

**QUINO CHECKERSPOT BUTTERFLY
HABITAT ASSESSMENT
FOR THE TULE WIND PROJECT**

McCain Valley, San Diego County, California

Prepared for:

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1 INTRODUCTION

1.1 Background

Iberdrola Renewables (Iberdrola) is in the process of studying the potential to implement a wind energy project (the Tule Wind Project) in portions of the McCain Valley in eastern San Diego County, California. McCain Valley is located in southeastern San Diego County, approximately 60 miles east of the city of San Diego near the town of Boulevard (*Figure 1*).

The proposed Tule Wind Project (project) would include wind turbines, access roads, utility lines, and substations in the area. The proposed study area occurs on federally owned lands managed by the Bureau of Land Management (BLM), state-owned lands, and Native American owned lands within the Campo, La Posta, and Cuyapaipe Reservations (*Figure 2*).

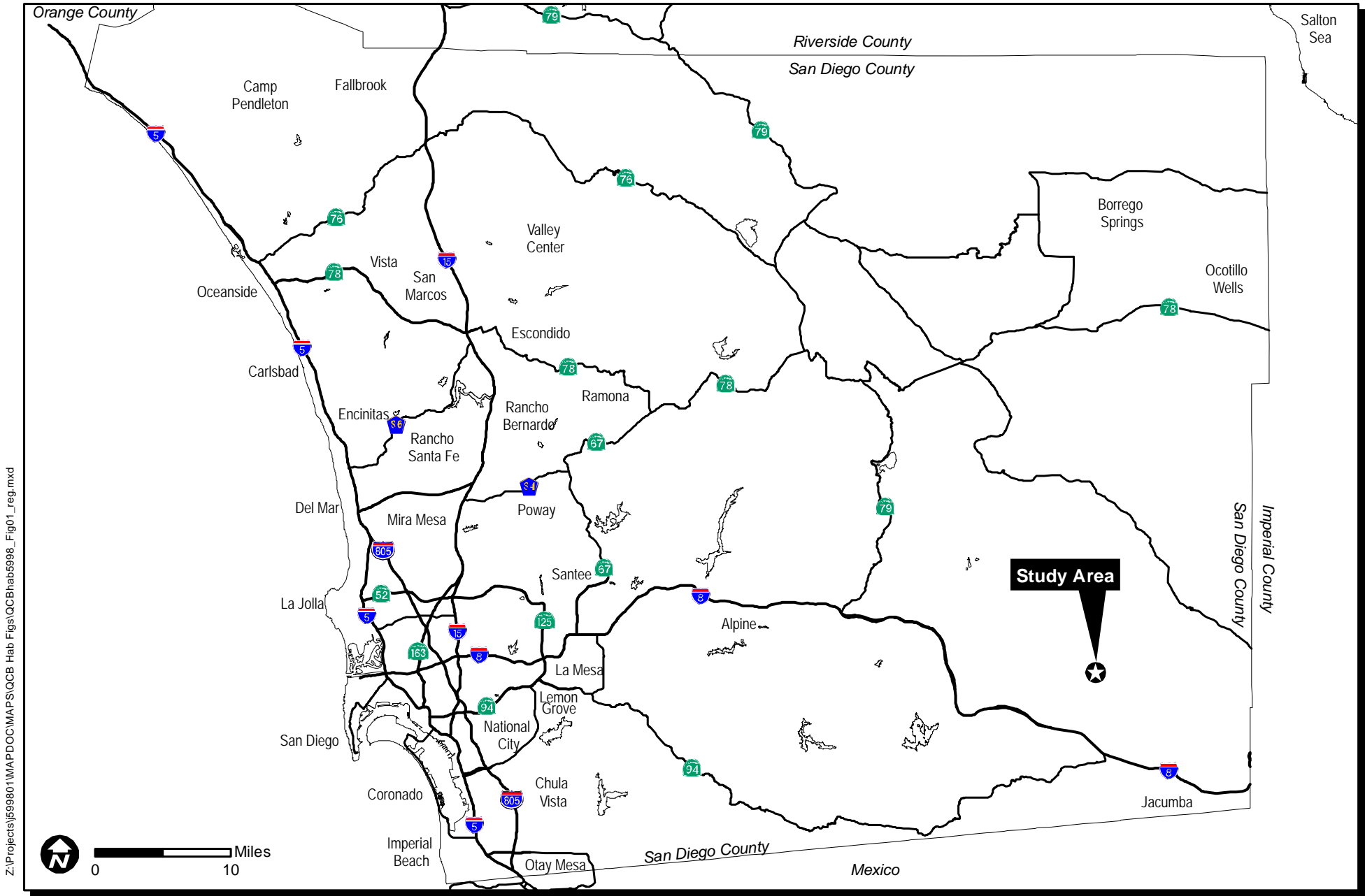
Dudek was requested to investigate the potential of the study area to support quino checkerspot butterfly (*Euphydryas editha quino*; QCB) and provide recommendations to Iberdrola.

1.2 Quino Checkerspot Butterfly

The Quino checkerspot butterfly was listed as endangered under the Endangered Species Act in January 1997 (USFWS 2003). Loss and degradation of habitat have been cited as the primary factors causing decline in this subspecies (Mattoni et al. 1997). In August 2003, the United States Fish and Wildlife Service (USFWS) completed the Recovery Plan for QCB. The recovery plan identified six recovery units that were delineated based on ecological and political factors. The Southeast San Diego Recovery Unit covers the southeastern portion of the proposed study area. The nearest documented occurrence of QCB is in the Jacumba Occurrence Complex, located approximately six miles southeast of the southeastern portion of the proposed study area.

The QCB is in the Lepidoptera family Nymphalidae (brush-footed butterflies) and the subfamily melitaeninae (checkerspots and fritillaires). QCB is a subspecies within the Edith's checkerspot species group and is differentiated from other subspecies in this group by a variety of characteristics, including size, wing coloration, and larval and pupal phenotype (Mattoni et al. 1997).

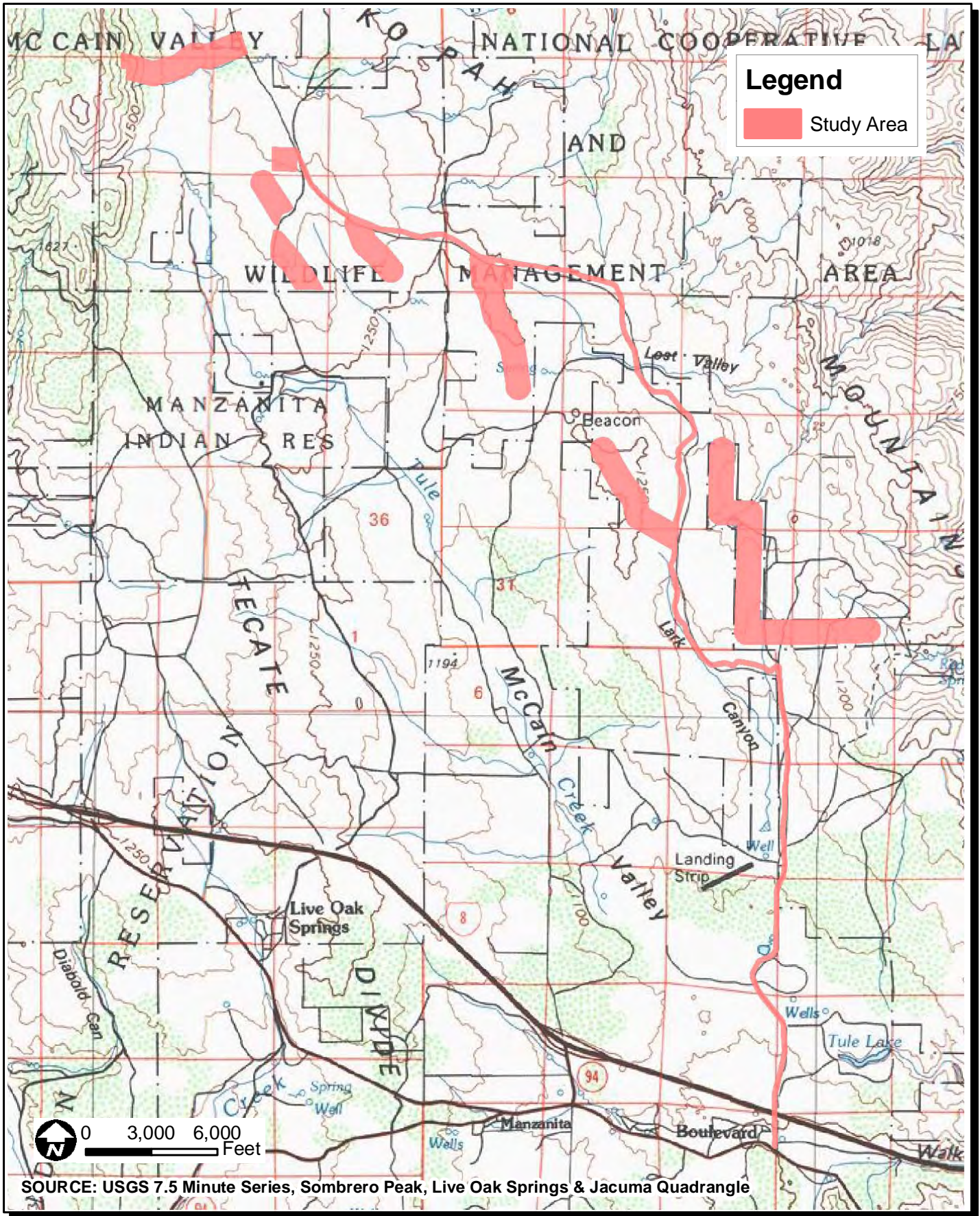
The QCB life cycle typically includes one generation of adults per year, with a flight period from late January to early March and continuing as late as early May. The exact timing is dependent on the weather conditions (Emmel and Emmel 1973; USFWS 2003). Females are generally fertilized on the day they emerge from pupae and lay (oviposit) one or two egg clusters per day for most of their 10- to 14- day life span. Adult emergence is staggered, resulting in a one to two month flight period. QCB larvae can live for several years by undergoing periods of diapause between plant growing seasons.



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Tule Wind Project - Quino Checkerspot Butterfly Habitat Assessment
Regional Map

FIGURE
1



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Tule Wind Project - Quino Checkerspot Butterfly Habitat Assessment
Vicinity Map

FIGURE
2

Quino Checkerspot Butterfly Habitat Assessment

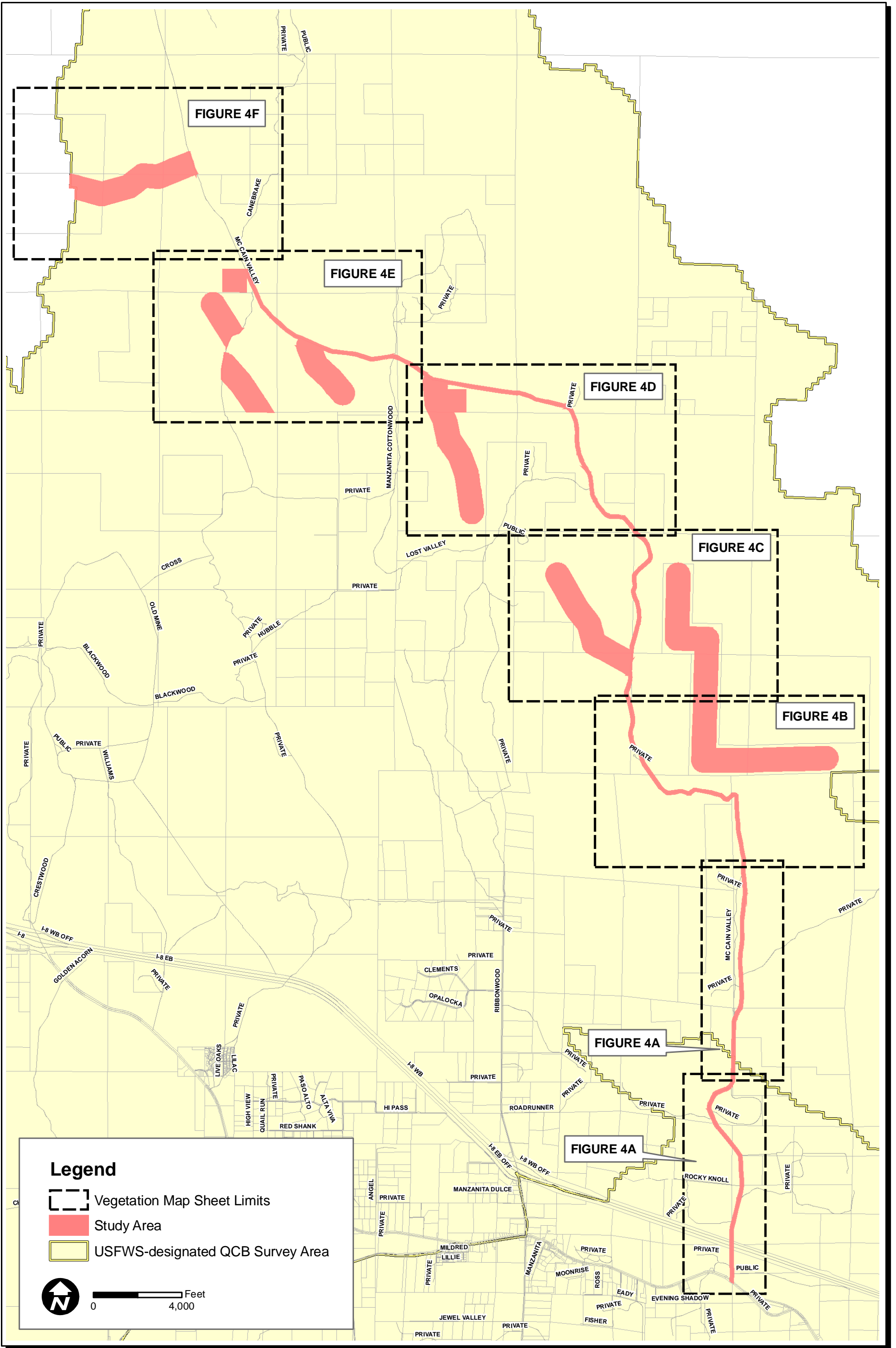
QCB females have been documented to oviposit eggs on five primary host plant species: dot-seed plantain (*Plantago erecta*), woolly plantain (*Plantago patagonica*), white snapdragon (*Antirrhinum coulterianum*), thread-leaved bird's beak (*Cordylanthus rigidus*), and owl's clover (*Castilleja exserta*). In some cases these plant species are important as secondary host plants, used as food sources by larval QCB. Numerous plants are used as nectar sources by QCB.

1.3 Study Purpose

The purpose of this study is to assess proposed project “action areas” (i.e., the area encompassing the proposed turbine alignment, access roads, utility lines, and substations) for the presence of suitable habitat for QCB. The assessment is designed to identify areas of suitable habitat where future focused Quino surveys may be necessary and to exclude areas that are not considered suitable to support the species.

2 METHODS

A QCB habitat assessment and evaluation was conducted for the anticipated “action areas” within portions of the proposed Tule Wind Project site, which is where proposed project facilities and potential effects are anticipated. A majority of the proposed actions areas occur within the USFWS-designated QCB survey area (USFWS 2003). Areas that are excluded from the USFWS-designated QCB survey area in this region include the upper elevations of the Cuyapaipe Indian Reservation and the upper elevations of the ridge east of Thing Valley. Therefore, these areas were not included in the study area for this QCB habitat assessment. The study area included only the portions of the proposed study area where access was permitted (as directed by Iberdrola Renewables), which included the Cuyapaipe lands, BLM lands, and state lands. Therefore, Manzanita and Campo lands were not assessed. Within the study area lands, surveys covered a 1,000-foot-wide corridor along proposed turbine and access road alignments. Approximately 10 linear miles of proposed turbines and access roads occurs within the required QCB survey area on Cuyapaipe, BLM, and state land. Additionally, the study area included two substation areas (20 acres each) and a 100-foot-wide survey corridor along approximately 10 linear miles of McCain Valley Road. The location of all proposed alignments and facilities was based on geographic information system (GIS) data provided to Dudek by Iberdrola Renewables on April 2, 2008. The total habitat assessment study area included approximately 1,145 acres and is illustrated in *Figure 3*.



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Tule Wind Project - Quino Checkerspot Butterfly Habitat Assessment
Vegetation Index Map

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Field surveys were generally conducted in teams of two biologists. Meandering transects were followed along the length of the survey corridors. The teams mapped vegetation communities on aerial photograph based field maps (1 inch = 300 foot scale) in the field following the Terrestrial Vegetation Communities of San Diego County Based on Holland's Descriptions (Oberbauer 1996), which is a regional vegetation classification system based on Holland (1986). Vegetation communities were evaluated in the field to determine if areas could be excluded from meeting the requirements for focused QCB surveys (USFWS 2002). Excluded areas include:

- Orchards, developed areas, or small in-fill parcels largely dominated by non-native vegetation
- Active agriculture fields
- Closed-canopy forests or riparian areas, dense chaparral, and small openings (less than an acre) completely enclosed within dense chaparral.

For chaparral communities, the vegetation was further classified as "Open" or "Closed" to describe whether it met the "dense" definition used to exclude areas from focused QCB surveys. The USFWS QCB survey protocol (2002) defines "dense chaparral" as "vegetation so thick that it is inaccessible to humans except by destruction of woody vegetation for at least 100 meters."

Within each vegetation community, Dudek recorded the plant species present, including known QCB host plants and nectar sources. If host plant species were encountered, the perimeter of the polygon was to be marked and recorded using GPS. Based on the USFWS QCB survey protocol (2002), the target host plant species for this assessment included:

- Dot-seed plantain (*Plantago erecta*)
- Woolly plantain (*Plantago patagonica*)
- White snapdragon (*Antirrhinum coulterianum*)
- Thread-leaved bird's beak (*Cordylanthus rigidus*)
- Owl's clover (*Castilleja exserta*).

Additionally, Dudek recorded all butterfly species observed in the field. Incidental observations of other wildlife species were also recorded.

QCB habitat assessments and focused QCB surveys are timed to correspond with the blooming period of the host plant species and the flight season of the adult QCB. For this QCB habitat assessment, all surveys were conducted during the appropriate period to detect the target host plant species identified above. Dudek based the field effort on regional species observations reported on the USFWS Carlsbad Field Office 2008 Season Quino monitoring information website (USFWS 2008). The nearest monitoring information this season for host plants was from Campo, where white snapdragon was beginning to sprout on March 11. Based on this

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information and a reconnaissance visit to the area, the field data collection for the habitat assessment was scheduled from early to mid-April through mid-May. The 2008 flight season for adult QCB began in early March at lower elevations and in early April at higher elevations (the McCain Valley study area would be considered higher elevation). Adult QCB were observed in flight on April 20 at the Jacumba occurrence site. Surveys were conducted during a relatively average rainfall year. For the 2008 rainfall year (July 2007-June 2008), San Diego received approximately 7.25 inches of rain. Average precipitation for San Diego is approximately 10 inches per year. All surveys were conducted under mild conditions with sun to partial sun. Wind conditions varied from calm to 20 miles per hour. *Table 1* provides a summary of the survey effort for this project.

Table 1
Project Survey Summary

Surveyor	QCB Permit No.	2008						
		4/14	4/22	4/24	4/30	5/2	5/8	5/14
David Flietner	TE-008031-0	X		X				
Anita Hayworth, Ph.D.	TE-781084-6					X		
Mike Howard	—		X		X	X	X	X
Paul Lemons	TE-051248-2	X		X				
Brock Ortega	TE-813545-6	X						
Travis Smith, Ph.D.	—	X	X		X			

3 RESULTS

3.1 Physical Setting

The study area is primarily within the McCain Valley, which is a broad valley surrounded by the Laguna Mountains in the west and the In-Ko-Pah Mountains in the east. The terrain in the area ranges from valley bottoms to house-sized boulder-covered ridge lines. The elevation ranges across the study area from approximately 3,320 feet above mean sea level (MSL) at McCain Valley Road near Interstate 8 to approximately 4,400 feet above MSL along the northwestern portion of the study area above the Cottonwood Creek Campground.

The study area is crossed by several drainage systems within the Anza Borrego Hydrologic Unit. Tule Creek, Lark Canyon Creek, and Cranebrake Wash are the main drainages in the study area. In general, these drainages are intermittent water courses that are fed by numerous smaller ephemeral tributaries.

The soils in the study area are exclusively sandy granitic soils. The soils are characterized as loamy coarse sands and coarse sandy loams of the Kitchen Creek, La Posta, Mottsville, and Tollhouse soil series. These soils are derived from weathered granitic and granodiorite parent

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material and are all somewhat excessively drained to excessively drained. Surveys of the study area verified the presence of only sandy granitic soils with no observed inclusions.

The BLM manages large portions of the study area. Land uses in these areas include grazing, camping, off-highway vehicle use, and hunting. Land uses on private lands and Native American tribal lands are generally grazing and rural residential.

3.2 Vegetation Communities

The study area is covered predominantly by chaparral and scrub vegetation communities. Chaparral communities include granitic chamise chaparral, red shank chaparral, semi-desert chaparral, granitic southern mixed chaparral, and scrub oak chaparral. Scrub communities included flat-topped buckwheat and big sagebrush scrub. Other vegetation communities occurring in the study area included coast live oak woodland, non-native grassland, southern coast live oak riparian forest, and southern willow scrub. Other land cover included field/pasture, disturbed habitat, and urban/developed. A description of these communities is provided below. *Table 2* provides a summary of the communities and acreages within the study area. The vegetation mapping for the study area is shown on *Figures 4a-4f* provided in the attached map pockets.

Table 2
Vegetation Communities in the QCB Habitat Assessment Study Area

Vegetation Community	Community Code	Map Code	Acres
Big Sagebrush Scrub	35210	GBS	7.38
Coast Live Oak Woodland	71160	CLOW	17.96
Urban/Developed	12000	DEV	7.79
Disturbed Habitat	11300	DH	25.00
Field/Pasture	18310	AGR	0.34
Flat-Topped Buckwheat	37K00	BS	9.86
Granitic Chamise Chaparral – <i>Closed</i>	37210	CC-c	136.17
Granitic Chamise Chaparral – <i>Open</i>		CC-o	53.57
Granitic Southern Mixed Chaparral – <i>Closed</i>	37121	SMX-c	106.45
Granitic Southern Mixed Chaparral - <i>Open</i>		SMX-o	352.92
Non-Native Grassland	42200	NNG	0.57
Red Shank Chaparral	37300	RSC	13.52
Scrub Oak Chaparral – <i>Closed</i>	37900	SOC-c	6.02
Scrub Oak Chaparral – <i>Open</i>		SOC-o	67.49
Semi-Desert Chaparral	37400	SDC	337.24
Southern Coast Live Oak Riparian Forest	61630	ORF	2.07
Southern Willow Scrub	63320	SWS	0.66
Total Acres			1,145.00

¹Total may not sum due to rounding

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Big Sagebrush Scrub (35210)

Big sagebrush scrub is characterized as being a moderately open shrubland consisting predominantly of big sagebrush (*Artemisia tridentata* ssp. *tridentata*). Other species occurring within big sagebrush include flat-topped buckwheat (*Eriogonum fasciculatum* var. *polifolium*), goldfields (*Lasthenia californica*), and popcorn flower (*Cryptantha angustifolia*). It often occurs in or adjacent to floodplains and valley bottoms in the sandy transition to chaparral. Approximately 7.38 acres of big sagebrush scrub were mapped within the study area.

Coast Live Oak Woodland (71160)

Coast live oak woodland is an evergreen woodland dominated by coast live oak (*Quercus agrifolia*). The understory is typically made up of grassland, scrub, or chaparral species, and the community often intergrades with mixed chaparral (Holland 1986). In the study area, coast live oak woodland is generally an open canopy woodland typically occurring in valley bottoms or along drainage courses. Approximately 17.96 acres of coast live oak woodland were mapped within the study area.

Urban/Developed (12000)

Urban/developed generally refers to areas of highly modified lands, including urban development and roadways. In the study area, paved roadways are mapped as urban/developed. Approximately 7.79 acres of urban/developed were mapped within the study area.

Disturbed Habitat (11300)

Disturbed habitat refers to areas that have been permanently altered by previous human activity that has eliminated future biological value of the land for most species. The native or naturalized vegetation is no longer present, and the land lacks habitat value for sensitive wildlife. In the study area, disturbed habitat consists of graded areas and unpaved roads. Approximately 25.00 acres of disturbed habitat were mapped within the study area.

Field/Pasture (18310)

Field/pasture includes areas of low-intensity agriculture typically involving dry farming or livestock grazing. In the study area, a small area of field/pasture occurs along McCain Valley Road near Interstate 8 where livestock grazing occurs in a floodplain area. In general, this area is characterized by non-native grasses, including *Bromus* and *Hordeum* species, and non-native herbaceous species, including tumble mustard (*Sisymbrium altissimum*) and red-stemmed filaree (*Erodium cicutarium*). Approximately 0.34 acre of field/pasture was mapped within the study area.

Flat-topped Buckwheat (37K00)

Flat-topped buckwheat is a community dominated nearly exclusively by flat-topped buckwheat. This community is not described by Holland (1986) but is included in the San Diego County vegetation classification system in Oberbauer (1996). In the study area, this community is dominated by flat-topped buckwheat with occasional annual brome grasses, deerweed (*Lotus*

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scoparius), and bare ground. This community may develop after fires or under heavy grazing. This community often intergrades with semi-desert chaparral. Approximately 9.86 acres of flat-topped buckwheat were mapped within the study area.

Granitic Chamise Chaparral (37210)

Granitic chamise chaparral is strongly dominated by chamise (*Adenostoma fasciculatum*) and is adapted to fire by stump sprouting. The herb layer is usually very sparse (Holland 1986). In the study area, chamise varied between approximately 50% to nearly 100% absolute cover, with a sparse herb layer of annual grasses and herbs. Other woody shrubs include cupleaf ceanothus (*Ceanothus greggii* var. *perplexans*), sugar bush (*Rhus ovata*), and Mexican manzanita (*Arctostaphylos pungens*). Approximately 189.74 acres of granitic chamise chaparral were mapped within the study area (53.57 acres open; 136.17 acres closed).

Granitic Southern Mixed Chaparral (37121)

Granitic southern mixed chaparral is a mixed assemblage of chaparral species with no clear dominant shrub species. In the study area, this community was further classified as closed or open to indicate shrub density. Perennial species common to this community include chamise, sugar bush, scrub oak (*Quercus berberidifolia*), Muller oak (*Quercus cornelius-mulleri*), holly-leaf redberry (*Rhamnus ilicifolia*), mountain mahogany (*Cercocarpus betuloides* var. *betuloides*), and Mojave yucca (*Yucca schidigera*). Herbaceous species include San Diego gilia (*Gilia diegensis*), popcorn flower, sandy-soil suncup (*Camissonia strigulosa*), desert beauty (*Linanthus bellus*), Lemmon's linanthus (*Linanthus lemmonii*), chia (*Salvia columbariae*), and goldfields. Approximately 459.37 acres of granitic southern mixed chaparral were mapped in the study area (352.92 acres open; 106.45 acres closed).

Non-native Grassland (42200)

Non-native grasslands are typically dominated by exotic, annual grasses of Mediterranean origin. Only a small portion of the study area supports non-native grassland, and it occurs in association with disturbed areas along McCain Valley Road. Common species include cheat grass (*Bromus tectorum*), red brome (*Bromus madritensis* ssp. *rubens*), slender wild oat (*Avena barbata*), Italian ryegrass (*Lolium multiflorum*), wild oat (*Avena fatua*), and sandy-soil suncup. Approximately 0.57 acre of non-native grassland occurs in the study area.

Red Shank Chaparral (37300)

Red shank chaparral is comprised on nearly pure stands of red shank (*Adenostoma sparsifolium*) (Holland 1986). This community is similar to chamise chaparral but is typically taller and somewhat more open (Holland 1986). In the study area, red shank chaparral intergrades with chamise chaparral and scrub oak chaparral. Like chamise chaparral, the understory in red shank chaparral is sparse and comprised of flat-topped buckwheat, annual forbs, and brome grasses. Approximately 13.52 acres of red shank chaparral occurs in the study area. All of the red shank chaparral is considered open.

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Scrub Oak Chaparral (37900)

Scrub oak chaparral is a dense, evergreen chaparral up to 20 feet tall (Holland 1986). In the study area, this community is dominated by scrub oak and Muller's oak. Other occasional species in this community include chamise, red shank, and cupleaf ceanothus. The herb layer is similar to that of chamise chaparral and red shank chaparral communities. Approximately 73.51 acres of scrub oak chaparral occur in the study area (67.49 acres open; 6.02 acres closed).

Semi-Desert Chaparral (37400)

Semi-desert chaparral is relatively open with widely spaced shrubs and openings supporting annuals. This community is similar to mixed chaparral but occurring in areas with hotter, drier summers with colder winters. In the study area, this community is characterized by abundant rock outcrops. Semi-desert intergrades with flat-topped buckwheat and the other chaparral communities. Perennial species common to this community include flat-top buckwheat, silver cholla (*Cylindropuntia echinocarpus*), Mojave yucca, and Mormon-tea (*Ephedra californica*). Scattered occasionally throughout this community are other common chaparral shrubs, including sugarbush, mountain mahogany, and scrub oak. Annual species observed in the openings of this community include goldfields, red-stemmed filare, golden yarrow (*Eriophyllum confertiflorum*) thread-leaved eriastrum (*Eriastrum filifolium*), chia, desert beauty, Lemmon's linanthus, San Diego gilia, popcorn flower, and red brome. Approximately 337.24 acres of semi-desert chaparral occur in the study area. All of the semi-desert chaparral is considered open.

Southern Coast Live Oak Riparian Forest (61310)

Southern coast live oak riparian forest is a dense evergreen riparian community dominated by coast live oak. This community occurs along floodplains and drainages. In the study area, this community occurs in a single area where several drainages converge. In addition to coast live oak, this community supports arroyo willow (*Salix lasiolepis*) and big sagebrush. Approximately 2.07 acres of southern coast live oak riparian forest occur in the study area.

Southern Willow Scrub (63320)

Southern willow scrub is a dense, winter deciduous riparian community dominated by willows (*Salix* spp.). The understory is typically undeveloped due to the thickness of the canopy cover. Southern willow scrub is strongly associated with streams and floodplains. In the study area, this community occurs along the southern end of McCain Valley Road in a floodplain area near Interstate 8. This area supports a relatively open grouping of arroyo willow. Approximately 0.66 acres of southern willow scrub occur in the study area.

3.3 Butterfly Species

No QCB were observed during these surveys. A total of 11 butterfly species were observed during the surveys. These species are listed in *Table 3*.

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Table 3
Butterfly Species Observed in the Study Area

Scientific Name	Common Name
Hesperiidae	Skippers
<i>Erynnis funeralis</i>	funereal duskywing
Lycaenidae	Blue, Hairstreaks & Coppers
<i>Brephidium exile</i>	western pygmy blue
<i>Icaria acmon acmon</i>	acmon blue
Nymphalidae	Brush-footed Butterflies
<i>Euphydryas chalcedona</i>	Chalcedon checkerspot
<i>Junonia coenia</i>	buckeye
<i>Vanessa annabella</i>	west coast lady
<i>Vanessa cardui</i>	painted lady
Peiridae	Whites and Orangetips
<i>Anthocharis sara</i>	Sara orangetip
<i>Colias eurydice</i>	California dogface
<i>Pontia protodice</i>	common white
Riodinidae	Metalmarks
<i>Apodemia virgulti</i>	Behr's metalmark

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Suitable habitat for QCB is considered to be dictated primarily by vegetation/vegetation structure, availability of host plants/nectar sources, and other abiotic factors such as terrain and soils (Mattoni et al. 1997, USFWS 2003). Preferred habitat for QCB is characterized by barren areas with low-growing vegetation, often within grasslands, disturbed areas, and sparse scrub and chaparral. Suitable habitat for QCB would support one or more of the host plant species and nectar sources. Nectar sources include primarily small annual plant species that flower at the same time as the flight season for the adult QCB and have been documented in Mattoni et al. (1997) and USFWS (2003). Additionally, QCB suitable habitat is typically characterized by soil crusts, referred to as cryptogamic or cryptobiotic crusts, which act to reduce plant cover favoring the host and nectar plants. QCB often occupies landscapes with topographic relief, such as near hills or ridgelines, which facilitates their social “hill-topping” behavior.

The QCB Recovery Plan designates recovery units for the species and provides additional area-specific information for each unit (USFWS 2003). The Southeast San Diego Recovery Unit is centered on the Jacumba Occurrence Complex. For this area, the Recovery Plan identifies “Habitat Considerations” for the species in this region. Occupied suitable habitat in the Jacumba area occurs in open juniper woodlands with clay soil lenses and *Plantago* host plant species.

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Vegetation and Vegetation Structure

Based on the published information on QCB suitable habitat, field observations of the vegetation communities in the study area, and the professional judgment of Dudek biologists, the following vegetation communities occurring within the study area are considered potentially suitable to support QCB based solely on vegetation and vegetation structure:

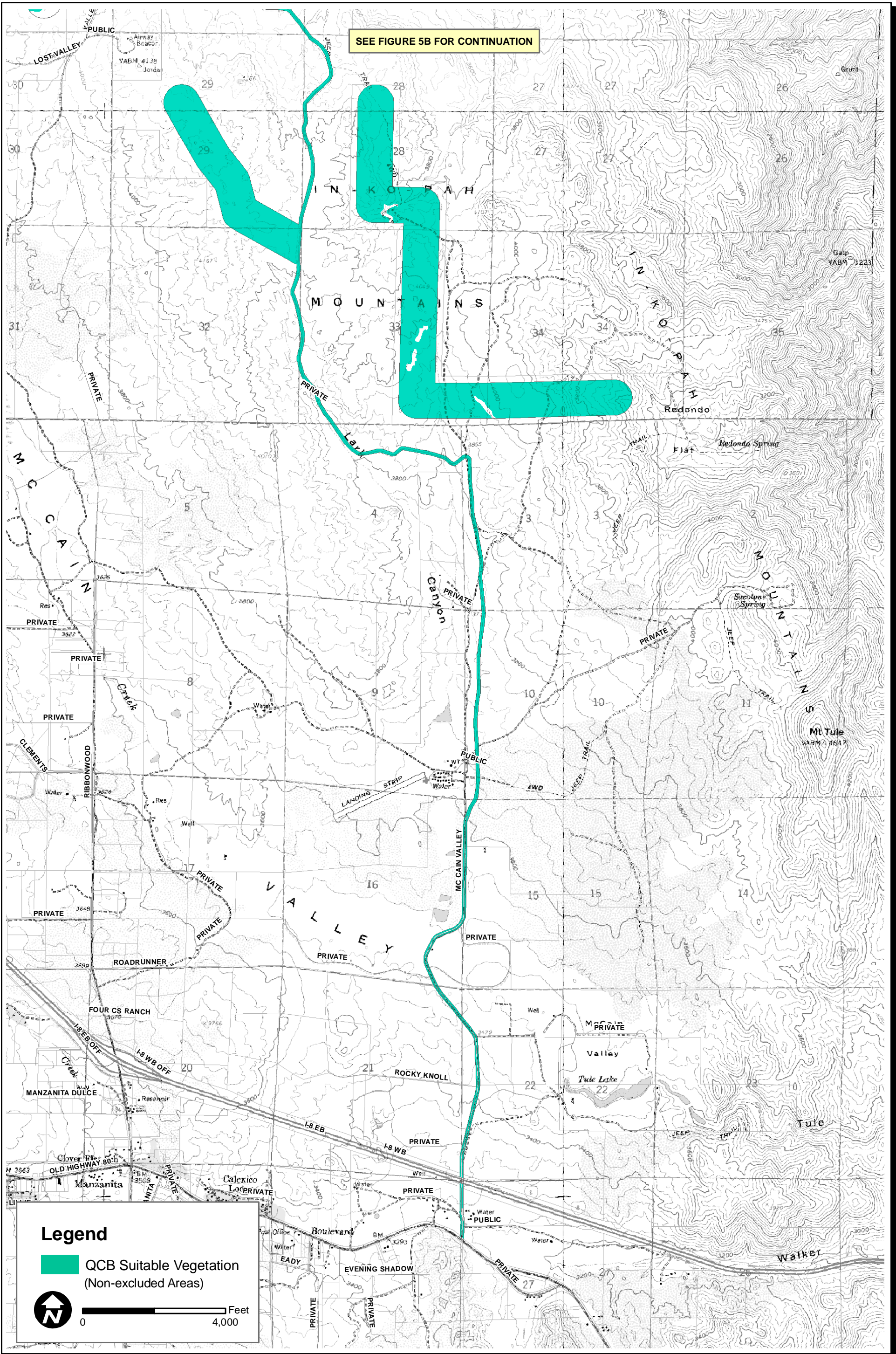
- Big Sagebrush Scrub
- Coast Live Oak Woodland
- Disturbed Habitat
- Field/Pasture
- Flat-Topped Buckwheat
- Granitic Chamise Chaparral – *Open*
- Granitic Southern Mixed Chaparral - *Open*
- Non-Native Grassland
- Red Shank Chaparral
- Scrub Oak Chaparral – *Open*
- Semi-Desert Chaparral
- Southern Willow Scrub.

Based on the published information on QCB suitable habitat, field observations of the vegetation communities in the study area, and the professional judgment of Dudek biologists, the following vegetation communities occurring within the study area are not considered potentially suitable for QCB based solely on vegetation and vegetation structure:

- Urban/Developed
- Granitic Chamise Chaparral – Closed
- Granitic Southern Mixed Chaparral – Closed
- Scrub Oak Chaparral – Closed
- Southern Coast Live Oak Riparian Forest.

Based on vegetation and vegetation structure, the total acreage of suitable vegetation for QCB within the study area is 886.51 acres. The total acreage of vegetation excluded from suitable habitat for QCB within the study area is 258.49 acres. *Figures 5a–5b* show the suitable habitat areas and excluded areas of the study area.

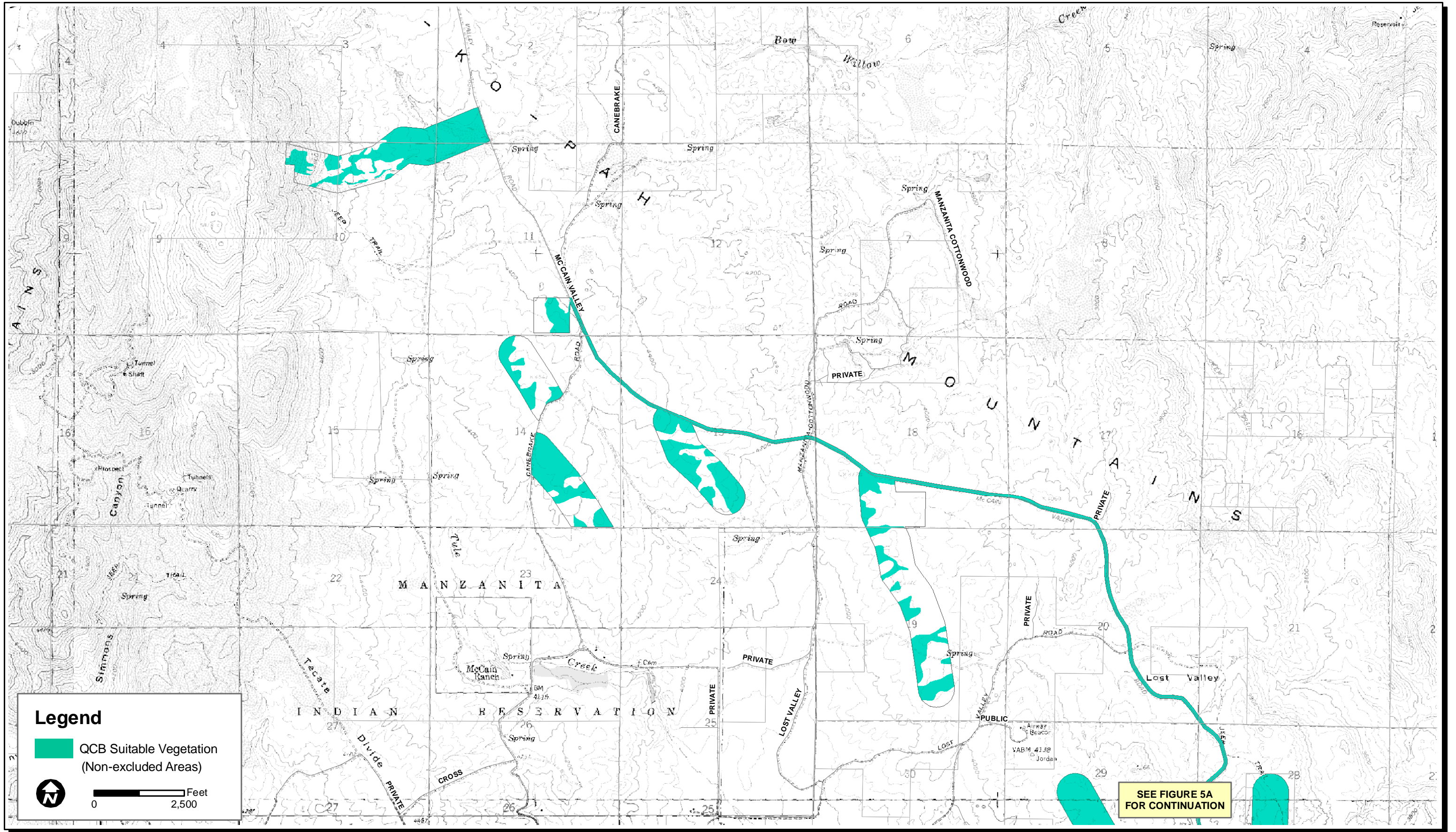
SEE FIGURE 5B FOR CONTINUATION



Tule Wind Project - Quino Checkerspot Butterfly Habitat Assessment
QCB Suitable Vegetation

FIGURE 5A

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Tule Wind Project - Quino Checkerspot Butterfly Habitat Assessment
QCB Suitable Vegetation

FIGURE 5B

Quino Checkerspot Butterfly Habitat Assessment

Host Plants and Nectar Sources

No host plants for QCB were observed in study area. The surveys were conducted during the appropriate season and during a period experiencing relatively typical normal rainfall; therefore, the species would have been detectable if present this season. The host plants are all annual species that may fluctuate in their presence and abundance from year to year but should have been observable given the phenology of other observed plant species in the area.

Numerous potential nectar source plant species were detected in the study area. *Table 4* provides a list of plant species observed in the study area that have been documented as nectar sources for QCB (Mattoni et al. 1997, USFWS 2003). Other plant species have the potential to serve as nectar sources for QCB, and a complete list of the plant species recorded in the study area is provided in *Appendix A*. The field notes from the habitat assessment are provided in *Appendix B*.

Table 4
Quino Checkerspot Nectar Plants Observed in the Study Area

Scientific Name	Common Name
STERACEAE	SUNFLOWER FAMILY
<i>Lasthenia californica</i>	California goldfields
BORAGINACEAE	BORAGE FAMILY
<i>Cryptantha</i> spp.	popcorn flower
FABACEAE	PEA FAMILY
<i>Lotus scoparius</i>	deerweed
HYDROPHYLLACEAE	WATERLEAF FAMILY
<i>Eriodictyon trichocalyx</i> ssp. <i>trichocalyx</i>	Yerba Santa
<i>Phacelia</i> spp.	Phacelia
LAMIACEAE	MINT FAMILY
<i>Salvia columbariae</i>	chia
ONAGRACEAE	EVENING PRIMROSE FAMILY
<i>Camissonia bistorta</i>	suncup
<i>Camissonia strigulosa</i>	sandysoil suncup
POLEMONIACEAE	PHLOX FAMILY
<i>Gilia diegensis</i>	San Diego gilia
<i>Linanthus bellus</i>	desert beauty
<i>Linanthus lemmoni</i>	Lemmon's linanthus
POLYGONACEAE	BUCKWHEAT FAMILY
<i>Eriogonum faciculatum</i> var. <i>polifolium</i>	flat-topped buckwheat
LILIACEAE	LILY FAMILY
<i>Dichelostemma capitatum</i> ssp. <i>capitatum</i>	blue dicks

Abiotic Conditions

In addition to vegetation/vegetation structure and host and nectar plants, soil characteristics are considered an important factor in habitat suitability for QCB. All soils in the study area are classified as loamy coarse sands or coarse sandy loams, and field observations verified these classifications. No clay lenses or other clay inclusions were observed in the study area. Additionally, no cryptogamic crusts were detected in the study area. The lack of clayey soils likely reduced the potential of the site to support host plants.

Quino Checkerspot Butterfly Habitat Assessment

The terrain of the study area is characterized by valley bottoms and ridgelines with abundant rock outcrops. This terrain is conducive to “hill-topping” behavior.

The primary land use potentially affecting habitat suitability for QCB in the study area is grazing. According to the Recovery Plan (USFWS 2003), grazing can have a positive or negative effect on habitat quality for QCB depending on timing, intensity, and duration. Grazing can result in the destruction of cryptogamic crusts and the spread of invasive plant species but can also reduce non-native plant cover in favor of host/nectar plants. Grazing has been a long-term land use throughout McCain Valley. Based on observations during this study, grazing intensity was relatively low. No cryptogamic crusts occur in the study area, so grazing does not affect this habitat factor. In general, the study area is characterized by native vegetation communities with no strong infestation of non-native species. Therefore, grazing in the study area is not considered to be a factor in determining habitat suitability for QCB.

Climatic conditions have the potential to affect the abundance of both adult QCB and habitat quality for QCB. The 2006-2007 precipitation levels in San Diego County were well below average, and conditions for QCB were suboptimal. This season (2007-2008) was a near average year for precipitation, and abundant adult QCB and good QCB habitat conditions were observed across the species’ range (USFWS 2008).

4 DISCUSSION AND CONCLUSIONS

Based on the results of this habitat assessment, the study area contains vegetation/vegetation structure potentially suitable to support QCB but lacks host plant species and appropriate soils. Although a large portion of the study area contains suitable vegetation, the lack of suitable soil characteristics in the study area (i.e., clays and crusts) substantially reduces habitat suitability for QCB. The sandy, decomposed granite substrate of the study area is not likely to support host plant species, and cryptogamic crusts are not commonly associated with these soil types. The study area does support a number of nectar sources; however, QCB will utilize a number of relatively widespread plants as nectar sources, and the presence of these species is not a strong indicator of suitable habitat.

Although this study constitutes only a habitat assessment and not a focused protocol survey for QCB, no QCB were observed in the study area during the assessment. A total of 14 person-days were spent conducting the habitat assessment. All biologists conducting the assessment were capable of identifying QCB, and four of the six biologists conducting this assessment were experienced and permitted QCB biologists.

Several other recent habitat assessments or focused protocol surveys for QCB have been conducted within or adjacent to the study area. These studies include:

Quino Checkerspot Butterfly Habitat Assessment

- Quino Checkerspot Butterfly Habitat Assessment for BLM Lands Managed by the El Centro Field Office. BLM 2005.
- Focused Survey Report for the Quino Checkerspot Butterfly, Lark Canyon Study Site. Tierra Environmental Services 2006.
- Quino Checkerspot Butterfly Survey Report for the 94.5-acre Rough Acres Ranch Property. Dudek 2008.

The BLM QCB Habitat Assessment (2005) used similar methods as this study and covered 13,858 acres managed by BLM in the McCain Valley, Round Mountain, and Table Mountain areas. For the portions of the BLM assessment also covered under this assessment, the results are consistent. The BLM study found no QCB, no host plants, and numerous potential nectar source species. The nearest host plant species documented in the BLM assessment was in the far eastern areas of McCain Valley, approximately one mile east of McCain Valley Road. The Table Mountain and Round Mountain areas supported the highest abundance of host plants. Based on their assessment, eastern McCain Valley, Table Mountain, and Round Mountain were identified as the “highest QCB habitat potential.” None of the areas studied by the BLM assessment that occur in the study area for this assessment were identified as the “highest QCB habitat potential.”

The focused QCB survey of the Lark Canyon area covered approximately 2,624 acres centered on the Lark Canyon Vehicle Area along McCain Valley Road (Tierra 2006). The focused survey covered portions of the study for this habitat assessment. No adult QCB or larval host plants were detected during the focused survey. The survey was conducted during a below average rainfall year; therefore, the survey could not definitively conclude that the Lark Canyon area cannot support the species.

A focused QCB survey was conducted for an approximately 95-acre linear study area on private parcels between Ribbonwood Road and McCain Valley Road (Dudek 2008). The study area for this focused survey is approximately one mile north of Interstate 8. No adult QCB or larval host plants were detected during the focused survey.

In addition to these studies, a focused QCB survey was conducted in 2008 along an alignment alternative of San Diego Gas and Electric’s (SDG&E) proposed Sunrise Powerlink Project. The study area for this focused survey included portions of McCain Valley Road north of Interstate 8 and an east-west corridor across the valley toward the Laguna Mountains. The results of this focused survey are not yet available.

In conclusion, the potential for the study area to support populations of QCB is considered low. Within the study area, approximately 258.49 acres were excluded and would not require any future focused surveys for QCB. Focused protocol level surveys may be required by the USFWS for proposed activities in the 886.51 acres of non-excluded areas in the study area. However, the results of this assessment indicate that it is unlikely that QCB would occur in these areas.

Quino Checkerspot Butterfly Habitat Assessment

Further, the required survey area may be refined and reduced pending discussion with the USFWS regarding modified survey methodology.

5 REFERENCES

- Bureau of Land Management (BLM). 2005. Quino Checkerspot Butterfly Habitat Assessment for BLM Lands Managed by the El Centro Field Office 2005.
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- Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. State of California, The Resources Agency. October.
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- Tierra Environmental Services (Tierra). 2006. Focused Survey Report for the Quino Checkerspot Butterfly, Lark Canyon Study Site. Prepared for BLM, California Desert District Office. June 29.
- U.S. Fish and Wildlife Service (USFWS). 2002a. Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey Protocol Information. Carlsbad, California. February. 8 pp.
- USFWS. 2003. Recovery Plan for the Quino Checkerspot Butterfly (*Euphydryas editha quino*). *Portland, Oregon. x + 179 pp.* August 11.
- USFWS. 2008. 2008 Season Quino Checkerspot Butterfly (*Euphydryas editha quino*) Carlsbad Fish and Wildlife Office Reference Site Information.
<http://www.fws.gov/carlsbad/Rules/QuinoDocuments/Quino.htm/2008%20Quino%20monitoring%20info.htm>

APPENDIX A
PLANT AND ANIMAL SPECIES LIST

Appendix A
Plant and Animal Species List

VASCULAR PLANT SPECIES

FERNS

PTERIDACEAE - BRAKE FAMILY

Pellaea andromedifolia - coffee fern

CONIFERS

EPHEDRACEAE - EPHEDRA FAMILY

Ephedra viridis - mormon tea

Ephedra californica – desert tea

ANGIOSPERMS (DICOTS)

ANACARDIACEAE - SUMAC FAMILY

Rhus ovata - sugar bush

Rhus trilobata - skunkbrush

APIACEAE - CARROT FAMILY

Lomatium dasycarpum ssp. *dasycarpum* - woolly-fruit lomatium

ASTERACEAE - SUNFLOWER FAMILY

Artemisia tridentata ssp. *tridentata* – Big sagebrush

Baccharis sergioloides – desert baccharis

Chaenactis stevioides - desert pincushion

Encelia californica - California encelia

Encelia farinosa - brittlebush

Ericameria sp. - goldenbush

Ericameria linearifolia - interior goldenbush

Eriophyllum confertiflorum - golden yarrow

Eriophyllum wallacei – Wallace’s woolly sunflower

Geraea viscida – sticky geraea

Gutierrezia californica - California matchweed

Lasthenia californica - common goldfields

Malacothrix californica - California desertdandelion

Uropappus lindleyi - silver puffs

Appendix A (Continued)

BORAGINACEAE - BORAGE FAMILY

- Amsinckia menziesii* - rancher's fireweed
- Cryptantha angustifolia* – popcorn flower
- Pectocarya penicillata*- pectocarya
- Plagiobothrys* sp. - popcornflower

BRASSICACEAE - MUSTARD FAMILY

- Caulanthus heterophyllus* var. *heterophyllus* - San Diego jewelflower
- Sisymbrium altissimum* - tumble mustard
- Thysanocarpus laciniatus* - lacepod, fringedpod

CACTACEAE - CACTUS FAMILY

- Cylindropuntia echinocarpus* – silver cholla

CRASSULACEAE - STONECROP FAMILY

- Crassula connata* - pygmy-weed
- Dudleya lanceolata* – lanceleaf dudleya

ERICACEAE - HEATH FAMILY

- Arctostaphylos glandulosa* ssp. *zacaensis* - southern Eastwood manzanita
- Arctostaphylos pungens* – Mexican manzanita

EUPHORBIACEAE - SPURGE FAMILY

- Chamaesyce* sp. - spurge

FABACEAE - PEA FAMILY

- Astragalus douglasii* var. *perstrictus* – Jacumba milkvetch
- Lotus argophyllus* var. *argophyllus* - silver-leaf lotus
- Lotus scoparius* - deerweed
- Lupinus bicolor* - miniature lupine
- Lupinus concinnus* - bajada lupine

FAGACEAE - OAK FAMILY

- Quercus agrifolia* – coast live oak
- Quercus berberidifolia* - scrub oak
- Quercus cornelius-mulleri* – Muller's oak

GERANIACEAE - GERANIUM FAMILY

- * *Erodium cicutarium* - red-stemmed filaree/storksbill

Appendix A (Continued)

HYDROPHYLLACEAE - WATERLEAF FAMILY

Eriodictyon trichocalyx ssp. *trichocalyx* - yerba santa

Phacelia distans – wild heliotrope

LAMIACEAE - MINT FAMILY

Salvia columbariae – chia

NYCTAGINACEAE - FOUR O'CLOCK FAMILY

Mirabilis multiflora var. *pubescens* – giant four o'clock

ONAGRACEAE - EVENING-PRIMROSE FAMILY

Camissonia strigulosa – sandy-soil sun cup

Oenothera californica - California evening-primrose

OROBANCHACEAE - BROOM-RAPE FAMILY

Orobanche fasciculata – clustered broom-rape

PAPAVERACEAE - POPPY FAMILY

Dendromecon rigida - bush poppy

Platystemon californicus - cream cups

POLEMONIACEAE - PHLOX FAMILY

Eriastrum filifolium – thread-leafed eriastrum

Gilia diegensis – San Diego gilia

Linanthus bellus – desert beauty

Linanthus lemmonii – Lemmon's linanthus

Linanthus orcuttii – Orcutt's linanthus

POLYGONACEAE - BUCKWHEAT FAMILY

Chorizanthe staticoides - Turkish rugging

Eriogonum fasciculatum var. *foliolosum* – flat-topped buckwheat

Eriogonum fasciculatum var. *polifolium* – flat-topped buckwheat

Eriogonum gracile - slender buckwheat

PORTULACACEAE - PURSLANE FAMILY

Calyptridium monandrum - pussypaws

Appendix A (Continued)

RANUNCULACEAE - CROWFOOT FAMILY

Delphinium parryi ssp. *parryi* - Parry's larkspur

RHAMNACEAE - BUCKTHORN FAMILY

Ceanothus cuneatus var. *cuneatus* - buck brush

Ceanothus greggii var. *perplexans* – cupleaf ceanothus

Ceanothus leucodermis - chaparral whitethorn

Rhamnus ilicifolia – holly-leaf redberry

ROSACEAE - ROSE FAMILY

Adenostoma fasciculatum – chamise

Adenostoma sparsifolium - redshank

Cercocarpus betuloides var. *betuloides* - mountain-mahogany

Prunus fremontii – desert apricot

SALICACEAE - WILLOW FAMILY

Salix lasiolepis - arroyo willow

SCROPHULARIACEAE - FIGWORT FAMILY

Keckiella antirrhinoides var. *antirrhinoides* -yellow bush-penstemon

Penstemon centranthifolius - scarlet bugler

Penstemon spectabilis - showy penstemon

SOLANACEAE - NIGHTSHADE FAMILY

Solanum umbelliferum - blue witch

VISCACEAE - MISTLETOE FAMILY

Phoradendron villosum - oak mistletoe

ANGIOSPERMS (MONOCOTS)

JUNCACEAE - RUSH FAMILY

Juncus mexicanus - Mexican rush

LILIACEAE - LILY FAMILY

Calochortus concolor - goldenbowl mariposa lily

Dichelostemma capitatum ssp. *capitatum* - blue dicks

Yucca schidigera - Mohave yucca

Appendix A (Continued)

POACEAE - GRASS FAMILY

- * *Avena fatua* – wild oat
- * *Avena barbata* – slender wild oat
- * *Bromus madritensis* ssp. *rubens* - foxtail chess
- * *Bromus tectorum* – cheat grass

- * signifies introduced (non-native) species

Appendix A (Continued)

WILDLIFE SPECIES - VERTEBRATES

REPTILES

IGUANIDAE - IGUANID LIZARDS

- Gambelia copei* – Cope's leopard lizard
- Phrynosoma coronatum* - coast horned lizard
- Sceloporus occidentalis* - western fence lizard
- Sceloporus orcutti* - granite spiny lizard
- Uta stansburiana* - side-blotched lizard

TEIIDAE - WHIPTAIL LIZARDS

- Cnemidophorus tigris* - western whiptail

COLUBRIDAE - COLUBRID SNAKES

- Salvadora hexalepis* - western patch-nosed snake

VIPERIDAE - VIPERS

- Crotalus* sp. - rattlesnake

BIRDS

CATHARTIDAE - NEW WORLD VULTURES

- Cathartes aura* - turkey vulture

ACCIPITRIDAE - HAWKS

- Buteo jamaicensis* - red-tailed hawk

PHASIANIDAE - PHEASANTS & QUAILS

- Callipepla californica* - California quail

COLUMBIDAE - PIGEONS & DOVES

- Zenaida macroura* - mourning dove

TROCHILIDAE - HUMMINGBIRDS

- Calypte anna* - Anna's hummingbird

TYRANNIDAE - TYRANT FLYCATCHERS

- Myiarchus cinerascens* - ash-throated flycatcher

Appendix A (Continued)

Sayornis nigricans - black phoebe

Tyrannus vociferans - Cassin's kingbird

HIRUNDINIDAE - SWALLOWS

Petrochelidon pyrrhonota - cliff swallow

CORVIDAE - JAYS & CROWS

Aphelocoma californica - western scrub-jay

Corvus brachyrhynchos - American crow

Corvus corax - common raven

AEGITHALIDAE - BUSHTITS

Psaltriparus minimus - bushtit

TROGLODYTIDAE - WRENS

Salpinctes obsoletus - rock wren

SYLVIIDAE - GNATCATCHERS

Polioptila caerulea - blue-gray gnatcatcher

TIMALIIDAE - LAUGHINGTHRUSH AND WRENTIT

Chamaea fasciata - wrentit

MIMIDAE - THRASHERS

Mimus polyglottos - northern mockingbird

Toxostoma redivivum - California thrasher

PARULIDAE - WOOD WARBLERS

Dendroica townsendi - Townsend's warbler

Wilsonia pusilla - Wilson's warbler

THRAUPIDAE - TANAGERS

Piranga ludoviciana - western tanager

EMBERIZIDAE - BUNTINGS & SPARROWS

Amphispiza bilineata - black-throated sparrow

Pipilo crissalis - California towhee

Pipilo maculatus - spotted towhee

Spizella atrogularis - black-chinned sparrow

Appendix A (Continued)

ICTERIDAE - BLACKBIRDS & ORIOLES

Icterus sp. - oriole

FRINGILLIDAE - FINCHES

Carduelis psaltria - lesser goldfinch

MAMMALS

LEPORIDAE - HARES & RABBITS

Lepus californicus - black-tailed jackrabbit

Sylvilagus bachmani - brush rabbit

Sylvilagus audubonii - desert cottontail

SCIURIDAE - SQUIRRELS

Ammospermophilus leucurus - white-tailed antelope squirrel

Spermophilus beecheyi - California ground squirrel

Tamias sp. - chipmunk

MURIDAE - RATS & MICE

Neotoma lepida - desert woodrat

CANIDAE - WOLVES & FOXES

Canis latrans - coyote

FELIDAE - CATS

Felis concolor - mountain lion

CERVIDAE - DEERS

Odocoileus hemionus - mule deer

Appendix A (Continued)

WILDLIFE SPECIES - INVERTEBRATES

BUTTERFLIES AND MOTHS

HESPERIIDAE - SKIPPERS

Erynnis funeralis - funereal duskywing

PIERIDAE - WHITES AND SULFURS

Anthocharis sara – Sara's orangetip

Pontia protodice - checkered or common white

Colias eurydice - California dogface

RIODINIDAE - METALMARKS

Apodemia mormo virgulti - Behr's metalmark

LYCAENIDAE - BLUES, HAIRSTREAKS, & COPPERS

Brephidium exile – western pygmy blue

Icaria acmon acmon - acmon blue

NYMPHALIDAE - BRUSH-FOOTED BUTTERFLIES

Euphydryas chalcedona – Chalcedon checkerspot

Junonia coenia - buckeye

Vanessa annabella – west coast lady

Vanessa cardui - painted lady

APPENDIX B
FIELD NOTES

4/14/08 Travis
Brack
Dove

TULE WIND PROJECT

Onsite

0800

Skies: 0%cc

Wind: 0-2 mph

Temp: 74°F

1100

0%cc

4-6 mph

~82°F

Offsite

1300

0%cc

3-5 mph

85°F

Painted Lady

SCJA

Nectar Sources

*Chia

*Lupine sp.

*Cryptantha sp (white flowers)

*Goldfields

*Butterweed

*Desert Phacelia

*Interior Goldenbush

Pontia Proterea

Behr's Metalmark

*Goldfields

*Orcutt linanthus

*Tansy Mustard

Sera's Ct.

Aemon Blue

Cd. Ragwort

Deer (pr)

Br. Rabbit (sc)

01-44214235

4/14/02

5998

780-89

0830-1315

21 mph - 3 mph

clear

PPM McCoin Valley

wind farm

QCB assessment

RTHA

MOO

Bonus of ~~skippers~~ skippers MOO's

SCJA

CORA

Painted lach ~~|||||~~ ~~|||||~~ ~~|||||~~

C970

TUVU

BCSP

GAQU

CGS

western fence liz

grayish gray liz

mule deer

desert woodrat

desert cottontail

horned lizard

Chis meadow ~~|||||~~ ~~|||||~~ ~~|||||~~ ~~|||||~~ ~~|||||~~

'Cha ~~|||||~~ ~~|||||~~ ~~|||||~~

antelope gis

SPTO

ROWR

CATH

BTH sparrow

NOME

curly scat

Rhus desert

Muellers oak

Bleeders

Chia

erodium

Desert Apricot

SOC + desert apricot com

open w/ Rock outcrops

+ eriodium under stone

w 30% bare dg.

fern

Boulder areas have a lot of openings between them

QCB ok

cattle bones old sheep + cattle droppings

a few lg ants seen

~~Q.C.~~ or Q.C.?

Sheep tracks some or?

orange 11

Communist 11

captured 3 skippers

4/22/08

PPM Energy
CCD & Nutrient Assessment

Neck

JMH
TS
SUN
0-30mph
6:2P

Map 3

Group of 2 Turkeys

- Otay Mesa
raining
etc
to Anita
A

SOC

CC

Q. barb
Ceanothus
Eriofase
Gilia
Cryptantha
Ceanothus
Arctostaphylos
Eriophyllum

Chamise

Soils

Decom.
granite

Berea viscidosa

Eriogonum
scrub

OR

open Chaparral

Eriofase

Chamise

Q. bar

Brom mad rubus

Open patches

Gilia
Cryptantha
Ceanothus
Lupinus
Chica

Plagiobothrys
Fragaria
Castilleja cal
Phacelia
Ceanothus

EXUS

or
21?

Wildlife

Horned Lizard
Squirrel
Rattlesnake
Deer

Jackrabbit

Painted Lady
White

Neotoma sp.

Turkey Vulture

Savanna Oriole

Red-tailed Hawk

Chattahoochee

SMX

Ceanothus

Overbush

Chimney

Arctostaphylos

Eriogonum

Wickiup

Cercocarpus

Substation #1

Erio Scrub

- evidence of grazing

Open Mixed Chap

Cream puffs

Cercocarpus Chaparral

Group of Three

So of NCTM

Open So Mixed Chap

- evidence of grazing

→ Inclusion of

Erio Scrub

↳ from grazing?

SMX

Open Patches

Wholly lupine

Lupinus

Lupinus leucum

Cryptantha

Big Bush

Alga

Phacelia

Wholly Safflower

Cercocarpus

- Q. borb

- Chimise

- Arcto

- Cholla

- Yucca sp.

- Rhus ovata

- Eriogonum

- E. phaeo

Closed - Semi Closed (70-80%)

CC

- Chimise

- Arcto

- Rhus ovata

- Eriophyllum

- Cryptantha

Ceanothus

Substation # 2

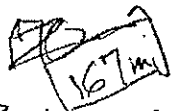
4/25/08

Closed Canopy (70-80%)

CC

- Unmanned *
- Rms over
- R herbar

BM
JH
JP
Calm
BP



4/24/08

w/DF

Road Survey - I-8 → N

Boulevard = QCB Hob. Assess.

Onsite

0820

Skies: 0%cc

Wind: 2-5 mph

Temp: 63°F

Offsite

1440

0%cc

2-5 mph

82°F

WETA

CLSW - Nests in 1st undercrossing.

BLPH

NOMO

Painted Lady

WEK 1

Common white

Behr's mm.

Buckeye

Nectar

Goldfield

Lupine

Erodium c.

Ericameria

Golden Yarrow

Cryptantha

Scarlett Tanager

Thoselia cren.

Amsinckia menz.

If found Please call

4/24/88 cont'd

Solanum umb. (Blue witch)
Penstemon centro (Scarlett beglar)
Chia
Orcutt Linnanthus
Blue Licks

Wildlife

Blue sp.
CAGU
B.T. jack rabbit
Bt rabbit
Ch gr. squirrel
Sara's O.T

4/30/08

PPM: ENERGY

JMH
TS
SUN

OCB Habitat Access

9:30AM -
3:30PM
10-25mph
54-64°

- ① Access Road
Up From
Cottonwood
Creek (COMPENSON)
- ② Group of Two
North of
MANZANITA
- ③ Access Roads
to these
Two Sets
- ④ Checked Access
to Upper BAR

- Photos taken
- Travis took species notes
- Soils same. No host
plants observed.

Ceanothus leucodermis
Delphinium purpureum

1/30/02

Access Point at Col. Co. Camp.

Desert Wash Scrub

Baccharis
Art trail
Cilia
Crotalaria
Lupine

Upland scrub

Art trail
Silver cholla
Eriogonum
Mimulus
Castilleja ^{Penstemon}
Crotalaria
Dianthus cal.
Rhus occidentalis

Mixed Chap

Cercocarpus
Ephedra
Scrubs oak
Desert Decid. (?)
Phacelia
Eriophyllum
Eriogonum
Cream cup
Cholla
Bromes
Crotalaria
Lupine
Polypodium
Eriogonum
Yucca
Chia
Tan or Mustard
Chenopium
Dusky Pansy
Bush Poppy
Chorizanthe

5/2/08

Anita
DINA
WYOM
SUN
15mph
1702

PPM ENERGY

UPPER PRR

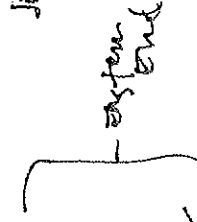
QCB Habitat + RSCS

- Enkelia
- Brom. mead rufous
- Desert Pincus horn
- Eriogonum
- Limn. ballus
- Anolla
- Lotus scop
- Ceanothus
- Phacelia
- Limn. lemn
- Cryptantha
- Eriogonum
- Monardella
- Cerco carpis
- Quercus
- Polygomon
- Silver leaf Totus

Open Semi Desert Campground

Main SPPS

- Desert Beach
- Anolla
- Monardella
- Eriogonum
- Brom. mead rufous
- Lotus scop
- Bengel + Pichu sin
- Enkelia



Jack rabbit

Hayworth

PPM

17C

5/2/08

15 APR 11

10:30

Clear

Upper Rough Area

Quitted ~~to~~ Lady
CORA

Nomo

Bush - ~~for coffee~~

WREN

Turk - Flying

WILDA

Pygmy blue

Starling sp.

ANKA ♀

Gray? FL (gray wing)

→ ^{no} brown bars, pale not web

defined NO wing

flick no eye ring

or pattern

in inter. scrub oak

Hayworth 5/2/08

Quince wise -

this segment is all open chp. with annual patches of opening with low herbs. lots of flowers

Common White

→ Sandy soils, no crust NO host plants so far. Nectar sources for butterflies.

(almost 100% black-throated sparrow "Drinking you feel eye")

Hayworth - 5/2/08

area w lots of cactus but none of the crust.

So far - all inclusion areas, no exclusion areas

EGO

Funeral
Woadaway Skipper

Mixed Open Chap easy to walk between

Shubs: some openings even areas w glassy flat spots then open soil too

Ben's metal work

SPTD checked white
CAKIL - ~~or~~

CAKI
MORE
Chaludon (@ pad)

Hayworth 5/2/08

bleeding West from girdled.
pad - chamise starts -
still open however

then little band of
Oak scrub - also
still open & easily
traversable however
windy & needing a lot
of maneuver to get
thru. Not closed.

leopard lizard type ^{Cooper's}
fast, big head ^{leopard}
_{leopard}

Sarah's Orange tip

Ammon blue
ATFL

Dowl - could it be brown?

Buckeye ♂ 1066 ♀
W SCOA
HOPI
CATH
Dowl SP

Hayworth 5/2/08

Squirrel:
♂ TAN

chip mark

end time

3:07 P.M.
25 C

4MPH
Clear

→ Scrub oak band could probably
be excluded but it's still
open, but it's tall. It's just
a narrow band so doesn't
make much difference. And otherwise
I wouldn't exclude anything
else in this reach. Overall - no host
plant, no soil crust, some nettles.
Seems kind of unlikely for GCB
given how other occupied sites look.

5/8/08
FAM Emergency

Upper PAR Parcels

North-South Corridor

OCB Habitat Assessment

5/8/08

0-3 MPH

SUN

000

9:30 AM

JMH

Plants

- see other notes
- listing on lyneus

Pectocarya - spiky

Eriogonum

Astragalus - collected
- large, yellow

Penst spect

Yellow dianthus

Chamaesyce

Psoralea (alt) (offsite)

Ordnancy fusciculata

Salix lasiolepis

Wildlife

Coffin White

Scrub Jay

Wren Tit

Am Crow

Mo Do

Anna's Hum

Quail

Townsend's Warbler

RT H

CA Thrasher

Hummer Lc

Lark Sparrow

Wilson's

1 Tanager / spots /

leopard like? /

Patch Vireo

Snake

Ringed Lady

Behr's MCTA

Key Vulture

Des Cottontail

Gr. Spiny LIZ

5/14/08

JMH

9:30AM
D-3 mph

66°
SUN

PPM ENERGY

Upper Section

of
UPPER RAR PARCELS

OCB HABITAT ASSESS

3PM

70°

5-7 mph

Painted lady
Pygmy blue
CO white
Scrub Jay

RTH
Ann Crow
Towhee - Cal.
Leopard lizard

Quail

MO Dove

Ash-throated Fly

Raven

Bluegray gnatcatcher

Black-throated JK

Side-necked Lizard

Gruntling Sperm Lizard

concolor

Calochortus sp.
Dudleya sp.
Encelia calif.

Eriogonum sp.
Malacothrix
californica
Mirabilis multiflora