

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	13:31:00	67	69	0	8	clear	
End	16:04:00	70	72	0	16	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (4)	bramble hairstreak (8)	desert pearly marble (3)
Behr's metalmark (28)	brown elfin (2)	Pacific sara orangetip (6)
blue-gray gnatcatcher (1+)	checkered white (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
bushtit (1+)	lesser goldfinch (1+)	spotted towhee (1+)
California scrub-jay (1+)	northern flicker (1+)	western meadowlark (1+)
common raven (1+)	Nuttall's woodpecker (1+)	

INCIDENTAL PLANT LIST	
<i>Ericameria sp.</i>	<i>Cryptantha micrantha</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-06
Biologist(s)	Jeffrey Priest
Survey Area	Private 6
Survey Pass	4

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:15:00	64	62	30	7	patchy	
End	11:15:00	74	74	40	7	patchy	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (3)	brown elfin (2)	Pacific sara orangetip (2)
Behr's metalmark (22)	checkered white (9)	Propertius duskywing (1)
bramble hairstreak (2)	desert orangetip (1)	spring white (1)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
acorn woodpecker (1+)	common side-blotched lizard (1+)	Neotoma sp. (midden) (1+)
American crow (1+)	coyote (1+)	northern flicker (1+)
American kestrel (1+)	dark-eyed junco (1+)	red-tailed hawk (1+)
black-tailed jackrabbit (1+)	granite spiny lizard (1+)	turkey vulture (1+)
Botta's pocket gopher (1+)	lesser goldfinch (1+)	western kingbird (1+)
California quail (1+)	Merriam's chipmunk (1+)	western meadowlark (1+)
California scrub-jay (1+)	mourning dove (1+)	white-crowned sparrow (1+)
common raven (1+)	mule deer (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-04
Biologist(s)	Patricia Schuyler
Survey Area	Private 7
Survey Pass	4

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:31:00	66	62	20	2	patchy	
End	15:28:00	79	84	20	5	patchy	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (1)	bramble hairstreak (2)	Pacific sara orangetip (9)
Behr's metalmark (56)	California dogface (1)	
Blue sp (2)	desert pearly marble (15)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
San Diego black-tailed jackrabbit (1+)	European starling (1+)	red-tailed hawk (1+)
California scrub-jay (1+)	mourning dove (1+)	western kingbird (1+)
common raven (1+)	mule deer (1+)	western rattlesnake (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-06
Biologist(s)	Jeffrey Priest
Survey Area	Private 8
Survey Pass	4

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	11:30:00	74	75	40	12	patchy	
End	15:00:00	78	80	70	14		

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (11)	checkered white (2)	Pacific sara orangetip (2)
bramble hairstreak (2)	funereal duskywing (1)	Propertius duskywing (2)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
American crow (1+)	common side-blotched lizard (1+)	red-tailed hawk (1+)
Botta's pocket gopher (1+)	desert cottontail (1+)	spotted towhee (1+)
California quail (1+)	European starling (1+)	turkey vulture (1+)
California scrub-jay (1+)	lesser goldfinch (1+)	white-crowned sparrow (1+)
California towhee (1+)	mourning dove (1+)	
common raven (1+)	northern mockingbird (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-14
Biologist(s)	Callie Amoaku, Erin Bergman
Survey Area	Private 1
Survey Pass	5

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:09:00	69	70	0	3	clear	
End	11:10:00	71	72	0	4	clear	Temp check
End	13:18:00	72	74	0	3	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (64)	bramble hairstreak (1)	Pacific sara orangetip (24)
blue-gray gnatcatcher (1+)	desert pearly marble (7)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
California quail (1+)	chipping sparrow (1+)	white-crowned sparrow (1+)
California scrub-jay (1+)	phainopepla (1+)	white-tailed antelope squirrel (1+)

INCIDENTAL PLANT LIST		
<i>Ceanothus leucodermis</i>	<i>Ericameria linearifolia</i>	<i>Oenothera californica</i>
<i>Ceanothus perplexans</i>	<i>Garrya veatchii</i>	<i>Rhus aromatica</i>
<i>Chenopodium californicum</i>	<i>Leptosiphon lemmonii</i>	
<i>Cryptantha micrantha</i>	<i>Lupinus concinnus</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-09
Biologist(s)	Paul Lemons
Survey Area	Private 2
Survey Pass	5

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:00:00	76	75	0	4		
	12:15:00	83	79	10	12		
End	14:40:00	85	82	30	12		

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (1+)	checkered white (1+)	western bluebird (1+)
bramble hairstreak (1+)	desert orangetip (1+)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
California ground squirrel (1+)	common raven (1+)	greater roadrunner (1+)
California quail (1+)	common side-blotched lizard (1+)	white-crowned sparrow (1+)
California scrub-jay (1+)	granite spiny lizard (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-10
Biologist(s)	Paul Lemons
Survey Area	Private 2
Survey Pass	5

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	13:15:00	91	88	10	8		
End	17:00:00	89	87	10	7		gusts to 12mph

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (1+)	desert orangetip (1+)	Propertius duskywing (1+)
bramble hairstreak (1+)	funereal duskywing (1+)	western bluebird (1+)
checkered white (1+)	Pacific sara orangetip (1+)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
Bewick's wren (1+)	California scrub-jay (1+)	rock wren (1+)
Botta's pocket gopher (1+)	common raven (1+)	white-crowned sparrow (1+)
bushtit (1+)	common side-blotched lizard (1+)	wrentit (1+)
California quail (1+)	phainopepla (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-09
Biologist(s)	Erin Bergman, Patricia Schuyler
Survey Area	Private 3
Survey Pass	5

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:53:00	79	77	0	4	clear	
End	13:24:00	83	84	0	5	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (83)	brown elfin (2)	Pacific sara orangetip (14)
bramble hairstreak (1)	desert pearly marble (6)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
California quail (1+)	chipping sparrow (1+)	white-crowned sparrow (1+)
California scrub-jay (1+)	common raven (1+)	

INCIDENTAL PLANT LIST		
<i>Ceanothus perplexans</i>	<i>Ericameria linearifolia</i>	
<i>Cryptantha micrantha</i>	<i>Lasthenia gracilis</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-09
Biologist(s)	Brock Ortega
Survey Area	Private 4
Survey Pass	5

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:05:00	70	69	0	5	clear	
End	16:10:00	83	82	0	3	clear	

BUTTERFLY LIST SPECIES (COUNT)		
San Diegan tiger whiptail (1+)	brown elfin (3)	western bluebird (1+)
Acmon blue (20)	desert pearly marble (7)	western tiger swallowtail (3)
Behr's metalmark (37)	Pacific sara orangetip (9)	White sp. (1+)
Blue sp. (1+)	queen (1)	
bramble hairstreak (1)	spring white (3)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
Brewer's sparrow (1+)	Cassin's kingbird (1+)	lesser goldfinch (1+)
oak titmouse (1+)	chipping sparrow (1+)	mourning dove (1+)
San Diego black-tailed jackrabbit (1+)	common side-blotched lizard (1+)	mule deer (1+)
Anna's hummingbird (1+)	coyote (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+)	Erynnis sp. (1+)	rock wren (1+)
bobcat (1+)	Eurasian collared-dove (1+)	Say's phoebe (1+)
bushtit (1+)	European starling (1+)	spotted towhee (1+)
California ground squirrel (1+)	gophersnake (1+)	turkey vulture (1+)
California quail (1+)	greater roadrunner (1+)	western fence lizard (1+)
California scrub-jay (1+)	horned lark (1+)	white-tailed antelope squirrel (1+)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
California towhee (1+)	house finch (1+)	Wilson's warbler (1+)

INCIDENTAL PLANT LIST		
<i>(none)</i>		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-09
Biologist(s)	Erin Bergman, Patricia Schuyler
Survey Area	Private 5
Survey Pass	5

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	13:30:00	86	80	0	5	clear	
End	16:30:00	78	79	50	5	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (32)	funereal duskywing (1)	spring white (4)
blue-gray gnatcatcher (1+)	Pacific sara orangetip (21)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
Blainville's horned lizard (1+)	California scrub-jay (1+)	western meadowlark (1+)
oak titmouse (1+)	Cassin's kingbird (1+)	white-crowned sparrow (1+)
Bewick's wren (1+)	chipping sparrow (1)	
bushtit (1+)	northern mockingbird (1+)	

INCIDENTAL PLANT LIST		
<i>Boechera californica</i>	<i>Lasthenia gracilis</i>	<i>Lomatium dasycarpum</i>
<i>Ceanothus perplexans</i>	<i>Layia platyglossa</i>	
<i>Cryptantha micrantha</i>	<i>Leptosyne californica</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-10
Biologist(s)	Erin Bergman, Patricia Schuyler
Survey Area	Private 5
Survey Pass	5

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:48:00	81	82	20	2	clear	
End	10:52:00	87	84	10	2	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (2)	desert pearly marble (3)	Pacific sara orangetip (15)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
California scrub-jay (1+)	western meadowlark (1+)	
chipping sparrow (1+)	white-crowned sparrow (1+)	

INCIDENTAL PLANT LIST		
<i>Amsinckia intermedia</i>	<i>Lasthenia gracilis</i>	<i>Rhus aromatica</i>
<i>Ceanothus perplexans</i>	<i>Leptosyne californica</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-10
Biologist(s)	Erin Bergman, Patricia Schuyler
Survey Area	Private 6
Survey Pass	5

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:47:00	87	82	10	2	clear	
End	15:00:00	90	90	20	4	clear	I continued survey area 6 and Tish started area 7. I got done at 3:00 and went to join her.

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (2)	bramble hairstreak (1)	Pacific sara orangetip (34)
Behr's metalmark (122)	desert pearly marble (19)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
Blainville's horned lizard (1+)	California scrub-jay (1+)	white-crowned sparrow (1+)
barn owl (1+)	California towhee (1+)	wild turkey (1+)
bushtit (1+)	greater roadrunner (1+)	wrentit (1+)
California quail (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
<i>Acmispon heermannii</i>	<i>Erodium cicutarium</i>	<i>Pectocarya penicillata</i>
<i>Amsinckia intermedia</i>	<i>Lasthenia gracilis</i>	<i>Plagiobothrys arizonicus</i>
<i>Ceanothus perplexans</i>	<i>Lomatium dasycarpum</i>	
<i>Cryptantha micrantha</i>	<i>Lupinus concinnus</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-10
Biologist(s)	Erin Bergman, Patricia Schuyler
Survey Area	Private 7
Survey Pass	5

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	14:37:00	90	90	10	3	clear	
End	16:09:00	94	92		4	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (35)	Pacific sara orangetip (12)	
desert pearly marble (8)	Sulphur sp (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
mule deer (1+)		

INCIDENTAL PLANT LIST		
<i>Ceanothus leucodermis</i>	<i>Chenopodium californicum</i>	<i>Lasthenia gracilis</i>
<i>Ceanothus perplexans</i>	<i>Ericameria pinifolia</i>	<i>Lomatium dasycarpum</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-11
Biologist(s)	Erin Bergman
Survey Area	Private 7, Private 8
Survey Pass	5

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:56:00	82	83.6	10	3	clear	Beautiful day!
End	16:09:00	79	80	0	3	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (79)	desert pearly marble (7)	spring white (2)
bramble hairstreak (3)	Pacific sara orangetip (14)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
oak titmouse (1+)	California scrub-jay (1+)	phainopepla (1+)
acorn woodpecker (1+)	California towhee (1+)	red-tailed hawk (1+)
bushy (1+)	common raven (1+)	turkey vulture (1+)

INCIDENTAL PLANT LIST		
<i>Ericameria linearifolia</i>	<i>Leptosyne californica</i>	<i>Oenothera californica ssp. avita</i>
<i>Lasthenia gracilis</i>	<i>Lupinus concinnus</i>	<i>Plagiobothrys arizonicus</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-25
Biologist(s)	Jeffrey Priest
Survey Area	Private 1
Survey Pass	6

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:30:00	70	70	0	5		
	12:15:00	80	84	0	14		Winds 3-8 with gusts 8-14
End	15:30:00	82	85	30	12		

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (17)	Pacific sara orangetip (5)	Propertius duskywing (3)
bramble hairstreak (1)	pale swallowtail (1)	spring white (2)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
rufous hummingbird (1+)	California scrub-jay (1+)	Merriam's chipmunk (1+)
American crow (1+)	California thrasher (1+)	mourning dove (1+)
Anna's hummingbird (1+)	California towhee (1+)	mule deer (1+)
ash-throated flycatcher (1+)	cliff swallow (1+)	northern flicker (1+)
Bewick's wren (1+)	common raven (1+)	northern mockingbird (1+)
black-tailed jackrabbit (1+)	common side-blotched lizard (1+)	red-tailed hawk (1+)
Botta's pocket gopher (1+)	coyote (1+)	turkey vulture (1+)
brush rabbit (1+)	granite spiny lizard (1+)	white-crowned sparrow (1+)
bushtit (1+)	house finch (1+)	
California quail (1+)	lesser goldfinch (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-14
Biologist(s)	Jeffrey Priest
Survey Area	Private 2
Survey Pass	6

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:30:00	62	62	0	10	clear	
End	16:30:00	74	76	0	8		

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (1)	brown elfin (8)	Propertius duskywing (7)
Behr's metalmark (47)	desert orangetip (3)	spring white (13)
bramble hairstreak (2)	Pacific sara orangetip (21)	western bluebird (1+)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
American crow (1+)	common raven (1+)	mourning dove (1+)
American kestrel (1+)	common side-blotched lizard (1+)	mule deer (1+)
brush rabbit (1+)	coyote (1+)	phainopepla (1+)
bushtit (1+)	dark-eyed junco (1+)	red-tailed hawk (1+)
California ground squirrel (1+)	granite spiny lizard (1+)	spotted towhee (1+)
California quail (1+)	greater roadrunner (1+)	turkey vulture (1+)
California scrub-jay (1+)	house finch (1+)	western fence lizard (1+)
California thrasher (1+)	lesser goldfinch (1+)	western kingbird (1+)
California towhee (1+)	Merriam's chipmunk (1+)	white-crowned sparrow (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-15
Biologist(s)	Jeffrey Priest
Survey Area	Private 3
Survey Pass	6

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:30:00	64	62	10	1		
End	15:30:00	77	80	90	12		

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (41)	desert orangetip (5)	spring white (14)
blue-gray gnatcatcher (1+)	Pacific sara orangetip (8)	
brown elfin (1+)	Propertius duskywing (14)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
Blainville's horned lizard (1+)	California quail (1+)	greater roadrunner (1+)
American crow (1+)	California scrub-jay (1+)	mourning dove (1+)
Anna's hummingbird (1+)	California towhee (1+)	red-tailed hawk (1+)
bobcat (1+)	common raven (1+)	spotted towhee (1+)
Botta's pocket gopher (1+)	common side-blotched lizard (1+)	turkey vulture (1+)
brush rabbit (1+)	coyote (1+)	western meadowlark (1+)
bushtit (1+)	gophersnake (1+)	white-crowned sparrow (1+)
California ground squirrel (1+)	granite spiny lizard (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-20
Biologist(s)	Paul Lemons
Survey Area	Private 4
Survey Pass	6

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:00:00	71	69	0	4		
End	16:45:00	75	73	0	3	clear	4-8 mph gusts

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (1+)	Pacific sara orangetip (1+)	
checkered white (1+)	Propertius duskywing (1+)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
Bewick's wren (1+)	common raven (1+)	rock wren (1+)
black-throated sparrow (1+)	common side-blotched lizard (1+)	spotted towhee (1+)
bushtit (1+)	coyote (1+)	striped racer (1+)
California ground squirrel (1+)	desert cottontail (1+)	white-crowned sparrow (1+)
California quail (1+)	granite spiny lizard (1+)	wrentit (1+)
California scrub-jay (1+)	greater roadrunner (1+)	zebra-tailed lizard (1+)
California towhee (1+)	red-tailed hawk (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-20
Biologist(s)	Erin Bergman, Patricia Schuyler
Survey Area	Private 5
Survey Pass	6

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:28:00	67	0	0	1		
End	13:21:00	72	74	0	3	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (8)	brown elfin (1)	southern blue (1)
Behr's metalmark (57)	desert pearly marble (5)	spring white (2)
blue-gray gnatcatcher (1+)	Pacific sara orangetip (19)	White species (10)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
Bewick's wren (1+)	chipping sparrow (1+)	phainopepla (1+)
California scrub-jay (1+)	common raven (1+)	red-tailed hawk (1+)
California towhee (1+)	mourning dove (1+)	white-crowned sparrow (1+)
Cassin's kingbird (1+)	northern mockingbird (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
<i>Anisocoma acaulis</i>	<i>Eriophyllum wallacei</i>	<i>Leptosiphon lemmonii</i>
<i>Ceanothus perplexans</i>	<i>Euphorbia albomarginata</i>	<i>Leptosiphon parviflorus</i>
<i>Cryptantha micrantha</i>	<i>Geraea viscida</i>	<i>Linanthus bellus</i>
<i>Descurainia pinnata</i>	<i>Lasthenia gracilis</i>	<i>Lomatium dasycarpum</i>
<i>Ericameria linearifolia</i>	<i>Layia glandulosa</i>	<i>Lupinus concinnus</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-18
Biologist(s)	Paul Lemons
Survey Area	Private 6
Survey Pass	6

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:20:00	61	60	0	2	clear	
End	16:05:00	65	64	0	8		9-15 mph gusts

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (1+)	checkered white (1+)	Propertius duskywing (1+)
Behr's metalmark (1+)	funereal duskywing (1+)	western tiger swallowtail (1+)
bramble hairstreak (1+)	Pacific sara orangetip (1+)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
acorn woodpecker (1+)	California scrub-jay (1+)	mourning dove (1+)
American kestrel (1+)	common raven (1+)	red-tailed hawk (1+)
brush rabbit (1+)	common side-blotched lizard (1+)	Steller's jay (1+)
Bullock's oriole (1+)	European starling (1+)	turkey vulture (1+)
California ground squirrel (1+)	greater roadrunner (1+)	western meadowlark (1+)
California quail (1+)	Merriam's chipmunk (1+)	white-crowned sparrow (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-17
Biologist(s)	Erin Bergman
Survey Area	Private 7, Private 8
Survey Pass	6

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:58:00	67	67	0	3	clear	
Temp check	14:26:00	84	85	0	2	clear	
End	17:03:00	68	69	0	2	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (58)	Pacific sara orangetip (11)	White species (8)
bramble hairstreak (1+)	southern blue (1+)	
desert pearly marble (7)	spring white (4)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
oak titmouse (1+)	Cassin's kingbird (1+)	red-tailed hawk (1)
acorn woodpecker (1+)	chipping sparrow (1+)	turkey vulture (1+)
bushtit (1+)	common raven (1+)	white-crowned sparrow (1+)
California scrub-jay (1+)	greater roadrunner (1+)	
California towhee (1+)	phainopepla (1+)	

INCIDENTAL PLANT LIST		
<i>Ceanothus leucodermis</i>	<i>Ericameria linearifolia</i>	<i>Layia glandulosa</i>
<i>Ceanothus perplexans</i>	<i>Erodium cicutarium</i>	<i>Linanthus bellus</i>
<i>Chenopodium californicum</i>	<i>Lasthenia gracilis</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-29
Biologist(s)	Jeffrey Priest
Survey Area	Private 1
Survey Pass	7

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:30:00	60	60	10	10		Winds highly variable: 3-10 mph with gusts 10-15 mph.
Mid day	11:11:00	66	66	0	14		Winds highly variable. 3-7 mph with gusts 7-14 mph.
End	15:30:00	68	70	0	10		Winds highly variable: 5-10 mph with gusts 10-18 mph.

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (12)	pale swallowtail (1)	Proterpius duskywing (2)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
American crow (1+)	California scrub-jay (1+)	mourning dove (1+)
American kestrel (1+)	California towhee (1+)	mule deer (1+)
Bewick's wren (1+)	common raven (1+)	northern mockingbird (1+)
black-throated sparrow (1+)	common side-blotched lizard (1+)	red-tailed hawk (1+)
Botta's pocket gopher (1+)	coyote (1+)	spotted towhee (1+)
brush rabbit (1+)	gophersnake (1+)	turkey vulture (1+)
bushtit (1+)	granite spiny lizard (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-28
Biologist(s)	Jeffrey Priest
Survey Area	Private 2
Survey Pass	7

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:30:00	64	66	0	1		
Mid-day conditions	12:47:00	78	80	0	14		Rising winds: 6-14 mph with gusts 15-18 mph.
End	16:30:00	75	78	0	14		

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (9)	funereal duskywing (1)	Propertius duskywing (1)
bramble hairstreak (1)	Pacific sara orangetip (2)	western bluebird (1+)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
oak titmouse (1+)	California towhee (1+)	house wren (1+)
Anna's hummingbird (1+)	cliff swallow (1+)	lesser goldfinch (1+)
ash-throated flycatcher (1+)	common raven (1+)	Merriam's chipmunk (1+)
Botta's pocket gopher (1+)	common side-blotched lizard (1+)	northern mockingbird (1+)
brush rabbit (1+)	coyote (1+)	red-tailed hawk (1+)
bushtit (1+)	dark-eyed junco (1+)	turkey vulture (1+)
California ground squirrel (1+)	granite spiny lizard (1+)	western rattlesnake (1+)
California quail (1+)	greater roadrunner (1+)	
California scrub-jay (1+)	house finch (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-24
Biologist(s)	Callie Amoaku, Patricia Schuyler
Survey Area	Private 3
Survey Pass	7

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:09:00	82	78	30	1	clear	
End	12:44:00	86	88	20	1	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (49)	Pacific sara orangetip (1)	
desert pearly marble (4)	pale swallowtail (3)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
Blainville's horned lizard (1+)	California scrub-jay (1+)	granite spiny lizard (1+)
black-throated sparrow (1+)	common side-blotched lizard (1+)	white-tailed antelope squirrel (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-25
Biologist(s)	Erin Bergman
Survey Area	Private 4
Survey Pass	7

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	12:00:00	74	78	0	1	clear	
End	15:36:00	75	78	10	1	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (3)	desert pearly marble (2)	western bluebird (1)
Behr's metalmark (22)	Gabb's checkerspot (2)	White species (3)
blue-gray gnatcatcher (1+)	Pacific sara orangetip (10)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
California scrub-jay (1+)	chipping sparrow (1+)	common raven (1+)

INCIDENTAL PLANT LIST		
<i>Geraea viscida</i>	<i>Linanthus bellus</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-25
Biologist(s)	Callie Amoaku
Survey Area	Private 4
Survey Pass	7

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:44:00	79	78	0	5	clear	
2	12:18:00	82	83	0	9	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (32)	desert pearly marble (1)	Proterpius duskywing (3)
blue-gray gnatcatcher (1+)	funereal duskywing (2)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
Blainville's horned lizard (1+)	common side-blotched lizard (1+)	Townsend's warbler (1+)
Cooper's hawk (1+)	granite spiny lizard (1+)	western kingbird (1+)
ash-throated flycatcher (1+)	great horned owl (1+)	wrentit (1+)
California scrub-jay (1+)	red-tailed hawk (1+)	

INCIDENTAL PLANT LIST		
<i>Ceanothus leucodermis</i>	<i>Ericameria linearifolia</i>	<i>Lupinus concinnus</i>
<i>Ceanothus perplexans</i>	<i>Eriodictyon crassifolium</i>	<i>Nama demissa</i>
<i>Chaenactis glabriuscula</i>	<i>Erodium cicutarium</i>	<i>Oenothera californica</i>
<i>Cryptantha micrantha</i>	<i>Lasthenia gracilis</i>	<i>Salvia columbariae</i>
<i>Dichelostemma capitatum</i>	<i>Linanthus bellus</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-25
Biologist(s)	Margie Mulligan
Survey Area	Private 5
Survey Pass	7

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:55:00	75		0	6	clear	
End	15:35:00	76	0	0	8	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (14)	Gabb's checkerspot (1)	Propertius duskywing (2)
desert pearly marble (4)	pale swallowtail (1)	sleepy duskywing (1)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-25
Biologist(s)	Erin Bergman
Survey Area	Private 5
Survey Pass	7

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:14:00	76	77	0	1	clear	
End	12:00:00	73	77	0	1	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (18)	Pacific sara orangetip (5)	spring white (2)
desert pearly marble (9)	pale swallowtail (1)	White species (9)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
acorn woodpecker (1+)	chipping sparrow (1+)	western meadowlark (1+)
California scrub-jay (1)	turkey vulture (1+)	white-crowned sparrow (1+)

INCIDENTAL PLANT LIST		
<i>Ceanothus leucodermis</i>	<i>Euphorbia albomarginata</i>	<i>Lupinus concinnus</i>
<i>Ceanothus perplexans</i>	<i>Lasthenia gracilis</i>	<i>Pectocarya setosa</i>
<i>Ericameria linearifolia</i>	<i>Layia glandulosa</i>	<i>Rhus aromatica</i>
<i>Eriophyllum wallacei</i>	<i>Loeseliastrum schottii</i>	<i>Senecio californicus</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-20
Biologist(s)	Tricia Wotipka
Survey Area	Private 6
Survey Pass	7

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:50:00	64	68	10	2	patchy	
End	17:30:00	75	74	0	3	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (1+)	Pacific sara orangetip (1+)	spring white (1+)
Behr's metalmark (1+)	pale swallowtail (1+)	western bluebird (1+)
funereal duskywing (1+)	southern blue (1+)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
acorn woodpecker (1+)	common side-blotched lizard (1+)	Merriam's chipmunk (1+)
ash-throated flycatcher (1+)	desert cottontail (1+)	northern flicker (1+)
Bullock's oriole (1+)	granite spiny lizard (1+)	rock wren (1+)
California ground squirrel (1+)	greater roadrunner (1+)	Steller's jay (1+)
California scrub-jay (1+)	house finch (1+)	
common raven (1+)	lesser goldfinch (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-20
Biologist(s)	Erin Bergman, Patricia Schuyler
Survey Area	Private 7, Private 8
Survey Pass	7

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	13:24:00	72	74	0	3	clear	
End	16:01:00	74	75	0	3	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (60)	California patch (1)	Pacific sara orangetip (9)
blue-gray gnatcatcher (1+)	desert pearly marble (3)	White species (11)
bramble hairstreak (1)	Lady species (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
acorn woodpecker (1)	California scrub-jay (1+)	red-tailed hawk (1+)
black-tailed jackrabbit (1+)	chipping sparrow (1+)	turkey vulture (1+)
California quail (1+)	common raven (1+)	western meadowlark (1+)

INCIDENTAL PLANT LIST		
<i>Amsinckia intermedia</i>	<i>Phlox austromontana</i>	
<i>Chenopodium californicum</i>	<i>Sisymbrium altissimum</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-22
Biologist(s)	Erin Bergman
Survey Area	Private 7, Private 8
Survey Pass	7

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:39:00	75	79	0	2	clear	
End	13:44:00	83	85	0	1	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (5)	desert pearly marble (7)	Sulphur species (2)
Behr's metalmark (44)	Pacific sara orangetip (12)	White species (17)
blue-gray gnatcatcher (1+)	spring white (2)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
acorn woodpecker (1+)	California towhee (1+)	turkey vulture (1+)
Bewick's wren (1+)	Cassin's kingbird (1+)	white-crowned sparrow (1+)
bushtit (1+)	chipping sparrow (1+)	wrentit (1+)
California scrub-jay (1+)	common raven (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-05-03
Biologist(s)	Patricia Schuyler
Survey Area	Private 1
Survey Pass	8

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:37:00	63	62	0	3	clear	
End	15:40:00	74	78	0	5	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (17)	blue-gray gnatcatcher (1+)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
California scrub-jay (1+)	mule deer (1+)	white-tailed antelope squirrel (1+)
common raven (1+)	turkey vulture (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-05-04
Biologist(s)	Callie Amoaku
Survey Area	Private 2
Survey Pass	8

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:34:00	72	81	0	3	clear	
2	10:50:00	79	79	0	3	clear	
End	16:26:00	81	85	0	3	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (10)	pale swallowtail (1)	western tiger swallowtail (1)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
ash-throated flycatcher (1+)	California quail (1+)	phainopepla (1+)
black-throated sparrow (1+)	California scrub-jay (1+)	white-crowned sparrow (1+)
bushtit (1+)	granite spiny lizard (1+)	white-tailed antelope squirrel (1+)
California ground squirrel (1+)	northern flicker (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
<i>Ericameria linearifolia</i>	<i>Heliotropium curassavicum</i>	<i>Linanthus bellus</i>
<i>Eriodictyon trichocalyx</i>	<i>Hesperoyucca whipplei</i>	<i>Penstemon centranthifolius</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-05-03
Biologist(s)	Anita Hayworth
Survey Area	Private 3
Survey Pass	8

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:05:00	62	64	0	5		
End	17:15:00	21	21.5	0	8		Gusts 10-22

BUTTERFLY LIST SPECIES (COUNT)		
Behr's metalmark (1+)		

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
Brewer's sparrow (1+)	dark-eyed junco (1+)	red-tailed hawk (1+)
black-throated sparrow (1+)	European starling (1+)	rock wren (1+)
bushtit (1+)	house finch (1+)	Townsend's warbler (1+)
California scrub-jay (1+)	mourning dove (1+)	warbling vireo (1+)
California thrasher (1+)	northern flicker (1+)	Wilson's warbler (1+)
California towhee (1+)	orange-crowned warbler (1+)	
common raven (1+)	Pacific-slope flycatcher (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-05-04
Biologist(s)	Tricia Wotipka
Survey Area	Private 4
Survey Pass	8

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:15:00	74	78	0	3	clear	
End	16:15:00	82	84	0	3	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (1+)	Behr's metalmark (1+)	blue-gray gnatcatcher (1+)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
Blainville's horned lizard (1+)	California scrub-jay (1+)	red-tailed hawk (1+)
oak titmouse (1+)	common raven (1+)	spotted towhee (1+)
ash-throated flycatcher (1+)	common side-blotched lizard (1+)	Townsend's warbler (1+)
brush rabbit (1+)	lesser goldfinch (1+)	western fence lizard (1+)
bushtit (1+)	mourning dove (1+)	western kingbird (1+)
California ground squirrel (1+)	mule deer (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-05-05
Biologist(s)	Diana Saucedo, Erik LaCoste
Survey Area	Private 5, Private 6
Survey Pass	8

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:00:00	77	81	0	3	clear	
End	15:35:00	85	91	0	7	clear	

BUTTERFLY LIST <small>SPECIES (COUNT)</small>		
Acmon blue (4)	funereal duskywing (1)	Propertius duskywing (3)
Behr's metalmark (22)	Gabb's checkerspot (1)	spring white (1)

INCIDENTAL WILDLIFE LIST <small>SPECIES (COUNT)</small>		
(none)		

INCIDENTAL PLANT LIST		
<i>Pectocarya spp</i>	<i>Eriastrum sapphirinum</i>	<i>Leptosiphon floribundus</i>
<i>Plagiobotrys</i>	<i>Erodium cicutarium</i>	<i>Leptosiphon lemmonii</i>
<i>Amsinckia intermedia</i>	<i>Lasthenia gracilis</i>	<i>Salvia columbariae</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-24
Biologist(s)	Callie Amoaku, Patricia Schuyler
Survey Area	Private 6
Survey Pass	8

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	13:02:00	86	88	20	1	clear	
End	17:20:00	83	0	30	2	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (1)	desert pearly marble (6)	pale swallowtail (1)
Behr's metalmark (29)	Pacific sara orangetip (2)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
acorn woodpecker (1+)	California scrub-jay (1+)	mule deer (1+)
black-tailed jackrabbit (1+)	common side-blotched lizard (1+)	white-crowned sparrow (1+)
California ground squirrel (1+)	granite spiny lizard (1+)	white-tailed antelope squirrel (1+)
California quail (1+)	house finch (1+)	Wilson's warbler (1+)

INCIDENTAL PLANT LIST		
<i>Amsinckia intermedia</i>	<i>Ericameria linearifolia</i>	<i>Layia glandulosa</i>
<i>Ceanothus leucodermis</i>	<i>Eriodictyon crassifolium</i>	<i>Linanthus bellus</i>
<i>Ceanothus perplexans</i>	<i>Eriophyllum wallacei</i>	<i>Lupinus concinnus</i>
<i>Dichelostemma capitatum</i>	<i>Lasthenia gracilis</i>	<i>Penstemon centranthifolius</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-04-27
Biologist(s)	Tricia Wotipka
Survey Area	Private 7
Survey Pass	8

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:15:00	61	62	0	3	clear	
End	16:00:00	78	74	0	4	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (1+)	pale swallowtail (1+)	
Pacific sara orangetip (1+)	western bluebird (1+)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
Lawrence's goldfinch (1+)	California quail (1+)	mourning dove (1+)
oak titmouse (1+)	California scrub-jay (1+)	northern flicker (1+)
acorn woodpecker (1+)	common raven (1+)	red-tailed hawk (1+)
American kestrel (1+)	common side-blotched lizard (1+)	spotted towhee (1+)
ash-throated flycatcher (1+)	European starling (1+)	western meadowlark (1+)
black-tailed jackrabbit (1+)	greater roadrunner (1+)	wrentit (1+)
brush rabbit (1+)	hooded oriole (1+)	yellow-rumped warbler (1+)
bushtit (1+)	house finch (1+)	
California ground squirrel (1+)	lesser goldfinch (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-05-07
Biologist(s)	Jeffrey Priest
Survey Area	Private 1
Survey Pass	9

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:00:00	68	67	0	5		
Mid afternoon conditions.	14:08:00	86	90	0	12		
End	16:00:00	84	86	0	10		

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (1)	blue-gray gnatcatcher (1+)	Lorquin's admiral (2)
Behr's metalmark (9)	desert pearly marble (1)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
San Diego black-tailed jackrabbit (1+)	California scrub-jay (1+)	Merriam's chipmunk (1+)
acorn woodpecker (1+)	California towhee (1+)	mule deer (1+)
American crow (1+)	cliff swallow (1+)	northern flicker (1+)
Anna's hummingbird (1+)	common raven (1+)	phainopepla (1+)
ash-throated flycatcher (1+)	common side-blotched lizard (1+)	red-tailed hawk (1+)
Bewick's wren (1+)	coyote (1+)	spotted towhee (1+)
brush rabbit (1+)	granite spiny lizard (1+)	turkey vulture (1+)
bushtit (1+)	greater roadrunner (1+)	western kingbird (1+)
California ground squirrel (1+)	house finch (1+)	white-throated swift (1+)
California quail (1+)	lesser goldfinch (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-05-07
Biologist(s)	Callie Amoaku, Patricia Schuyler
Survey Area	Private 2
Survey Pass	9

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	12:40:00	86	88	0	8	clear	
End	16:46:00	90	93	0	3	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (2)	Behr's metalmark (5)	California sister (1)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
Bewick's wren (1+)	common raven (1+)	turkey vulture (1+)
California towhee (1+)	gophersnake (1+)	white-tailed antelope squirrel (1+)

INCIDENTAL PLANT LIST		
<i>(none)</i>		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-05-07
Biologist(s)	Callie Amoaku, Patricia Schuyler
Survey Area	Private 3
Survey Pass	9

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:35:00	76	70	10	3	clear	
End	12:35:00	86	88	0	5	clear	

BUTTERFLY LIST <small>SPECIES (COUNT)</small>		
Behr's metalmark (10)	California sister (1)	funereal duskywing (1)

INCIDENTAL WILDLIFE LIST <small>SPECIES (COUNT)</small>		
San Diego black-tailed jackrabbit (1+)	California scrub-jay (1+)	
bushtit (1+)	sagebrush sparrow (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-05-08
Biologist(s)	Callie Amoaku
Survey Area	Private 4
Survey Pass	9

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:59:00	84	90	10	1	clear	
2	12:16:00	90	92	10	2	clear	
End	15:39:00	91	93	0	2	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
San Diegan tiger whiptail (1+)	Behr's metalmark (2)	gray hairstreak (2)
Acmon blue (3)	California sister (1)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
ash-throated flycatcher (1+)	common raven (1+)	red-tailed hawk (1+)
bushtit (1+)	common side-blotched lizard (1+)	spotted towhee (1+)
California quail (1+)	hermit warbler (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-05-09
Biologist(s)	Erik LaCoste
Survey Area	Private 5
Survey Pass	9

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:00:00	78	78	0	3	clear	
End	15:15:00	90	95	10	8	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (2)	California sister (2)	
Behr's metalmark (4)	funereal duskywing (1)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-05-07
Biologist(s)	Anita Hayworth
Survey Area	Private 6
Survey Pass	9

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:28:00	79	83	0	6		
End	18:42:00	78	76	0	8		Gusts to 13

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Behr's metalmark (1+)	southern blue (1+)	
fiery skipper (1+)	western bluebird (1+)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
oak titmouse (1+)	common raven (1+)	mule deer (1+)
acorn woodpecker (1+)	dark-eyed junco (1+)	northern flicker (1+)
ash-throated flycatcher (1+)	desert cottontail (1+)	Nuttall's woodpecker (1+)
Bewick's wren (1+)	Eurasian collared-dove (1+)	red-tailed hawk (1+)
Bullock's oriole (1+)	European starling (1+)	rock wren (1+)
California ground squirrel (1+)	hermit warbler (1+)	Townsend's warbler (1+)
California quail (1+)	hooded oriole (1+)	turkey vulture (1+)
California scrub-jay (1+)	house finch (1+)	western tanager (1+)
California thrasher (1+)	lesser goldfinch (1+)	western wood-pewee (1+)
Cassin's kingbird (1+)	mourning dove (1+)	Wilson's warbler (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-05-07
Biologist(s)	Erin Bergman
Survey Area	Private 7, Private 8
Survey Pass	9

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:04:00	74	76	20	1	clear	
End	16:59:00	73	76	0	1	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Acmon blue (5)	desert pearly marble (2)	White species (5)
Behr's metalmark (16)	pale swallowtail (1)	
bramble hairstreak (1)	southern blue (2)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
acorn woodpecker (1+)	chipping sparrow (1+)	phainopepla (1+)
black phoebe (1+)	common raven (1+)	red-tailed hawk (1+)
bushtit (1+)	house wren (1+)	turkey vulture (1+)
California scrub-jay (1+)	mourning dove (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-05-12
Biologist(s)	Margie Mulligan
Survey Area	Private 1
Survey Pass	10

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:32:00	49	0	100	5	drizzle	
End	09:35:00	53	0	50	10	patchy	
End	10:33:00	57	0	10	15	clear	
	11:31:00	61	0	0	15	clear	
End	12:43:00	61	0	0	20		

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-05-11
Biologist(s)	Jeffrey Priest
Survey Area	Private 2
Survey Pass	10

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:45:00	62	62	20	8		
Mid day, valley, wind rising	13:00:00	72	79	20	29		Wind 8-15, gusts 15-29 mph.
End	14:00:00	72	79	20	30		Winds above protocol, survey cut short.

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (1)	Behr's metalmark (1)	blue-gray gnatcatcher (1+)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
acorn woodpecker (1+)	common raven (1+)	Merriam's chipmunk (1+)
Bewick's wren (1+)	common side-blotched lizard (1+)	mourning dove (1+)
brush rabbit (1+)	coyote (1+)	red-tailed hawk (1+)
bushtit (1+)	granite spiny lizard (1+)	turkey vulture (1+)
California ground squirrel (1+)	house finch (1+)	white-throated swift (1+)
California scrub-jay (1+)	lesser goldfinch (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-05-11
Biologist(s)	Tricia Wotipka
Survey Area	Private 3
Survey Pass	10

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:45:00	62	62	20	8	patchy	
End	14:00:00	72	79	40	27	patchy	Survey was called short due to sustained high winds exceeding an average of 15mph over a 30 second period.

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (1+)	blue-gray gnatcatcher (1+)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
oak titmouse (1+)	common side-blotched lizard (1+)	spotted towhee (1+)
American crow (1+)	granite spiny lizard (1+)	turkey vulture (1+)
brush rabbit (1+)	greater roadrunner (1+)	white-throated swift (1+)
bushtit (1+)	house finch (1+)	wrentit (1+)
California ground squirrel (1+)	lesser goldfinch (1+)	
California scrub-jay (1+)	Merriam's chipmunk (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-05-12
Biologist(s)	Jeffrey Priest
Survey Area	Private 4
Survey Pass	10

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:00:00	54	62	10	10		
Mid day	12:34:00	58	64	10	8		
End	16:45:00	63	70	0	15		Wind 5-10 with gusts 10-15

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (1)	blue-gray gnatcatcher (1+)	Propertius duskywing (1)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
acorn woodpecker (1+)	cliff swallow (1+)	mourning dove (1+)
American crow (1+)	common raven (1+)	mule deer (1+)
ash-throated flycatcher (1+)	common side-blotched lizard (1+)	northern flicker (1+)
Bewick's wren (1+)	coyote (1+)	red-tailed hawk (1+)
black-throated sparrow (1+)	granite spiny lizard (1+)	Say's phoebe (1+)
brush rabbit (1+)	greater roadrunner (1+)	spotted towhee (1+)
bushtit (1+)	house finch (1+)	western rattlesnake (1+)
California scrub-jay (1+)	lesser goldfinch (1+)	white-throated swift (1+)
California towhee (1+)	Merriam's chipmunk (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-05-13
Biologist(s)	Jeffrey Priest
Survey Area	Private 5
Survey Pass	10

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:30:00	58	62	0	5		
Mid day	12:07:00	70	76	0	10		Wind in valley: 2-7 with gusts 7-10. Wind on small peak: 6-10 with gusts 10-15.
End	16:00:00	75	82	0	12		

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (1)	Lorquin's admiral (1)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
American crow (1+)	California towhee (1+)	Merriam's chipmunk (1+)
American kestrel (1+)	common raven (1+)	mourning dove (1+)
Anna's hummingbird (1+)	coyote (1+)	mule deer (1+)
black-tailed jackrabbit (1+)	granite spiny lizard (1+)	northern flicker (1+)
black-throated sparrow (1+)	greater roadrunner (1+)	red-tailed hawk (1+)
brush rabbit (1+)	house finch (1+)	turkey vulture (1+)
bushtit (1+)	lesser goldfinch (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-05-11
Biologist(s)	Margie Mulligan
Survey Area	Private 6
Survey Pass	10

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:04:00	60	0		8	clear	
	11:55:00	71	0	10	13	clear	Gusts to 13
End	14:02:00	70	0	20	17	clear	Gusts to 25

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (1)		

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Campo Wind (Private Land)
Survey Date	2018-05-11
Biologist(s)	Erik LaCoste
Survey Area	Private 7, Private 8
Survey Pass	10

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:15:00	60	63	0	8	clear	
End	13:45:00	70	72	10	26	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
California sister (1)		

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

APPENDIX F

*2019 Focused Quino Checkerspot Butterfly Survey
Report for the Torrey Wind Project,
Boulevard, San Diego County, California*

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 Borchert (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 tidytops (*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 Borchert (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
3	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	
	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	
5	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	
	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 Borchert (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						
<i>Copaeodes aurantiacus</i>	orange skipperling	–	–	X	–	–
<i>Erynnis funeralis</i>	funereal duskywing	X	X	X	X	X
<i>Erynnis propertius</i>	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
<i>Erynnis tristis</i>	mournful duskywing	-	-	-	-	-
<i>Pholisora catullus</i>	Common sootywing	-	-	X	X	X
<i>Pyrgus albescens</i>	white checkered-skipper	X	-	X	X	-
Nymphalidae – Brush-Footed Butterflies						
<i>Chlosyne californica</i>	California patch	X	-	X	-	-
<i>Chlosyne gabbii</i>	Gabb’s checkerspot	-	-	-	-	-
<i>Danaus gilippus</i>	queen	-	-	-	-	-
<i>Danaus plexippus</i>	monarch	-	X	-	-	-
<i>Euphydryas chalcedona chalcedona</i>	Chalcedon variable checkerspot	-	-	-	-	-
<i>Euphydryas editha quino</i>	quino checkerspot butterfly	-	-	-	-	X
<i>Junonia coenia</i>	common buckeye	-	-	-	-	-
<i>Nymphalis antiopa</i>	mourning cloak	-	-	-	-	-
<i>Nymphalis californica</i>	California tortoiseshell	X	X	X	X	X
<i>Vanessa annabella</i>	west coast lady	X	X	X	X	X
<i>Vanessa cardui</i>	painter lady	X	X	X	X	X
	lady sp.	X	X	-	-	X
Lycaenidae – Blues and Hairstreaks						
<i>Atlides halesus</i>	great purple hairstreak	X	-	-	-	X
<i>Brephidium exile</i>	western pygmy-blue	-	X	-	X	-
<i>Callophrys augustinus</i>	brown elfin	X	X	X	X	X
<i>Callophrys dumetorum</i>	bramble hairstreak	X	X	X	X	X
<i>Callophrys dumetorum affinis</i>	immaculate bramble hairstreak	-	-	-	-	-
<i>Callophrys perplexa</i>	Perplexing hairstreak	-	X	-	-	-
<i>Euphilotes battoides bernardino</i>	Bernardino square-spotted blue	-	-	-	-	-
<i>Everes amyntula</i>	western tailed-blue	-	-	-	-	-
<i>Glaucopsyche lygdamus australis</i>	southern blue	-	-	-	-	-
<i>Hemiargus ceraunus gyas</i>	Edward’s blue	-	-	X	-	X
<i>Hemiargus isola</i>	Reakirt’s blue	-	-	-	-	-
<i>Icaricia acmon acmon</i>	Acmon blue	-	-	X	-	X
<i>Leptotes marina</i>	marine blue	-	-	-	X	X
<i>Lycaeides melissa</i>	Melissa blue	-	-	-	-	-
<i>Strymon melinus</i>	gray hairstreak	-	X	-	X	X
	blue sp.	-	X	-	X	-
Papilionidae – Swallowtails						
<i>Papilio eurymedon</i>	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						
<i>Anthocharis cethura</i>	desert orangetip	X	X	X	X	-
<i>Anthocharis sara sara</i>	Pacific Sara orangetip	X	X	X	X	X
<i>Colias eurydice</i>	California dogface	-	X	X	X	-
<i>Colias eurytheme</i>	orange sulphur	X	-	X	X	-
<i>Colias harfordii</i>	Harford’s sulphur	X	X	-	X	X
<i>Euchloe hyantis</i>	California marble	X	-	-	-	-
<i>Euchloe hyantis lotta</i>	desert pearly marble	X	X	X	X	X
<i>Eurema nicippe</i>	sleepy orange	-	-	-	-	-
<i>Nathalis iole</i>	dainty sulphur	X	X	X	X	X
<i>Phoebis sennae</i>	cloudless sulphur	-	-	X	-	-
<i>Pieris rapae</i>	cabbage white	-	X	-	X	X
<i>Pontia beckerii</i>	Becker’s white	-	-	X	X	-
<i>Pontia protodice</i>	checkered white	X	X	X	X	X
<i>Pontia sisymbrii</i>	spring white	X	X	X	X	X
	orangetip sp.	X	-	-	-	-
	sulphur sp.	X	X	X	X	X
	white sp.	-	X	X	-	X
Riodinidae – Metalmarks						
<i>Apodemia mormo virgulti</i>	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					
<i>Copaeodes aurantiacus</i>	orange skipperling	-	-	-	-
<i>Erynnis funeralis</i>	funereal duskywing	X	X	X	X
<i>Erynnis propertius</i>	Propertius duskywing	X	X	X	X
<i>Erynnis tristis</i>	mournful duskywing	-	X	-	-
<i>Pholisora catullus</i>	Common sootywing	X	X	-	-
<i>Pyrgus albescens</i>	white checkered-skipper	X	X	-	X
Nymphalidae – Brush-Footed Butterflies					
<i>Chlosyne californica</i>	California patch	-	-	-	-
<i>Chlosyne gabbii</i>	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
<i>Danaus gilippus</i>	queen	X	-	-	-
<i>Danaus plexippus</i>	monarch	-	-	-	X
<i>Euphydryas chalcedona chalcedona</i>	Chalcedon variable checkerspot	X	-	-	-
<i>Euphydryas editha quino</i>	quino checkerspot butterfly	-	-	-	-
<i>Junonia coenia</i>	common buckeye	-	-	X	-
<i>Nymphalis antiopa</i>	mourning cloak	-	-	X	-
<i>Nymphalis californica</i>	California tortoiseshell	-	-	-	-
<i>Vanessa annabella</i>	west coast lady	X	X	X	-
<i>Vanessa cardui</i>	painted lady	X	X	X	X
	lady sp.	X	X	X	X
Lycaenidae – Blues and Hairstreaks					
<i>Atlides haesus</i>	great purple hairstreak	X	X	-	-
<i>Brephidium exile</i>	western pygmy-blue	X	X	X	X
<i>Callophrys augustinus</i>	brown elfin	-	-	X	-
<i>Callophrys dumetorum</i>	bramble hairstreak	X	-	X	-
<i>Callophrys dumetorum affinis</i>	immaculate bramble hairstreak	-	X	-	-
<i>Callophrys perplexa</i>	Perplexing hairstreak	-	-	-	-
<i>Euphilotes battoides bernardino</i>	Bernardino square-spotted blue	-	-	-	X
<i>Everes amyntula</i>	western tailed-blue	-	-	X	X
<i>Glaucopsyche lygdamus australis</i>	southern blue	-	X	-	-
<i>Hemiargus ceraunus gyas</i>	Edward's blue	X	X	X	X
<i>Hemiargus isola</i>	Reakirt's blue	X	-	-	-
<i>Icaricia acmon acmon</i>	Acmon blue	-	X	X	X
<i>Leptotes marina</i>	marine blue	-	X	X	X
<i>Lycaeides melissa</i>	Melissa blue	-	-	-	X
<i>Strymon melinus</i>	gray hairstreak	X	X	X	X
	blue sp.	X	-	X	X
Papilionidae – Swallowtails					
<i>Papilio eurymedon</i>	pale swallowtail	X	X	X	-
Pieridae – Whites and Sulfurs					
<i>Anthocharis cethura</i>	desert orangetip	X	-	X	-
<i>Anthocharis sara sara</i>	Pacific Sara orangetip	X	X	X	X
<i>Colias eurydice</i>	California dogface	X	-	-	-
<i>Colias eurytheme</i>	orange sulphur	X	X	X	X
<i>Colias harfordii</i>	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
<i>Euchloe hyantis</i>	California marble	-	-	-	-
<i>Euchloe hyantis lotta</i>	desert pearly marble	X	X	X	X
<i>Eurema nicippe</i>	sleepy orange	X	-	-	-
<i>Nathalis iole</i>	dainty sulphur	X	X	X	X
<i>Phoebis sennae</i>	cloudless sulphur	-	-	-	-
<i>Pieris rapae</i>	cabbage white	X	-	X	X
<i>Pontia beckerii</i>	Becker's white	X	-	-	X
<i>Pontia protodice</i>	checkered white	X	X	X	X
<i>Pontia sisymbrii</i>	spring white	X	-	-	-
	orangetip sp.	-	-	-	-
	sulphur sp.	X	-	-	X
	white sp.	X	X	X	X
Riodinidae – Metalmarks					
<i>Apodemia mormo virgulti</i>	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		
<i>Lomatium dasycarpum</i> ssp. <i>dasycarpum</i>	woollyfruit desertparsley	X
<i>Lomatium utriculatum</i>	common lomatium	—
Asteraceae – Sunflower Family		
<i>Achillea millefolium</i>	common yarrow, milfoil	X
<i>Lasthenia californica</i> or <i>Lasthenia gracilis</i>	California goldfields or needle goldfields	X
<i>Lasthenia coronaria</i>	royal goldfields	—

Table 4. Quino Adult Nectar Plants and Larval Food Plants

Scientific Name	Common Name	Observed During Focused Survey
<i>Layia platyglossa</i>	coastal tidytips, common tidytips	X
Boraginaceae – Borage Family		
<i>Amsinckia menziesii</i>	Menzies' fiddleneck, rancher's fireweed	X
<i>Amsinckia menziesii</i> var. <i>intermedia</i>	rancher's fiddleneck	—
<i>Amsinckia menziesii</i> var. <i>menziesii</i>	rigid fiddleneck	—
<i>Cryptantha</i> spp. or <i>Plagiobothrys</i> spp.	cryptantha or popcorn flower	X
<i>Phacelia distans</i>	distant phacelia, wild-heliotrope	X
Fabaceae – Pea Family		
<i>Acemispum</i> (=Lotus) spp.	deerweed, spanishclover, lotus	X
Hydrophyllaceae – Waterleaf Family		
<i>Eriodictyon crassifolium</i> var. <i>crassifolium</i>	thickleaf yerba santa	—
<i>Eriodictyon trichocalyx</i> var. <i>trichocalyx</i>	hairy yerba santa	—
Lamiaceae – Mint Family		
<i>Salvia columbariae</i>	chia	X
Plantaginaceae – Plantain Family		
<i>Antirrhinum coulterianum</i>	Coulter's snapdragon	X
<i>Collinsia heterophylla</i>	Purple Chinese houses	—
<i>Collinsia concolor</i>	Chinese houses	X
<i>Keckiella antirrhinoides</i> var. <i>antirrhinoides</i>	snapdragon penstemon	—
<i>Keckiella cordifolia</i>	heartleaf keckiella, climbing bush penstemon	—
<i>Plantago erecta</i>	dwarf plantain	—
<i>Plantago patagonica</i>	woolly plantain	—
Polemoniaceae – Phlox Family		
<i>Gilia angelensis</i>	chaparral gilia	X
<i>Gilia capitata</i> ssp. <i>abrotanifolia</i>	bluehead gilia	—
<i>Linanthus</i> spp.	ground pink	X
Polygonaceae – Buckwheat Family		
<i>Eriogonum fasciculatum</i>	California buckwheat	X
Orobanchaceae – Broom-Rape Family		
<i>Castilleja exserta</i>	exserted Indian paintbrush, common owl's-clover	—
Scrophulariaceae – Figwort Family		
<i>Cordylanthus rigidus</i>	stiffbranch bird's beak	X
Liliaceae – Lily Family		
<i>Allium haematochiton</i>	redskin onion	—
<i>Allium peninsulare</i>	Mexicali onion, red-flower onion	—

Ms. Stacey Love, Recovery Permit Coordinator

Subject: 2019 Focused Quino Checkerspot Butterfly Survey Report for Proposed Wind Energy Facilities, Boulevard, San Diego County, California

Table 4. Quino Adult Nectar Plants and Larval Food Plants

Scientific Name	Common Name	Observed During Focused Survey
<i>Allium praecox</i>	early onion	—
<i>Bloomeria clevelandii</i>	San Diego goldenstar	—
<i>Dichelostemma capitatum</i>	bluedicks	X
<i>Muilla maritima</i>	sea muilla, common muilla	—

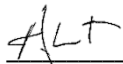
Sources: List derived from Mattoni et al. 1997; USFWS 2002, 2003; 67 FR 18355–18395 (for *Euphydryas editha*).

Note: Plants listed in **bold print** are known Quino larval host plant species.

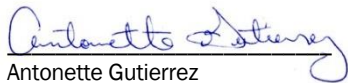
Dudek certifies that the information in this survey report and the attached figures and appendices fully and accurately represents the work conducted by the Quino-permitted biologists who conducted this focused survey.

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.

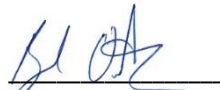
Sincerely,



Andrew Borchert
Permit #TE-092162-4



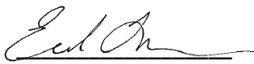
Antonette Gutierrez
Permit #TE-50992B



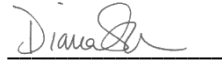
Brock Ortega
Permit #TE-813545-6



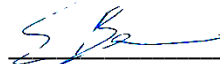
Callie Amoaku
Permit #TE-36118B-1



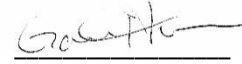
David Erik LaCoste
Permit #TE-027736-6



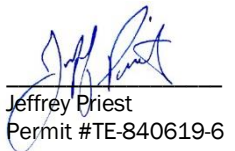
Diana Saucedo
Permit #TE-221287-1



Erin Bergman
Permit #TE-53771B-2



Garrett Huffman
Permit #TE-20186A-2.1



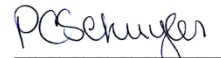
Jeffrey Priest
Permit #TE-840619-6



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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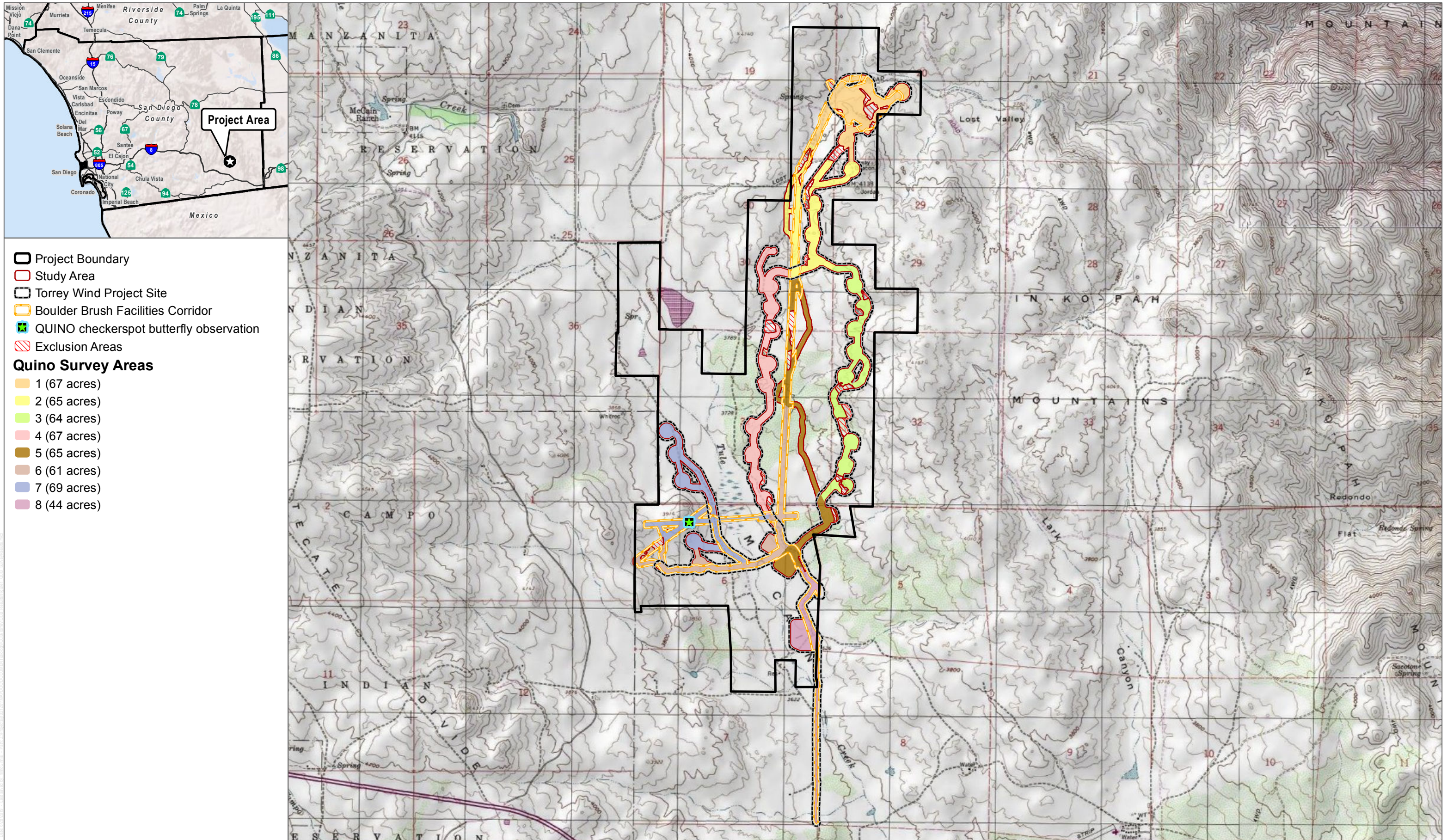
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Ms. Stacey Love, Recovery Permit Coordinator

Subject: 2019 Focused Quino Checkerspot Butterfly Survey Report for Proposed Wind Energy Facilities,
Boulevard, San Diego County, California

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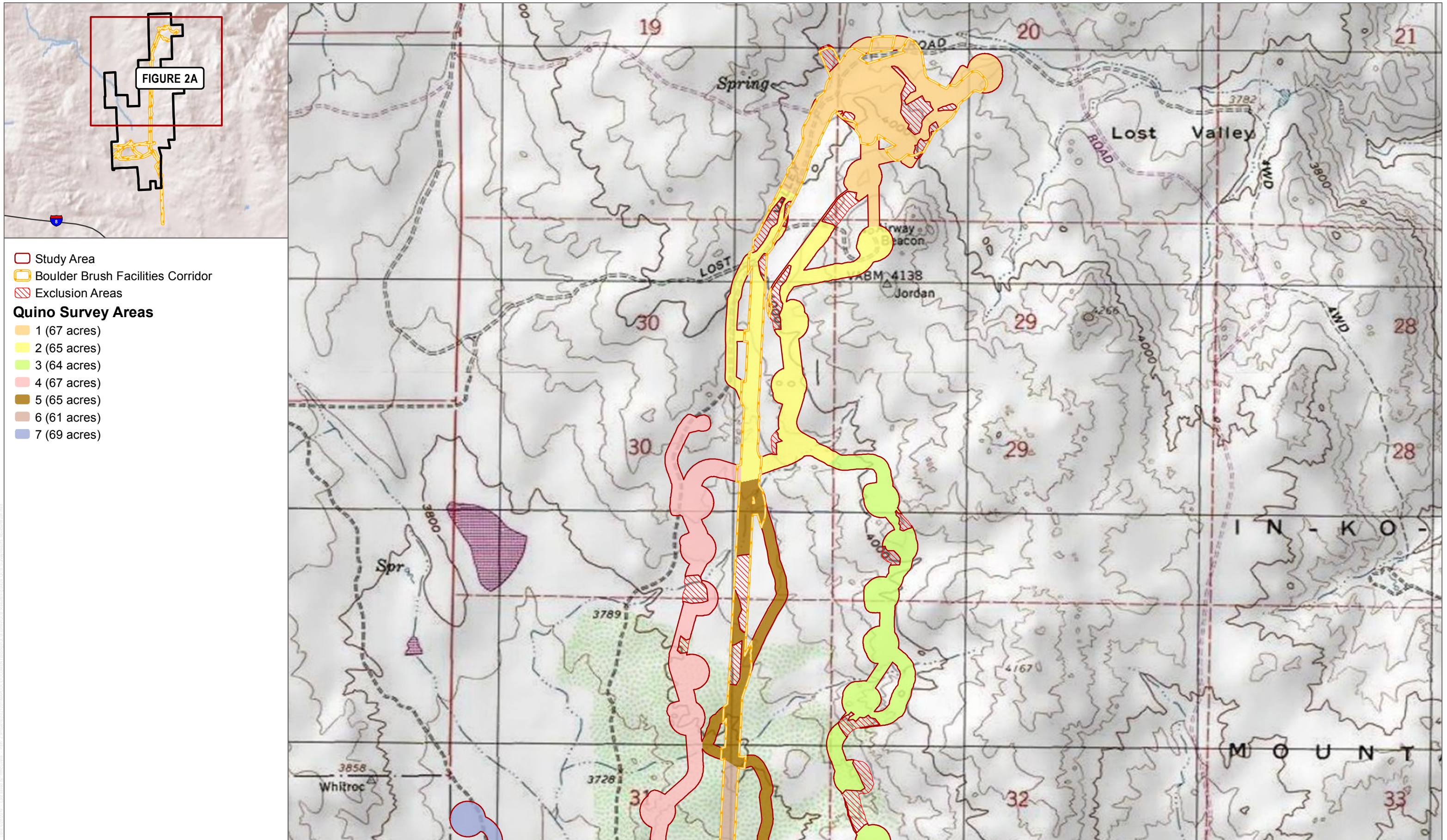


SOURCE: USGS 7.5-minute Quadrangle



FIGURE 1

Survey Results



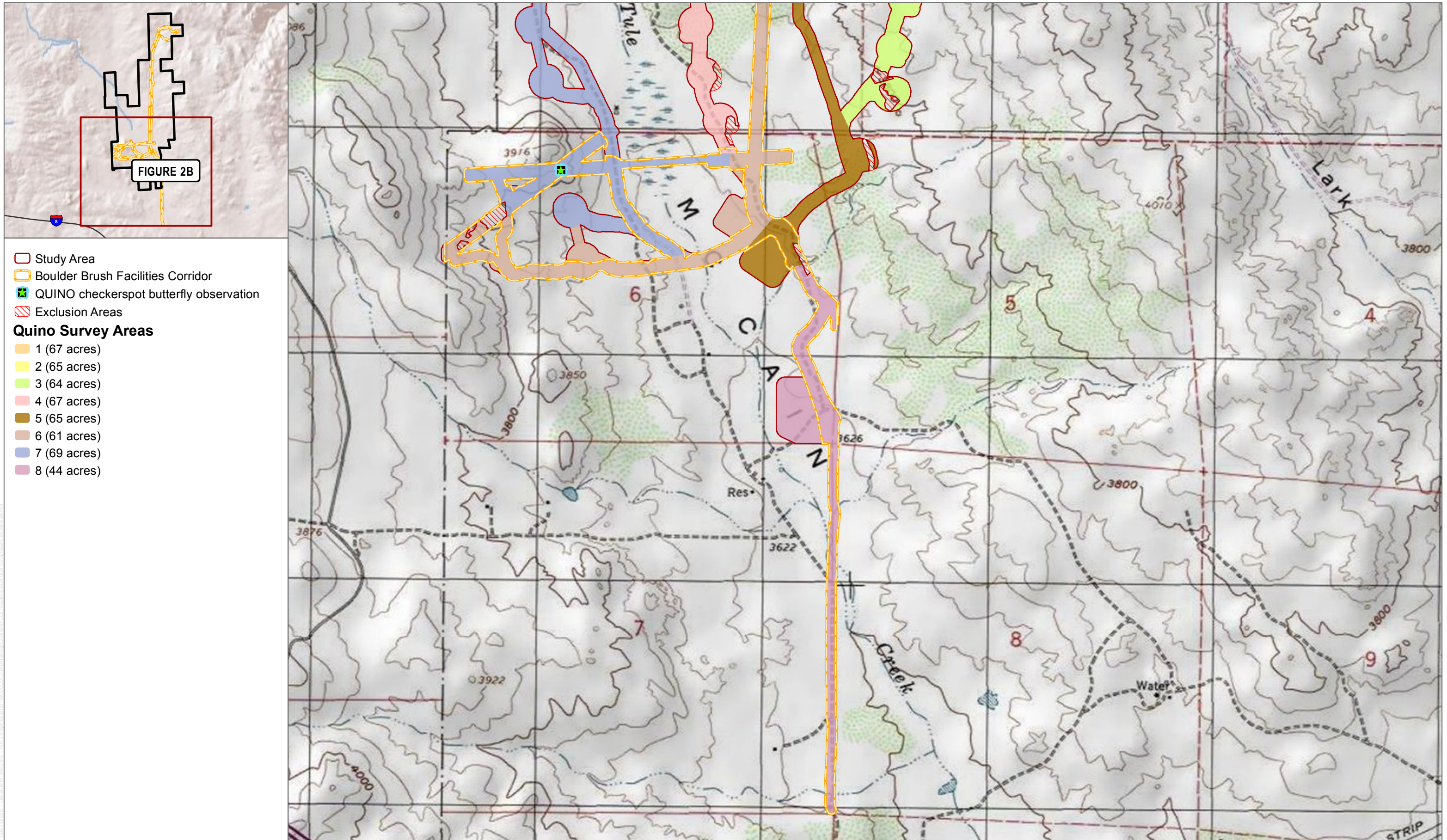
SOURCE: USGS 7.5-minute Quadrangle



FIGURE 2A

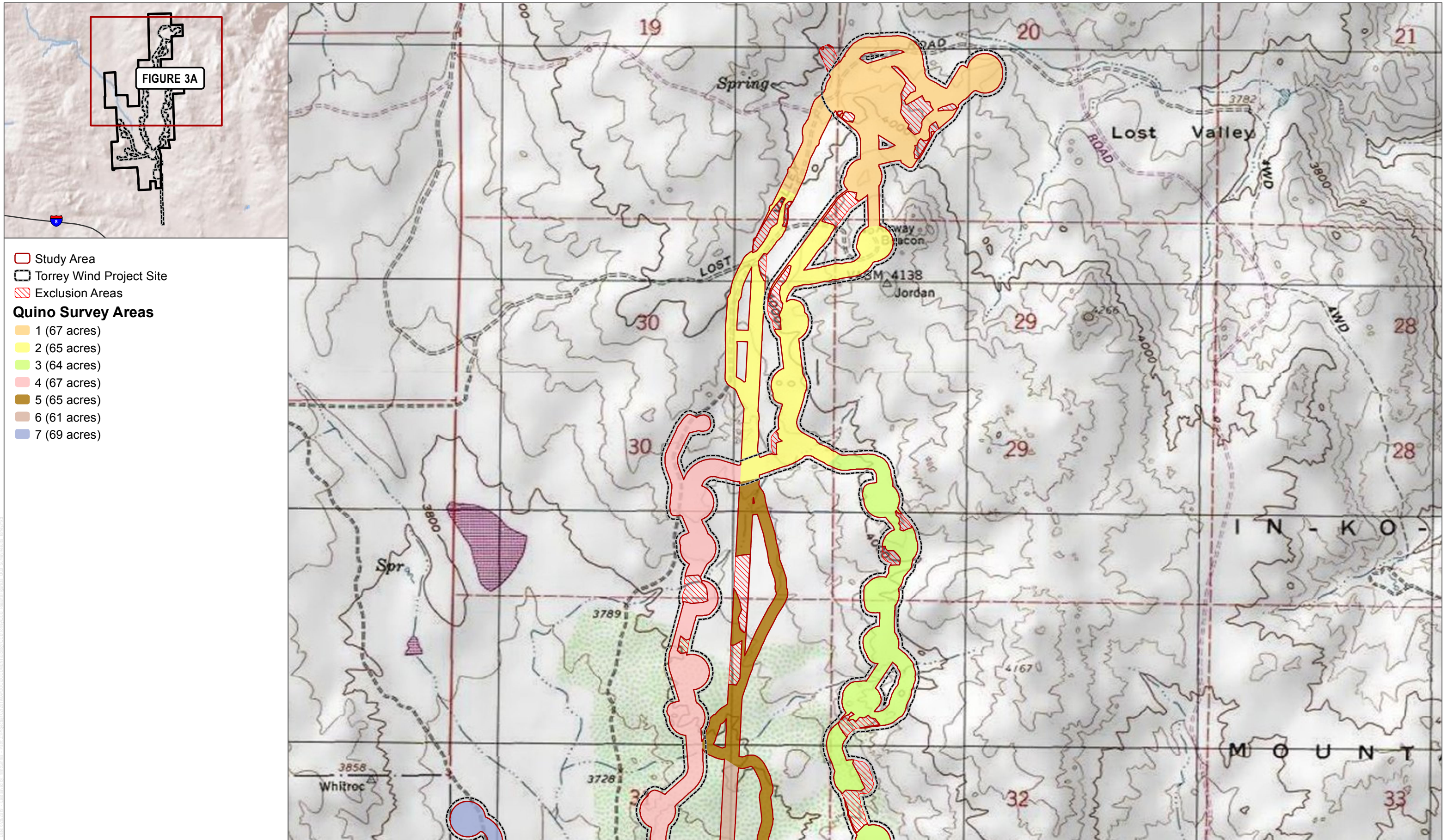
Survey Results - Boulder Brush

2019 Focused Quino Checkerspot Butterfly Survey Report



SOURCE: USGS 7.5-minute Quadrangle

FIGURE 2B



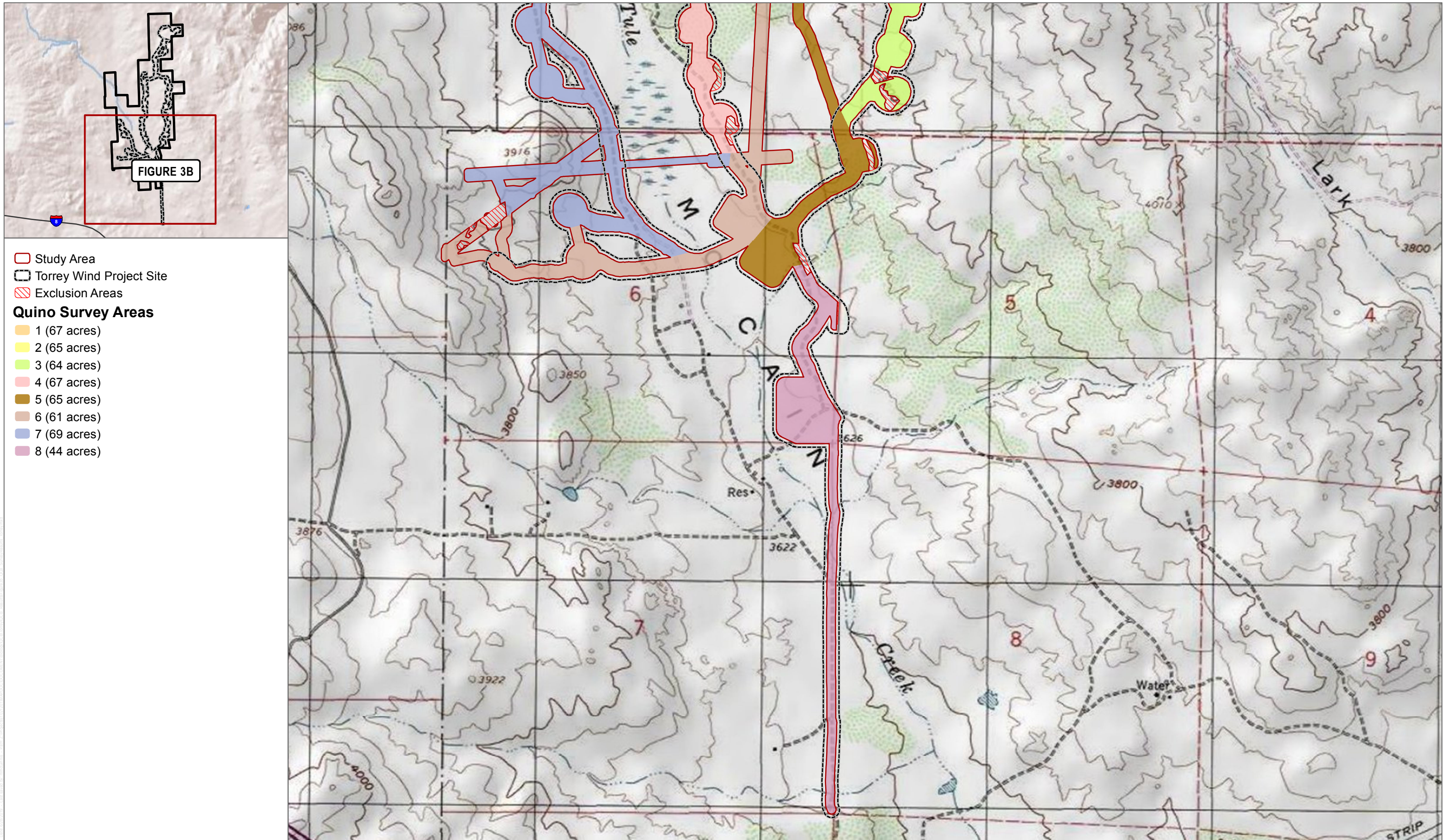
SOURCE: USGS 7.5-minute Quadrangle



FIGURE 3A

Survey Results - Torrey

2019 Focused Quino Checkerspot Butterfly Survey Report



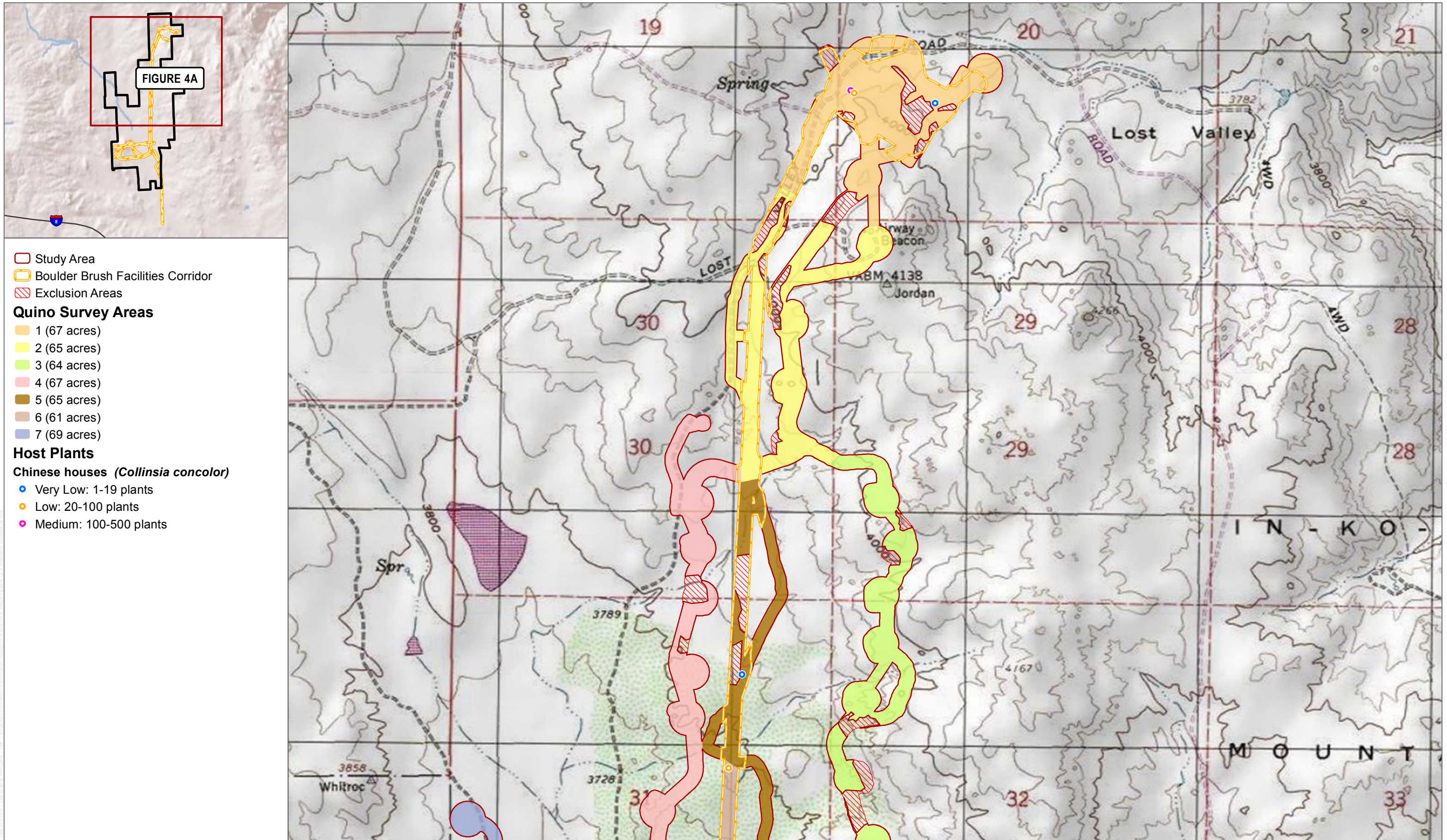
SOURCE: USGS 7.5-minute Quadrangle



FIGURE 3B

Survey Results - Torrey

2019 Focused Quino Checkerspot Butterfly Survey Report

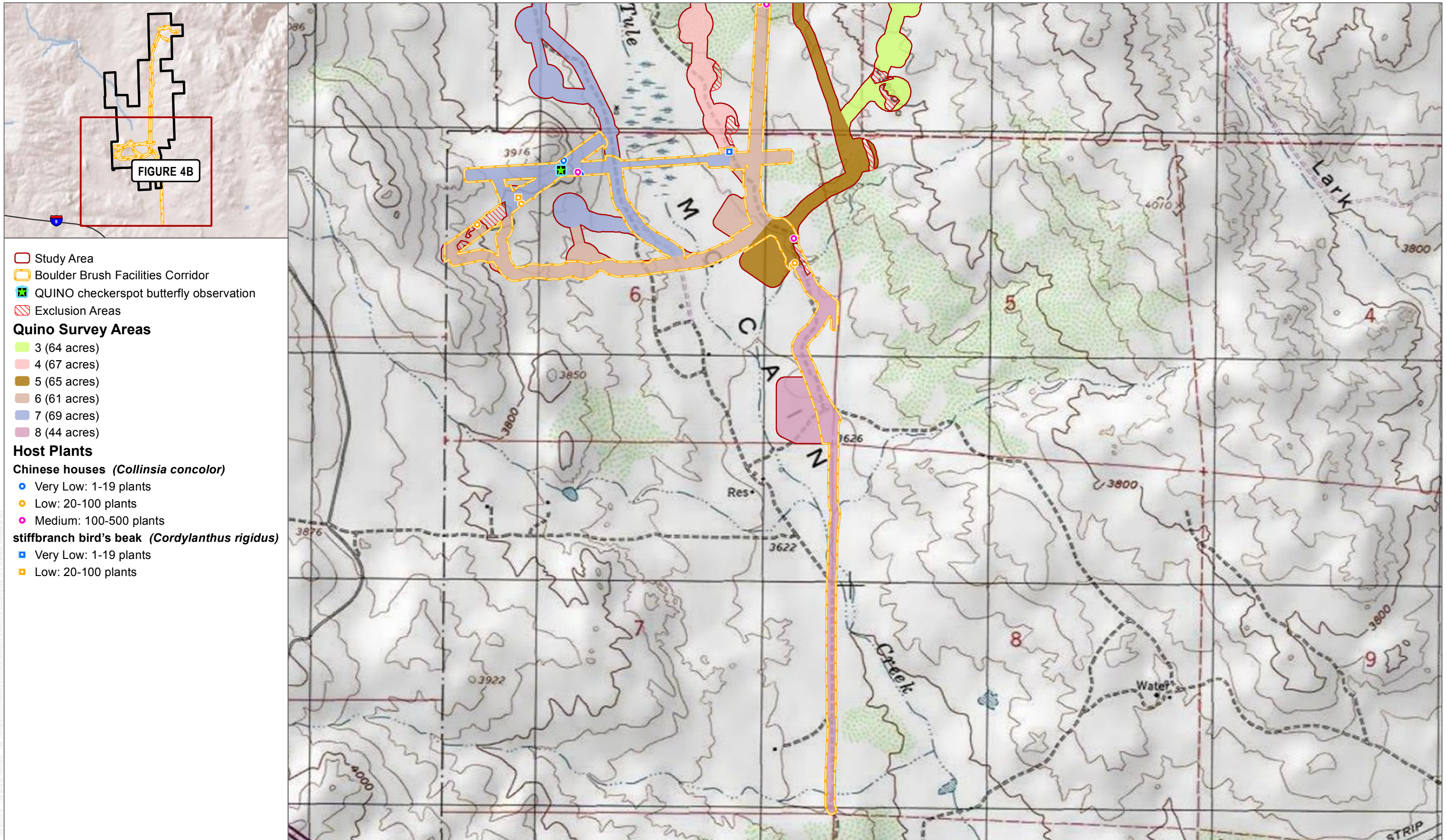


SOURCE: USGS 7.5-minute Quadrangle



FIGURE 4A

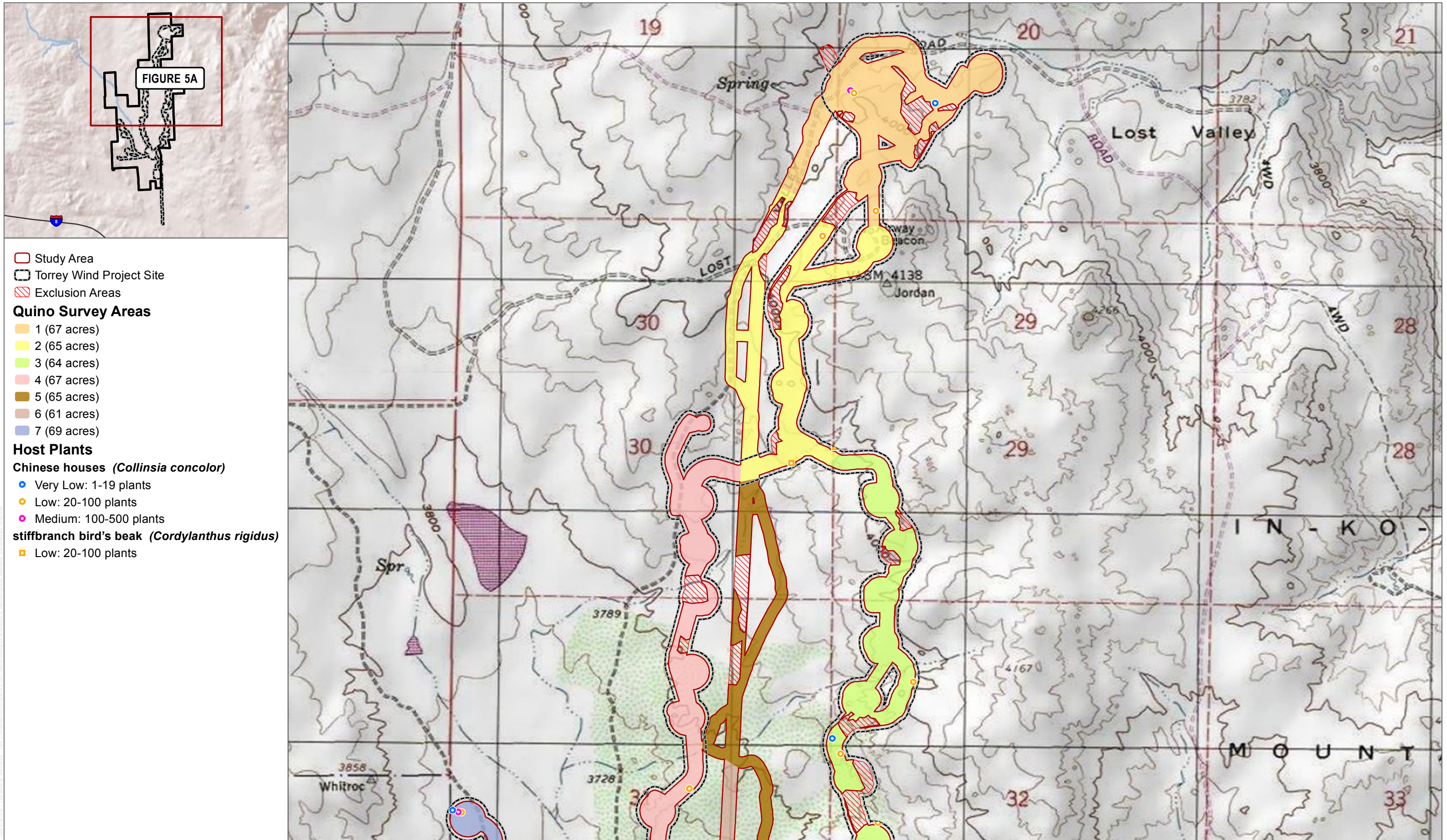
Host Plant Mapping - Boulder Brush
2019 Focused Quino Checkerspot Butterfly Survey Report



SOURCE: USGS 7.5-minute Quadrangle



FIGURE 4B



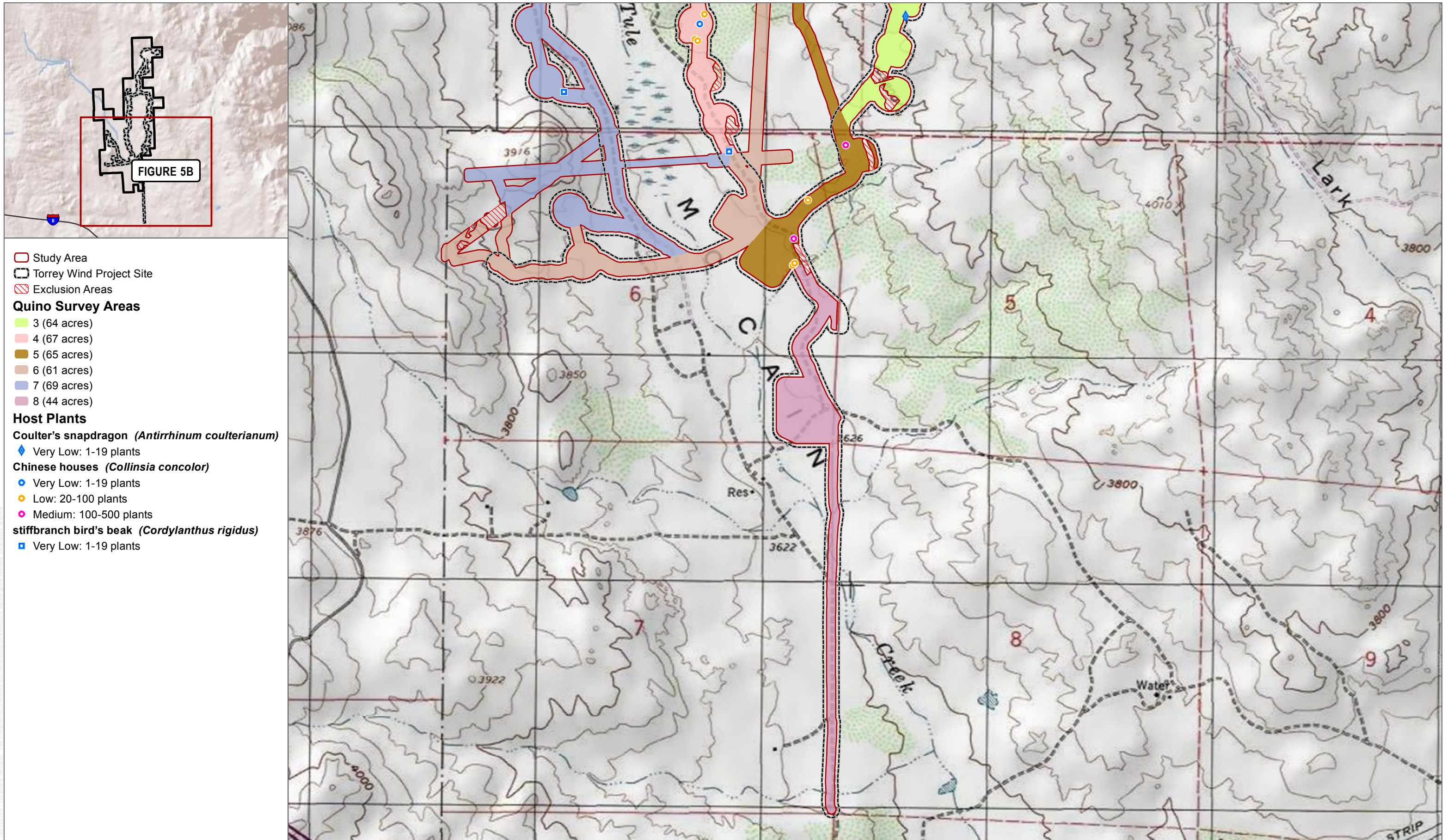
SOURCE: USGS 7.5-minute Quadrangle



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



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 hammondi*—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

Melospiza 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		
<i>Arabis sp.</i>	<i>Descurainia pinnata</i>	<i>Ribes quercetorum</i>
<i>Camissonia sp.</i>	<i>Erodium cicutarium</i>	<i>Sanicula arguta</i>
<i>Cryptantha sp.</i>	<i>Plagiobothrys sp.</i>	

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		
<i>Arctostaphylos sp.</i>	<i>Descurainia pinnata</i>	<i>Plagiobothrys sp.</i>
<i>Camissonia sp.</i>	<i>Erodium cicutarium</i>	<i>Tropidocarpum gracile</i>
<i>Cryptantha sp.</i>	<i>Lasthenia californica</i>	

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		
<i>Boechera pulchra</i>	<i>Erodium cicutarium</i>	<i>Ranunculus californicus</i>
<i>Camissoniopsis micrantha</i>	<i>Gilia diegensis</i>	<i>Rhus ovata</i>
<i>Cercocarpus betuloides</i> var. <i>betuloides</i>	<i>Lasthenia glabrata</i>	<i>Salvia columbariae</i>
<i>Descurainia pinnata</i> ssp. <i>brachycarpa</i>	<i>Lomatium mohavense</i>	<i>Xylococcus bicolor</i>
<i>Ericameria pinifolia</i>	<i>Phacelia parryi</i>	
<i>Eriogonum fasciculatum</i> var. <i>fasciculatum</i>	<i>Plagiobothrys bracteatus</i>	

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)	painter lady (40)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Descurainia sophia</i>	<i>Lomatium dasycarpum</i>	<i>Linanthus bellus</i>
<i>Eriophyllum wallacei</i>	<i>Plagiobothrys sp.</i>	
<i>Erodium cicutarium</i>	<i>Ribes quercetorum</i>	

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		
<i>Acmispon strigosus</i>	<i>Descurainia pinnata</i>	<i>Oenothera californica</i>
<i>Amsinckia menziesii</i>	<i>Erodium sp.</i>	<i>Salvia columbariae</i>
<i>Camissoniopsis pallida</i>	<i>Gilia angelensis</i>	<i>Linanthus bellus</i>
<i>Ceanothus perplexans</i>	<i>Gilia diegensis</i>	
<i>Cryptantha sp.</i>	<i>Lasthenia sp.</i>	

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		
<i>Amsinckia menziesii</i>	<i>Ericameria palmeri</i>	<i>Marah macrocarpa</i>
<i>Arabis sp.</i>	<i>Erodium cicutarium</i>	<i>Oenothera californica</i>
<i>Camissonia spp.</i>	<i>Gilia diegensis</i>	<i>Penstemon clevelandii</i>
<i>Ceanothus leucodermis</i>	<i>Hypochaeris glabra</i>	<i>Phacelia distans</i>
<i>Ceanothus perplexans</i>	<i>Lasthenia californica</i>	<i>Plagibothryus sp.</i>
<i>Cercocarpus betuloides</i>	<i>Layia glandulosa</i>	<i>Platystemon californicus</i>
<i>Chamyseseca sp.</i>	<i>Leptosiphon lemmonii</i>	<i>Salvia columbariae</i>
<i>Cryptantha sp.</i>	<i>Linanthus sp.</i>	<i>Uropappus lindleyi</i>
<i>Descurainia pinnata</i>	<i>Lomatium lucidum</i>	<i>Yucca schidigera</i>
<i>Dichelostemma capitatum</i>	<i>Lupinus concinnus</i>	
<i>Emmenanthe penduliflora</i>	<i>Malacothrix californica</i>	

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		
<i>Amsinckia menziesii</i>	<i>Erodium cicutarium</i>	<i>Penstemon clevelandii</i>
<i>Camissonia strigulosa</i>	<i>Gilia diegensis</i>	<i>Phacelia cicutaria</i>
<i>Ceanothus leucodermis</i>	<i>Lasthenia glabrata</i>	<i>Phacelia parryi</i>
<i>Delphinium parishii</i>	<i>Leptosiphon lemmonii</i>	<i>Plagiobothrys sp.</i>
<i>Dichelostemma capitatum</i>	<i>Lupinus concinnus</i>	<i>Salvia columbariae</i>
<i>Eriophyllum wallacei</i>	<i>Oenothera californica</i>	<i>Linanthus bellus</i>

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		
<i>Ceanothus leucodermis</i>	<i>Ericameria sp</i>	<i>Phacelia</i>
<i>Ceanothus perplexans</i>	<i>Erodium cicutarium</i>	<i>Plagiobotrys sp</i>
<i>Chaenactis sp</i>	<i>Lasthenia gracilis</i>	<i>Salvia columbariae</i>
<i>Cryptantha micrantha</i>	<i>Layia platyglossa</i>	<i>Tropidocarpum gracile</i>
<i>Delphinium</i>	<i>Lupinus concinnus</i>	<i>Linanthus bellus</i>
<i>Descurainia pinnata</i>	<i>Malacothrix glabrata</i>	
<i>Descurainia sophia</i>	<i>Pectocarya recurvata</i>	

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		
<i>Acmispon strigosus</i>	<i>Descurainia pinnata ssp. brachycarpa</i>	<i>Lupinus concinnus</i>
<i>Adenostoma fasciculatum</i>	<i>Dichelostemma capitatum ssp. capitatum</i>	<i>Oenothera californica ssp. avita</i>
<i>Anisocoma acaulis</i>	<i>Emmenanthe penduliflora</i>	<i>Phacelia cicutaria var. hispida</i>
<i>Astragulus sp</i>	<i>Ephedra californica</i>	<i>plagiobothrys sp</i>
<i>Camissonia sp</i>	<i>Eriastrum eremicum</i>	<i>Rhus aromatica</i>
<i>Ceanothus leucodermis</i>	<i>Ericameria linearifolia</i>	<i>Rhus ovata</i>
<i>Chaenactis fremontii</i>	<i>Eriodictyon crassifolium var. nigrescens</i>	<i>Salvia columbariae</i>
<i>Chaenactis glabriuscula</i>	<i>Eriogonum fasciculatum var. foliolosum</i>	<i>Solanum parishii</i>
<i>Chorizanthe fimbriata</i>	<i>Eriophyllum wallacei</i>	<i>Geraea viscida</i>

INCIDENTAL PLANT LIST		
<i>Collinsia concolor</i>	<i>Erodium cicutarium</i>	<i>Linanthus bellus</i>
<i>cryptantha sp</i>	<i>Lasthenia glabrata</i>	
<i>Delphinium parishii ssp. parishii</i>	<i>Leptosiphon lemmonii</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-16
Biologist(s)	Andrew Borchner
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)		
painter lady (1+)	Sara's orangetip (1+)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
Cactus wren (1+)	Turkey vulture (1+)	Western scrub jay (1+)

INCIDENTAL PLANT LIST		
<i>Cryptantha sp.</i>	<i>Erodium cicutarium</i>	<i>Lomatium dasycarpum</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Proposed Wind Energy Facilities
Survey Date	2019-03-19
Biologist(s)	Andrew Borchner
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		
<i>Cammosonia sp.</i>	<i>Descuriana sp</i>	<i>Lomatium</i>
<i>Chrytantha sp</i>	<i>Erodium cicutarium</i>	

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		
<i>Caulanthus heterophyllus</i>	<i>Lasthenia californica</i>	<i>Platystemon californicus</i>
<i>Descurainia sophia</i>	<i>Leptosyne californica</i>	<i>Ribes quercetorum</i>
<i>Eriophyllum wallacei</i>	<i>Lomatium dasycarpum</i>	<i>Salvia columbariae</i>
<i>Erodium cicutarium</i>	<i>Nama demissa</i>	<i>Linanthus bellus</i>

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		
<i>Erodium cicutarium</i>	<i>Lomatium dasycarpum</i>	

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		
<i>(none)</i>		

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		
<i>Boechera pulchra</i>	<i>Gilia diegensis</i>	<i>Plagiobothrys sp</i>
<i>Descurainia pinnata</i>	<i>Lasthenia sp.</i>	<i>Salvia columbariae</i>
<i>Erodium sp.</i>	<i>Lomatium dasycarpum</i>	<i>Linanthus bellus</i>
<i>Gilia angelensis</i>	<i>Lupinus concinnus</i>	

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		
<i>Cryptantha micrantha</i>	<i>Gilia sp</i>	<i>Lupinus concinnus</i>
<i>Descurainia pinnata</i>	<i>Lasthenia gracilis</i>	<i>Salvia columbariae</i>
<i>Descurainia sophia</i>	<i>Layia platyglossa</i>	<i>Linanthus bellus</i>
<i>Erodium cicutarium</i>	<i>Leptosyne californica</i>	

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		
<i>Cryptantha micrantha</i>	<i>Gilia sp</i>	<i>Lupinus concinnus</i>
<i>Descurainia pinnata</i>	<i>Lasthenia gracilis</i>	<i>Salvia columbariae</i>
<i>Descurainia sophia</i>	<i>Layia platyglossa</i>	<i>Linanthus bellus</i>
<i>Erodium cicutarium</i>	<i>Leptosyne californica</i>	

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		
<i>Ceanothus palmeri</i>	<i>Eriophyllum wallacei</i>	<i>Sisymbrium altissimum</i>
<i>Cryptantha micrantha</i>	<i>Layia platyglossa</i>	<i>Caulanthus simulans</i>

INCIDENTAL PLANT LIST		
<i>Descurainia pinnata</i>	<i>Leptosiphon lemmonii</i>	<i>Geraea viscida</i>
<i>Descurainia sophia</i>	<i>Platystemon californicus</i>	<i>Linanthus bellus</i>

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		
<i>Ceanothus leucodermis</i>	<i>Ericameria sp</i>	<i>Phacelia</i>
<i>Ceanothus perplexans</i>	<i>Erodium cicutarium</i>	<i>Plagiobotrys sp</i>
<i>Chaenactis sp</i>	<i>Lasthenia gracilis</i>	<i>Salvia columbariae</i>
<i>Cryptantha micrantha</i>	<i>Layia platyglossa</i>	<i>Tropidocarpum gracile</i>
<i>Delphinium</i>	<i>Lupinus concinnus</i>	<i>Linanthus bellus</i>
<i>Descurainia pinnata</i>	<i>Malacothrix glabrata</i>	
<i>Descurainia sophia</i>	<i>Pectocarya recurvata</i>	

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		
<i>Ceanothus leucodermis</i>	<i>Ericameria sp</i>	<i>Phacelia</i>
<i>Ceanothus perplexans</i>	<i>Erodium cicutarium</i>	<i>Plagiobotrys sp</i>
<i>Chaenactis sp</i>	<i>Lasthenia gracilis</i>	<i>Salvia columbariae</i>
<i>Cryptantha micrantha</i>	<i>Layia platyglossa</i>	<i>Tropidocarpum gracile</i>
<i>Delphinium</i>	<i>Lupinus concinnus</i>	<i>Linanthus bellus</i>
<i>Descurainia pinnata</i>	<i>Malacothrix glabrata</i>	
<i>Descurainia sophia</i>	<i>Pectocarya recurvata</i>	

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 <i>SPECIES (COUNT)</i>		
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 <i>SPECIES (COUNT)</i>		
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		
<i>Acmispon strigosus</i>	<i>Eriophyllum wallacei</i>	<i>Navar. etia hamata</i>
<i>Astragalus didymocarpus</i>	<i>Erodium cicutarium</i>	<i>Pectocarya linearis</i>

INCIDENTAL PLANT LIST		
<i>Chorizanthe fimbriata</i>	<i>Euphorbia albomarginata</i>	<i>Pectocarya setosa</i>
<i>Cryptantha micrantha</i>	<i>Heliotropium curassavicum</i>	<i>Salvia columbariae</i>
<i>Dichelostemma capitatum</i>	<i>Lasthenia gracilis</i>	<i>Sisymbrium altissimum</i>
<i>Ericameria pinifolia</i>	<i>Leptosiphon lemmonii</i>	<i>Geraea viscida</i>
<i>Eriogonum fasciculatum</i>	<i>Lupinus bicolor</i>	<i>Linanthus bellus</i>

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)	painter lady (350)
checkered white (2)	orange sulphur (1)	
dainty sulphur (2)	Pacific sara orangetip (50)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Camissoniopsis pallida</i>	<i>Erodium ssp./em></i>	<i>Ribes quercetorum</i>
<i>Cercocarpus betuloides</i>	<i>Plagiobothrys spp</i>	<i>Ziziphus parryi</i>

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 sphynx moth (1)

INCIDENTAL PLANT LIST		
<i>Amsinckia menziesii</i>	<i>Descurainia pinnata</i>	<i>Plagiobothrys sp</i>
<i>Boechera californica</i>	<i>Erodium cicutarium</i>	<i>Caulanthus simulans</i>
<i>Camissoniopsis pallida</i>	<i>Lasthenia gracilis</i>	
<i>Cryptantha sp</i>	<i>Lomatium dasycarpum</i>	

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		
<i>Boechera sp</i>	<i>Descurainia sophia</i>	<i>Prunus ilicifolia</i>
<i>Ceanothus perplexans</i>	<i>Eriophyllum wallacei</i>	<i>Viola spp</i>
<i>Coreopsis tinctoria</i>	<i>Phacelia campanularia</i>	<i>Caulanthus simulans</i>
<i>Descurainia pinnata</i>	<i>Platystemon californicus</i>	<i>Linanthus bellus</i>

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 <i>SPECIES (COUNT)</i>		
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 <i>SPECIES (COUNT)</i>		
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-drag/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		
<i>Acmispon strigosus</i>	<i>Ericameria brachylepis</i>	<i>Malacothrix californica</i>
<i>Amsinckia intermedia</i>	<i>Erodium cicutarium</i>	<i>Oenothera californica</i>
<i>Anisocoma acaulis</i>	<i>Gilia diegensis</i>	<i>Pectocarya peninsularis</i>
<i>Castilleja subinclusa ssp. subinclusa</i>	<i>Lasthenia glabrata</i>	<i>Phacelia distans</i>
<i>Ceanothus perplexans</i>	<i>Leptosiphon lemmonii</i>	<i>Plagiobothrys bracteatus</i>
<i>Descurainia pinnata</i>	<i>Logfia filaginoides</i>	<i>Platystemon californicus</i>
<i>Emmenanthe penduliflora</i>	<i>Lupinus concinnus</i>	<i>Sisymbrium irio</i>

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		
<i>Boechera californica</i>	<i>Erodium cicutarium</i>	<i>Platystemon californicus</i>
<i>Camissoniopsis bistorta</i>	<i>Lasthenia gracilis</i>	<i>Salvia columbariae</i>
<i>Ceanothus leucodermis</i>	<i>Layia platyglossa</i>	<i>Tropidocarpum gracile</i>
<i>Cryptantha micrantha</i>	<i>Lomatium dasycarpum</i>	<i>Geraea viscida</i>
<i>Descurainia pinnata</i>	<i>Lupinus concinnus</i>	<i>Linanthus bellus</i>
<i>Descurainia sophia</i>	<i>Malacothrix glabrata</i>	

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		
<i>Acmispon strigosus</i>	<i>Ericameria linearifolia</i>	<i>Leptosiphon lemmonii</i>
<i>Anisocoma acaulis</i>	<i>Eriophyllum wallacei</i>	<i>Leptosiphon parviflorus</i>
<i>Calyptridium monandrum</i>	<i>Erodium cicutarium</i>	<i>Nama demissa</i>
<i>Castilleja foliolosa</i>	<i>Galium andrewsii</i>	<i>Nama demissa var. demissa</i>
<i>Ceanothus leucodermis</i>	<i>Gilia angelensis</i>	<i>Pectocarya setosa</i>
<i>Chaenactis glabriuscula</i>	<i>Gilia capitata</i>	<i>Platystemon californicus</i>
<i>Collinsia concolor</i>	<i>Gilia diegensis</i>	<i>Salvia columbariae</i>
<i>Cryptantha intermedia var. intermedia</i>	<i>Lasthenia gracilis</i>	<i>Geraea viscida</i>
<i>Cryptantha micrantha</i>	<i>Layia glandulosa</i>	

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)	Proteropterus duskywing (1)
funereal duskywing (2)	Pacific sara orangetip (17)	western tailed-blue (1)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Amsinckia menziesii</i>	<i>Erodium cicutarium</i>	<i>Penstemon clevelandii</i>
<i>Anisocoma acaulis</i>	<i>Eulobus californicus</i>	<i>Plagiobothrys</i> sp.
<i>Antirrhinum coulterianum</i>	<i>Gilia capitata</i>	<i>Platystemon californicus</i>
<i>Delphinium parishii</i>	<i>Lasthenia glabrata</i>	<i>Salvia columbariae</i>
<i>Descurainia sophia</i>	<i>Layia glandulosa</i>	<i>Senecio californicus</i>
<i>Dichelostemma capitatum</i>	<i>Leptosiphon lemmonii</i>	<i>Uropappus lindleyi</i>
<i>Ericameria linearifolia</i>	<i>Oenothera californica</i>	<i>Geraea viscida</i>
<i>Eriodictyon trichocalyx</i>	<i>Penstemon centranthifolius</i>	<i>Linanthus bellus</i>

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)	Proterotus 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		
<i>Antirrhinum coulterianum</i>	<i>Ericameria pinifolia</i>	<i>Layia glandulosa</i>
<i>Chaenactis sp</i>	<i>Eriodyction sp</i>	<i>Leptosiphon lemmonii</i>
<i>Collinsia heterophylla</i>	<i>Eriophyllum confertiflorum var. confertiflorum</i>	<i>Leptosiphon parviflorus</i>
<i>Cryptantha micrantha</i>	<i>Eriophyllum wallacei</i>	<i>Lupinus concinnus</i>
<i>Cryptantha sp</i>	<i>Gilia angelensis</i>	<i>Malacothrix glabrata</i>
<i>Descurainia pinnata</i>	<i>Lasthenia gracilis</i>	<i>Solanum parishii</i>

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)		
painter lady (427)	Saras orangetip (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Arctostaphylos sp.</i>	<i>Descurainia pinnata</i>	<i>Plagiobothrys sp.</i>
<i>Cryptantha sp.</i>	<i>Erodium cicutarium</i>	

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		
<i>Arctostaphylos sp.</i>	<i>Lasthenia californica</i>	<i>Tauschia arguta</i>
<i>Descurainia pinnata</i>	<i>Plagiobothrys sp.</i>	
<i>Erodium cicutarium</i>	<i>Senecio californicus</i>	

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		
<i>Amsinckia menziesii</i>	<i>Erodium cicutarium</i>	<i>Sisymbrium irio</i>
<i>Arctostaphylos spp</i>	<i>Lasthenia californica</i>	<i>Tropidocarpum gracile</i>
<i>Camissoniopsis bistorta</i>	<i>Lomatium dasycarpum</i>	
<i>Cryptantha spp</i>	<i>Ribes quercetorum</i>	

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		
<i>Arabis sp.</i>	<i>Descurainia pinnata</i>	<i>Ribes quercetorum</i>
<i>Camissonia sp.</i>	<i>Erodium cicutarium</i>	<i>Sanicula arguta</i>
<i>Ceanothus greggi</i>	<i>Lasthenia californica</i>	<i>Senecio sp.</i>
<i>Cryptantha sp.</i>	<i>Plagiobothrys sp.</i>	

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		
<i>Amsinckia intermedia</i>	<i>Gilia diegensis</i>	<i>Platystemon californicus</i>
<i>Boechera arcuata</i>	<i>Hypochaeris glabra</i>	<i>Salvia columbariae</i>
<i>Camissoniopsis micrantha</i>	<i>Lasthenia glaberrima</i>	<i>Sanicula arguta</i>
<i>Ericameria linearifolia</i>	<i>Leptosyne californica</i>	<i>Tauschia arguta</i>
<i>Erodium cicutarium</i>	<i>Lomatium dasycarpum</i>	<i>Yucca schidigera</i>

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		
<i>Acmispon strigosus</i>	<i>Eriophyllum wallacei</i>	<i>Lupinus concinnus</i>
<i>Amsinckia menziesii</i>	<i>Gilia angelensis</i>	<i>Malacothrix californica</i>
<i>Boechera pulchra</i>	<i>Gilia diegensis</i>	<i>Mentzelia veatchiana</i>
<i>Ceanothus perplexans</i>	<i>Lasthenia gracilis</i>	<i>Plagiobothrys sp.</i>
<i>Descurainia pinnata</i>	<i>Layia glandulosa</i>	<i>Linanthus bellus</i>
<i>Descurainia sophia</i>	<i>Leptosyne californica</i>	

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 <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(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		
<i>Cryptantha micrantha</i>	<i>Gilia sp</i>	<i>Lupinus concinnus</i>
<i>Descurainia pinnata</i>	<i>Lasthenia gracilis</i>	<i>Salvia columbariae</i>
<i>Descurainia sophia</i>	<i>Layia platyglossa</i>	<i>Linanthus bellus</i>
<i>Erodium cicutarium</i>	<i>Leptosyne californica</i>	

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 <i>SPECIES (COUNT)</i>		
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)	painter lady (24)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
Gre (1+)		

INCIDENTAL PLANT LIST		
<i>Cryptantha micrantha</i>	<i>Gilia sp</i>	<i>Lupinus concinnus</i>
<i>Descurainia pinnata</i>	<i>Lasthenia gracilis</i>	<i>Salvia columbariae</i>
<i>Descurainia sophia</i>	<i>Layia platyglossa</i>	<i>Linanthus bellus</i>
<i>Erodium cicutarium</i>	<i>Leptosyne californica</i>	

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		
<i>Achillea millefolium</i>	<i>Dichelostemma capitatum</i>	<i>Phacelia cicutaria</i>
<i>Amsinckia intermedia</i>	<i>Emmenanthe penduliflora</i>	<i>Phacelia distans</i>
<i>Anisocoma acaulis</i>	<i>Ericameria linearifolia</i>	<i>Plagiobothrys sp</i>
<i>Boechera arcuata</i>	<i>Eriophyllum wallacei</i>	<i>Platystemon californicus</i>
<i>Camissonia sp</i>	<i>Erodium cicutarium</i>	<i>Salvia columbariae</i>
<i>Castilleja subinclusa ssp. subinclusa</i>	<i>Gilia diegensis</i>	<i>Yucca schidigera</i>
<i>Ceanothus leucodermis</i>	<i>Lasthenia glabrata</i>	<i>Linanthus bellus</i>
<i>cryptantha sp</i>	<i>Leptosiphon lemmonii</i>	

INCIDENTAL PLANT LIST		
<i>Descurainia pinnata ssp. glabra</i>	<i>Lupinus concinnus</i>	

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		
<i>Acmispon strigosus</i>	<i>Ericameria linearifolia</i>	<i>Lupinus concinnus</i>
<i>Amsinckia menziesii</i>	<i>Eriophyllum wallacei</i>	<i>Mimulus palmeri</i>
<i>Anisocoma acaulis</i>	<i>Erodium cicutarium</i>	<i>Phacelia distans</i>
<i>Boechera californica</i>	<i>Gilia diegensis</i>	<i>Platystemon californicus</i>
<i>Castilleja subinclusa ssp. subinclusa</i>	<i>Lasthenia glabrata</i>	<i>Salvia columbariae</i>
<i>Ceanothus perplexans</i>	<i>Layia glandulosa</i>	<i>Yucca schidigera</i>
<i>Descurainia pinnata ssp. brachycarpa</i>	<i>Leptosyne californica</i>	<i>Linanthus bellus</i>
<i>Dichelostemma capitatum</i>	<i>Lomatium dasycarpum</i>	

INCIDENTAL PLANT LIST		
<i>Emmenanthe penduliflora</i>	<i>Lomatium mohavense</i>	

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 <small>SPECIES (COUNT)</small>		
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 <small>SPECIES (COUNT)</small>		
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		
<i>Ceanothus perplexans</i>	<i>Leptosiphon lemmonii</i>	<i>Rhus aromatica</i>

INCIDENTAL PLANT LIST		
<i>Cryptantha micrantha</i>	<i>Leptosyne californica</i>	<i>Salvia columbariae</i>
<i>Ericameria pinifolia</i>	<i>Lupinus concinnus</i>	<i>Sisymbrium altissimum</i>
<i>Erodium cicutarium</i>	<i>Malacothrix glabrata</i>	<i>Geraea viscida</i>
<i>Lasthenia gracilis</i>	<i>Pectocarya setosa</i>	<i>Linanthus bellus</i>
<i>Layia platyglossa</i>	<i>Platystemon californicus</i>	

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		
<i>Delphinium parishii</i>	<i>Erodium cicutarium</i>	<i>Mentzelia sp.</i>
<i>Descurainia pinnata ssp. glabra</i>	<i>Gilia diegensis</i>	<i>Plagiobothrys sp.</i>
<i>Dichelostemma capitatum</i>	<i>Lasthenia glabrata</i>	<i>Salvia columbariae</i>
<i>Emmenanthe penduliflora</i>	<i>Layia glandulosa</i>	<i>Senecio californicus</i>
<i>Ericameria paniculata</i>	<i>Leptosiphon lemmonii</i>	<i>Linanthus bellus</i>

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		
<i>Adenostoma fasciculatum</i> var. <i>obtusifolium</i>	<i>Dichelostemma capitatum</i>	<i>Mentzelia veatchiana</i>
<i>Anisocoma acaulis</i>	<i>Emmenanthe penduliflora</i>	<i>Monardella nana</i>
<i>Astragalus</i> sp	<i>Ericameria linearifolia</i>	<i>Orobanche fasciculata</i>
<i>Camissonia</i> sp	<i>Eriodictyon trichocalyx</i>	<i>Penstemon spectabilis</i>
<i>Ceanothus leucodermis</i>	<i>Eriogonum fasciculatum</i> var. <i>foliolosum</i>	<i>Plagiobothrys</i> sp.
<i>Chaenactis fremontii</i>	<i>Eriophyllum confertiflorum</i>	<i>Prunus ilicifolia</i> ssp. <i>ilicifolia</i>
<i>Chaenactis glabriuscula</i>	<i>Eriophyllum wallacei</i>	<i>Quercus agrifolia</i>
<i>Chamaesyce</i> sp	<i>Erodium cicutarium</i>	<i>Salvia columbariae</i>
<i>Chorizanthe fimbriata</i>	<i>Gilia diegensis</i>	<i>Solanum parishii</i>

INCIDENTAL PLANT LIST		
<i>Collinsia concolor</i>	<i>Lasthenia glabrata</i>	<i>Tauschia arguta</i>
<i>Cordylanthus rigidus</i>	<i>Layia glandulosa</i>	<i>Yucca schidigera</i>
<i>Cryptantha sp</i>	<i>Leptosiphon lemmonii</i>	<i>Geraea viscida</i>
<i>Delphinium parishii</i>	<i>Leptosyne californica</i>	<i>Linanthus bellus</i>
<i>Descurainia pinnata ssp. glabra</i>	<i>Lupinus concinnus</i>	

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		
<i>Camissoniopsis bistorta</i>	<i>Pentachaeta aurea</i>	<i>Tropidocarpum gracile</i>
<i>Erodium cicutarium</i>	<i>Sanicula sp</i>	
<i>Lasthenia gracilis</i>	<i>Sisymbrium irio</i>	

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		
<i>Camissoniopsis bistorta</i>	<i>Pentachaeta aurea</i>	<i>Tropidocarpum gracile</i>
<i>Erodium cicutarium</i>	<i>Sanicula sp</i>	
<i>Lasthenia gracilis</i>	<i>Sisymbrium irio</i>	

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 <i>SPECIES (COUNT)</i>		
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 <i>SPECIES (COUNT)</i>		
(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		
<i>Amsinckia menziesii</i>	<i>Erodium cicutarium</i>	<i>Sisymbrium irio</i>
<i>Arctostaphylos spp</i>	<i>Lasthenia californica</i>	<i>Tropidocarpum gracile</i>
<i>Camissoniopsis bistorta</i>	<i>Lomatium dasycarpum</i>	
<i>Cryptantha spp</i>	<i>Ribes quercetorum</i>	

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)	Unidentified 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		
<i>Arabis sp.</i>	<i>Descurainia pinnata</i>	<i>Nuttallianthus canadensis</i>
<i>Brassica sp.</i>	<i>Erodium cicutarium</i>	<i>Plagiobothrys sp.</i>
<i>Camissonia sp.</i>	<i>Leptosyne californica</i>	
<i>Cryptantha sp.</i>	<i>Mimulus fremontii</i>	

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		
<i>Amsinckia menziesii</i>	<i>Gilia sp.</i>	<i>Mimulus fremontii</i>
<i>Arabis sp.</i>	<i>Hypochaeris glabra</i>	<i>Plagiobothrys sp.</i>
<i>Ceanothus greggi</i>	<i>Lasthenia californica</i>	<i>Prunus fremontii</i>
<i>Cryptantha sp.</i>	<i>Layia glandulosa</i>	<i>Sisymbrium irio</i>
<i>Descurainia pinnata</i>	<i>Leptosyne californica</i>	<i>Tauschia arguta</i>
<i>Erodium cicutarium</i>	<i>Lomatium sp.</i>	

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)	painting 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		
<i>Calandrinia menziesii</i>	<i>Lasthenia gracilis</i>	<i>Mimulus fremontii</i>
<i>Ceanothus perplexans</i>	<i>Layia glandulosa</i>	<i>Plagiobotrys sp</i>
<i>Crytantha sp</i>	<i>Leptosyne californica</i>	<i>Platystemon californicus</i>
<i>Descurainia pinnata</i>	<i>Lomatium dasycarpum ssp. dasycarpum</i>	<i>Sisymbrium irio</i>
<i>Descurainia sophia</i>	<i>Lupinus hirsutissimus</i>	<i>Tropidocarpum gracile</i>
<i>Erodium cicutarium</i>	<i>Malacothrix californica</i>	<i>Linanthus bellus</i>

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		
<i>Cordylanthus rigidus</i>	<i>Layia glandulosa</i>	<i>Lupinus concinnus</i>
<i>Descurainia sophia</i>	<i>Leptosiphon lemmonii</i>	<i>Platystemon californicus</i>
<i>Erodium botrys</i>	<i>Leptosyne californica</i>	<i>Rhus aromatica</i>
<i>Lasthenia gracilis</i>	<i>Lomatium dasycarpum</i> ssp. <i>dasycarpum</i>	<i>Linanthus bellus</i>

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 <i>SPECIES (COUNT)</i>		
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 <i>SPECIES (COUNT)</i>		
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		
<i>Amsinckia menziesii</i>	<i>Ericameria linearifolia</i>	<i>Lasthenia glabrata</i>
<i>Collinsia concolor</i>	<i>Erodium sp.</i>	<i>Leptosiphon lemmonii</i>
<i>Descurainia pinnata</i>	<i>Eulobus californicus</i>	<i>Plagiobothrys sp.</i>
<i>Dichelostemma capitatum</i>	<i>Gilia diegensis</i>	<i>Salvia columbariae</i>

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)	painting lady (4)
dainty sulphur (1)	marine blue (14)	
Edward's blue (1)	mourning cloak (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Castilleja subinclusa</i>	<i>Eriophyllum confertiflorum</i>	<i>Plagiobothrys sp.</i>
<i>Ceanothus leucodermis</i>	<i>Erodium cicutarium</i>	<i>Salvia columbariae</i>
<i>Descurainia pinnata</i>	<i>Gilia diegensis</i>	<i>Uropappus lindleyi</i>
<i>Dichelostemma capitatum</i>	<i>Lasthenia gracilis</i>	<i>Geraea viscida</i>
<i>Emmenanthe penduliflora</i>	<i>Layia glandulosa</i>	<i>Linanthus bellus</i>
<i>Ericameria linearifolia</i>	<i>Leptosiphon lemmonii</i>	
<i>Eriodictyon trichocalyx</i>	<i>Penstemon centranthifolius</i>	

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+)	painter lady (1+)
Behr's metalmark (1+)	gray hairstreak (1+)	Proterptus 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		
<i>Amsinckia menziesii</i>	<i>Lasthenia gracilis</i>	
<i>Cryptantha micrantha</i>	<i>Sisymbrium altissimum</i>	

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		
<i>Amsinckia menziesii</i>	<i>Erodium cicutarium</i>	
<i>Descurainia pinnata</i>	<i>Nemophila menziesii</i>	

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)	painting 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		
<i>Acmispon heermannii</i>	<i>Erodium cicutarium</i>	<i>Phacelia distans</i>
<i>Acmispon strigosus</i>	<i>Eschscholzia californica</i>	<i>Phacelia imbricata</i>
<i>Amsinckia menziesii</i>	<i>Lasthenia gracilis</i>	<i>Salvia columbariae</i>
<i>Anisocoma acaulis</i>	<i>Lomatium dasycarpum</i>	<i>Taraxacum officinale</i>
<i>Calyptidium monandrum</i>	<i>Lupinus concinnus</i>	<i>Tropidocarpum gracile</i>
<i>Cryptantha micrantha</i>	<i>Marah macrocarpa</i>	<i>Caulanthus simulans</i>
<i>Descurainia pinnata</i>	<i>Nemophila menziesii</i>	<i>Streptanthus campestris</i>

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)	Properthus 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		
<i>Boechera pulchra</i>	<i>Ericameria linearifolia</i>	<i>Layia glandulosa</i>

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 <i>SPECIES (COUNT)</i>		
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 <i>SPECIES (COUNT)</i>		
(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		
<i>Amsinckia intermedia</i>	<i>Eschscholzia californica</i>	<i>Malacothrix glabrata</i>
<i>Arctostaphylos pungens</i>	<i>Euphorbia albomarginata</i>	<i>Oenothera californica ssp. avita</i>
<i>Boechera pulchra</i>	<i>Gilia angelensis</i>	<i>Pectocarya setosa</i>
<i>Calyptidium monandrum</i>	<i>Gilia diegensis</i>	<i>Penstemon centranthifolius</i>
<i>Ceanothus leucodermis</i>	<i>Lasthenia gracilis</i>	<i>Phacelia distans</i>
<i>Ceanothus perplexans</i>	<i>Layia glandulosa</i>	<i>Plagiobothrys arizonicus</i>

INCIDENTAL PLANT LIST		
<i>Collinsia concolor</i>	<i>Leptosiphon floribundus ssp. glaber</i>	<i>Salvia columbariae</i>
<i>Cryptantha intermedia var. intermedia</i>	<i>Leptosiphon lemmonii</i>	<i>Sisymbrium altissimum</i>
<i>Cryptantha micrantha</i>	<i>Leptosiphon parviflorus</i>	<i>Sisymbrium irio</i>
<i>Descurainia pinnata</i>	<i>Lomatium dasycarpum ssp. dasycarpum</i>	<i>Uropappus lindleyi</i>
<i>Ericameria linearifolia</i>	<i>Lupinus bicolor</i>	<i>Linanthus bellus</i>
<i>Erodium cicutarium</i>	<i>Lupinus concinnus</i>	

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		
<i>(none)</i>		

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 <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(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		
<i>Anisocoma acaulis</i>	<i>Eriastrum eremicum ssp. eremicum</i>	<i>Lupinus concinnus</i>
<i>Antirrhinum coulterianum</i>	<i>Eriodictyon trichocalyx var. lanatum</i>	<i>Oenothera californica ssp. avita</i>
<i>Calycoseris parryi</i>	<i>Erodium cicutarium</i>	<i>Pectocarya setosa</i>
<i>Calyptridium monandrum</i>	<i>Eulobus californicus</i>	<i>Penstemon centranthifolius</i>
<i>Castilleja applegatei</i>	<i>Euphorbia albomarginata</i>	<i>Rhus aromatica</i>

INCIDENTAL PLANT LIST		
<i>Chaenactis glabriuscula</i>	<i>Lasthenia gracilis</i>	<i>Uropappus lindleyi</i>
<i>Chenopodium californicum</i>	<i>Layia glandulosa</i>	<i>Astragalus douglasii</i> var. <i>perstrictus</i>
<i>Chorizanthe fimbriata</i>	<i>Leptosiphon lemmonii</i>	<i>Delphinium parishii</i> ssp. <i>subglobosum</i>
<i>Cryptantha intermedia</i> var. <i>intermedia</i>	<i>Leptosiphon parviflorus</i>	<i>Geraea viscida</i>
<i>Cryptantha micrantha</i>	<i>Lupinus bicolor</i>	

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		
<i>Caulanthus heterophyllus</i>	<i>Erodium cicutarium</i>	<i>Lomatium dasycarpum</i>
<i>Cryptantha intermedia</i>	<i>Eschscholzia californica</i>	<i>Pectocarya linearis</i>
<i>Descurainia pinnata</i>	<i>Lasthenia californica</i>	<i>Tropidocarpum gracile</i>

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		
<i>Erodium cicutarium</i>		

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		
<i>Acmispon heermannii</i>	<i>Eschscholzia californica</i>	<i>Phacelia distans</i>
<i>Acmispon strigosus</i>	<i>Lasthenia gracilis</i>	<i>Phacelia imbricata</i>
<i>Amsinckia menziesii</i>	<i>Leptosiphon floribundus</i>	<i>Plagiobothrys arizonicus</i>
<i>Anisocoma acaulis</i>	<i>Leptosyne californica</i>	<i>Platystemon californicus</i>
<i>Arctostaphylos pungens</i>	<i>Lupinus concinnus</i>	<i>Salvia columbariae</i>

INCIDENTAL PLANT LIST		
<i>Calyptridium monandrum</i>	<i>Marah macrocarpa</i>	<i>Taraxacum officinale</i>
<i>Cryptantha micrantha</i>	<i>Nama demissa</i>	<i>Tropidocarpum gracile</i>
<i>Descurainia pinnata</i>	<i>Nemophila menziesii</i>	<i>Caulanthus simulans</i>
<i>Erodium cicutarium</i>	<i>Pectocarya sp.</i>	<i>Streptanthus campestris</i>

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 <i>SPECIES (COUNT)</i>		
Behr's metalmark (10)	desert pearly marble (6)	Propertius duskywing (2)
bramble hairstreak (1)	painted lady (56)	west coast lady (3)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
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		
<i>Castilleja affinis</i>	<i>Ericameria linearifolia</i>	<i>Caulanthus simulans</i>

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 <i>SPECIES (COUNT)</i>		
Behr's metalmark (15)	checkered white (4)	painted lady (15)
bramble hairstreak (2)	common sootywing (2)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(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		
<i>Collinsia concolor</i>	<i>Penstemon spectabilis</i>	
<i>Oenothera californica ssp. avita</i>	<i>Viola pedunculata</i>	

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		
<i>Cryptantha micrantha</i>	<i>Lasthenia gracilis</i>	<i>Phacelia distans</i>

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 <i>SPECIES (COUNT)</i>		
Acmon blue (1)	Edward's blue (2)	Painted lady (5)
Behr's metalmark (37)	Harford's sulphur (1)	Proterius 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 <i>SPECIES (COUNT)</i>		
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		
<i>(none)</i>		

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 <i>SPECIES (COUNT)</i>		
funereal duskywing (2)	Pacific sara orangetip (2)	painted lady (18)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
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		
<i>Erodium cicutarium</i>		

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		
<i>Cryptantha sp.</i>	<i>Lasthenia gracilis</i>	
<i>Erodium cicutarium</i>	<i>Plagiobothrys sp.</i>	

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		
<i>Acmispon strigosus</i>	<i>Erodium cicutarium</i>	<i>Salvia columbariae</i>
<i>Amsinckia menziesii</i>	<i>Lasthenia gracilis</i>	<i>Tropidocarpum gracile</i>
<i>Cryptantha micrantha</i>	<i>Lomatium dasycarpum</i>	
<i>Descurainia pinnata</i>	<i>Lupinus concinnus</i>	

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 <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(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 <i>SPECIES (COUNT)</i>		
Behr's metalmark (1)	cabbage white (5)	dainty sulphur (1)
bramble hairstreak (1)	California dogface (2)	painting lady (20)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(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		
<i>Amsinckia intermedia</i>	<i>Euphorbia albomarginata</i>	<i>Pectocarya setosa</i>
<i>Arctostaphylos pungens</i>	<i>Gilia angelensis</i>	<i>Phacelia distans</i>
<i>Boechera pulchra</i>	<i>Gilia diegensis</i>	<i>Salvia columbariae</i>
<i>Calyptridium monandrum</i>	<i>Lasthenia gracilis</i>	<i>Sisymbrium altissimum</i>
<i>Cryptantha micrantha</i>	<i>Lepidium perfoliatum</i>	<i>Uropappus lindleyi</i>
<i>Descurainia pinnata</i>	<i>Lupinus bicolor</i>	
<i>Ericameria linearifolia</i>	<i>Lupinus concinnus</i>	

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 <i>SPECIES (COUNT)</i>		
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 <i>SPECIES (COUNT)</i>		
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+)
bushy (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		
<i>Descurainia sophia</i>	<i>Heliotropium curassavicum</i>	<i>Pectocarya setosa</i>
<i>Dichelostemma capitatum</i>	<i>Lasthenia gracilis</i>	<i>Platystemon californicus</i>
<i>Ericameria linearifolia</i>	<i>Layia glandulosa</i>	<i>Salvia columbariae</i>
<i>Eriodictyon trichocalyx</i>	<i>Leptosiphon lemmonii</i>	<i>Uropappus lindleyi</i>
<i>Eriophyllum wallacei</i>	<i>Lupinus concinnus</i>	<i>Geraea viscida</i>
<i>Erodium cicutarium</i>	<i>Malacothrix glabrata</i>	<i>Linanthus bellus</i>

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		
<i>Amsinckia menziesii</i>	<i>Erodium cicutarium</i>	<i>Sisymbrium irio</i>
<i>Arctostaphylos spp</i>	<i>Lasthenia californica</i>	<i>Tropidocarpum gracile</i>
<i>Camissoniopsis bistorta</i>	<i>Lomatium dasycarpum</i>	
<i>Cryptantha spp</i>	<i>Ribes quercetorum</i>	

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		
<i>Acmispon argophyllus</i> var. <i>argophyllus</i>	<i>Eriophyllum wallacei</i>	<i>Lupinus concinnus</i>
<i>Amsinckia intermedia</i>	<i>Lasthenia gracilis</i>	<i>Salvia columbariae</i>
<i>Boechera pulchra</i>	<i>Layia glandulosa</i>	
<i>Calycoseris parryi</i>	<i>Lupinus bicolor</i>	

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

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 (*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.

Recovery Permit Coordinator
Re: QCB Observation Notification

Please contact me at (760) 274-3927 if there are any questions concerning this observation.

Very truly yours,

DUDEK



Erin Bergman
Biologist



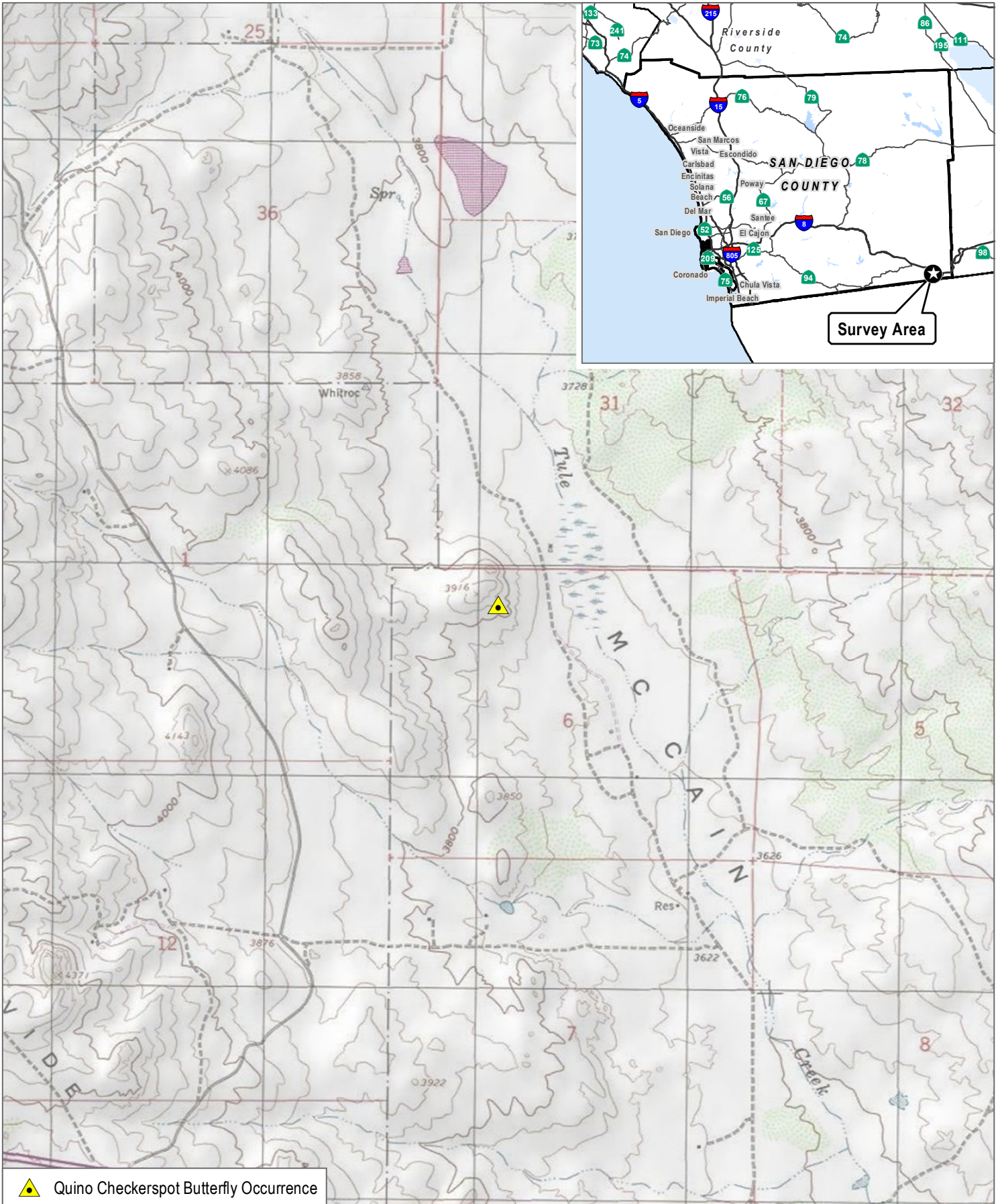
Quino Photo 1



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

APPENDIX G

*Biological Resources Technical Report for the
Campo Wind with Boulder Brush Facilities
Project, San Diego County, California*

DRAFT

Biological Resources Technical Report For the Campo Wind with Boulder Brush Facilities Project San Diego County, California

Prepared for the County of San Diego:

County of San Diego Planning and Development Services

PDS2016-SP-16-002
5510 Overland Avenue
San Diego, California 92123
Contact: Anna Prowant

Project Applicant:

Terra-Gen Development Company LLC

Boulder Brush LLC
11455 El Camino Real, Suite 160
San Diego, California 92130

Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024



Brock Ortega

JULY 2019

**Biological Resources Technical Report
 Campo Wind with Boulder Brush Facilities Project,
 San Diego County, California**

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ACRONYMS AND ABBREVIATIONS

Acronym	Definition
amsl	above mean sea level
BCC	Birds of Conservation Concern
BMO	Biological Mitigation Ordinance
BMP	best management practice
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CNPS	California Native Plant Society
County	County of San Diego
CRPR	California Rare Plant Rank
FESA	Federal Endangered Species Act
GIS	Geographic Information System
GPS	Global Positioning System
IA	index of activity
M-	Mitigation Measure
MBTA	Migratory Bird Treaty Act
MSCP	Multiple Species Conservation Program
NCCP	Natural Community Conservation Plan
O&M	operation and maintenance
Project	Torrey Wind Project
RPO	Resource Protection Ordinance
RWQCB	Regional Water Quality Control Board
SSC	Species of Special Concern
SWPPP	Stormwater Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers
USC	United States Code
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Service
WL	Watch List
WRRS	Worker Response Reporting System

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SUMMARY

This Biological Resources Technical Report was prepared to evaluate the proposed Boulder Brush Facilities, a part of the Campo Wind Project located predominantly on the Campo Band of Diegueño Mission Indians Reservation (“Reservation”). The Boulder Brush Facilities are located on privately owned land within the regulatory jurisdiction of the County of San Diego in Boulevard in southeast San Diego County. The Boulder Brush Corridor for the Boulder Brush Facilities (“Boulder Brush Corridor”) encompasses approximately 318.1 acres within approximately 17 parcels. The Boulder Brush Corridor is a 100-foot buffer from each project component. The Boulder Brush Facilities are located in the Draft East County Multiple Species Conservation Program plan area. The proposed facilities would include the portion of the Campo Wind Project Generation Transmission Line (gen-tie) located on private land, pole structures, installation of a communication line, a collector substation, switchyard, and associated access roads. The 230 kV overhead gen-tie would deliver power generated from the Project to the existing San Diego Gas & Electric Sunrise Powerlink 500 kV transmission line. The gen-tie would deliver power from the collector substation associated with the wind turbines on the Reservation to the proposed high voltage substation located on private lands, then to a switchyard and then to the Sunrise Powerlink. Off-site improvements would include widening and paving a segment of Ribbonwood Road from Opalocka to the site’s primary entrance.

The following surveys were completed in 2018 and/or 2019 for the Boulder Brush Facilities portion of the Project: vegetation mapping, a formal jurisdictional delineation, rare plant surveys (also conducted in 2017), focused least Bell’s vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), and Quino checkerspot butterfly (*Euphydryas editha quino*) surveys, and surveys to document avian, eagle, and Peninsular bighorn sheep (*Ovis canadensis nelsoni*) use within all, or suitable portions of, the Boulder Brush Corridor. Additionally, Dudek conducted the following surveys within portions of the Project site in 2011: Quino checkerspot butterfly protocol surveys, avian and eagle counts, raptor nest surveys, and an acoustical bat survey (surveys started in 2011 and were completed in 2012). While the 2011/2012 surveys were for a different project, these surveys include valuable data utilized to determine the potential for special-status species to occur within the Boulder Brush Corridor. In June 2019, the Boulder Brush Facilities were redesigned to avoid cultural resources resulting in some slivers of land located outside of the original survey areas; however, the 2018 and 2019 surveys covered nearly all of the Boulder Brush Corridor. Depending on the species, some surveys included areas outside of the Boulder Brush Corridor. This report documents the results of Dudek’s field work for 2011, 2012, 2017, 2018 and 2019 and an analysis of the impacts related to the Boulder Brush Facilities portion of the Project.

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Eleven native vegetation communities were mapped by Dudek biologists within the Boulder Brush Corridor: big sagebrush scrub, coast live oak woodland (including open coast live oak woodland), emergent wetland, granitic chamise chaparral, granitic northern mixed chaparral, montane buckwheat scrub, red shank chaparral, semi-desert chaparral, southern arroyo willow riparian forest, and wildflower field. Two non-native vegetation communities, disturbed habitat and eucalyptus woodland, were mapped within the Boulder Brush Corridor, along with two land cover types: urban/developed and unvegetated channel.

The focused plant and wildlife surveys resulted in the detection of the following special-status species: Tecate tarplant (*Deinandra floribunda*), Jacumba milk-vetch (*Astragalus douglasii* var. *perstrictus*), sticky geraea (*Geraea viscida*), desert beauty (*Linanthus bellus*), southern jewelflower (*Streptanthus campestris*), Colorado desert larkspur (*Delphinium parishii* ssp. *subglobosum*), Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk (*Accipiter striatus*), golden eagle (*Aquila chrysaetos*), loggerhead shrike (*Lanius ludovicianus*), California horned lark (*Eremophila alpestris actia*), northern harrier (*Circus hudsonius*), red-shouldered hawk (*Buteo lineatus*), western bluebird (*Sialia mexicana*), yellow warbler (*Setophaga petechia*), turkey vulture (*Cathartes aura*), barn owl (*Tyto alba*), merlin (*Falco columbarius*), Bell's sage sparrow (*Artemisiospiza belli belli*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), mule deer (*Odocoileus hemionus*), San Diegan tiger whiptail (*Aspidoscelis tigris stejnegeri*), Blainville's horned lizard (*Phrynosoma blainvillii*), and Quino checkerspot butterfly.

In addition, an acoustical bat survey was conducted in 2011 for a previous project proposed by a different applicant (Jewell Valley Wind Project). While the acoustical bat equipment was located just outside of the Boulder Brush Facilities Boulder Brush Corridor (along the eastern boundary of the Project site), the following special-status bats were detected flying immediately adjacent to the Boulder Brush Corridor: pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), western mastiff bat (*Eumops perotis californicus*), western small-footed myotis (*Myotis ciliolabrum*), pocketed free-tailed bat (*Nyctinomops femorosaccus*), and big free-tailed bat (*Nyctinomops macrotis*). Focused surveys for Quino checkerspot butterfly were conducted in 2018 and again in 2019. The 2019 surveys resulted in the detection of five individuals during 1 week of surveys.

The Boulder Brush Facilities, which is under the County's jurisdiction, would result in total permanent impacts to 43.9 acres and temporary impacts to 87.0 acres, of which 38.3 acres of permanent impacts and 84.6 acres of temporary impacts are considered sensitive vegetation communities. This includes permanent impacts to 0.13 acres of non-wetland waters of the United States/state and 0.15 acres of California Department of Fish and Wildlife (CDFW) riparian habitat and County Resource Protection Ordinance (RPO) wetlands. There are also temporary impacts to

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0.30 acres of non-wetland waters of the United States/state and 0.40 acres of CDFW riparian habitat and County RPO wetlands. The proposed Project would also permanently impact 2.0 acres and temporarily impact 5.3 acres of oak root protection zones. The Project would result in potentially significant short-term and long-term direct and/or indirect impacts to special-status plants, special-status wildlife species, and wildlife habitat, as well as short-term direct impacts to wildlife movement and migratory birds. While the temporary impacts will be replanted with native vegetation to provide erosion control, slope stabilization, or other necessary function, they will not be monitored or managed under a long-term plan; therefore, both permanent and temporary impacts will require mitigation, per County guidelines. Mitigation would include off-site preservation of 155.1 acres of similar habitat types within a mitigation bank or through protection of land with a biological open space easement; special-status plant species mitigation through protection of land with known populations; pre-construction monitoring, flagging and fencing, and other best management practices; nesting bird surveys; avian and bat monitoring; fire protection; access control; and any necessary federal and state agency permits. All potentially significant impacts would be reduced to less than significant with implementation of the mitigation measures detailed in the report.

This report also describes impacts to biological resources on the portion of the Campo Wind Project on the Reservation, in order to assist the County in complying with its CEQA obligations to review the “whole of the action.” The Campo Corridor is the approximately 2,200-acre study area within the Reservation that contains the Campo Wind Facilities. Approval of the portion of the Campo Wind Project on the Reservation falls under the jurisdiction of the Bureau of Indian Affairs (BIA), which is subject to the National Environmental Policy Act (NEPA). The decision to approve the Boulder Brush Facilities portion of the project is within the purview of the County of San Diego (County). When deciding whether to approve the Boulder Brush Facilities portion of the Project, the County will use the information included in this document as a whole to consider potential impacts on the physical environment associated with the whole of the project.

For the portion of the Campo Wind Project on the Reservation, vegetation mapping, formal jurisdictional delineation, and focused surveys were conducted in 2017 and/or 2018, including Quino checkerspot butterfly surveys. Additional surveys to document avian, eagle, and raptor surveys were completed between 2018 and 2019. This report summarizes the results of Dudek’s field work, along with previous studies in the Campo Corridor, and an analysis of the impacts related to the proposed project.

Twenty vegetation communities and land cover types were mapped by Dudek within the Campo Corridor. Native vegetation communities within the Campo Corridor include big sagebrush scrub, coast live oak woodland (including open and dense forms), emergent wetland, granitic chamise

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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, and valley Sacaton grassland. Developed and disturbed habitat, as well as one land cover–unvegetated stream channel, occur within the Campo Corridor.

Dudek biologists detected the following federally protected species within the Campo Corridor during surveys: bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*). While not detected during the 2018 focused surveys, Quino checkerspot butterfly was observed within the Campo Corridor during 2010 focused surveys by AECOM.

The portion of the project on the Reservation would result in impacts to 789.3 acres on the Reservation. This includes impacts to 1.13 acres of non-wetland waters of the United States and 0.67 acres of wetlands on site. The project would result in potentially significant direct impacts to special-status wildlife species habitat. Mitigation would include pre-construction monitoring and other best management practices, fire protection, and any necessary federal agency permits. Most significant impacts would be reduced to less than significant with implementation of mitigation measures in accordance with federal requirements. Certain impacts to resources considered sensitive only under state or local law, but not federal law, may remain unmitigated on the portion of the Project on the Campo Reservation.

Biological Resources Technical Report Campo Wind with Boulder Brush Facilities Project, San Diego County, California

1 INTRODUCTION

1.1 Purpose of the Report

The applicant, Boulder Brush LLC, is seeking approval of a Major Use Permit (MUP) from the County for the construction and operation of the certain transmission and interconnection facilities (Boulder Brush Facilities) to allow wind energy turbines to be located on Campo Band of Diegueño Mission Indians Reservation (“Reservation”) to deliver power to the electric grid. The Boulder Brush Facilities are a part of a complete Project, referred to as the “Campo Wind Project with Boulder Brush Facilities,” or “Project” for short. The Project consists of both the Campo Wind Facilities, which would be located on land leased from the Tribe within the Reservation Boundary (Campo Lease), and the Boulder Brush Facilities, which would be located on adjacent land leased from a private landowner within the Boulder Brush Boundary (Private Lease). Collectively, all the lands within both the Reservation Boundary and the Boulder Brush Boundary compose the Project Area. The term “On-Reservation” refers to anything within the Reservation Boundary (or Campo Boundary), while the term “Off-Reservation” refers to anything outside of the Reservation Boundary.

The Campo Wind Facilities, which would consist of 60 wind turbines and associated infrastructure, would be located within a corridor of approximately 2,200 acres of land (Campo Corridor) within the approximately 16,000 acres of Reservation land inside the Reservation Boundary. The Boulder Brush Facilities, which would consist of a portion of the Project generation transmission line and related facilities to connect energy generated by the Project to the existing San Diego Gas & Electric Company (SDG&E) Sunrise Powerlink, would be located within a corridor of approximately 320 acres of land (Boulder Brush Corridor) within the approximately 2,000 acres of Private Lease land inside the Boulder Brush Boundary adjacent to the northeast portion of the Reservation. These Private Lease lands are under the land use and permitting jurisdiction of the County. Collectively, the Campo Corridor and the Boulder Brush Corridor compose the approximately 2,520-acre Project Site. The Project disturbance area associated with the construction of the Campo Wind Facilities within the Campo Corridor is expected to be approximately 800 acres, while the Project disturbance area associated with the construction of the Boulder Brush Facilities within the Boulder Brush Corridor is expected to be approximately 131 acres.

The purpose of this full Biological Resources Technical Report is to (1) describe the existing conditions of biological resources as present or potentially present within the Boulder Brush Corridor and Campo Corridor, including vegetation communities, jurisdictional aquatic resources, special-status plants, special-status wildlife, and wildlife movement; (2) discuss potential impacts to biological resources that would result from development of the Project and describe those impacts in terms of

Biological Resources Technical Report Campo Wind with Boulder Brush Facilities Project, San Diego County, California

biological significance in view of federal, state, and local laws and policies; and (3) recommend mitigation measures to avoid, minimize, and/or mitigate significant impacts.

The Boulder Brush Facilities will comply with federal, state, and local rules and regulations, including the California Environmental Quality Act (CEQA); the County of San Diego's (County) Guidelines for Determining Significance and Report Format and Contents Requirements for Biological Resources (County of San Diego 2010a); the County's Report Format and Contents Requirements for Biological Resources (County of San Diego 2010b); the County's Resource Protection Ordinance (County of San Diego 2012); and various planning documents, including the draft East County Multiple Species Conservation Program (MSCP) Plan (County of San Diego, in progress), and the East County MSCP Planning Agreement between the County and the Resource Agencies (County of San Diego 2014).

This report also describes the Campo Wind Facilities on the Reservation. Approval of the Campo Wind Facilities on the Reservation falls under the jurisdiction of the Bureau of Indian Affairs (BIA) and is subject to the National Environmental Policy Act (NEPA). The decision to approve the Boulder Brush Facilities portion of the Project is within the purview of the County of San Diego (County). When deciding whether to approve the Boulder Brush Facilities portion of the Project, the County will use the information included in this document as a whole to consider potential impacts on the physical environment associated with the whole of the Project.

1.2 Project Location and Description

The Boulder Brush Facilities portion of the Project is located within the 318.1-acre Boulder Brush Corridor in southeastern San Diego County, California (Figure 1-1, Project Location). This area is on private land in the McCain Valley area, north of the community of Boulevard, and is accessed via Interstate 8 (I-8) and Ribbonwood Road. A 100-foot buffer was applied to the Boulder Brush Facilities to create the Project's study area, or the Boulder Brush Corridor. These areas are located within the overall Boulder Brush Boundary, composed of Assessor's Parcel Numbers (APNs) 528-220-02, 528-220-03, 529-050-01, 529-060-01, 529-090-02, 529-090-03, 529-100-02, 529-100-03, 529-120-01, 529-120-03, 529-130-01, 611-010-01, 611-010-02, 611-010-03, 611-020-01, 611-050-04, 611-050-05, and 529-100-01.

The surrounding area includes lands administered by Bureau of Indian Affairs and Bureau of Land Management and private lands. The 500 kV Sunrise Powerlink traverses the northeast portion of the private land portion of the Project area. Wind turbines associated with Tule Wind are adjacent to the eastern portion of the Project site (Figure 1-2, Proposed Project and Existing Projects). Other nearby wind projects include the Kumeyaay Wind Energy Project, which is located southwest of the Boulder Brush Boundary.

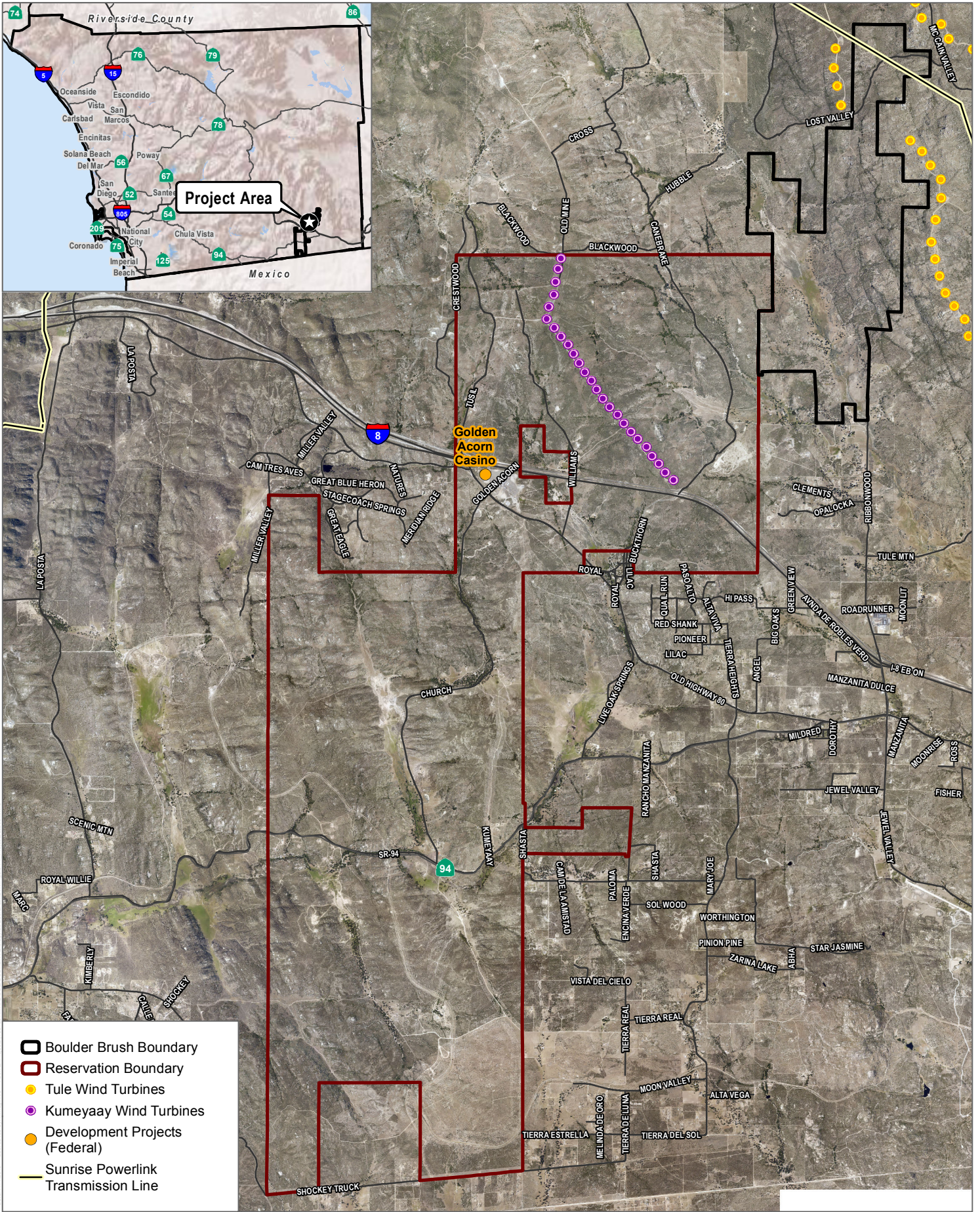
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The Boulder Brush Facilities include the following components: off-Reservation gen-tie line (pole structures and installation of a communication line), a high voltage substation, 500 kV switchyard and connection to the existing SDG&E Sunrise Powerlink, associated access roads, and defensible space (fuel modification zones). The project components are described in more detail in the Environmental Impact Report (EIR).

The transmission and interconnection facilities will be built to support the portion of Campo Wind Project located on the Reservation. The Reservation is located in the southern Laguna Mountains and surrounded by the unincorporated communities of Campo, Boulevard, and Live Oak Springs (Figure 1-1). The Reservation covers over 16,000 acres and includes lands both north and south of I-8 along the Tecate Divide, extends from the Manzanita Indian Reservation south to approximately 0.25 mile from the Mexico/U.S. international border. The Campo Corridor is comprised of lands to be leased from the Campo Band of Diegueño Mission Indians (“Tribe”) for the project located within the western and central portions of the Reservation. The Campo Corridor is surrounded by low-density rural commercial and residential developments throughout the Reservation and nearby communities; Church Road and I-8 bisect the Campo Corridor. The Campo Corridor comprises an approximately 2,200-acre area within the overall Reservation (Figure 1-2).

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SOURCE: SANGIS 2017

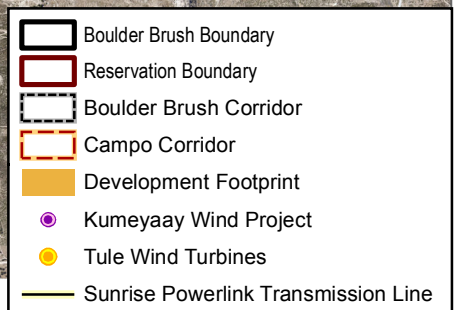
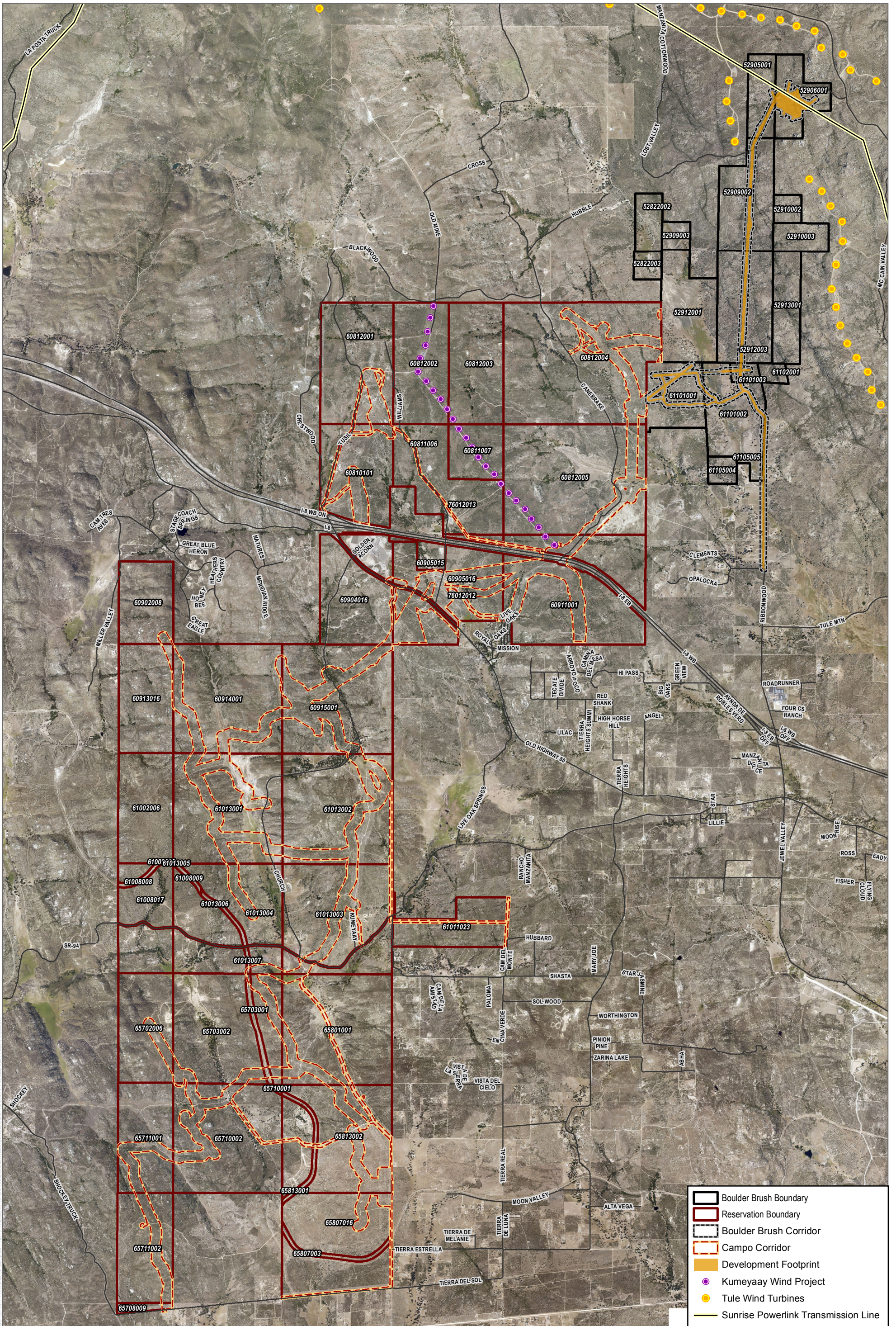
FIGURE 1-1

Project Location



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SOURCE: SANGIS 2017



FIGURE 1-2
Proposed Project and Existing Projects

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2 APPLICABLE REGULATIONS

2.1 Federal

2.1.1 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) (16 USC 1531 et seq.) is implemented by the U.S. Fish and Wildlife Service (USFWS) for protection of various species of freshwater fish, terrestrial wildlife, and plants deemed to be in danger of or threatened with extinction. As part of this regulatory act, FESA provides for designation of critical habitat, defined in FESA Section 3(5)(A) as specific areas within the geographical range occupied by a species where physical or biological features “essential to the conservation of the species” are found and that “may require special management considerations or protection.” Critical habitat may also include areas outside the current geographical area occupied by the species that are nonetheless “essential for the conservation of the species.” The Project site does not overlap within any critical habitat (Figure 2-1, USFWS Critical Habitat).

2.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits the take of any migratory bird or any part, nest, or eggs of any such bird. Under the MBTA, “take” is defined as pursuing, hunting, shooting, capturing, collecting, or killing, or attempting to do so (16 USC 703 et seq.). In December 2017, Department of Interior Principal Deputy Solicitor Jorjani issued a memorandum (M-37050) that interprets the MBTA to only prohibit intentional take. Unintentional or accidental take is not prohibited. Additionally, Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, requires that any project with federal involvement address impacts of federal actions on migratory birds with the purpose of promoting conservation of migratory bird populations (66 Federal Register 3853–3856). The executive order requires federal agencies to work with USFWS to develop a memorandum of understanding. USFWS reviews actions that might affect these species.

2.1.3 Clean Water Act

Pursuant to Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers (USACE) regulates the discharge of dredged and/or fill material into “waters of the United States.” The term “wetlands” (a subset of waters of the United States) is defined in 33 Code of Federal Regulations 328.3(c)(4) as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.” In the absence of wetlands, the limits of

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USACE jurisdiction in non-tidal waters, such as intermittent streams, extend to the “ordinary high water mark,” which is defined in 33 Code of Federal Regulations 328.3(c)(6).

2.1.4 Bald and Golden Eagle Protection Act

Bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) are federally protected under the Bald and Golden Eagle Protection Act, passed in 1940 to protect bald eagle and amended in 1962 to include golden eagle (16 USC 668a–d). The Bald and Golden Eagle Protection Act (16 USC 668–668d) prohibits the take, possession, sale, purchase, barter, offering to sell or purchase, export or import, or transport of bald eagles and golden eagles and their parts, eggs, or nests without a permit issued by USFWS. The definition of “take” includes to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb. The act prohibits any form of possession or taking of both eagle species, and the statute imposes criminal and civil sanctions as well as an enhanced penalty provision for subsequent offenses. Further, the act provides for the forfeiture of anything used to acquire eagles in violation of the statute. The statute exempts from its prohibitions on possession the use of eagles or eagle parts for exhibition, scientific, and Native American religious uses.

However, there is allowance within the act that, after investigation, the Secretary of the Interior may determine that direct and purposeful taking is compatible with the preservation of bald eagle or golden eagle. If so, then the Secretary may permit the taking, possession, and transportation of specimens for the scientific or exhibition purposes of public museums, scientific societies, and zoological parks, or for the religious purposes of Native American tribes. The Secretary of the Interior may also determine that it is necessary to permit the taking of eagles for the protection of wildlife or of agricultural or other interests in any particular locality. This permitting may be for the seasonal protection of domesticated flocks and herds, and may also permit the taking, possession, and transportation of golden eagles for the purposes of falconry if the eagles may cause depredations on livestock or wildlife. Finally, the Secretary of the Interior may permit the taking of golden eagle nests that interfere with resource development or recovery operations, or in an emergency.

In November 2009, USFWS published the Final Eagle Permit Rule (74 Federal Register 46836–46879) providing a mechanism to permit and allow for incidental (i.e., non-purposeful) take of bald and golden eagles pursuant to the Bald and Golden Eagle Protection Act (16 USC 668 et seq.). Disturb means “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.” These regulations may apply to projects such as wind turbines

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and transmission lines, and were followed by issuance of guidance documents for inventory and monitoring protocols and for avian protection plans (Pagel et al. 2010). On December 14, 2014 the USFWS released a final rule revising the regulations for permits for incidental take of eagles and take of eagle nests. The Service analyzed various alternative management options and rule revisions, including the final rule revisions, in a programmatic environmental impact statement (PEIS). Among other revisions, the final rule addresses criteria for permit issuance, compensatory mitigation requirements, permit duration, and data standards for submitting permit applications (USFWS 2014). More recently, The Bald Eagle And Golden Eagle Electrocutation Prevention In-lieu Fee Program (Eagle ILF Program) was authorized by the USFWS to sell compensatory mitigation credits for bald and golden eagles to utilities. The Eagle ILF Program is the only mitigation banking option currently available specific to eagles and authorized by USFWS to offset incidental take. In February 2011, USFWS released Draft Eagle Conservation Plan Guidance aimed at clarifying expectations for acquiring take permits acquisition by wind power projects consistent with the 2009 rule (USFWS 2011).

2.2 State

2.2.1 California Endangered Species Act

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

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

CESA Sections 2080 through 2085 address the taking of threatened, endangered, or candidate species by stating, “No person shall import into this state, export out of this state, or take, possess,

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purchase, or sell within this state, any species, or any part or product thereof, that the Commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided in this chapter, the Native Plant Protection Act (CFGF Sections 1900–1913), or the California Desert Native Plants Act (Food and Agricultural Code, Section 80001).”

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

2.2.2 California Fish and Game Code

Streambed Alteration Agreement

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

Birds and Mammals

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

California Fish and Game Code

The California Fish and Game Code provides protection for wildlife species. It states that no mammals, birds, reptiles, amphibians, or fish species listed as fully protected can be “taken or possessed at any time.” In addition, CDFW affords protection over the destruction of nests or eggs of native bird species (CFGF Section 3503), and it states that no birds in the orders of Falconiformes or Strigiformes (birds of prey) can be taken, possessed, or destroyed (CFGF Section

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3503.5). CDFW cannot issue permits or licenses that authorize the take of any fully protected species, except under certain circumstances such as scientific research and live capture and relocation of such species pursuant to a permit for the protection of livestock (CFGF Section 3511). Separate from federal and state designations of species, CDFW designates certain vertebrate species as Species of Special Concern based on declining population levels, limited ranges, and/or continuing threats that have made them vulnerable to extinction.

California Native Plant Protection Act

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

2.2.3 Porter–Cologne Water Quality Control Act

The Porter–Cologne Water Quality Control Act protects water quality and the beneficial uses of water. It applies to surface water and groundwater. Under this law, the State Water Resources Control Board develops statewide water quality plans, and the Regional Water Quality Control Boards (RWQCBs) develop regional basin plans that identify beneficial uses, water quality objectives, and implementation plans. The RWQCBs have the primary responsibility to implement the provisions of statewide plans and basin plans. Waters regulated under the Porter–Cologne Water Quality Control Act include isolated waters that are no longer regulated by USACE. Developments with impacts to jurisdictional waters must demonstrate compliance with the goals of the act by developing Stormwater Pollution Prevention Plans (SWPPPs), standard urban stormwater mitigation plans, and other measures to obtain regulatory permits from the RWQCB.

2.2.4 California Environmental Quality Act

CEQA requires identification of a project’s potentially significant impacts on biological resources and feasible mitigation measures and alternatives that could avoid or reduce significant impacts.

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

2.3 Regional

2.3.1 East County Multiple Species Conservation Program Plan

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

The Project site is located within the draft East County MSCP Plan area (Figure 2-2, Regional Planning). Projects in this area are subject to the Planning Agreement for the East County MSCP (County of San Diego 2014), which is intended to determine if project approval would have an effect on the preparation and approval of the draft East County MSCP. A Preliminary Planning Map has been completed for the East County MSCP. According to this map, the Project site falls partially within a preliminarily delineated Focused Conservation Area of the East County MSCP Planning area, which suggests that the area has regional conservation value (Figure 2-2).

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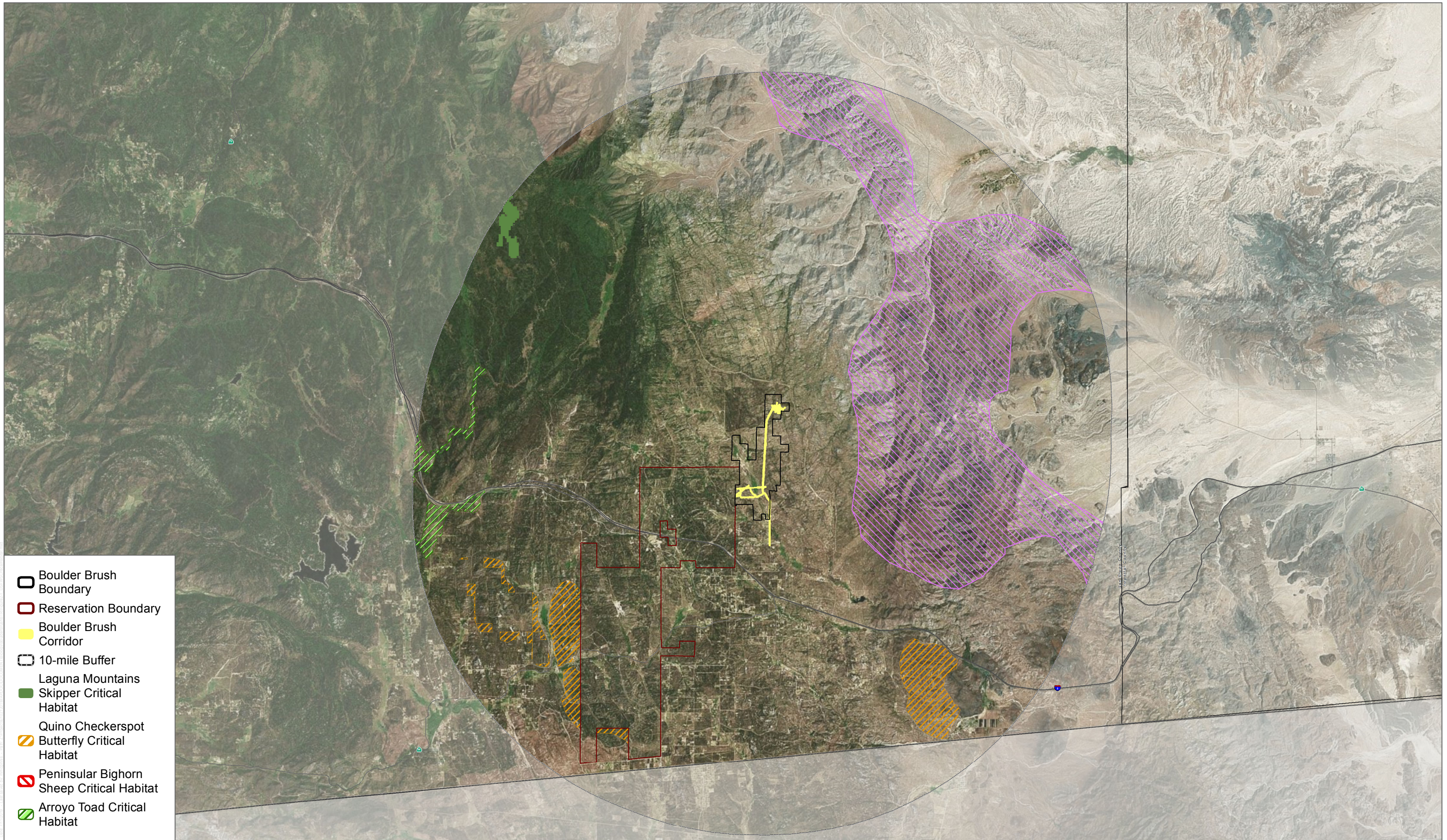
Until the East County MSCP Plan is drafted and approved, the Planning Agreement between the County and the Resource Agencies (County of San Diego 2014) remains in place and applies to the proposed Project. The Planning Agreement outlines Preliminary Conservation Objectives for the East County MSCP (County of San Diego 2014). In addition to the preliminary conservation objectives, the Planning Agreement for the draft East County MSCP Plan identifies an interim project review process, including a set of preserve design principles that interim projects are evaluated against during the period when the East County MSCP Plan is in preparation.

2.3.2 County Resource Protection Ordinance

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

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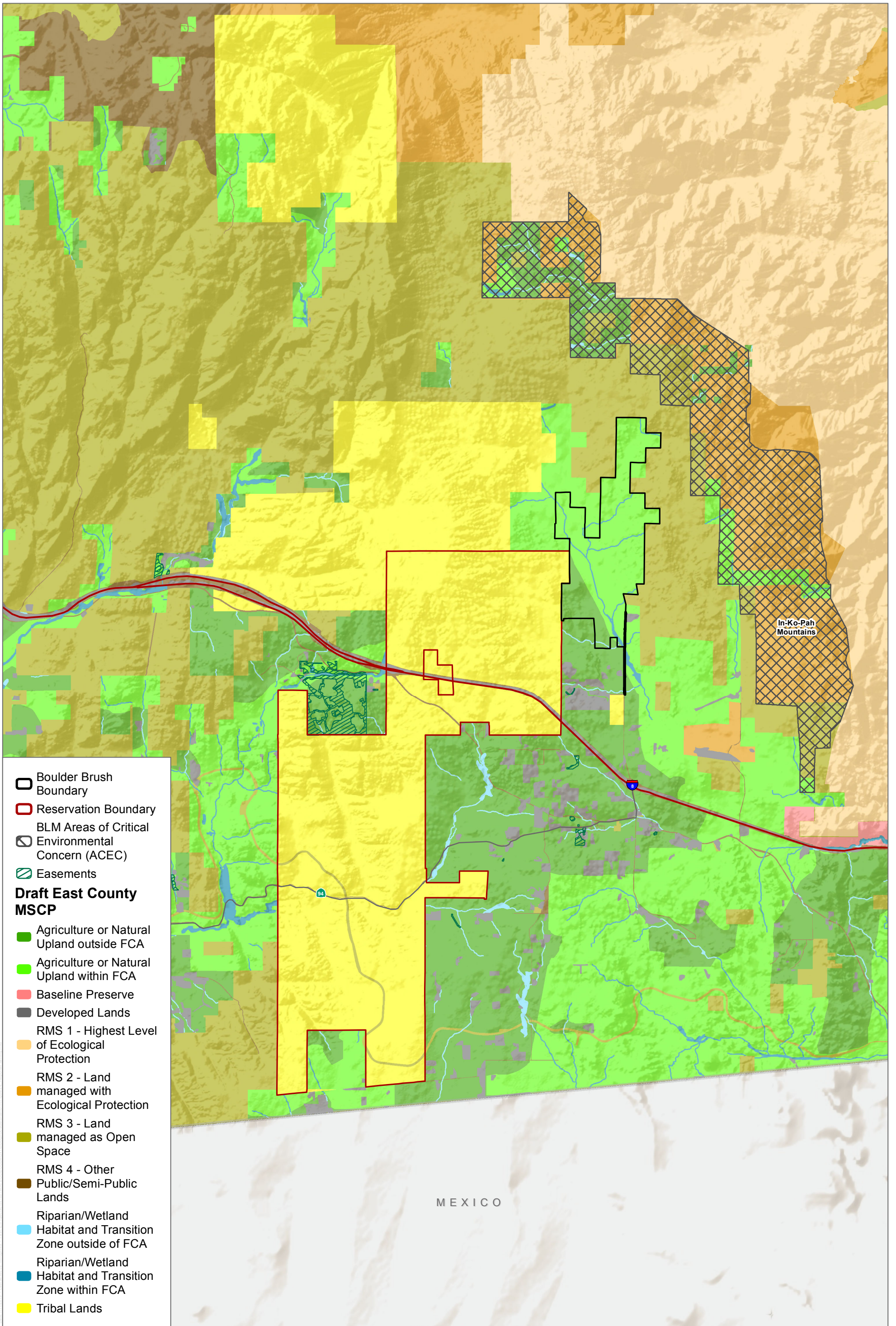
SOURCE: USFWS 2018; BING Maps 2018

FIGURE 2-1

USFWS Critical Habitat

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SOURCE: BLM 2018; ESRI 2018; SANGIS 2019

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3 SURVEY METHODOLOGIES

3.1 Literature Review

Special-status plant and wildlife species present or potentially present within the Boulder Brush Corridor were identified through an extensive literature search using the following sources: USFWS Critical Habitat and Occurrence Data (USFWS 2018a), CDFW's California Natural Diversity Database (CDFW 2018a), California Native Plant Society's (CNPS) Online Inventory of Rare and Endangered Vascular Plants (CNPS 2018), and the San Diego Plant Atlas (SDNHM 2018). The literature review also included review of species considered sensitive by the County of San Diego (County of San Diego 2010a). The Soil Survey, San Diego Area, California Part 1 (Bowman 1973) also was reviewed to identify potentially occurring special-status plants based on known soil associations. Native plant community classifications used in this report follow Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986) as modified by the County and noted in Draft Vegetation Communities of San Diego County (Oberbauer et al. 2008).

Data collected in support of the previously analyzed Jewell Valley Wind Project, which overlaps with the current Boulder Brush Corridor, was also reviewed and used for purposes of determining presence of special-status plant and wildlife species. For the portion of the project on the Reservation, the previous work conducted by AECOM in 2010 that overlaps with the current Campo Corridor was reviewed and incorporated into this report where appropriate. The *Campo Wind Project Biological Technical Report* details the methods for the surveys covering the Campo Corridor.

3.2 Field Reconnaissance

3.2.1 Boulder Brush Corridor

Dudek conducted the following surveys for the Boulder Brush Facilities in 2017, 2018, and/or 2019:

- Spring season rare plant surveys (two seasons)
- Late season rare plant surveys with a focus on tecate tarplant (*Deinandra floribunda*) (two seasons)
- Hermes copper (*Lycaena hermes*) habitat assessments (specific search for host plant spiny red berry (*Rhamnus crocea*))
- Laguna Mountain skipper (*Pyrgus ruralis lagunae*) habitat assessments (specific search for host plant Cleveland's horkelia (*Horkelia clevelandii*))
- Quino checkerspot (*Euphydryas editha quino*) habitat assessments and focused surveys
- Vegetation mapping

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- Golden eagle (*Aquila chrysaetos canadensis*) habitat assessment
- Bird utilization counts and small bird counts
- Raptor surveys
- Least Bell's vireo (*Vireo bellii pusillus*) southwestern willow flycatcher (*Empidonax traillii extimus*) habitat assessment and focused surveys
- Peninsular bighorn sheep (*Ovis canadensis nelsoni*) focused surveys
- Jurisdictional delineation within the Boulder Brush Corridor

Within a portion of the Boulder Brush Corridor, Dudek conducted the following surveys between 2011 and 2012 for the previous Jewell Valley Wind Project, which was proposed by a different applicant. Although the footprint and survey areas varied from the currently proposed Project, they provide valuable data regarding the potential for special-status wildlife to occur within the Boulder Brush Corridor.

- Quino checkerspot (*Euphydryas editha quino*) habitat assessments and focused surveys (2011 only)
- Acoustical bat surveys
- Raptor surveys

Table 3-1, Schedule of Surveys, lists the dates, conditions, and survey focus for each survey performed. This table, as well as the list of surveys above, include surveys conducted for a separate wind project (Torrey Wind) that is also proposed on some of the same parcels on which the Boulder Brush Facilities are proposed. Surveys for the Torrey Wind Project are thus relevant for the Boulder Brush Facilities portion of the Campo Project and vice versa. All field surveys were completed according to County Requirements (except on the Reservation) and included directed searches and habitat assessments for the County list of potential special-status faunal and floral species. The surveys were conducted by personnel qualified to perform biological surveys (i.e., Quino checkerspot butterfly protocol surveys were conducted by biologist with a Section 10(a)(1)(A) survey permit for that species). Special-status biological resources were mapped and analyzed together.

Within the Boulder Brush Corridor, focused surveys or wildlife habitat assessments were performed for the following wildlife species: southwestern willow flycatcher, Quino checkerspot butterfly, Peninsular bighorn sheep, Cooper's hawk, sharp-shinned hawk (*Accipiter striatus*), rufous-crowned sparrow, grasshopper sparrow, Bell's sage sparrow

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(*Artemisiospiza belli belli*), Peninsular metalmark, golden eagle, red-shouldered hawk, turkey vulture, large-blotched salamander, Lewis' woodpecker, purple martin, alkali skipper, and gray vireo. The County's scoping letter for the proposed Project also identified plant species that require focused surveys (County of San Diego 2017).

Since the Boulder Brush Corridor is located outside of the species' known current geographic range for arroyo toad, Stephens' kangaroo rat, California red-legged frog, focused surveys for were not conducted for these species. In addition, the Boulder Brush Corridor does not support the suitable habitat for the following species; therefore, focused surveys were not conducted: Laguna Mountain skipper (host plants were not detected), tricolored blackbird (site lacks freshwater wetland or any cattle/stock ponds). A habitat assessment was completed to determine the potential for grasshopper sparrow and gray vireo to occur within the Boulder Brush Corridor.

**Table 3-1
Schedule of Surveys**

Date	Hours	Personnel	Focus	Conditions
<i>Vegetation Mapping and Jurisdictional Delineation</i>				
2018-06-06	8:20 AM–6:12 PM	EJB	VEG	75–76°F; 0% cloud cover; 0–4 mph wind
2018-06-07	9:15 AM–4:51 PM	EJB, MF	VEG	75–84°F; 0% cloud cover; 0–5 mph wind
2018-06-08	10:16 AM–4:30 PM	LM	VEG	70–80°F; 0% cloud cover; 1–3 mph wind
2018-06-11	6:19 AM–7:07 PM	EJB	VEG	66–77°F; 0–60% cloud cover; 0–2 mph wind
2018-06-12	7:04 AM–3:28 PM	EJB	VEG	64–82°F; 0% cloud cover; 0–1 mph wind
2018-06-20	8:56 AM–4:57 PM	CJA, PCS	JD	82–90°F; 0% cloud cover; 0–2 mph wind
2018-07-03	7:40 AM–2:18 PM	CJA, JM, LM, PCS	JD	80–87°F; 0% cloud cover; 0–1 mph wind
2018-07-05	8:00 AM–2:13 PM	CJA, MF	JD	87–97°F; 0% cloud cover; 0–1 mph wind
2018-09-06	6:28 AM–5:07 PM	EJB	VEG, JD	57–80°F; 0%–100% cloud cover; 0–8 mph wind
<i>Rare Plant Survey</i>				
2017-05-11	10:14 AM–12:00 PM	EJB	RP	Air Temp: 73–76°F; Ground Temp: 77°F; 0% cloud cover; 0–1 mph wind; Clear
2017-05-17	9:11 AM–5:27 PM	EJB, JW, ME	RP	59–66°F; 80–100% cloud cover; 0–3 mph wind
2017-05-18	8:19 AM–4:12 AM	EJB, JM, JW, ME, SCG	RP	59–76°F; 0% cloud cover; 0–3 mph wind
2017-05-19	8:18 AM–2:18 PM	EJB, ME, SCG	RP	60–78°F; 0–90% cloud cover; 0–3 mph wind
2017-07-17	7:50 AM–2:35 PM	EJB, KCD	RP	77–96°F; 0–30% cloud cover; 1–10 mph wind
2017-07-18	6:50 AM–1:00 PM	EJB, MO	RP	71–91°F; 0–10% cloud cover; 0–3 mph wind
2017-07-21	6:43 AM–12:30 PM	EJB, KCD	RP	62–95°F; 0% cloud cover; 1–5 mph wind
2017-07-26	6:11 AM–11:42 AM	EJB	RP	55–89°F; 0–20% cloud cover; 0–3 mph wind

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Date	Hours	Personnel	Focus	Conditions
2017-07-27	6:20 AM–11:30 AM	EJB, KCD	RP	68–91°F; 0–10% cloud cover; 0–2 mph wind
2018-05-08	7:00 AM–5:04 PM	EJB	RP	62–78°F; 0–20% cloud cover; 0–1 mph wind
2018-05-10	6:44 AM–6:18 PM	EJB	RP	60–87°F; 0–100% cloud cover; 0–1 mph wind
2018-05-11	7:21 AM–4:14 PM	EJB	RP	65–70°F; 0–40% cloud cover; 0–1 mph wind
2018-05-12	7:41 AM–5:28 PM	EJB	RP	61–67°F; 0–70% cloud cover; 0–1 mph wind
2018-05-13	8:38 AM–5:49 PM	EJB	RP	67–70°F; 10% cloud cover; 0–2 mph wind
2018-05-15	7:32 AM–5:34 PM	EJB	RP	60–71°F; 0–40% cloud cover; 0–1 mph wind
2018-05-16	8:44 AM–4:20 PM	EJB, LM	RP	67–74°F; 20–30% cloud cover; 0–1 mph wind
2018-05-17	8:23 AM–4:17 PM	EJB, LM	RP	64–69°F; 50–70% cloud cover; 0–3 mph wind
2018-05-18	7:43 AM–2:02 PM	EJB, MF	RP	68–75°F; 10–20% cloud cover; 0–2 mph wind
2018-05-24	8:03 AM–5:10 PM	EJB, MF	RP	65–75°F; 0% cloud cover; 0–2 mph wind
2018-05-25	8:14 AM–1:58 PM	EJB, LM	RP	71–78°F
2018-06-01	7:49 AM–5:19 PM	EJB, LM	RP	69–74°F; 0–60% cloud cover; 0–1 mph wind
2018-08-01	7:09 AM–3:07 PM	EJB	RP	68–95°F; 0–10% cloud cover; 0–2 mph wind
2018-08-02	9:06 AM–3:58 PM	EJB	RP	75–105°F; 0–20% cloud cover; 0–4 mph wind
2018-08-03	7:49 AM–3:56 PM	EJB	RP	75–108°F; 0–10% cloud cover; 0–4 mph wind
<i>Quino Checkerspot Butterfly Habitat Assessment and Focused Surveys</i>				
2011-03-11 to 2011-04-10	Varied	Dudek and subconsultants	QCB for Jewell Valley Wind Project	Varied ^a
2018-02-16 to 2018-04-06	Varied	Dudek and subconsultants	QCB	Varied ^b
2019-03-15 to 2019-05-13	Varied	Dudek and subconsultants	QCB	Varied ^c
<i>All-Day Eagle Counts and 30-Minute Avian Point Counts</i>				
2017-09-08	9:49 AM–4:48 PM	MF, SC	30-Minute Point Counts	75–95°F; 50–100% cloud cover; 0–5 mph wind
2017-09-14	7:23 AM–4:57 PM	KS	30-Minute Point Counts	53–74°F; 0% cloud cover; 0–30 mph wind
2017-09-22	11:03 AM–5:44 PM	SC	30-Minute Point Counts	55–75°F; 0–10% cloud cover; 1–12 mph wind
2017-09-25	7:27 AM–2:13 PM	KS	30-Minute Point Counts	55–75°F; 0–50% cloud cover; 0–15 mph wind

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Date	Hours	Personnel	Focus	Conditions
2017-10-02	8:29 AM–3:15 PM	KS	30-Minute Point Counts	57–75°F; 0% cloud cover; 0–15 mph wind
2017-10-09	9:33 AM–6:01 PM	SC	30-Minute Point Counts	61–69°F; 0% cloud cover; 0–22 mph wind
2017-10-16	9:30 AM–5:04 PM	SC	30-Minute Point Counts	79–87°F; 0% cloud cover; 0–12 mph wind
2017-10-27	7:59 AM–2:07 PM	MF	30-Minute Point Counts	67–86°F; 0–10% cloud cover; 0–7 mph wind
2017-10-30	7:35 AM–2:16 PM	KS, OK	30-Minute Point Counts	46–66°F; 0–10% cloud cover; 0–20 mph wind
2017-11-06	6:40 AM–1:28 PM	KS, OK	30-Minute Point Counts	54–69°F; 10–90% cloud cover; 1–10 mph wind
2017-11-13	7:27 AM–1:09 PM	KS	30-Minute Point Counts	60–78°F; 60–100% cloud cover; 0–7 mph wind
2017-11-20	7:08 AM–3:03 PM	SC, OK	30-Minute Point Counts	43–80°F; 20–40% cloud cover; 0–12 mph wind
2017-11-27	7:07 AM–1:40 PM	SC, OK	30-Minute Point Counts	57–61°F; 70–100% cloud cover; 2–20 mph wind
2017-12-07	7:16 AM–1:41 PM	MF	30-Minute Point Counts	45–59°F; 0% cloud cover; 2–30 mph wind
2017-12-21	7:17 AM–2:32 PM	OK	30-Minute Point Counts	38–48°F; 0% cloud cover; 0–6 mph wind
2017-12-29	7:28 AM–2:35 PM	OK	30-Minute Point Counts	52–78°F; 0% cloud cover; 0–3 mph wind
2018-01-02	8:00 AM–4:00 PM	SC	30-Minute Point Counts	61–69°F; 10% cloud cover; 0–15 mph wind
2018-05-15	10:10 AM–5:52 PM	FM	All-Day Eagle Counts	71–77°F; 0–10% cloud cover; 0–25 mph wind
2018-05-16	9:05 AM–5:03 PM	FM	All-Day Eagle Counts	71–83°F; 0% cloud cover; 4–26 mph wind
2018-05-17	8:23 AM–4:18 PM	FM	All-Day Eagle Counts	60–75°F; 0% cloud cover; 4–25 mph wind
2018-05-21	8:20 AM–4:14 PM	FM	All-Day Eagle Counts	56–75°F; 0–20% cloud cover; 3–21 mph wind
2018-05-22	8:13 AM–4:14 PM	FM	All-Day Eagle Counts	62–85°F; 0–10% cloud cover; 0–15 mph wind
2018-05-23	8:18 AM–4:04 PM	FM	All-Day Eagle Counts	73–78°F; 0–10% cloud cover; 1–14 mph wind
2018-05-31	6:32 AM–12:43 PM	KS	30-Minute Point Counts	54–76°F; 0–40% cloud cover; 0–30 mph wind

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 Schedule of Surveys**

Date	Hours	Personnel	Focus	Conditions
2018-06-01	7:55 AM–3:50 PM	AC	All-Day Eagle Counts	68–80°F; 0% cloud cover; 4–16 mph wind
2018-06-04	8:14 AM–4:21 PM	FM	All-Day Eagle Counts	84–97°F; 10–20% cloud cover; 1–12 mph wind
2018-06-07	6:20 AM–12:32 PM	KS	30-Minute Point Counts	53–84°F; 0% cloud cover; 0–22 mph wind
2018-06-07	8:50 AM–5:18 PM	FM	All-Day Eagle Counts	74–78°F; 0% cloud cover; 3–19 mph wind
2018-06-08	8:00 AM–4:00 PM	SC	All-Day Eagle Counts	74–91°F; 0% cloud cover; 5–15 mph wind
2018-06-11	8:45 AM–4:06 PM	FM	All-Day Eagle Counts	74–86°F; 0–10% cloud cover; 1–14 mph wind
2018-06-12	9:45 AM–5:45 PM	FM	30-Minute Point Counts	83–94°F; 10–30% cloud cover; 1–15 mph wind
2018-06-13	8:24 AM–4:00 PM	FM	All-Day Eagle Counts	81–91°F; 10–20% cloud cover; 2–18 mph wind
2018-06-18	8:40 AM–4:31 PM	FM	All-Day Eagle Counts	63–88°F; 0% cloud cover; 2–13 mph wind
2018-06-19	9:30 AM–5:17 PM	FM	30-Minute Point Counts	80–89°F; 0% cloud cover; 0–11 mph wind
2018-06-20	8:40 AM–4:46 PM	FM	All-Day Eagle Counts	76–95°F; 10% cloud cover; 4–17 mph wind
2018-06-21	8:30 AM–4:31 PM	FM	All-Day Eagle Counts	75–94°F; 10% cloud cover; 2–15 mph wind
2018-06-25	8:45 AM–4:10 PM	FM	All-Day Eagle Counts	79–93°F; 0% cloud cover; 2–15 mph wind
2018-06-26	9:25 AM–4:40 PM	FM	30-Minute Point Counts	84–95°F; 0% cloud cover; 2–17 mph wind
2018-06-27	8:30 AM–4:35 PM	FM	All-Day Eagle Counts	73–90°F; 0% cloud cover; 6–23 mph wind
2018-06-28	8:13 AM–4:29 PM	FM	All-Day Eagle Counts	76–87°F; 0% cloud cover; 2–27 mph wind
2018-07-02	7:20 AM–1:10 PM	SC	30-Minute Point Counts	68–94°F; 0–20% cloud cover; 2–19 mph wind
2018-07-12	6:55 AM–12:45 PM	KS	30-Minute Point Counts	70–87°F; 0–30% cloud cover; 0–10 mph wind
2018-07-16	9:53 AM–3:46 PM	RM, OK	30-Minute Point Counts	88.5–95°F; 10–90% cloud cover; 0–8 mph wind
2018-07-26	9:30 AM–3:50 PM	FM	30-Minute Point Counts	93–96°F; 0–40% cloud cover; 1–14 mph wind

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Date	Hours	Personnel	Focus	Conditions
2018-08-03	11:28 AM–5:47 PM	FM	30-Minute Point Counts	88–98°F; 10% cloud cover; 8–12 mph wind
2018-08-09	11:15 AM–5:20 PM	FM	30-Minute Point Counts	84–88°F; 50–90% cloud cover; 3–9 mph wind
2018-09-05	12:00 PM–7:00 PM	FM	30-Minute Point Counts	74–84°F; 10% cloud cover; 2–3 mph wind
2018-09-11	11:00 AM–6:12 PM	FM	30-Minute Point Counts	74–84°F; 0% cloud cover; 2–14 mph wind
2018-09-18	8:00 AM–2:04 PM	KS	30-Minute Point Counts	77–90°F; 0% cloud cover; 1–8 mph wind
2018-09-27	8:06 AM–2:45 PM	SC	30-Minute Point Counts	65–92°F; 0% cloud cover; 0–9 mph wind
2018-10-02	8:00 AM–4:00 PM	PL	All-Day Eagle Counts	64–73°F; 50–90% cloud cover; 1–16 mph wind
2018-10-04	8:02 AM–4:00 PM	PL	All-Day Eagle Counts	58–70°F; 70–90% cloud cover; 2–18 mph wind
2018-10-05	8:00 AM–4:00 PM	PL	All-Day Eagle Counts	55–70°F; 40–90% cloud cover; 1–15 mph wind
2018-10-10	8:09 AM–4:00 PM	FM	All-Day Eagle Counts	57–67°F; 10% cloud cover; 4–22 mph wind
2018-10-11	8:08 AM–3:56 PM	FM	All-Day Eagle Counts	54–60°F; 10% cloud cover; 9–15 mph wind
2018-10-11	8:08 AM–3:45 PM	SC	30-Minute Point Counts	55–71°F; 20–50% cloud cover; 6–17 mph wind
2018-10-17	7:58 AM–3:57 PM	PL	All-Day Eagle Counts	56–59°F; 0% cloud cover; 2–17 mph wind
2018-10-18	8:00 AM–4:00 PM	KS	All-Day Eagle Counts	56–63°F; 0% cloud cover; 8–25 mph wind
2018-10-25	8:38 AM–2:40 PM	MF	30-Minute Point Counts	68–79°F; 0–30% cloud cover; 0–4 mph wind
2018-10-26	7:50 AM–3:50 PM	PL	All-Day Eagle Counts	58–75°F; 0–10% cloud cover; 1–12 mph wind
2018-10-31	8:00 AM–4:00 PM	KS	All-Day Eagle Counts	52–66°F; 0–10% cloud cover; 7–18 mph wind
2018-11-02	7:56 AM–2:44 PM	SC	30-Minute Point Counts	67.5–70.1°F; 0% cloud cover; 1–8.1 mph wind
2018-11-06	8:15 AM–4:15 PM	PL	All-Day Eagle Counts	63–73°F; 0–10% cloud cover; 1–8 mph wind
2018-11-07	8:10 AM–3:05 PM	SC	30-Minute Point Counts	70.6–76.3°F; 0% cloud cover; 1–10.3 mph wind

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**Table 3-1
 Schedule of Surveys**

Date	Hours	Personnel	Focus	Conditions
2018-11-12	9:08 AM–3:25 PM	OK	30-Minute Point Counts	50–55°F; 0% cloud cover; 10–23 mph wind
2018-11-16	7:40 AM–3:42 PM	PL	All-Day Eagle Counts	54–65°F; 0–10% cloud cover; 3–10 mph wind
2018-11-20	7:02 AM–12:16 PM	KS	30-Minute Point Counts	48–62°F; 0–30% cloud cover; 0–4 mph wind
2018-11-27	7:41 AM–3:43 PM	PL	All-Day Eagle Counts	50–64°F; 0–10% cloud cover; 0–7 mph wind
2018-11-28	8:00 AM–4:00 PM	SV	All-Day Eagle Counts	55–57°F; 0–10% cloud cover; 0–17 mph wind
2018-11-28	9:10 AM–3:23 PM	OK	30-Minute Point Counts	58–61°F; 0–10% cloud cover; 10–16 mph wind
2018-12-08	8:33 AM–2:46 PM	OK	30-Minute Point Counts	51–55°F; 0% cloud cover; 2–13 mph wind
2018-12-14	8:56 AM–3:29 PM	OK	30-Minute Point Counts	53–55°F; 0–30% cloud cover; 1–2 mph wind
2018-12-26	8:46 AM–3:27 PM	SC	30-Minute Point Counts	49–58°F; 0–30% cloud cover; 0–13 mph wind
2019-01-02	8:32 AM–3:25 PM	OK	30-Minute Point Counts	37–44°F; 0% cloud cover; 3–25 mph wind
2019-01-10	8:53 AM–3:15 PM	SC	30-Minute Point Counts	60–66°F; 0% cloud cover; 0–8 mph wind
2019-01-16	7:48 AM–1:36 PM	KS	30-Minute Point Counts	44–62°F; 20–100% cloud cover; 1–12 mph wind
2019-01-24	8:09 AM–4:06 PM	SC	30-Minute Point Counts	52–58°F; 0–90% cloud cover; 2–21 mph wind
2019-01-30	7:56 AM–1:53 PM	KS	30-Minute Point Counts	50–67°F; 50–70% cloud cover; 0–8 mph wind
2019-02-07	7:40 AM–1:24 PM	KS	30-Minute Point Counts	32–42°F; 0% cloud cover; 0–10 mph wind
2019-02-13	8:21 AM–2:35 PM	OK	30-Minute Point Counts	50–57°F; 70–100% cloud cover; 4–20 mph wind
2019-02-28	7:38 AM–1:39 PM	KS	30-Minute Point Counts	50–59°F; 10–50% cloud cover; 2–19 mph wind
2019-03-08	9:25 AM–3:41 PM	SC	30-Minute Point Counts	39–47°F; 20–80% cloud cover; 4–44 mph wind
2019-03-13	8:52 AM–3:25 PM	SC	30-Minute Point Counts	41–55°F; 10–80% cloud cover; 1–22 mph wind
2019-03-20	7:58 AM–2:24 PM	KS	30-Minute Point Counts	44–59°F; 40–100% cloud cover; 2–26 mph wind

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Table 3-1
Schedule of Surveys

Date	Hours	Personnel	Focus	Conditions
2019-03-26	7:57 AM–2:54 PM	SC	30-Minute Point Counts	57–73°F; 70–100% cloud cover; 0–19 mph wind
2019-04-01	8:31 AM–3:30 PM	SC	30-Minute Point Counts	63–74°F; 10–70% cloud cover; 0–11 mph wind
2019-04-09	8:00 AM–3:10 PM	DP	30-Minute Point Counts	59–65°F; 0–10% cloud cover; 1–30 mph wind
2019-04-25	8:56 AM–3:23 PM	OK	30-Minute Point Counts	73–84°F; 0–10% cloud cover; 1–10 mph wind
2019-04-30	8:37 AM–3:18 PM	OK	30-Minute Point Counts	49–53°F; 70–100% cloud cover; 3–28 mph wind
2019-05-17	8:15 AM–2:23 PM	DP	30-Minute Point Counts	44–46°F; 0–10% cloud cover; 5–26 mph wind
2019-05-24	8:45 AM–3:42 PM	OK	30-Minute Point Counts	54–67°F; 0–40% cloud cover; 2–13 mph wind
2019-06-06	7:47 AM–1:39 PM	KS	30-Minute Point Counts	78–92°F; 0–20% cloud cover; 0–12 mph wind
2019-06-10	9:36 AM–4:32 PM	SC	30-Minute Point Counts	86–96°F; 10–40% cloud cover; 1–13 mph wind
<i>Riparian Bird Surveys</i>				
2018-05-19 through 2018-07-28	Varied	Varied	Least Bell's Vireo and Southwestern Willow Flycatcher	Varied ^d .
<i>Peninsular Bighorn Sheep Survey</i>				
2018-07-23	7:45 AM–11:45 AM	KS, SC	Peninsular Bighorn Sheep	70–95°F; 0–10% cloud cover; 2–7 mph wind
2018-07-26	6:00 AM–12:00 PM	KS, SC	Peninsular Bighorn Sheep	64–95°F; 0% cloud cover; 0–5 mph wind
<i>Bat Surveys</i>				
2011-09-27 through 2012-06-19	Varied	Varied	Acoustic bat surveys for Jewell Valley Wind Project	Varied

mph = miles per hour

Personnel: KCD = Kathleen Dayton; SCG = Scott Gressard; CJF = Callie Amoaku; PCS = Patricia Schuyler; EJB = Erin Bergman; JM = Jake Marcon; SC = Shana Carey; JW = Janice Wondolleck, MO = Monique O'Conner; KS = Kevin Shaw; ME = Megan Enright; LM = Lindsay Mobley; MF = Mackenzie Forgey; RM = Randall McInvale; OK = Olivia Koziel; FM = Fern Hoffman; AC = Alex Chaney; SV = Shane Valiere; DP = Dilip Mahto.

Survey Designations/Focus: RP = rare plant survey; VEG = vegetation mapping; JD = jurisdictional delineation; QCB = Quino checkerspot butterfly

^a The schedule for the 2011 focused Quino checkerspot butterfly surveys is included in Attachment A-1, 2011 Focused Quino Checkerspot Butterfly Survey for the Jewell Valley Wind Project, San Diego County, California.

^b The schedule for the 2018 focused Quino checkerspot butterfly surveys is included in Attachment B-1, 2018 Focused Quino Checkerspot Butterfly Survey Report for the Torrey Wind Project, Boulevard, San Diego County, California.

^c The schedule for the 2019 focused Quino checkerspot butterfly surveys is included in Attachment B-2, 2019 Focused Quino Checkerspot Butterfly Survey for both the Torrey Wind Project and Boulder Brush Facilities, Boulevard, San Diego County, California.

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^d The schedule for the 2018 focused least Bell's vireo and southwestern willow flycatcher surveys is included in Attachment C, 2018 Least Bell's Vireo and Southwestern Willow Flycatcher Focused Survey Report for the Torrey Wind Project, Boulevard, San Diego County, California (in progress)

Vegetation Mapping

Vegetation communities and land uses on and typically within 100 feet of the proposed development footprint were mapped in the field directly onto a 200-foot-scale (1 inch = 200 feet), aerial photograph-based field map. The Boulder Brush Corridor includes a 100-foot buffer from the development footprint as required by the County of San Diego guidelines. Following completion of the fieldwork, all vegetation polygons were transferred to a topographic base and digitized using ArcGIS and a GIS coverage was created. Once in ArcGIS, the acreage of each vegetation community and land cover present on site was determined.

Consistent with the latest County of San Diego Report Format and Content Requirements: Biological Resources (County of San Diego 2010b), vegetation community classifications used in this report follow Holland (1986) and Oberbauer et al. (2008), where feasible, with modifications to accommodate the lack of conformity of the observed communities to those of Holland (1986) or Oberbauer et al. (2008).

Plants and Wildlife

Plant species encountered during the field surveys were identified and recorded. Latin and common names for plant species with a California Rare Plant Rank (CRPR; formerly CNPS List) follow the California Native Plant Society's On-Line Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2018). For plant species without a CRPR, Latin names follow the Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California (Jepson Flora Project 2018), and common names follow the U.S. Department of Agriculture's Natural Resources Conservation Service PLANTS Database (USDA 2018a).

In addition to species actually detected, expected wildlife use of the Boulder Brush Corridor was determined based on known habitat preferences of local species and knowledge of their relative distributions in the area (see Section 3.1, Literature Review). Latin and common names of animals follow Crother (2012) for reptiles and amphibians, the American Ornithologists' Union for birds (AOS 2017), the North American Butterfly Association for butterflies (NABA 2016), and Wilson and Reeder (2005) for mammals.

Jurisdictional Wetlands Delineation

The jurisdictional wetland delineation was conducted in accordance with the methods prescribed in the 1987 Wetland Delineation Manual (USACE 1987), the 2008 Regional Supplement to the Corps of

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Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008a), and A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual (USACE 2008b). During the jurisdictional delineation surveys, the Boulder Brush Corridor was walked and evaluated for evidence of an ordinary high water mark, surface water, saturation, wetland vegetation, and nexus to a traditional navigable water of the United States. The extent of any identified jurisdictional areas was determined by mapping the areas with similar vegetation and topography to the sampled locations.

Pursuant to the federal Clean Water Act, USACE and RWQCB jurisdictional areas include those supporting all three wetlands criteria described in the USACE manual: hydric soils, hydrology, and hydrophytic vegetation. Areas regulated by the RWQCB are generally coincident with the USACE, but can also include isolated features that have evidence of surface water inundation, pursuant to the state Porter Cologne Act. These areas generally support at least one of the three USACE wetlands indicators, but are considered isolated through the lack of surface water hydrology/connectivity downstream.

A predominance of hydrophytic vegetation, where associated with a stream channel, was used to determine CDFW-regulated riparian areas. Streambeds under the jurisdiction of CDFW were delineated using the Cowardin method of waters classification, which defines waters boundaries by a single parameter (i.e., hydric soils, hydrophytic vegetation, or hydrology) (Cowardin et al. 1979).

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. Water-dependent resources regulated by USACE, RWQCB, CDFW, and the County are collectively referred to as jurisdictional aquatic resources herein. Terminology used in this document to distinguish each jurisdictional aquatic resource according to the agency that regulates the resource is as follows:

- **USACE and RWQCB:** “Wetland” and “non-wetland waters.” Wetland waters of the United States and non-wetland waters of the United States are subject to regulation by USACE and RWQCB, pursuant to the Clean Water Act. Within the Boulder Brush Corridor, USACE waters of the United States and wetlands, and RWQCB waters of the United States and wetlands overlap, and therefore are combined under one term: “non-wetland waters” or “wetlands.”
- **CDFW:** “Riparian areas” and “streambeds.” Lakes, rivers, and streambeds, including any associated riparian habitat, are subject to regulation by CDFW pursuant to the California Fish and Game Code. Within the Boulder Brush Corridor, CDFW streambeds are synonymous with

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USACE and RWQCB non-wetland waters. CDFW riparian areas are not synonymous with USACE and RWQCB wetlands because these areas lacked all three parameters.

The County's RPO (County of San Diego 2012) identifies environmental resources, including wetlands, present within the County, and provides measures to preserve these resources. The RPO defines wetlands as lands that have one or more of the following attributes: (1) lands that periodically support a predominance of hydrophytes (plants whose habitat is water or very wet places); (2) lands in which the substratum is predominantly undrained hydric soil; or (3) lands where an ephemeral or perennial stream is present and whose substratum is predominantly non-soil, and where such lands contribute substantially to the biological functions or values of wetlands in the drainage system.

During the jurisdictional delineation surveys, the Boulder Brush Corridor was walked and evaluated for evidence of an ordinary high water mark, surface water, saturation, wetland or hydrophytic vegetation, and nexus to a traditional navigable water of the United States. The extent of any identified jurisdictional areas was determined by mapping the areas with similar vegetation and topography to the sampled locations.

3.2.2 Campo Corridor

Surveys for the portion of the project on the Campo Reservation were conducted by AECOM in 2010 and by Dudek in 2017 and 2018. These surveys included: vegetation mapping, jurisdictional delineation, focused Quino checkerspot butterfly surveys, focused arroyo toad surveys, focused riparian bird surveys, golden eagle aerial and ground nest surveys, eagle point counts, and bat surveys. These surveys are described in detail in the *Campo Wind Project Biological Technical Report*.

3.3 Focused Surveys for Special-Status Biological Resources

Special-status, or sensitive, biological resources are those defined by the County or other regulatory agency as (1) species that have been given special recognition by federal, state, or local conservation agencies and organizations due to limited, declining, or threatened population sizes; (2) species and habitat types recognized by local and regional resource agencies as sensitive; (3) habitat areas or plant communities that are unique, are of relatively limited distribution, or are of particular value to wildlife; or (4) wildlife corridors and habitat linkages.

Focused surveys and/or habitat assessments for the following sensitive biological resources were conducted within the Boulder Brush Corridor: focused surveys for rare plants; habitat assessments for Hermes copper butterfly and Laguna Mountain skipper; a habitat assessment, larval host plant survey, and protocol surveys for Quino checkerspot butterfly; golden eagle surveys, bird utilization counts,

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small bird counts, raptor nest surveys, riparian bird surveys, and Peninsular bighorn sheep surveys. Incidental detections of wildlife species, either through sight, calls, tracks, scat, or other signs, were also recorded. Dates and site conditions for the field efforts are organized in Table 3-1. Figure 3-1, General Boulder Brush Survey Areas, shows the overall locations of the surveys. Focused surveys and survey areas are described in more detail below and are shown on separate figures.

In addition, the data gathered from the avian and bat field surveys conducted in 2011 and 2012 for a previous project (Jewell Valley Wind Project) proposed by a different applicant (bird utilization counts, eagle and small bird counts as well as acoustical bat surveys) are being used to assist in the development of a Project-specific Avian and Bat Monitoring Plan. This plan, including methods and results, would be a separate document from this report, and is therefore not included as an attachment to this report; however, the species observed during these surveys are included in the compendium and any special-status species observed are included in the biological analysis for the Project.

As mentioned above, the focused surveys for the portion of the Project on the Reservation are described in detail in the *Campo Wind Project Biological Technical Report*.

3.3.1 Boulder Brush Corridor

3.3.1.1 Focused Surveys for Special-Status Plants

Dudek biologists conducted focused surveys for special-status plants in 2017 and again in 2018. The 2017 surveys were conducted for a different configuration of the proposed Project, and therefore didn't cover the entire 2018 Boulder Brush Corridor. Therefore, the 2018 surveys were conducted over the entire current Boulder Brush Corridor¹ and the 2017 surveys were utilized to supplement data where appropriate (i.e., known locations based on 2017 surveys were revisited in 2018 to ensure the full extent of the population was mapped). Focused surveys for special-status plants were conducted at the appropriate phenological stage of the plant (blooming and fruiting) to detect and identify the target species. Field survey methods conformed to CNPS Botanical Survey Guidelines (CNPS 2001); Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities (CDFG 2000); and General Rare Plant Survey Guidelines (Cypher 2002). The survey was conducted by walking meandering transects to detect special-status species. Special-status plant observations were mapped in the field using the ESRI Collector mobile application to record the location and population number of special-status plant occurrences.

¹ There are 27.4 acres added to the previous study area in June 2019 that were not surveyed. These areas consist of 12 extended polygons ranging from less than 0.01 acres to 4.6 acres. However, these areas support the same type of vegetation communities and species' habitat as previously analyzed.

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3.3.1.2 Quino Checkerspot Butterfly Surveys

2011 Protocol Surveys

The 2011 focused Quino checkerspot butterfly (*Euphydryas editha quino*) surveys were performed for a different proposed project (Jewell Valley Wind Project) and different project applicant (Figure 3-2, 2011 Quino Checkerspot Butterfly, Raptor Survey, and Acoustical Bat Survey Areas – Boulder Brush). The survey areas were developed based on discussions with the previous project applicant that identified potential areas on site that would likely be most suitable for development. Portions of these focused surveys overlap with the current Boulder Brush Corridor.

Focused Quino checkerspot butterfly surveys were conducted over five visits within a 5-week period between March 9 and April 15, 2011. Surveys were conducted by Quino checkerspot butterfly-permitted biologists Anita M. Hayworth, PhD (TE-781084), Brock A. Ortega (TE-813545-5), David Waller (TE-025394-2), Jeffrey D. Priest (TE-840619-2), Kamarul J. Muri (TE-051250-0), Paul M. Lemons (TE-051248-2), Tricia Wotipka (TE840619-2), Vipul R. Joshi (TE-019949-0), and Viviane Marquez (TE-800930-9) in accordance with the most current USFWS protocol for that period (USFWS 2002a, 2002b).

The site was divided into five survey polygons, each representing a single-day survey effort (i.e., in accordance with USFWS protocol) (Figure 3-2). 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.

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°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 checkerspot butterfly survey are provided in the 45-day report in Attachment A-1, 2011 Focused Quino Checkerspot Butterfly Survey for the Jewell Valley

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Wind Project, San Diego County, California. Note that the report discusses surveys conducted within the Torrey Wind Project site, as well as areas south of I-8, which are not a part of this project, but which were a part of the larger Jewel Valley Wind Project.

2018 and 2019 Protocol Surveys

The 2018 and 2019 protocol Quino checkerspot butterfly surveys consisted of a 100-foot buffer applied to the access road impacts and a 500-foot buffer applied to turbine locations and other Project components within the portion of the Project on private land to create the Quino Survey Area (Figure 3-3, 2018 Quino Checkerspot Butterfly Survey Areas – Boulder Brush, and Figure 3-4, 2019 Quino Checkerspot Butterfly Survey Areas – Boulder Brush). During the surveys, the proposed Project was revised from its original design to avoid sensitive cultural and biological resources resulting in a slightly modified survey area in April 2018. Figure 3-3 shows the original and revised survey areas and Figure 3-4 shows the 2019 survey areas.

In 2018, prior to conducting protocol surveys, Dudek biologists conducted a habitat assessment as well as host plant mapping for the proposed Project to determine which areas could be excluded as Quino checkerspot butterfly habitat. A habitat assessment was also completed for any survey areas on private land which were modified to avoid sensitive resources. Areas not recommended for Quino checkerspot butterfly surveys include the following (USFWS 2014):

- Orchards, developed areas, or small in-fill parcels (plots smaller than an acre completely surrounded by urban development) largely dominated by non-native vegetation.
- Active/in-use agricultural fields without natural or remnant inclusions of native vegetation or that are completely without any fallowed or unplowed areas.

Closed-canopy woody vegetation including forests, riparian areas, shrub-lands, and chaparral. “Closed-canopy woody vegetation” describes shrubs or trees growing closely together in which the upper portions of the vegetation converge (are touching) to the point that the open space between two or more plants is not significantly different than the open space within a single plant. Closed canopy shrub-land and chaparral are defined as vegetation so thick that it is inaccessible to humans except by destruction of woody vegetation (branches). Focused Quino surveys in 2018 were conducted over 10 visits from March 13, 2018, through May 12, 2018, in accordance with the 2014 USFWS Quino Checkerspot Butterfly Survey Guidelines. The survey area consisted of suitable habitat for Quino checkerspot (Figure 3-3). 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-

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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).

In 2019, focused Quino surveys were conducted over 9 visits from March 15, 2019, through May 13, 2019, per the 2014 USFWS Quino Checkerspot Butterfly Survey Guidelines. The survey area consisted of suitable habitat for Quino checkerspot butterfly (Figure 3-4). Surveys were conducted by Quino-permitted biologists Antonette Gutierrez (TE-50992-B), 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).

The biologists were provided with 200-scale (1 inch = 200 feet) aerial maps of the survey area. Binoculars were used to aid in detecting and identifying butterfly and other wildlife species. While host plant surveys were performed in concert with the habitat assessment, surveyors also looked for host plants during the focused surveys to document any changes from the initial host plant mapping effort. No Quino larval host plants were observed within the 2018 Quino survey area during the habitat assessment or focused surveys; however, surveyors did observe some dead *Cordylanthus rigidus* remaining from the previous year's rainfall; however, since only live host plants are mapping during this effort, these locations were not recorded. Surveyors also looked for host plants during the focused surveys and none were observed. One species of host plant was observed within portions of the survey areas during the 2011 Quino host plant mapping effort, but was located in the portion of the Jewel Valley Project south of I-8 and not within the area to be developed with the Boulder Brush Facilities (Dudek 2011). The 2019 host plant mapping is described in more detail below.

The results of the surveys are discussed further in Section 6.2, Analysis of Project Effects, and they are also provided in Attachment B-1, 2018 Focused Quino Checkerspot Butterfly Survey for the Torrey Wind Project, San Diego County, California, and Attachment B-2, 2019 Focused Quino Checkerspot Butterfly Survey for both the Torrey Wind Project and Boulder Brush Facilities, Boulevard, San Diego County, California.

2019 Habitat Assessment and Host Plant Mapping

For the 2019 surveys, Dudek biologists conducted two passes of Quino host plant mapping surveys between March 6 and April 23, 2019. 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. Host

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plant mapping surveys searched for the six recognized host plants and one potential host plant for Quino checkerspot butterfly: dwarf plantain (*Plantago erecta*), woolly plantain (*P. patagonica*), Coulter's snapdragon (*Antirrhinum coulterianum*), purple Chinese houses (*Collinsia heterophylla*), rigid bird's beak (*Cordylanthus rigidus*) and exserted Indian paintbrush (*Castilleja exserta*) (USFWS 2014; Pratt and Pierce 2009). Purple Chinese houses do not have an eastern San Diego county distribution and would not occur on site. Chinese houses (*Collinsia concolor*) is a potential larval host plant (Pratt and Pierce 2009). Nectar plants were recorded each week of surveys.

Dudek biologists recorded locations of Quino host plants using a mobile application. Data collected included the surveyor(s), date, species of host plant, and density of the host plant at the point at which the host plant was found. 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 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.

3.3.1.3 Migratory Bird Treaty Act and Bald and Golden Eagle Act Surveys

In 2011 and 2012, Dudek conducted raptor nest surveys for the previously proposed Jewell Wind Project for another applicant. In 2011 and 2012, suitable habitat within private land was traversed by vehicle and on foot with the aid of binoculars (7x50 power) according to the technique outlined in Fuller and Mosher 1987. This survey covered all areas of suitable raptor nesting habitat within the Boulder Brush Corridor. Nest locations of raptors and large birds were mapped using GPS and 550-scale (1 inch = 550 feet) aerial photographs overlain with the Boulder Brush Corridor boundaries. Nests observed were evaluated and classified based on activity status (i.e., active nests with birds present, bird sign present, a cavity with bird sign present, or inactive); condition (i.e., good condition, or old/degraded and assumed inactive); and potentially associated raptor species based on an estimate of size and nest materials used. If present, active nests were characterized by presence of incubating adult, eggs, or young in the nest, or territory defense by adults. Particular attention also was given to searching for special-status species.

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In 2011, focused avian studies (Bird Utilization Count surveys and small bird count surveys) were also performed on the proposed Jewell Wind Project area. The methods are described below.

In 2018, nest locations were noted during other wildlife surveys conducted within the Boulder Brush Corridor, including the bird use count surveys. In addition, 2011 nest locations were revisited to verify continued presence. Data collection for 2018 was completed using ESRI Collector mobile application. Nest locations were downloaded by Dudek GIS technician, using ArcGIS software.

Additional avian studies (30-minute point count surveys and All-day eagle surveys) were performed between 2017 and continue through 2019 in order to analyze possible effects to avian species, including small birds, large birds, and eagles. These methods were approved by the USFWS and would be used to inform a Bird and Bat Conservation Strategy if needed.

Bird Utilization Count Surveys

Bird Utilization Counts (BUC) are an established methodology used to determine bird use in a given area, and the focus of the BUC's for the Jewell Valley Wind Project were raptors. BUC's for the Jewell Valley Wind Project were initially performed by Stantec from June to September 2010 and by Dudek starting in October 2010 through May 2012. Surveys were conducted weekly from October 5, 2010 through June 21, 2011 and biweekly surveys were conducted from July 5, 2011 to May 28, 2012. A total of 60 survey days was completed for four sites and 23 days for one site.

The survey method consisted of recording all birds observed within an 800 meter buffer at each predetermined location for 30 minutes. Survey locations were typically located on top of boulders to facilitate visibility of the 800 meter buffer around the site. The surveys started 15 minutes after sunrise and all sites were surveyed in one day. The order of sites was changed each week to avoid bias in timing of survey. The surveys were performed under a variety of conditions including rain, high temperatures, high and low wind, and snow to ensure capture of all species utilizing the area.

Two biologists were present for each survey. One biologist was the observer and the other biologist recorded data on the following items for each site: Site number, survey date, and starting and ending weather conditions (including temperature, wind speed, wind direction, precipitation, cloud cover and visibility. If the bird(s) was perched then the perch type (i.e., shrub, tree, ground etc.), perch height, distance and direction were recorded. If the bird(s) were flying then the distance, direction of flight, height and flight behavior (i.e., flapping, soaring etc.) were recorded. For raptors and corvids, the duration of flight within an 800 meter buffer was also recorded.

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Small Bird Count Surveys

Small Bird Counts are very similar to the BUCs described above, except that they are conducted at a higher density to capture more small bird use of the site and are 10-minute point counts. The purpose of the count surveys are to determine species composition and relative density of breeding passerines in proposed turbine areas and to establish baseline data which may later be compared to post-construction data to determine breeding bird displacement impacts. Surveys are designed to incorporate before-after/control-impact (“BACI”) study methodologies. As such, all counts are performed at geo-referenced and permanently marked observation points along and within the proposed turbine locations.

Dudek established permanent and geo-referenced count locations a minimum of approximately 820 feet (250 meters) apart, with an attempt to maintain a grid of the distance that overlays the anticipated wind turbine area. The grid was set up to minimize the number of stations needed to the maximum extent feasible and included 20 point locations. The survey area at each point location consisted of a circular 100-meter area and the stations were stratified across all vegetation types within the affected wind turbine area. Surveys were conducted three times at approximately 2-week intervals during the breeding season (i.e., between March 1 and August 31, 2011). During each sampling event, each point was visited for ten minutes during the peak hours at which birds sing, (i.e., no earlier than 30 minutes before sunrise and no later than 4 hours after sunrise). At the start of each point count survey, start time and weather conditions (temperature, wind speed and direction, cloud cover, and precipitation) were recorded. Observers recorded all birds detected by sight or sound during the survey period within the 100-meter radius count circle. Recorded data included time, species, number/species, estimated distance from the observer, activity, habitat, flight direction, and estimated flight height. The points were surveyed in differing orders during each pass so that each point was not surveyed at the same time of morning during each pass.

30-Minute Point Count Surveys

This study are intended to function as both Bird Utilization Counts (larger birds) and Small Bird Counts. Permanent and geo-referenced count locations were established a minimum of 2,625 feet (800 meters) apart, with an attempt to maintain coverage over the anticipated wind turbine and infrastructure area. A total of 7 locations covered the Boulder Brush Corridor and another 20 covered the Campo Wind turbine area.

Surveys were initiated in September 2017 and continue through Fall 2019. The first 10 minutes of the survey focused on recording the activities of small birds (less than 10 inches) within 328 feet (100 meters), the remaining 20 minutes focused on the activities of medium and large birds within 2,625

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feet (800 meters). Surveys were conducted throughout the day, beginning from ½ hour after sunrise to 1 hour before sunset to account for species with varying activity periods. Additionally, the starting survey location was rotated on a weekly basis.

Data collected included:

- Site location number
- Observer name
- Survey period start and end times
- Weather (temperature, wind speed/direction, precipitation, percent cloud cover, visibility) at the start and end of each survey period
- Time and duration of observation (duration is rounded up to 1-minute increments; e.g., an eagle flying for about 15 seconds is 1 eagle minute, and another observed for about 1 minute 10 seconds is 2 eagle minutes)
- Bird identification tag (letter code; e.g., A = first bird, B= second bird)
- Detection type (visual, aural)
- Species (American Ornithologists' Union four-letter code, including an unknown category)
- Number of individuals, sex, age class
- Location first observed (horizontal distance/bearing from observer)
- Activity/behavior (e.g., perching, soaring, flapping, circling, hunting, other)
- Flight height above ground (at location of bird) when first observed, when closest to the observer, at maximum height, and at minimum height
- Flight direction
- Flight paths for all raptors (delineated on a map)
- Notes (e.g., contour flying, following ridgeline, flying through a pass, flying over top of hills, location information on incidental bird sightings)

Ultimately, data will be analyzed to determine the species richness, number of individuals, relative abundance, frequency of species occurrence, and Shannon Diversity Index for all point count locations, and for point count locations grouped by the different habitats surveyed. For these analyses, birds documented as flyovers and birds documented beyond the 100/800-meter radius from the observer

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will not be included due to the likelihood of not breeding in the 100-meter radius count circle. However, for all birds observed, the behaviors, flight heights, and flight directions will be summarized.

All-day Eagle Surveys

These surveys were conducted to provide additional data regarding eagle use of the site. These point count surveys were conducted during the spring and fall periods to capture peak movement periods. Observation points were established on ridgelines or hilltops to provide the best visual coverage of the site. USFWS Appendix C recommends at least 30% of the area within a 0.62-mile (1-kilometer) radius of potential wind turbine locations be covered or sampled by point counts (USFWS 2012b). Therefore, a total of 5 point count stations were established on the Campo and Boulder Brush Corridors. Surveys were performed between May 2018 and June 2019. Surveys were conducted between 0800 and 1600 hours. These occurred three (3) days per week for 8 weeks during each Spring/Fall period.

The following data were recorded for each golden eagle and/or raptor observation:

- Species
- Number of individuals, sex, age class
- Time and duration of observation
- Detection type (visual or auditory)
- Location first observed (distance/direction from observer)
- Maximum and minimum flight height above the ground
- Maximum and minimum flight heights relative to the observer's position (e.g., a bird flying over a ravine at the same level as the observer is assigned a flight height of 0)
- Topographic flight path characterization (e.g., following ridgeline, through a pass, over top of hills)
- Flight path and direction (recorded on aerial photos)

3.3.1.4 Riparian Bird Surveys

Suitable habitat areas within and surrounding the Boulder Brush Corridor were surveyed eight times for vireo and five times for flycatcher (Figure 3-7, 2018 Riparian Bird Survey Area). Focused surveys for these species were initiated on May 19, 2018, and continued through July 28, 2018. The survey report is provided in Attachment C, 2018 Least Bell's Vireo and Southwestern Willow Flycatcher Focused Survey Report for the Torrey Wind Project, Boulevard, San Diego County,

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California. Surveys for least Bell's 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 immediately after flycatcher surveys. All surveys consisted of slowly walking a methodical, meandering transect within and adjacent to all riparian habitat on site. The perimeter also was surveyed. This route was arranged to cover all suitable habitat on site. A vegetation map (1:2,400 scale; 1 inch = 200 feet) of the Boulder Brush Corridor was available to record any detected vireo or flycatcher. Binoculars 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 a project's effects on flycatchers. The protocol recommends one survey between May 15 and 31, two surveys between June 1 and June 24, and two surveys between June 25 and July 17. Consistent with the protocol, surveys during the final period (June 25 and July 17) were separated by at least 5 days. A tape of recorded flycatcher vocalizations was used, approximately every 50 to 100 feet within suitable habitat, to induce flycatcher responses. If flycatcher were detected, tape playback ceased immediately to avoid harassment.

In concurrence with the accepted Least Bell's Vireo Survey Guidelines (USFWS 2001), eight focused surveys were conducted by qualified Dudek biologist within all riparian areas and any other potential vireo habitats between April 10 and July 31, 2018 (Table 3-1). The site visits were 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 was 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.

3.3.1.5 Peninsular Bighorn Sheep Surveys

Dudek performed a pedestrian transect survey in July 2018 in open habitats within and surrounding the Boulder Brush Corridor to search for Peninsular bighorn sheep sign including tracks and pellets (Figure 3-1). This effort was concentrated on the more open northeastern and southwestern habitat on the portion of the Project site on private lands and was not constrained to just the Boulder Brush Corridor but instead focused on areas where there could be a potential for bighorn sheep to occur.

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3.3.1.6 Acoustical Bat Surveys

In 2011, Dudek conducted acoustical bat surveys for the previously proposed Jewell Wind Project for another applicant. Dudek conducted passive acoustic bat surveys from September 2011 to September 2012 to determine general bat presence, activity levels, and species composition and to establish baseline data. Dudek used broadband acoustic detectors (Anabat SD2) that are programmed to record bat calls each day from one half-hour before sunset to one half-hour after sunrise each day of the study.

Dudek attached two bat echolocation microphones to a meteorological tower near the Boulder Brush Corridor (Figure 3-2). One microphone was mounted approximately 15 feet from the ground (low mic) while the second microphone was mounted near the top of the meteorological tower, approximately 200 feet from the ground. The microphone enclosures are fitted with Plexiglas sound reflector plates positioned at 45 degrees below horizontal so that the angle of the call reception is pointed upward at 45 degrees. The Anabat detector is powered by a 12-volt battery that is recharged daily by a 10-watt solar panel attached to the meteorological tower. The microphones were rotated between the two heights on a bi-weekly basis to ensure bat calls are recorded at different heights. This data was then used to determine the potential and frequency for bats to occur within the Boulder Brush Corridor.

Identification of species used the methods of O'Farrell and Miller (1999) based on frequency characteristics, call shape, and comparison with a comprehensive library of vocal signatures developed by O'Farrell and Miller. An index of activity (IA), or the magnitude of each species contribution to spatial use, was obtained for the monitoring station using the sum of 1-minute time increments for which a species was detected as present divided by the number of nights of sampling (Miller 2001). The IA was multiplied by a factor of 100 in order to scale the smallest index values up to whole numbers and rounded to the nearest whole number for ease in interpreting the tables.

3.3.7 Habitat Assessment for Special-Status Butterflies

The County of San Diego Guidelines for Hermes Copper (*Lycaena hermes*) (Attachment B of County of San Diego 2010b) defines suitable habitat for Hermes copper butterfly as areas with redberry buckthorn (*Rhamnus crocea*) within 15 feet of Eastern Mojave buckwheat (*Eriogonum fasciculatum*). No redberry buckthorn were observed during the 2017 and 2018 rare plant surveys (see Section 3.3.1) conducted within the Boulder Brush Corridor; therefore, no suitable habitat was mapped on site.

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During rare plant surveys, surveyors looked for Cleveland's horkelia (*Horkelia clevelandii*), the host plant for the federally-endangered Laguna Mountain skipper. No Cleveland's horkelia is present within the Boulder Brush Corridor; therefore, no suitable habitat was mapped. At the time of listing in 1997, Laguna Mountain skipper occurred in the Laguna Mountains (located northwest of the Project site) and on Palomar Mountain in San Diego County, California, but it is currently restricted to Palomar Mountain, where there are four extant occurrences (USFWS 2016).

3.3.2 Campo Corridor

Focused surveys are described in detail in the *Campo Wind Project Biological Technical Report*. Figure 3-5, 2010 Quino Checkerspot Butterfly Survey Area (AECOM) – Reservation shows the 2010 survey areas; and Figure 3-6, 2018 Quino Checkerspot Butterfly Survey Areas – Reservation shows the 2018 survey areas.

3.4 Survey Limitations

Direct observations of special-status plants and wildlife species were recorded during vegetation mapping, jurisdictional delineations, rare plant surveys, focused wildlife surveys, and habitat assessments. In addition to direct observations of wildlife species, signs such as tracks and scat were also recorded. Special-status species observed during these surveys were recorded and/or mapped (see Section 4 for results). San Diego County experienced drought conditions over the last several years that affected plant growth. Fluctuations in annual plant populations and effect rates of germination are associated with variations in rainfall and other climatic conditions. Therefore, in addition to two years of focused surveys (2017 and 2018), an emphasis was placed on conducting habitat assessments for special-status plant species (Attachment D, Plant Species Observed). In addition, reference checks were conducted for populations of rare plants near the Boulder Brush Corridor to determine appropriate survey timing. Reference checks were conducted near Pine Valley, California, numerous locations off of McCain Valley road, near Boulevard, California, within Jacumba, California, and a few within Anza Borrego Desert State Park. Six flowering rare plants were found before starting surveys which included desert beauty (*Linanthus bellus*), Jacumba milk-wetch (*Astragalus douglasii* var. *perstrictus*), southern jewelflower (*Streptanthus campestris*), pygmy lotus (*Acemispion haydonii*), sticky geraea and alpine gold (*Hulsea californica*).

Focused wildlife surveys were conducted per the appropriate protocols, where required, which resulted in wildlife surveys being conducted during the day. Birds represent the largest component of the vertebrate fauna. Since birds are active in the day, diurnal surveys maximized the number of observations of this portion of the fauna. Daytime surveys, however, may result in fewer

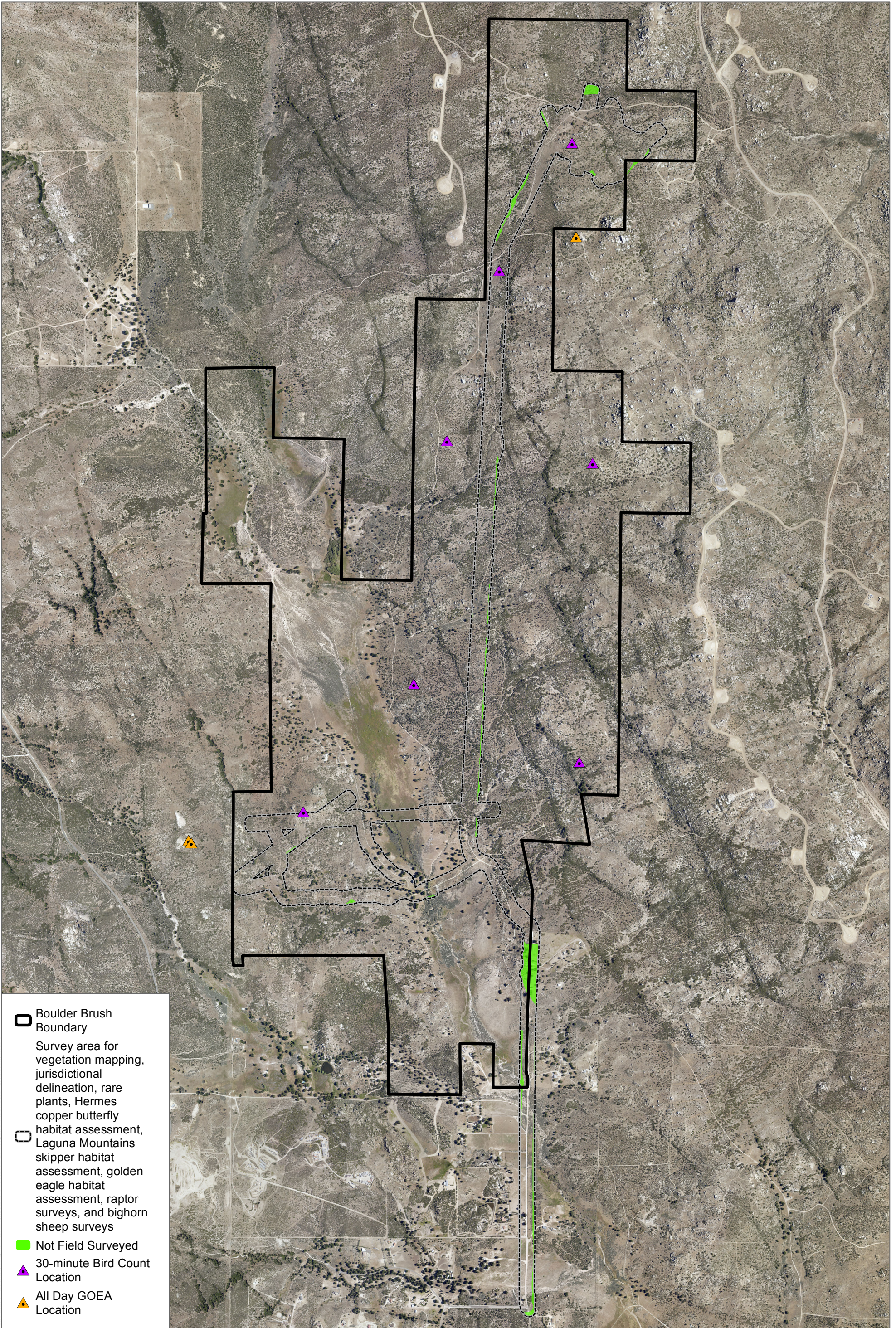
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observations of animals that are more active at night, such as mammals. Similarly, many species of reptiles and amphibians are nocturnal or cryptic in their habits and may be difficult to observe using standard meandering transects.

To account for survey limitations, biologists identified special-status wildlife species that could occur in the Boulder Brush Corridor based on pertinent distribution and habitat preference literature, recorded on-site and off-site observations as well as extensive local experience of the Dudek wildlife biologists (see Section 3.1, Literature Review).

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-  Boulder Brush Boundary
-  Survey area for vegetation mapping, jurisdictional delineation, rare plants, Hermes copper butterfly habitat assessment, Laguna Mountains skipper habitat assessment, golden eagle habitat assessment, raptor surveys, and bighorn sheep surveys
-  Not Field Surveyed
-  30-minute Bird Count Location
-  All Day GOEA Location

SOURCE: SanGIS 2017

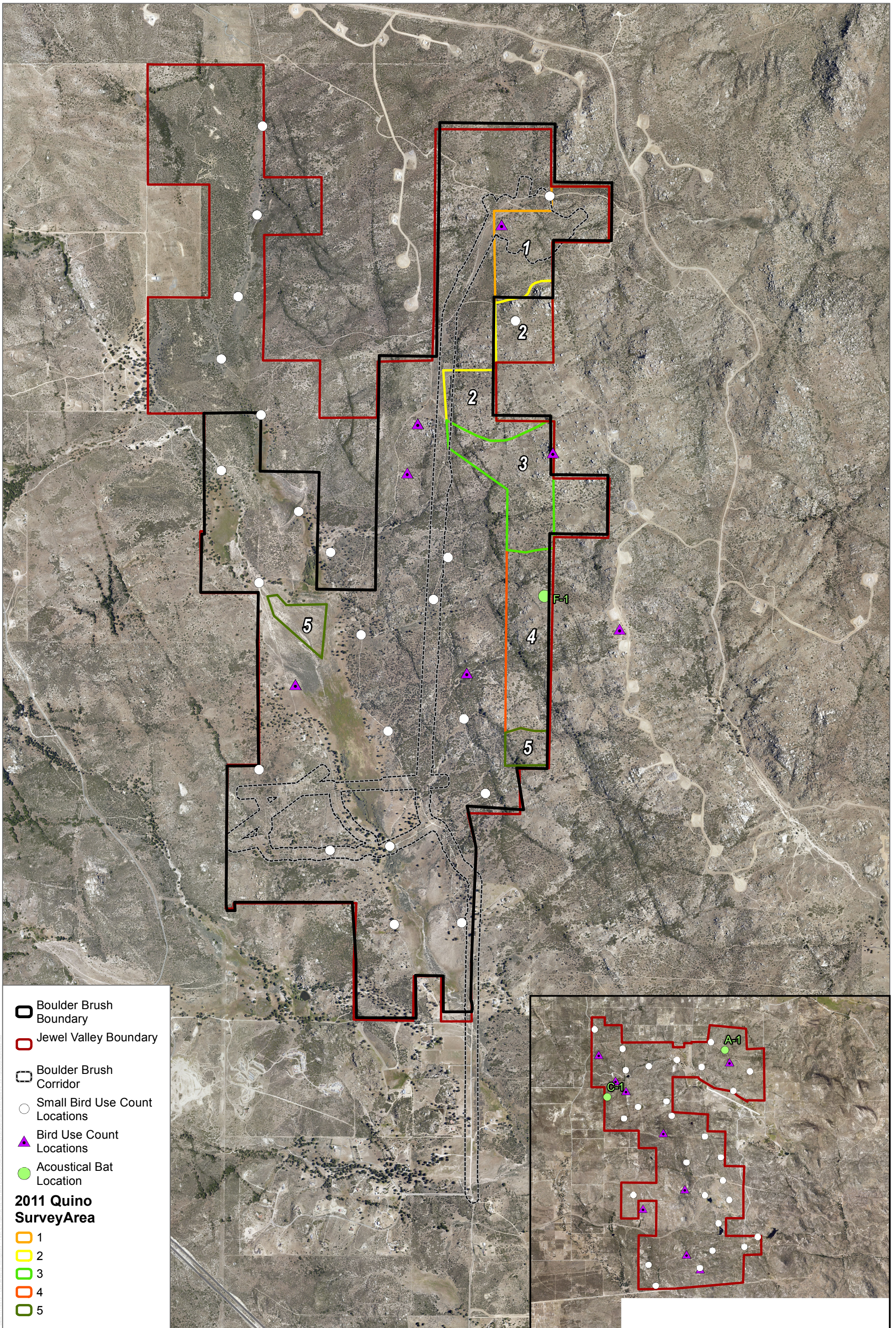


FIGURE 3-1

General Boulder Brush Survey Areas

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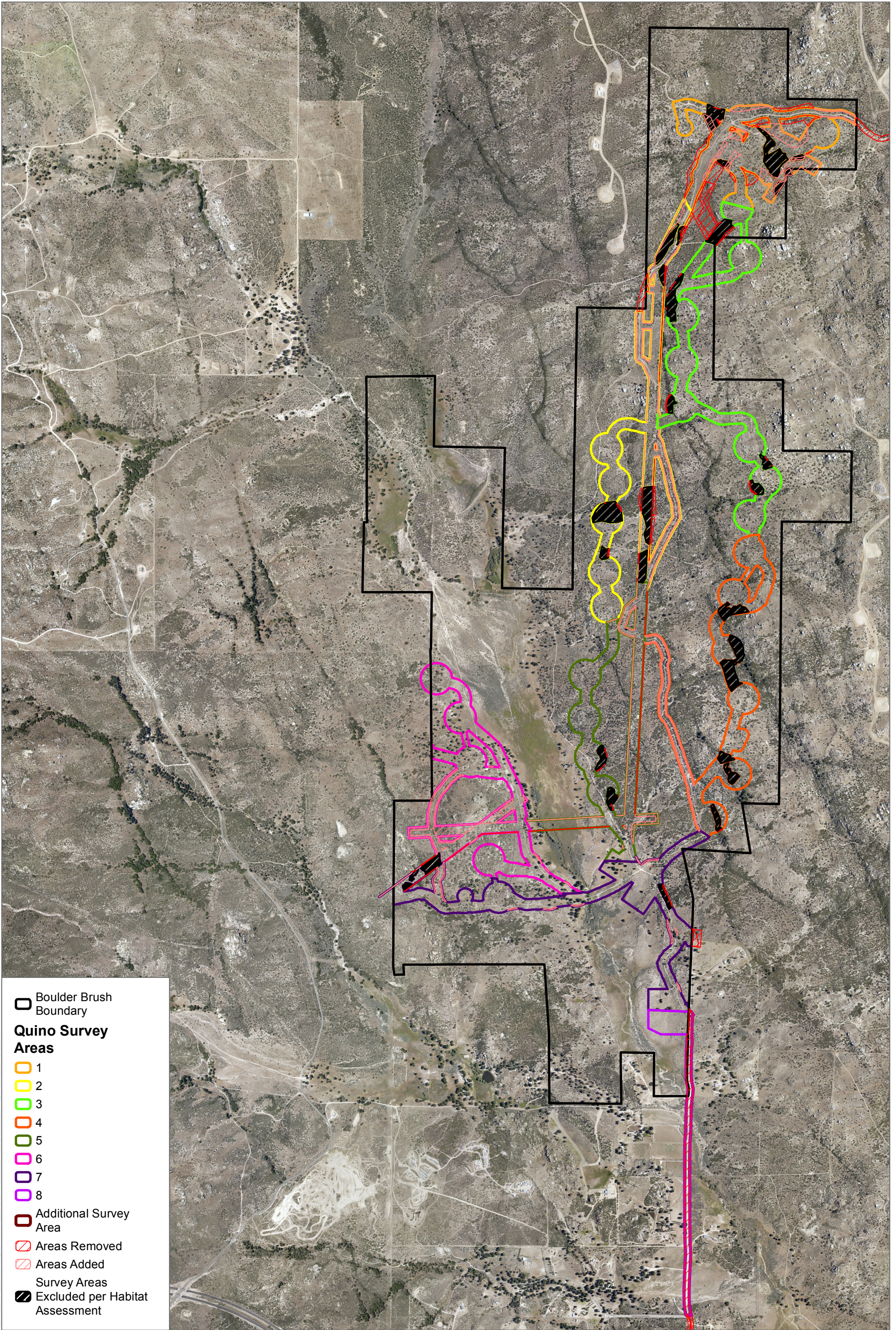
SOURCE: SanGIS 2017



FIGURE 3-2
 2011 Quino Checkerspot Butterfly, Raptor Survey, and Acoustical Bat Survey Areas - Boulder Brush
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-  Boulder Brush Boundary
- Quino Survey Areas**
-  1
-  2
-  3
-  4
-  5
-  6
-  7
-  8
-  Additional Survey Area
-  Areas Removed
-  Areas Added
-  Excluded per Habitat Assessment

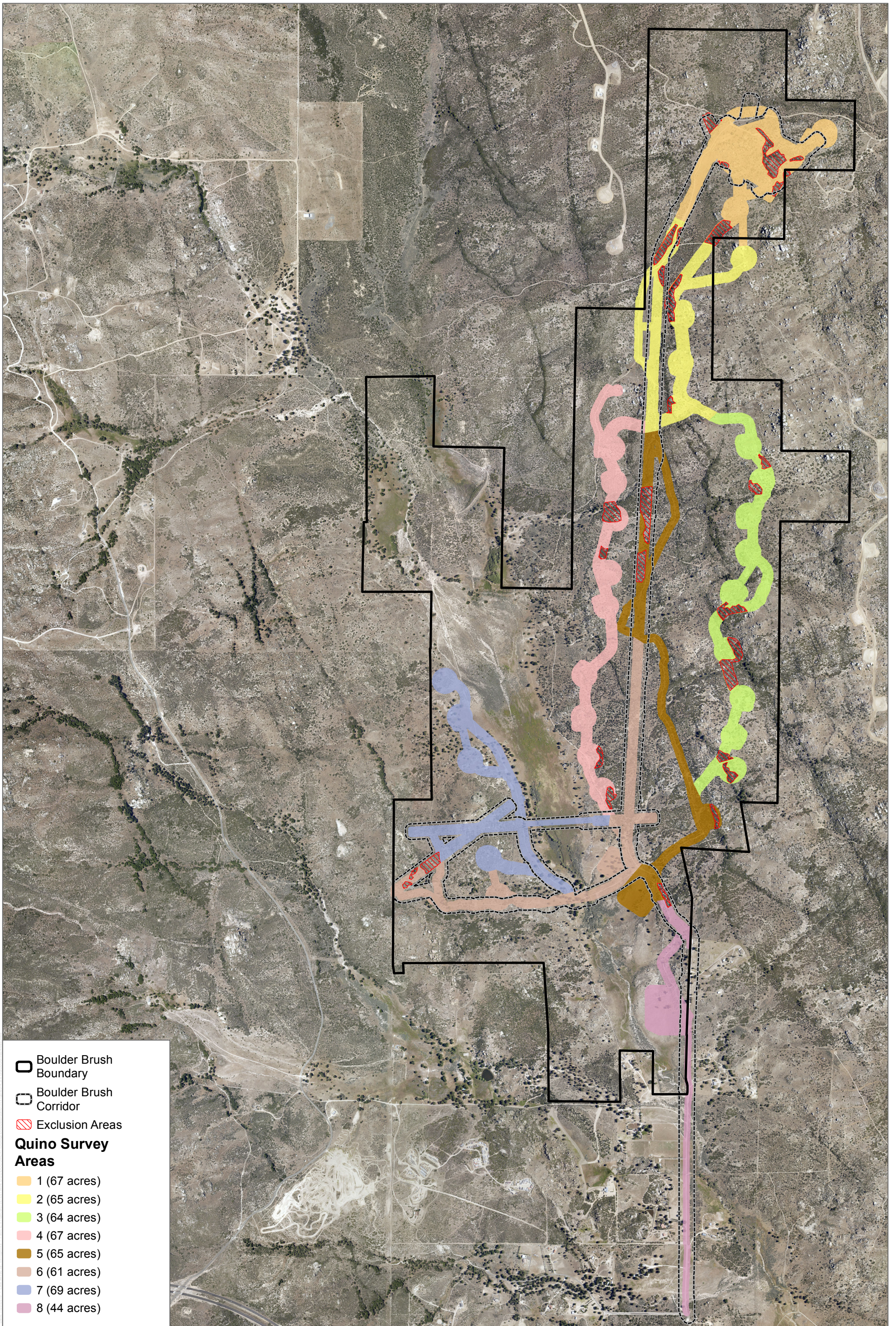
SOURCE: SanGIS 2017














FIGURE 3-3
 2018 Quino Checkerspot Butterfly Survey Areas - Boulder Brush
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-  Boulder Brush Boundary
-  Boulder Brush 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)
-  8 (44 acres)

SOURCE: SanGIS 2017

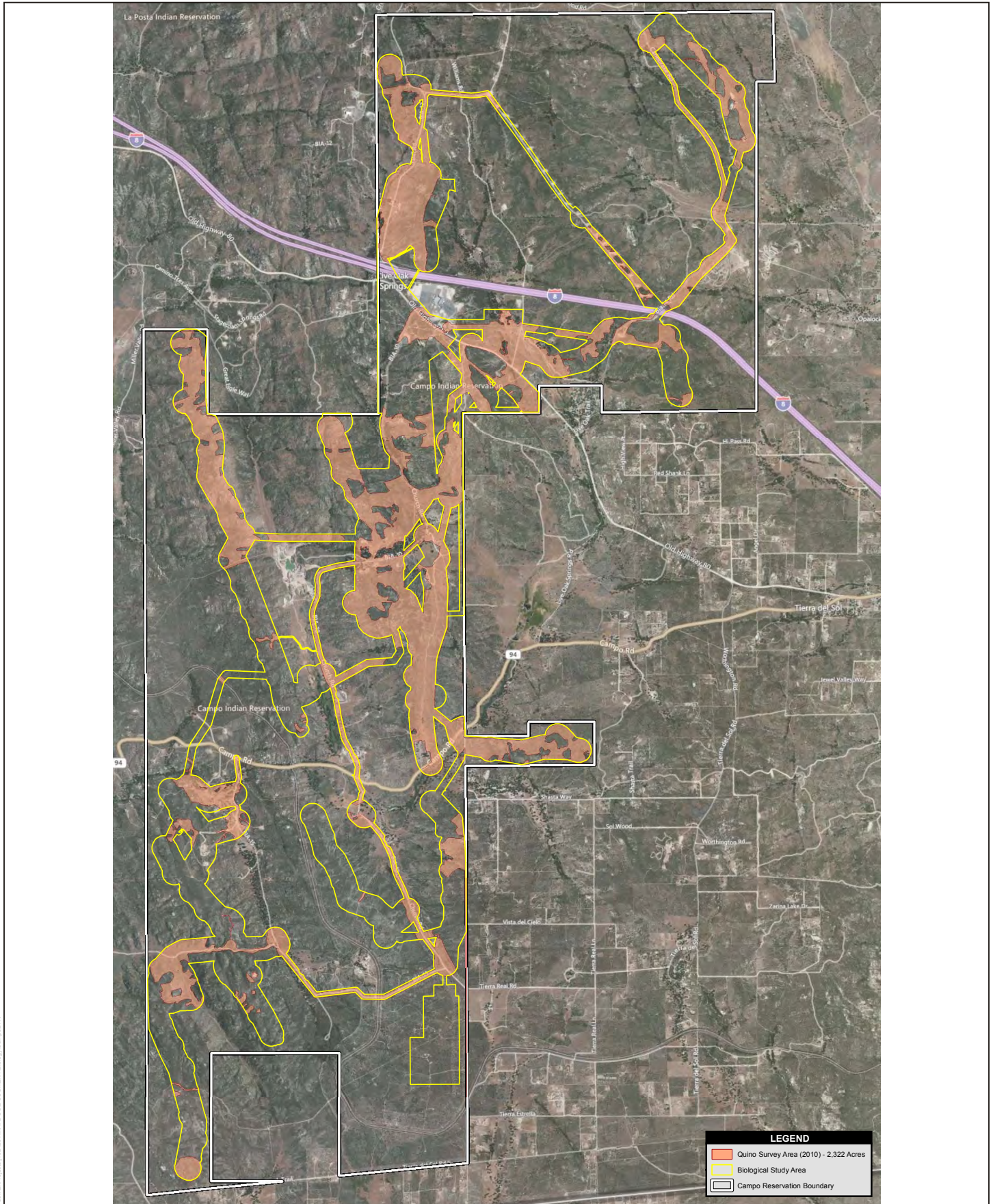


FIGURE 3-4

2019 Quino Checkerspot Butterfly Survey Areas - Boulder Brush
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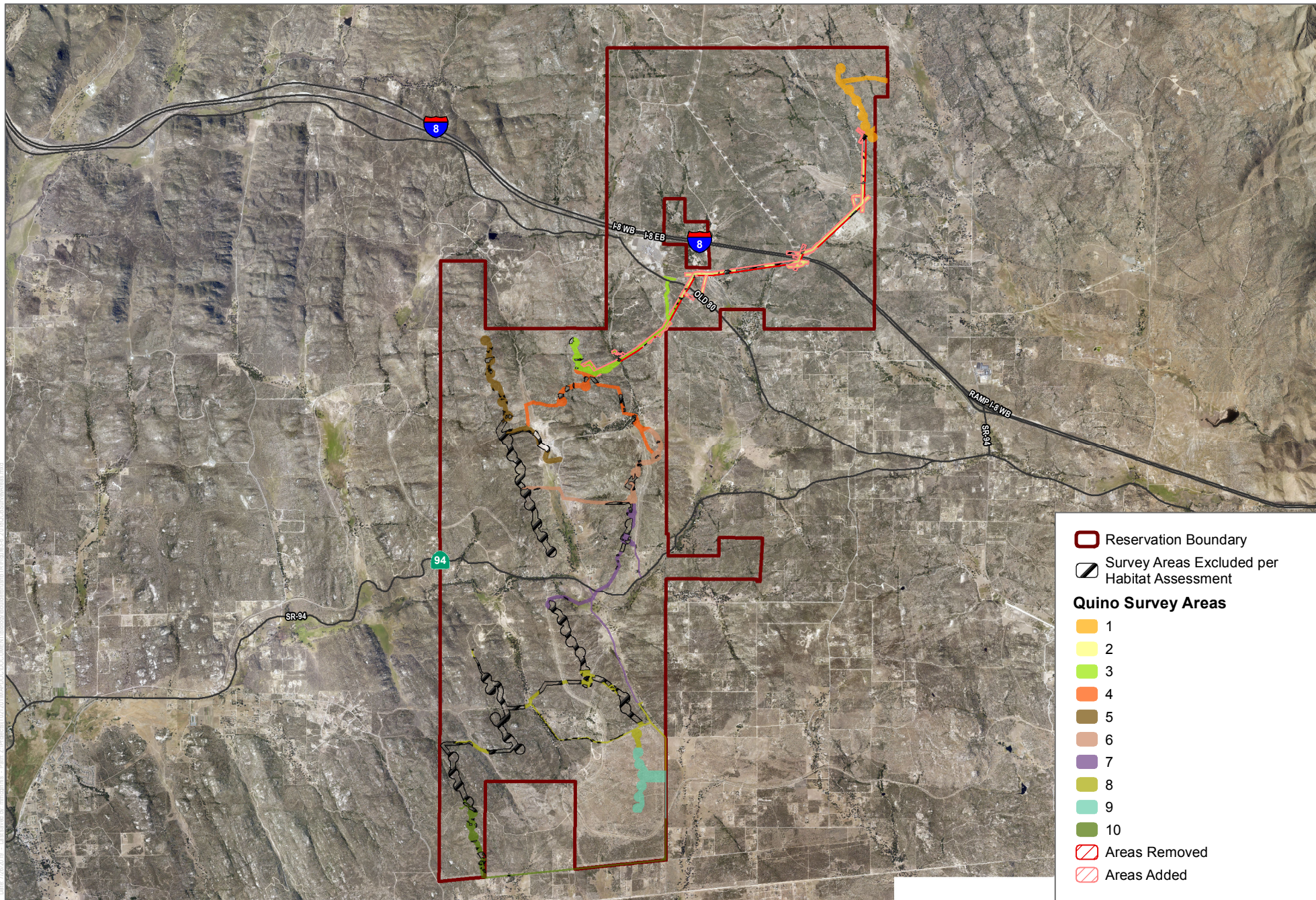
SOURCE: AECOM 2012

FIGURE 3-5

2010 Quino Checkerspot Butterfly Survey Area (AECOM) - Reservation
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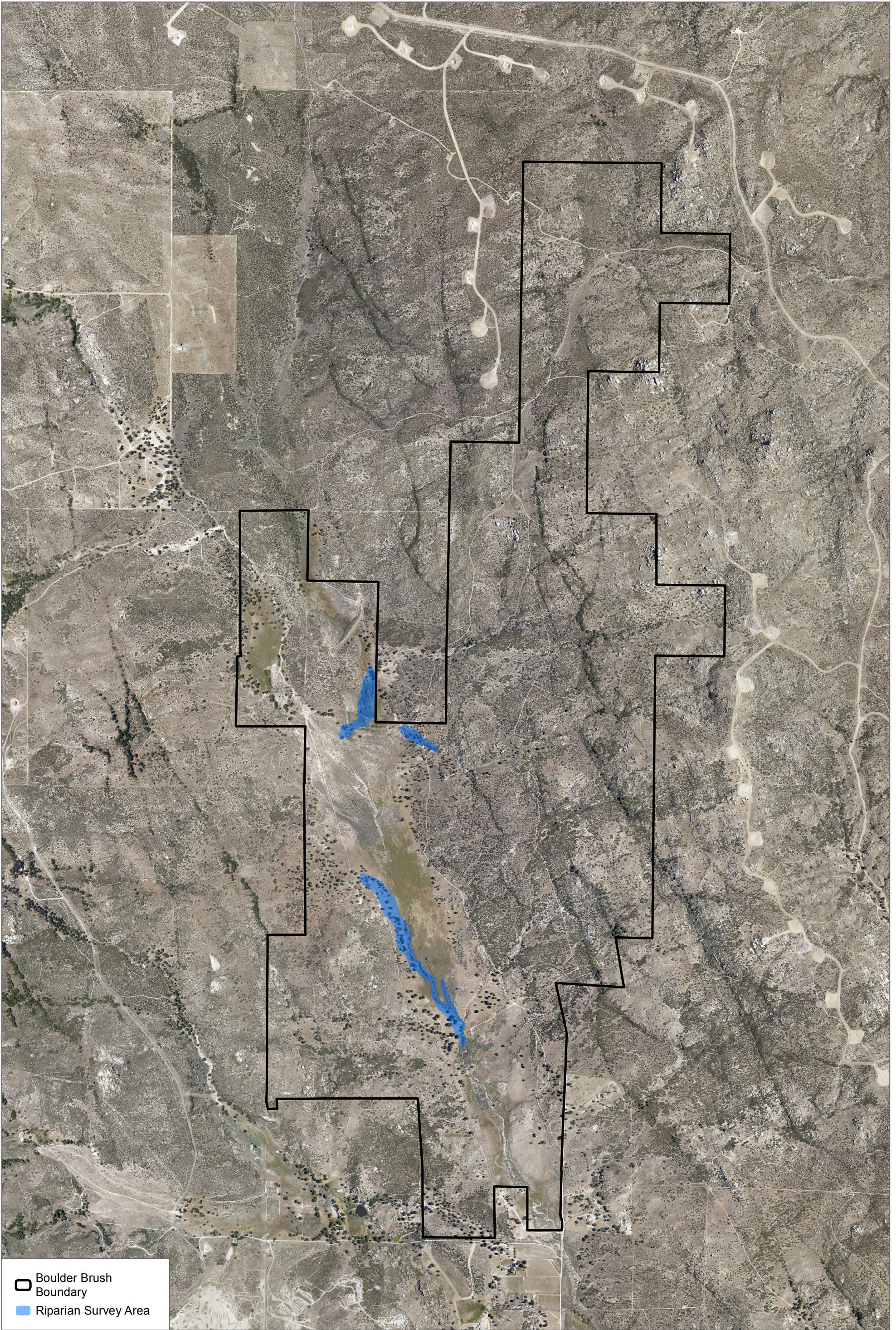


SOURCE: USGS 2018; SANGIS 2017

FIGURE 3-6
 2018 Quino Checkerspot Butterfly Survey Areas - Reservation
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SOURCE: SANGIS 2017



FIGURE 3-7

Riparian Bird Survey Area

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