

San Diego Gas & Electric's East County Substation Project Quino Checkerspot Butterfly Report

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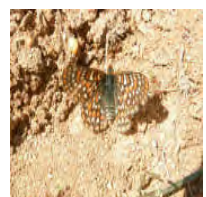
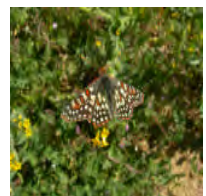
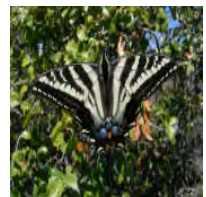
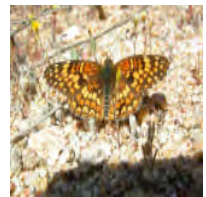


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I. Summary

Surveys for the endangered Quino Checkerspot Butterfly (*Euphydryas editha quino*; QCB) per U.S. Fish and Wildlife Service (USFWS) protocol were conducted March - May 2010 at the proposed San Diego Gas & Electric Company's (SDG&E's) East County Substation Project survey area (survey area). Survey results were positive for QCB and its primary larval host plant dot-seed plantain (*Plantago erecta*). Two secondary host plants owl's clover (*Castilleja exserta* ssp. *exserta*) and Chinese houses (*Collinsia concolor*) were also documented within the survey area.

II. Project Description

The proposed East County Substation Project area is located near the unincorporated communities of Jacumba and Boulevard in southeastern San Diego County. The project includes the construction of the new East County (ECO) Substation, an approximately 13.5-mile 138 kilovolt (kV) transmission line on new steel and wood poles, and rebuilding the Boulevard Substation. The transmission line will extend from the ECO Substation, south of Jade Mountain then run west for nine miles, and then turn north for approximately 4.5 miles to the new proposed Boulevard Substation (Figures 1 and 2). The transmission line portion of the project that runs east-west is located 150 feet from the existing 500 kV Southwest Powerlink (SWPL) transmission line. The site is on the U.S. Geological Survey 7.5 minute Live Oak Springs, Tierra Del Sol, and Jacumba Quadrangles (Figure 2) and in the USFWS recommended Survey Area 1, a Survey Area in which QCB are known to occur (2002). USFWS-designated critical habitat for the QCB is present along the survey area from approximately SP-52 to SP- 83 (milepost 3.5 to milepost 7.5). All figures in Attachment A were provided by Insignia Environmental.

The survey area includes a 300-foot-wide transmission line corridor, a 377-acre area on which the ECO Substation and the SWPL loop-in will be constructed, and an area approximately 700 feet around the proposed Boulevard Substation rebuild site. Also included are proposed new access roads, fly yards, pull sites, temporary work areas, staging yards, retention ponds, and areas where existing roads would be widened or re-graded.

The survey area is mostly undeveloped, but there are existing paved and dirt roads that are frequently used by the Border Patrol for border surveillance and there are areas with minor disturbances to vegetation and trash dumping. U.S. Interstate 8 is located to the north and the U.S./Mexico border is to the south of the survey area. U.S. Old Highway 80 crosses the survey area at three locations.

III. Previous QCB Surveys

The 2010 survey for QCB is the third survey of the proposed ECO Substation footprint and buffer portion of the project; this location was also surveyed in 2008 and 2009 by Rocks Biological Consulting (RBC). The transmission lines, Boulevard Substation, and other project features were not surveyed in 2008. The 2008 surveys of the substation area were negative for both QCB and larval host plants; the 2009 surveys of the substation and transmission line and other features were positive for both QCB and larval host plants.

IV. Adjacent QCB Surveys

The proposed Energia Sierra Juarez Gen-Tie project site extends from the southeastern corner of the survey site to the Mexican Border. The approximately 80-acre site was surveyed for QCB in 2008-2010. Surveys for QCB and its larval host plants at this site were negative and reports for these surveys have been submitted to USFWS.

Also, two additional parcels totaling 290 acres southwest of Jacumba Peak were surveyed in 2010 by RBC at the request of SDG&E. Surveys for QCB and its larval host plants within these parcels were negative and reports for these surveys will be submitted to USFWS.

V. Habitat Assessment

A focused habitat assessment for the ECO Substation Project was conducted on March 10, 2009 and re-assessed in 2010 to assess the phenology of larval and nectar source plants on and near the site. Approximately 527 acres were deemed suitable for QCB during the habitat assessment. This area was the primary focus of the protocol surveys. A total of 205 acres were excluded during 2010 surveys based on habitat type (e.g. agriculture, riparian areas, barren areas) and density of vegetation.

Vegetation within the study area consists of mixed desert scrub, juniper woodland, chamise-redshank chaparral, shadscale scrub, oak woodland, riparian scrub, and fresh emergent wetland. Agriculture, dirt roads, and residential/developed areas are also present. The mixed desert scrub, juniper woodland, shadscale scrub, open chamise-redshank chaparral, and dirt roads were considered suitable habitat under USFWS criteria and were surveyed for QCB. Areas that met the definition of excluded were dense chamise-redshank chaparral, oak woodland, riparian scrub, fresh emergent wetland, agriculture, and developed. Shadscale scrub was reclassified as excluded following the first survey due to plant density and a lack of food plants or nectar sources.

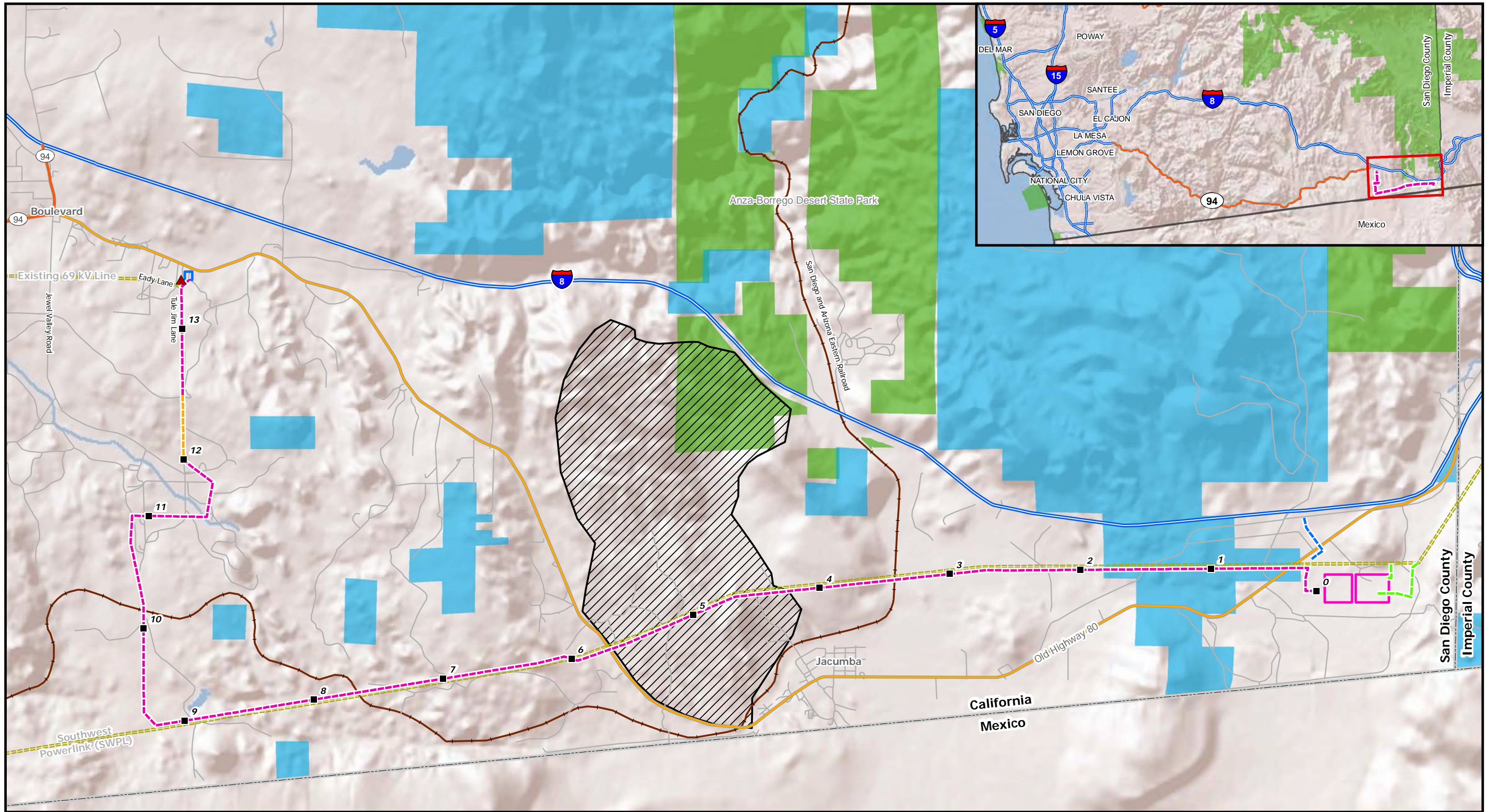


Figure 1: Project Vicinity Map

East County Substation Project

- | | | | |
|---|-------------------------------|--|------------|
| Proposed SWPL Loop-In | ECO Substation | Quino Checkerspot Butterfly Critical Habitat | Interstate |
| Proposed 138 kV Line | Boulevard Substation Rebuild | Bureau of Land Management | Highway |
| Proposed 12 kV Temporary Distribution Tap | Existing Boulevard Substation | California State Park | Major Road |
| 445 Circuit Collocated with 138 kV Line | Proposed 138 kV Line Milepost | Railroad | |
| Existing Transmission Line | | | |

SDGE
A Sempra Energy utility

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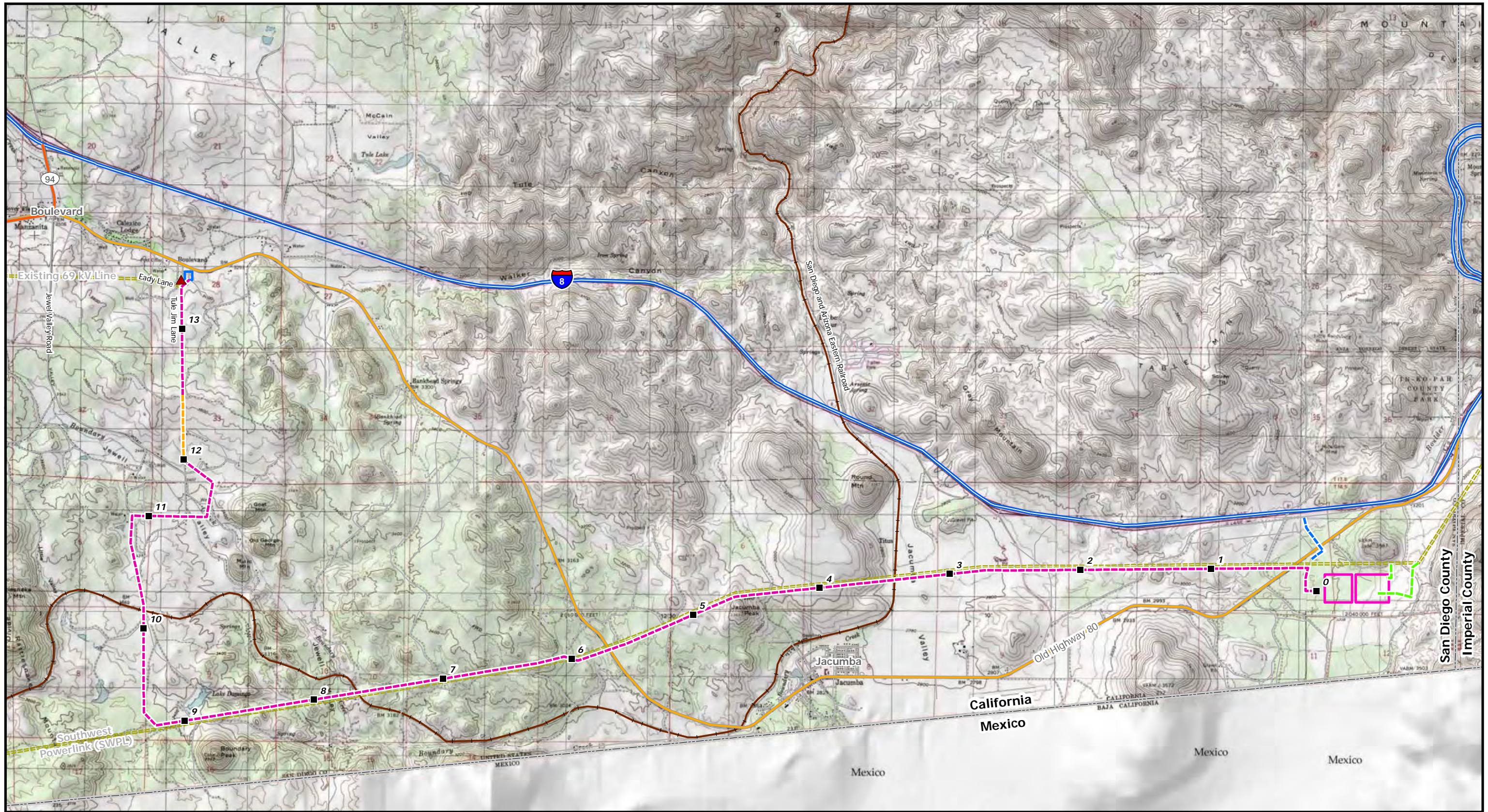


Figure 2: USGS Quadrangle Map

East County Substation Project

- | | | |
|---|-------------------------------|------------|
| Proposed SWPL Loop-In | ECO Substation | Interstate |
| Proposed 138 kV Line | Existing Boulevard Substation | Highway |
| Proposed 12 kV Temporary Distribution Tap | Proposed 138 kV Line Milepost | Major Road |
| 445 Circuit Collocated with 138 kV Line | | Railroad |
| Existing Transmission Line | | |

USGS 7.5 Minute Quadrangles: Live Oak Springs, Jacumba, In-Ko-Pah Gorge, Tierra Del Sol, Jacumba OE S, and In-Ko-Pah Gorge OE S



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VI. Vegetation Communities

The dominant vegetation communities onsite are mixed desert scrub in the eastern portion and chamise-redshank chaparral in the western portion of the site. Common shrub and perennial species in the mixed desert scrub within the eastern substation area include jojoba (*Simmondsia chinensis*), waterjacket (*Lycium andersonii*), lotebush (*Ziziphus parryi* var. *parryi*), ephedra (*Ephedra* spp.), Gander's cholla (*Cylindropuntia ganderi* var. *ganderi*), Mohave yucca (*Yucca schidigera*), and creosote (*Larrea tridentata*). As the transmission line heads west, some of these shrubs are replaced by boundary goldenbush (*Ericameria brachylepis*), desert apricot (*Prunus fremontii*), and catclaw acacia (*Acacia greggii*). In rock outcrops, yellow bush penstemon (*Keckiella antirrhinoides* var. *a*) is a dominant shrub.

Annuals present in the mixed desert scrub include dense patches of common goldfields (*Lasthenia gracilis*), desert dandelion (*Malacothrix glabrata*), wild heliotrope (*Phacelia distans*), California butterweed (*Senecio californicus*), California coreopsis (*Coreopsis californica* var. *c*), and pincushion (*Chaenactis* spp.).

Juniper woodland is present in the eastern portion of the survey area and is similar to mixed desert scrub in plant composition with the difference being the dominance of California juniper (*Juniperus californicus*). Other shrubs and perennials are present in lower numbers. Annuals are sparser in the juniper woodland than in the mixed desert scrub.

The chamise-redshank chaparral occurs on the large boulder hills and outcrops along the east-west portion and in relatively flat areas that lack boulder outcrops along the north-south portion of the alignment. Thickets of chamise (*Adenostoma fasciculatum*) and red shank (*Adenostoma sparsifolium*) are dominant, with sugar bush (*Rhus ovata*), holly-leaf cherry (*Prunus ilicifolia*), point-leaf manzanita (*Arctostaphylos pungens*), California buckwheat (*Eriogonum fasciculatum*), and cane cholla (*Cylindropuntia californica* var. *parkeri*). The rock outcrops also support Jacumba monkey flower (*Mimulus aridus*). Openings in the chaparral that were surveyed between SP-38 and the Boulevard Substation support foothill buckwheat (*Eriogonum wrightii* var. *membranaceum*), common goldfields, desert beauty (*Linanthus bellus*), weak-leaf bur-sage (*Ambrosia confertiflora*), and white-margin sandmat (*Chamaesyce albomarginata*).

Washes, with looser and sandier soils, supported many of the same plant species as the mixed desert scrub and chamise-redshank chaparral. Several washes are present throughout the survey area. Additional species found in the washes include cheesebush (*Ambrosia salsola* var. *salsola*), chaparral woolly-star (*Eriastrum densifolium*

ssp. elongatum), Wallace's woolly daisy (*Eriophyllum wallacei*), and Schott's calico (*Loeseliastrum schottii*).

VII. Quino Checkerspot Butterfly Natural History

Quino checkerspot butterfly, a member of the brush-footed butterfly family (Nymphalidae), was federally listed as endangered in January 1997. The QCB is one of 12 subspecies of the *Euphydryas editha* checkerspot and was formerly known as *E. e. wrightii*.

Historically, QCB ranged from Los Angeles and western San Bernardino counties south through Orange, western Riverside, and San Diego counties into northern Baja California, Mexico. Currently, QCB are known to occur in portions of southwestern Riverside County, southern San Diego County, and northern Baja California (Mattoni et al. 1997). Habitat loss and degradation are considered primary causes of the dramatic decline of the species. Both the larval and adult stages have specific habitat requirements that have been impacted due to development, invasive non-native vegetation, overgrazing, poorly planned fire management practices, drought conditions, overcollection by butterfly collectors, and off-road vehicles (USFWS 1997). The QCB's distribution is defined primarily by location of its most common primary larval host plant, dot-seed plantain. White snapdragon (*Antirrhinum coulterianum*) has also been identified as a primary host plant as well (USFWS 2003). Female QCBs have also been observed depositing eggs on woolly plantain (*Plantago patagonica*) and thread-leaved bird's-beak (*Cordylanthus rigidus*) (USFWS 2002a). Purple owl's clover (*Castilleja exserta* ssp. *exserta*) and Chinese houses (*Collinsia concolor* and *C. heterophylla*) have also been identified as a secondary host plants.

Adults use a variety of wildflowers that bloom as nectar sources during the QCB flight period, including goldfields, popcorn flowers (*Cryptantha* and *Plagiobothrys* spp.), gilia (*Gilia* spp.), ground-pink (*Linanthus dianthiflorus*), chia (*Salvia columbariae*), and wild onion (*Allium* spp.) (USFWS 2002b). QCB will use a variety of sparsely vegetated habitats including open coastal sage scrub and chaparral, vernal pool complexes, oak woodland, and desert pinyon-juniper woodland. Densely vegetated areas and extensive open grasslands are not known to support QCB (Mattoni et al. 1997).

Typically, there is one adult generation of QCB per year, with a four- to six-week flight period beginning in late February and continuing through May (Emmel and Emmel 1973), although the timing of the flight period can vary considerably from year to year depending on rainfall and temperature patterns. Adult life span averages from 10 to 14

days, and emergence is staggered (USFWS 2002b). The full life cycle of a quino checkerspot butterfly includes egg, larva, pupa, and adult with larval stages divided into five to seven instars. Adult quino checkerspot butterflies spend their time searching for mates, feeding on nectar, defending territories, basking in the sun, and, in the case of females, searching for sites to deposit eggs (USFWS 2002b).

VIII. Methods

Surveys were performed in accordance with the USFWS's "Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey Protocol Information" dated February 2002. On March 3, 2010, a pre-survey notification letter (the 10-day letter) was sent to the USFWS announcing the intent to conduct surveys for QCB. The letter included a map of the project site and approximate date the surveys were expected to begin.

The flight season of QCB is dependent upon adequate rainfall and warm weather to produce supplies of larval food plants sufficient for allowing QCB larvae to feed, pupate, and emerge during the spring. In 2010, both in the southwestern and eastern portions of the QCB's range, moderate, periodic rain fell in winter through late spring causing the germination and sustained flowering of annual plants.

Following the winter rains, a site check for conditions that indicate QCB flight season is imminent or has started was conducted on March 15, 2010. These conditions include the presence of larval host plants to support caterpillars and certain blooming annuals that could potentially be nectar sources for adults.

The USFWS's "2010 Season Quino Checkerspot Butterfly (*Euphydryas editha quino*) Monitored Reference Site Information" website was frequently monitored to obtain information on 2010 QCB observations and locations.

Butterfly surveys were conducted by walking slowly through all suitable QCB habitat and identifying butterflies with the aid of close-focus binoculars and use of a butterfly net for capturing and identifying specimens. Whenever possible, a photograph of each butterfly was taken with the intent to photo document all observed butterflies in the survey area. Photos of most of the 39 butterfly species observed in the survey area are included in Attachment B - Butterfly Species Accounts. Species without a photo were very difficult to photograph, usually because they were flying quickly through the survey area, they generally avoid humans, and/or they are sensitive to nearby or sudden movement

All surveys were conducted by Jim Rocks (Permit# TE-063230-3), Cindy Jones Daverin (Permit# TE-811615-4), Brian Lohstroh (Permit# TE-063608-4), Margie Mulligan (Permit# TE-233291-0), and Darin Busby (Permit# TE-115373-0). In addition, Melanie Rocks, Jim Berrian, and Eric Piehel accompanied surveyors as supervised individuals on some surveys. Field notes are included in Attachment D. Survey dates, conditions, and personnel are included in Table 1. During each survey, the number of acres surveyed per hour within suitable QCB habitat averaged approximately 10-15 acres per biologist.

Table 1. Quino Checkerspot Butterfly Survey Dates/Conditions

Date	Personnel	Time on Site	Temp (°F) Start-End	Wind Speed (MPH)	Sky Cover (%) (start-end)
3-23-10	JR, CJD,	1100-1630	64-72	1-12/1-8	5-0
3-24-10	JR, BL	1000-1615	64-77	1-6/0-2	0-10
3-25-10	JR, CJD, MM	0935-1630	68-72	2-10/1-12	0-0
3-26-10	JR, BL, CJD, MM, MR, JB	0945-1630	65-75	0-3/0-5	0-0
3-29-10	JR, CJD, MM, MR	0945-1645	78-82	0-1/4-12	0-10
3-30-10	JR, CJD, JB, EP	1245-1600	74-70	4-12/8-15	10-10
4-2-10	JR, CJD	1115-1645	60-68	0-3/0-10	0-0
4-3-10	JR, LR	0945-1545	63-65	3-7/6-10	0-20
4-6-10	JR, CJD, DB, JB	1100-1645	63-68	2-9/0-3	0-0
4-7-10	JR, BL, MR	1015-1400	64-64	5-18 (12)/8-10	0-0
4-9-10	JR, CJD, BL, MM, MR	0945-1700	70-80	0-3/0-9	0-0
4-14-10	CJD, MR	0945-1630	63-67	0-1/0-3	5-60
4-15-10	JR, CJD, BL, MM	1215-1630	72-76	2-7/2-6	30-100

4-16-10	JR, CJD, BL, MM, MR	0930-1630	66-75	2-7/0-6	0-0
4-19-10	JR, CJD, MM, DB	0930-1630	67-75	4-8 (13)/2- 8 (12)	20-5
4-20-10	JR, CJD, DB	0930-1630	64-67	6-8/5- 10(12)	5-5
4-23-10	JR, CJD, BL, MM, MR	1015-1530	62-65	0-6/2-10	0-0
4-23-10	JR, CJD, BL, MM, MR	1530-1615	65-65	2-10/4-12 (15)	0-0
4-24-10	JR, BL	0935-1600	68-80	0-2/0-6	0-0
4-26-10	CJD, MM	0930-1515	75-84	3-5/2-6	20/40
4-27-10	JR, CJD	0920-1615	71-78	4-8/9-13	5-50
4-30-10	JR, CJD, BL, DB	1015-1630	62-67	1-3/3-5	20-80
5-3-10	JR, CJD, BL, MM, MR, JB	0915-1600	69-86	3-6/2-5	0-0
5-4-10	JR, CJD	0900-1530	68-86	0-3/4-13	0-0
5-5-10	JR, CJD, BL, JB	0900-1600	70-79	2-12/4- 150-15	
5-6-10	JR, BL	1000-1530	72-81	4-7/4-8	0-0

Personnel: JR = Jim Rocks; CJD = Cynthia Jones Daverin; BL = Brian Lohstroh; MM = Margie Mulligan; DB = Darin Busby; MR = Melanie Rocks (supervised individual); JB = Jim Berrian (supervised individual); EP = Eric Piehel (supervised individual); LR = Lee Ripma (supervised individual)

IX. Results

Survey results were positive for both QCB and larval host plant populations during the 2010 QCB surveys. QCB were observed to the north, east, and west of SP-75 and on Jacumba Peak during surveys 1 through 5. QCB were not observed during survey 6. Figures 3 and 4 show the location of the QCB sightings and primary and secondary host plant populations.

The area where QCB were observed in 2010 is known historically to support QCB, with Jacumba Peak and a large area beneath the Southwest Powerlink generally considered the USFWS Jacumba reference site for QCB. This area is also within USFWS designated critical habitat for QCB. Approximately 175 acres of critical habitat was surveyed within the 300 foot survey area buffer and roads between SP-52 to SP-83 (approximately milepost 3.5 to 7.5). Except within a broad area around SP-75 (between milepost 4 and 5), QCB and its host plants were not observed elsewhere in critical habitat.

The clay soils immediately north of Jacumba Peak support a large, dense population of dot-seed plantain mixed with Palmer's grappling-hook (*Harpagonella palmeri*), and pectocarya (*Pectocarya* spp.). One female QCB was observed in this area during survey 1 on March 25. During surveys 1-5, QCB were observed flying low over the ground, often along the low ridges below Jacumba Peak landing on and near patches of dot-seed plantain. At least four QCB were also observed on April 7 and 16, and three individuals were hilltopping on Jacumba Peak on April 19. QCB was observed for the final time during our survey on April 27; a female with visible wear on the margins of the fore and hindwings. QCB were also observed on April 2 and 9. QCB within the survey area were limited to the area that supports its primary host plant, dot-seed plantain. Photographs in Attachment B show QCB and all other butterflies observed during the surveys.

QCB were observed flying with chalcedon checkerspot (*Euphydryas chalcedona*), a butterfly that closely resembles the QCB. Both species were hilltopping on Jacumba Peak and hundreds of chalcedon checkerspots were present in the small canyons on the flanks of Jacumba Peak. Chalcedon checkerspots were much more abundant than QCB. The chalcedon checkerspot was common throughout the survey area in canyons and peaks near their larval host plant, yellow bush penstemon.

In general, the survey area supports a high diversity of butterfly species, with a total of 39 butterfly species observed during the six surveys. The number of species observed during each survey was typically around 24, with a high of 27 species during survey

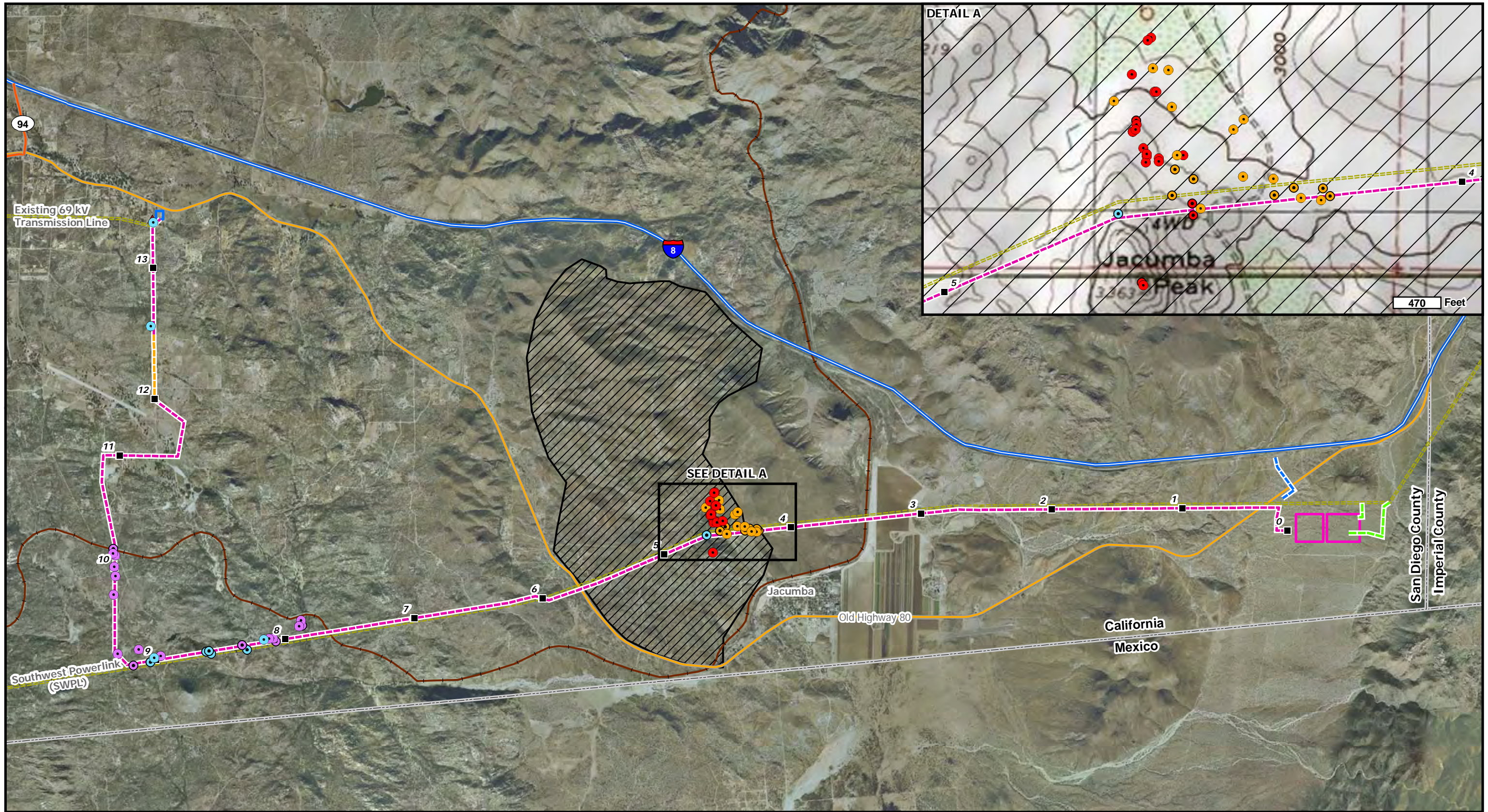


Figure 3: Quino Checkerspot Butterfly and Larval Host Plant Occurrence Map

East County Substation Project

<ul style="list-style-type: none"> Proposed SWPL Loop-In Proposed 138 kV Line Proposed 12 kV Temporary Distribution Tap 445 Circuit Collocated with 138 kV Line Existing Transmission Line 	<ul style="list-style-type: none"> Existing Boulevard Substation Proposed 69 kV Line Milepost Proposed ECO Substation Boulevard Substation Rebuild 	<ul style="list-style-type: none"> Quino Checkerspot Butterfly (<i>Euphydryas editha quino</i>) - Federally Endangered Quino Checkerspot Butterfly Critical Habitat 	<ul style="list-style-type: none"> QCB Primary Host Plant Dot-seed Plantain (<i>Plantago erecta</i>) QCB Secondary Host Plants Owl's Clover (<i>Castilleja exserta</i> ssp. <i>exserta</i>) Chinese Houses (<i>Collinsia concolor</i>) 	<p>SDGE A Sempra Energy utility</p>	<p>INSIGNIA ENVIRONMENTAL</p>	<p>0 0.5 1 2 3 Miles</p>
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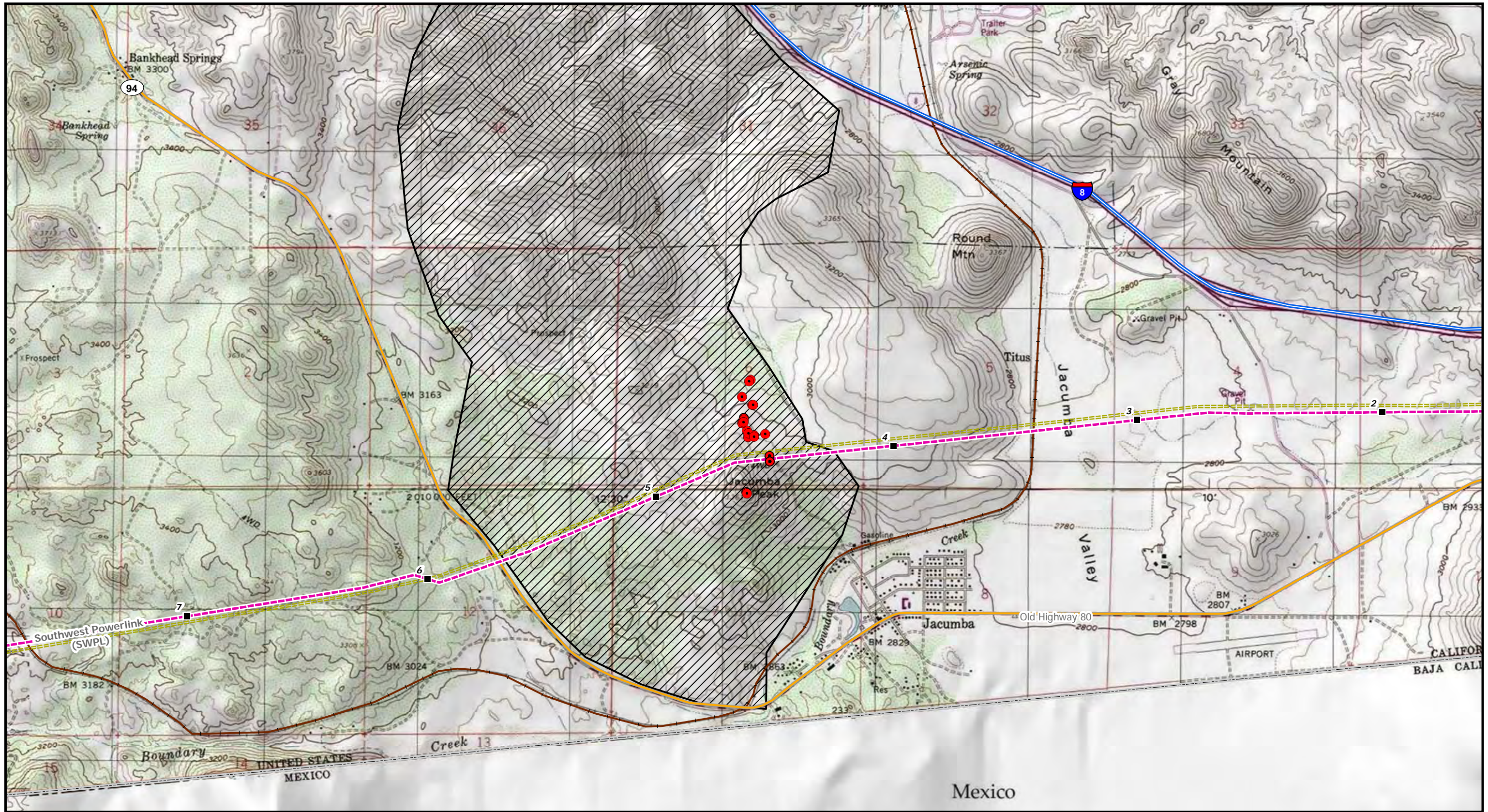


Figure 4: Quino Checkerspot Butterfly Location Map

East County Substation Project

- Quino Checkerspot Butterfly (*Euphydryas editha quino*) - Federally Endangered
- ▨ Quino Checkerspot Butterfly Critical Habitat
- Proposed 138 kV Line
- Existing Transmission Line

USGS 7.5 Minute Quadrangles: Live Oak Springs, Jacumba, In-Ko-Pah Gorge, Tierra Del Sol, Jacumba OE S, and In-Ko-Pah Gorge OE S



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three and a low of 21 during surveys two and four. The site's relatively high butterfly species diversity can be attributed to the diversity of habitats and larval food sources onsite. Table 2 lists the butterflies observed during each survey and a list of nectar sources and other plant species observed on the site is presented in Table 3. A list of all observed plant species is included in Attachment C. Detailed information on each species is included in Attachment B - Butterfly Species Accounts.

Several butterflies were observed during all six surveys. These butterflies include desert swallowtail (*Papilio zelicaon*), checkered white (*Pontia protodice*), pearly marble (*Euchloe hyantis*), Sara orangetip (*Anthocaris sara*), perplexing hairstreak (*Callophrys dumetorum*), southern blue (*Glaucopsyche lygdamus*), acmon blue (*Plebejus acmon*), Behr's metalmark (*Apodemia mormo virgulti*), Gabb's checkerspot (*Chlosyne gabbii*), chalcedon checkerspot, and painted lady (*Vanessa cardui*). Additional species that were commonly observed throughout the surveys include west coast lady (*Vanessa annabella*), sleepy duskywing (*Erynnis brizo*), and funereal duskywing (*Erynnis funeralis*).

Butterflies that were observed only during early-season surveys include spring white (*Pontia sisymbrii*) and checkered skipper (*Pyrgus communis*). Common Buckeye (*Junonia coenia*), Marine blue (*Leptotes marina*), Lupine Blue (*Plebejus lupinus*), Arrowhead Blue (*Glaucopsyche piasus*), and Bernardino blue (*Euphilotes battoides bernardino*) were only observed during the final few surveys.

Several butterflies were strong hilltoppers and were observed mainly on peaks and larger rock outcrops including pale swallowtail (*Papilio eurymedon*), desert orangetip (*Anthocaris cethura*), California patch (*Chlosyne californica*), and great purple hairstreak (*Atlides halesus*). Other butterflies were restricted to small portions of the survey area because their larval host plants were uncommon or restricted to small patches within the survey area. For example, the 'loki' juniper hairstreak (*Callophrys gryneus loki*) was found only near Junipers, the western-tailed blue (*Everes amyntula*) was found only near Jacumba milkvetch (*Astragalus douglasii* var. *perstrictus*), and Gabb's checkerspot was found near common sand-aster (*Corethrogyne filaginifolia* var. *f*).

Nectar sources for butterflies were present throughout the site, but the density varied widely, with extremely dense patches in some areas and few to no nectar sources in adjacent areas. Primary nectar sources onsite include common goldfields, desert dandelion, blue dicks (*Dichelostemma capitatum*), scale-bud (*Anisocoma acaulis*), California butterweed, California coreopsis, wild-heliotrope, and pincushion.

During the first survey, few nectar sources were fully blooming. The highest number and diversity of nectar sources occurred during the middle surveys when goldfields

and other plants formed broad patches of flowers, particularly in the western portion of the survey area. By the final survey, early nectar sources had finished blooming and were replaced by later blooming plants, which were much less numerous. Late in the surveys, the plants in the washes remained viable as other areas declined. Nectar sources such as phacelia (*Phacelia* spp.) that grew beneath large, shady shrubs were also blooming during the final survey.

Table 2. Butterflies Observed during Protocol Surveys

Common Name	Scientific Name	Survey 1	Survey 2	Survey 3	Survey 4	Survey 5	Survey 6
Desert Swallowtail	<i>Papilio coloro</i>	X	X	X	X	X	X
Western Tiger Swallowtail	<i>Papilio rutulus</i>	X					X
Pale Swallowtail	<i>Papilio eurymedon</i>			X		X	X
Checkered White	<i>Pontia protodice</i>	X	X	X	X	X	X
Becker's White	<i>Pontia beckeri</i>		X	X			X
Spring White	<i>Pontia sisymbrii</i>	X					
Pearly Marble	<i>Euchloe hyantis</i>	X	X	X	X	X	X
Sara Orangetip	<i>Anthocharis sara</i>	X	X	X	X	X	X
Desert Orangetip	<i>Anthocharis cethura</i>	X	X	X	X		X
Alfalfa/Orange Sulphur	<i>Colias eurytheme</i>	X		X			X
Harford's Sulphur	<i>Colias alexandra harfordii</i>						X
Cloudless Sulphur	<i>Phoebis sennae</i>				X	X	
Great Purple Hairstreak	<i>Atlides halesus</i>	X		X			X
Perplexing (Bramble) Hairstreak	<i>Callophrys dumatorum</i>	X	X	X	X	X	X
'Loki' Juniper Hairstreak	<i>Callophrys gryneus loki</i>			X	X		
Brown Elfin	<i>Callophrys augustinus</i>	X	X	X			X
Gray Hairstreak	<i>Strymon melinus</i>	X			X		
Western Pygmy-Blue	<i>Brephidium exile</i>			X			

Common Name	Scientific Name	Survey 1	Survey 2	Survey 3	Survey 4	Survey 5	Survey 6
Marine Blue	<i>Leptotes marina</i>					X	
Western Tailed-Blue	<i>Everes amyntula</i>		X				X
Bernardino Blue	<i>Euphilotes battoides bernardino</i>					X	X
Southern Blue	<i>Glaucopsyche lygdamus australis</i>	X	X	X	X	X	X
Common Name	Scientific Name						
Arrowhead Blue	<i>Glaucopsyche piasus</i>				X	X	
Acmon Blue	<i>Plebejus acmon</i>	X	X	X	X	X	X
Lupine Blue	<i>Plebejus lupinus</i>						X
Behr's Metalmark	<i>Apodemia mormo virgulti</i>	X	X	X	X	X	X
California Patch	<i>Chlosyne californica</i>	X	X	X	X	X	
Gabb's Checkerspot	<i>Chlosyne gabbii</i>	X	X	X	X	X	X
Chalcedon Checkerspot	<i>Euphydryas chalcedona</i>	X	X	X	X	X	X
Quino Checkerspot	<i>Euphydryas editha quino</i>	X	X	X	X	X	
West Coast Lady	<i>Vanessa annabella</i>	X		X	X		
Painted Lady	<i>Vanessa cardui</i>	X	X	X	X	X	X
Red Admiral	<i>Vanessa atalanta</i>	X				X	
California Tortoiseshell	<i>Nymphalis californica</i>	X	X	X		X	
Common Buckeye	<i>Junonia coenia</i>						X
Propertius Duskywing	<i>Erynnis propertius</i>		X	X			
Funereal Duskywing	<i>Erynnis funeralis</i>	X	X	X	X	X	
Sleepy Duskywing	<i>Erynnis brizo</i>		X		X	X	X
Checkered Skipper	<i>Pyrgus communis</i>	X					

Table 3. Potential QCB Nectar Sources and other Noted Plants, March-May, 2010

QCB Larval Food Plants Observed	Common Name
<i>Plantago erecta</i>	Dot-Seed Plantain
<i>Castilleja exserta</i> ssp. <i>exserta</i>	Purple Owl's-Clover
<i>Collinsia concolor</i>	Southern Chinese Houses
Potential Butterfly Nectar Sources Observed	Common Name
<i>Allium fimbriatum</i> var. <i>f</i>	Desert Onion
<i>Amsinckia menziesii</i> var. <i>intermedia</i>	Rancher's Fiddleneck
<i>Antirrhinum nuttalianum</i>	Nuttall's Snapdragon
<i>Anisocoma acaulis</i>	Scale-Bud
<i>Astragalus palmeri</i>	Palmer's Locoweed
<i>Calandrinia ciliata</i>	Red Maids
<i>Calochortus splendens</i>	Splendid Mariposa Lily
<i>Camissonia californica</i>	False-Mustard
<i>Camissonia strigulosa</i>	Primrose
<i>Chaenactis fremontii</i>	Desert Pincushion
<i>Chaenactis glabriuscula</i>	Yellow Pincushion
<i>Chaenactis stevioides</i>	Desert Pincushion
<i>Cirsium occidentale</i> var. <i>californica</i>	Cobweb Thistle
<i>Coreopsis californica</i> var. <i>c</i>	California Coreopsis
<i>Cryptantha decipiens</i>	Cryptantha
<i>Cryptantha intermedia</i>	Nievtas Cryptantha
<i>Cryptantha pterocarya</i> var. <i>p</i>	Wing-Nut Cryptantha
<i>Delphinium parishii</i> var. <i>subglobosum</i>	Oceanblue Larkspur
<i>Descurainia pinnata</i> var. <i>halictorum</i>	Alkali Western Tansy-Mustard
<i>Dichelostemma capitatum</i> ssp. <i>c</i>	Blue Dicks
<i>Emmenanthe penduliflora</i> var. <i>p</i>	Whispering Bells
<i>Encelia farinosa</i>	Brittlebush
<i>Ericameria linearifolia</i>	Interior Goldenbush
<i>Eriodictyon trichocalyx</i> var. <i>lanatum</i>	Hairy Yerba Santa
<i>Eriophyllum wallacei</i>	Wallace's Woolly Daisy
<i>Geraea viscida</i>	Sticky Geraea
<i>Gilia diegensis</i>	Gilia
<i>Guillenia lasiophylla</i>	California Mustard

Potential Butterfly Nectar Sources Observed	Common Name
<i>Ipomopsis tenuifolia</i>	Scarlet Gilia
<i>Larrea tridentata</i>	Creosote Bush
<i>Lasthenia gracilis</i>	Common Goldfields
<i>Lathyrus splendens</i>	Pride-of-California, Campo Pea
<i>Layia glandulosa</i>	White Layia
<i>Layia platyglossa</i>	Tidy Tips
<i>Linanthus bellus</i>	Desert Beauty
<i>Linanthus lemmonii</i>	Lemmon's Linanthus
<i>Lotus argophyllus</i> var. <i>a</i>	Silver-Leaf Lotus
<i>Lotus scoparius</i> var. <i>brevialatus</i>	Short-Wing Deerweed
<i>Lotus scoparius</i> var. <i>s</i>	Coastal Deerweed
<i>Lotus strigosus</i>	Bishop's/Strigose Lotus
<i>Lupinus bicolor</i>	Miniature Lupine
<i>Lupinus concinnus</i>	Bajada Lupine
<i>Lupinus truncatus</i>	Collar Lupine
<i>Lycium andersonii</i>	Waterjacket
<i>Malacothrix glabrata</i>	Desert Dandelion
<i>Mentzelia affinis</i>	Hydra Stick-Leaf
<i>Mimulus aridus</i>	Jacumba Monkey Flower
<i>Mimulus guttatus</i>	Seep Monkey Flower
<i>Mimulus pilosus</i>	Downy Monkey Flower
<i>Oenothera californica</i> ssp. <i>c</i>	California Evening-Primrose
<i>Nicotiana obtusifolia</i>	Desert Tobacco
<i>Pectocarya linearis</i> var. <i>ferocula</i>	Slender Pectocarya
<i>Pectocarya recurvata</i>	Curvenut Combseed
<i>Pectocarya setosa</i>	Bristly Pectocarya
<i>Penstemon centranthifolius</i>	Scarlet Bugler
<i>Penstemon clevelandii</i> var. <i>c</i>	Cleveland's Beardtongue
<i>Penstemon spectabilis</i> var. <i>s</i>	Showy Pentemon
<i>Phacelia cicutaria</i> var. <i>hispida</i>	Caterpillar Phacelia
<i>Phacelia distans</i>	Wild-Heliotrope
<i>Phacelia imbricata</i>	Imbricate Phacelia
<i>Phacelia parryi</i>	Parry's Phacelia

Potential Butterfly Nectar Sources Observed	Common Name
<i>Pholistoma membranaceum</i>	White Fiesta Flower
<i>Plagiobothrys arizonicus</i>	Arizona Popcornflower
<i>Plagiobothrys tenellus</i>	Popcornflower
<i>Platystemon californicus</i>	Cream Cups
<i>Prunus fremontii</i>	Desert Apricot
<i>Rafinesquia neomexicana</i>	Desert Chicory
<i>Salvia apiana</i>	White Sage
<i>Salvia columbariae</i>	Chia
<i>Senecio californicus</i>	California Butterweed
* <i>Sisymbrium altissimum</i>	Tumble/Jim Hill Mustard
* <i>Sisymbrium irio</i>	London Rocket
<i>Sphaeralcea ambigua</i> var. <i>a</i>	Apricot Desert Mallow
<i>Sphaeralcea ambigua</i> var. <i>rosacea</i>	Rose Desert Mallow
<i>Tauschia arguta</i>	Southern Tauschia
<i>Thamnosma montana</i>	Turpentine-Broom
<i>Viguiera parishii</i>	Parish's Golden-Eyes
<i>Ziziphus parryi</i>	Lotebush

* Non-native species

X. Conclusion

Survey results were positive for the federally endangered QCB near SP-75 within the USFWS Jacumba reference site in 2010. QCB's primary larval host plant, dot-seed plantain, and two secondary host plant species were also documented within the survey area. QCB and dot-seed plantain were only observed in one broad area north, east, and west of SP-75 (between milepost 4 and 5). Secondary host plants owl's clover and Chinese houses were observed in several populations between mileposts 7 and 10, but rarely between milepost 10 to the Boulevard substation. No QCB were observed in these locations.

The USFWS Jacumba reference site supports a combination of clay soil, openings in shrubby vegetation, and a large larval host plant population that is unique within the survey area. The soils consist primarily of clay derived from the metavolcanic rock of Jacumba Peak. The clay soils are highly suitable for dot-seed plantain and woody shrubs and perennials do not grow as vigorously or dense in the clay soils here. This has resulted in large openings in woody vegetation with sufficient larval host plant and

nectar source populations to consistently support a colony of QCB. Most of the remaining survey area supports coarse granitic soils with dense chaparral vegetation and large boulder outcrops that is less suitable for dot-seed plantain.

XI. References

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- 1997 Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Laguna Mountains Skipper and Quino Checkerspot Butterfly. *Federal Register* 62(11):2313-2322, January 16.
 - 2002a Quino Checkerspot Butterfly (*Euphydryas editha quino*) Year 2002 Survey Protocol.
 - 2002b Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Quino Checkerspot Butterfly (*Euphydryas editha quino*); Final Rule. *Federal Register* 67(72):18355-18395, April 15.
 - 2003 Recovery Plan for the Quino Checkerspot Butterfly (*Euphydryas editha quino*). Region 1. Portland, Oregon. August 11.

XII. Acknowledgements

USFWS Protocol Surveys: J. Rocks, C. Daverin, B. Lohstroh, M. Mulligan, D. Busby, (M. Rocks, J. Berrian, E. Piehel, Lee Ripma - supervised individuals)

Report Writing and Butterfly Photos: J. Rocks, C. Daverin

GIS Mapping: Insignia Environmental

XIII. Surveyor Signature Page

This report represents an accurate account of my work on the survey site.



Jim Rocks, Owner/Principal Biologist
Rocks Biological Consulting
Permit Number TE-063230-3

This report represents an accurate account of my work on the survey site.



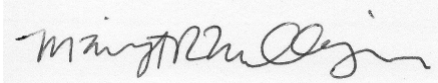
Cynthia Jones Daverin
Mariposa Biology
Permit Number TE-811615-4

This report represents an accurate account of my work on the survey site.




Brian Lohstroh
Permit Number TE-063608-4

This report represents an accurate account of my work on the survey site.



Margie Mulligan
Mulligan Biological Services
Permit Number TE-233291-0

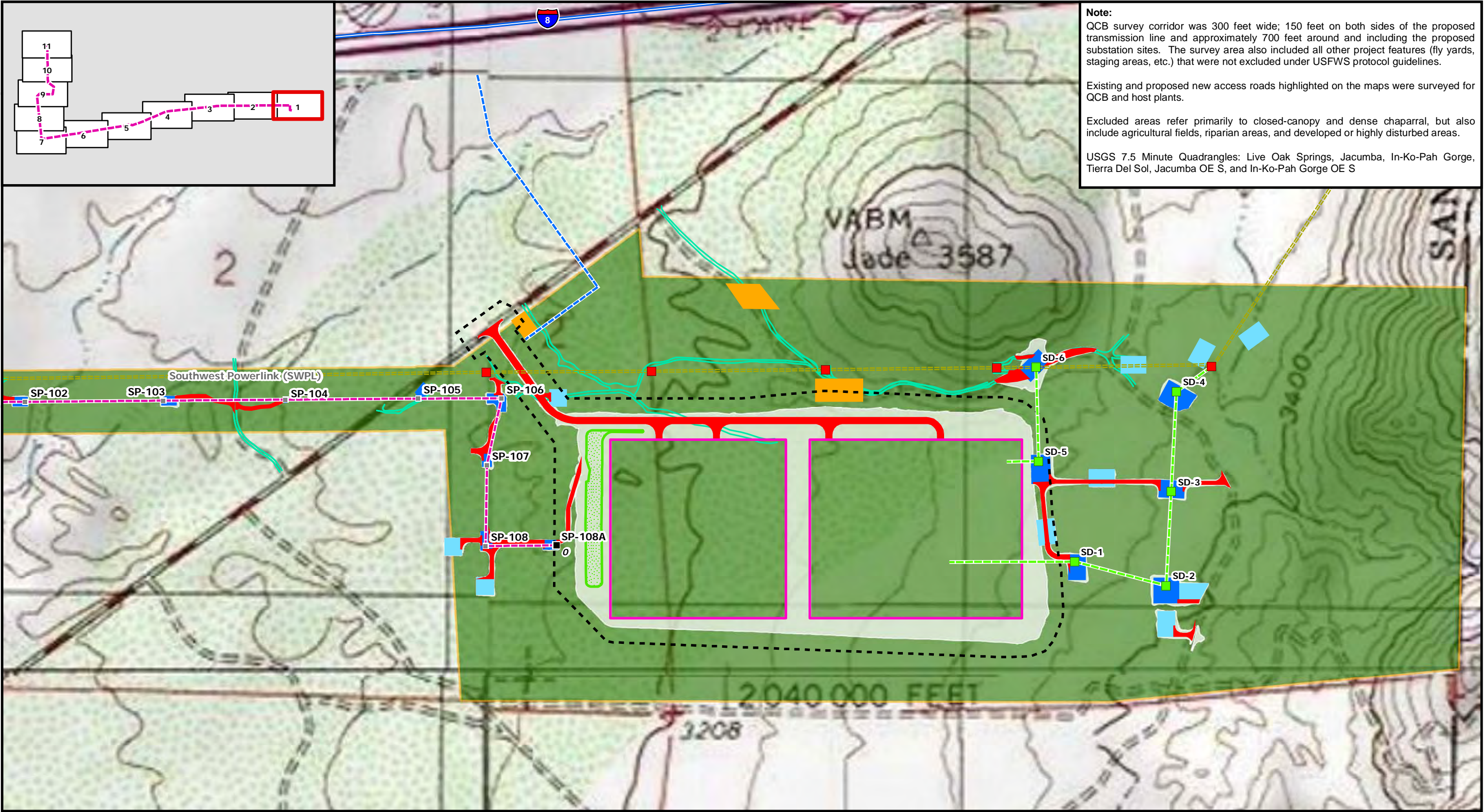
This report represents an accurate account of my work on the survey site.



Darin Busby
Busby Biological Services
Permit Number TE-115373-0

Attachment A

Quino Checkerspot Butterfly Surveyed Area Maps



Note:
 QCB survey corridor was 300 feet wide; 150 feet on both sides of the proposed transmission line and approximately 700 feet around and including the proposed substation sites. The survey area also included all other project features (fly yards, staging areas, etc.) that were not excluded under USFWS protocol guidelines.

Existing and proposed new access roads highlighted on the maps were surveyed for QCB and host plants.


Excluded areas refer primarily to closed-canopy and dense chaparral, but also include agricultural fields, riparian areas, and developed or highly disturbed areas.

USGS 7.5 Minute Quadrangles: Live Oak Springs, Jacumba, In-Ko-Pah Gorge, Tierra Del Sol, Jacumba OE S, and In-Ko-Pah Gorge OE S


Attachment A: Quino Checkerspot Butterfly Survey and Excluded Areas Map 1 of 11

East County Substation Project

<ul style="list-style-type: none"> --- Proposed SWPL Loop-In --- Proposed 138 kV Line --- Proposed 12 kV Temporary Distribution Tap --- 445 Circuit Collocated with 138 kV Line --- TL 6931 Getaway --- Existing Transmission Line 	<ul style="list-style-type: none"> ECO Substation Boulevard Substation Rebuild Retention Pond Temporary Construction Buffer Permanent Work Area New Access Road 	<ul style="list-style-type: none"> Fly Yard Pull Site Staging Yard Trench Work Area Grading Existing Access Road 	<ul style="list-style-type: none"> Proposed 138 kV Tower Proposed 138 kV Line Milepost Proposed SWPL Loop-In Structure Existing SWPL Structure Wood Distribution Pole TL 6931 Getaway Structure 	<ul style="list-style-type: none"> ● Quino Checkerspot Butterfly (<i>Euphydryas editha quino</i>) - Federally Endangered Quino Checkerspot Butterfly Critical Habitat Surveyed Area Excluded Area 	<ul style="list-style-type: none"> ● QCB Primary Host Plant ● Dot-seed Plantain (<i>Plantago erecta</i>) ● QCB Secondary Host Plants ● Owl's Clover (<i>Castilleja exserta</i> ssp. <i>exserta</i>) ● Chinese Houses (<i>Collinsia concolor</i>)
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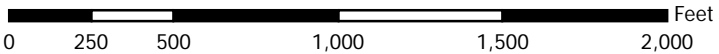
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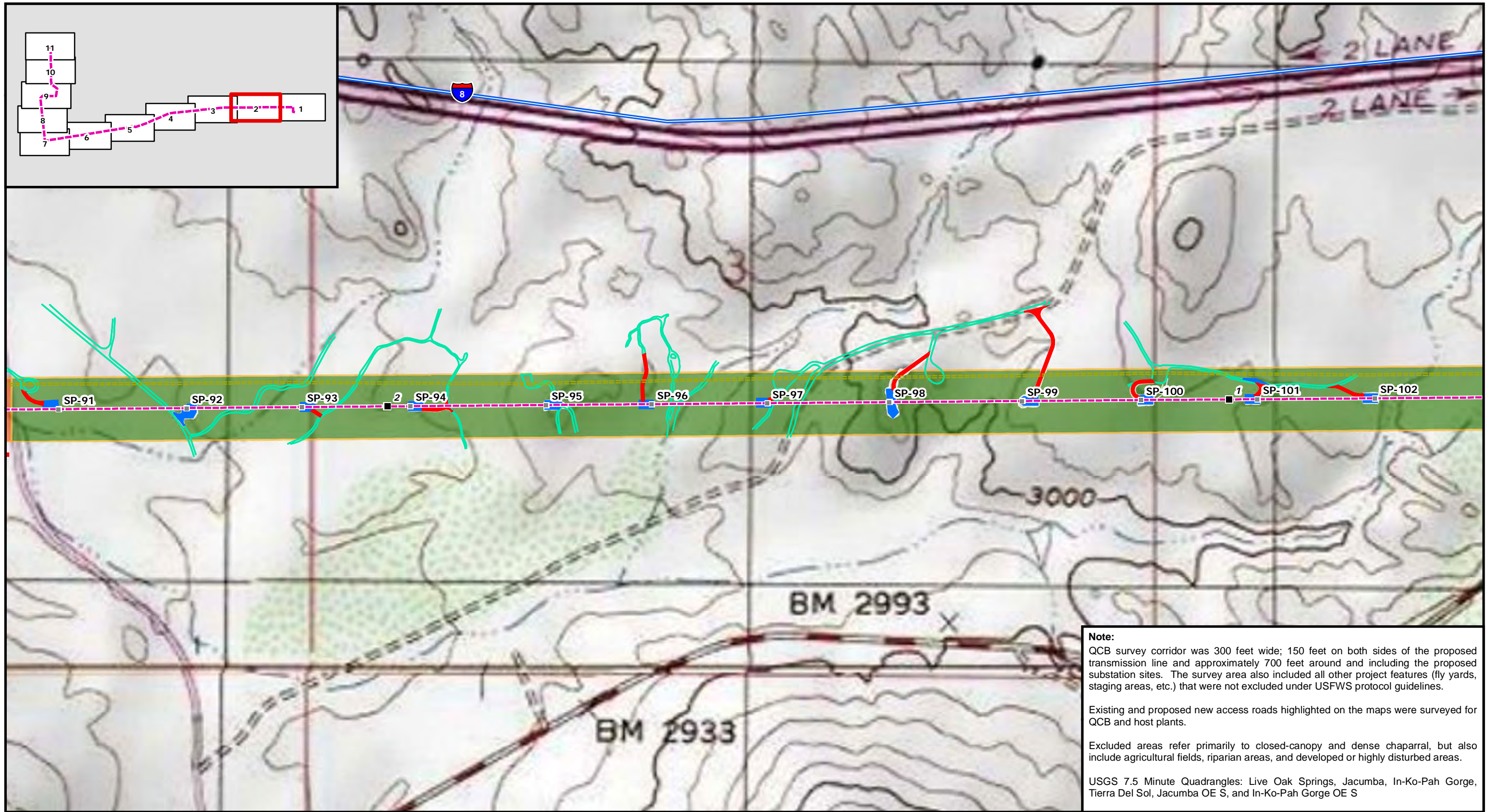
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0 250 500 1,000 1,500 2,000 Feet



Note:
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USGS 7.5 Minute Quadrangles: Live Oak Springs, Jacumba, In-Ko-Pah Gorge, Tierra Del Sol, Jacumba OE S, and In-Ko-Pah Gorge OE S


Attachment A: Quino Checkerspot Butterfly Survey and Excluded Areas Map 2 of 11

East County Substation Project

<ul style="list-style-type: none"> --- Proposed SWPL Loop-In --- Proposed 138 kV Line --- Proposed 12 kV Temporary Distribution Tap --- 445 Circuit Collocated with 138 kV Line --- TL 6931 Getaway --- Existing Transmission Line 	<ul style="list-style-type: none"> ECO Substation Boulevard Substation Rebuild Retention Pond Temporary Construction Buffer Permanent Work Area New Access Road 	<ul style="list-style-type: none"> Fly Yard Pull Site Staging Yard Trench Work Area Grading Existing Access Road 	<ul style="list-style-type: none"> Proposed 138 kV Tower Proposed 138 kV Line Milepost Proposed SWPL Loop-In Structure Existing SWPL Structure Wood Distribution Pole TL 6931 Getaway Structure 	<ul style="list-style-type: none"> Quino Checkerspot Butterfly Critical Habitat Surveyed Area Excluded Area 	<ul style="list-style-type: none"> ● Quino Checkerspot Butterfly (<i>Euphydryas editha quino</i>) - Federally Endangered QCB Primary Host Plant ● Dot-seed Plantain (<i>Plantago erecta</i>) ● Owl's Clover (<i>Castilleja exserta</i> ssp. <i>exserta</i>) ● Chinese Houses (<i>Collinsia concolor</i>)
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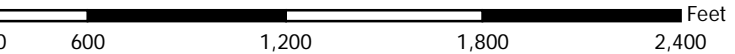
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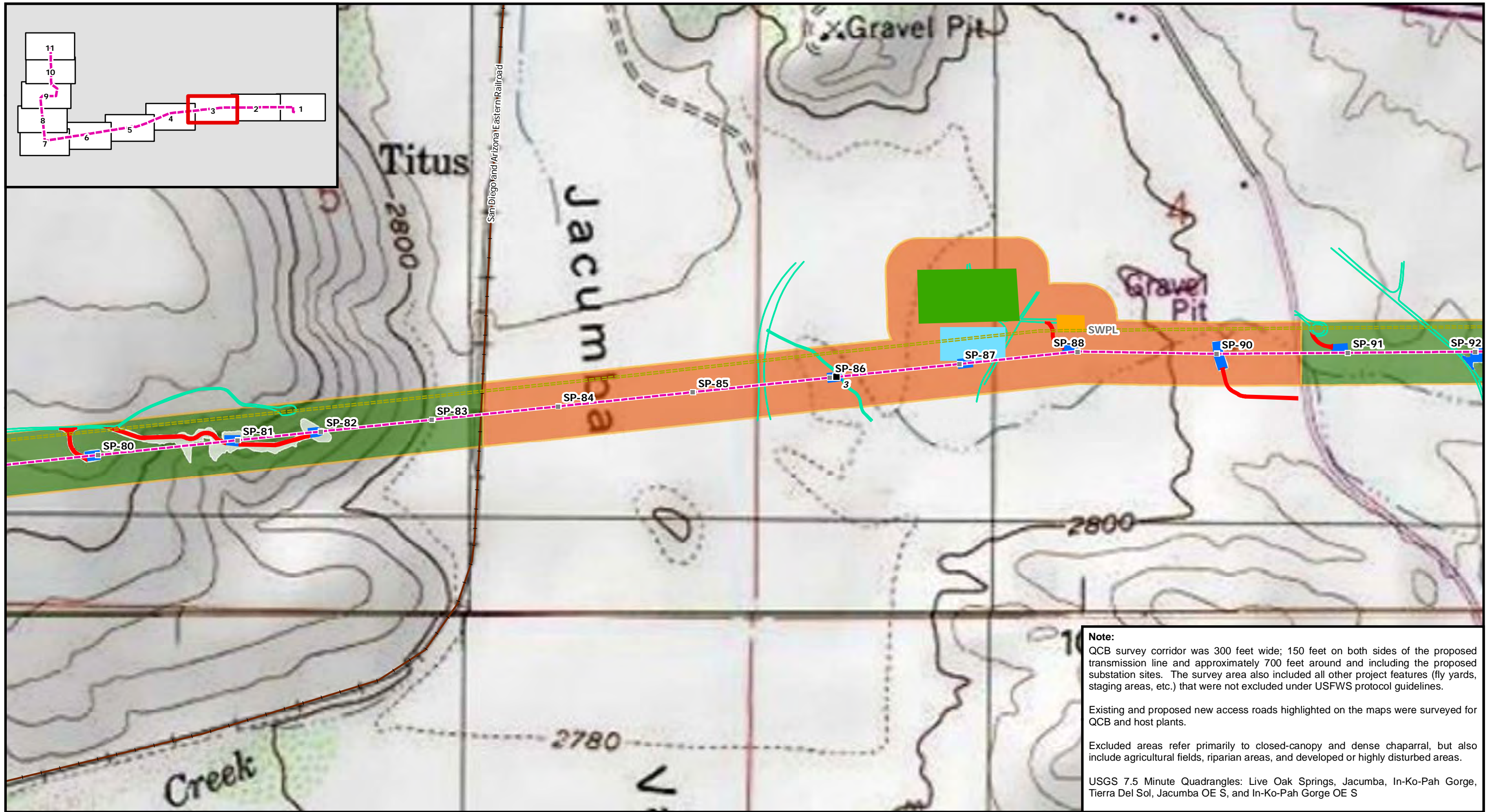
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Attachment A: Quino Checkerspot Butterfly Survey and Excluded Areas Map 3 of 11

East County Substation Project

<ul style="list-style-type: none"> --- Proposed SWPL Loop-In --- Proposed 138 kV Line --- Proposed 12 kV Temporary Distribution Tap --- 445 Circuit Collocated with 138 kV Line --- TL 6931 Getaway --- Existing Transmission Line 	<ul style="list-style-type: none"> ECO Substation Boulevard Substation Rebuild Retention Pond Temporary Construction Buffer Permanent Work Area New Access Road 	<ul style="list-style-type: none"> Fly Yard Pull Site Staging Yard Trench Work Area Grading Existing Access Road 	<ul style="list-style-type: none"> Proposed 138 kV Tower Proposed 138 kV Line Milepost Proposed SWPL Loop-In Structure Existing SWPL Structure Wood Distribution Pole TL 6931 Getaway Structure 	<ul style="list-style-type: none"> Quino Checkerspot Butterfly (<i>Euphydryas editha quino</i>) - Federally Endangered Quino Checkerspot Butterfly Critical Habitat Surveyed Area Excluded Area 	<ul style="list-style-type: none"> QCB Primary Host Plant Dot-seed Plantain (<i>Plantago erecta</i>) QCB Secondary Host Plants Owl's Clover (<i>Castilleja exserta</i> ssp. <i>exserta</i>) Chinese Houses (<i>Collinsia concolor</i>)
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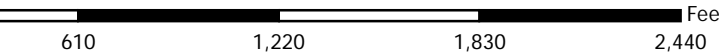
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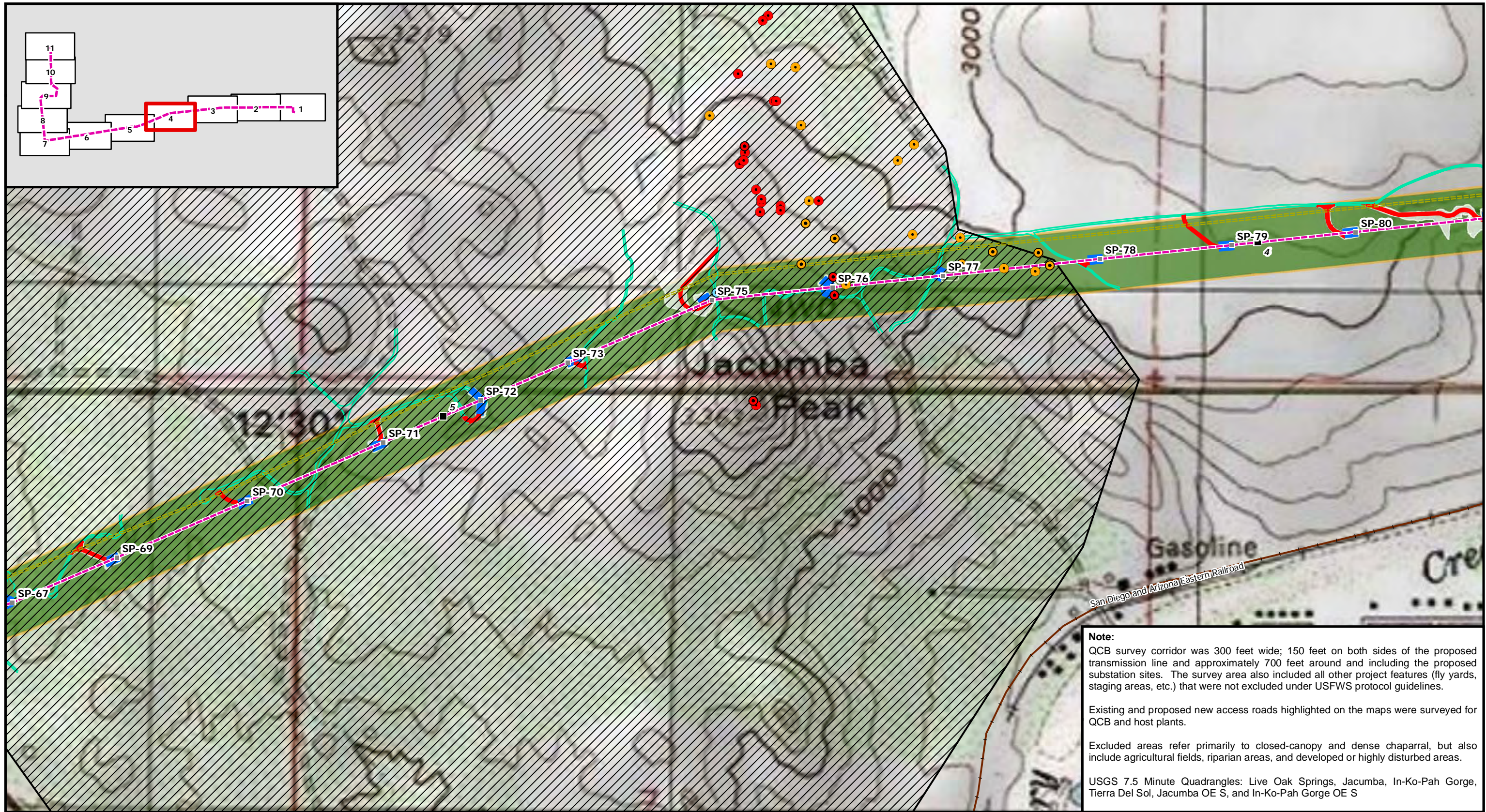
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Note:
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USGS 7.5 Minute Quadrangles: Live Oak Springs, Jacumba, In-Ko-Pah Gorge, Tierra Del Sol, Jacumba OE S, and In-Ko-Pah Gorge OE S


Attachment A: Quino Checkerspot Butterfly Survey and Excluded Areas Map 4 of 11

East County Substation Project

<ul style="list-style-type: none"> --- Proposed SWPL Loop-In --- Proposed 138 kV Line --- Proposed 12 kV Temporary Distribution Tap --- 445 Circuit Collocated with 138 kV Line --- TL 6931 Getaway --- Existing Transmission Line 	<ul style="list-style-type: none"> ECO Substation Boulevard Substation Rebuild Retention Pond Temporary Construction Buffer Permanent Work Area New Access Road 	<ul style="list-style-type: none"> Fly Yard Pull Site Staging Yard Trench Work Area Grading Existing Access Road 	<ul style="list-style-type: none"> Proposed 138 kV Tower Proposed 138 kV Line Milepost Proposed SWPL Loop-In Structure Existing SWPL Structure Wood Distribution Pole TL 6931 Getaway Structure 	<ul style="list-style-type: none"> ● Quino Checkerspot Butterfly (<i>Euphydryas editha quino</i>) - Federally Endangered Quino Checkerspot Butterfly Critical Habitat Surveyed Area Excluded Area 	<ul style="list-style-type: none"> QCB Primary Host Plant: Dot-seed Plantain (<i>Plantago erecta</i>) QCB Secondary Host Plants: Owl's Clover (<i>Castilleja exserta</i> ssp. <i>exserta</i>) Chinese Houses (<i>Collinsia concolor</i>)
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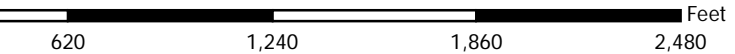
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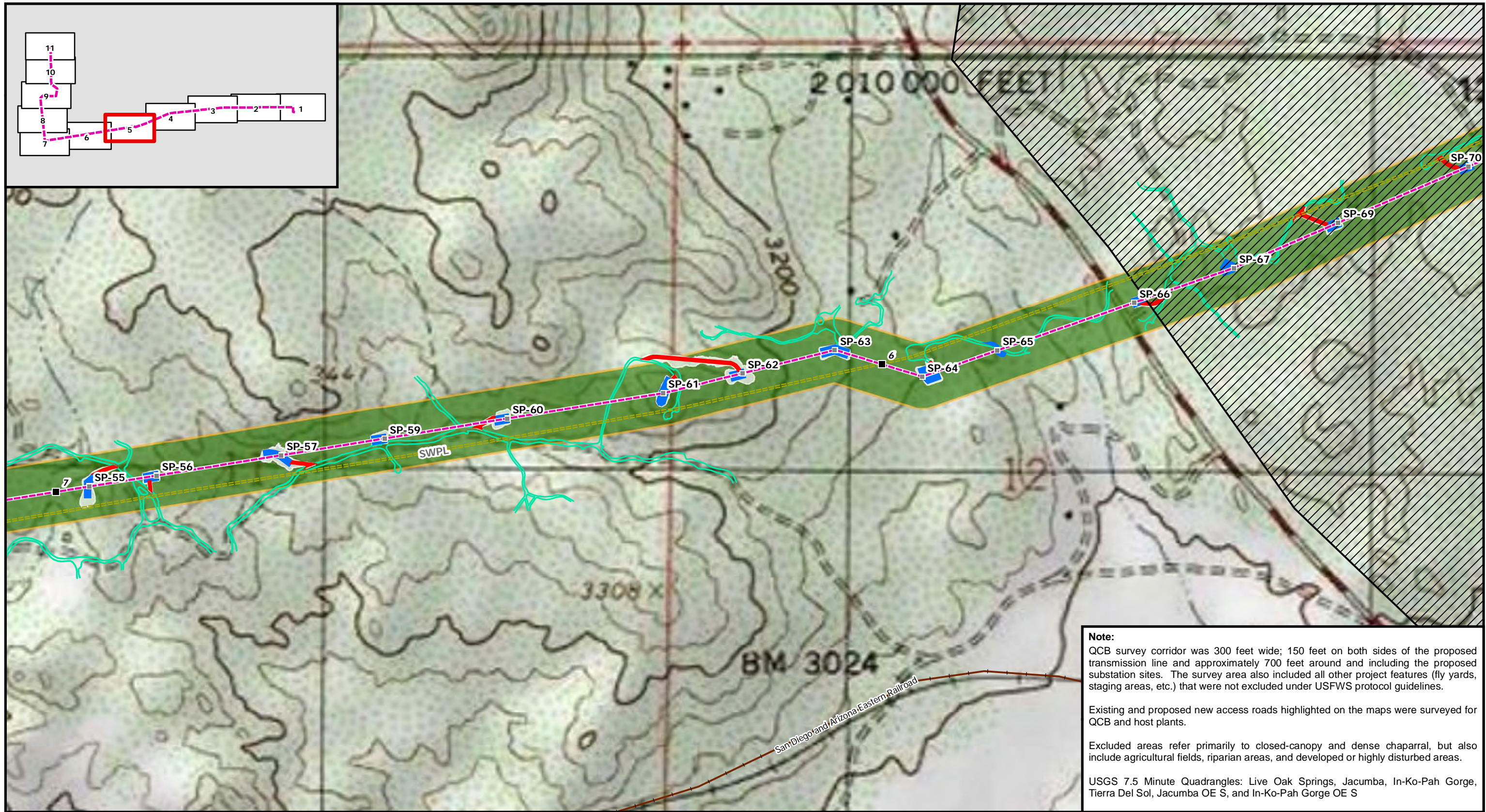
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Attachment A: Quino Checkerspot Butterfly Survey and Excluded Areas Map 5 of 11

East County Substation Project

<ul style="list-style-type: none"> --- Proposed SWPL Loop-In --- Proposed 138 kV Line --- Proposed 12 kV Temporary Distribution Tap --- 445 Circuit Collocated with 138 kV Line --- TL 6931 Getaway --- Existing Transmission Line 	<ul style="list-style-type: none"> ECO Substation Boulevard Substation Rebuild Retention Pond Temporary Construction Buffer Permanent Work Area New Access Road 	<ul style="list-style-type: none"> Fly Yard Pull Site Staging Yard Trench Work Area Grading Existing Access Road 	<ul style="list-style-type: none"> Proposed 138 kV Tower Proposed 138 kV Line Milepost Proposed SWPL Loop-In Structure Existing SWPL Structure Wood Distribution Pole TL 6931 Getaway Structure 	<ul style="list-style-type: none"> ● Quino Checkerspot Butterfly (<i>Euphydryas editha quino</i>) - Federally Endangered Quino Checkerspot Butterfly Critical Habitat Surveyed Area Excluded Area 	<ul style="list-style-type: none"> ● QCB Primary Host Plant ● Dot-seed Plantain (<i>Plantago erecta</i>) ● QCB Secondary Host Plants ● Owl's Clover (<i>Castilleja exserta</i> ssp. <i>exserta</i>) ● Chinese Houses (<i>Collinsia concolor</i>)
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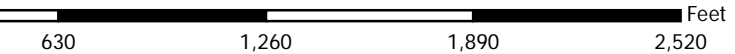
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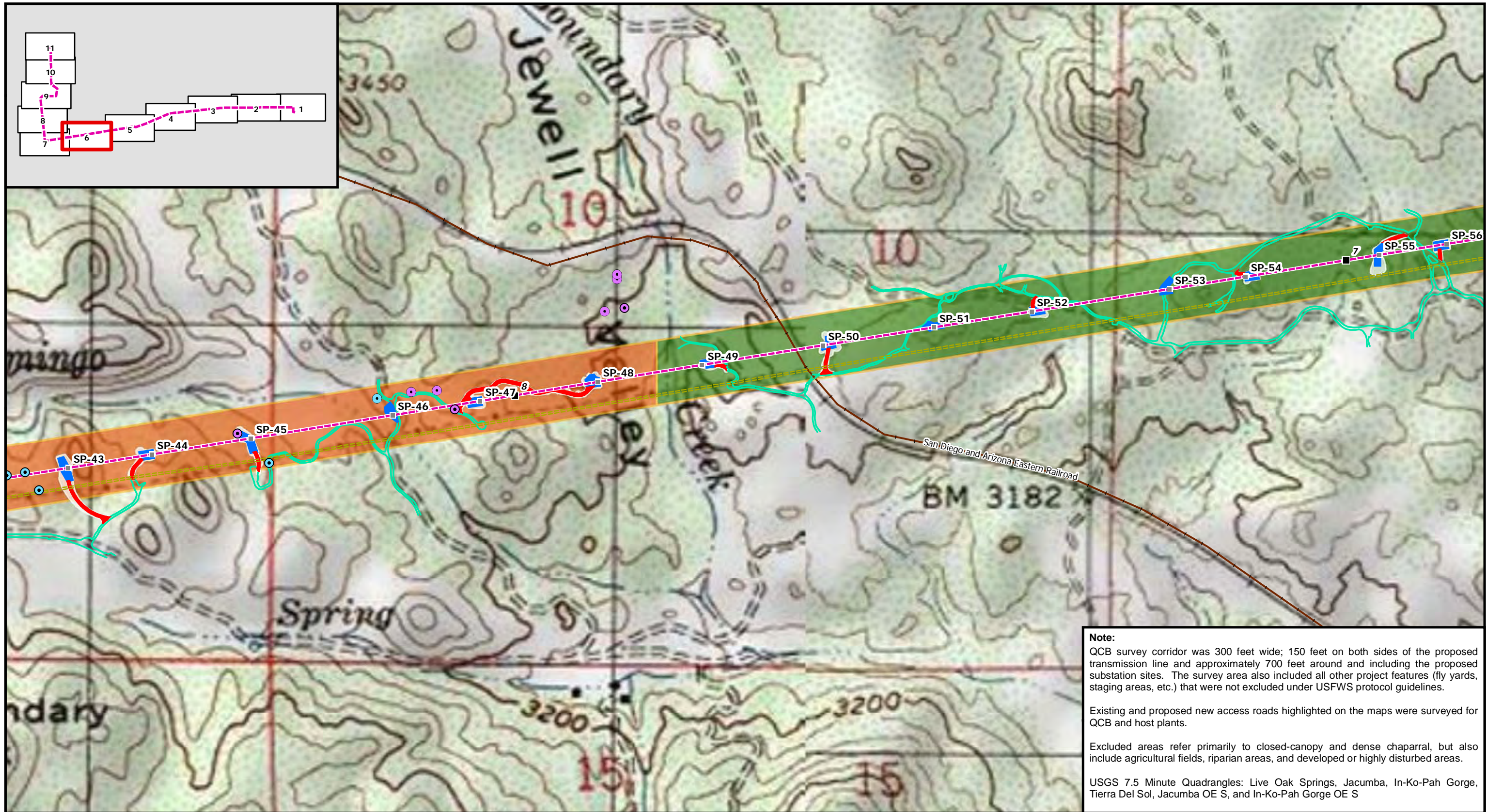
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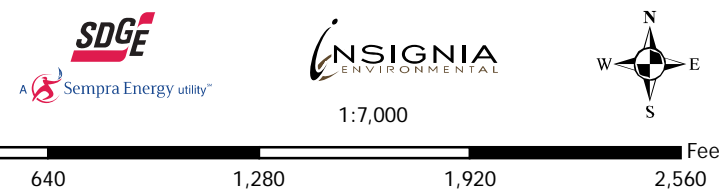
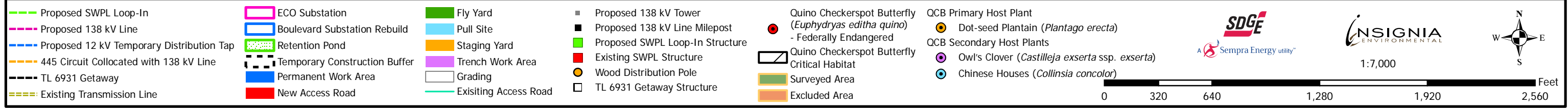


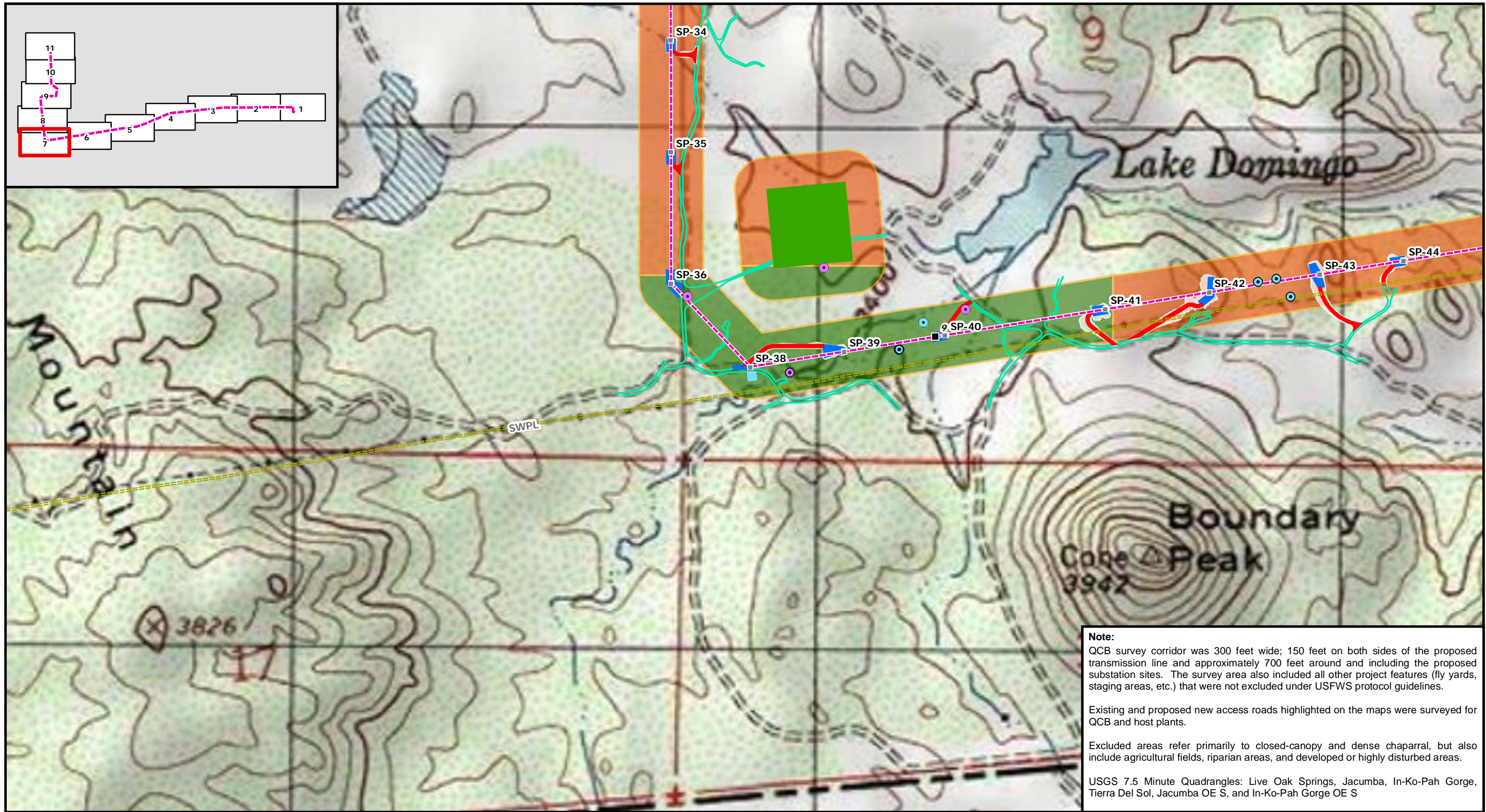
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Attachment A: Quino Checkerspot Butterfly Survey and Excluded Areas Map 6 of 11

East County Substation Project







Attachment A: Quino Checkerspot Butterfly Survey and Excluded Areas Map 7 of 11

East County Substation Project

<ul style="list-style-type: none"> --- Proposed SWPL Loop-In --- Proposed 138 kV Line --- Proposed 12 kV Temporary Distribution Tap --- 445 Circuit Collocated with 138 kV Line --- TL 6931 Getaway --- Existing Transmission Line 	<ul style="list-style-type: none"> ECO Substation Boulevard Substation Rebuild Retention Pond Temporary Construction Buffer Permanent Work Area New Access Road 	<ul style="list-style-type: none"> Fly Yard Pull Site Staging Yard Trench Work Area Grading Existing Access Road 	<ul style="list-style-type: none"> Proposed 138 kV Tower Proposed 138 kV Line Milepost Proposed SWPL Loop-In Structure Existing SWPL Structure Wood Distribution Pole TL 6931 Getaway Structure 	<ul style="list-style-type: none"> ● Quino Checkerspot Butterfly (<i>Euphydryas editha quino</i>) - Federally Endangered Quino Checkerspot Butterfly Critical Habitat Surveyed Area Excluded Area 	<ul style="list-style-type: none"> ● QCB Primary Host Plant ● Dot-seed Plantain (<i>Plantago erecta</i>) ● QCB Secondary Host Plants ● Owl's Clover (<i>Castilleja exserta</i> ssp. <i>exserta</i>) ● Chinese Houses (<i>Collinsia concolor</i>)
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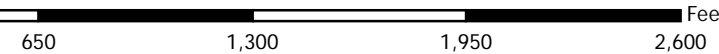
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A Sempra Energy utility



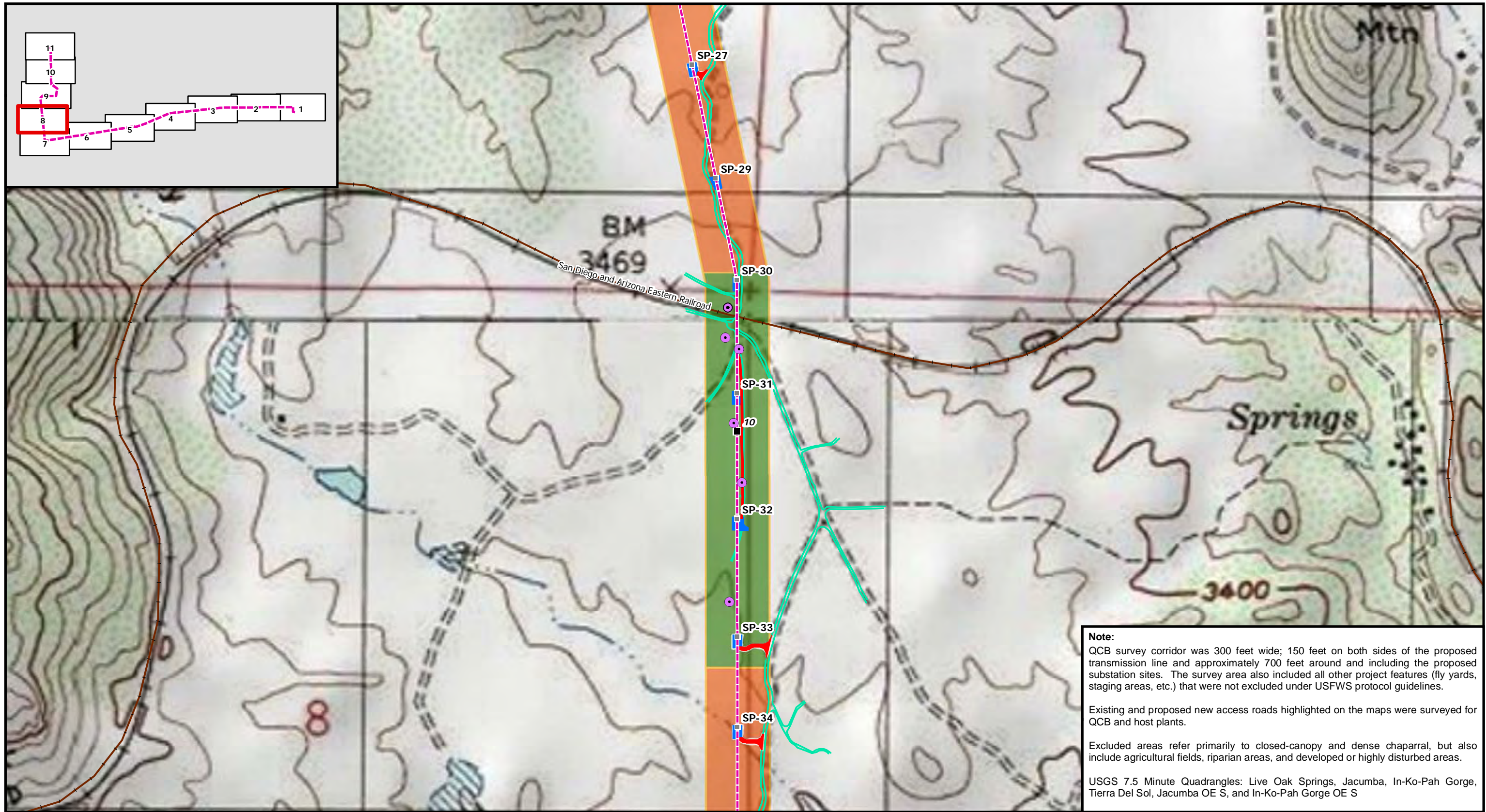
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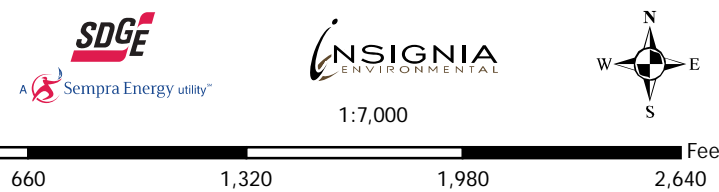
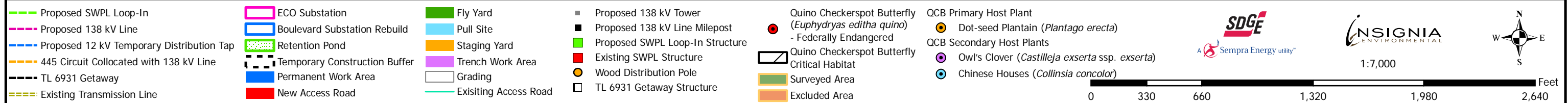


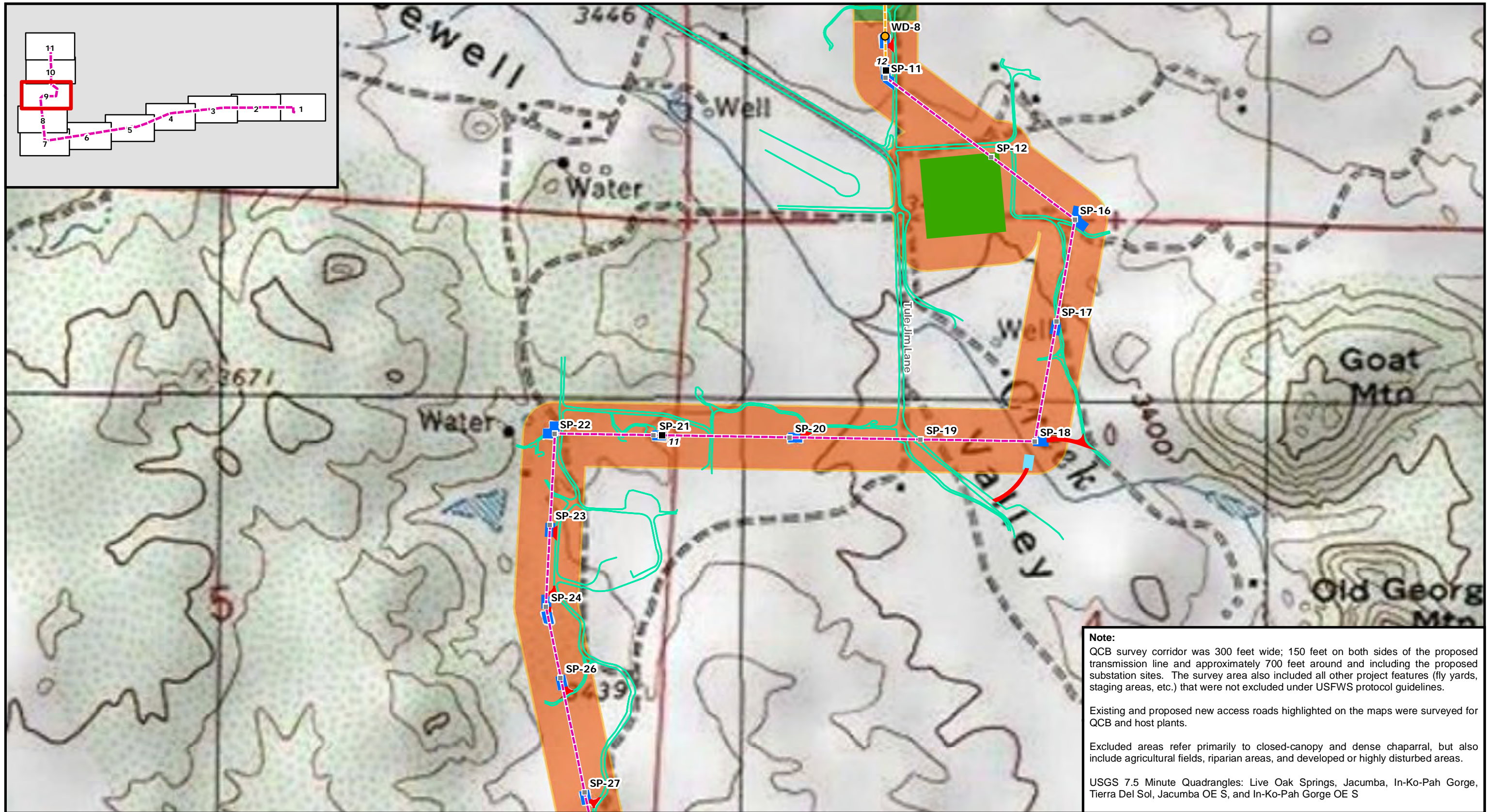
0 325 650 1,300 1,950 2,600 Feet



Attachment A: Quino Checkerspot Butterfly Survey and Excluded Areas Map 8 of 11

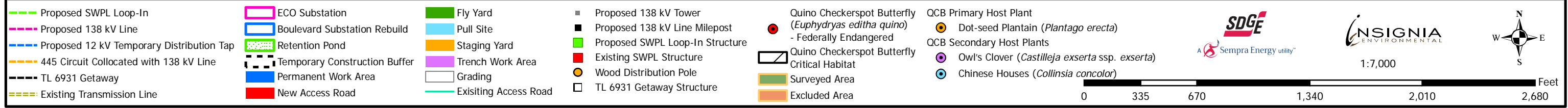
East County Substation Project

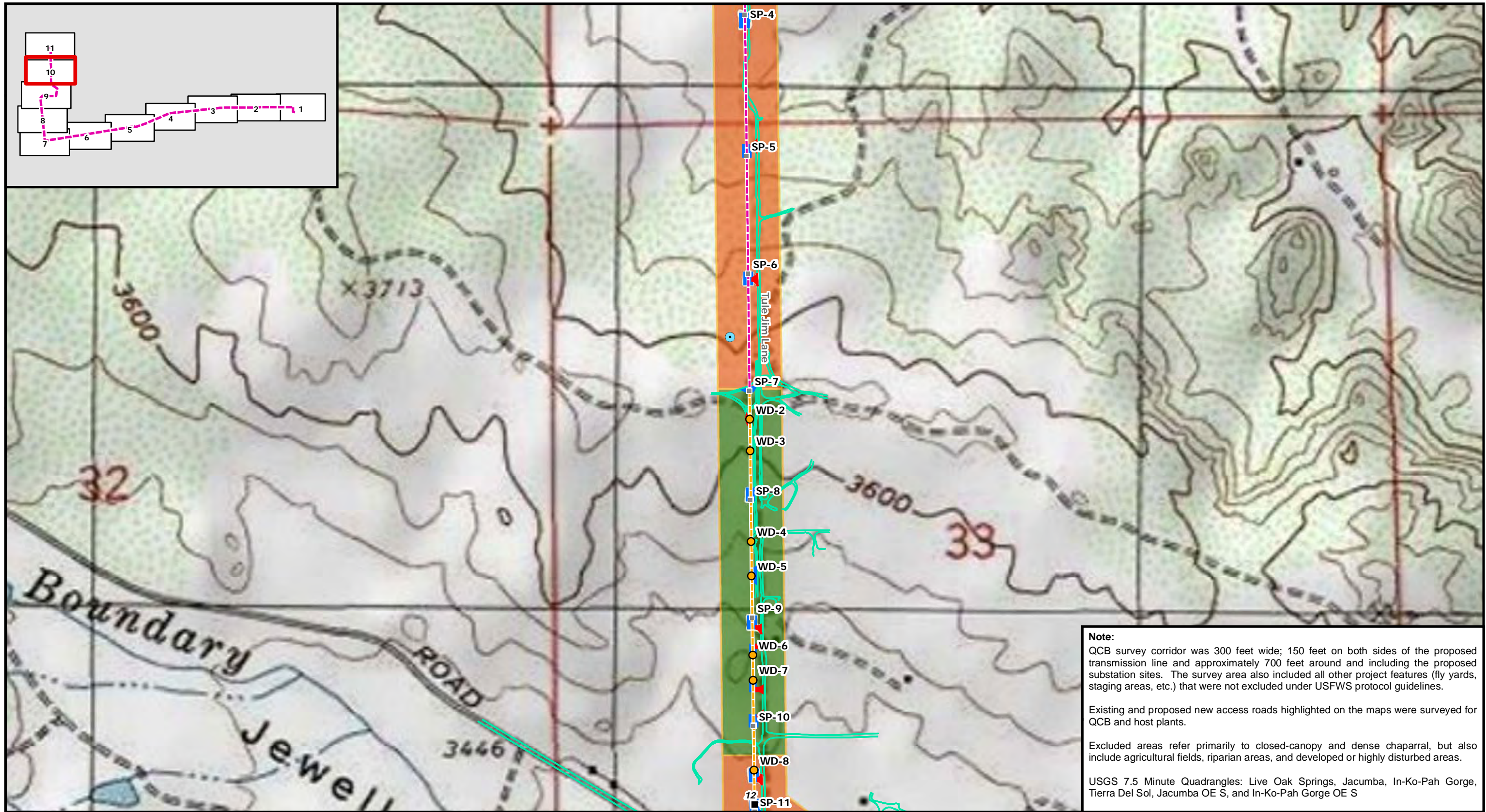




Attachment A: Quino Checkerspot Butterfly Survey and Excluded Areas Map 9 of 11

East County Substation Project





Note:
 QCB survey corridor was 300 feet wide; 150 feet on both sides of the proposed transmission line and approximately 700 feet around and including the proposed substation sites. The survey area also included all other project features (fly yards, staging areas, etc.) that were not excluded under USFWS protocol guidelines.

Existing and proposed new access roads highlighted on the maps were surveyed for QCB and host plants.

Excluded areas refer primarily to closed-canopy and dense chaparral, but also include agricultural fields, riparian areas, and developed or highly disturbed areas.

USGS 7.5 Minute Quadrangles: Live Oak Springs, Jacumba, In-Ko-Pah Gorge, Tierra Del Sol, Jacumba OE S, and In-Ko-Pah Gorge OE S

Attachment A: Quino Checkerspot Butterfly Survey and Excluded Areas Map 10 of 11

East County Substation Project

<ul style="list-style-type: none"> --- Proposed SWPL Loop-In --- Proposed 138 kV Line --- Proposed 12 kV Temporary Distribution Tap --- 445 Circuit Collocated with 138 kV Line --- TL 6931 Getaway --- Existing Transmission Line 	<ul style="list-style-type: none"> ECO Substation Boulevard Substation Rebuild Retention Pond Temporary Construction Buffer Permanent Work Area New Access Road 	<ul style="list-style-type: none"> Fly Yard Pull Site Staging Yard Trench Work Area Grading Existing Access Road 	<ul style="list-style-type: none"> Proposed 138 kV Tower Proposed 138 kV Line Milepost Proposed SWPL Loop-In Structure Existing SWPL Structure Wood Distribution Pole TL 6931 Getaway Structure 	<ul style="list-style-type: none"> Quino Checkerspot Butterfly Critical Habitat Surveyed Area Excluded Area 	<ul style="list-style-type: none"> ● Quino Checkerspot Butterfly (<i>Euphydryas editha quino</i>) - Federally Endangered Quino Checkerspot Butterfly Critical Habitat Surveyed Area Excluded Area 	<ul style="list-style-type: none"> QCB Primary Host Plant Dot-seed Plantain (<i>Plantago erecta</i>) QCB Secondary Host Plants Owl's Clover (<i>Castilleja exserta</i> ssp. <i>exserta</i>) Chinese Houses (<i>Collinsia concolor</i>)
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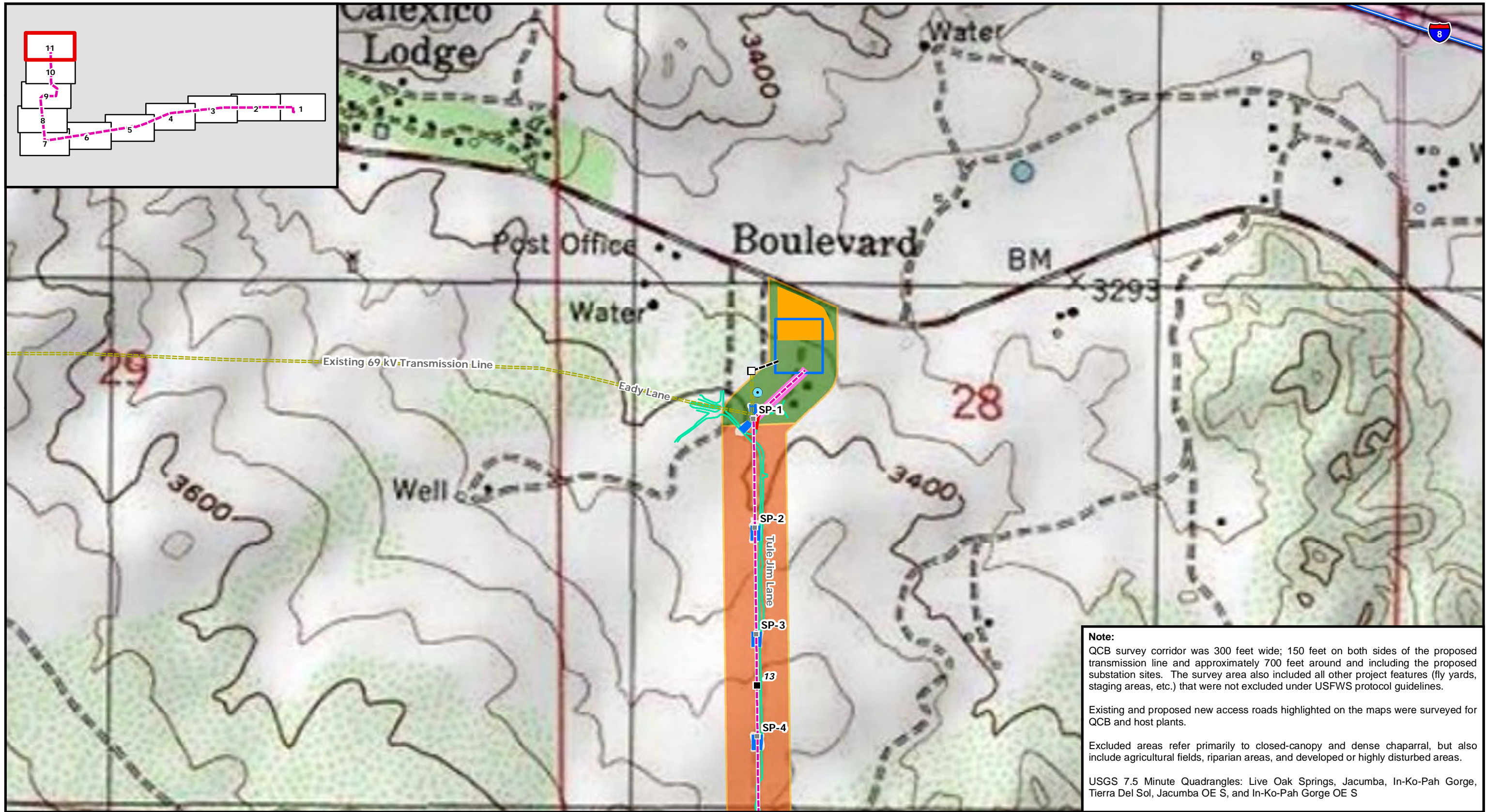
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0 337.5 675 1,350 2,025 2,700 Feet



Note:
 QCB survey corridor was 300 feet wide; 150 feet on both sides of the proposed transmission line and approximately 700 feet around and including the proposed substation sites. The survey area also included all other project features (fly yards, staging areas, etc.) that were not excluded under USFWS protocol guidelines.


Existing and proposed new access roads highlighted on the maps were surveyed for QCB and host plants.

Excluded areas refer primarily to closed-canopy and dense chaparral, but also include agricultural fields, riparian areas, and developed or highly disturbed areas.

USGS 7.5 Minute Quadrangles: Live Oak Springs, Jacumba, In-Ko-Pah Gorge, Tierra Del Sol, Jacumba OE S, and In-Ko-Pah Gorge OE S

Attachment A: Quino Checkerspot Butterfly Survey and Excluded Areas Map 11 of 11 **East County Substation Project**

<ul style="list-style-type: none"> --- Proposed SWPL Loop-In --- Proposed 138 kV Line --- Proposed 12 kV Temporary Distribution Tap --- 445 Circuit Collocated with 138 kV Line --- TL 6931 Getaway --- Existing Transmission Line 	<ul style="list-style-type: none"> ECO Substation Boulevard Substation Rebuild Retention Pond Temporary Construction Buffer Permanent Work Area New Access Road 	<ul style="list-style-type: none"> Fly Yard Pull Site Staging Yard Trench Work Area Grading Existing Access Road 	<ul style="list-style-type: none"> Proposed 138 kV Tower Proposed 138 kV Line Milepost Proposed SWPL Loop-In Structure Existing SWPL Structure Wood Distribution Pole TL 6931 Getaway Structure 	<ul style="list-style-type: none"> ● Quino Checkerspot Butterfly (<i>Euphydryas editha quino</i>) - Federally Endangered Quino Checkerspot Butterfly Critical Habitat Surveyed Area Excluded Area 	<ul style="list-style-type: none"> ● QCB Primary Host Plant ● Dot-seed Plantain (<i>Plantago erecta</i>) ● QCB Secondary Host Plants ● Owl's Clover (<i>Castilleja exserta</i> ssp. <i>exserta</i>) ● Chinese Houses (<i>Collinsia concolor</i>)
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0 340 680 1,360 2,040 2,720 Feet

Attachment B

**East County Substation Project Survey Area
Butterfly Species Accounts**



Species: Desert Swallowtail (*Papilio coloro*)

Larval Food Plants: Turpentine broom (*Thamnosma montana*)

General Habitat: Lowlands, hills, and mountains

Notes: Desert swallowtail was observed during every survey. This species is a strong hilltopper and was present on hilltops and peaks throughout the survey area.



Species: Western Tiger Swallowtail (*Papilio rutulus*)

Larval Food Plants: Sycamores and willows

General Habitat: Riparian habitat, coastal and desert lowlands and mountains

Notes: Western tiger swallowtail was only observed near riparian habitat at SP-49.



Species: Pale Swallowtail (*Papilio eurymedon*)

Larval Food Plants: Rhamnaceae or buckthorn family - *Rhamnus* and *Ceanothus* species

General Habitat: Chaparral

Notes: Pale swallowtail was present from the third survey on. This species is a strong hilltopper and was on peaks and hilltops throughout the survey area.



Species: Checkered White (*Pontia protodice*)
Larval Food Plants: Mustard Family (Brassicaceae) – esp. prince’s plume, also bladderpod
General Habitat: Coastal and desert lowlands
Notes: Checkered whites were common in the survey area. They were observed during every survey in all habitats, being most common near mustard plants.



Species: Becker’s White (*Pontia beckeri*)
Larval Food Plants: Mustard Family (Brassicaceae) – esp. peppergrass and tumble mustard
General Habitat: Deserts
Notes: Becker’s white was observed during several surveys in a variety of habitats within the survey area. This species was often observed near patches of tumble mustard.



Species: Spring White (*Pontia sisymbrii*)
Larval Food Plants: Mustard Family (Brassicaceae) – esp. jewelflowers
General Habitat: Open area on hills and mountains
Notes: Spring white, an early butterfly, was observed only during the first survey. This species is a strong hilltopper.



Species: Pearly Marble (*Euchloe hyantis*)

Larval Food Plants: Mustard Family (Brassicaceae) – esp. jewelflowers

General Habitat: Open slopes of hills and mountains

Notes: Pearly marble was observed during the first five surveys. This species is a hilltopper and was noted on top of outcrops, hills, and peaks. It was also observed at the base of Jade Peak near the proposed substation site.

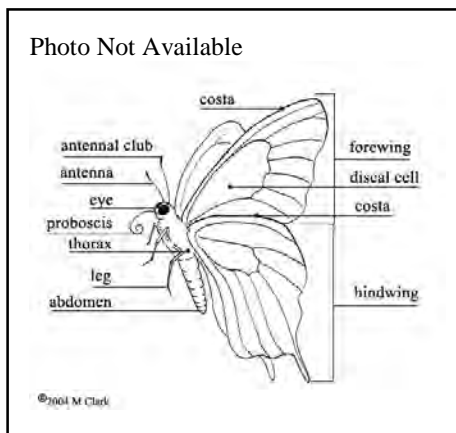


Species: Sara Orangetip (*Anthocharis sara*)

Larval Food Plants: Mustard Family (Brassicaceae) – esp. rock cress and tumble mustard

General Habitat: Canyons and washes in the foothills and desert

Notes: Sara orangetip was a common butterfly throughout the survey period and was observed during every survey. This species is a canyon cruiser instead of a hilltopper. It was observed in washes, canyons, and the substation site.



Species: Desert Orangetip (*Anthocharis cethura*)

Larval Food Plants: Mustard Family (Brassicaceae) – esp. tansy-mustard and tumble mustard

General Habitat: Desert hills and ridges

Notes: Desert orangetip is a hilltopping butterfly. This species was observed during the first 4 surveys on hilltops, peaks, and near mustard plants throughout the survey area.



Species: Harford's Sulphur (*Colias alexandra harfordii*)

Larval Food Plants: Pea Family (Fabaceae) – esp. Jacumba milkvetch and related milkvetches

General Habitat: Coast and desert ranges and canyons

Notes: Unlike 2009 when a few Harford's sulfurs were observed during every survey, this species was only observed during the final survey.

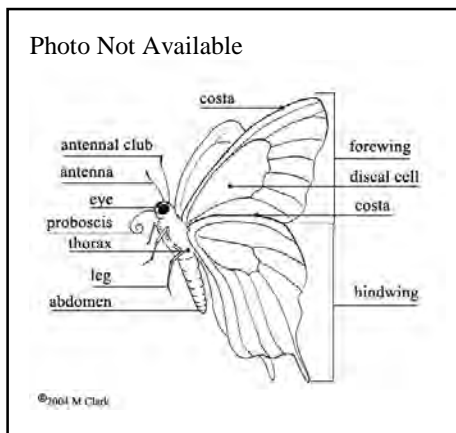


Species: Orange Sulphur (*Colias eurytheme*)

Larval Food Plants: Pea Family (Fabaceae) – esp. alfalfa and deerweed

General Habitat: Lowlands, mountains, and deserts

Notes: Orange sulphur was observed in low numbers throughout the survey. They occur in a variety of habitats and were observed flying through the survey area.



Species: Cloudless Sulphur (*Phoebis sennae*)

Larval Food Plants: Cassias (Senna)

General Habitat: Wide variety of open habitats, gardens.

Notes: This species was observed flying high and quickly through the survey area during surveys 4 and 5.



Species: Great Purple Hairstreak (*Atlides halesus*)

Larval Food Plants: Mistletoe – esp. desert mistletoe (*Phoradendron californicum*)

General Habitat: Coast and desert hills where Mistletoe grows

Notes: Great purple hairstreak was uncommon onsite. This species is a strong hilltopper. It was observed on Jacumba and Jade Peaks and near its larval host plant, mistletoe.



Species: Perplexing (Bramble) Hairstreak (*Callophrys dumatorum*)

Larval Food Plants: Varied incl. deerweed, California buckwheat and mountain buckwheat

General Habitat: Coastal and desert chaparral

Notes: Perplexing hairstreak was noted throughout the survey area. This species was observed in all habitats in low numbers. The iridescent green color of this butterfly is unique.



Species: Loki Juniper Hairstreak (*Callophrys gryneus loki*)

Larval Food Plants: California juniper

General Habitat: Juniper woodlands, chaparral and desert scrub with junipers

Notes: This species was observed in the juniper woodland at the proposed substation site and the rocky hills west of Jacumba Peak.



Species: Brown Elfin (*Callophrys augustinus*)
Larval Food Plants: Dodder, a parasitic plant, *Ceanothus*, and others in various families
General Habitat: Chaparral and pine forests
Notes: Single individuals of Brown elfin were observed during several surveys, but this species was uncommon in the survey area.



Species: Gray Hairstreak (*Strymon melinus*)
Larval Food Plants: Many plants, particularly mallow family (Malvaceae) such as desert mallow
General Habitat: Coastal lowlands and mountains, uncommon in the desert
Notes: Gray hairstreak was observed on Jacumba Peak and other hilltops during surveys 1 and 4. This species was uncommon.



Species: Western Pygmy-Blue (*Brephidium exile*)
Larval Food Plants: Amaranth Family (Amaranthaceae) - Saltbush and goosefoot plants
General Habitat: Coastal and desert lowlands
Notes: This tiny butterfly was observed during the third survey. The shadscale scrub provides numerous food plants for this species.



Species: Marine Blue (*Leptotes marina*)

Larval Food Plants: Fabaceae or Pea Family - pea and milkvetch

General Habitat: Coastal and desert lowlands

Notes: Marine blue is a late flying butterfly and was observed during the fifth survey. Two of the sensitive plants in the survey area, Jacumba milkvetch and pride-of-California, are potential food plants for this species.



Species: Arrowhead Blue (*Glaucopsyche piasus*)

Larval Food Plants: Lupines

General Habitat: Chaparral transition, sagebrush, open habitats

Notes: Arrowhead Blue, which was not seen during the 2009 surveys, was observed in one localized area near SP-23 during the fourth and fifth survey.



Species: Western Tailed-Blue (*Everes amyntula*)

Larval Food Plants: Jacumba milkvetch

General Habitat: Coastal lowlands to mountain meadows, not found in deserts

Notes: This butterfly was only noted in the large Jacumba milkvetch population near SP-49, and is at the eastern limit of the species' range. Western tailed-blues remain close to their food plants.



Species: Bernardino Blue (*Euphilotes battoides bernardino*)

Larval Food Plants: California buckwheat, inland buckwheat

General Habitat: Deserts and mountain ranges

Notes: This subspecies of the square-spotted blue typically appears at the end of the QCB flight season. Bernardino blues were fairly common in all areas near their food plants during the fifth and sixth surveys.



Species: Southern Blue (*Glaucopsyche lygdamus australis*)

Larval Food Plants: Deerweed

General Habitat: Coastal lowlands and canyon slopes

Notes: Southern blue was observed on slopes in the chamise-red shank chaparral near clusters of deerweed. This species was common within suitable habitat.

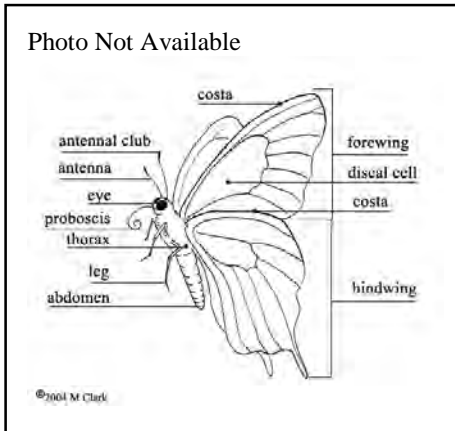


Species: Acmon Blue (*Plebejus acmon*)

Larval Food Plants: Deerweed, mountain and California buckwheats, milkvetch

General Habitat: Sea level to 10,000 feet, coast, desert, and mountains

Notes: Acmon blue was observed during all six surveys throughout the survey area. It was most common near its food plants, especially between Boulevard and Domingo Lake.



Species: Lupine Blue (*Plebejus lupinus*)

Larval Food Plants: California buckwheats, and other buckwheats

General Habitat: Chaparral and sagebrush

Notes: Lupine blue is very similar to acmon blue. This species was observed during the last survey in an area of dense buckwheat near SP-23.



Species: Behr's Metalmark (*Apodemia mormo virgulti*)

Larval Food Plants: Inland California and mountain buckwheats

General Habitat: Chaparral with buckwheats

Notes: Behr's metalmark was observed during all six surveys. The species was found in chaparral, mainly in the western portion of the survey area where larval food plants are common.



Species: California Patch (*Chlosyne californica*)

Larval Food Plants: Parish's Golden-Eyes (*Bahiopsis parishii*)

General Habitat: Canyons and washes in the Colorado and Mojave deserts

Notes: California Patch was observed on Jacumba Peak and on a hilltop within the rocky canyons west of the proposed substation site.



Species: Gabb's Checkerspot (*Chlosyne gabbii*)

Larval Food Plants: Common sand-aster (*Corethrogyne filaginifolia*)

General Habitat: Chaparral in foothills and canyons

Notes: Gabb's checkerspot was observed at one location near SP-49 where a large patch of common sand-aster grows to the east of the creek. Overall orange look to the wings help distinguish this butterfly from QCB.



Species: Chalcidon Checkerspot (*Euphydryas chalcidona chalcidona* and *E.c. hennei*)

Larval Food Plants: Yellow bush penstemon

General Habitat: Chaparral and coastal sage scrub

Notes: Chalcidon checkerspot was observed during all six surveys. It was most common in the rocky canyons and ridges where yellow bush penstemon occurs on and below Jacumba Peak. This butterfly is not as orange as the QCB and has white spots or bands on its abdomen.



Species: Quino Checkerspot (*Euphydryas editha quino*)

Larval Food Plants: Dot-seed plantain

General Habitat: Coastal hills and mesas

Notes: QCB were observed on the first through fifth surveys on Jacumba Peak and immediately north of Jacumba Peak. Dot-seed plantain is abundant north and east of Jacumba Peak and absent elsewhere within the survey area.

Generally, orange abdominal bands distinguish QCB from chalcidon checkerspots and distinct white pattern on the wings separates QCB from Gabb's checkerspot.

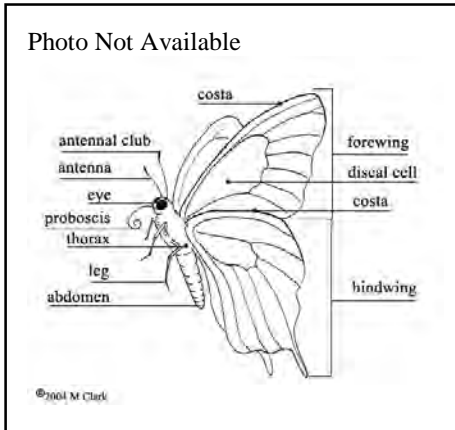


Species: West Coast Lady (*Vanessa annabella*)

Larval Food Plants: Desert mallows, nettles

General Habitat: A variety of habitats, less common in the desert

Notes: West coast lady was observed throughout the surveys in lower numbers than the painted lady.



Species: Red Admiral (*Vanessa atalanta*)

Larval Food Plants: Nettles

General Habitat: Open areas, often disturbed; moist meadows near woodlands

Notes: Red admiral was observed during the first and fifth surveys on Jacumba Peak.



Species: Painted Lady (*Vanessa cardui*)

Larval Food Plants: Desert mallows, nettles, thistles, cryptantha, fiddlenecks, and others

General Habitat: Deserts, coast, and mountains

Notes: Unlike 2009, no painted lady migration took place during the 2010 surveys. Painted lady was present in all habitats throughout the survey area, usually flying quickly overhead.



Species: California Tortoiseshell (*Nymphalis californica*)

Larval Food Plants: *Ceanothus* species

General Habitat: Chaparral and mixed woodland

Notes: California tortoiseshell was seen occasionally flying quickly overhead, rarely landing in plain view.



Species: Common Buckeye (*Junonia coenia*)

Larval Food Plants: Dot-seed plantain, monkey flowers, snapdragons

General Habitat: Lowlands and hills, scarce in the desert

Notes: Common buckeye was observed during the sixth survey. This butterfly was observed near a creek with seep monkey flower (*Mimulus guttatus*) east of Domingo Lake.



Species: Propertius Duskywing (*Erynnis propertius*)

Larval Food Plants: Coast live oak

General Habitat: Oak woodlands and chaparral with oak trees

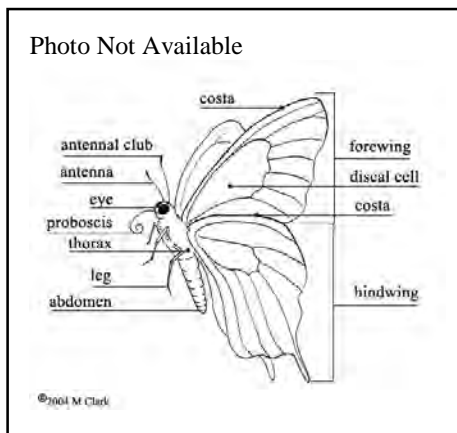
Notes: Propertius duskywings were observed during the last five surveys. Oak trees are common in some areas within the western portion of the survey area.



Species: Funereal Duskywing (*Erynnis funeralis*)
Larval Food Plants: Pea Family (Fabaceae) – esp. deerweed
General Habitat: Lowlands to mountains and deserts, prefers dry areas
Notes: Funereal duskywing was the most common duskywing, with observations during all 6 surveys. This is the most common duskywing in Southern California.



Species: Sleepy Duskywing (*Erynnis brizo*)
Larval Food Plants: Oaks
General Habitat: Chaparral with oaks
Notes: Sleepy duskywing was observed during the first survey and the final two surveys. This butterfly was uncommon, but was observed occasionally in chaparral habitat and hilltopping on Jacumba Peak.



Species: Checkered Skipper (*Pyrgus communis*)
Larval Food Plants: Mallow Family (Malvaceae)
General Habitat: Open areas, often disturbed
Notes: This species was only observed during the first survey.

Attachment C

**East County Substation Project Survey Area
Plant Species List**

East County Substation Project Survey Area Plant Species List

Family	Scientific Name	Common Name
Adoxaceae	<i>Sambucus mexicana</i>	Blue Elderberry
Agavaceae	<i>Agave deserti</i> var. <i>deserti</i>	Desert Agave
	<i>Hesperoyucca whipplei</i>	Chaparral Candle
	<i>Yucca shidigera</i>	Mojave Yucca
Alliaceae	<i>Allium fimbriatum</i> var. <i>f</i>	Desert Onion
Amaranthaceae	<i>Atriplex canescens</i> var. <i>c</i>	Shadscale, Four-Wing Saltbush
	<i>Chenopodium californicum</i>	California Goosefoot
Anacardiaceae	<i>Rhus ovata</i>	Sugar Bush
	<i>Rhus trilobata</i>	Skunkbrush
Apiaceae	<i>Bowlesia incana</i>	American Bowlesia
	<i>Lomatium mohavense</i>	Mohave Lomatium
	<i>Tauschia arguta</i>	Southern Tauschia
	<i>Yabea microcarpa</i>	California Hedge-Parsley
Apocynaceae	<i>Asclepias californica</i>	California Milkweed
Asteraceae	<i>Acourtia microcephala</i>	Sacapellote
	<i>Adenophyllum porophylloides</i>	San Felipe Dyssodia
	<i>Ambrosia acanthicarpa</i>	Annual Bur-Sage
	<i>Ambrosia confertiflora</i>	Weak-Leaf Bur-Sage
	<i>Ambrosia psilostachya</i>	Western Ragweed
	<i>Ambrosia salsola</i> var. <i>s</i>	Cheesebush, Burrobrush
	<i>Anisocoma acaulis</i>	Scale-Bud
	<i>Artemisia dracuncululus</i>	Terragon
	<i>Artemisia tridentata</i>	Great Basin Sagebrush
	<i>Bahiopsis parishii</i>	Parish's Golden-Eyes
	<i>Baccharis brachyphylla</i>	Short-Leaf Baccharis
	<i>Baccharis sergiloides</i>	Desert Baccharis
	<i>Brickellia desertorum</i>	Desert Brickellia
	<i>Chaenactis fremontii</i>	Desert Pincushion
	<i>Chaenactis glabriuscula</i> var. <i>g</i>	Yellow Pincushion
	<i>Cirsium occidentale</i> var. <i>californicum</i>	California Thistle
	<i>Corethrogyne filaginifolia</i> var. <i>f</i>	Common Sand-Aster
	<i>Coreopsis californica</i> var. <i>c</i>	California Coreopsis
	<i>Encelia actoni</i>	Acton's Encelia
	<i>Encelia farinosa</i>	Brittlebush
<i>Ericameria brachylepis</i>	Boundary Goldenbush	

Family	Scientific Name	Common Name
	<i>Ericameria cuneata</i> var. <i>spathulata</i>	Wedge-leaf Goldenbush
	<i>Ericameria linearifolia</i>	Interior Goldenbush
	<i>Eriophyllum confertiflorum</i> var. <i>c</i>	Long-Stem Golden-Yarrow
	<i>Eriophyllum wallacei</i>	Wallace's Woolly Daisy
	<i>Filago</i> sp.	Filago
	<i>Geraea canescens</i>	Desert Sunflower
	<i>Geraea viscida</i>	Sticky Geraea
	<i>Isocoma acradenia</i> var. <i>eremophila</i>	Desert Alkali Goldenbush
	<i>Lasthenia gracilis</i>	Common Goldfields
	<i>Layia glandulosa</i>	White Layia
	<i>Layia platyglossa</i>	Tidy Tips
	<i>Malacothrix coulteri</i>	Snake's Head
	<i>Malacothrix glabrata</i>	Desert Dandelion
	<i>Malacothrix stebbinsii</i>	Stebbins's Malacothrix
	<i>Porophyllum gracile</i>	Odora
	<i>Pseudognaphalium canescens</i>	Everlasting Cudweed
	<i>Rafinesquia californica</i>	California Chicory
	<i>Senecio californicus</i>	California Butterweed
	<i>Senecio vulgaris</i>	Common Groundsel
	<i>Stephanomeria pauciflora</i>	Few-Flowered Wreathplant
	<i>Stylocline gnaphaloides</i>	Everlasting Nest-Straw
	<i>Tetradymia canescens</i>	Spineless Horsebrush
	<i>Uropappus lindleyi</i>	Silver Puffs
Bignoniaceae	<i>Chilopsis linearis</i>	Desert Willow
Boraginaceae	<i>Amsinckia menziesii</i> var. <i>intermedia</i>	Rancher's Fiddleneck
	<i>Cryptantha decepiens</i>	Gravel Cryptantha
	<i>Cryptantha intermedia</i>	Nievitas Cryptantha
	<i>Cryptantha evadensis</i>	Nevada Cryptantha
	<i>Cryptantha pterocarya</i> var. <i>p</i>	Wing-Nut Cryptantha
	<i>Harpagonella palmeri</i>	Palmer's Grappling-hook
	<i>Pectocarya linearis</i> ssp. <i>ferocula</i>	Slender Pectocarya
	<i>Pectocarya penicillata</i>	Winged Pectocarya
	<i>Pectocarya setosa</i>	Bristly Pectocarya

Family	Scientific Name	Common Name
	<i>Plagiobothrys arizonicus</i>	Arizona Popcornflower
	<i>Plagiobothrys tenellus</i>	Slender Popcornflower
Brassicaceae	<i>Brassica tournefortii</i>	Sahara Mustard
	<i>Caulanthus heterophyllus</i> var. <i>h</i>	San Diego Jewelflower
	<i>Descurainia pinnata</i> ssp. <i>halictorum</i>	Alkali Western Tansy-Mustard
	<i>Guillenia lasiophylla</i>	California Mustard
	<i>Lepidium</i> sp.	Peppergrass
	<i>Sisymbrium altissimum</i>	Tumble Mustard
	<i>Sisymbrium irio</i>	London Rocket
	<i>Sisymbrium orientale</i>	Hare's-Ear Cabbage
	<i>Thysanocarpus curvipes</i>	Lacepod, Fringepod
Cactaceae	<i>Cylindropuntia californica</i> var. <i>parkeri</i>	Cane Cholla
	<i>Cylindropuntia ganderi</i> var. <i>g</i>	Gander's Cholla
	<i>Echinocereus engelmannii</i>	Engelmann's Hedgehog Cactus
	<i>Ferocactus cylindraceus</i>	California Barrel Cactus
	<i>Mammillaria dioica</i>	Fishhook Cactus
	<i>Opuntia chlorotica</i>	Pancake Cactus
	<i>Opuntia phaeacantha</i>	Desert Prickly Pear
Cucurbitaceae	<i>Marah macrocarpus</i> var. <i>m</i>	Manroot, Wild- Cucumber
Cupressaceae	<i>Juniperus californica</i>	California Juniper
Ephedraceae	<i>Ephedra californica</i>	California Ephedra
	<i>Ephedra nevadensis</i>	Nevada Ephedra
	<i>Ephedra viridis</i>	Green Ephedra
Ericaceae	<i>Arctostaphylos glauca</i>	Big-Berry Manzanita
	<i>Arctostaphylos pungens</i>	Point-Leaf Manzanita
Euphorbiaceae	<i>Chamaesyce albomarginata</i>	White-Margin Sandmat
	<i>Chamaesyce melanadenia</i>	Rattlesnake Spurge
	<i>Stillingia linearifolia</i>	Linear-Leaf Stillingia
Fabaceae	<i>Acacia greggii</i>	Catclaw Acacia
	<i>Astragalus didymocarpus</i> var. <i>dispermus</i>	Desert Dwarf Locoweed
	<i>Astragalus douglasii</i> var. <i>perstrictus</i>	Jacumba Milkvetch
	<i>Astragalus palmeri</i>	Palmer's Locoweed
	<i>Lathyrus splendens</i>	Pride-of-California, Campo Pea
	<i>Lotus argophyllus</i> var. <i>a</i>	Silver-Leaf Lotus

Family	Scientific Name	Common Name
	<i>Lotus scoparius</i> var. <i>brevialatus</i>	Short-Wing Deerweed
	<i>Lotus scoparius</i> var. <i>s</i>	Deerweed
	<i>Lotus strigosus</i>	Strigose Lotus
	<i>Lupinus andersonii</i>	Anderson's Lupine
	<i>Lupinus bicolor</i>	Miniature Lupine
	<i>Lupinus concinnus</i>	Bajada Lupine
	<i>Lupinus truncatus</i>	Collar Lupine
	<i>Melilotus indicus</i>	Indian Sweetclover
	<i>Pediomelum californicum</i>	Indian Breadroot
	<i>Prosopis glandulosa</i> var. <i>torreyana</i>	Honey Mesquite
	<i>Trifolium willdenovii</i>	Valley Clover
Fagaceae	<i>Quercus x acutidens</i>	Torrey's Scrub Oak
	<i>Quercus agrifolia</i> var. <i>oxydenia</i>	Interior Coast Live Oak
Garryaceae	<i>Garrya veatchii</i>	Canyon Silk Tassel
Geraniaceae	<i>Erodium cicutarium</i>	Red-Stem Filaree/Storksbill
	<i>Erodium texanum</i>	Desert Filaree
Grossulariaceae	<i>Ribes quercetorum</i>	Oak Gooseberry
Hydrophyllaceae	<i>Emmenanthe penduliflora</i> var. <i>p</i>	Whispering Bells
	<i>Eriodictyon trichocalyx</i> var. <i>lanatum</i>	Wild-Heliotrope
	<i>Eucrypta chrysanthemifolia</i> var. <i>c</i>	Common Eucrypta
	<i>Phacelia cicutaria</i> var. <i>hispida</i>	Caterpillar Phacelia
	<i>Phacelia distans</i>	Wild-Heliotrope
	<i>Phacelia minor</i> x <i>P. parryi</i>	None Listed
	<i>Phacelia parryi</i>	Parry's Phacelia
	<i>Pholistoma membranaceum</i>	White Fiesta Flower
Lamiaceae	<i>Salvia apiana</i>	White Sage
	<i>Salvia carduacea</i>	Thistle Sage
	<i>Salvia columbariae</i>	Chia
Liliaceae	<i>Calochortus splendens</i>	Splendid Mariposa Lily
Loasaceae	<i>Mentzelia montana</i>	Montane Mentzelia
Malvaceae	<i>Sphaeralcea ambigua</i> var. <i>rosacea</i>	Rose Desert/Mallow
	<i>Sphaeralcea ambigua</i> var. <i>a</i>	Desert/Apricot Mallow
Nyctaginaceae	<i>Mirabilis laevis</i> var. <i>villosa</i>	Hairy Wishbone
	<i>Mirabilis laevis</i> var. <i>crassifolia</i>	Coastal Wishbone
Oleaceae	<i>Menodora scabra</i> var. <i>glabrescens</i>	Rough Menodora
Onagraceae	<i>Camissonia californica</i>	False-Mustard
	<i>Camissonia strigulosa</i>	Sandysoil Sun Cup
	<i>Epilobium canum</i>	California Fuchsia
	<i>Oenothera californica</i> ssp. <i>c</i>	California Evening- Primrose

Family	Scientific Name	Common Name	
Orobanchaceae	<i>Castilleja exserta</i> ssp. <i>e</i>	Purple Owl's-Clover	
	<i>Castilleja</i> sp.	Indian Paintbrush	
	<i>Orobanche californica</i> ssp. <i>feudgei</i>	Sagebrush Broom-Rape	
Paeoniaceae	<i>Paeonia californica</i>	California Peony	
Papaveraceae	<i>Argemone munita</i>	Prickly Poppy	
	<i>Eschscholzia californica</i>	California Poppy	
	<i>Platystemon californicus</i>	Cream Cups	
Phrymaceae	<i>Mimulus aridus</i>	Jacumba Monkey Flower	
	<i>Mimulus guttatus</i>	Seep Monkey Flower	
	<i>Mimulus pilosus</i>	Downy Monkey Flower	
Pinaceae	<i>Pinus quadrifolia</i>	Parry Pinyon	
Plantaginaceae	<i>Antirrhinum nuttallianum</i> ssp. <i>n</i>	Nuttall's Snapdragon	
	<i>Collinsia concolor</i>	So. Chinese Houses	
	<i>Keckiella antirrhinoides</i> var. <i>a</i>	Yellow Bush	
	<i>Keckiella ternata</i> var. <i>t</i>	Penstemon Summer Bush Penstemon	
	<i>Penstemon centranthifolius</i>	Scarlet Bugler	
	<i>Penstemon clevelandii</i> var. <i>c</i>	Cleveland's Beardtongue	
	<i>Penstemon spectabilis</i> var. <i>s</i>	Showy Penstemon	
	<i>Plantago erecta</i>	Dot-seed Plantain	
	Poaceae	<i>Achnatherum coronatum</i>	Giant Stipa
		<i>Achnatherum speciosum</i>	Desert Needlegrass
<i>Avena barbata</i>		Slender Wild Oat	
<i>Avena fatua</i>		Wild Oat	
<i>Bromus diandrus</i>		Ripgut Grass	
<i>Bromus rubens</i>		Red Brome	
<i>Bromus tectorum</i>		Cheat Grass	
<i>Hordeum murinum</i> ssp. <i>glaucum</i>		Glaucous Barley	
<i>Melica frutescens</i>		Tall Melic	
<i>Melica imperfecta</i>		Coast Range Melic	
<i>Poa secunda</i> ssp. <i>s</i>		One-Sided Bluegrass	
<i>Schismus barbatus</i>		Arabian Schismus	
<i>Vulpia microstachys</i> var. <i>pauciflora</i>		Pacific Fescue	
<i>Vulpia octoflora</i> var. <i>hirtella</i>	Tufted Fescue		
Polemoniaceae	<i>Eriastrum densifolium</i> var. <i>elongatum</i>	Chaparral Woolly-Star	
	<i>Eriastrum eremicum</i>	Desert Woolly-Star	
	<i>Eriastrum sapphirinum</i>	Sapphire Eriastrum	
	<i>Gilia diegensis</i>	San Diego Gilia	
	<i>Ipomopsis tenuifolia</i>	Scarlet Gilia	
	<i>Leptosiphon lemmonii</i>	Lemmon's Linanthus	

Family	Scientific Name	Common Name
Polygonaceae	<i>Linanthus bellus</i>	Desert Beauty
	<i>Saltugilia australis</i>	Southern Gilia
	<i>Chorizanthe brevicornu</i> var. <i>b</i>	Brittle Spineflower
	<i>Chorizanthe fimbriata</i> var. <i>f</i>	Fringed Spineflower
	<i>Eriogonum elongatum</i> var. <i>e</i>	Tall Buckwheat
	<i>Eriogonum fasciculatum</i> var. <i>foliolosum</i>	Inland California Buckwheat
	<i>Eriogonum fasciculatum</i> var. <i>polifolium</i>	Mt. Buckwheat
	<i>Eriogonum gracile</i> var. <i>g</i>	Slender Buckwheat
	<i>Eriogonum wrightii</i> var. <i>membranaceum</i>	Foothill Buckwheat
	<i>Loeseliastrum schottii</i>	Schott's Calico
Portulacaceae	<i>Pterostegia drymarioides</i>	Granny's Hairnet, G. C. P.
	<i>Sidotheca trilobata</i>	Three-Lobe Starry Puncturebract
	<i>Calandrinia ciliata</i>	Red Maids
Calyptridium	<i>Calyptridium monandrum</i>	Common
	<i>Claytonia parviflora</i> ssp. <i>parviflora</i>	Utah Miner's-Lettuce
Pteridaceae	<i>Claytonia perfoliata</i> ssp. <i>p</i>	Miner's-Lettuce
	<i>Notholaena californica</i>	California Cloak Fern
Brake	<i>Pellaea mucronata</i> ssp. <i>mucronata</i>	Bird's Foot Cliff-
	<i>Pentagramma triangularis</i> ssp. <i>rebmanii</i>	Rebman's Silverback Fern
Ranunculaceae	<i>Clematis pauciflora</i>	Ropevine Clematis
	<i>Delphinium parishii</i> ssp. <i>subglobosum</i>	Oceanblue Larkspur
Rhamnaceae	<i>Ceanothus greggii</i> var. <i>perplexans</i>	Cup-Leaf-Lilac
	<i>Ceanothus leucodermis</i>	Chaparral Whitethorn
	<i>Rhamnus ilicifolia</i>	Holly-Leaf Redberry
Rosaceae	<i>Ziziphus parryi</i> var. <i>parryi</i>	Lotebush
	<i>Adenostoma fasciculatum</i>	Chamise
	<i>Adenostoma sparsifolium</i>	Red Shank
	<i>Cercocarpus betuloides</i>	Mountain Mahogany
	<i>Prunus fremontii</i>	Desert Apricot
	<i>Prunus ilicifolia</i>	Holly-Leaf Cherry
	<i>Purshia tridentata</i> var. <i>tridentata</i>	Antelope Bitterbrush
Rubiaceae	<i>Galium andrewsii</i> ssp. <i>andrewsii</i>	Phlox-Leaf Bedstraw
	<i>Galium aparine</i>	Common Bedstraw
Rutaceae	<i>Thamnosma montana</i>	Turpentine-Broom
Salicaceae	<i>Salix laevigata</i>	Red Willow
Simmondsiaceae	<i>Simmondsia chinensis</i>	Jojoba
Solanaceae	<i>Datura wrightii</i>	W. Jimson Weed
	<i>Lycium andersonii</i>	Waterjacket
	<i>Nicotiana obtusifolia</i>	Desert Tobacco

Family	Scientific Name	Common Name
	<i>Physalis crassifolia</i>	Greene's Ground-Cherry
	<i>Solanum umbelliferum</i>	Blue Witch
	<i>Solanum xanti</i>	Chap. Nightshade
Tamaricaceae	<i>Tamarix ramosissima</i>	Tamarisk, Salt Cedar
Themidaceae	<i>Dichelostemma capitatum</i> ssp. <i>c</i>	Blue Dicks
	<i>Dichelostemma capitatum</i> ssp. <i>pauciflorum</i>	Few-Flower Blue Dicks
Urticaceae	<i>Parietaria hespera</i> var. <i>h</i>	Western Pellitory
Viscaceae	<i>Phoradendron californicum</i>	Desert Mistletoe
Zygophyllaceae	<i>Larrea tridentata</i>	Creosote

Attachment D
QCB Survey Field Notes

3/15/10 ^{Insomnia} ^{SPGE} ECO Substation

Reference Check of habitat assessment

Time	Temp	wind (km/h)	sky cover %
Start 1015	62°	5-20	0%
Stop 1420	67°	1-10	0%

- Beginning of FWS reference site to check on Phragmites phenology
 Phragmites observed - small ~ 3cm tall not flowering structures observed.

Plants

Pec Lin
 Fil Gal
 Eco Cic
 Jun Cal
 Sim Chi
 Cyl Cal Par → Ori

Animals

Sam's OTip (TTT) 11
 TOVU
 CaOV
 CaWr
 BT Jack

- Now at Jacumba Peak

Get Purple Kingbird
 Purple Kingbird
 Anna's Swallow
 CA Herby Warbler
 Purple Finch

Core Cal
 Lot Str
 Lup Con
 Cal Mon
 Sah Par

Lom Moh

Chickadee (rechecked)

Desert O-Tip (We 5 Jay)

Insignia

3/23/10 ECO Substation

QCB Survey #1

Picked Cindy up 0930
 Start 1100 64° 1-12 50% and 50% clear
 Stop 1630 72° 1-8 0%

Starting on top of Jacumbi Peak

Plants
 Phac Paragi
 Vig (Pithecolobium) flr
 Sals Col
 Lye Lic
 Sim Chi
 Apocynum Tolosa
 * Harp Palm (as P. thren)

Animals
 (II) Anise Swallow
 Chalcidon Check
 Gt Purple Heron #
 Perp Hairstrik
 Decent O-Tip
 (III) Pearly Markle
 WSPY CACU COB.
 Lippia Moth

- Now walking reference into Plantasp
 still ~ 2-6cm tall & healthy

Plas Gra
 Pav Fre (FI) Herkl
 Zir Par (FI) Reclin
 - still a bit too early for QCB

Perp Hairstrik
 Sara's O-Tip #
 Anise Swallow
 Painted Lady #
 Acrop Blue
 Chalcidon Check (II)
 LOS # RTAN

Insignia

3/24/10 ECO Substation

QCB Survey #1

- B.L. arrived my horse 0815

Time Temp Wind Sky Cover
 Start 1000 64° 1-6 0%
 Stop 1155 70° 3-5 20%
 1520 75° 2-4 10%
 1615 77 0-2 10% thin

Starting of the substation site at east end of project

Plants
 Phac Paragi (as P. thren)
 Lye Lic
 Sim Chi
 Anise Swallow (FI using Reg)
 Chalcidon
 Sara's O-Tip (I)
 Painted Lady
 Scott's Oriole

Animals
 Anise Swallowtails (I)
 Chalcidon Check (I)

Insignia

3/25/10 ECO Substation
SDGE Jacumba - Boulevard

met at Los Cocheros 0830 (MM, CD, JR)

Start	Time	Temp	wind	sky cover
	0935	68	2-10	0%
	1310	74	1-8 (5)	0%
	1430	72	1-10 (20)	0%
	1510	73	1-12 (15)	0%
	1630	72	1-12 (15)	0%

Plants
 Playa
 Las Gra
 Reclin
 Arns Meinint
 PruFre

Animals
 Chalcedon Chick (M)
 Brown Elfyn
 Perp Hairstrik
 Sara's OTip (M)
 Arise Swallow

went to Jacumba Peak for brief survey.

*QCB observed (probably ♀) flying for small distance and then landing.

Now near Jacumba Peak walking east toward Ag field

Perp Hair
 BLThroated Sparrow
 Sara's OTip (M)
 CA Pearly Marble
 Behr's Metalink
 Chalcedon Chick (M)
 Brown Elfyn

Reclin (FI)
 Greag Fas Pol
 Thum Mont
 Jun Cul
 Ziz Par
 Cyl (San)
 Sonoco Cul (FI)
 *Claytonia

Now on Jacumba Peak, 1

Perp Hairstrik
 CA Pearly Marble (M+1)
 Desert OTip (M)
 Gort Purple Hair (1)
 Gray Hairstrik (1)
 W. Coast Lady
 Arise Swallowtail (1)
 Lippia Moth
 Common White
 Chalcedon Chick (M)
 Panke's Lady (M)
 Sara's OTip (M)
 Perp Hair (M)

Perp Hair
 CA Pearly Marble (M+1)
 Desert OTip (M)
 Gort Purple Hair (1)
 Gray Hairstrik (1)
 W. Coast Lady
 Arise Swallowtail (1)
 Lippia Moth
 Common White
 Chalcedon Chick (M)
 Panke's Lady (M)
 Sara's OTip (M)
 Perp Hair (M)

Now Walking West

Now, Pearl
 Chal Chick
 Behr's Metalink
 Desert OTip

~~Now at~~ Now at ECO Substation Additional parcels

- Jun Cal (Abundant)
- Lupine
- Las Gra
- Eri Lin
- Ade Fas
- Lot Str
- Goalic
- Amismentat
- Thy Cur
- Tham Non
- Pha Far
- Pter Dug
- Rhu Ova
- Cy Lat
- Dic Cap

- Sara's OTip
- Perp Hairstok
- Painted Lady
- (Tortoiseshell)
- Seal or cotti
- Be Wl
- We Ki

3/20/10 ECO Substation

DCB Survey

- met B.L my house, then met D, MM, J, Bernia at Los Cadenas at 0830
 - Had safety talk with meeth + then looked at maps. J, D, MM, JB are starting near SP 94 wire starting near SP 103

Start	Time	Temp	Wind	sky cover
0945	65	0-3	0%	
1115	66	0-4	0%	
1300	68	0-4	0%	
1530	70	2-5	0%	
1630	75	0-5	0%	

- Standing near SP 103 + walking west to next parcel

Plants

- Goalic (very common)
- Peckin Far
- Las Gra
- Peckee
- Eri Lin
- Jun Cal
- Profre
- Sara's OTip (M)
- Chokedon check (M)
- Painted Lady (I)
- Grt Purple Hairstok (I)
- Common white
- Acmon Blue
- West Coast Lady

Animals

- Sara's OTip (M)
- Chokedon check (M)
- Painted Lady (I)
- Grt Purple Hairstok (I)
- Common white
- Acmon Blue
- West Coast Lady

- Now near reference area

- Sara's O.T.P (II)
- Perp Hairstrk (I)
- Rearby Marble (I)
- West Coast Lady (I)
- Rearby Marble (I)
- Chalcedon Check (IX)

* QCB observed - Approx 4 individuals seen ~~in~~ cruising large area north of power lines. One pair seen in courtship flight + then male contacting abdomen for copulation
 [GPS QCB-B] is approx center-south of large Area QCB was cruising

- Funereal Duskywing
- Perp Hairstrk

Now at Jacumba Peak

- Annae Swallow (I)
- Fall Swallow (I)
- Great Purple Hairstrk (I)
- Perp Hairstrk (III)
- Desert O.T.P (I)
- Rearby Marble (I)
- Chalcedon Check (III)
- West Coast Lady (III)
- Ligya Moth
- Common White (I)
- Funereal Dusky
- Red Admiral
- Painted Lady

3/29/10 ^{Insignia} ECO Substation

QCIB Survey

- J.R. D'Imm (MC)
- met at Los Cochinos at 0845
- starting by driving Tule Jim & Jewel Valley

Time	Temp	wind	sky cover
Start 0945	78	0-1	0%
1430	83	4-12	15%
STOP 1645	82	4-12	10%

TST Doug Per
 Core Fil
 Lath Spl
 Bull Jerry
 Behr's Metal (1)
 Sara O Tip (1)
 Perp Hairstak (1)
 Painted Lady (1)
 Chalcid on Check (1111)
 Amon Blue (1)
 Bewe
 Gabb's Check (1)
 West Tiger Swallow (1)

- Now near Lake Deming heading west along T-Line in Ad F 55
- Las Gra Peckinfer
- Evolec
- Art Tri
- Amon Blue (1)
- Sara O Tip (1)
- Painted Lady (1)

- Now working north from SP 36 + Fly grid. Margie & Cindy are walking along Flower (Las Gra) rd & we are hitting open areas along Tule Jim

AdiFao	Hilinc	Painted Lady (1111)
Ephedra	Ei Wri Mem	Amon Blue (1111)
EuiFagPol		Sara O Tip (1111)
Core Fil	Get Cal	Behr's Metal (1111)
Are Pen	Lop Con	Pearly Marble (1111)
Prv III	Art Tri	Emerald Disk (1111)
Cyl Cal Tan	Pen Spec	Perp Hairstak (1111)
Rhu Ova	Athy Pus	

Summary

- Surveyed all of N-S alignment from Boundary Peak to Boulevard plus fogging Cindy & Margie.
- Surveyed from Lake Demingo to riparian area

Asisgona

3/30/10 ECO Substation
QCB

- surveyed AECOM site from 1000 - 1245
w/ Gavern, J. Bernick, E. Pineda

Time	Temp	Winds	Sky cov
Start 1245	74	4-12	10%
End 1600	70	8-15	10%

Plants

Ziz Lar Euc Lic
Jun Cal Loo Gra
Aya Des Mont Mont
Amis Men Int Euc Chng
Lar Tri Lye And
Euc Lic Loo Gra
Opu Chl Dic Cap
Tham Mont Sem Cal
Sal Cal Lot Score

Animals

Sara Citre (11)
Becker's White
Chalcedon Cuckoo (1)
SCOR
Amor Swallow
Wcr Sparrow
BTSP
TUVU
CORA
Golden Eagle (Juvenile)
Nemlo
Brewer's Sparrow (10/15/10)

Insignia

4/2/10 ECO Substation

QCB #2

- met Cindy D at Lake Murray/Alhambra Park - n - Ride

Time	Temp	wind	skycover
1115	60	0-3	0%
1430	68	0-5	0%
1645	68	0-10	0%

- starting at rocky canyons east of Hwy 80

Plants

Las Gra Eucali
 Amn Blewitt Lup Bic
 Sal Cal Emog along
 Lot Sca Brac
 Lye and
 Ast Palm
 Shac Dist
 Prof Ce Euc Wall
 Euc Lin

Animals

Chalcedon Chick ~~###~~
 Phain
 Law Goldfinch
 HoFi
 RoWr
 Painted Lady (1)
 Desert OTips (1)
 Ca Patch
 Sara OTip (1)
 CaWr
~~Acorn~~ Blue (1)

* Swainson's Hawk

Insignia

4/3/10 ECO Substation

QCB

- PL at my house 0800
- met CD, BR at Los Cochinos

Time	Temp	wind	sky cover
0945	65°	3-7	0%
1045	66°	2-6	0%
1145	68°	4-10	0%
1575	65°	6-10	20% <small>Heavy</small>

- Lee & I are surveying critical habitat west of Hwy 80 + B.L. + CD are covering T-line east to Jacumba Peak and additional parcels
 - Run into Ken Osborne

Plants

Las Gra Eucali
 Thambrot
 Zizlar
 Prutree
 Rin Ora
 Aca Fao
 Aca Spa
 Euc Lin
 Emog Fao
 Bobub
 Ment Mint
 Foa Sec
 Yuc Sah
 Sal Api
 Cealeu
 Pru 111
 (Caul Sim)
 (P taken)
 Lay Platy
 Lot Arap
 Son Cal
 Haw Sal
 Red Lin Far

Animals

Desert Swallowtail
 Chalcedon Chick
 Desert Swallowtail
 Ferp
 Hairstreak
 (###)
 Painted Lady (1)
 So Blue (1)
 Desert OTip
 Sara OTip (1)
 Sleepy Dusky
 Pearly Marble (1)
 Acorn Blue (1)
 Funeral Dusky (1)
 Disturbing sp

QCB observed 2 total
out of QCB - C and one to beak

Magnia

4/6/10 / E.C. Substation

QCB

met CD, DB, [DB] at Los Coches at 0930

Start	Time	Temp	Wind	Severe
	1100	63°	2-9	0%
	1345	70°	2-7(9)	0%
	1645	68°	0-3	0%

Starting at Riparian Area

Plants

- Asi Dows Per
- Grey Fir
- Asi Pinyon
- Sol Col
- Los Gora
- Cactus
- Lup Bic
- Lup fls
- Dieling
- Querc

Animals

- Chalcedon Chick ~~1~~ ⁴
- Western Tailed Blue
- Properius Duskywing (1)
- Acmon Blue Vireo
- Gabbs's Check (1)
- Painted Lady (11)
- Peep Hair Break (11)
- Sara Tit (11)
- Brown Elf (1)
- YRWA
- Behr's Metalmark (1)
- Desert Swallow (1)
- Acmon Blue
- NEFL | BEKI | AMCO

- Now at Lake Pomering

Now walking North-South stretch towards Boulevard DB, DB taking large, long coldfields area, CD & me heading north among grassy suitable habitat

- Common White (1)
- ~~Behr's~~ Metalmark (11)
- CAKery Black (11)
- Perp Hair Break (1)

Los Gora means full flower, Lup too conditions of meadow source very good but so were weather conditions today. Finished at Boulevard S (in area) - No QCB

Insignia

4/7/10 / ECO Substation / QCB

(BL, JR, [MP])

- BL met my house 0815

Start	Time	Temp	Wind	Score
	1015	64	5-8(12)	0%
	1215	63	6-10(12)	0%
	1400	64	8-10	0%

Emerging reference site. QCB observed

'QCB-D'
'QCB-F'
'QCB-F'
'QCB-G'

GPS
PHS

At least 4 QCB seen in 1st hour
two look very fresh & the
other were only moderately
worn. Melanic independently
identified QCB

- Lup Gra
- Pla Gra (now in FI)
- Cry Int
- Evo Cig
- Har Pal
- QCB (III)
- Chick on Check (II)

- BL observed QCB landing on
Senecio californicus in sandy
drainage

- Sera QTP (I
(on Anaspha)
- Perp Hairstreak (II)
- Western Whiptail
- Cal Wit
- Desert Swealbird (II)

- Now at Jacumba Peak-

- Emm Pen
- Beh Vig
- Evo Chf
- Ruf Neo
- Sen Cal
- Mic/G-lu
- CA Beady Marble (III)
- W. Coast Lady (I)
- Perp Hairstreak

Insignia

4/9/10 ECO Substation QCB #3

- met BL, CD MM, MR at Los Cocheros 0830

Start	Time	Wind	sky	cores
0945	70	0-3	0%	
1300	82	0-8	0%	
1700	80	0-9	0%	

Starting at Rocky Canyons - BL + JR heading east from near HW 80 + CD MM, MR heading west from near SF 103

Plants
 Ast + Coc
 Ger Vis
 Cha ~~Bob~~ Albo
 Pur Tri Mam (30)
 Jun Cul Fer Cyl
 Gum Pen

Animals
 Sara O Tip (II)
 Painted Lady (II)
 Becker's white (I)
 Loki Hairstreak (I)
 Chalcedon Check (III)
 Phain
 W CSP SCOR
 W. Pygmy Blue
 Common Wh. Fly

1300 - Now at additional parcels (BL, JR)
CD, MR near reference area / cut herb

Leo Gra
 Jun Cul
 Eri Lin
 Ade Fuc
 Ech Eng
 Tham Mohl
 Pha Par
 Cyl Callar or Cyl Gan
 Pom Sec
 Lich Par
 Sudo Trichu
 Erietafel

Sara O Tip (II)
 Desert Swallow (I)
 Chalcedon Check (III)
 Behr's Metalink (III)
 Seel Ore
 BTI Jack
 'Loki Juniper Hairstreak (I)
 Sagebrush Legard
 Spotted Redwing (I)
 (Ceryleus alpestris)

Lin Bel => many populations in suitable habitat in addtl parcels

4/15/10

ECO Substation

QCB #4

Insignia

- MOM + BL started on this site at 0945

Start	Time	Temp	Wind	SSY Covey
1215	72	2-7	3000th	
1430	81	2-6	900th	
1630	76	2-6	1000th	

Plants

- Ziz Pal Pha Dis
- Luo Gra Ansmen lat
- Jun Cal Coyl Gran
- Euc Lin Euc Lic
- Bro Rub Yuc Sah
- Lyc And Eui Fas Pol
- Abt Pal Mpa Gla
- Ani Pea Langland
- Gumm Pen Sertial
- Agt Di Dypermus
- Ment Albicaulis or ventchiana

Animals

- Chalcedon Check
- Common White
- Sara O Tip

INSIGNIA

4/16/10

ELO Substation

QCB

Time	Temp	wind	sky cover
Start 0930	66	2-7	0%
1300	79	2-8	0%
1530	77	4-9	0%
Stop 1630	75	0-4	0%

W, MK starting at west side of ^{crit tabs} reference site moving to east toward peak. JR, RL, WM starting at base of peak and moving toward Ag field.

Plants

- Alli Fim
- Amis Mentat
- Sim Chi
- Ax Len Arlan
- Lye And Lao Gra
- Boo Rub
- Evocic

Animals

- Funeral Dusky (I)
- Painted Lady (I)
- W Pygmy Blue (II)
- ATPL
- CAWR
- CORA
- CAQU
- Common White
- Behr's Metalink (I)
- Chalcedon Check (I)

QCB-H

=> 1 QCB indiv on ground in reference site. Moderately worn

QCB-I

=> 4 QCB (2 mid. worn, 2 ± fresh) at least 1 ♀ Chalcedon Check (I) Tortoiseshell (I)

1500 - Now at Riparian Area

- Ces. Lev
- Lao Gra
- Ac Mon Blue (I)
- Ast Dun Per
- Protec
- Gabb's Check (I)
- Pro Fre
- Lut Spl
- Brown Elfin (I)
- Pro III
- Coas
- Pale Swallowtail (I)
- Eni Fao
- Pha Fair
- Fun Dusky
- Loy Platy
- Cra Con
- Chalcedon Check (I)
- Chal Glad
- Lug Bic
- Lin Bel
- Ger Vis
- Ade Spa
- Art Tri
- TUVo

QCB found at

Reference Site
Possibly up to 4 indiv. in same area/ridge line as previously observed

4/19/10

Insignia

ECO Substation QCB #4

met CD, MM, DB at
± drove all 4 in my car.

Los Cochinos 0830

Time	Temp	wind	sky cover
Start	0930	07°	9-8(3) 20%
	1100	73	4-9(14) 5%
	1400	77	4-9(13) 5%
	1630	75	2-8(12) 5%

- Starting 2 additional parcels -
 CD & DB are doing 110ac parcel, ~~and~~
 JR, MM are doing 180ac parcel.

Plants

Purple Amaranth
 Loblolly
 Las Gra Eri
 Fao Pol Eri

Animals

No Mo
 QAO
 Chalcedon Check

Now on Jacumba Peak (1045) ^{way up} (QCB - J)
 At least 3 QCB on peak 1 ± fresh
 & the other madeately worn. Landing
 frequently on rocks on ground and
 bathing w/ CA Patch and Chalcedon Check

Lop Con
 Chue Glab
 Thum Mont
 Hes Whip
 Sim Chn
 Ewe Cie
 Genvis

Sleepy Dusky wing (11)
 QCB (2) possibly 4
 Chalcedon Check (11)
 CA Patch (11)
 Pearly Marble (111)
 Desert Swallowtail (11)
 Perpsturstrack (11)

Min Arides
 Jun Cal

Now off peak heading SW

Sava OTip (11)
 Chalcedon Check (11)
 BITI Jacke
 CAQU WST
 Mule Deer (seen & track)

1130

Now at Rocky
 starting at west end of rocky canyon
 surveying east & JK + MM are surveying
 moving east.

All Fin Echinog
 Eucbra West Tanager
 Sava OTIP (11)
 Chalcedon Check (11)
 Cloudless Sulphur (1)

Red Cochinship
 MGA
 Lacer

Canyons - DB + CD one
 of rocky canyon

Insignia

4/20/10 / ECO Substation QCB #4

- met CD, DB at Los Coches at 0830

Time	temp	wind	sky cover
Start 0930	64	6-8	5% thin
1230	67	8-12	60% thin
1500	69	5-10(13)	25%
1630	67	5-10(12)	5% <small>some thin</small>

Starting at Green Boulevard Sub I'm

going north to sub, DB + CD and going south along line.
Proposed sub site is loaded w/ Las Gra +
Den Del w/ sparse scattered Ast Darker
Great nectar sources, but no host plants
& no potential for QCB. Scattered, large oaks

Plants

- Las Gra Low Flk
- Yri Foo Bl Ewlic
- Rhoda Egh Cal
- Ceabre Perf

Animals

- Aemon Blue (III)
- Behr's Metalmark (III)
- CA Peary Marble
- W. Coast Lady
- Sara O Tip

Arrowhead Blue

1300 Now at large Lastenia fields near RR tracks. Fin w/ Andy & Devin is surveying starting at Fly Yard near the lake

Plants

- Las Gra Low Flk
- Pha Dis Ade Spar
- Ain Quad Bro Fab
- Eri Fob

Animals

- Aemon Blue (III)
- Behr's Metalmark (III)

1530

Now near SP 46 in riparian drainage

Plants

- Mim Gut
- Low Flk Las Gra
- Acet Fas Ade Spa
- Que Agr Salix
- Bro Rub Diclag
- Car Gxs Dudlan

- Letting
- Pudley in Sycosa
- Pent Fr. Reb

4/23/10

Insignia

ECO Substation

QCB

met BL, CD, MM (MR) at 600 Lakes
last
rainy night

Start	Time	TEMP	WIND	SPHYGNA
	1015	62	0-6	0%
	1230	66	0-5	0%
	1530	65	2-10	0%
	1615	65	4-12(19)	0%

At BL & JK are starting west of
Jacumba Peak moving toward peak
CD, MM, MR starting east of peak
and heading to top.

Plants

Grass Wall
Sals Apri lot
Ahi Aca

Animals

Behr's Moleuk
Dead Swallowtail (1)
Purple-winged Kingbird
Sloopy Bristle (1)
Chickadee

1530

Now near Jade Mtn at peak
and surveying around base of
mountain

Plants

Galium

Animals

Painted Lady (11)

Insignia

4/24/10

ECO Substation

QCB

- met B.C. Los Cocheros 0830

Start	Time	TEMP	WIND	SKY COVER
0935		68°	0-2	0%
1400		76°	0-5	0%
1600		80°	0-6	0%

- Hiking up boundary Peak

Plants

PRU III LOT SCORE

Animals

RWIBB AMCO

B/R Blackbird BCSP

Sleepy Dusky

Painted Lady

Murine Blue

Funeral Dusky

Common White (I)

Red Hairstrick (II)

Ut Pewee Marble (IX)

Pale Swallowtail (III)

Desert Swallowtail (III)

~~Venezuelan Hoopoe~~

Black Tail

Southern Blue

1300

Now at giant Leathemia
field walking north

Plants

LasGra EvFens
BroRub Genvis
LasExs LypBic
GawVea LypCom
LayGla PhatDis
EwAic PenGnt
PenXParishii
CorLulif

Animals

Behr'sMetalink (III)
Aemon Blue (III) ~~III~~ ~~III~~
Sara OTip (III)
Painted Lady (III)
CA Pearly Marble (III)
WSJA ULASP
BTSB CORA
Arrowhead Blue (III)
(at same spot as
prev. 3 Usas Lyrines)
Seel Cec
AnHu
So. Blue (II)

4/27/10

Insignia

ECO Substation

QCB

- met CD at Los Coches 0800, met Kirstie Reynolds from SDF at 0900 at Hwy 80 + Jewel Vly Rd.

Time	Temp	Wind	Skycov
0920	71	4-8	5% Thin
1300	78	2-10	30% Thin
1615	78	9-13	50% Thin

Starting at reference site moving up slope.

Plants

All Fin Har Pal
Barkur Chae Glab

W/PT
QCB-K1

11/5 - Now at Jacumba Peak

Animals

Chabeon Chuck (M)
Perplexing Hairstk (I)
Sara OTip (I)
Painted Lady (I)
* QCB (IF)

Desert Swallowt (I)
A Pearlly Marble (I)
Sleepy Duskywing (I)

Animals

Fireeal Duskywing (I)

- Surveying rest of critical habitat along alignment

Emm Bend
Eric Lin
Lup Con
Eric Cie

Desert Swallowt (I)
Painted Lady (I)
BTL Jack

- West side of peak now
Pia Eric

Behr's Metalmark

Lus thenis willing now white Allum in full flower

QCB notes

⇒ 1 ♀, moderately worn. Landing consistently on Plantago, but we did not clearly observe QCB laying eggs.

So Pacific Rattlesnake (Both on base)
Coastal Rozy Ben (on base)
8 this add. treated purple

MISIGNIA

4/30/10

ECO Substation DCB Survey

met 0900 Los Cochinos. Crew today is JR, CO,
DB, BL, JB.

starting at Jacumba Peak and then
BL, DB, JB will survey the 180 ac parcel
+ CO, JR & JR will survey 110 ac parcel

Start	Time	Temp	Wind	Sky cover
	1015	62°	1-3	20%
	1215	68°	5-10	60%
	1400	66°	1-5	60%
	1630	67°	3-5	80%

Plants

Lasbra Erin Lin
 Malva Ade Fas
 Jun Cal Heri whi
 Lotus Bro Rub
 Lup Corn
 American Erin Foo Pol

Animals

CA Pearly Marble (I)
 Desert Swallowtail (II)
 Sleepy Duskywing (II)
 CA Pater (I)
 Chaldean Check (III)
 Pearlywing Hairstk (I)
 Tortoiseshell (I)

Insignia

5/3/10

ECC Substation

DCB

met B.L., CD, MM, JB, MR at Los Cochinos
0800, CD drove too.

- starting at reference site

Time	Temp	Wind	Sky Cover	
Start	0915	69	3-6	0%
	1245	78°	0-3	0%
	1500	82°	0-5	0%
	1600	86°	2-5	0%

Plants

Siñaloa
 Palo Verde (still green)
 Palo Verde
 Palo Verde

Animals

ADU Rowl
 Common Buckeye
 Painted Lady (III)
 Desert Swallowtail
 CA Beady Marble (II)
 Common White (I)
 Roriplex Hairstrk (I)
 Sleepy Duskywing (I)
 Chalcidon Check (III/IV/III)
 Striped racer

11:30 Now at Jacumba
 Weak, Activity waning

'Acountia'

- 20 purlage from Jeff
 that are placed at Aco Micro
 should be deleted as it is not
 Ger Vis.

1400

- Now at Riquian area, one ^(or more) ~~beard~~
 will head east and CD & BL will
 head west.

Plants

Cross Agua
 Ast Dow Per
 Ade Spa
 Long Picky
 Coe cuss
 Que An Oxg
 Bro Tec

Animals

Gabb's Checkerspot (8911)
 Armon Blue (I)
 Behr's Metalmark (II)
 Painted Lady (III)
 Chalcidon Check (VI)

1245

- Now at area east of Jacumba Peak - walking towards Ag field. Plantago present near existing pole still green & in flower.

All Fin All (Prac)
EvoCie
Mala Calkeri (w/ Brokub)
Cyl Gun, Evo Cie, Arlan
Sim Chi Heg whi
Lot Hum Lot Scobre
Dic Cap Cham Mel
Chum Poly

Amon Blue (1)
Chalcedon Check (M)
ROWR MODO
Scorpion (1)
MODO
CORLA
RTHA
SCOR

1500

- Now hitting hilltops in critical habitat heading towards Ag field.

Insignia

5/4/10 ECO Substation

PCB

met CD at 0800 at Loo Coches. Crew CD

Time	Temp	wind	sky cover
Start 0900	68	0-3	0%
1130	81	0-8	0%
1430	86	4-13	0%

1st visit to keep in Ag field in canyon

returned to substation 1530

-- Starting at Rocky Canyons and heading east.

Plants
Eri Brachy Sph

Animal
LOSH BTSP
Ptain CORA
Chalcedon Check (M)
TUWU

Square Spotted Bernardino
Blue (111)

BPS Burrow -> potential Bully burrow; not sure if they occupied see photos

Insignia

5/5/10

ECO Substation

QCB

- met CD, BL JB at Leo Coches
- Starting at Boulevard side

Start	Time	Temp	wind	sight score
	0900	70	2-12	0%
	1125	76	6-9	0%
	1445	81	3-14	10% <small>thin</small>
	1600	79	4-15	15%

- starting at Hidden Jewel Ranch when Arrowhead Blue was found.

Plants

- Leo Gra Leg Lem
- Low Pla Chest Eyes
- High Bic BroTec
- Leg Con

Animals

- Armon Blue (1111)
- (Lynne Blue) (11?)
- Painted Lady (11)

7015 Jim B + I are now near Domingo Lake
 surveying E-W + CD + BL are
 surveying large Leatharia field

Leogra Leplem
 Lep Bic Ant Tri
 Lay Pla Ani Aca
 Plat Cal Ans Mon Int
 G / Carp Coll Con
Animals
 Amon Plas U
 Behr's Metalmark I
 Painted Lady II
 BCS P
 CORA

7020 - Now surveying w/ B.C. north
 from SP-7. CD + BL are surveying
 from Fly. Yard near Yoge ctr north to
 SP-7

Plants
 Gar Via Pha Dis
 Las Gra Lay Fla
 Vul Myu Hr Lin Bel
 Lyp Con Bro Tes
 Bro Rub Cam Strig
 Mim Pil
Animals
 Hanford's Sulfur
 Pale Swallowtail
 Behr's Metalmark

Targ's 'd Tar' - rosettes of potential
 Dei Flor - Tecate Tar plant.
Animals
 Sara OTip Sei Blue
 Brown Elfin
 Behr's Metalmark

1445 - Now at additional parcels
 surveying ridges + hill tops

Plants
 Kra Gre Cham Poly
 W S JA
 Chalcedon Cheek
 Kee Ant Ech Eng
 Leogra (ried up)
 Rh Wia Ase Fas
 Min Palmera

Animals

5/6/10 / ELO Substation
 Insignia
 DCB #6

met B.L. ios Caches 0840 Crew: JR, BC

Time	TEMP	WIND	SKYCOVER
Start 1000	72	4-7	0%
1130	77	4-12	0%
1530	81	4-8	0%

- Starting at reference site to double check notes

- | | |
|-----------------------|-----------------------|
| <u>Plants</u> | <u>Animals</u> |
| Cal Sp 1 All Firm | Chalcedon Check (III) |
| Erio Conf Lot Eio Bro | Mole Deer Seal |
| Kee Ant Rhv Ora | CAQU |
| Hes Whi Z-z Par | NOMO |
| Evo Tex (white Fls) | CAWR |
| Jun Cal Avr Pal | Desert Swallowtail |
| Euc Bra Bro Rob | Phainopepla |
| Egl Gan Sum Chi | LASP (nest w/ 5 eggs) |
| Pec Rec | |

1000 - Nowed riparian area working weaf

- | | |
|-----------------------|---|
| <u>Plants</u> | <u>Animals</u> |
| Ab Dor Per Las Gra | Aemon Blue |
| Cor Fil Bro Tec | W. Tiger Swallowtail (II) |
| Cham Mel Chan Albo | W. Tailed Dove (III) nesting |
| Lan Pla Amis Men Int | Gabb's Check (III) |
| Gi Play Cyl Int | BEWR HOWR |
| Eri Fos Pol Jpha Ram | SPTD LECO |
| Emm Pen Eac Cal | Chalcedon Check (I) |
| Lot Arg Gir Dec Dec | Petrocorvus meersi |
| (G) Occ Cal Brick Cal | BCSP |
| Art Dd Dis Lug Con | Spadefoot larvae in little pond Spadefoot |
| | Orange Sulphur (flyby) |
| | Aemon Blue (II mating) |

Jacumba QCB #1

March ~~23~~ 23, 2010

11:00 to 4:30pm (1630)

64°F - 72°F

50% clouds - clear

Wind 1-8 mph

CSD w/ Jim Rocks

Butterflies

~~Desert~~ Swallowtail III

Great Purple Hairstreak I

Desert orange-tip II

Chalcedon III

Gramble hairstreak II

California marbled III

Aconit blue I

Sage stop 20 (30)

Painted lady III III III III (20)

Silvery blue (5000) I

Pearly

Still looks early for yet

Blooming Plants

Amorpha

Peetocarya

Erodium

Sisymbrium

Arenaria - photo

Mentzelia sp

Harpagophytum

Prunus

Ziziphora

Host Plants

Plantago in reference area is not blooming yet.

CORA, TUVU, ROWK, CHAO
RTHA, SCOR, BTSP,

Eco-Substation Project

Jacumba & QCB #1

March 25, 2010 CJD

9:35 - 17:30

Clear - clear

68°F 72

W - 2-10 mph 1-12 gust to 15

w/ Jim Rocks, Margie Mulligan

Butterflies

Sava Otis 20

Chalcidon 10

Checked white 1

~~APRIL~~ Sw tail 111

Bramble hairstreak 111

So. blue 11

Painted lady 10

Pearly marble 1

AQCB photo at ref site

2:30 I

Blooming Plants

Prunus

Erodium

Goldfields

Pedicularis

Amsinckia

Friensia

Ziziphus

Harpagoclea

Senecio cal

still

early

in

bloom

period

Eco Sub Add'l Parcels 3:10 pm 73°F W1-12

Last time more mature

here than other parts of

site. Phacelia blooming

Painted lady

BUSA

YRWA

DEJU

BSWR

CARU CORA TUVU

WGSP WCKI

3-26-2010

Jacumba Escavation QCB#1
w/ Margie Mulligan & Jim Berrian

10-4:30

68°F - 71°F

1-2 mph 0-3

Clear

Butterflies

Chalcedon 100 + 40

Sawz o tip 5 + 5

Cal Patch 1

Common check skipper 1

Pearly marble 10

Spring white 1

Desert orange tip 10

~~Desert~~ Swallow tail 3

Great purple hairstreak 2

Dusky wings sp. 1

Bramble 4

Painted lady

Flowering Plants

Goldfields

Eradium

Lupinus conc.

Fiddlenecks

Prunus

Zizyphus

Chia

Eucalypta

Phacelia discolor

TUVU CORA BTSP
WCSP PHAI COMU COHA
CCWR LASP AMRO RT4A

3-29-10 CioSub QCB ~~---~~
CJD 01MM

0945
78°

4:45 pm
82° F

0-1 mph
20% high & thin 4-12
\$10 90% thin & high

Butterflies

Ahaba swatw 1
Behr's metalmark 2
Saw O tip 30
Amon blue 11
Gabb's checkerspot female 2
Chalcedon 20
~~A~~ Desert SW tail 1
Funereal duskywing 1
Pearl marble 111
Bramble hindwing 1111
Painted lady 1

Nectar Sources
Lathyrus gracile
Layia platy
Eradum aul
Ceanothus greggii
Purpus flemingii
Cryptantha
Descurainia spinesc
Amelanchia
Celandine's
Platystemon cream cups.

Sb lizard, MODO ^{GRS}
HAWK, Horned Lizard (HOLIZ)
TU VU, HOWR, CATH, CORAZ

EcoSubstation
QCB

3-30-2010

CJD w/ JRR, JB, EP.

12:45 - 3:45 (4:00)

64°F - 70°F

4-12 mph 8-15 w/gusts

10% - clear

Butterflies

Sara orange tip 11

Becker's white 1

~~White~~ SW tail 1

Nectar Sources

Zizyphus

Amorpha

Lesqueris gracile

Phacelia chrysantha

Chia

Eucalypta

Chrysothamnus

Senecio cal

Mentzelia

Lobelia sparranus breviflora

Arabis Becheri

1 wing shorter than keel

CORA WTSW AMRO NOMO

BRSP, TUVU

4-2-2010 EucSub QCB 2

CJD 5/ JRR

11:15 2:30 4:45
60°F 68 68°F
Clear Clear Clear
0-3mph 0-5mph 0-10

Butterflies

Chalcedon mostly pairs 200-300

Desert orange tip III
Gambel hawkbeak I
~~Desert~~ Swallowtail I
Sage orange tip I
Aemon blue II

Nectar Sources

Erodium
Lathyrus g
Chic
Lupinus con
Prunus fre
Amsinckia menz
Phacelia distans
Lycium Andersonii
Astragalus salmeri
Siumonblaei
Eriophyllum willceei

Other

CCWR PHAI, BRSP LAGO WCSP
CORA YRWIT, ROWR, Nomo, RTHA
*SWHTA, TUVU

4-3-10 EcoSubst. QCB 2

w/ BL, JRR, Lee

9:45

15:45

63°F

64°F

3-7 mph

3-12

clear 10% high & thin

Critical habitat

Butterflies

Paral & Line

Pearly marble ||||

Dusky wing ||

~~Acacia~~ Swallowtail |

Bramble hairstreak ###

Sage orange tip ###

Chalcedon ### + 10

Painted lady |

Parcels only (11:30)

Chalcedon ### = ### ### |

~~Acacia~~ SW tail |||

Pearly marble ||

Dusky wings + |

Sage otter ||||

Bramble hsk |

Acon blue |

...

...

...

granite spiny 1,2

Nectar Sources

* Parcels only

Lathyrus x

Erodium x

Prunella fremontii x

Ericameria x

Cryptantha x

Zi-typhus x

Thamnosma x

Lotus spp x

Lupinus can. x

India - parrotbong x

Eriophyllum wall x

Emmenanthe x

Chia x

Phacelia parryi x

Amsinleria x

POP 4 - 20 plants

POP 3 - 20 plants

Liranthus bellus POP 30 plants

sandy soil 50 foot x 50 ft area

w/ Erioph wall. POP 2 - 15 plants

BT Jack x COHA x Nestoms x

CATO WCSP SCOR x CADA x CATH x

BTG War. OCWA NOMO TUVU YRWA

CORA LA 60 WSJA BGR x

CATH x

QCB 2

4-6-2010 Ecocostation QCB

CSD w/ JRR, DB, JB

11:00 - 1645

63°F - 68°F

2-9 mph 0-5

Clear Clear

Repurposed east to lab. N-5

Butterflies

- Chalcedon +H+H
- Western tailed blue ||||
- Proterops Duskywing ||||
- Aemon blue ||
- Sawa o'tip ||
- Brown elfin ||
- Bramble hairstreak \
- Gabb's checkerspot |||
- Painted lady |
- Behr's metalmark ||
- Pearly marble ||

Nectar Sources

- Lachnoid
- Erodium-cic
- Amaranth
- Perennial tree
- Cryptantha
- Fl. yellow parry
- Lotus spp.
- Ceanothus
- Lays

Bugs borer R.K.

4-8-2010 EcoSubst QCB 3
Subst site CDW1 DB #MM
9:30 -4:30 (1630)
0-5 mph
68°F
Clear

Better than

Painted lady |||
Java orange sp |||
Desert orange sp |||
Desert swallowtail ###-###-||
Chalcedon ###-###-||
Coe Patch |
Fluoreal duskywing |
Behr's metalmark |
Cal tortoise shell |
Ready marble ||

Wetland Sources

Amundara 1st. Cryptantha

Mnabele

Chris

Ericame vic

Viguera (Benipain) parish

Tribolium waldenovi

Dichelostemma

Male cobbrix

Brassicato nitidus

Cryptana

Mentzelia

Leathern's

Panwhic Trilantata

Senecio cal

Phacelia clivata

Lycium

~~Wetland~~ ~~Wetland~~ N 32.6287 (2)

#2 N 32.6283 W 116.12457

W 116.12362

N 32.62878 W 116.12306 (3)

LASP ~~COOP~~ COOP BTSP

TUVU ROWE, WOMO

Locust whiptail AMRO, PHAI

WASP

1-9-2010 EcoSubst QCB #3
CJD w/ JR, MM, MR, BL

rocky canyons

9:45-

1:30

~~1700~~

Clear

chr

Clear

0-3 mph

0-1

0-9

70°F

75°F

81°F

repsite

Butterflies

Chalcedon HHH HHH

Checked white

Pearly mabele

Cole patch

Femore duby 014

Western Pygmy blue

Alfalfa silver parva - Loxus 500

Desert Swallowtail

QCB1 1 female

on rocks, cactus, QCB2

Desert orange tip

Southern blue

GPS flying low

Nectar Sources

Lactaria

Eradium

Cirs

Amurckia

Prunifera

Bahiopeia parskii

Ziziphus

Erilak

Yriophyllum - wall

Popcorn plant

Arabis Becker

Senecio cal

Dichelostemma

ATFL, WCSP, CORA, NOOK
TUVU, YRWA, LA60, ROWR
WSON

April 14, 2010 Eastab QCB

9:45am / 12:40

63°F / 66°

WC-1 / 0-3

5% thin clouds / 30% thin 60% thin

7:30

67°F

0-3

Suttons

Behr's meadowlark ### +40

Sava oriole 11

Redly maple ### 1

Bramble warbler 11

Behr's meadowlark ### ### ###

Alfalfa sulfer 1

Achok blue 111

West Coast lady 1

Ref Area they 45 min to see
QCB Female found
by Ken Osborne

Neeta - source

Lathenia

Ericameria

Cryptantha

Cedrothia gressii

Amsonia

Phacelia distans

Lupinus concin

Descurainis pinnate

Pentstemon

Coreopsis cal

White Layia

Yellow Layia

Platystemon

Lithospermum bellum near Salt

BT6WA

WSTJA

ANHU

DTSP

COCA

April 15, 2016 Ecosubs st
CJD of JR, mm, BL QCB 4

12:15 2:30 4:35
72°F 81° 76°
2-7 mph 2-6 mph 0-5
25% 90% 100%

Butterflies

Desert Sunflower 1
Sara orange tip 111
Chalcedon 1111
Loki hairstreak 1

Nectar Source

Lashunk
Rumex
Crotalaria
Embryanthus
Eriophyllum
Grilla
Astragalus
Amaranthus
Senecio
Mentzelia violacea?
Rushia
Dichelostemma
Uria

HOLI 2 LGST

April 16, 2010

Eco Sub

CJ DWI MR JR MM BL
9:30 1:00 4:30
66°F 79°F 15°F
2-7 mph 2-8 mph 0-6
Clear Clear Clear

Butterflies

Queenwing Properties III
Desert Swallowtail I
Cramble hairstreak IIII
Painted lady I
F. Common/blew IIII
Chalcedon IIII
Sulphur sp I
Jauno = Fk
Desert Swallowtail III
Pearley marble II
Desert o top II
C.P. hairstreak I
Clych white I
Ced patch I

below peak
QCB, warm male I
Bel's metalink I
Cal tarfishshell I

Nectar Sources

Lathenia yucca
Eriophy/ka wallacei
Lupinus eri bic, fru
Lupinus bellus
Chic Castilleja laxata
Ericameria Lonicera glabra
C. rotundifolia Dichelostemma
Ambrosia Phacelia dis, par
M. v. 61115
Lotus sco
Chaenactis glob a fre
Coreopsis Aster I 32.6.1565
Senecio cal 116.25345

Riparian

Gabbs chadsport IIII
Dove waxy tip I
Brown elfin I
Lupinus bellus pop 20nd
32.62256 w 116.21123
HBE 2 pop 30 same creek
32.62259 116.21091
HBE 3 32.62265 116.21064 20 1169
HBE 4 32.62281 116.21019 55 plat

April 19, 2010 Eco-substation
 Hawaii Parcels CTR w/ DB, JR, mm
 9:30 2:00 4:30
 77 75°F
 5% 5%
 4-8 quartz 13 4-9 (13) 2-8 quartz 12

Butterflies
 Coral Patch |
 Bramble Hawthke ||
 Chalcidion |||
 Peary, Manilla. |||
 Dusky wing sp |||
 Loli hairstreak |
 Sara orangetip |
 Funereal dusky (by ||
 Gray hairstreak |

Rocky Canyons
 Chalcidion |||
 Sara orangetip |
 Sulphur (cloudland) |
 Blue sp |

Nectar Sources

Mistlebees
 Ammickia
 Leathenia
 Lilius sci. 1 string
 Baker (Viguiera) parohit
 Rhia 2-2-2
 Prunus tree
 Dichostema
 ERICACEAE
 Epiphyllum w. ceccei DB GPSA
 Lianthus bellus DB GPSA
 Lycophe con Anthidium
 Cryptantha DB GPSA
 Delphinium Allium fimb
 Chia 3 plants
 LIBE-3 8 plants
 LIBE-8
 HOLI-2
 RTHA LAEO #071 PHAI ROCK
 CATH granite spiny 1/2 TUVU #042
 BTSP ATFL BUSH, CORN WSOA
 NOMO COLWR, BEJACK, ERSP
 BTORWA, MOPU, CTRU, WESP
 sb 1/2 CATO B# OR CHSP WETA

April 20, 2010 Ecosubst QCB
CJD w/ JR DB

9:30

2-9 mph

63°F

50% thin high

4:30

5-7 gust to 12

67°F

Clear

Butterflies

Behr's metalmark					
Saw's orange tip					
Pearly marble					
Fumeral duskywing					
Southern blue					
Painted lady					
Arrowhead blue					
Aemon blue					

New Sources

Lasthenia gra
Layia glandulosa 4 plants
Lupinus can
Coreopsis cal
Phacelia dia
Glycyrrhiza
Ambrosia menz
Linaris tricolor
Cnicus brycei
Ceanothus leuc
Chus
Cesceurame pinnat
Eriogonum
Gilia / Alrophyllon
Penstemon centr

Host Plants
 CAEX I ~~40~~ plants (40)
 COCO I 37 plants

CSD

April 23, 2010 Ecasub QCB

W/ MM MR JR BL

Ref Area - ~~east~~ west

10:15	11:00	12:30	subst and 3:30-4:15
2-5mph	2-5	0-5	2-10mph same
1%clouds	1%	0	2% 2%
56°F	61°F	66°F	65°F 65°F

Heading ~~east~~ will return when warmer.

Butterflies

Checked out white	I	
Sleepy duskywing	III	Perk
Painted lady	I	
Sage orange-tip	II	
Chalcedon	IIII	

Meat Sources

Leukenic
 Babulopsis
 Dichelostemma
 Amaranth

April 26, 2010 EcoSubst: QCBS

CJD 01 mm rocky canyons
9:30 75°F 1:00 84°F 3:15 84°F
3-5 mph 3-6 2-6
20% high & thin 40% high 40% high

Butterflies

Chelcedon 25 + 12
Painted lady 11
Bernardino blue 1
Duskywing 1
Sulphur (cloud base) 1
Desert Swallowtail 11
Sage warbler 1

New Star Sources

Lashenia x
Bacheopora x
Chaeactis (white) x
Amswickie
Mnucilis
Cryptorthe
Chila
Allium finb
Malacothrix
Lotus 200
Dichelostemma
Delphinium subgl
Phacelia distans
Speropsis tenuifolia
Astragalus p.

4 cactus wren territories in rocky cgl
ROWR ATFL TUVU CW (RCA)
PHAI G5L12 1A60 Soliz. w/ingtail
B66N BTSP CORA NEMO MODO

April 27, 2010 Ecusubst QCB

CSD of JR = Kirstie Reynolds
9:15 1:00 1615 (4/19)
4-8 2-10 8-15 just to 20
1% thin 5% 50% high 100%
71°F 78°F

Butterflies

Oralceator	///	
QCB female	/	
Desert Swallowtail	///	M
Slippy duskywing		M
Fumilined duskywing		M
Painted Mantis	///	M
Coil P. S. C.		M
Behr's metemorph		
Painted Lady	///	
Scramble Wristle		PK

Butterfly #'s dropping.

Nectar Sources

Leathemia - drying out
 CRT wal
 Eric 1h
 Pha dls
 Lot sco
 Cr. J. tansthas
 Lup con
 Immense the
 Kechidde
 Chae-
 Chaeactis

QCB 1 female flying
 low & landing on Mandagol
 other plants. Did not see
 at layers. Moderate
 warm butterfly

April 30, 2010 ECoSub QCB
 WJD, JDB, JR, JL, JB

10:15 12:15 4:30
 62°F 68°F 66°F
 17% 50% 70%

0-4 mph 5-10 mph 3-5 mph
 The Pt. Abell Pavada, Rip west 200

Butterflies (S) Trumbull Pk

Coe Patch > (1)

Sleepy duskywing > (11)

Ready marble > (11)

Desert Swallowtail > (1)

Painted Lady > (1) 111

Bramblehairstake 1

Duskywing sp 1

Tortoiseshell 1

Gabbler checkerspot ### females

Acmon blue 11

Bevo's metatrunk 1

Insect Sources

Bathypneustes

Ammonia

Keckella

Strogilium

M. Fabella

Ericameris 1/1k

Leptocera

Tricardina

Dichelostemma cap

Large pla eggs bathypneustes

Cheloneactis pla Astingid-p

Cella cap & others Astingid-p

Cryptanthus Min gant

Lupinus truce bic

Lotus sc

Proceus dirt

Proceus

Proceus

Foodplants

Cheloneactis

near forest area

May 4, 2010 Evesham AB6

WD WJ JR

0900 - 11:30 8:30-3:30
68°F 81 86°F 86°F
Clear Clear Clear Clear
0-3mph 0-35 4-13 severe
Rocky cym. substitution

11:30 weather in ~ canyon

Battus lucas

Chalcedon III-III-III-III-III-III-III-III
Bemmaris blue III-III in canyon
-1 bandishant

Nectar Sources

Lotus scapularis
Sambucus
Amorpha
Chia
Lactuca

Banded rock liz, gr sp liz
CCWR NAMD BTSP LASH
PHAI RAWR COEA TUVO

May 5, 2010 Escalante 646

GP JR, BL, JB

Boulevard south/north section

9:00 11:30 2:50 ~~3:15~~ 4:00

70°F 76°F 81 79°

2-12 6-9 3-14 3-15

Clear Clear 30% High 30% High

8:30 - Adult's parcels

Butterflies

Acmion blue 30+20.5

Bebw's metemora 8+3+4.3

Painted Lady 11

Sun's orange tip 11

Brown elfin 1

Southern blue 1

Nectar Sources

Laetia

mutata

cupata

L. Lemmonii

Laysan Plantain

Phacelia

within ca

Lobelia

Gilia/Allophylon

Delphinium

Coreopsis

Indian paintbrush

Eriogonum

Eriophyllum

Rhus

Eriogonum

source

Nectar source

Castilleja's experts 35 plants plus

GPS CAEX-35

March 24 2010 Jacumba QCB

1020 64° 2-Fmth clear. UTST
Sub Station chacoan ~~HN~~ UTST
Anhui Anise SWT I
SODIole Orange P III
Roww Painted Lady II

Reference Site 1150 70°-54P UTST

Caou Sija ~~SP~~ III chalcid ~~HN~~ III
BTSP D. orange tip ~~HN~~ GP. Hirsuta II
WCSF perspexa II Fundusid Leca
COPF Anise III ~~HN~~ I
CACW P. Marlye ~~HN~~ III Commanth II
TAVU Z. elfin II Gray Hairstalk

Nectar Sources: *peclimaris*, *hathenia epidium*
Zyziphus, *Eucryphia*, *Baccharis*, *Chia*, *Mentzelia*
Pinus Fremontii

Southern Blue I
Painted Lady III

FWD 1608 77 0-2 mph CLR

Starting @ Border fence location.

Sub Station
Nectar Sources

Amisnicia e patrium, *goldfields*
Myrcium, *Indigo bush*, *Eucropta crissanthina*
Zyziphus ferrug, *Phacelia*

Rare Plants

Pholistima ~~var. californica~~ var. *californica*
List 2 grows in rocky cracks
Delphinium parisi var.
Other Plants

Thamnosia montana tussock bush.
Senecio californicus - yellow daisy.
2nd set black tipped fibers
Cornopsis californica - Fleeting fern. not here,
but possible @ camp.

March 26 2010 Jacumba QCB
 w/ JR, MR met @ Casa Rocks at 15
 0945 65°F 0-3 mph clear

YPRW	Orange tip III	WT
Hopi	Lady II	PeMearns
Rover	Chalcid III	
NOMO	Amisul SWT II	
Cachiren	GP Hair stroke I	
CALT	Reference site (100)	
MoDo	Orange tip III	
Losh	Perplexa IC	
WCSP	Lady II	
COPA	QCB IIII	
WPA	Chalcid III	
Cacw	At Jacumba Peak	
Scorials	Wetbody II	
	Pale SWT I	
	GP HS II	
	Orange tip II	
	Amisc I	
	Perplexa II	
	P. mable	

END 1630 75° 0-5 mph clear

HOURS 0745-1830

General Notes

Started @ Boulder segment
 LOS pair nesting.

1120 66° 0-4 mph clear
 1300 68° 0-5 mph clear
 1400 QCB 1, possibly 2. Ilmore (2)
 Nesting on *Castanea pectoreata*
 1530 78° 2-5 clear.
 Nectar sources

erodium, desert dandelion, *Ziziphus*, *Baccharis*
 * *ipomopsis*, *tenaxifolium*, slender leaf *ipomopsis*
 LGF 2. "IPTC"
 PS: *Castanea erodium*, *Senecio cal.*, *Zyziphus*,
Amsukia, *Pachottumia*.

April 3, 2010
WJR, 63
63
TLIME

SCJA
COPCA
BWR
yph
Cath
Newb

Desert

Pearly Marble IIII
Amist SWI I
Perplexa IIII
" "
Orange tip I
Chalcedon IIII

Parcel only

SCORE
WST
Mala

Chalcedon IIII
Vaby I
Orange tip III
Pearly Marble III
Dusky wing I
Acacia I

Chalcedon IIII
Q-13 ? unconfirmed by me
Jimm had 1 photo
confirmed by K. Johnson

Ref site

END 1545 6-10 65°F CUR/H2O

Billed 0730-1730

Parcel + Line
Also note when cross into parcels
& take separate list

1045 66° 2-6 mph CLR

Nectars (Tline)

Westonia, eudromia 2 yr old w/ Amist
Totus Strigat - common 550m, appears flower
Eriophyllum Wilkei, common in the parcel

Species cal

Parcel only Nectars

Chia menziesii, Green thistle yellow

LINBEU40 - 40 ind. Linanthus bedstr.

LIBE5 - 15 individ "

LIBEZ - 2 indiv

LIBEZ0 - ~20 ind. desert

1145 6-12 mph CLR 65°F

1300 47 1-6 mph CLR.

1455 68° 0-5 mph clear

making charcoal bars

Ken Osborne: only Desert SWT Area.

April 7 2010 Jacumba QCB

Left Home 0745 MET @ 0815 w/ MR/JR
Start 1015 64° 3-8 mph, Gusts?

Juvs

WSP

Calw

CORA

Lago

QTHW

Exja

QCB 1111

P. lady 111

Chalcham 111111111

P. mule 11

perplexa 1

~~Swallowtail~~ Swallowtail 11

ESJ- Gen tie Landed Rock-Pene
UTST

Lago

Roww

WESP

Chalcham ~ 20+15

Blue sp. 11

D. SwT 11

Orange tip 1

Painted lady 1

END 1645 68° 0-10 CLR

10 APR 1815

QCB 07 - QCB observed Road with
getting gear on. checked confirmed
1040 QCB 1

1120 QCB 2

1130 QCB 3

1140 QCB 4 - observed to fly into scrub drainage
landed briefly on Senecio

Nectar sources

Eradium, bustonia, Uropis lily, Aspen Grass

Amisilia Senecio sed, emerson the bush,

Dehlostemma Eriophyllum Wallacei, Chia, Phacelia

Eriophyllum parishii, Chenopodium, mimbilis, erythra

1215 6-10 mph CLR 63°

1400 8-10 CLR 64°

1400 8-10 CLR 64°
Barrel

met Gilbert Goodlet & Brian Drake on site.

1530 66° 4-8 mph CLR 4

Mimulus aridus, Amisilia

emerson the bush, Parthenocis Erioph

Mimulus l., Phacelia distans

Hesperis matronalis

April 9 2010 Jacumba QCB 3
Met RBC @ 0630 Las Cochas (0800 left Home)
w/ MM, CJ, JR, MR

Rocky Canyon segment 0945 10° 0-3 dB

wsp chulebana MLI
ATFL Orange tip II UTA
Tuvu Loli Hairstroke I CUT
LORA Con White III Ground
Scor w. Pygmy bibe I Spire

Additional Percob

VRWA S. Orange tip I
Bewst ~~Orange tip I~~ det. A. Switz I
LALT Chalabun MLI Mela (Sdr?)
CASA BMMK I CRM
LATH Loli juv. Hairstroke II

END (700) 3-7 mph @ CLR

Home 1830 62 mi Las Cochas

Anisocoma sp (Aster flower) abundant
Lepidium - lila thing
Athyrium pusillus. dwarf Athyrium

Nectars

- Astragalus coccynii - bright red fl.
- Gnerec viscidula - far east! JRB G.P.S.D
- erodium, Dichostemma
- Asparagus puberuli - purple flower
- Purshia tridentata - shrub, yellow, rare - like SF
- Sphaeralcea (Great yellow)

1300 0-8 mph 82°F CLR - Add 1 parcel
Phacelia pumila, Las Tenia, erodium
artocarpus hirsutifolia
Ipomoeis tenuifolia
Thamnosma montana
Vulpia octiflora - short native grass
Limonium bellus - matted scrub pop

Net Richard (Kann) Rodgers

C66 707-3714 XM Refund 3-9 days.

April 15 2010

Jacumba QCB

met @ Los Cochis 0830 - ¹⁸⁰⁰ 1800 72

Sub station: ~~1800~~ CUR/H2y 66° 0-4mph

Lago

WCSP

Bogot

Phui

Nomb

Mado

BTSP

BTSP

Wavi

Hensa - Hamitwawor

Ocuw

Haji

RowR

Loop

LoSH

ATPL

Chalalon (30° Hole by River) ^{sub 3} 1111

White sp. 11

Desert SWTL 1111 PHCO

Orange tip 1111

P. lady 1

CA Patch 1

D. Orange tip 11 UTST

Loki J. H.S. 1 - just Hatched

GV2 - 2 sticky green
PitCO - SA, P.H.O. angrnd.

1430 81°F 02-G mph 90%

1630 76°F 2-G mph 100%

Nectars

Amsulia, cubium, Lathunia, micralis, Bebeopsis
Machrotherit, Cheanactis, Coreoptis, anacacoma aculis
Sorecio Calif. Menzalia verticillata
Phalaia.

1 D. SWTL angr.

Pectocarya setosa small round "X" fruit.
Palaesopia neomexicana

Scale 3587 ft.

April 16, 2010
 (0800) 0830 Low Cacher 1st time 1830 + 70' in
 0930 66° 2-7 mph CLR
 w/ J.R. MR, MM, CD

Calu
 Nello
 cacw
 Tu vu
 COPA
 Haha
 BTSP

Pearly mite II
~~chalcid III~~
 chalcid III
 QSB III - med. w. med. f. med. winged
 S. Gre I
 1 good comb.
 2 flying
 Perleza I
 Fundus I

large COHA

chalcid - good spid

Riparian segment
 Cat:
 1 eye
 1 eye
 Rowr
 COPA
 Pear
 Tu vu

Leca
 Gyan
 ODHe
 "SAHE"
 PINE

Starting @ Ref site walking east towards Hwy
 w/ J.R. MM

BLX
 1300 79 2-8 CLR
 1530 77 4-9 CLR
 1630 75 0-6 CLR

Nesters sources

Lathraea, Eradum, Dichlathra, T. fulvum,
 Senecio cal, Laysia P. (I), Echinocereus
 Yucca whipplei, Mistletoe, Eriogonum, Bakeria
 Anisakia, Peltandra seed
 Lots of purshiana, compositae, eriphyllum, w. A.
 Riparian

- Coast patchiness source
 - Greater source
 Nesters

Lathraea longicaule, Populus, Lycopodium
 Catella, Compositae, Laysia, Mistletoe, Phacelia, Compositae
 Gruntlow bellis
 SLIBE

Several Galatids @ Riparian, or few Chalcids

April 23 2010 Jacumba QCB
 met Los Cochinos 0900 w/ JR CDMR mm
 10:15 62° 0-6 mph CHR
 Refs site/Beak
 Bent S. Dusky wing III
 WYME poplexa II
 Cabu D. SWTL
 W.C. SP G. P. Hairbreast I
 SJA Chalcedon III
 SCOR
 COPA

CTR
 SCOC
 GMR
 on Road

SPR
 CHRONIK

END 1230

Substation site

12:50 66° Hermit 0-5 mph CHR
 MODO ~~poplexa~~ wa. Grange TP
 MORD Wavi Chalcedon IIII
 Logo YPND
 BTSP ATFL
 MTSW TAVM
 BGRN
 Holy
 BENDR
 BTEND

1515 3-8 20% pc 61°F
 E) 1600 8-10 10% pc 63°F

VECTORS

Eradium, Eriophyllum waltwae, popcastrif,
 Phacelia, Ceanothus glaberrimus, Chia
 Ceanothus carolinensis, Lotus, Blue ducky
 Eriophyllum canescens, bas cal, Senecio
 Paintbrush, Compositae, Anemone
 Rockwella ant, Miabe Lewis, Deltophia, Chamaesyce

VECTORS

bas cal, Phacelia, Ceanothus carfo,
 eradium, chia, Anemone, Compositae, cel.
 Chamaesyce, Blue ducky.

April 24 2010 Jacumba QCB
 w/JR met @ Las Cochas 0830. (0800)
 0935 08' 0-2 mph CFR
 Domingo Lake / Boundary Peak
 RWBt marine D.
 CoQu ^{procyon} white M
 Amco P. lady. II
 CalT D. SWTL I
 Bride Pale SWTL III
 Waba Sleepy Ducky II
 Kill ~~BP~~ ^{BP} ~~Perpeta III~~
 BCSP ~~Comm. Whit II~~
 WTSW Fundusk II
 Bear S. Salce
 CofA Giant Lathrovia Field 1315
 RTHa Acorn Blue HLI
 CaTh Belk's Mink HLI
 ATFL Red Adm I
 Clw P. Lady III
 Wta Arrowhead Wbc III
 BTGw Orange tip I
 Hermitage P. Marble II
 Tuva S. Wba I
 MDD-
 BTSP
 HOLA
 Loop

NECTARS

cod Cal, Swadlow, Chia CA Poppy
 popcorn, ^{ball capitate} Callia, Lotus scop, pentstemon, Passiflora
 caricaria, Leyia platyglotta, eriphylum vall
 lupine concinus, Phacelia, Chamaesyce
 Lepisiphon leucomeri, pentstemon centran
 Leyia guthrieana, coriopsis Cal.

WX
 1400 0-5 mph 76° CLR

1040 Boundary Peak
 Bee Swarm. 2 observed today.
 1315 - Giant Lathrovia field
 Mapped Castilleja locales.

Callia capitata - ball gilia
 GARYA ventchii silke passel Bush
 END 1600 0-6 mph 80° CLR
 Home 1730

BUFLW
 UTA
^{Black} ^W
 SCA
 DTHE
 dip-munk

April 30 2010 Jacumba ACB
 Mt & Los Cabos 0900 w/JR, CD, DJB
 1015 62°F 0-5 mph CLR (PC 10%)
Jacumba Peak

Ca Patch
 D. SWTL
 Sleepy Dusky II
 Pearly Warbler II
 P. Lady
 Parula (1110): East Parula
 Chacoan III (111)

Riparian (W) 1400 GC 0-5 mph PC 50%
 Galabs III
 Acorn (Lupine) I
 Fungus II
 P. Lady II

END 1630 66°F 70% 3-5 mph
 Home 1800

Jacumba Peak → Parula Nectar sources
 exodium, Boreopha Eriog. Fee, Yucca whippl,
 Amaranthia, virabilis, emmettiae, Rafanaga
 Chamaecrista, Echinocereus, ferocactus
 Lagotis, Colochortus sp., Keck Mt.
 Lupinus Lotus scopi, Chamaecrista glent.
 Chamaecrista, Chix, eriophyllum hall,
 erodictyan tricho, Eriogonum
 Lepisiphon lemnisci, Eriogonum
 Delphinium parmi subglobosum.
 Menziesia,

1200- clouds building potential rain soon. 70° on sand
 0-5 mph PC 50%

Riparian Plants

Lasithenia, Laysia, erodium, Astrogalus (Jacumba)
 Lepto Siphon lemnisci, Castilleja
 Campo pea, Plumbago, Gilia, yellow chamaecrista
 Popcorn flower, ^{visum} ~~Abutilon~~ ^{visum} ~~Abutilon~~
~~Abutilon~~ ^{visum} ~~Abutilon~~ ^{visum} ~~Abutilon~~
 Phacelia p. dis, Chamaecrista, bot. scop.
 Trifolium alba purp. Minn gut, Minn aridus

May 3rd 2010 Jacumba Q&B
0915 CLR 69°F 3-6 mph
met @ ~~the~~ Los Cabos 0800
Ref site search

Caba
BTSP
Noro
Pru
Scar
Tuva
Weki
MSPD
RTHK
Protar
LopA
kepp
Hoji

Platan II
Buckeye
BMMIC I
Fundusk I
Macedonia II

Tower 77 Area → Ag. sea
Aven Dre.
Fundusk
Platan II
white sp

torcaotula

Nectar sources

Allium Funkenbergii, Lantana, Allium
chamaesyce, clover, Pandanus
Panicum erecta, Bluebirds, echinocereus,
Lactuca stenosia, erophyllum can, milk,
Echinocactus, Delonixia AS,
Vitis humifusa, Erythrina sp., Cheilanthes
Cylindropuntia gordonii, Euphorbia
Malacothrix Coulteri - Stanley head
Blue Dicks. yucca shi, whip

WX 78°F - 3 mph CLR 1300
WX 100 0-5 mph CLR 82°F
WX 86°F 2-5 CLR 1600 FAD

May 5 2010 Jacumba QCB
 met @ Las Colinas 0815 w/ JRC DJB

0900 2-12 CLR 70°F

Belevard (Arrowhead blue area) → Bright patch

Hola Acromyrmex ~~11~~ (F2011) field. →

TUMU BMMK ~~11~~ ^{Dealingo hole}

ATFL D. lobby ~~11~~ + third North

Enot Dole Spitz 11

Caden H. Sulpher 11

Besp C. White.

Bush (M) Bubba

Sya Sec

Costi

Buor

Acuro

DTSP

LeNH

Leur

RowR

Prime

Additional perches 1415 CLR

81° 3-14 mph

Clouds thin 30%

Nectar sources: E. radium, Leostonia,
 lupines, Delphinium, Amaranth, Chamaecrista,
 Legia platyglossa, Lepidopteran Larvae,
 commersonia Phacelia latifolia, Popcorn flower.

Gilia, Lotus Hornet, Caragana ul.

Tilchostemma, Ericameria leucantha Galley

Eriophyllum Will. Eriogonum Michx

Redwax, Menziesia, Cotton poppy, Lotus soap

Crucifera, Phacelia. Sed. Apium, Dichap.

1130 76 6-9 mph CLR

1600 79° 4-15 mph CLR END

Eriogonum wrightii var. vancouverianum, upright
 flower stalk, NOT fruit or ball.

Callisiphia - 150 ind. (Lobe adjacent - 5 ind)

Col200 - Callisiphia 200 ind by sub.

Mimulus pilosa - small, shiny foliage. yellow.

Nemophilus. Throat plant.

Tecate throat plant?

Mimulus [diffusus] Palmeri - small red,

Mimulus

Home 1720

May 2010 Tacumbon QCB

72 4-7 mph 1000 CLR

Wet @ Los Caches OSUS

Reference Site D. SWTL

BTSP PeMle

Bush SCBL

Aberto SpAwb

ATFL

Sym

Cauch

Cult

Phai

Swamp-forest

Wren Riparian (winds) 1300

WTSW orange tip II

COBA T. SWTL I

Caraba Acronon II III - (2 mating pairs)

Cacti W. Tailed Warbler (mating)

Wilde Goldfinch III

Spotted Chalcid II

Hairy BCSP

Junco R-OWR

WTL
PeMle
SCBL
SpAwb

Leica
ODHE
Fluorescein

Flower's Nectar-seeders - Calochortus, Delphinium, P.S.

Lotus Scop, host-fruit, Echinocereus engelmannii,

allium frutt, erodivum, p. erecta, Chamaesyce

allium white, Lotus humicatus, Erigeron, all

Erigeron, E. immanis, Yucca whipplei

~~Leptosiphon kumarii~~, Astragalus, Chamaecrista

Demotroa deltoidea, Anisulobus, Calliopsis, etc. v. etc.

wx 1130 77° 4-12 CLR
EAD 1530 81° 4-8 CLR

vee

Keckle ant

Chamaesyce melanadenia - yellow, glaucous

Chamaesyce albocorymbosa - ~~white~~ no stripe

- decumbent, white stripes.

Phacelia Reversoana - taller, light pink

Lotus argophyllus - silver leaf lotus, in patches

Howe 1730

3.25.10 J. Rocks, C. Davenh

Jacumba Insignia QCB sunkeys

TIME	TEMP	WIND	SKY COVER
9:35	68	2-10	okar
1310	74	1-8	gouster clear

Ecosubstation

Perplexing Hairstreak 1

Brown Elfin 11

Sara's Orange Tip ~~11~~ 11

Chalcedon Checkerspot ~~11~~ 11

Quino Checkerspot 1 → 1430 female

Nectar sources

Cryptantha sp.

Lostrumia

Pectocarya linearis ssp. ferocula

Amsinckia ~~mentzeri~~ var. intermedia

Pinus ~~attenuata~~ fremontii

Ziziphus

Hardagonella pulmen

Senecio californica

ECOSUBSTATION ADDITIONAL PAGES

TIME	TEMP	WIND	SKYCOVER
START 1510	73	1-12 (15)	clear
END 1630	72	1-10 (15)	clear

Perplexing Hairbreak II
Sura's Orange Tip I

Birds
Yellow-rumped Warbler
Bush tit

Nectar source:

Cryptantha
Lushenia

Peckarya linearis ssp ferocula

Amisulikia menziesii var intermedia

Phacelia parryi

Pinus fremonti

Ziziphus

Dichelostemma capitatum

3-26-10 J. Benrigan
C. Daverin

Jacumba Quino Week #1
Insignia/SDGEE

TIME	TEMP	WIND	SKYCOVER
START 1005	68°F	1-2	clear
1120	64°F	0-4	clear
	70°F	1-3	clear

Chalcedon ~~2~~ IIII IIII IIII 50

Common white I

Common Checkered Skipper I

Sura's Orange Tip IIII

Pearly Marble I

Phacelia parryi

Lushenia

Ziziphus

Amisulikia

Pinus

Pinus fremonti

~~3.29.10~~

JACUMBA ECOSUBSTATION
 TIME WIND Sky cover
 START 1300 68 0-5 clear
 END 1630 71 0-2 clear

Pearly Marble IIII II

Felder's Orange Tip IIII II

Green + Purple ^{desert} Hairstreak I
~~Arctic~~ Swallowtail IIII

Spring White I

Perplexing Hairstreak IIII

Chalcedon IIII

Sara's Orange Tip I

Nectar Source:

~~Black~~

Amisintia menzeisi var. inter

Cryptantha sp

[Anemone + beros?]

Phacelia distans ^{var. neri}

Ziziphus parrisi var. Pectocarya lineata sp

Lasthenia gracilis

Prunus fremontii

Birds

CA QUAIL

ROBIN

3.29.10

STEEL POLE 91448
 M. Rocks J. Rocks C. Pavani

Boulevard ECOSUBSTATION
 TIME WIND Sky cover
 START 0945 78 0-1 20% clouds

Behr's Metalmark I

Sara's Orange Tip IIII

Perplexing Hairstreak I

Acron Blue I

Nectar Source

Lasthenia

Layia

TIME WIND Sky cover

1200 79 0-2 20% cover

Nectar Source

Lasthenia

Layia

Platystemon

Cubs II

Acmon Blue III

Sara's Orange Tip IIII

Alphalpa Sulfur I

Chalcedon III

Behr's Metalmark I

Perplexing Hairstreak I

Arctic Swallowtail I

Ceanothus greggii

Cryptantha

Prunus fremontii

Eradium ciutarium

Rail Road Ranch

TIME	TEMP	WIND	SKY
1345	80°	1-3	58%
End 1645	82°	4-12	20%

Perplexing Hairstreak III
 Pearly Marble III
 Sava's Orange Tip II
 Painted Lady I
 Funeral Duskywing I

Nectar:

Lusthenia gracilis
Ceanothus greggii
Erodium cicutarium
Lauria platy
Platystemon californicus
Calandrinia glabra
 Peckcaryn

Other:

Horn Lizard
 Candy GB

4.7.2010

M. Mulligan C. Davenport D. Busby
 Substation Site Signia/SB/E

Quino #3

Time	Temp	Wind	SKY
Start 0930	68°F	0-4	clear
End 1630	72°F	0-5	clear

Pearly Marble I
 Funeral Duskywing I
 Painted Lady III
 Desert Swallowtail IIII
 Felder's Orange Tip IIII
 Sava's Orange Tip II
 Chalcedon Checkerspot IIII
 California Patch I
 Behr's Metalmark I
 Tortoiseshell I
 Purshia tridentata, identer
 Ziziphus

Phacelia distans

Thamnosia montana
Crotophaga sulcirostris

Nectar Source:

Amorpha menziesii
~~*Stemmadia*~~ *Encumera*
Lusthenia gracilis
Erigeron annuus
Simmondsia chinensis

4.9.2010 M. Mulligan
 C. Daverin - J. Rocks, B. Lohstoh
 QCB SURVEY #3 ROCKY CANYONS
 IN SIGNIA / SDG 1/2 E

TIME TEMP WIND SKY
 START 0945 70°F 0-4 clear

Chalcedon ~~||||~~ ||||
 Common Checkered ||
 Pearly Marble |
 California Patch |
 Western Pygmy Blue |
~~Pearly Marble~~
 Funereal Duskywing |

Nectar Source: L Bahiopsis parviflora
 Lastreia gracilis ~~Tramusa montana~~
~~Protophoma montana~~
 Pectocarya linearis Lotus scoparius branched
 Prunus fremonti
 Mirabilis laevis siliqua

M. Mulligan B. Lohstoh, J. Rocks

TIME TEMP WIND SKY
 START 1300 82 0-8 clear
 Additional Parcels
 STOP ~~1700~~ 81 0-9 clear

Perplexing Hairshank |
 Behr's Metalmark ||
 Chalcedon ~~||||~~ ||||
 Desert Swallowtail ||
 Loke ||
 Sara's Orangechip ||
 Painted Lady |

Nectar Source: Emmenane pendula
 Lastreia gracilis Phacelia pumila
 Prunus fremonti Vinanthus bellus
~~Phacelia distans~~
 Vincetoxicum linifolium
 Eriogonum walteri
 Prunus montana
 Salvia columbiana
 Cryptantha sp. Spectalced Rattlesnake
~~Phacelia distans~~

4.15.10 C. Davenport, J. Rocks, B. Wolsten

~~ECO~~ SUBSTATION / INSIGNIA / SDGE

QCP#4 START AT SUBSTATION

6945 60° 0-4 20%

1430 81° 2-6 90% twin

1630 76° 2-6 100%

BUTTERFLIES: Chaldean Checkerspot IIII

Painted Lady I

Desert Swallowtail I

Painted Lady I

Sara's Orange Tip IIII

~~Area~~ Desert Swallowtail IIII

Felder's Orange Tip III

California Patch I

Neotus: *Amsinckia menziesii*

Mirabilis laevis var. *villosa*

Lasthenia gracilis

Mulhollandia californica

Anisocoma acaulis

Simmondsia chilensis

Coreopsis californica

Thamnos montana

Purshia tridentata tridentata

Rhus freemanii

Eriophyllum waltlacei

Pholisoma membr

Pectocarya setosa

Erodium cicutarium

Emmenanthe pendulifera

Senecio californicus

Mentzelia leucostachya

Phacelia distans

4.16.10 B. Johnson, J. Rodas QCB#3

CLOSURE / IN SIGNIA / SDG 3 E

START AT REFERENCE SITE WALK TOWARDS

START 0930 400 2-7 clear AG

1300 790 2-8 clear FIELD

Butterflies: Pearly Marble III III

Chalcedon Checkerspot I

Desert Swallowtail I

Behr's Metalmark I

Silvery Blue I

Quino Checkerspot III

Perplexing Hair's Break I

Lady sp. I

Funeral Duskswing I

Nectar: Mirabilis laevis villosa

Plants: Amisinkia menziesii

Bahupsis parishii

Echibeerebs

Erigeron fuscicollum poliflorum

Dichostemma capitatum sp

Phacelia parryi

Thamnos alvondina

Lupinus gracilis

Pinus fremontii

Eriodivium cicutarium

THREE QUINO CHECKERSPOTS. ONE

MALE HANGING OUT IN AREA ONE

FEMALE PLING IN AND OUT OF

AREA. REMAINE WAS IN TACT THE

MALE WAS WORN AT WING EDGES.

THE THIRD FLEW THROUGH BUT

DIDN'T STOP LONG ENOUGH TO

TAKE PICTURE - JUST ID. ~~2~~

~~MALE~~

RIPARIAN AREA

START. 1530 710 4-9 clear

0-6

Chalcedon Checkerspot IIII

Perplexing Hair's Break I

SARA'S ORANGE TIP II

GABB'S CHECKERSPOT ~~IIII~~ IIII

Pearly Marble I

Behr's Metalmark I

Lupinus gracilis

Eriodivium cicutarium

Castilleja exserta

Phacelia parryi f. distans

Layia platyglossa

Chenopodium stramonifolium

Lupinus congens, purple

Dichostemma

SAW SEVERAL GABBY'S FLYING
AROUND 4-5 OF THEM. WAS ABLE
TO ID AT LEAST ONE FEMALE AND
ONE MALE. FRESH LOOKING.

4-19-10 J. Rocks

QOB#4 Addition Parcels - ~~ES~~ ^{substation} ~~ES~~ ^{insignia}

START 0930 67° 4-8 (B) 15% 50%

(1400 77° 4-9 (B) 5%

1100 73° 4-9 (H) 5%

Finereal Duskwing II IIII

Chalcedon Checkerspot IIII ~~IIII~~ ~~IIII~~ ~~IIII~~ ~~IIII~~

Desert Swallowtail IIII (one black form)

California Patch I

Pearly Marble III

Sleepy Duskywing? IIII

Quino Checkerspot III Males

Painted Lady II

Perplexing Hairstreak II

Nectar

Plants: Charact's glabriscula

lots Scoparius breviolatus

Prunus fremonti

Salix columbiana

Lasthenia gracilis

Eriophyllum wallecei

Keddiella antir

Encarnaria linearifolia

Emmenanthe pendulifera

01045 SAW THREE MALE QUINOS
FLYING ON JACUMBA PEAK. HANGING
OUT FOR ABOUT AN HOUR ~~IN THE~~
OUR LUNCH. ~~PLANT~~ FLYING W/
PATCH & A CHALCEDON. TWO FRESH
AND ONE VERY WORN.

Lupinus ronicinus & bicolor
Erodium cicutarium

Physalis
Mirabilis laevis villosa

Bahriopsis parishii
Eriogonum fasciculatum poliochmum
lots stigosus

1430 Rocky Canyon
Nectar 1630 150 28 5%

Plants: Amniskig menziesii
Mirabilis laevis villosa

Bahriopsis parishii
Erodium cicutarium
Lasthenia gracilis

Butterflies: Chalcedon Checkerspot IIII
Sara's Orange Tip I
Sulphur (cloudless?) I

4-25-10 C. Davenport

Insighnia / SDGITE

Rocky Canyons

QCB#5

TIME	TEMP	SKY	WIND
START 0730	75°	20% thin	2-5
1300	84°	40%	3-6
1515	84°	40%	2-6

~~||||~~ |||||

Chrysothrix Cheekers ~~||||~~ ||||| ~~||||~~ |||||

Painted Lady |||

Square-spotted Blue (Bernardino) |

Tortoise Shell |

Sara's Orange-tip ||

Desert Swallowtail ||

Sulphur sp. |

Nectar *Larrea tridentata*

Source: *Delphinium* *peninsulare* *subglobosum*

Erodium cicutarium

Bahia *peninsularis*

Emmenanthe penduliflora

Allium fimbriatum f.

Calochortus splendens

Amsinckia menziesii m.

Salvin columbariae

Sphaeralcea ambigua 9

Celtis scapanus brevisilatus

~~Agave~~ Mirabilis laevis villosa

Dichelostemma cap parviflorum 3

Tramnosia montana

Ipomopsis tenuifolia

Phacelia distans ~~distans~~

Pholistoma membranaceum

~~Calceolaria~~ ~~tridactyla~~

4/6/10

Rocks EcoSUBSTATION QCD

DIECUMBA - SURVEY 2

leave time: 0900 (120045 mi.) TOTAL 9.25 hrs.
 arrive time: 1815 (120095 mi.) (50 miles)

Start: 1100, 63F, 2-9 mph, 0% clouds
 1345, 74F, 27 mph, 0% clouds
 end: 1645, 68F, 3-5 mph, 0% clouds

Started at Riparian green, Lake Damingo, to
 Boulevard Substation.

Butterflies

Fun dusky I
 Chionides I III III
 West tailed blue I
 Acraea blue III I
 Perplexing green III I
 Dusky wing sp. I
 Behr's metalmark III I
 Sara orange tip II
 Sleepy dusky wing I
 Garbis checkerspot II
 Brown elfin I
 Pale swallowtail I
 Lacy white sp. I

Other wildlife

OATI YRWA.
 SPTD ^{Grants} spray 1/2
~~Grants~~
 CER A
 Woken wood
 BEKI
 AMCO
 TUMU
 NOFL
 RWBL
 L-ASP
 side blotched 1/2
 EAGM

Flowering plants

LWS CXL
 ERO CIC
 Solanum sp.
 CEA LEU
 CEA GRE
 Play celastroids
 Lett AGR
 Claytonia sp.
 Chrysothrix sp.
 Lupinus sp.
 DIC CAP
 ESC CAL
 Tilly tips
 Arabis sp.
 Lomatium sp.
 Cream cups

Host plants

CAS EXE - small isolated patches throughout
 survey area.

Date
JR
CD
BM~~Host plants~~

4/8/10 ROSES ECOSUBSTITUTION Q&B
JACUMBA - SURVEY 3

leave km: 0800 (120163 mi.)
arrive km: 1815 (120213 mi.)

TOTAL
10:25 hr
50 mi.

Survey location:
Eco-substation site

Start: 0930, 68F, 0-Sunph, 0-Clouds
End: 630, 72F, 0-Sunph, 0-Clouds

Butterflies

- Painted lady I
- Desert orange tip I
- Lippia moth III
- Desert swallow IIII
- Lady sp. III
- Chalcid ~~III~~ IIII
- Calif patch II
- Funereal Dotz I
- Calif. tortoiseshell I

Over-winter

- ROWR LAGO
- TUNY CORA
- ~~BTSP~~ HOA
- BTSP ~~BTSP~~
- West whiptail
- NOMO
- Snake ~~BTSP~~ 1/2
- AMRO
- PTAI
- Judo rabbit
- YRNA
- BUSH
- W-SP
- BTSP

Flowering plants

- Croton sp.
- ERI FAS
- Pectocarya
- MIR CAL
- SAL COL
- LBS CAL
- ~~Poleyn~~
- UG PAR
- AMS MEN
- DIC CUP
- RAF NEG - Desert Cherry
- MAL GLA - Desert dandelion

Rattlesnake

- PER TRI
- ZIC CAL
- SEN CAL
- ASTRAGALUS 1/2

Host plants

None observed

DB
CB
MM

4/20/10

Rocks Eco SUBSTATION

OCB Survey #
leave km: 0800 (121032 mi.)
arrive km: 1815 (121082 mi.)
TOTAL: 10:25 hr. (50 mi.)

Start: 0930, 64F, 4-8 mph, 5% clouds
1230, 67F, 8-12 (just 5/4), 10% clouds
End: 1630, 67F, 5-10 (just 12), 5% clouds

Butterflies

- Behrs metalmark ~~III~~ I
- Pearly marble III
- Fun dusky III
- Acron blue ~~III~~ II
- Chilodan checker III
- Arrowhead blue I
- Lady sp III

Sunny Areas

- Believed to Lake Demingia
- Riparian area

Flowering Plants

Whispering bells

- CAS CAL
- Grass
- LUP BIC
- RHU OVA
- LAY GLA
- Sarcocolla
- Playekehays
- COR CAL
- LIN BEL
- AMS MEN
- PHA CRE
- ERI FAD
- JAL COL
- ESC CAL
- Pectocrygi ?
- Cream cup
- Solanum sp
- CEA LEY
- CEA GRE
- ERI WAL

Hust plants

- CAS EXE
- Small scattered patch on small hill between SP-38 + SP-39
- another couple small patches south of lake

IRS
DB
COT

4/30/10 Rocks Eco Substation
CRS Survey #5

leave km: 0830 (121408 mi)
arrive km: 1800 (121458 mi)

Survey location: Additional parcels, Riparian (east)

Start: 1015, 62F, 0-4 mph, 0% clouds
1200, 74F, 0-4 mph, 50% clouds
end: 1400, 66F, 0-4 mph, 50% clouds
1630, 67F, 3-5 mph, 60% clouds

Butterflies

Pearly marble II

Calif patch II

sluggly duskywing I

Desert swallowtail I

Charleston checker ~~IIII~~

Lady sp. II

Calif's checker II

Acorn blue II

Belted metalmark IIII

Painted lady IIII

TR
BL
CB
DB

TOTAL: 9.5 hr.
50 mi

Flowering Plants

VIG PAR
DIC CAP
ERI FAS
Delphinium
MUR CAL
AMS MEN
Whorlingbells
SAL CAL
ERI WAL
LOT SCO
ERI COV
LAS CAL
KEC ANT
RHU OVA
*LIN DEL
ERI LIN
Lupinus sp
ESC CAL
CAS EXE

Host plants

CAS EXE - In full flower in riparian area

Plagiobothrys sp.
LUP BIC
LAY GLA
Chamaecrista sp.
Cream cups