Baseline Biodiversity Survey for the

Otay Ranch Preserve

MAY 2010

PREPARED FOR:

County of San Diego
Department of Parks and Recreation
9150 Chesapeake Drive, Suite 200
San Diego, CA 92123
Contact: Cheryl Goddard

PREPARED BY:

DUDEK
605 Third Street
Encinitas, CA 92024

BASELINE BIODIVERSITY SURVEY
for the
OTAY RANCH PRESERVE

Prepared for:

The County of San Diego
Department of Parks and Recreation
9150 Chesapeake Drive, Suite 200
San Diego, California 92123
Contact: Cheryl Goddard
858.966.1374

Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024

Brock Ortega

MAY 2010

Printed on 30% post-consumer recycled material.

TABLE OF CONTENTS

Section **Page No.**

TABLE OF CONTENTS (CONTINUED)

Section **Page No.**

APPENDICES

TABLE OF CONTENTS (CONTINUED)

Page No.

LIST OF FIGURES

LIST OF TABLES

TABLE OF CONTENTS (CONTINUED)

Page No.

GLOSSARY OF TERMS AND ACRONYMS

amsl	above mean sea level
CAGN	California gnatcatcher
cc	cloud cover
CDFG	California Department of Fish and Game
City	City of Chula Vista
CNPS	California Native Plant Society
County	County of San Diego
°F	degrees Fahrenheit
FUDS	Formerly Used Defense Site
GIS	Geographic Information Systems
GPS	Global Positioning System
mph	miles per hour
MSCP	Multiple Species Conservation Program
Preserve	Otay Ranch Preserve
QCB	Quino checkerspot butterfly
SSC	Species of Special Concern
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

INTENTIONALLY LEFT BLANK

SUMMARY

The Otay Ranch Preserve (Preserve) is managed by the County of San Diego (County) and the City of Chula Vista (City), which serve jointly as the Preserve owner/manager. The Preserve currently consists of approximately 525 acres in the San Ysidro Mountains, located within the unincorporated County, and approximately 775 acres in Salt Creek, located in the City. Within this Preserve area, Dudek biologists performed the following surveys: vegetation mapping in May and June 2008, focused botanical surveys in spring 2009, general butterfly surveys in 2008, focused surveys for quino checkerspot butterfly (*Euphydryas editha quino*) in spring 2009, focused surveys for Hermes copper butterfly (*Lycaena hermes*) in 2008, focused surveys for coastal California gnatcatcher (*Polioptila californica californica*) in summer 2008, avian point count surveys in summer/fall 2008, large and medium mammal surveys in spring 2009, and herpetological trapping surveys in summer 2009. This report documents the results of Dudek's field work.

Based on species composition and general physiognomy, the following native plant communities, or combinations of some of these communities, as well as several disturbed variants, were identified on site: annual (nonnative) grassland, chamise chaparral, cismontane alkali marsh, coast live oak woodland, coastal sage scrub, disturbed wetlands, freshwater marsh, maritime succulent scrub, mulefat scrub, scrub oak chaparral, southern mixed chaparral, southern willow scrub, Tecate cypress forest, and valley needlegrass grassland. Developed, disturbed habitat; eucalyptus woodland; and ornamental land covers were also identified.

Sixteen plant species considered sensitive by the State of California, the County, the California Native Plant Society (CNPS), or the Otay Ranch Resource Management Plan were identified on site. The following seven species were identified on both Salt Creek and San Ysidro preserves: ashy spikemoss (*Selaginella cinerascens*), San Diego County sunflower (*Bahiopsis laciniata*), San Diego barrel cactus (*Ferocactus viridescens*), Tecate cypress (*Callitropsis forbesii*), southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*), San Diego marsh elder (*Iva hayesiana*), and western dichondra (*Dichondra occidentalis*). Five species were identified on San Ysidro Preserve only: small-leaved rose (*Rosa minutifolia*), Munz's sage (*Salvia munzii*), Dunn's mariposa lily (*Calochortus dunnii*), Coulter's matilija poppy (*Romneya coulteri*), and San Diego goldenstar (*Muilla clevelandii*). Four species were identified on Salt Creek Preserve only: snake cholla (*Cylindropuntia californica*), Palmer's grapplinghook (*Harpagonella palmeri*), south coast saltscale (*Atriplex pacifica*), and variegated dudleya (*Dudleya variegata*). Seven of these species are considered sensitive under the City's Multiple Species Conservation Program (MSCP): San Diego barrel cactus, Tecate cypress, small-leaved rose, Dunn's mariposa lily, snake cholla, San Diego goldenstar, and variegated dudleya.

Focused surveys for the federally listed threatened coastal California gnatcatcher (*Polioptila californica californica*) were positive with 22 pairs and 39 individuals detected on site. The California Department of Fish and Game (CDFG) Species of Special Concern (SSC), the yellow-breasted chat (*Icteria virens*), California horned lark (*Eremophila alpestris*), northern harrier (*Circus cyaneus*), yellow warbler (*Dendroica petechia brewsteri*), rufous-crowned sparrow (*Aimophila ruficeps*), loggerhead shrike (*Lanius ludovicianus*), and Cooper's hawk (*Accipiter cooperii*), were also observed on site. The MSCP Group 1 species, Bell's sage sparrow (*Amphispiza belli belli*) and grasshopper sparrow (*Ammodramus savannarum*), were also observed on site. The federally and state endangered least Bell's vireo (*Vireo bellii pusillus*) was anecdotally detected during surveys. One red-tailed hawk (*Buteo jamaicensis*) nest and several coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*) nests were observed on the Preserve. Focused surveys for the federally listed endangered quino checkerspot butterfly were also positive. A total of 35 quino was observed and recorded on the Preserve.

Special-status mammals observed include the MSCP Group 2 species, mule deer (*Odocoileus hemionus*) and mountain lion (*Felis concolor*); and the CDFG SSC species, San Diego black-tailed jackrabbit (*Lepus californicus bennettii*) and California pocket mouse (*Chaetodipus californicus*).

Herpetological surveys identified the CDFG SSC coast patch-nosed snake (*Salvadora hexalepis virgultea*) and the MSCP Group 2 species coastal whiptail (*Aspidoscelis tigris stejnegeri*). The CDFG SSC orange-throated whiptail (*Aspidoscelis hyperythra*), red-diamond rattlesnake *(Crotalus rubber*), two-striped garter snake (*Thamnophis hammondii*), and coast horned lizard (*Phrynosoma coronatum*) were also detected anecdotally during surveys.

1.0 INTRODUCTION

1.1 Purpose of the Report

This report is intended to describe the existing conditions of biological resources within the Otay Ranch Preserve (Preserve) in terms of vegetation, flora, wildlife, and wildlife habitats. The data presented in this report are intended to provide baseline data that can be used to manage, protect, and enhance the sensitive biological resources present on site.

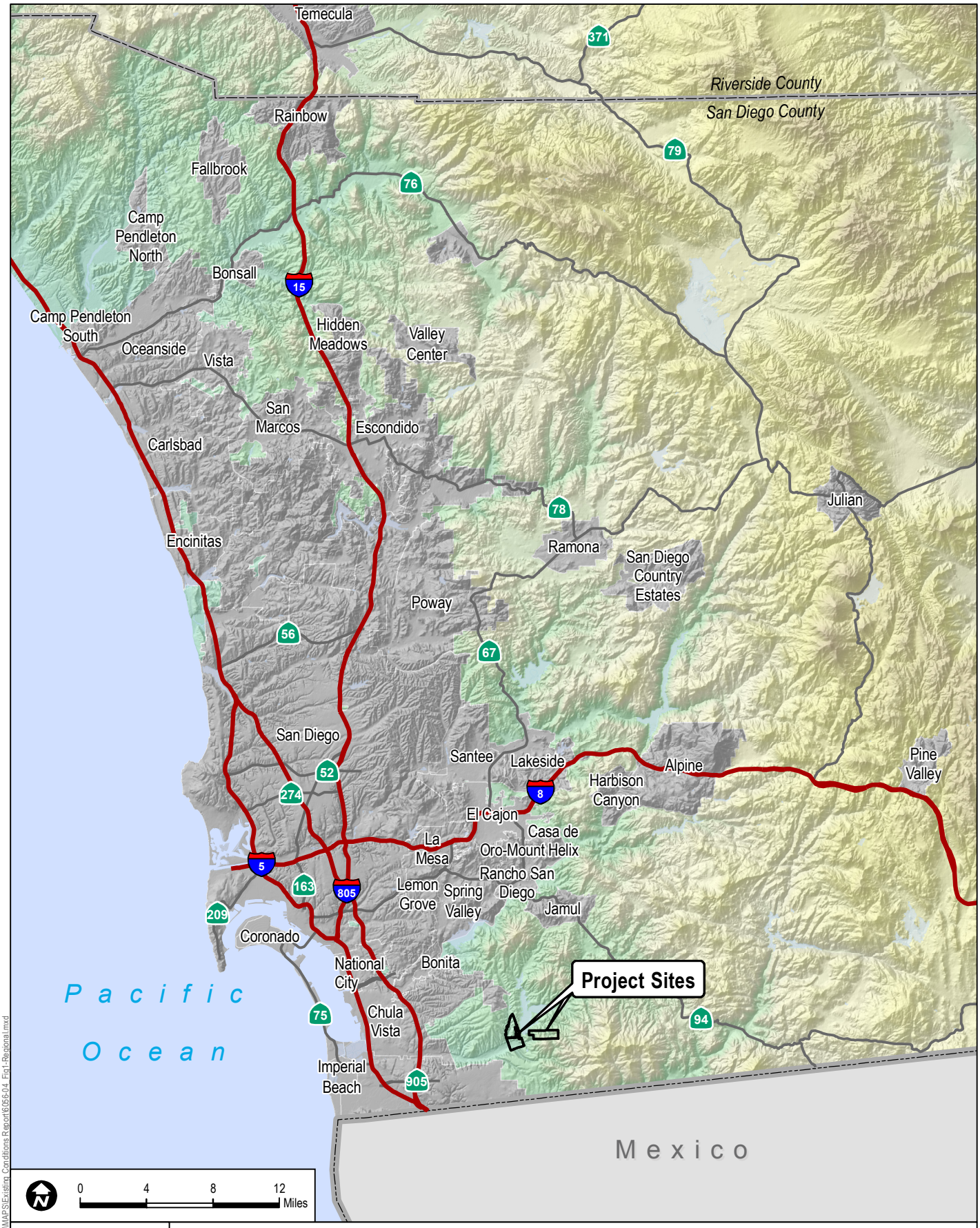
1.2 Location and Project Description

The Preserve consists of approximately 525 acres in the San Ysidro Mountains and approximately 775 acres in Salt Creek[1]. These two areas of land occur within the City of Chula Vista (City) and within an unincorporated portion of the County of San Diego (County), California (Figure 1). The Salt Creek portion of the Preserve is mapped on the U.S. Geological Survey (USGS) 7.5-minute Otay Mesa quadrangle and the southern portion of the Jamul Mountains quadrangle, Township 18 South, Range 1 West, on unsectioned lands associated with Salt Creek Canyon, located approximately 0.5 mile west of Lower Otay Reservoir and north of Otay River Valley (Figure 2). The San Ysidro portion of the Preserve is located at the northeastern portion of the USGS 7.5-minute Otay Mesa quadrangle, Township 18 South, Range 1 East, Sections 17 and 18, located immediately east of the southernmost tip of Lower Otay Reservoir (Figure 2).

[1] Salt Creek and San Ysidro total parcel acreages were calculated using Geographic Information System (GIS) data.

The Preserve is a hard-line preserve established as mitigation for impacts to sensitive resources resulting from the development of Otay Ranch. The Preserve is managed to protect multiple species present on Otay Ranch. The Preserve also connects large areas of open space through a series of wildlife corridors, including connections between large, regional open spaces such as Otay Reservoir and San Miguel Mountain (City of Chula Vista 2003).

The Preserve is within the boundaries of the Otay Ranch Resource Management Plan, a planning document that addresses the preservation and enhancement of sensitive natural and cultural resources within the Otay Ranch property. The Resource Management Plan serves as the framework for management and monitoring of the Preserve and has been incorporated by reference into the City's and County's Multiple Species Conservation Program (MSCP) plans. The MSCP Plan (August 1998) (MSCP Subregional Plan) was prepared for the Subregion, an area encompassing twelve jurisdictions and 582,243 acres. The MSCP Subregional Plan is implemented through local Subarea plans. The Salt Creek Preserve is located within the City's Subarea Plan (City of Chula Vista 2003) and is designated for a preserve area. There are 57,849 acres within the City's MSCP Planning Area, 22,899 acres of which are part of the Otay Ranch Planning component. The San Ysidro Preserve is located within the County of San Diego Subarea Plan and is designated for a preserve area. San Ysidro lies within the South County Segment of the MSCP (San Diego County 1997). Within the total 82,767 acres in this segment, there are 48,240 acres of natural vegetation with habitat value.



Z:\Projects\6056\04\MAPDOC\MAPS\Existing Conditions Report\6056-04_Fig1-Regional.mxd

DUDEK

6056-04

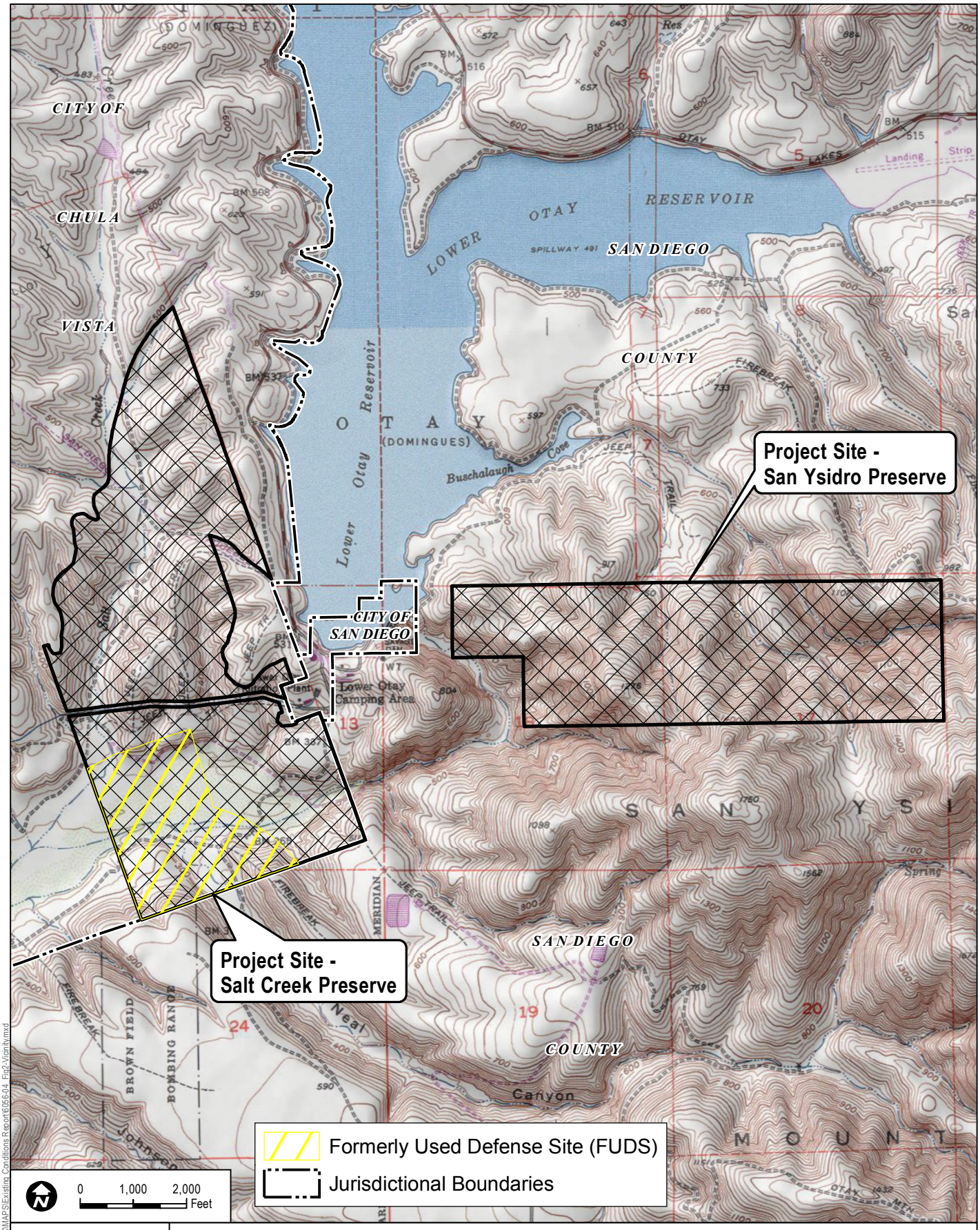
MAY 2010

FIGURE 1

Regional Map

Baseline Biodiversity Survey for Otay Ranch Preserve

INTENTIONALLY LEFT BLANK



SOURCE: USGS 7.5-Minute Series Jamul Mountains and Otay Mesa Quadrangles.

FIGURE 2
Vicinity Map

DUDEK

6056-04
MAY 2010

Baseline Biodiversity Survey for Otay Ranch Preserve

Z:\Projects\6056\MAPDOC\MAPS\Existing Conditions Report\6056-04_Fig2-Vicinity.mxd

INTENTIONALLY LEFT BLANK

2.0 SURVEY METHODS

2.1 Summary of Plant and Wildlife Surveys

Table 1 lists each survey type that was conducted as part of the survey effort for this report. Surveys were conducted between May 2008 and July 2009.

Table 1
Summary of Project Surveys

Survey Date	Survey Focus	Personnel
5/15, 6/12, 6/16, 6/17 2008	Vegetation Mapping	DWF; VRJ
4/15, 5/6, 5/8, 5/7, 5/11 2009	Rare Plant Surveys	BAS; KCD; VRJ
4/15, 5/6, 5/8, 5/7, 5/11 2009	Exotics Mapping	BAS; KCD; VRJ
7/17, 8/26, 9/23, 10/29 2008	Avian Point Count Surveys	PML; TSL
7/15, 7/18, 7/22, 7/23, 7/24, 7/25, 7/30, 7/31,8/1, 8/6, 8/7, 8/8, 8/14, 8/15, 8/18, 8/22 2008	Focused Surveys for California Gnatcatcher	PML; JDP; TLW; KJM
6/20, 6/24, 6/26, 6/27, 7/1, 7/2, 7/10, 7/15, 7/16, 8/8 2008	Focused Surveys for Hermes Copper Butterfly	DWF; JDP; PML; TLW
6/20, 6/24, 6/26, 6/27, 7/1, 7/2, 7/10, 7/15, 7/16, 8/8 2008	General Butterfly Surveys	DWF; JDP; PML; TLW
3/10, 3/11, 3/13, 3/14, 3/15, 3/16, 3/17, 3/18, 3/19, 3/23, 3/20, 3/21, 3/24, 3/25, 3/27, 3/28, 3/30, 3/31, 4/1 2009	Focused Surveys for Quino Checkerspot Butterfly	AMH; BAO; JDP; KJM; PML; TLW
5/20, 5/21, 5/22, 6/24, 6/25, 6/26, 7/29, 7/30, 7/31 2009	Herpetological Surveys	BAO; JDP; PML; TJO; CSO
Session 1: 04/14 to 04/29 2009 Session 2: 04/29 to 05/15 2009 Session 3: 05/15 to 06/01 2009.	Medium and Small Mammal Surveys	—

Personnel Key: DWF = Dave Fleitner; VRJ = Vipul Joshi; BAS = Britney Strittmater; KCD = Katie Dayton; PML = Paul Lemons; TSL = Thomas Liddicoat; JDP = Jeff Priest; KJM = Kamural Muri; TLW = Tricia Wotipka; AMH = Anita Hayworth; BAO = Brock Ortega; TJO = Tyge Ortega; CSO = Connor Ortega

2.2 Vegetation Communities

Vegetation mapping was conducted in May and June 2008. Table 2 lists the dates, conditions, and focus for each survey.

Table 2
Schedule of Surveys for Vegetation Mapping

Date	Hours	Personnel	Focus	Conditions
5/15/08	1230–1745	DWF	Reference Plant Check; Site Reconnaissance	80° Fahrenheit (F); 0% cloud cover (cc); 0– to 2-mile-per-hour (mph) winds
6/12/08	1030–1800	DWF	Vegetation Mapping (SY)	70°F–85°F; 0% cc; 0–7 mph winds
6/16/08	0845–1030	DWF	Vegetation Mapping (SY)	75°F–85°F; 0% cc; 0–7 mph winds
6/17/08	0830–1615	DWF; VRJ	Vegetation Mapping (SC, SY)	75°F–85°F; 0% cc; 0–3 mph winds

Personnel Key: DWF = Dave Fleitner; VRJ = Vipul Joshi
Survey Designations: SC = Salt Creek; SY = San Ysidro

Plant community classifications used in this report follow Holland (1986) or Oberbauer et al. (2008), with disturbed and combined variants of native plant communities and one additional anthropogenic community (ornamental) included where appropriate. Latin and common names of plants follow *The Jepson Manual* (Hickman 1993). Where not listed in Hickman (1993), common names follow Simpson and Rebman (2006) or Roberts et al. (2004).

Vegetation mapping of the approximately 1,200-acre Village 11 project area, which includes the northern portion of the Salt Creek Preserve, was conducted by Vipul Joshi and Harold Wier on April 15, 1999 (Dudek and Associates 2000). This previous mapping was evaluated and updated in the field as appropriate. Changes in vegetation mapping reflect both changes to the vegetation that has occurred since the previous survey and revision of vegetation community names to conform more closely to Holland's (1986) classification system. A 0.5-acre minimum mapping unit was used.

Vegetation communities on the San Ysidro Preserve were mapped in the field directly onto a 300-scale (1 inch = 300 feet) infrared aerial photograph of the site. In some areas, a global positioning system (GPS) receiver was used to delineate the boundaries of vegetation types. Mapping was evaluated and refined in portions of the site in conjunction with subsequent wildlife surveys.

2.3 Rare Plant Surveys

Sensitive biological resources present or potentially present on both Salt Creek and San Ysidro p reserves were identified through a literature search using the following sources: California Department of Fish and Game (CDFG) (2009a–e) and California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants* (CNPS 2009). Special-status plant species considered in this report are those listed by CDFG (2009c, 2009e); CNPS (2009); or the Multiple Species Conservation Program (MSCP) Subarea Plan of the City of Chula Vista (2003) or the County of San Diego (1997) for the Salt Creek or San Ysidro preserves, respectively.

Rare plant surveys and exotics mapping using a general methodology were conducted at both Salt Creek and San Ysidro in April and May 2009. Table 3 lists the dates, conditions, and focus for each survey.

Table 3
Schedule of Surveys for Botanical Surveys

Date	Hours	Personnel	Conditions
Salt Creek Area			
4/15/09	0900–1345	BAS; KCD; VRJ	60°F–62°F; 50–85% cc; 0–10 mph winds
5/6/09	0900–1800	BAS; KCD; VRJ	78°F; 0% cc; 0–3 mph winds
5/8/09	0700–1630	BAS; KCD	69°F; 100% cc; 0 mph winds
San Ysidro Area			
5/7/09	0800–1600	BAS; KCD; VRJ	72°F; 0% cc; 0–2 mph winds
5/11/09	0715–1245	KCD	75°F–85°F; 0% cc; 0–3 mph winds

Personnel Key: BAS = Britney Strittmater; KCD = Katie Dayton; VRJ = Vipul Joshi

Surveys were conducted by walking meandering transects to detect special-status species. Special-status plant observations were mapped in the field directly onto a 200-scale (1 inch = 200 feet) aerial photograph of the Salt Creek and San Ysidro preserves.

The survey timing was selected to maximize detection of the majority of potential special-status plant species expected to occur on Salt Creek and San Ysidro preserves while conducting a single pass throughout the preserves. Nearby reference populations (within 2 miles of the Salt Creek and San Ysidro preserves) of the following species were visited immediately prior to the survey and were determined to be in bloom and detectable at the time of the survey: variegated dudleya (*Dudleya variegata*), San Diego goldenstar (*Muilla clevelandii*), and Otay tarplant (*Deinandra conjugens*).

All rare plant locations and number of individuals were recorded on field maps with the exception of certain abundance species that could not be counted. For those species, alternate mapping techniques were used as follows:

- For populations greater than 25 individuals of San Diego marsh elder (*Iva hayesiana*), southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*), Palmer's grapplinghook (*Harpagonella palmeri*), Tecate cypress (*Callitropsis forbesii*), western dichondra (*Dichondra occidentalis*), San Diego County sunflower (*Bahiopsis laciniata*), ashy spikemoss (*Selaginella cinerascens*), and San Diego barrel cactus (*Ferocactus viridescens*), a location was recorded that represents an occupied area of up to approximately 200 radial feet.
- For populations of San Diego goldenstar that occupied a greater than 200-foot radial, the occupied area was recorded and the population size estimated based on the following four range classes: A = 50–100 individuals, B = 100–500 individuals, C = 500–1,000 individuals, and D = 1,000 or more individuals.

When adequate satellite reception was available to record points, a GPS receiver was used to record the location of special-status plant populations. The special-status plant observations were downloaded and/or digitized by Dudek Geographic Information Systems (GIS) technicians Lisa Lubeley and Simon Kedward, using ArcGIS software.

2.4 Exotics Mapping

In conjunction with the rare plant surveys, perennial invasive exotic plant species, such as Peruvian pepper tree (*Schinus molle*) and wild fennel (*Foeniculum vulgare*), were also mapped in the field directly onto a 200-scale (1 inch = 200 feet) aerial photograph of the Salt Creek and San Ysidro sites. For these species, only the location was noted. For salt-cedar (*Tamarisk* spp.), a

polygon was delineated for the area within the Otay River where this species is a dominant or co-dominant species.

All plant species identified in the field during rare plant surveys conducted on Salt Creek and San Ysidro sites were recorded and are presented in Appendix A and B, respectively. Latin and common names of plants follow the *Jepson Manual* (Hickman 1993) or CDFG (2009c) for special-status plant species. Where not listed in Hickman (1993), common names follow Simpson and Rebman (2006) or Roberts et al. (2004).

2.5 Avian Point Count Surveys

Six point locations were established on the Salt Creek Preserve and four point locations were established on the San Ysidro Preserve (Figure 3). Avian point count surveys were conducted using a standard general methodology as described in this section. Fewer survey points were placed at the San Ysidro parcel because it is generally more uniform in habitat coverage, while Salt Creek is more diverse. All ten survey point locations are on existing dirt roads, thus allowing all points to be surveyed within one 24-hour period. The distribution of points was based on the habitats present in the two preserves with an effort made to place the points at locations that cover as many different habitat types as possible given the road network constraints. The center point for each station was permanently established in the field by mapping the GPS coordinates and using orange flagging tape tied to a bush nearest the survey point.

All ten point count stations were surveyed during the same 24-hour period. Diurnal surveys occurred between 0500 hours and 1200 hours, and nocturnal surveys occurred between 2030 hours and 0030 hours only. Surveys began in July 2008 and occurred monthly through October 2008. Table 4 lists the survey dates and conditions.

Table 4
Schedule of Surveys for Avian Point Count Surveys

Date	Personnel	Survey Type	Time	Survey Conditions (skies, wind, temp)
Salt Creek Preserve				
7/17/08	PML	Diurnal	0805–1023	74°F–88°F; 0% cc; 0–5 mph winds
		Nocturnal	2233–2428	65°F–66°F; 0% cc; 0–3 mph winds
8/26/08	PML	Diurnal	0840–1043	76°F–85°F; 0–5% cc; 0–3 mph winds
		Nocturnal	2242–2430	65°F–67°F; 0% cc; 0–3 mph winds
9/23/08	PML	Diurnal	0822–1029	67°F–80°F; 0% cc; 0–2 mph winds
		Nocturnal	2241–2430	62°F–68°F; 0% cc; 0–2 mph winds
10/29/08	PML	Diurnal	1007–1154	78°F–85°F; 0% cc; 0–4 mph winds
	PML; TSL	Nocturnal	2232–2445	49°F–59°F; 0% cc; 0–2 mph winds

Table 4 (Continued)

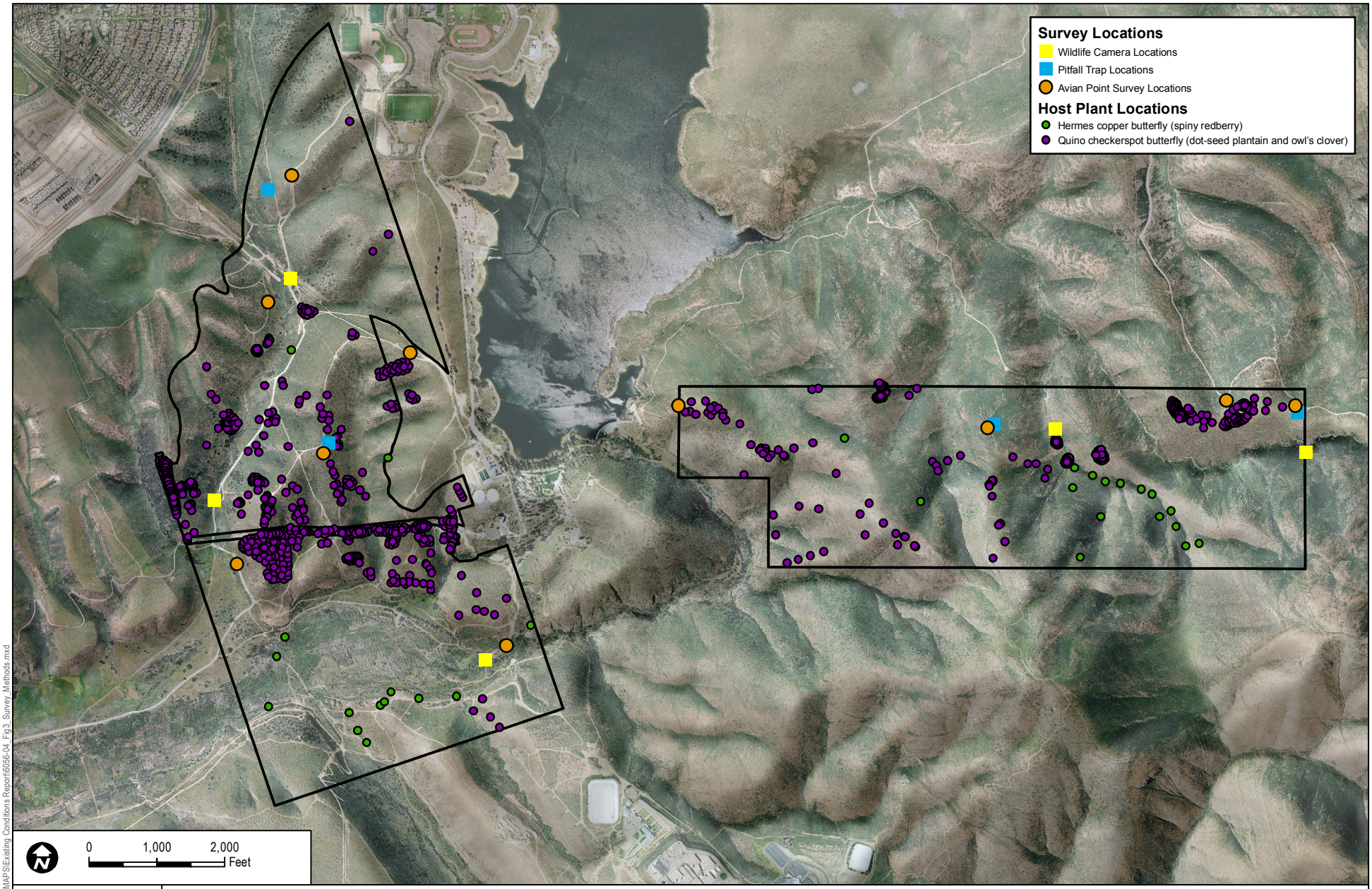
Date	Personnel	Survey Type	Time	Survey Conditions (skies, wind, temp)
San Ysidro Preserve				
7/17/08	PML	Diurnal	0540–0718	67°F–71°F; 0% cc; 0–1 mph winds
		Nocturnal	2033–2150	68°F–72°F; 0% cc; 0–1 mph winds
8/26/08	PML	Diurnal	0624–0805	65°F–73°F; 20–100% cc; 0–2 mph winds
		Nocturnal	2030–2200	69°F–73°F; 5% cc; 0–3 mph winds
9/23/08	PML	Diurnal	0608–0740	62°F–66°F; 0% cc; 0–1 mph winds
		Nocturnal	2030–2207	67°F–73°F; 0% cc; 0–4 mph winds
10/29/08	PML	Diurnal	0800–0932	70°F–77°F; 0% cc; 0–2 mph winds
		Nocturnal	2044–2200	62°F–68°F; 0% cc; 0–5 mph winds

Personnel Key: PML = Paul Lemons; TSL = Thomas Liddicoat

Conducting the Point Count

When driving to the point count station, the vehicle slowed to 5 miles per hour (mph) within 500 feet of each station. Upon entering the point count station, the observer stopped the vehicle and turned off the engine. The observer(s) waited for 3 minutes before beginning the sampling period. During this waiting period, the observer filled in current weather conditions on the data sheet. Once the 3-minute waiting period ended, the observer noted the time on the data sheet and started the counting session. After 10 minutes, the observer stopped the counting session, packed up equipment, and continued to the next station. For the purpose of comparing data with future data sets at the same study area, each station was counted in the same order each time, starting at approximately the same time relative to sunrise.

When starting the survey, the observer identified and tallied all birds that were observed (audibly or visually) within the 164-foot (50-meter) study area. Groups of birds (e.g., quail, family groups) that were visually identified were counted and the number of individuals noted. An estimate of the number of individual birds was given to groups of birds that were audibly identified. Birds detected outside the 164-foot area were noted on a separate column. Birds noted only in flight were additionally recorded as either using the landscape (e.g., actively foraging swallows and raptors, and raptors using thermal updrafts) or not (e.g., birds commuting between distant habitat patches off site, such as cormorants over an upland site or birds migrating high overhead). Where multiple sightings of a species occurred within a point count area, multiple entries for a species was included only if the observer was reasonably certain that they were different individuals. Only different individuals of a given species were counted. Estimates for large flocks of birds (e.g., blackbirds, European starlings, etc.) were provided and noted as being estimates on the data sheet. There was no differentiation between adult and juvenile birds during this study.



DUDEK

SOURCE: DigitalGlobe, 1/2008

FIGURE 3

Survey Methods

6056-04

MAY 2010

Baseline Biodiversity Survey for Otay Ranch Preserve

Z:\Projects\6056\MAPDOC\MAPSIE\xisting Conditions Report\6056-04_Fig3_Survey_Methods.mxd

INTENTIONALLY LEFT BLANK

The observer(s) were as unobtrusive as possible during the point count session. The observer(s) wore drab clothing, did not talk, turned their cell phones to "vibrate," and did not try to elicit bird responses by "pishing," using recorded calls or any other methods.

Nocturnal surveys were conducted in the same manner as the diurnal surveys. A moderately powered flashlight was used to aid identifications, but the effort focused on deciphering audible cues.

2.6 Focused Surveys for California Gnatcatcher

The coastal California gnatcatcher (*Polioptila californica californica*; gnatcatcher) is a federally listed threatened species and a CDFG Species of Special Concern (SSC). It is closely associated with coastal sage scrub habitat and is therefore threatened primarily by loss, degradation, and fragmentation of this habitat. Gnatcatcher typically occurs below 820 feet above mean sea level (amsl) within 22 miles of the coast, and 1,640 feet amsl for inland regions (Atwood and Bolsinger 1992). In addition, studies have suggested that gnatcatchers avoid nesting on very steep slopes (greater than 40%) (Bontrager 1991). Gnatcatcher is also impacted by brown-headed cowbird (*Molothrus ater*) nest parasitism (Braden et al. 1997).

Dudek biologists conducted three protocol-level presence/absence surveys for the coastal California gnatcatcher on the Preserve in summer 2008. The surveys were conducted in all areas of suitable habitat, including coastal sage scrub, disturbed coastal sage scrub, maritime succulent scrub, and disturbed maritime succulent scrub.

The Salt Creek portion of the Preserve supports approximately 580 acres of suitable gnatcatcher habitat, excluding Formerly Used Defense Site (FUDS) land. The Salt Creek portion of the Preserve was divided into six survey areas to adequately cover all suitable gnatcatcher habitat during focused surveys. The San Ysidro Mountains portion supports approximately 107 acres of suitable gnatcatcher habitat, all located on the western section of the San Ysidro parcel. The remaining San Ysidro portion consists of burned sage scrub, annual grasslands, and chaparral habitats, which are unsuitable for California gnatcatchers. Because it was possible to survey all suitable gnatcatcher habitat within the San Ysidro area in 1 day, this area was not divided. Suitable habitat within each survey area was surveyed three times by Dudek wildlife biologists Paul M. Lemons (Permit No. TE051248-2), Kamural J. Muri (Permit No. TE051250-1), Jeff D. Priest (Permit No. TE840619-3), and Tricia Wotipka (covered under Permit No. TE840619). Survey conditions for each visit are described in Table 5. The surveys were conducted in conformance with the currently accepted protocol of the U.S. Fish and Wildlife Service (USFWS), *Coastal California Gnatcatcher (*Polioptila californica californica*) Presence/Absence Survey Protocol* (1997). Protocol surveys within a Natural Community Conservation

Plan/Habitat Conservation Plan enrolled area include three surveys at 7-day intervals covering all habitat suitable for gnatcatcher.

Table 5
Schedule of Surveys for Focused California Gnatcatcher Surveys

Survey Area	Date	Personnel	Time	Survey Conditions (skies, wind, temp)
Salt Creek Preserve				
1	7/18/2008	JDP	0600–1200	65°F–80°F; 100%–0% cc; 0–5 mph winds
	8/1/2008	JDP	0600–1210	65°F–86°F; 0% cc; 0–4 mph winds
	8/8/2008	JDP	0600–1200	66°F–84°F; 0%–10% cc; 0–6 mph winds
2	7/15/2008	KJM	0700–1130	70°F–81°F; 30%–10% cc; 2–7 mph winds
	7/22/2008	KJM	0725–1100	66°F–76°F; 100%–40% cc; 1–5 mph winds
	8/18/2008	TLW	0730–1150	72°F–84°F; 0% cc; 1–6 mph winds
3	7/22/2008	JDP	0730–1220	65°F–81°F; 0%–5% cc; 0–6 mph winds
	8/7/2008	JDP	0600–1200	65°F–84°F; 50%–20% cc; 0–6 mph winds
	8/14/2008	JDP	0600–1200	63°F–86°F; 5%–75% cc; 0–5 mph winds
4	7/23/2008	PML	0700–1130	67°F–84°F; 20%–5% cc; 0–4 mph winds
	7/30/2008	PML	0700–1130	66°F–84°F; 100%–0% cc; 0–5 mph winds; 6–8 mph gusts
	8/6/2008	PML	0700–1130	68°F–75°F; 0% cc; 1–7 mph winds
5	7/18/2008	PML	0700–1115	68°F–84°F; 100%–5% cc; 0–4 mph winds; 6–8 mph gusts
	7/25/2008	PML	0630–1130	66°F–84°F; 100%–0% cc; 0–2 mph winds; 3–6 mph gusts
	8/1/2008	PML	0630–1050	65°F–86°F; 100%–0% cc; 0–5 mph winds
6	7/24/2008	PML	0700–1200	67°F–84°F; 50%–15% cc; 0–6 mph winds
	7/31/2008	PML	0640–1130	65°F–84°F; 100%–0% cc; 0–4 mph winds
	8/7/2008	PML	0630–1130	68°F–88°F; 70%–40% cc; 0–4 mph winds
San Ysidro Preserve				
1	8/8/2008	PML	0700–1115	69°F–91°F; 50% cc; 0–4 mph wind; 5–7 mph gusts
	8/15/2008	PML	0630–1030	66°F–80°F; 100%–0% cc; 0–3 mph wind
	8/22/2008	PML	0630–1045	67°F–83°F; 0% cc; 0–3 mph wind

Personnel Key: JDP = Jeff Priest; KJM = Kamural Muri; PML = Paul Lemons; TLW = Tricia Wotipka

A tape of recorded California gnatcatcher vocalizations played approximately every 50–100 feet was used to induce responses from potentially present California gnatcatchers. If a California gnatcatcher was detected, tape-playback was terminated to minimize potential for harassment. A 400-scale (1 inch = 400 feet) digital ortho quarter quad map of the site overlaid with the limits of grading, vegetation polygons, and topography was used to map any California gnatcatchers detected. Binoculars (7×50 and 8×32) were used to aid in detecting and identifying bird species. Weather conditions, time of day, and season were appropriate for the detection of California gnatcatcher. All mapped locations of this species were digitized by Dudek using ArcGIS.

2.7 Focused Surveys for Cactus Wren

Cactus wren nests and individuals were mapped while conducting the focused gnatcatcher survey. No special methods were used (i.e., tape playback) to entice their response because they

are readily detectable in the landscape—particularly since all of their suitable habitat was covered three times. (Please see Table 5 for survey dates and conditions.) Detections were mapped on aerial photographs in the same manner that gnatcatcher locations were mapped. Active nests were those that were observed to be fresh (i.e., not damaged) or had observed bird usage, while inactive nests were damaged and in some degree of disintegration.

2.8 Focused Surveys for Hermes Copper and General Butterfly Surveys

Focused surveys for Hermes copper (*Lycaena hermes*) and general butterfly surveys were conducted during summer 2008. The Hermes copper butterfly is a NatureServe G3 species (very rare or local throughout its range or found locally in a restricted range) (21 to 100 occurrences; threatened throughout its range)), and is a Federal Species of Concern. The primary reason for the decline of this species is thought to be habitat loss caused by land development, and more recently, by the large fires that have occurred where historical populations once were. Table 6 lists the dates and conditions for each survey.

Table 6
Schedule of Surveys for Focused Hermes Copper and General Butterfly Surveys

Date	Time	Staff	Environmental Conditions
6/20/08	0715–1330	JDP	84°F–98°F; winds 0–6 mph;10%–0% cc
6/24/08	0845–1345	DWF	73°F–85°F; winds 0–5 mph; 0% cc
6/26/08	0900–1400	DWF	70°F–80°F; winds 2–4 mph; 30%–0% cc
6/27/08	0900–1415	DWF	75°F–80°F; winds 0–3 mph; 0% cc

Table 6a (Continued)

Date	Time	Staff	Environmental Conditions
7/1/08	0915–1345	JDP, TLW	78°F–87 °F; winds 0–2 to 3–7 mph; 0% cc
7/2/08	0930–1530	PML	86°F–93°F; winds 1–3 mph with 4–6 gusts to 4–6 mph with 7–10 gusts; 0% cc
7/10/08	1100–1445	JDP, TLW	75°F–85°F; winds 1–4 to 2–8 mph; 50% cc
7/15/08	0900–1430	PML	82°F–93°F; winds 1–3 mph; 5%–20% cc
7/16/08	0815–1400	PML	75°F–88°F; winds 0–5 mph; 0% cc
8/8/08	0930–1430	TLW	77°F–88°F; winds 3–6 to 2–4 mph; 0% cc

Personnel Key: DWF: Dave Fleitner; JDP: Jeff Priest; PML: Paul Lemons; TLW: Tricia Wotipka

Focused surveys for Hermes copper were conducted by walking meandering transects throughout all areas within the preserve supporting the species host plant, spiny redberry (*Rhamnus crocea*) (Figure 3). General surveys for all butterfly species were conducted by walking meandering transects throughout the entire study area during a single-pass survey. All surveys were conducted on foot with the aid of binoculars (10×42 and 8×42 power) and butterfly nets. All surveys were conducted by experienced butterfly biologists who hold permits for the endangered quino checkerspot butterfly (*Euphydryas editha quino*).

2.9 Focused Surveys for Quino Checkerspot Butterfly

The Quino checkerspot butterfly (*Euphydryas editha quino*; QCB) was listed as endangered under the Endangered Species Act in January 1997 (62 FR 2313–2322; 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 USFWS completed the Recovery Plan for QCB.

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 1- to 2-month flight period. QCB larvae can live for several years by undergoing periods of diapause between plant growing seasons.

The focused QCB survey was conducted on the project site from March 10 through April 1, 2009, by Dudek biologists Anita M. Hayworth, Ph.D. (TE-781084), Brock A. Ortega (TE-813545-5), Jeff D. Priest (TE-840619-2), Kamural J. Muri (TE-051250-0), Tricia Wotipka

(TE-840619-2), Paul M. Lemons (TE-051248-2), and Vipul R. Joshi (TE-019949-0). Survey conditions for each visit are described in Table 7a.

Table 7a
Schedule of Surveys for Quino Checkerspot Butterfly

Survey Area	Date	Personnel	Time	Survey Conditions (skies, wind, temp)
San Ysidro Area				
A	3/18/2009	TLW	1020–1540	72°F–84°F; 0% cc; 0–2 mph winds
	3/25/2009	JDP	0930–1515	70°F–80°F; 0% cc; 0–5 mph winds
	3/31/2009	PML	0900–1400	73°F–81°F; 0% cc; 0–4 mph winds w/ 5–8 mph gusts
B	3/18/2009	PML	1040–1540	72°F–84°F; 0% cc; 1–4 mph winds w/ 5–7 mph gusts
	3/25/2009	TLW	1105–1612	82°F–78°F; 0% cc; 4–5 mph winds w/ 7 mph gusts
	4/1/2009	PML	0940–1630	68°F–75°F; 60–0% cc; 2–5 mph winds w/ 6–8 mph gusts
C	3/14/2009 (west half)	JDP	1008–1240	62°F–72°F; 40–0% cc; 0–5 mph winds w/ 7 mph gusts
	3/15/2009 (east half)	JDP	1100–1340	63°F–72°F; 50–10% cc; 0–6 mph winds
	3/19/2009	JDP	1000–1545	72°F–78°F; 80–5% cc; 1–7 mph winds
	3/23/2009	PML	1130–1630	70°F–72°F; 5–0% cc; 1–7 mph winds w/ 8–12 mph gusts
D	3/17/2009	KJM	1020–1525	68°F–74°F; 0% cc; 2–8 mph winds w/ 10–12 mph gusts
	3/20/2009	VRJ	1130–1700	73°F–72°F; 0% cc; 2–8 mph winds
	3/27/2009	VRJ	0930–1530	72°F –74°F; 0% cc; 2–7 mph winds
E	3/13/2009	KJM	1045–1602	60°F; 0% cc; 1–8 mph winds w/ 10 mph gusts
	3/15/2009	VRJ	1000–1530	68°F–70°F; 50–5% cc; 0–5 mph winds
	3/25/2009	KJM	1130–1630	73°F–70°F; 0% cc; 4–8 mph winds
F	3/10/2009	JDP	0930–1430	61°F–81°F; 0% cc; 0–7 mph winds w/ 9 mph gusts
	3/18/2009	VRJ	1030–1600	74°F–78°F; 0% cc; 0–6 mph winds
	3/28/2009	VRJ	1030–1630	70–74°F; 0% cc; 2–8 mph winds
Salt Creek Area				
G	3/10/2009	PML	0900–1615	62–73°F; 0% cc; 0–4 mph winds w/ 5–8 mph gusts
	3/20/2009	PML	0950–1500	73–77°F; 0% cc w/haze; 0–4 mph winds w/ 5–7 mph gusts
	3/27/2009	PML	0900–1415	67–74°F; 0% cc; 0–5 mph winds w/ 6–10 mph gusts
H	3/13/2009	PML	0940–1500	67°F; 0% cc; 0–5 mph winds w/ 7–10 mph gusts
	3/16/2009	KJM	1045–1545	64–72°F; 0% cc; 3–7 mph winds
	3/28/2009	PML	0930–1430	71–79°F; 0% cc; 1–6 mph winds w/ 7–12 mph gusts
I	3/15/2009	TLW	0930–1500	67–74°F; 50–10% cc; 2–3 mph winds
	3/21/2009	TLW	1030–1543	74–82°F; 10% cc; 2–10 mph winds
	3/24/2009	KJM	1032–1608	72–78°F; 0% cc; 2–6 mph winds
J	3/10/2009	AMH	1010–1510	61–64°F; 0% cc; 1–8 mph winds
	3/16/2009	AMH	0915–1430	63–70°F; 0% cc; 0–10 mph winds
	3/25/2009	AMH	0930–1520	68–75°F; 0% cc; 1–8 mph winds

Table 7a (Continued)

Survey Area	Date	Personnel	Time	Survey Conditions (skies, wind, temp)
K	3/13/2009	TLW	1020–1600	68–72°F; 0% cc; 0–3 mph winds
	3/19/2009	PML	1120–1605	72–73°F; 10–5% cc; 2–5 mph winds w/ 6–9 mph gusts
	3/24/2009	JDP	1030–1440	84–85°F; 0% cc; 0–15 mph winds
	3/30/2009	JDP	1300–1345	79°F; 0% cc; 4–8 mph winds
L	3/13/2009	VRJ	1100–1430	70–72°F; 0% cc; 2–8 mph winds
	3/17/2009	TLW	1030–1515	74–82°F; 0% cc; 1–9 mph winds w/ 10 mph gusts
	3/24/2009	TLW	1030–1525	72–82°F; 0% cc; 5–13 mph winds
M	3/13/2009	BAO	0910–1530	62–66°F; 0% cc; 0–7 mph winds
	3/20/2009	BAO	1100–1600	60–65°F; 30% cc; 0–4 mph winds
	3/24/2009	BAO	1030–1450	70–78°F; 0% cc; 0–5 mph winds
N	3/11/2009	KJM	1005–1520	62–66°F; 30–50% cc; 0–4 mph winds
	3/18/2009	JDP	0930–1435	67–84°F; 0% cc; 0–6 mph winds
	3/23/2009	JDP	1130–1630	74–79°F; 5–0% cc; 0–6 mph winds w/ 9 mph gusts
	3/30/2009	JDP	1350–1450	81°F; 0% cc; 5–8 mph winds w/ 12 mph gusts

Personnel Key: AMH = Anita Hayworth; BAO = Brock Ortega; JDP = Jeff Priest; KJM = Kamural Muri; PML = Paul Lemons; TLW = Tricia Wotipka

Based on previous visits and surveys of the Salt Creek parcel of the Preserve in 2008 (i.e., botanical, general butterfly, California gnatcatcher), portions of the Salt Creek parcel associated with the Otay River Valley were considered unsuitable for QCB. That is, they were too densely covered by vegetation to be suitable in accordance with the USFWS survey protocol guidelines and their life history requirements. In addition, the FUDS area within the Salt Creek parcel was not surveyed. The entire 526-acre San Ysidro parcel was considered potentially suitable for QCB, and no exclusion areas were drawn. The Preserve was divided into 14 survey polygons, each representing a single-day survey effort (i.e., 4 to 6 survey hours to be in accordance with USFWS protocol) (Table 7b). These survey areas were labeled A though N and assigned to Dudek QCB permitted biologists. The biologists were provided with 200-scale aerial photographs for mapping QCB and host plant populations. The survey maps included topography lines and survey area boundaries. Binoculars were used to aid in detecting and identifying butterfly and other wildlife species. GPS units also were available for recording locations of QCB and host plant populations.

Table 7b
2009 Quino Checkerspot Butterfly Survey Polygons

Survey Area	Acreage of Survey Area
A	74.31
B	75.59
C	79.80
D	76.25

Table 7b (Continued)

Survey Area	Acreage of Survey Area
E	79.31
F	74.29
G	73.15
H	75.20
I	78.57
J	79.52
K	72.41
L	68.66
M	77.51
N	75.74

Typical protocol level, focused surveys for QCB call for five or more survey passes within suitable QCB areas. Because the goal of this study was to determine QCB presence on the Preserve and not to determine impacts, the survey consisted of only three visits. This survey methodology revision was accepted by the USFWS. The surveys were conducted in general conformance with the currently accepted protocol of the USFWS (USFWS 2002).

2.10 Herpetological Surveys

Four pitfall arrays were constructed on the Preserve, two at Salt Creek and two at San Ysidro. The pitfall arrays were distributed to survey disjunct areas, different elevations, and differing

habitat types (e.g., coastal sage scrub, grassland, rocky land) (Figure 3). Table 8 lists the dates and conditions of herpetological surveys conducted.

There are no USFWS or CDFG protocols for performing general herpetological surveys. Therefore, general survey guidance was provided by the USGS document "Herpetological Monitoring Using a Pitfall Trapping Design in Southern California" (Fisher et al. 2008). Arrays were constructed in accordance with Fisher et al. (2008), with modifications to include snake traps at the end of each arm of the array. The arrays were constructed by staff at Habitat Restoration Services (HRS), a Dudek subsidiary. Specifically, each array consisted of three 49-foot arms of drift fence. Each arm radiates from a central pitfall bucket at approximate 120-degree increments. Additional pitfall buckets were placed at the midpoint and terminal end of the array arm. In addition, snake traps (i.e., wire mesh, rectangular traps with one-way doors) were installed between the middle and terminal pitfall buckets on the right side of the arm. These have been shown to be effective at catching snakes, lizards, and rodents. Drift fencing was keyed into the ground so that reptiles and snakes could not crawl under it. In addition, an effort was made to minimize the number of creases that provide reptile refuge between buckets. Typical 5-gallon buckets (purchased from a hardware store) were used as pitfall traps. The edge of the buckets were flush with, or slightly below, the ground surface. Bucket lids were fitted with angled wood blocks on their top surface to provide an approximate 2-inch gap between the ground surface and the lid so reptiles would be encouraged to crawl under. The lids fit the buckets securely so that when not in use, the buckets could be sealed off from captures.

Table 8
Schedule for Herpetological Surveys

Date	Time	Staff	Location	Environmental Conditions
5/20/09	1200–1700	PML	Salt Creek and San Ysidro	83–84°F; winds 1–6 mph; 20% cc
5/21/09	1420–1527	BAO	Salt Creek and San Ysidro	75°F; winds 1–3 mph; 0% cc
5/22/09	1200–1400	BAO	Salt Creek and San Ysidro	74–74°F; winds 3 mph; 0% cc
6/24/09	1341-1550	BAO, TJO, CSO	Salt Creek and San Ysidro	77°F; winds 3-5 mph; 0% cc
6/25/09	1100–1700	PML	Salt Creek and San Ysidro	85–87°F; winds 2–10 mph; 40–80% cc
6/26/09	1215–1330	JDP	Salt Creek and San Ysidro	79–80 °F; winds 2–6 mph; 0% cc
7/29/09	0930-1400	PML	Salt Creek and San Ysidro	75–81 °F; winds 1–7 mph; 10-30% cc
7/30/09	1535-1810	BAO, TSO, CSO	Salt Creek and San Ysidro	78–80 °F; winds 3 mph; 0% cc
7/31/09	1330-1730	JDP	Salt Creek and San Ysidro	75–80 °F; winds 2–7 mph; 0-5% cc

Personnel Key: BAO = Brock Ortega; JDP = Jeff Priest; PML = Paul Lemons; TJO = Tyge Ortega; CSO = Connor Ortega

Traps were opened on day 1 and checked for the 3 days; traps were closed after the third trap-check. All captures were identified and sexed. Data were collected regarding the weight, snout-vent length, and age class of the individual. Finally, the individual was marked with permanent marker near the base of the tail to allow the identification of recaptured individuals in subsequent

visits during the session. After the animal was processed, it was released at a nearby location near shrubs, burrows, or debris (care was taken to ensure that competitors or potential predator/prey species were not released at the same location). Animals that ran from the release site directly into another pitfall trap or snake trap were released without counting them again. Captured small mammals were weighed, identified, photographed, sexed, and breeding status determined. They were immediately released after processing. The number of large invertebrates (e.g., tarantulas, etc.) was counted and identified as feasible. Trap arrays were sampled for 3 months, beginning in May 2009 (Table 8).

2.11 Medium and Large Mammal Surveys

There are no local, state, or federal guidelines for conducting general mammal surveys. Medium and large mammal surveys were conducted using remote camera stations in spring 2009. Using a standard industry practice, five Cuddeback Digital motion- and heat-sensitive camera stations were placed in potential wildlife movement areas on each portion of the Preserve (Salt Creek and San Ysidro Mountains) near water sources, drainages, ridgelines, etc. A total of three stations were set at Salt Creek and two were set at San Ysidro (Figure 3). Since the sites are wide open to movement with few constraints, wildlife is free to move throughout using ridges, drainages, and cross-country routes. Therefore, since larger wildlife is more likely to select dirt roads or drainages for movement, cameras were set along dirt roads, drainages, or where both intersected. Custom steel plate cases were welded to accommodate each camera, and the units were set into the ground with concrete to prevent theft and to establish permanent monitoring stations. The sites were baited with a commercial scent lure (Gusto) by dabbing scent on the side opposite the

camera. This was done only at the beginning of each session. Each camera included 4 "D"-cell batteries and a 1-gigabyte compact flash card. Cameras were set with a 1-minute interval between photos, and date and time were captured for each photo. This allowed for each camera to run continuously for approximately 18 days during each session. Sessions were as follows:

- Session 1: April 14 to 29, 2009
- Session 2: April 29 to May 15, 2009
- Session 3: May 15 to June 1, 2009
- Session 4: June 1 to 23, 2009.

The timing of the monitoring was established to best monitor the movement of the mammals during each season. All photographs were reviewed by biologists to determine the species present in the photograph and the direction of movement, where possible.

2.12 Survey Limitations

The floristic inventories of the Salt Creek and San Ysidro sites were conducted over the entire site in April and May 2009. Herbaceous species that bloom earlier or later in the year may not have been observed. The rainfall in winter and spring 2009 was less than average; consequently, new vegetation growth was very low.

Limitations of the wildlife surveys include a diurnal bias for all wildlife surveys except the avian point count surveys. Daytime surveys usually result in few observations of mammals, many of which may be active at night, although the large and medium mammal surveys offset this limitation to some degree. In addition, many species of reptiles and amphibians are secretive and difficult to observe. Wildlife surveys were completed in summer and autumn when many migratory species may have left the area.

3.0 RESULTS

Elevation at the Salt Creek portion of the Otay Ranch Preserve (Preserve) ranges from approximately 265 feet above mean sea level (amsl) in the Otay River Valley to approximately 600 feet amsl at the ridge tops in the northern portion of Salt Creek. Topography at the Salt Creek portion of the Preserve consists of several moderately sloping ridgelines and tributary canyons that drain into the canyon which supports Salt Creek. Salt Creek flows in a north-to-south direction, discharging into the Otay River. Elevation at the San Ysidro Mountains portion of the Preserve ranges from approximately 360 amsl in the western portion of the site to approximately 1,270 feet amsl at the peaks in the southern portion of site. Topography at the San Ysidro Mountains portion of the Preserve is highly diverse, including very steep slopes, canyons, peaks, and ridgelines.

The project site generally has a warm, dry climate. Average temperatures in the City of Chula Vista (City) range from approximately 55 degrees Fahrenheit (°F) to 75°F. This community generally receives less than 1 inch of rainfall from April to October, and the average monthly precipitation typically does not exceed 2.5 inches. Humidity generally ranges from approximately 60% to 80% (Advameg, Inc. 2009).

The Preserve has been dedicated as a preserve and will remain an open space. To the northwest of Salt Creek, surrounding land use is primarily residential and commercial. The San Diego County (County) jail lies to the south of the Preserve. Open space extends beyond San Ysidro to the east. Otay Lake occurs north of the Preserve with Salt Creek on the west and San Ysidro the east.

Salt Creek Preserve

The Salt Creek Preserve site is mapped on Huerhuero, Olivenhain, Diablo-Olivenhain complex, Visalia, Riverwash, and Terrace Escarpent soils.

Huerhuero series soils are the most widespread, occupying most of the site north of Salt Creek. Huerhuero series soils are moderately well-drained loams that derived from sandy marine sediments. The topsoil is strongly acid (pH 5.3) pale-, yellowish-, grayish- or strong-brown in color and sandy-loam to loam in texture, and from 5 to 30 inches thick. Below this is an alkaline pan of clay or heavy clay loam. The subsoil extends 68 inches deep, grading into a sandy loam texture. Huerhuero soils support tarweeds and annual grasses and forbs. Huerhuero loam, loam, 15% to 30% slopes, eroded, is most common; inclusions of Huerhuero loam, 2% to 9% slopes, and Huerhuero loam, 9% to 15% slopes, are present in the southern half of the site (Bowman 1973).

Olivenhain series soils are found on the eastern and southern edges of the site. Olivenhain series soils form from gravelly and cobbly alluvium on disected marine terraces. The topsoil layer is brown to reddish-brown and about 10 inches deep over subsoil that extends to about 60 inches depth. Small areas of Huerhuero, Diablo, and Linne soils may be included in areas mapped as Olivehain soils. Olivenhain cobbly loam, 2% to 9% slopes, Olivenhain cobbly loam, 9% to 30% slopes, and Olivenhain cobbly loam, 30% to 50% slopes are mapped on site (Bowman 1973). Olivenhain soils are substrates associated with sensitive plant species.

Diablo–Olivenhain complex, 9% to 30% slopes, is mapped in the northern part of the site. Diablo–Olivenhain complex is about 50% Diablo clay, 45% Olivenhain soil, and 5% Linne clay. Diablo clays have a dark-gray clay topsoil layer about 27 inches thick. Both Diablo and Olivenhain soils are substrates associates with sensitive plant species (Bowman 1973).

Visalia gravelly sandy loam, 2% to 5% slopes, is mapped in a small area in the southern part of the site. Visalia sandy loam soils are very deep soils on alluvial fans and flood plains that are derived from granitic alluvium. The dark grayish-brown topsoil layer is about 12 inches deep, over grayish brown subsoil that extends to 60 inches deep; soil texture changes from sandy loam to loam at about a 40-inch depth. This soil is moderately well-drained, moderately permeable, and has very slow runoff (Bowman 1973).

Riverwash is mapped for the floodplain of Salt Creek. Riverwash is a term used to collectively refer to unconsolidated sands, gravels, and cobbles that occur in intermittent stream courses. This soil is often barren due to scour from storm events (Bowman 1973).

Terrace escarpment is mapped adjacent to and uphill from some parts of Salt Creek. Terrace escarpments are stepp, or very steep landscapes, that occur on nearly even fronts of terraces or alluvial fans. Typically, this soil has 4 to 10 inches of loamy or gravelly soil over soft marine sandstone, shale, or gravelly sediments (Bowman 1973).

San Ysidro Preserve

The entire San Ysidro Preserve is mapped as San Miguel-Exchequer rocky silt loam. This soils type occurs on 9% to 70% slopes and is a complex between San Miguel silt loam and Exchequer silt loam on steep slopes with about 10% rock outcrops. Exchequer series soils are well-drained, shallow silt loams derived from weathered hard metabasic (metamorphosed basalt), or mafic, rock. San Miguel series soils are well-drained, shallow to moderately deep silt loams with clay subsoil that are derived from metavolcanic rock. Both soils have medium to rapid runoff, and a moderate to high erosion potential. The San Miguel silt loam has slow permeability, and the Exchequer has moderate permeability. Fertility is very low for both soil types. The soil profile pH ranges from strongly acid to slightly acid (5.0 to 6.5) (Bowman 1973). This soil complex is

known to support sensitive plant species; small clay lenses may be associated with San Miguel-Exchequer soils (Reiser 2001).

The project site generally has a warm, dry climate. Average temperatures in the City range from approximately 55°F to 75°F. This community generally receives less than 1 inch of rainfall from April to October, and the average monthly precipitation typically does not exceed 2.5 inches. Humidity generally ranges from approximately 60% to 80% (Advameg, Inc. 2009).

The Preserve has been dedicated as a preserve and will remain an open space. To the northwest of Salt Creek, surrounding land use is primarily residential and commercial. The County jail lies to the south of the Preserve. Open space extends beyond San Ysidro to the east. Otay Lake occurs north of the Preserve with Salt Creek on the west and San Ysidro the east.

3.1 Regional Context

In the County, several resource conservation-planning efforts have been completed or are currently in progress with the long-term goal of establishing a regional reserve system that will protect native habitat lands and their associated biota. The ultimate goals of these plans are the establishment of biological reserve areas in conformance with the State Natural Communities Conservation Plan Act and to contribute to the preserve system already established by the approved Multiple Species Conservation Program (MSCP).

3.1.1 Salt Creek Preserve

The Salt Creek Preserve is located within the Chula Vista Subarea Plan (City of Chula Vista 2003) and is designated for a preserve area. There are 57,849 acres within the Chula Vista MSCP Planning Area, 22,899 acres of which are part of the Otay Ranch Planning component.

3.1.2 San Ysidro Preserve

The San Ysidro Preserve is located within the County of San Diego Subarea Plan and is designated for a preserve area. San Ysidro lies within the South County Segment of the MSCP (San Diego County 1997). Within the total 82,767 acres in this segment, there are 48,240 acres of natural vegetation with habitat value. Coastal sage scrub and chaparral comprise the majority of this natural vegetation. In addition to targeted preserved areas, land use in this segment is predominantly agriculture (San Diego County 1997).

3.2 Habitat Types/Vegetation Communities

All 25 vegetation types and subtypes of upland habitats/communities and wetland habitats/communities, found on the combined Salt Creek and San Ysidro preserves, are mapped

on Figures 4a and 4b. A discussion of the general characteristics of the plant communities or land covers present is described in detail in Sections 3.2.1 and 3.2.2, including the particular characteristics of these communities and their variants (disturbed or combined forms).

3.2.1 Salt Creek Preserve

Sixteen upland habitats/communities and nine wetland habitats/communities, found on Salt Creek Preserve are mapped on Figures 4a and their acreages are provided in Table 9a.

Table 9a
Vegetation Communities and Land Cover Types on the Salt Creek Preserve

Vegetation Community/Land Cover Type	Code[1]	MSCP Tier[2]	Acreage
Upland Habitats/Communities			
Maritime Succulent Scrub	32400	I	36.8
Disturbed Maritime Succulent Scrub	32400	I	2.0
Valley Needlegrass Grassland	42110	I	3.3
Disturbed Valley Needlegrass Grassland	42110	I	1.9
Tecate Cypress Forest	83200	I	0.7
Coastal Sage Scrub	32500	II	463.3
Disturbed Coastal Sage Scrub	32500	II	111.8
Southern Mixed Chaparral	37120	III	1.0
Chamise Chaparral	37200	III	6.5
Scrub Oak Chaparral	37900	III	0.2
Annual (nonnative) Grassland	42200	III	21.6
Annual (nonnative) Grassland/Disturbed Coastal Sage Scrub	42200/32500	III/II	33.2
Ornamental	11000	IV	4.8
Eucalyptus Woodland	11100	IV	3.7
Disturbed Habitat	11300	IV	27.2
Developed land	12000	IV	2.4
		Subtotal	*720.4*
Wetland Habitats/Communities			
Cismontane Alkali Marsh	52310	I	4.9
Cismontane Alkali Marsh/ Freshwater Marsh	52310/52400	I	1.2
Freshwater Marsh	52400	I	1.5
Mulefat Scrub	63310	I	5.2
Disturbed Mulefat Scrub	63310	I	0.7
Mulefat Scrub/Freshwater Marsh	63310/52400	I	0.3
Southern Willow Scrub	63320	I	10.6
Disturbed Southern Willow Scrub	63320	I	30.2
Eucalyptus Woodland/Mulefat Scrub	11100/63310	IV/I	0.1
		Subtotal	*54.6*
		Total	**775.0**

1 Holland (1986) as modified by Oberbauer (2008)
2 San Diego County (1997)
NOTE: Column totals may not equate due to rounding.

HABITAT, HABITAT DESCRIPTION, HOLLAND

AGL, Annual Grassland, 42200
AGL/dCSS, Annual Grassland/disturbed Coastal Sage Scrub, 32500
CAM, Cismontaine Alkali Meadow, 45300
CAM/FWM, Cismontaine Alkali Meadow/Freshwater Marsh, 45300
CSS, Coastal Sage Scrub, 32500
DEV, Developed, 12000
DH, Disturbed Habitat, 11300
EUC, Eucalyptus Woodland, 11100
FWM, Freshwater Marsh, 52400
MFS, Mule Fat Scrub, 63310
MFS/FWM, Mule Fat Scrub/Freshwater Marsh, 63310
MSS, Maritime Succulent Scrub, 32400
SMX, Southern Mixed Chaparral, 37120
SOC, Scrub Oak Chaparral, 37900
SWS, Southern Willow Scrub, 63320
VGL, Valley Needlegrass Grassland, 42110
dCSS, disturbed Coastal Sage Scrub, 32500
dMSS, disturbed Maritime Succulent Scrub, 32400
dVGL, disturbed Valley Needlegrass Grassland, 42110

Habitat
Developed

Special-Status Plant Occurrences - Points

Ashy spikemoss
Palmer's grapplinghook
San Diego barrel cactus
San Diego County sunflower
San Diego marsh-elder
Snake cholla
South coast saltscale
Southwestern spiny rush
Variegata dudleya

Inset Map

0 2,500 5,000 Feet

0 250 500 Feet

DUDEK

SOURCE: DigitalGlobe 1/2008

6056-04
MAY 2010

FIGURE 4a-1
Biological Resource Map

Baseline Biodiversity Survey for Otay Ranch Preserve

Z:\Projects\6056\04\MAPDOC\MAPS\Existing Conditions Report\6056-04 Fig4a-1 Biological Resources.mxd

INTENTIONALLY LEFT BLANK

DUDEK

SOURCE: DigitalGlobe 1/2008

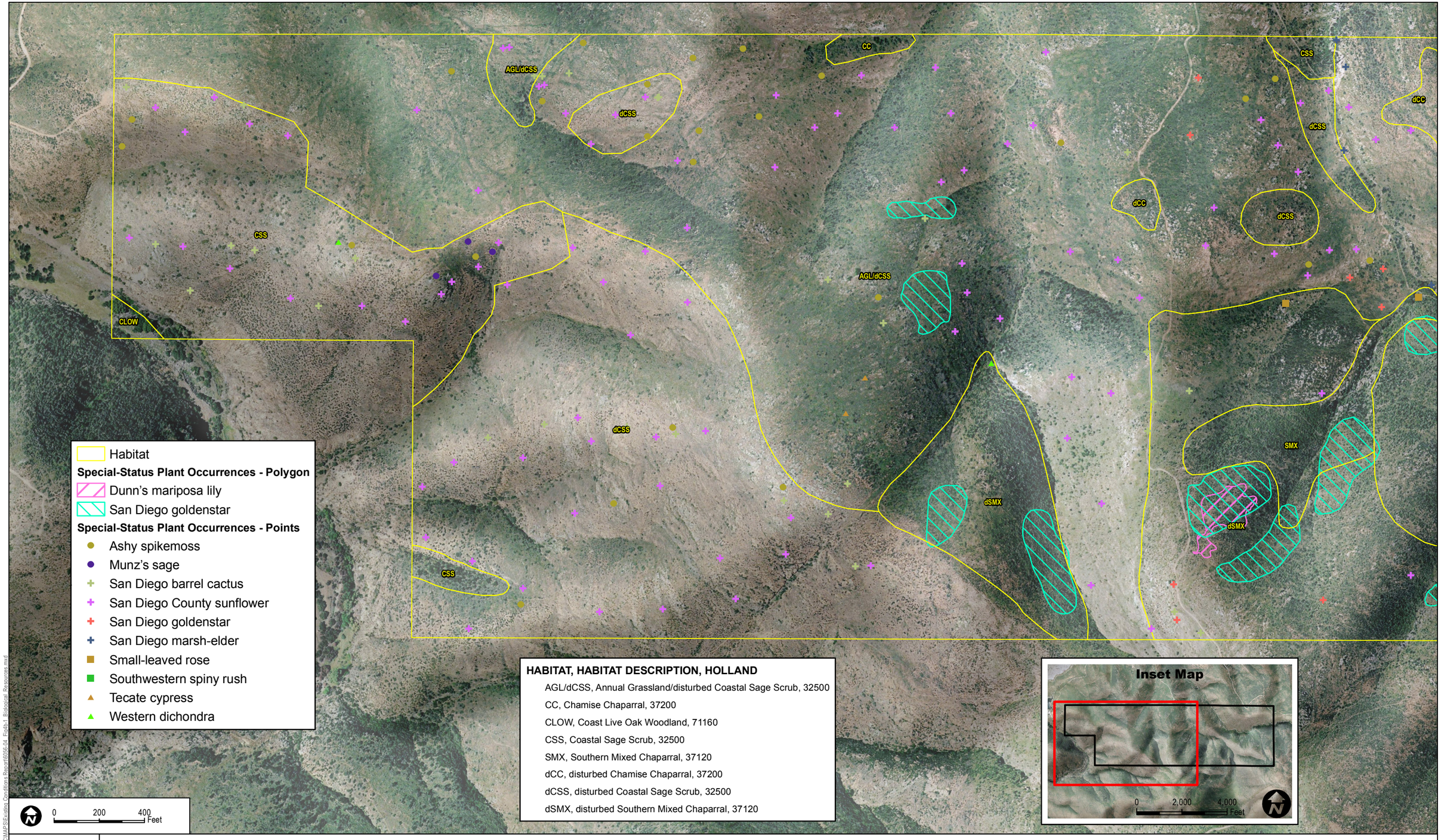
6056-04
MAY 2010

FIGURE 4a-2
Biological Resource Map

Baseline Biodiversity Survey for Otay Ranch Preserve

Z:\Projects\6056\04\MAPDOC\MAPSIE\xistng_Conditions Report\6056-04_Fig4a-2_Biological_Resources.mxd

INTENTIONALLY LEFT BLANK



Z:\Projects\6056\MAP\DOC\MAPS\Existing Conditions Report\6056-04_Fig4b-1_Biological_Resources.mxd

DUDEK

6056-04

MAY 2010

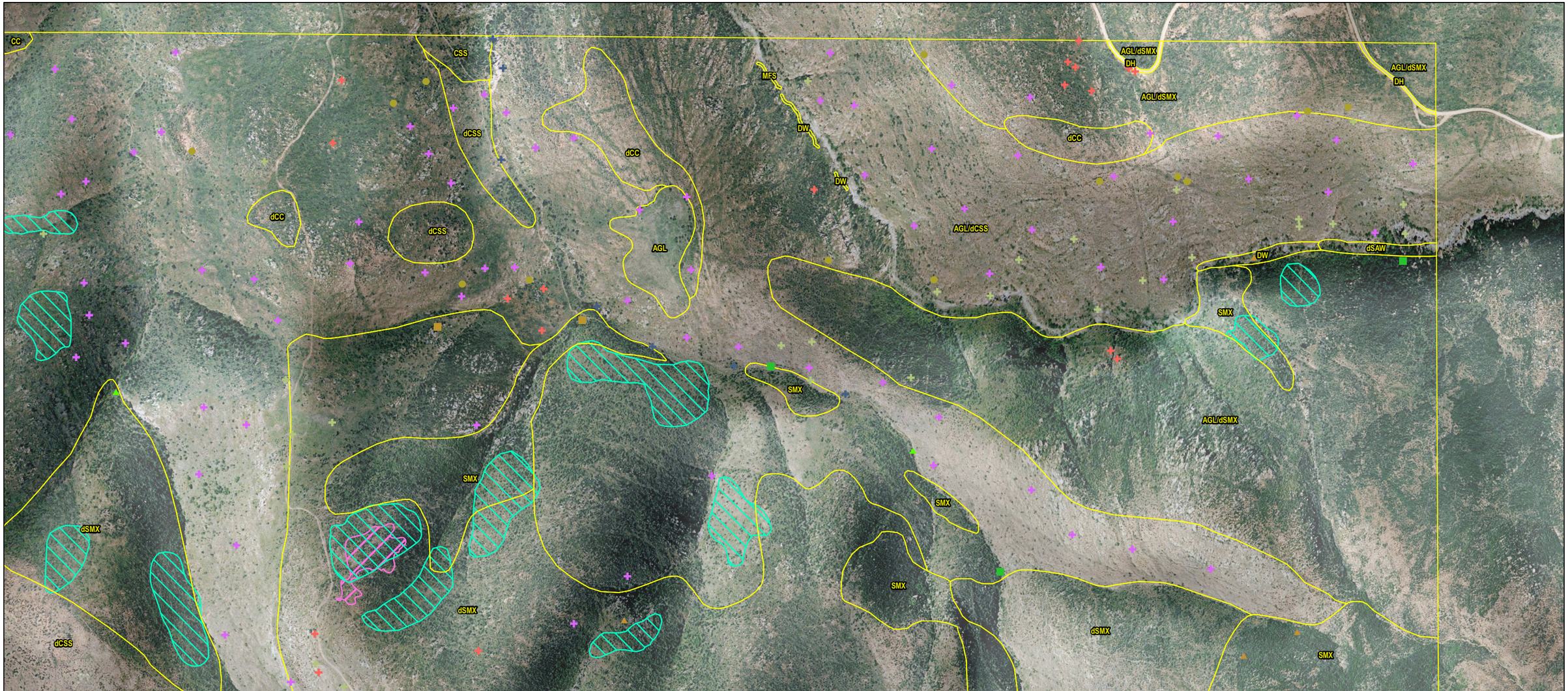
SOURCE: DigitalGlobe 1/2008

FIGURE 4b-1

Biological Resource Map

Baseline Biodiversity Survey for Otay Ranch Preserve

INTENTIONALLY LEFT BLANK



HABITAT, HABITAT DESCRIPTION, HOLLAND

AGL, Annual Grassland, 42200
AGL/dCSS, Annual Grassland/disturbed Coastal Sage Scrub, 32500
AGL/dSMX, Annual Grassland/disturbed Southern Mixed Chaparral, 37120
CC, Chamise Chaparral, 37200
CSS, Coastal Sage Scrub, 32500
DH, Disturbed Habitat, 11300
DW, Disturbed Wetlands, 11200
MFS, Mule Fat Scrub, 63310
SMX, Southern Mixed Chaparral, 37120
dCC, disturbed Chamise Chaparral, 37200
dCSS, disturbed Coastal Sage Scrub, 32500
dSAW, disturbed Sycamore Alluvial Woodland, 62500
dSMX, disturbed Southern Mixed Chaparral, 37120

Habitat
Special-Status Plant Occurrences - Polygon
Dunn's mariposa lily
San Diego goldenstar
Special-Status Plant Occurrences - Points
Ashy spikemoss
Munz's sage
San Diego barrel cactus
San Diego County sunflower
San Diego goldenstar
San Diego marsh-elder
Small-leaved rose
Southwestern spiny rush
Tecate cypress
Western dichondra

Inset Map

0 200 400 Feet

0 2,000 4,000 Feet

DUDEK

6056-04
MAY 2010

SOURCE: DigitalGlobe 1/2008

FIGURE 4b-2
Biological Resource Map

Baseline Biodiversity Survey for Otay Ranch Preserve

z:\Projects\6056\04\MAPDOC\MAPS\Existing Conditions Report\6056-04_Fig4b-2_Biological_Resources.mxd

INTENTIONALLY LEFT BLANK

3.2.1.1 Sensitive Upland Communities

(Diegan) Coastal Sage Scrub (32500)

Diegan coastal sage scrub (coastal sage scrub) is a native plant community characterized by soft, low, aromatic subshrubs that function mostly in the winter and early spring, with many plants being drought-deciduous. This community typically occurs on sites with low moisture availability, such as dry slopes and clay-rich soils that are slow to release stored water. California sagebrush (*Artemisia californica*) and California buckwheat (*Eriogonum fasciculatum* var. *foliolosum*) commonly are the dominant plant species in this community (Holland 1986).

Coastal sage scrub is the most common vegetation type on the Salt Creek Preserve. Native shrub composition is predominantly California sagebrush, California buckwheat, laurel sumac (*Malosma laurina*), and coast cholla (*Opuntia prolifera*), with nonnative grasses filling most of the spaces between the shrubs. Most of these areas were characterized by a mix of California sagebrush and California buckwheat, with co-occurring species California everlasting (*Gnaphalium californicum*), white sage (*Salvia apiana*), saw-toothed goldenbush (*Hazardia squarrosa* ssp. *grindelioides*), and laurel sumac. In some areas, adjacent to ephemeral drainages, lemonadeberry (*Rhus integrifolia*) is dominant with few understory species.

Disturbed coastal sage scrub occurs in a few isolated patches in the Salt Creek Preserve where there are more nonnative grasses and native shrub cover is between 10% and 20%. This vegetation was mapped in areas that had previously been burned and contain nonnative vegetation (mainly annual grasses) along with native shrub seedlings. It occurs in two phases: (1) on mesic slopes or highly disturbed areas dominated by nonnative annual grasses (*Avena barbata, Bromus* spp.), filaree (*Erodium* spp.), and pioneer coastal sage scrub species, such as deerweed (*Lotus scoparius*), coastal goldenbush (*Isocoma menziesii* ssp. *veneta*), and California sagebrush; and (2) on recently burned slopes and open areas with cryptogamic soils and low vegetative cover, more prevalent native herbaceous species, and bare ground.

Maritime Succulent Scrub (32400)

Maritime succulent scrub is a low, open scrub dominated by somewhat woody, soft-leaved shrubs with a mixture of many stem and leaf succulents. This community occurs on thin, rocky or sandy soils, often on steep slopes of coastal headlands or bluffs, intergrading with coastal bluff scrub in more exposed areas. Characteristic species include cacti (*Cylindropuntia* spp., *Opuntia* spp., *Ferocactus viridescens*), California sagebrush, California Encelia (*Encelia californica*), and San Diego viguiera (Holland 1986).

Maritime succulent scrub occurs is patches in the northern and western parts of the Salt Creek Preserve, usually on south-facing slopes in a matrix of coastal sage scrub vegetation. This vegetation has approximately 30% cover of coast cholla and generally supports xeric coastal sage scrub species, including San Diego County sunflower, California buckwheat, California sagebrush, and San Diego barrel cactus.

Disturbed maritime succulent scrub occurs near the center of Salt Creek. In this area, 20% to 50% native shrub cover is present, with a similar species composition to other areas on site mapped as maritime succulent scrub, but containing more nonnative grasses and forbs.

Southern Mixed Chaparral (37120)

Southern mixed chaparral is composed of deep-rooted shrubs with thick, hard (*sclerophyllous*) leaves that form a dense canopy 5 to 10 feet tall. This vegetation typically occurs on dry, rocky, slopes with little soil. Its plants are adapted to fire, with many shrubs responding by stump sprouting (Holland 1986). Typical plant species include chamise (*Adenostoma fasciculatum*), ceanothus (*Ceanothus* spp.), mission manzanita (*Xylococcus bicolor*), scrub oak (*Quercus berberidifolia*), and San Diego mountain-mahogany (*Cercocarpus minutiflorus*) (Holland 1986).

Southern mixed chaparral occurs in a small patch in the southern portion of the Salt Creek Preserve, just north of the pipeline corridor that transects the site.

Chamise Chaparral (37200)

Chamise chaparral contains shrubs, overwhelmingly dominated by chamise, from 3 to 10 feet tall with little cover provided by other species. Stump sprouting allows this vegetation to adapt to repeated fires. Chamise chaparral typically occurs on dry slopes and ridges (Holland 1986).

Chamise chaparral occurs in several patches in the southern part of the Salt Creek Preserve.

Scrub Oak Chaparral (37900)

Scrub oak chaparral contains dense evergreen vegetation up to 20 feet tall. It typically occurs in somewhat moister areas than other types of chaparral and recovers from fire more quickly. The dominant species is either scrub oak (*Quercus berberidifolia*) or Nuttall's scrub oak (*Q. dumosa*) with considerable San Diego mountain-mahogany present (Holland 1986).

A small patch of scrub oak chaparral with greater than 50% cover of scrub oak is present in the central eastern part of the Salt Creek Preserve. The area is dominated by scrub oak with a small understory of nonnative grasses.

Valley Needlegrass Grassland (42110*)

Valley needlegrass grassland is dominated by purple needlegrass (*Nassella pulchra*), a tussock-forming perennial grass that reaches about 2 feet in height. It usually occurs on fine-textured soils that are moist or wet in winter, becoming very dry in summer. On moister sites, it often occurs among oak woodlands. Native annuals and grasses and nonnative grasses, such as bromes (*Bromus* spp.) and wild oats (*Avena* spp.), occur between the bunchgrasses, often forming most of the vegetative cover (Holland 1986). Valley needlegrass grassland is typically mapped when purple needlegrass exceeds 10% cover.

Valley needlegrass grassland occurs in several patches in a matrix of coastal sage scrub in the eastern part of the Salt Creek Preserve. It contains at least 10% cover of needlegrass (*Nassella* spp.) and less than 30% cover of native shrubs. Valley needlegrass grassland often occurs on more mesic exposures and at the base of slopes. Species composition varies based on levels of disturbance. In repeatedly burned or grazed areas, annual grasses (such as *Avena barbata, Bromus madritensis* and *B. hordeaceus*) and nonnative plants (*Erodium botrys, Filago gallica*) are dominant. In less disturbed patches, native species have higher cover. Typical native species include purple needlegrass, foothill needlegrass (*N. lepida*), blue-eyed grass (*Sisyrinchium helium*), common goldenstar (*Bloomeria crocea* var. *crocea*), shooting star (*Dodecatheon clevelandii*), checker mallow (*Sidalcea malvaeflora*), Johnny jump-up (*Viola pedunculata*), and California melic (*Melica imperfecta*).

Nonnative (Annual) Grassland (42200)

Nonnative (annual) grassland has a cover of annual grasses typically up to 2 feet tall, with many annual wildflowers present in years with favorable rainfall. This vegetation community typically occurs on fine-textured soils that are moist or wet in the winter and very dry during summer and fall (Holland 1986). Characteristic species in the County include foxtail chess (*Bromus madritensis*), ripgut grass (*Bromus diandrus*), wild oats, fescues (*Vulpia* spp.), red-stem filaree (*Erodium cicutarium*), mustards (*Brassica* spp.), lupines (*Lupinus* spp.), and goldfields (*Lasthenia* spp.).

To be classified as nonnative grassland, 50% to 90% of the vegetation cover must be composed of annual plants, mostly nonnative species, including some (typically at least 30%) nonnative grasses, while emergent shrubs and trees comprise less than 15% of the vegetative cover (San Diego County 2008).

Areas with predominantly nonnative grasses and 5% to 10% native shrub cover (may be up to 20% in small areas) are mapped as either annual grassland/disturbed coastal sage scrub or annual grassland/disturbed southern mixed chaparral.

Annual grassland occurs in relatively flat areas in the southern part and in several drainages in the eastern part of the Salt Creek Preserve. Typical species include barley (*Hordeum* sp.), slender wild oat, black mustard (*Brassica nigra*), and field mustard (*Brassica rapa*). In some areas, a low percentage of native grass (less than 5%) may be present. Annual grassland/disturbed coastal sage scrub occurs in several patches in the southern part of the Salt Creek Preserve where a sparse overstory of predominantly laurel sumac grows among the nonnative grassland.

Tecate Cypress Forest (83200*)

Tecate cypress forest is a low, fairly dense, forest that is dominated by Tecate cypress. This vegetation occurs within a matrix of chaparral or pinyon-juniper woodland. It most often is found on north-facing slopes. Many stands are even-aged due to postfire regeneration (Holland 1986).

Tecate cypress forest is found in a small, linear stand in the western part of the Salt Creek Preserve in areas that contain at least 50% cover of Tecate cypress. The stand is monotypic with no other associated species observed. This occurrence of Tecate cypress is outside of the north elevational range of the species and may have been established by an inadvertent deposition of cones. It does not appear to be a natural occurrence of the species.

3.2.1.2 Sensitive Wetland / Riparian Communities

Cismontane Alkali Marsh (52310*)

Cismontane alkali marsh is dominated by perennial, emergent, herbaceous monocots that grow up to 7 feet tall. This vegetation occurs on sites that have standing water or saturated soils through most of the year. Characteristic species include yerba mansa (*Anemopsis californica*), sedges (*Carex* spp.), rushes (*Juncus* spp.), and cattails (*Typha* spp.) (Holland 1986).

Cismontane alkali marsh occurs in several drainages throughout the Salt Creek Preserve where southwestern spiny rush (*Juncus acutus*) and San Diego marsh elder (*Iva hayesiana*) are the typical dominant species.

Coastal and Valley Freshwater Marsh (52410*)

Coastal and valley freshwater marsh (freshwater marsh) is dominated by perennial herbaceous monocots, such as sedges, nutsedges (*Scirpus* spp.), and cattails that grow up to 15 feet tall. This vegetation type occurs in permanently flooded areas without a significant current, allowing deep, peaty soils to develop (Holland 1986).

Freshwater marsh, in the Salt Creek site, is dominated by cattails and/or nutsedges.

Mulefat (Baccharis salicifolia) scrub is a tall, herbaceous riparian scrub strongly dominated by mulefat. It typically occurs along intermittent stream channels with generally sandy soils and a moderate depth to the water table. The community is maintained by frequent flooding, or succeeds to cottonwood (*Populus* sp.) or sycamore (*Platanus* sp.) dominated communities. Willows (*Salix* spp.), stinging nettle (*Urtica* sp), and sedge may also be present. (Holland 1986).

Mulefat scrub occurs in several patches along the tributary to Salt Creek that runs through the western part of the Salt Creek Preserve. Typically the overstory contained a predominance of mulefat with very little understory observed. The largest patch of mulefat scrub is in a restored area just south of the road that crosses the site. One patch of disturbed mulefat scrub occurs in the central portion of Salt Creek.

Mulefat scrub/eucalyptus woodland_occurs in a single patch along the eastern tributary where blue gum eucalyptus (*Eucalyptus globulus*) forms a canopy over the mulefat.

Mulefat scrub/freshwater marsh also occurs in patches along the eastern tributary where mulefat is co-dominant with bulrush or southwestern spiny rush.

Southern Willow Scrub (63320*)

Southern willow scrub forms a dense thicket dominated by willows (*Salix* spp.) with little understory development and scattered emergent Fremont poplar (*Populus fremontii*) or western sycamore (*Platanus racemosa*) trees. Southern willow scrub establishes on loose sandy alluvium deposited by flooding streams (Holland 1986).

Southern willow scrub on the project site contains over 70% willow cover. Other subdominant species may include mulefat and salt-cedar (*Tamarix ramossisima*). Southern willow scrub occurs in the eastern portion of Salt Creek where arroyo willow (*Salix laseolepis*) is dominant.

Disturbed southern willow scrub is typically dominated by salt-cedar at 30% to 90% cover. This community type is mapped broadly within the Otay River, and willows may or may not be present within every 0.5-acre (i.e., minimum mapping unit); however, it is presumed that salt-cedar has replaced willows in most cases, and willows are the dominant native vegetation in the area.

3.2.1.3 Nonsensitive Communities and Land Covers

Eucalyptus Woodland (11100)

Oberbauer (2008) includes eucalyptus woodland as a nonnative vegetation type that is fairly widespread in Southern California. It typically consists of monotypic stands of introduced Australian eucalyptus trees (*Eucalyptus* spp.). The understory is either poor or lacking owing to shade and possible allelopathic (toxic) properties of the eucalyptus leaf litter. Although eucalyptus woodlands are of limited value to most native plants and animals, they frequently provide nesting and perching sites for some raptors.

Eucalyptus woodland is dominated by eucalyptus and may contain an understory of coastal sage scrub or annual grassland species. Tree cover is generally 50% or greater.

The largest stand of eucalyptus occurs in the floodplain of Salt Creek, in the southwestern part of the site. Other patches occur in drainage in the southeastern part of the site and on a hillside on the eastern edge.

Disturbed Habitat (11300)

Disturbed land consists of areas where there is evidence of soil surface disturbance and compaction from previous legal activity; these areas must have less than 10% vegetative cover (disregarding natural rock outcrops) or the presence of building foundations and debris from legal activities, not illegal dumping. Any vegetation present is dominated by nonnative, weedy species that are indicative of soil disturbance; nonnative grasses are not dominant (San Diego County 2008).

Disturbed habitat includes major roads (easily passable by vehicle but not trails or old roads that have become overgrown or eroded.

Dirt roads throughout the Salt Creek Preserve are mapped as disturbed habitat.

Developed (12000)

Developed land consists of buildings, structures, homes, parking lots, paved roads, and maintained areas. Developed areas do not support native vegetation.

A paved road that runs north-south in the western portion of Salt Creek is mapped as developed.

Ornamental

Ornamental is not included as a vegetation type by Holland (1986) or Oberbauer (2008) but is included as a distinct plant community here because it may provide nesting habitat for birds.

Ornamental vegetation in the Salt Creek Preserve includes areas that support Peruvian pepper trees (*Schinus molle)* with an annual grassland understory.

3.2.2 San Ysidro Preserve

The 11 upland habitats/communities and 3 wetland habitats/communities mapped on San Ysidro Preserve are depicted on Figure 4b, and their acreages are provided in Table 9b.

Table 9b
Vegetation Communities and Land Cover Types on the San Ysidro Preserve

Vegetation Community/Land Cover Type	Code[1]	MSCP Tier[2]	Acreage
Upland Habitats/Communities			
Coast Live Oak Woodland	71160	I	0.6
Coastal Sage Scrub	32500	II	35.3
Disturbed Coastal Sage Scrub	32500	II	72.1
Annual (nonnative) Grassland/Disturbed Southern Mixed Chaparral	42200/37120	III	62.2
Southern Mixed Chaparral	37120	III	21.4
Disturbed Southern Mixed Chaparral	37120	III	71.5
Chamise Chaparral	37200	III	0.8
Disturbed Chamise Chaparral	37200	III	6.2
Annual (nonnative) Grassland	42200	III	2.4
Annual (nonnative) Grassland/Disturbed Coastal Sage Scrub	42200/32500	III/II	251.7
Disturbed Habitat	11300	IV	0.2
		Subtotal	*524.4*

Table 9b (Continued)

Vegetation Community/Land Cover Type	Code[1]	MSCP Tier[2]	Acreage
Wetland Habitats/Communities			
Disturbed Wetland	11200	I	0.6
Disturbed Sycamore Alluvial Woodland	62100	I	0.5
Mulefat Scrub	63310	I	<0.1
		Subtotal	*1.1*
		Total	**525.5**

[1] Holland (1986) as modified by Oberbauer (2008)
[2] San Diego County (1997)

3.2.2.1 Sensitive Upland Communities

(Diegan) Coastal Sage Scrub (32500)

Coastal sage scrub is present predominantly in the western part of the San Ysidro Preserve, on a west-facing slope where California buckwheat and San Diego viguiera are the most common shrubs. A small patch is also mapped on the northern edge of the site.

Disturbed coastal sage scrub on the San Ysidro Preserve occurs mostly along a ridge and plateau in the southwestern part of the site, where 20% to 50% native shrub cover is present, with a similar species composition to the adjacent coastal sage scrub but with more nonnative grasses and forbs. This vegetation is mapped for most of the northern part of the San Ysidro Preserve, particularly on south-facing slopes. It intergrades with annual grassland/disturbed southern mixed chaparral vegetation. The shrub cover on mesic north-facing slopes is usually dominated by laurel sumac, while the most common shrub on south-facing slopes is San Diego viguiera. Other native shrubs that are present within this vegetation include white sage, California sagebrush, and California buckwheat. Lemonadeberry, spiny redberry (*Rhamnus crocea*), chaparral bushmallow (*Malacothamnus fasciculatus*), broom baccharis (*Baccharis sarothroides*), and saw-toothed goldenbush may also be present but are not considered diagnostic of this vegetation type (these species may also occur in disturbed southern mixed chaparral).

Southern Mixed Chaparral (37120)

Southern mixed chaparral occurs in the southeastern portion of the San Ysidro Preserve, mostly in drainages on north-facing slopes that were not burned or where the fire was less intense. The vegetation includes a mixture of chamise, mission manzanita, laurel sumac, and our lord's candle (*Yucca whipplei*), but it may also include native shrubs such as Ramona-lilac (*Ceanothus tomentosus*), scrub oak, spiny redberry, lemonadeberry, holly-leaf cherry (*Prunus ilicifolia*), and hairy matilija poppy (*Romneya trichocalyx*); Tecate cypress is also present in some in southern

mixed-chaparral vegetation in the southeastern corner of the site. Weed's mariposa lily (*Calochortus weedii* var. *weedii*) is also present in some areas.

Disturbed southern mixed chaparral also occurs on north-facing slopes in the southern part of the San Ysidro Preserve where the postfire native shrub cover is from 20% to 50%, with relatively more slender wild oat (*Avena barbata*), filaree, fascicled tarplant (*Deinandra fasciculata*), and California-aster (*Corethrogyne filaginifolia* var. *filaginifolia*).

Chamise Chaparral (37200)

Chamise chaparral is mapped in one location on the northern edge of the San Ysidro Preserve that contains around 70% shrub cover, which is overwhelmingly dominated by chamise, with a few mission manzanita or laurel sumac also present. Disturbed chamise chaparral on the San Ysidro site contains 20% to 50% (typically about 30%) chamise, which are small shrubs (up to 3 feet tall) that are growing again after relatively recent fire. A few mission manzanita or laurel sumac may also be present. The remaining cover is composed of nonnative grasses, fascicled tarplant, wreath-plant (*Stephanomeria* spp.), or bare ground. Disturbed chamise chaparral occurs in three small spots on the northern part of the San Ysidro Preserve, surrounded by annual grassland/disturbed coastal sage scrub vegetation.

Nonnative (Annual) Grassland (42200)

Annual grassland is found on a mesa in the north-central part of the San Ysidro site, where it is overwhelmingly dominated by nonnative annual grasses, particularly slender wild oat. A few

scattered shrubs may be present, but herbaceous cover exceeds 90% and is composed of mostly grasses. Annual grassland/disturbed coastal sage scrub is the most prevalent vegetation type in the San Ysidro Preserve, occupying much of the northern part of the site, especially on south-facing slopes. It typically has 5% to 10% native shrub cover, often laurel sumac, with the remaining areas covered with annual grassland vegetation, which often includes other herbaceous plants, particularly filaree and tocalote (*Centaurea melitensis*), or bare rock (up to 50% on some slopes). Annual grassland/disturbed southern mixed chaparral is predominant on north-facing slopes in the southeastern part of the San Ysidro Preserve. It typically has 5% to 10% native shrub cover, with the remainder composed primarily of nonnative grasses and herbs. Shrub cover is composed of a mix of species, usually chamise, mission manzanita, and laurel sumac. Lemonadeberry, spiny redberry, broom baccharis, and our lord's candle may also comprise a small portion of the woody vegetation.

3.2.2.2 Sensitive Wetland / Riparian Communities

Disturbed Wetland (11200)

Disturbed wetland includes nonnative hydrophytic, herbaceous vegetation at 50% cover or more.

Disturbed wetland is mapped in several locations along the creek in the northeastern part of the San Ysidro Preserve where the shrub layer is dominated by salt-cedar with some mulefat also present over an herbaceous layer that includes curly dock (*Rumex crispus*) and rye grass (*Lolium* sp.).

Coastal and Valley Freshwater Marsh (52410*)

In the San Ysidro Preserve, mulefat scrub, with slightly over 50% cover of mulefat, occurs in one location along the streambed in the northern part of the site.

Coast Live Oak Woodland (71160)

Coast live oak woodland is dominated by coast live oak (*Quercus agrifolia*), which may occur in pure stands, open savannas, or in stands mixed with conifers and broadleaf trees. Few shrubs are typically present in the oak understory, and nonnative grasses dominate the herb layer. This community is found on north-facing lopes and shaded ravines in Southern California (Holland 1986).

Coast live oak woodland occurs in one location on the western edge of the San Ysidro Preserve that contains over 50% cover of coast live oak. Two coast live oak trees and associated laurel sumac located on a small rise between dry channels behind the Otay Lake Dam in the southwestern corner of the San Ysidro parcel are mapped as coast live oak woodland.

Sycamore Alluvial Woodland (62100*)

Sycamore alluvial woodland is fairly open, broad-leafed riparian woodland dominated by western sycamore, a winter-deciduous tree. This vegetation typically occurs in braided, depositional channels of intermittent streams with cobbly or bouldery substrates (Holland 1986).

Disturbed sycamore alluvial woodland is present along a streambed in the extreme eastern part of the San Ysidro preserve. The recent fire on the site, resulting in a relatively open tree canopy, was the source of the disturbance. This vegetation includes western sycamore at 30% or greater cover with understory species that may include willows, mulefat, and herbaceous species.

3.2.2.3 Nonsensitive Communities and Land Covers

Disturbed Habitat (11300)

A single road, passing through the northeastern part of the San Ysidro site, is mapped as disturbed habitat.

3.3 Flora

3.3.1 Salt Creek Preserve

Appendix A lists all of the plant species observed on Salt Creek Preserve. A total of 181 vascular plant species, including 122 native species (67%) and 59 nonnative species (33%), were recorded on Salt Creek during surveys. The Salt Creek Preserve had greater cover of nonnative species as

compared with the San Ysidro Preserve. Some common species on both sites include California sagebrush, California buckwheat, and bromes. Fourteen special-status plant species were observed on the entire Preserve.

3.3.1.1 Salt Creek Exotics Mapping

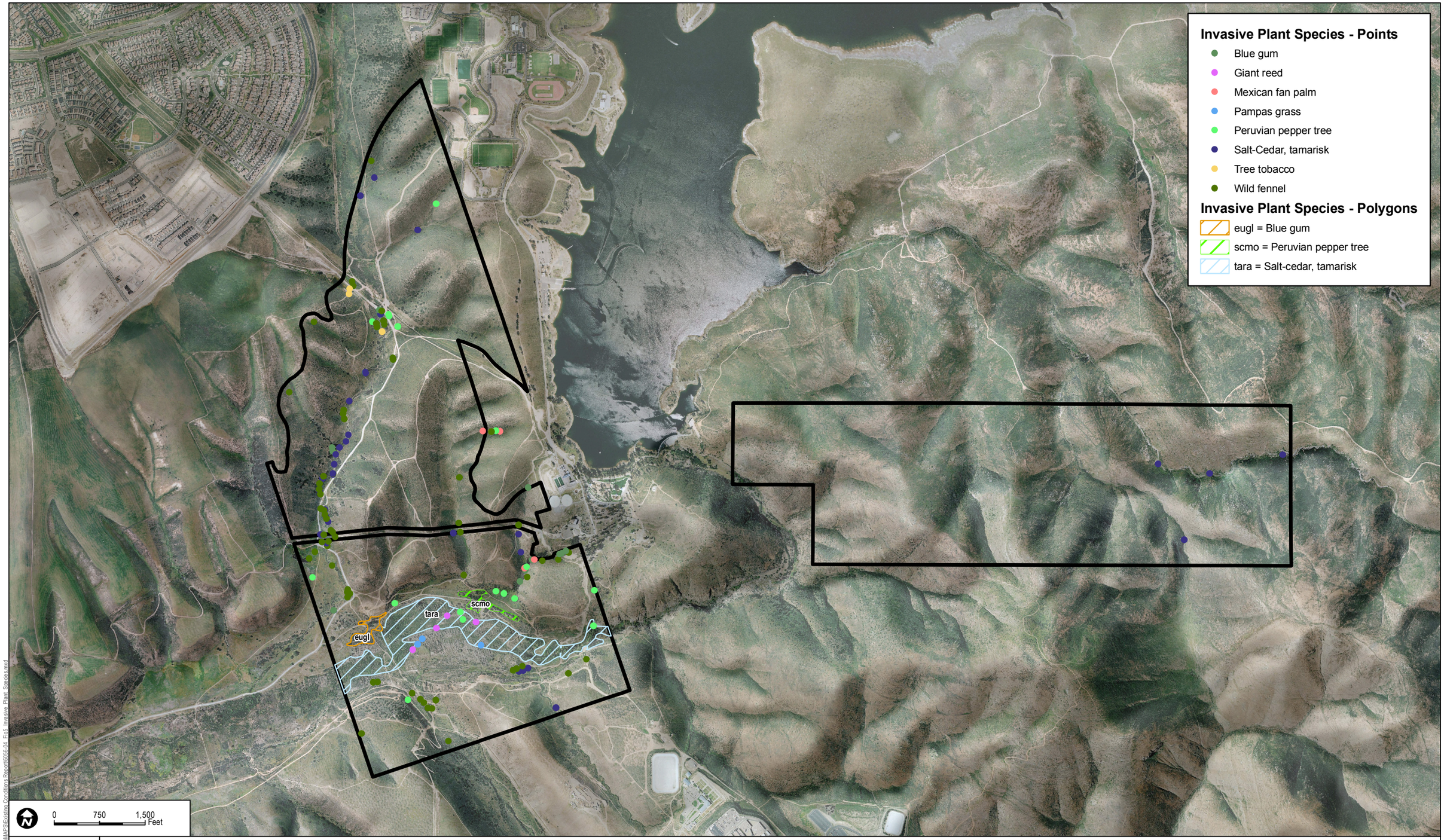
Eight invasive plant species were observed on the Salt Creek Preserve. Table 10a lists the species detected, and Figure 5 shows the distribution of these species on the Preserve.

Table 10a
Invasive Plant Species Observed on Site

Scientific Name	Common Name	Salt Creek Observations
Arundo donax	giant reed	Four localities in the southern portion of site. Generally limited to approximately 100 feet of mapped locality.
Cortaderia selloana	Pampas grass	Three localities in the southern portion of site with typically five individuals or less per locality.
Eucalyptus globulus	blue gum	Seven localities on western side of site south of the lake, three localities on the east side of the site, and one locality in the northern portion of the site. Approximately 1–50 individuals per locality.
Foeniculum vulgare	wild fennel	Over 20 localities, primarily along the western edge of the site and in the southern portion of the site.
Nicotiana glauca	tree tobacco	Three localities in the northwestern portion of the site. Typically 5–25 individuals per locality.
Schinus molle	Peruvian pepper tree	Eighteen localities throughout the site with generally 1–25 individuals per locality.
Tamarix ramosissima	salt-cedar, tamarisk	Twenty-eight localities located primarily on the western edge of the site and in the southern portion of the site. Typically 1–10 individuals per point locality and a dominant or pre-dominant species (i.e., at least 30% cover) within mapped polygon.
Washingtonia robusta	Mexican fan palm	Four localities near the eastern boundary of the site. Typically 1–5 individuals per locality.

3.3.2 San Ysidro Preserve

Appendix B lists all of the plant species observed on the San Ysidro Preserve. A total of 156 vascular plant species, including 128 native species (82%) and 28 nonnative species (18%), were recorded on San Ysidro.



Z:\Projects\6056\04\MAPDOC\MAPSIS\Existing Conditions Report\6056-04_Fig5_Invasive_Plant_Species.mxd

DUDEK

6056-04

MAY 2010

SOURCE: DigitalGlobe 1/2008

FIGURE 5

Invasive Plant Species

Baseline Biodiversity Survey for Otay Ranch Preserve

INTENTIONALLY LEFT BLANK

3.3.2.1 San Ysidro Exotics Mapping

One invasive plant species was observed on the San Ysidro Preserve. Table 10b lists the species detected and Figure 5 shows the distribution of these species on the Preserve.

Table 10b
Invasive Plant Species Observed on Site

Scientific Name	Common Name	San Ysidro Observations
Arundo donax	giant reed	Not observed.
Cortaderia selloana	Pampas grass	Not observed.
Eucalyptus globulus	blue gum	Not observed.
Foeniculum vulgare	Wild fennel	Not observed.
Nicotiana glauca	Tree tobacco	Not observed.
Schinus molle	Peruvian pepper tree	Not observed.
Tamarix ramosissima	Salt-cedar, tamarisk	Four localities in the eastern portion of the site. Generally 1–10 individuals per locality.
Washingtonia robusta	Mexican fan palm	Not observed.

3.4 Fauna

Appendix C lists all of the wildlife species observed or detected on the Preserve – Salt Creek parcel, and Appendix D lists all of the wildlife species detected on the Preserve – San Ysidro parcel. The list includes 9 and 10 reptile species for the respective Salt Creek and San Ysidro areas (15 reptile species total), 67 and 39 bird species for the respective Salt Creek and San Ysidro areas (73 bird species total), 13 and 14 mammal species for the respective Salt Creek and San Ysidro

areas (16 mammals total), 23 and 24 butterfly/moth species for the respective Salt Creek and San Ysidro areas (26 butterflies/moths total), and 1 arachnid. Eight lizards and seven snake species were observed on the Preserve. The western fence lizard (*Sceloporus occidentalis*) and side-blotched lizard (*Uta stansburiana*) were common reptiles on site. The California Department of Fish and Game (CDFG) Species of Special Concern (SSC) coast patch-nosed snake (*Salvadora hexalepis virgultea*), orange-throated whiptail, coast horned lizard (*Phrynosoma coronatum*), coastal whiptail (*Aspidoscelis tigris stejnegeri*), red-diamond rattlesnake *(Crotalus rubber*), and two-striped garter snake (*Thamnophis hammondii)* were also observed on site.

Common bird species observed on site include the California towhee (*Pipilo crissalis*) and house finch (*Carpodacus mexicanus*). Two nonnative bird species were observed on site, the European starling (*Sturnus vulgaris*) and rock dove (*Columba livia*). Several active bird nests have been observed on the Preserve. A red-tailed hawk (*Buteo jamaicensis*) nest was observed along the western boundary in the northern portion of Salt Creek. Several coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*) nests were identified on site (Figure 6). The California gnatcatcher, least Bell's vireo, SSC yellow-breasted chat (*Icteria virens*), California horned lark (*Eremophila alpestris*), northern harrier (*Circus cyaneus*), yellow warbler (*Dendroica petechia brewsteri*), rufous-crowned sparrow (*Aimophila ruficeps*), loggerhead shrike (*Lanius ludovicianus*), and Cooper's hawk (*Accipiter cooperii*) were also observed on site.

Sixteen mammals were observed on the Preserve. The brush rabbit (*Sylvilagus bachmani*) was commonly observed on site during surveys. Other mammals observed or detected on site include the MSCP Group 2 species mule deer (*Odocoileus hemionus*) and mountain lion (*Felis concolor*), as well as the CDFG SSC San Diego black-tailed jackrabbit (*Lepus californicus bennettii*) and California pocket mouse (*Chaetodipus californicus*).

A total of 26 butterfly species were observed during butterfly surveys including the federally endangered Quino checkerspot butterfly (*Euphydryas editha quino*; QCB). Other species observed included: checkered white (*Pontia protodice*), acmon blue (*Plebejus acmon*), Behr's metalmark (*Apodemia mormo virgulti*), buckeye (*Junonia coenia*), cabbage white (*Pieris rapae*), southern blue (*Glaucopsyche lygdamus australis*), California ringlet (*Coenonympha californica californica*), tiger swallowtail (*Papilio rutulus*), Anise swallowtail (*Papilo zelicaon lucas*), painted lady (*Vanessa cardui*), Sara orangetip (*Anthocharis sara*), perplexing hairstreak (*Callophrys dumetorum perplexa*), California dogface (*Colias Eurydice*), funereal duskywing (*Erynnis funeralis*), western pygmy blue (*Brephidium exile*), western brown elfin (*Incisalia augustinus iriodes*), pale swallowtail (*Papilo eurymedon*), red admiral (*Vanessa atalanta*), west coast lady (*Vanessa annabella*), marine blue (*Leptotes marina*), American lady (*Vanessa virginiensis*), orange sulfur (*Colias eurytheme*), California white (*Pontia sisymbrii*), Gabb's checkerspot (*Chlosyne gabbii gabbii*), and queen (*Danaus gilippus*).

Special-Status Wildlife

Birds

- Cactus wren
- Cactus wren nest
- Cactus wren nest (active)
- Cactus wren nest (inactive)
- Cooper's hawk (foraging)
- Least Bell's vireo
- Raptor nest
- Red-tailed hawk nest
- Rufous-crowned sparrow
- Yellow warbler
- Yellow-breasted chat

Mammals

- California pocket mouse
- Mule deer
- San Diego black-tailed jackrabbit

Reptiles

- Coast patch-nosed snake
- Orange-throated whiptail
- Red-diamond rattlesnake
- Two-striped garter snake

0 500 1,000 Feet

DUDEK

6056-04

MAY 2010

SOURCE: DigitalGlobe 1/2008

FIGURE 6

Special-Status Wildlife

Baseline Biodiversity Survey for Otay Ranch Preserve

z:\Projects\6056\MMP\DOC\MMP\SR\Existing Conditions Report\6056-04 Fig6_Special_Status_Wildlife.mxd

INTENTIONALLY LEFT BLANK

3.4.1 Avian Point Count Surveys

3.4.1.1 Salt Creek Preserve

Thirty-three bird species were observed at the Salt Creek Preserve during avian point count surveys. Overall, 40 different bird species were observed during avian point count surveys on the Preserve. All species detected during avian point count surveys and other wildlife surveys are included in Appendix C. Latin and common names of animals follow Stebbins (2003) for reptiles and amphibians, American Ornithologists' Union (1998) and Banks et al. (2007) for birds, and Jones et al. (1997) for mammals.

Table 11a provides a summary of the results of the avian point count survey for each survey location on the Salt Creek Preserve. The numbers in each cell represent the number of unique species counts on that particular day. The number in parentheses that follows is the total number of birds observed and includes flyover species if any were observed.

Table 11a
Salt Creek Avian Point Count Survey Results

Survey Point	July 17, 2008		August 26, 2008		September 23, 2008		October 29, 2008		Total
	AM	PM	AM	PM	AM	PM	AM	PM	
Salt Creek									
SC 1	3 (6)	1 (2)	6 (7)	1	6 (7)	1	5	0	*14 (18)*
SC 2	3	1	10 (11)	2	9 (10)	1	6	1	*21 (22)*
SC 3	5	0	4	0	4 (5)	0	4 (5)	0	*12 (12)*
SC 4	2 (3)	0	3	0	2 (3)	0	1 (3)	0	*7 (8)*
SC 5	5 (6)	0	5 (6)	1	5 (6)	0	5 (6)	1	*13 (14)*
SC 6	7	1	6	0	6	0	5	0	*14*
Salt Creek Subtotal	*11 (14)*	*3 (3)*	*24 (24)*	*3*	*16 (18)*	*1*	*17 (17)*	*2*	*33 (36)*

NOTE: The numbers represent unique species counts. The number in parentheses is the total including flyover species if any were observed.

3.4.1.2 San Ysidro Preserve

Twenty-two bird species were observed at the San Ysidro Preserve during avian point count surveys. All species detected during avian point count surveys and other wildlife surveys are included in Appendix C. Latin and common names of animals follow Stebbins (2003) for reptiles and amphibians, American Ornithologists' Union (1998) and Banks et al. (2007) for birds, and Jones et al. (1997) for mammals.

Table 11b provides a summary of the results of the avian point count survey for each survey location at the San Ysidro Preserve. The numbers in each cell represent the number of unique

species counts on that particular day. The number in parentheses that follows is the total number of birds observed and includes flyover species if any were observed.

Table 11b
San Ysidro Avian Point Count Survey Results

Survey Point	July 17, 2008		August 26, 2008		September 23, 2008		October 29, 2008		Total
	AM	PM	AM	PM	AM	PM	AM	PM	
San Ysidro									
SY 1	5 (7)	2	4 (7)	1	3 (5)	0	3	0	*11 (15)*
SY 2	3 (5)	0	3 (4)	0	4 (5)	0	2 (3)	0	*7 (8)*
SY 3	4 (5)	0	3 (4)	0	3 (4)	0	0	0	*5 (8)*
SY 4	7 (10)	3	8 (9)	2	7 (8)	4	4 (5)	3	*17 (18)*
San Ysidro Subtotal	*12 (14)*	*4*	*11 (14)*	*3*	*9 (10)*	*4*	*7 (8)*	*3*	*22 (23)*

NOTE: The numbers represent unique species counts. The number in parentheses is the total including flyover species if any were observed.

3.4.2 Herpetological Surveys

3.4.2.1 Salt Creek Preserve

Two species of lizard and one snake species were identified at Salt Creek Preserve during herpetological pitfall trapping surveys. The common side-blotched lizard (*Uta stansburiana*) and western fence lizard (*Sceloporus occidentalis*) were trapped at both Salt Creek and San Ysidro preserves. The western black-headed snake (*Tantilla planiceps*) was trapped at Salt Creek only. All species detected during herpetological surveys are included in Appendix C. Table 12a provides a summary of the results of the herpetological surveys for each trap array location.

Table 12a
Salt Creek Preserve Herpetological Survey Results

Trap Array Locations	Salt Creek Preserve	
	SC – North	SC – South
5/20/09	0	0
5/21/09	0	0
5/22/09	0	0
6/24/09	0	0
6/25/09	0	1 US; 1 TP
6/26/09	0	0
7/29/09	1 US	1 US
7/30/09	2 US	0
7/31/09	0	1 SO

Species code: US = common side-blotched lizard; SO = western fence lizard; TP = western black-headed snake. Four mammal species were also captured during herpetological surveys: California vole (*Microtis californicus*), agile (Pacific) kangaroo rat (*Dipodomys agilis*), deer mouse (*Peromyscus maniculatus*), and CDFG SSC California pocket mouse (*Chaetodipus californicus*). One species of tarantula (*Aphonopelma* sp.) was captured during herpetological surveys.

3.4.2.2 San Ysidro Preserve

Five species of lizard and two snake species were observed at San Ysidro Preserve during herpetological pitfall trapping surveys. The common side-blotched lizard (*Uta stansburiana*) and western fence lizard (*Sceloporus occidentalis*) were trapped at both San Ysidro and Salt Creek preserves, while the western skink (*Plestiodon skiltonianus*), San Diego alligator lizard (*Elgaria multicarinata webbii*), and California striped racer (*Masticophis lateralis lateralis*) were observed at San Ysidro only. The CDFG SSC coastal whiptail (*Aspidoscelis tigris stejnegeri*) and the coast patch-nosed snake (*Salvadora hexalepis virgultea*) were also observed at San Ysidro only. All species detected during herpetological surveys are included in Appendix C. Table 12b provides a summary of the results of the herpetological surveys for each trap array location.

Four mammal species were also captured during herpetological surveys: California vole (*Microtis californicus*), agile (Pacific) kangaroo rat (*Dipodomys agilis*), deer mouse (*Peromyscus maniculatus*), and CDFG SSC California pocket mouse (*Chaetodipus californicus*). One species of tarantula (*Aphonopelma* sp.) was captured during herpetological surveys.

Table 12b
San Ysidro Preserve Herpetological Survey Results

Trap Array Locations	San Ysidro Preserve	
	SY – East	SY - West
5/20/09	3 US; 2 AT	1 SO
5/21/09	2 SO; 3 AT	0
5/22/09	4 AT; 1 US; 1 SH; 1 EM	1 SO; 1 ML
6/24/09	3 AT; 1 SO; 1 US	0
6/25/09	2 US; 1 SO	1 US
6/26/09	1 US	0
7/29/09	1 SO	2 PS
7/30/09	2 US	1 AT
7/31/09	1 SO	1 PS

Species code: US = common side-blotched lizard; SO = western fence lizard; AT = coastal whiptail; PS = western skink; ML = California striped racer; SH = coast patch-nosed snake; EM = San Diego alligator lizard

3.5 Sensitive Plant Species

Sixteen special-status plant species have been identified on the Preserve. None of these is federally listed. Small-leaved rose (*Rosa minutifolia*) is endangered in California (CDFG 2009c), and Dunn's mariposa lily is considered rare by the CDFG (2009c). The remaining species include five CNPS List 1B species, three CNPS List 2 species, and five CNPS List 4 species. Ashy spikemoss (*Selaginella cinerascens*) was previously considered sensitive in the Otay Ranch Resource Management Plan.

The potential for special-status plant species to occur on each site was evaluated based on the elevation, soils, vegetation communities, and level of disturbance of each site, as well as the results of the 2009 rare plant surveys. Appendix E summarizes the results of this analysis and includes all observed special-status plant species. Figures 4a–b show the distribution of the special-status plant species on the Preserve in spring 2009.

3.5.1 Salt Creek Preserve

The following special-status species were not observed but are considered to have a low to moderate potential to occur. Encinitas baccharis (*Baccharis vanessae*) has a low potential to occur on Salt Creek. Given that this species blooms from August to November, the timing of focused botanical surveys was not optimal for the detection of this species. Gander's pitcher sage (*Lepechinia ganderi*) blooms from June to July and may not have been detectable during surveys. However, Salt Creek lacks suitable gabbroic or metavolcanic soils; therefore, this species has a low potential to occur. Small-flowered microseris (*Microseris douglasii* var. *platycarpha*) has a low potential to occur on Salt Creek. Four samples were examined from the Salt Creek site and none were confirmed as this variety; however, identification of this taxum was very difficult at the time

surveys were conducted. A species-specific focused survey, conducted in early spring would be required to make a definitive determination regarding this species. Felt-leaved monardella (*Monardella hypoleuca* ssp. *lanata*) also may not have been detectable at the time of the focused surveys. This species has a low potential to occur on Salt Creek, based on elevation. Similarly, both Jennifer's monardella (*Monardella stoneana*) and willowy monardella (*Monardella viminea*) have a low potential to occur, and they may not have been easily detectable during focused surveys. Caraway-leaved gilia (*Saltugilia* [=*Gilia*] *caruifolia*) has a low potential to occur on the Preserve because the site is outside of the elevation range of this species.

Fourteen localities of Tecate cypress were mapped in the southwestern portion of Salt Creek. These comprise the 0.8 acre of Tecate cypress woodland that occurs here. Note that this occurrence of Tecate cypress is outside of the north elevational range of the species and may have been established by an inadvertent deposition of cones. It does not appear to be a natural occurrence of the species.

Five occurrences of individuals with characteristics of snake cholla (*Cylindropuntia californica*), totaling approximately 55 individuals, were mapped in the eastern portion of Salt Creek, south of the road that transverses the site. However, additional examination of this locality may be required. A definitive determination would require collections and a more in-depth review that was outside of the scope of the focused survey. There is one individual of south coast salt scale (*Atriplex pacifica*) on a slope in the central portion of Salt Creek, another individual in the west-central portion, and seven individuals in two separate occurrences mapped along the eastern boundary of this site. There is one occurrence of hundreds of variegated dudleya individuals mapped just south of the one of the main roads in the northwestern portion of Salt Creek.

San Diego barrel cactus is mapped throughout the majority of the Salt Creek Preserve. Ninety-two occurrences of San Diego marsh elder were mapped throughout the drainages on Salt Creek. These are located primarily in the western and southern portion of the site.

One occurrence of western dichondra is mapped in the southeastern corner of Salt Creek. There are ten localities, each numbering approximately 1,000 or more individuals, of Palmer's grapplinghook located centrally on the Salt Creek site. There are 59 occurrences of southwestern spiny rush, each typically numbering between 25 and 50 individuals, that occur along the drainages on Salt Creek, primarily in the western and southern portions of the site. Approximately 30 individuals of Coulter's matilija poppy (*Romneya coulteri*) were observed in the southwestern portion of Salt Creek. There are 338 mapped occurrences of San Diego County sunflower throughout the Salt Creek Preserve. Each occurrence of San Diego County sunflower typically numbers several hundred individuals.

Ashy spikemoss occurs throughout much of the eastern portion of the Salt Creek Preserve.

3.5.2 San Ysidro Preserve

The following special-status species were not observed but are considered to have a low to moderate potential to occur. Encinitas baccharis (*Baccharis vanessae*) has a moderate potential to occur given that there is a recorded occurrence on Otay Mountain, which has a similar elevation to this site. Palmer's grapplinghook (*Harpagonella palmeri*) has a moderate potential to occur on the San Ysidro site since focused botanical surveys were conducted after the blooming period and given the incidental recordings on Salt Creek. Gander's pitcher sage (*Lepechinia ganderi*) blooms from June to July and may not have been detectable during surveys. However, San Ysidro lacks suitable gabbroic or metavolcanic soils; therefore, this species has a low potential to occur. Small-flowered microseris (*Microseris douglasii* var. *platycarpha*) has a moderate potential to occur on San Ysidro. Felt-leaved monardella (*Monardella hypoleuca* ssp. *lanata*) may not have been detectable at the time of the focused surveys. This species has a moderate potential to occur on San Ysidro, given the elevation. Similarly, both Jennifer's monardella (*Monardella stoneana*) and willowy monardella (*Monardella viminea*) have a low potential to occur because they may not have been easily detectable during focused surveys; however, an effort was made to detect this perennial species within suitable habitat on San Ysidro. Caraway-leaved gilia (*Saltugilia* [=*Gilia*] *caruifolia*) has a low potential to occur on the Preserve since the site is outside of the elevation range of this species.

Two individuals of small-leaved rose occur in the central portion of San Ysidro. Approximately 300 individuals of Dunn’s mariposa lily in the south-central portion of San Ysidro were observed.

There were two occurrences of Tecate cypress mapped in the west-central portion of San Ysidro, one in the disturbed wetlands in the northeastern portion of the site and two occurrences in the southeastern corner of the site. These occurrences generally number between 25 and 50 individuals. Five individual Tecate cypresses were mapped in the disturbed southern mixed chaparral in the south-central portion of San Ysidro. Note that these occurrences of Tecate cypress are outside the north elevational range of the species and may have been established by an inadvertent deposition of cones. It does not appear to be a natural occurrence of the species.

San Diego goldenstar occurs throughout the San Ysidro site with the exception of the western and southeastern portions. Occurrences varied from as few as six individuals to much larger areas consisting of thousands of individuals.

San Diego barrel cactus is mapped throughout the majority of San Ysidro. Seven localities of San Diego marsh elder were mapped on San Ysidro within one drainage area in the north-central portion of the site. In general, localities included between 25 and 50 individuals. In the western

portion of San Ysidro, 22 individuals of Munz's sage (*Salvia munzii*) were mapped at three separate localities within the same area.

Three occurrences of western dichondra are mapped in the western, central, and east-central portions of San Ysidro. Besides the easternmost occurrence on San Ysidro, which consists of 5 individuals, occurrences of western dichondra on site typically include approximately 25 individuals. Two southwestern spiny rush localities of approximately 25 to 50 individuals occur in the eastern portion of San Ysidro and one individual is mapped at the edge of the southern mixed chaparral in the center of the site. There are 135 mapped occurrences of San Diego sunflower throughout San Ysidro. Each occurrence of San Diego County sunflower typically numbers several hundred individuals.

Ashy spikemoss occurs throughout much of the northern portion of San Ysidro.

3.6 Sensitive Wildlife Species

The potential for special-status wildlife species to occur on each site was evaluated based on the elevation, vegetation communities, and level of disturbance of each site, as well as the results of wildlife surveys conducted on site. Appendix F summarizes the results of this analysis and includes all observed special-status wildlife species.

3.6.1 Focused Surveys for California Gnatcatcher

The California gnatcatcher survey results are summarized for each preserve below, but please see Appendix G for more detail regarding the survey effort and results.

3.6.1.1 Salt Creek Preserve

A total of 21 gnatcatcher pairs were observed within the Salt Creek portion of the Preserve. Two of the 21 pairs were observed with one juvenile. In addition, 24 non-capped gnatcatchers and 11 individual male gnatcatchers were observed within the Salt Creek portion of the Preserve. It should also be noted that one lone male and one non-capped gnatcatcher were observed on July 18, 2008, immediately adjacent to Survey Area 1. Figures 7a–f illustrate all gnatcatchers observed within the Salt Creek portion of the Preserve during focused surveys in 2008.

In cases where non-capped gnatcatchers were mapped in groups of two or more birds, it is assumed that these are juvenile gnatcatchers that have not yet dispersed. Individual non-capped gnatcatchers could either be dispersed juveniles born early in the breeding season or female gnatcatchers. Table 13 summarizes the results of gnatcatchers observed within each survey area of the Salt Creek portion of the Preserve.

Table 13
Gnatcatchers Observed on the Salt Creek Portion of the Preserve

Survey Area	Gnatcatcher Pair	Gnatcatcher pair + 1 juvenile	Lone Male Gnatcatcher	Non-capped Gnatcatcher	Group of 2 Non-capped Gnatcatchers	Group of 3 Non-capped Gnatcatchers
1	5	—	3	6	—	1
2	5	2	4	1	—	
3	2	—	2	4	1	1
4	1	—	1	4	—	—
5	4	—	—	1	—	—
6	2	—	1	—	—	—
Totals	**19**	**2**	**11**	**16**	**1**	**2**

3.6.1.2 San Ysidro Preserve

One gnatcatcher pair was observed within the San Ysidro portion of the Preserve (Figure 7g). The eastern portion of the San Ysidro parcel consists of burned sage scrub, annual grasslands, and chaparral habitats that are unsuitable for California gnatcatchers. Therefore, these areas were not surveyed.

3.6.2 Focused Surveys for Cactus Wren

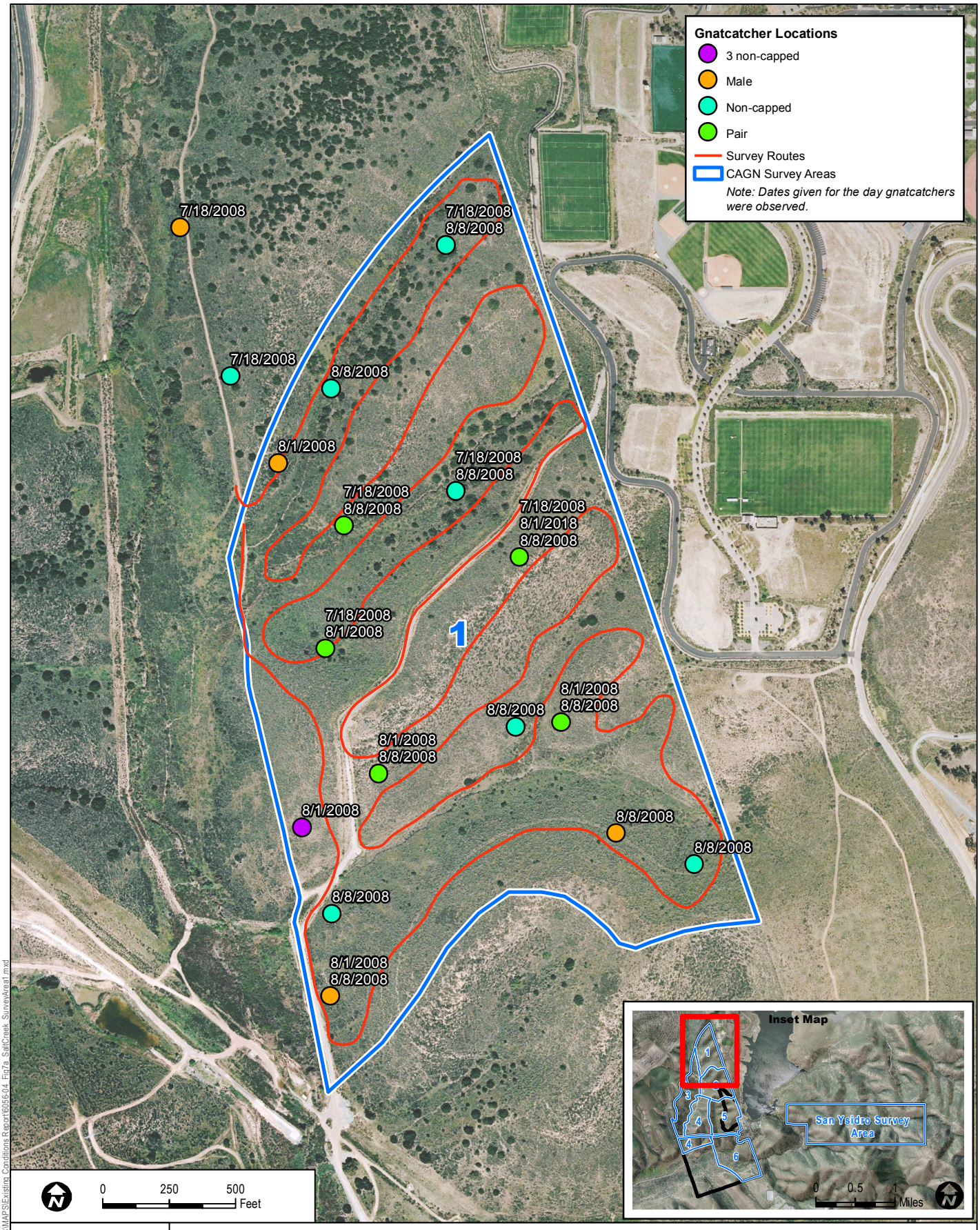
The cactus wren survey results are summarized in Sections 3.6.2.1 and 3.6.2.2.

3.6.2.1 Salt Creek Preserve

Twelve cactus wren, nine active nests, and six inactive nests were observed within the Salt Creek Preserve.

3.6.2.2 San Ysidro Preserve

No cactus wren were observed within the San Ysidro Preserve.



DUDEK

SOURCE: DigitalGlobe 1/2008

FIGURE 7a

Gnatcatcher Observations on Salt Creek

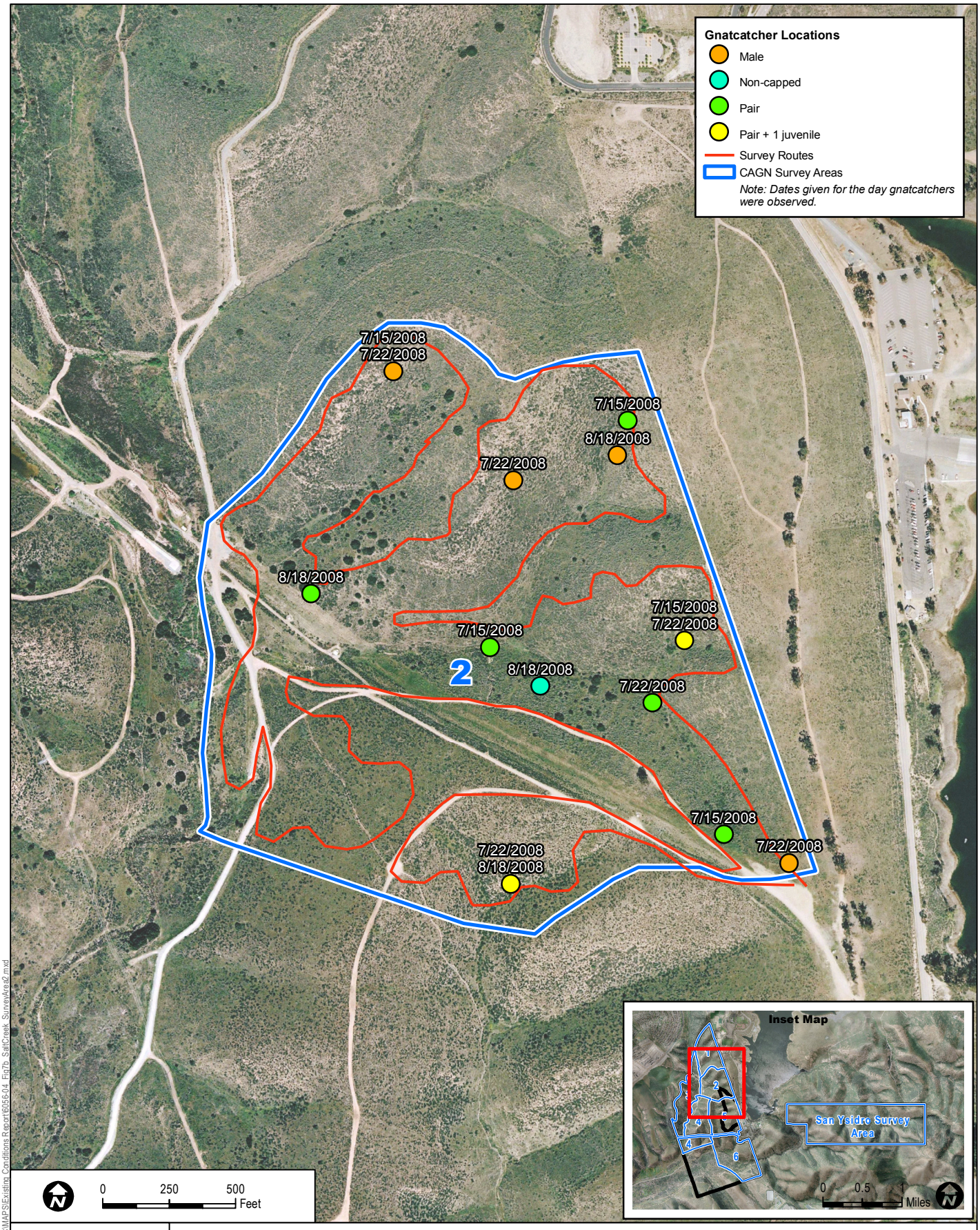
6056-04

MAY 2010

Baseline Biodiversity Survey for Otay Ranch Preserve

Z:\Projects\6056\04\MAPDOC\MAPS\Existing Conditions Report\6056-04 Fig7a_SaltCreek_SurveyArea1.mxd

INTENTIONALLY LEFT BLANK



Z:\Projects\6056\04\MAPDOC\MAPS\Existing Conditions Report\6056-04_Fig7b_SaltCreek_SurveyArea2.mxd

DUDEK

6056-04

MAY 2010

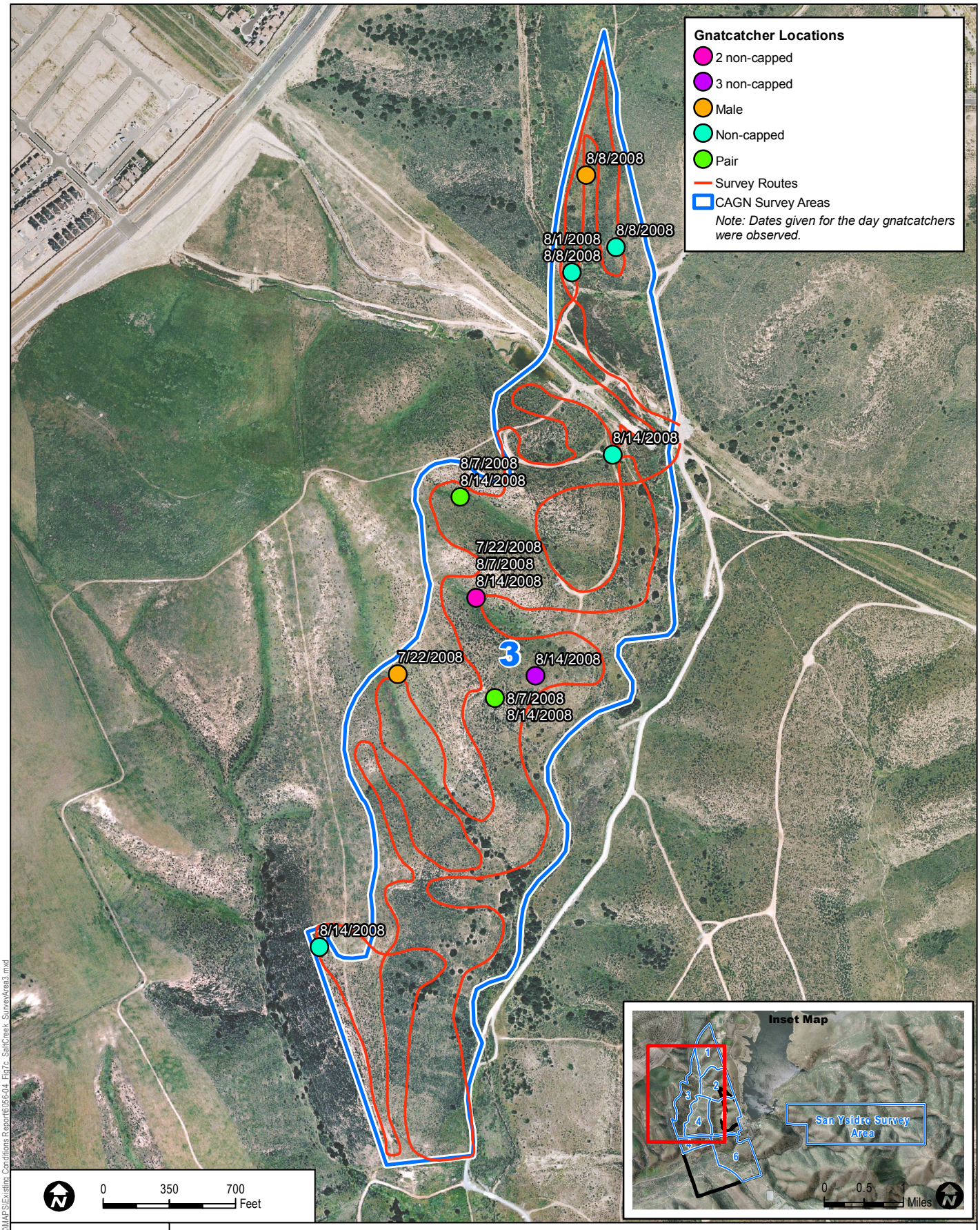
SOURCE: DigitalGlobe 1/2008

FIGURE 7b

Gnatcatcher Observations on Salt Creek

Baseline Biodiversity Survey for Otay Ranch Preserve

INTENTIONALLY LEFT BLANK



Z:\Projects\6056\04\MAPDOC\MAPS\Existing Conditions Report\6056-04_Fig7c_SaltCreek_SurveyArea3.mxd

DUDEK

6056-04

MAY 2010

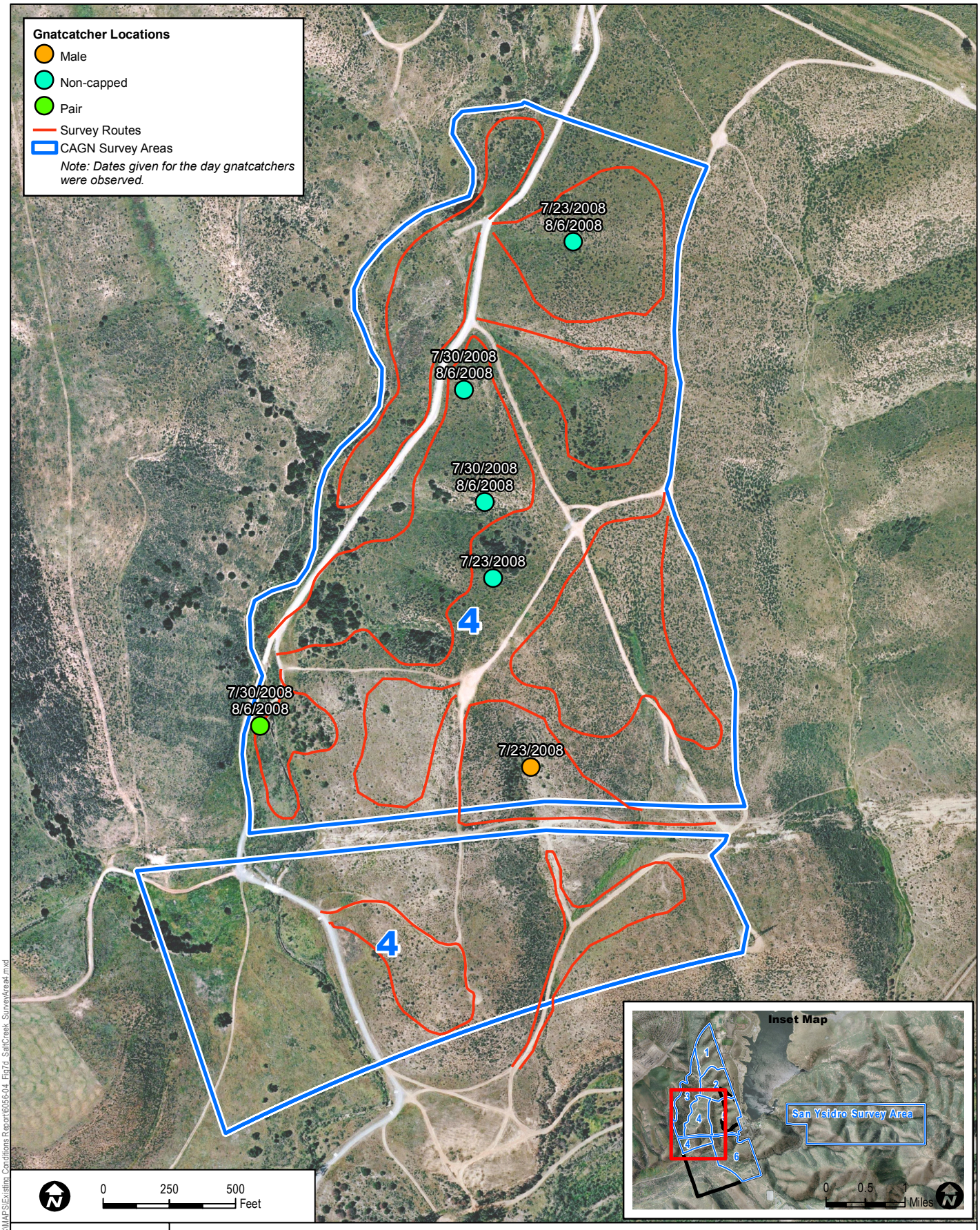
SOURCE: DigitalGlobe 1/2008

FIGURE 7c

Gnatcatcher Observations on Salt Creek

Baseline Biodiversity Survey for Otay Ranch Preserve

INTENTIONALLY LEFT BLANK



DUDEK

SOURCE: DigitalGlobe 1/2008

FIGURE 7d

Gnatcatcher Observations on Salt Creek

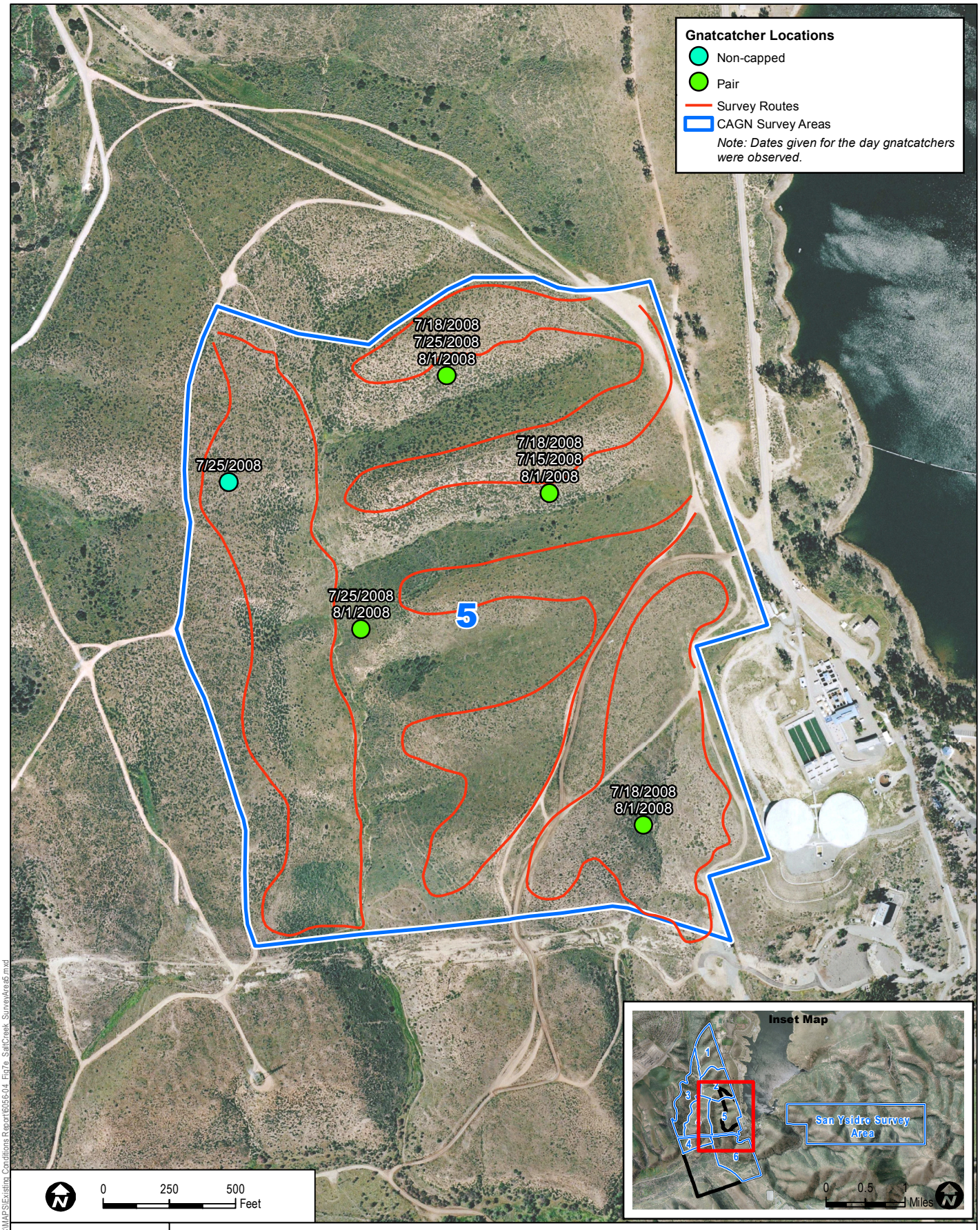
6056-04

MAY 2010

Baseline Biodiversity Survey for Otay Ranch Preserve

Z:\Projects\6056\04\MAPDOC\MAPS\Existing Conditions Report\6056-04_Fig7d_SaltCreek_SurveyArea4.mxd

INTENTIONALLY LEFT BLANK



DUDEK

SOURCE: DigitalGlobe 1/2008

FIGURE 7e

Gnatcatcher Observations on Salt Creek

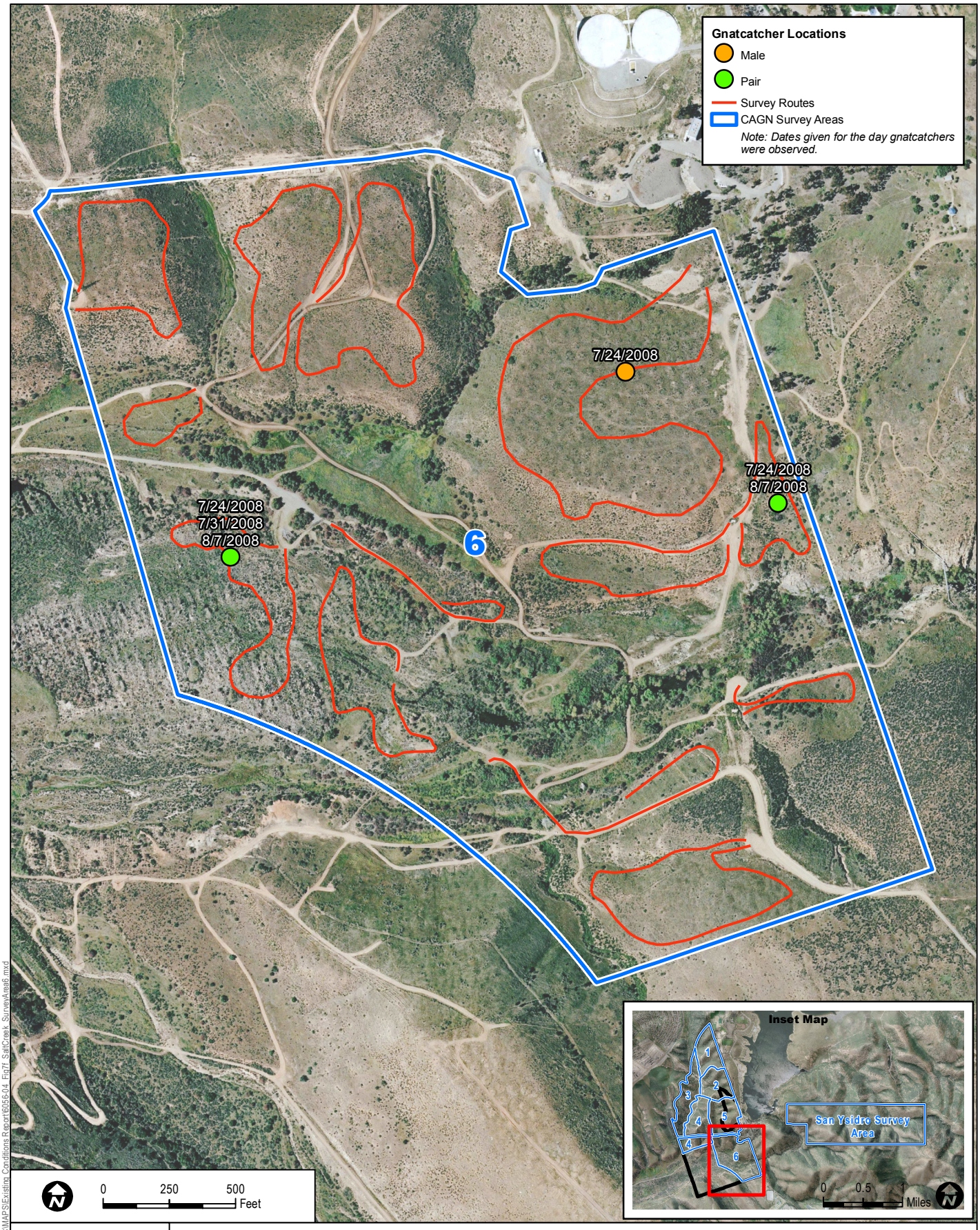
6056-04

MAY 2010

Baseline Biodiversity Survey for Otay Ranch Preserve

Z:\Projects\6056\04\MAPDOC\MAPS\Existing Conditions Report\6056-04 Fig7e_SaltCreek_SurveyArea5.mxd

INTENTIONALLY LEFT BLANK



Z:\Projects\6056\04\MAPDOC\MAPS\Existing Conditions Report\6056-04_Fig7f_SaltCreek_SurveyArea6.mxd

DUDEK

6056-04

MAY 2010

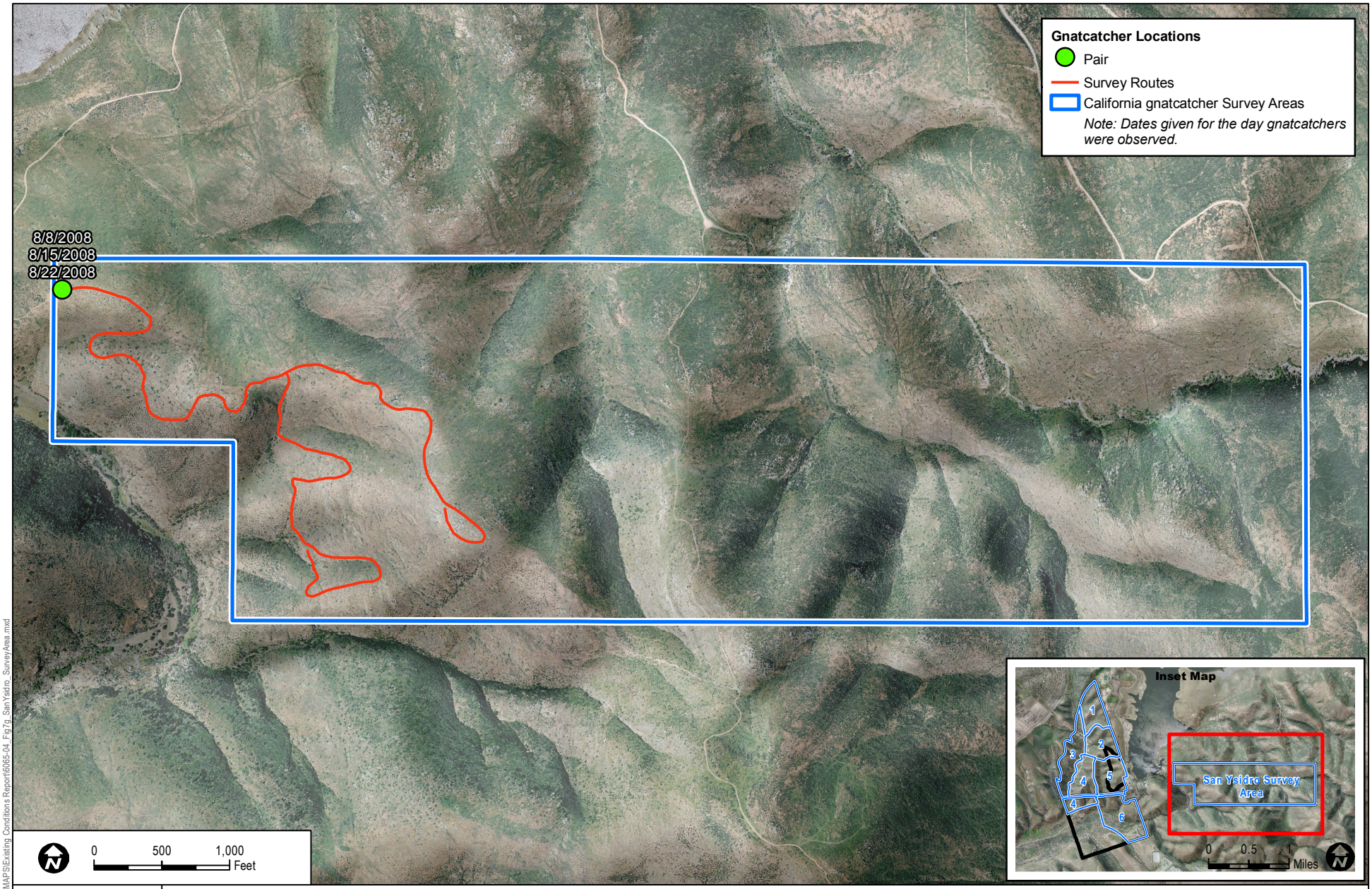
SOURCE: DigitalGlobe 1/2008

FIGURE 7f

Gnatcatcher Observations on Salt Creek

Baseline Biodiversity Survey for Otay Ranch Preserve

INTENTIONALLY LEFT BLANK



Z:\Projects\6056\MAPDOC\MAPSIE\xisting Conditions Report\6065-04_Fig7g_SanYsidro_SurveyArea.mxd

DUDEK

SOURCE: DigitalGlobe 1/2008

FIGURE 7g

Gnatcatcher Observations on San Ysidro

6056-04

MAY 2010

Baseline Biodiversity Survey for Otay Ranch Preserve

INTENTIONALLY LEFT BLANK

3.6.3 Focused Surveys for Hermes Copper and General Butterfly Surveys

Focused surveys for Hermes copper were negative and no other special-status butterfly species were detected during surveys. A total of 25 butterfly species were observed during surveys including: checkered white (*Pontia protodice*), acmon blue (*Plebejus acmon*), Behr's metalmark (*Apodemia mormo virgulti*), buckeye (*Junonia coenia*), cabbage white (*Pieris rapae*), southern blue (*Glaucopsyche lygdamus australis*), California ringlet (*Coenonympha californica californica*), tiger swallowtail (*Papilio rutulus*), Anise swallowtail (*Papilo zelicaon lucas*), painted lady (*Vanessa cardui*), Sara orangetip (*Anthocharis sara*), perplexing hairstreak (*Callophrys dumetorum perplexa*), California dogface (*Colias Eurydice*), funereal duskywing (*Erynnis funeralis*), western pygmy blue (*Brephidium exile*), western brown elfin (*Incisalia augustinus iriodes*), pale swallowtail (Papilo eurymedon), red admiral (Vanessa atalanta), west coast lady (Vanessa annabella), marine blue (Leptotes marina), American lady (*Vanessa virginiensis*), orange sulfur (*Colias eurytheme*), California white (*Pontia sisymbrii*), Gabb's checkerspot (*Chlosyne gabbii gabbii*), and queen (*Danaus gilippus*).

3.6.4 Focused Surveys for Quino Checkerspot Butterfly

A total of 35 QCB were observed and recorded during the 2009 QCB focused survey on the Preserve (Figures 8a–d). Dudek biologists Jeffrey Priest, Vipul Joshi, Tricia Wotipka, Kamural Muri, and Paul Lemons observed QCB on hill tops or ridgelines within Survey Areas A, E, F, and L.

Two QCB larval host plants, dot-seed plantain (*Plantago erecta*) and owl's clover (*Castilleja exserta*) were observed and recorded over much of the Preserve. Larval host plant locations are

illustrated on Figure 3. All patches of plantain and owl's clover were recorded as point locations. Very large patches of plantain were observed where clusters of points are shown on Figure 3.

A list of all wildlife species observed for the site, including butterfly species observed during each week's survey are provided in Appendices C and D. A more detailed report of the focused survey effort is provided in Appendix H.

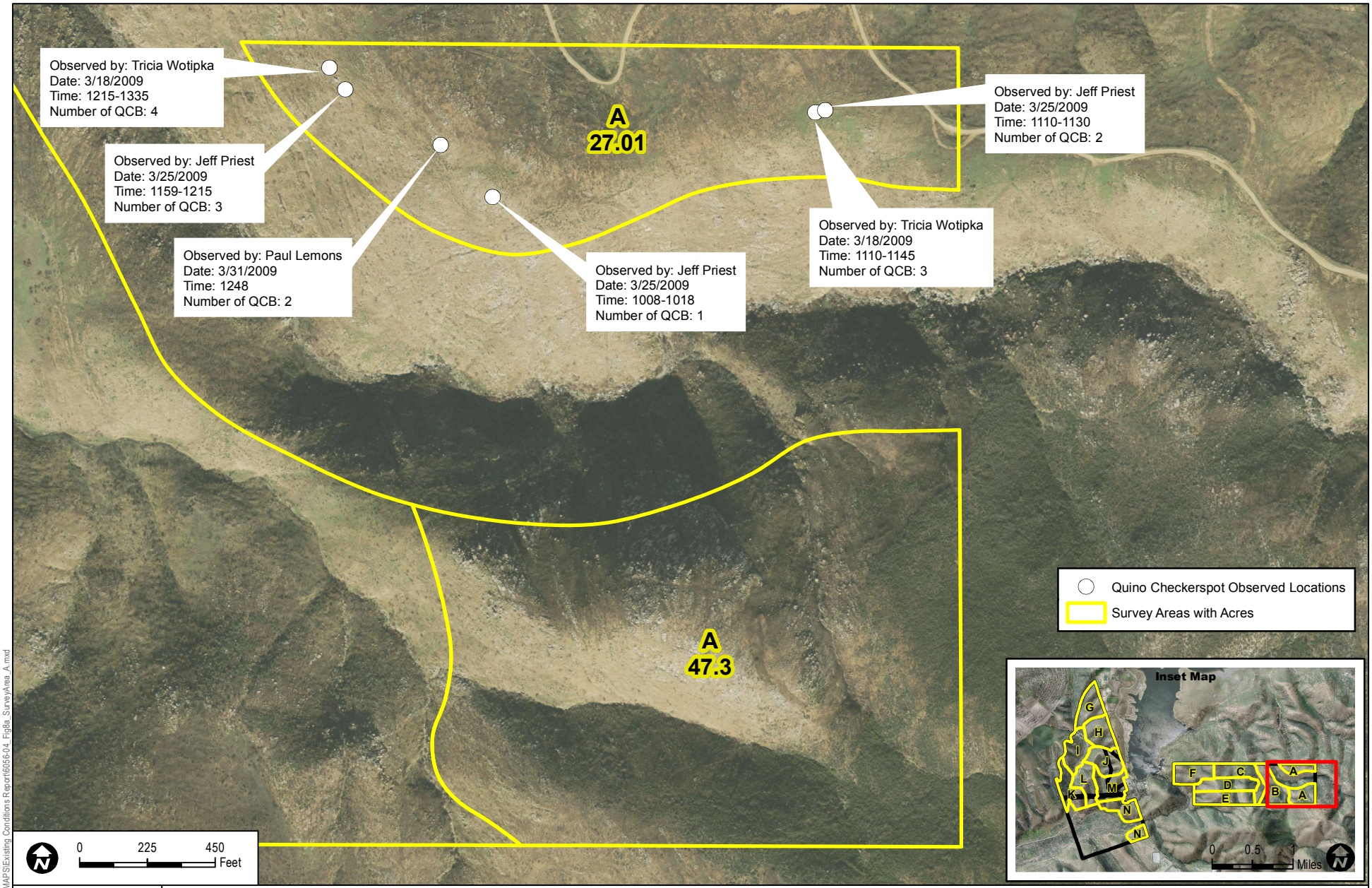
3.6.4.1 Salt Creek Preserve

Six QCB observations occurred on Salt Creek. Survey Area L is located in the central portion of Salt Creek Preserve. A number of these observations took place in the same location from one week to the next thus it is likely that a number of these observations were of the same individual and could be considered duplicate counts. Table 14a summarizes the details of the QCB observations for Salt Creek.

Table 14a
2009 Quino Checkerspot Butterfly Salt Creek Observation Details

Survey Area	Date	Biologist	Time	Number of QCB Observed
L	3/17/2009	TLW	1251–1355	2
	3/17/2009	TLW	1450–1510	1
	3/24/2009	TLW	1115–1130	1
	3/26/2009	AMH	1040	2
			Total QCB Observed	**6**

Personnel Key: AMH = Anita Hayworth; VRJ = Vipul Joshi; JDP = Jeff Priest; KJM = Kamarul Muri; PML = Paul Lemons; TLW = Tricia Wotipka



SOURCE: DigitalGlobe 1/2008

FIGURE 8a

Quino Checkerspot Observations - Survey Area A

DUDEK

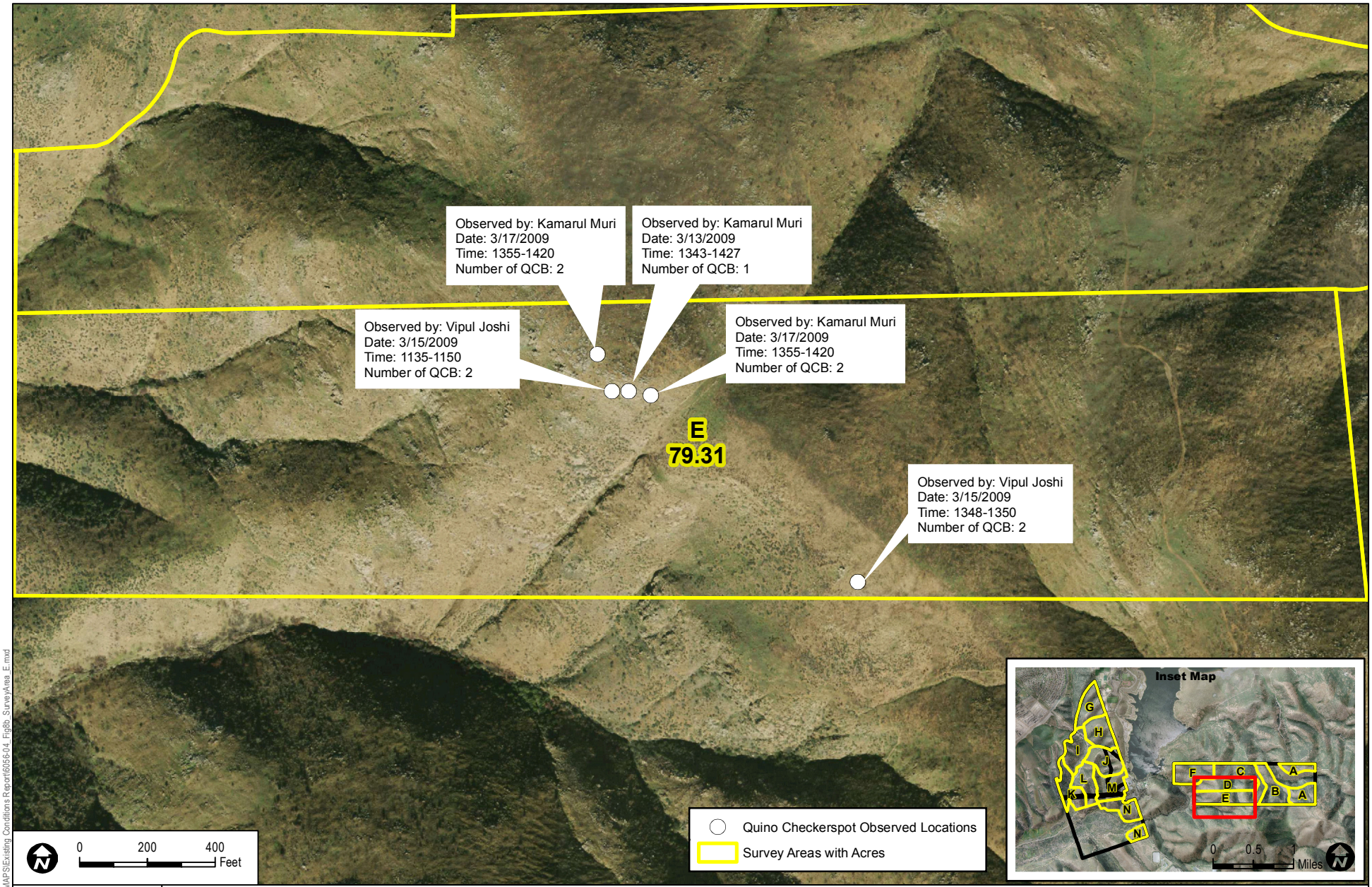
6056-04

MAY 2010

Baseline Biodiversity Survey for Otay Ranch Preserve

Z:\Projects\6056\MAPDOC\MAPSIE\xisting Conditions Report\6056-04_Fig8a_SurveyArea_A.mxd

INTENTIONALLY LEFT BLANK



Z:\Projects\6056\MAPDOC\MAPSIE\xisting Conditions Report\6056-04_Fig8b_SurveyArea_E.mxd

DUDEK

6056-04

MAY 2010

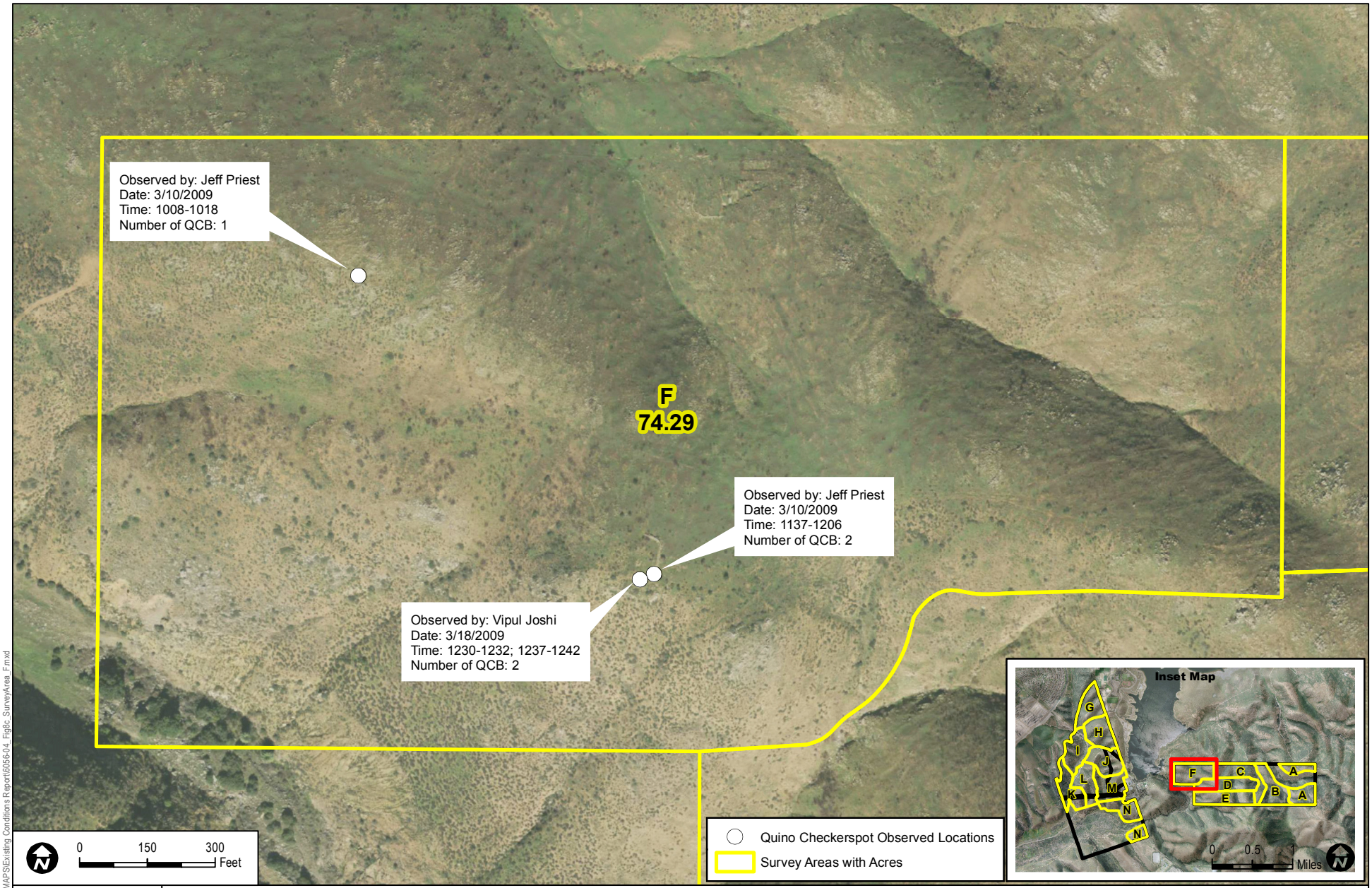
SOURCE: DigitalGlobe 1/2008

FIGURE 8b

Quino Checkerspot Observations - Survey Area E

Baseline Biodiversity Survey for Otay Ranch Preserve

INTENTIONALLY LEFT BLANK



DUDEK

6056-04

MAY 2010

SOURCE: DigitalGlobe 1/2008

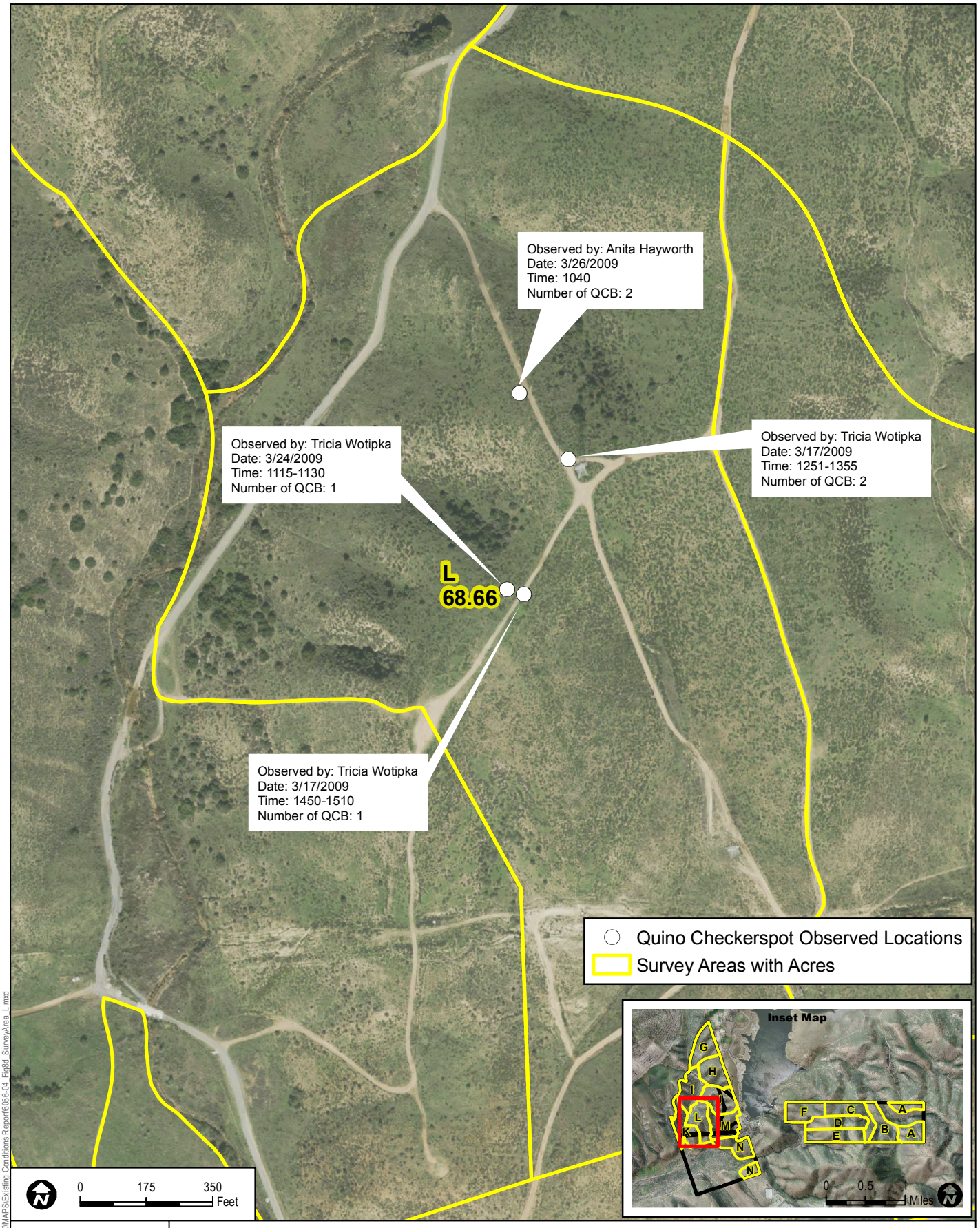
FIGURE 8c

Quino Checkerspot Observations - Survey Area F

Baseline Biodiversity Survey for Otay Ranch Preserve

Z:\Projects\6056\MAPDOC\MAPSIExisting Conditions Report\6056-04_Fig8c_SurveyArea_F.mxd

INTENTIONALLY LEFT BLANK



DUDEK

6056-04

MAY 2010

SOURCE: DigitalGlobe 1/2008

FIGURE 8d

Quino Checkerspot Observations - Survey Area L

Baseline Biodiversity Survey for Otay Ranch Preserve

Z:\Projects\6056\04\MAPDOC\MAPS\Existing Conditions Report\6056-04_Fig8d_SurveyArea_L.mxd

INTENTIONALLY LEFT BLANK

3.6.4.2 San Ysidro Preserve

A total of 29 QCB were observed and recorded during the 2009 QCB focused survey on the San Ysidro Preserve. Survey Area A is located on the east side of San Ysidro (Figure 8a); Survey Area E is located along the southwest edge of San Ysidro (Figure 8b); and Survey Area F is located along the northwest corner of San Ysidro Preserve. A number of these observations took place in the same location from one week to the next thus it is likely that a number of these observations were of the same individual and could be considered duplicate counts. Table 14b summarizes the details of the QCB observations.

Table 14b
2009 Quino Checkerspot Butterfly San Ysidro Observation Details

Survey Area	Date	Biologist	Time	Number of QCB Observed
A	3/18/2009	TLW	1110–1145	3
	3/18/2009	TLW	1215–1335	4
	3/25/2009	JDP	1110–1130	2
	3/25/2009	JDP	1159–1215	3
	3/25/2009	JDP	1240–1247	1
	3/31/2009	PML	1248–1320	2
E	3/13/2009	KJM	1343–1427	1
	3/15/2009	VRJ	1135–1150	2
	3/15/2009	VRJ	1348–1350	2
	3/17/2009	KJM	1355–1420	2
	3/17/2009	KJM	1355–1420	2
F	3/10/2009	JDP	1008–1018	1
	3/10/2009	JDP	1137–1206	2
	3/18/2009	VRJ	1230–1242	2
			Total QCB Observed	**29**

Personnel Key: AMH = Anita Hayworth; VRJ = Vipul Joshi; JDP = Jeff Priest; KJM = Kamarul Muri; PML = Paul Lemons; TLW = Tricia Wotipka

3.7 Habitat Connectivity and Wildlife Corridors

3.7.1 Large and Medium Mammal Surveys

Seven mammal species were detected using the wildlife cameras established during the medium and large mammal surveys: coyote (*Canis latrans*), mule deer (*Odocoileus hemionus*), gray fox (*Urocyon cinereoargenteus*), common raccoon (*Procyon lotor),* bobcat (*Lynx rufus*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), and brush rabbit (*Sylvilagus bachmani*). Mule deer is considered a sensitive species (Group 2) under the MSCP, while the San Diego black-tailed jackrabbit is a CDFG Species of Special Concern (SSC).

The Otay Mesa preserve provides an important link between key MSCP preserves areas, including San Miguel Mountain to the north and Otay Mountain to the east. The majority of the preserve is designated as a biological core area or linkage by the MSCP Subregional Plan (City of Chula Vista 2003). The preserve connects the Sweetwater Reservoir with substantial habitat areas, including the Otay River and Otay Lakes, Otay Mountain (with connections east toward Tecate Peak), the Jamul Mountains, San Miguel Mountain, and upper Sweetwater River. These latter areas link up with U.S. Forest Service lands.

The Preserve is generally open to wildlife movement with no specific routes that could be identified. The amount, timing, and type of human activity throughout the Preserve could heavily influence wildlife movement throughout the area. The Preserve area is extensively used by recreationists including hikers, equestrians, and bicyclists. Due to its proximity to the U.S. and Mexican border, the Salt Creek and San Ysidro parcels are also extensively patrolled by U.S.

Customs and Borde Control. A variety of motorized vehicles are used during patrols, including pick-up trucks and quad bikes. The associated increase in noise, light, and general disturbance created by patrols occurring at regular intervals throughout the night may also strongly influence wildlife movement in the area.

3.7.1.1 Salt Creek Preserve

Five species were observed on Salt Creek: coyote, common raccoon, brush rabbits, bobcat, and San Diego black-tailed jackrabbit (Table 15).

Table 15
Salt Creek Wildlife Camera Results

Camera Session	Salt Creek		
	Camera 1	Camera 2	Camera 3
1	1 raccoon, 3 coyote; 1 San Diego black-tailed jack rabbit	1 coyote	1 coyote; brush rabbits
2	brush rabbits	Brush rabbits	1 coyote; brush rabbits
3	3 coyote; brush rabbits	1 coyote ; 2 San Diego black-tailed jack rabbit; brush rabbits	2 bobcats; 1 coyote; 2 black-tailed jackrabbit; brush rabbits
4	3 coyote	1 coyote; 2 San Diego black-tailed jack rabbits; brush rabbits	1 bobcat; 1 coyote; brush rabbits

3.7.1.2 San Ysidro Preserve

Three species were observed on San Ysidro: coyote, mule deer and gray fox (Table 16).

Table 16
San Ysidro Wildlife Camera Results

Camera Session	San Ysidro	
	East Camera	West Camera
1	0	1 mule deer
2	1 coyote; 1 mule deer	0
3	1 gray fox; 1 mule deer	0
4	0	1 mule deer

4.0 REFERENCES

62 FR 2313–2322. 1997. Final rule: Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Laguna Mountains Skipper and Quino Checkerspot Butterfly. January 16, 1997.

Advameg, Inc. 2009. City-Data.com "Chula Vista, California." Available at: http://www.city-data.com/city/Chula-Vista-California.html. Accessed July 15, 2009.

American Ornithologists' Union. 1998. Check-list of North American Birds, 7th edition. American Ornithologists' Union. Washington D. C.

Atwood, J.L. and J.S. Bolsinger. 1992. "Elevational distribution of California gnatcatchers in the United States." *Journal of Field Ornithology* 63: 159-168.

Banks, R.C., R.T. Chesser, C. Cicero, J.L. Dunn, A.W. Kratter, I.J. Lovette, P.C. Rasmussen, J.V. Remsen, Jr., J.D. Rising, and D.F. Stotz. 2007. "Forty-Eighth Supplement to the American Ornithologists' Union Check-List of North American Birds." *Auk* 124:1109–1115.

Bontrager, D.R. 1991. Habitat requirements, home range and breeding biology of the California gnatcatcher (*Polioptila californica*) in South Orange County, California. Prepared for Santa Margarita Company, Rancho Santa Margarita, California.

Bowman, R.H. 1973. Soil survey of San Diego Area, California, Part 1. USDA. Soil Conserv. Serv., Washington, DC. 104 pp. + appendices.

Braden, G.T, R.L. McKernan, and S.M. Powell. 1997. "Effects of nest parasitism by the brown-headed cowbird on nesting success of the California gnatcatcher." *Condor* 99: 858-865.

CDFG (California Department of Fish and Game), California Natural Diversity Data Base. 2009a. *Rarefind*. Version 3.1.0. Computer database. June 2, 2009.

CDFG. California Natural Diversity Data Base. 2009b. *Special Animals*. March. 56 pp.

CDFG. California Natural Diversity Data Base. 2009c. *Special Vascular Plants, Bryophytes, and Lichens List.* April. 80 pp.

CDFG. California Natural Diversity Data Base. 2009d. *State and Federally Listed Endangered, Rare and Threatened Animals of California.* February. 12 pp.

CDFG. California Natural Diversity Data Base. 2009e. *State and Federally Listed Endangered, Rare and Threatened Plants of California*. July. 16 pp.

Chula Vista, City of. 2003. *City of Chula Vista Multiple Species Conservation Program Subarea Plan.*

CNPS (California Native Plant Society). 2009. *Inventory of Rare and Endangered Plants* (online edition, v7-09b). California Native Plant Society. Sacramento, CA. Accessed from http://www.cnps.org/inventory.

Digitalglobe. 2008. GIS data for project vicinity.

Dudek and Associates. 2000. *Biological Resource Report and Impact Assessment for Village 11, Otay Ranch Property, Chula Vista, California*. December.

Emmel, T.C. and J.F. Emmel. 1973. *The Butterflies of Southern California*. Natural History Museum of Los Angeles County. Science Series No. 26.

Fisher, R., D. Stokes, C. Rochester, C. Brehme, S. Hathaway, and T. Case. 2008. Herpetological monitoring using a pitfall trapping design in southern California: U.S. Geological Survey Techniques and Methods 2-A5, 44 p.

Hickman, J.C. 1993. *The Jepson manual: Higher plants of California*. University of California Press, Berkeley. 1400 pp.

Holland, R.F. 1986. *Preliminary descriptions of the terrestrial natural communities of California*. Nongame-Heritage Program, California Department of Fish and Game. 156 pp.

Jones, C., R.S. Hoffman, D. W. Rice, M.D. Engstrom, R.O. Bradley, D.J. Schmidly, C.A. Jones, and R.T. Baker. 1997. Revised checklist of North American mammals north of Mexico, 1997. Occasional Papers, The Museum, Texas Tech University 173:1-19.

Mattoni, R., G.F. Pratt, T.R. Longcore, J.F. Emmel, and J.N. George. 1997. "The Endangered Quino Checkerspot Butterfly, *Euphydryas editha quino* (Lepidoptera: Nymphalidae)." *Journal of Research on the Lepidoptera* 34:99–118.

Oberbauer, Thomas, Meghan Kelly, and Jeremy Buegge. 2008. Draft Vegetation Communities of San Diego County. Based on "Preliminary Descriptions of the Terrestrial Natural Communities of California," Robert F. Holland, Ph.D., October 1986. March.

Reiser, C.H. 2001. *Rare Plants of San Diego County*. Aquafir Press, Imperial Beach, California.

Roberts, F.M., Jr., S.D. White, A.C. Sanders, D.E. Bramlet, and S. Boyd. 2004. *The Vascular Plants of Western Riverside County, California*. San Luis Rey, California: F.M. Roberts Publications.

San Diego, County of. 1997. *County of San Diego MSCP Subarea Plan.* October.

San Diego, County of. 2008. Report Format and content Requirements. Biological Resources. Second Revision. July 30. Department of Planning and Land Use. 75 pp.

Simpson, M. and J. Rebman. 2006. *Checklist of the vascular plants of San Diego County,* California. Fourth edition. San Diego State University and San Diego Natural History Museum, San Diego, California.

Stebbins, R.C. 2003. *A Field Guide to Western Reptiles and Amphibians.* 3rd edition. New York, New York: Houghton Mifflin Company.

USFWS (U.S. Fish and Wildlife Service). 1997. *Coastal California Gnatcatcher (*Polioptila californica californica*) Presence/Absence Survey Protocol*. July 28.

USFWS. 2002. "Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey Protocol Information." Carlsbad, California. February 2002.

USFWS. 2003. *Recovery Plan for the Quino Checkerspot Butterfly* (Euphydryas editha quino). Portland, Oregon.

INTENTIONALLY LEFT BLANK

5.0 LIST OF PREPARERS AND PERSONS AND ORGANIZATIONS CONTACTED

This report was prepared by Dudek biologists Katie Dayton, Dave Fleitner, Vipul Joshi, Paul Lemons, Sherri Miller, and Brock Ortega. Dudek biologist Brock Ortega provided review assistance and coordination with the client and County as the County Approved biologist. Graphics and GIS mapping and analyses were provided by Jeff Kubran, Lisa Lubeley, Simon Kedward, and Andrew Greis. Julie Corrales, Lies Berault, and Mark Lathram formatted the document.

INTENTIONALLY LEFT BLANK

APPENDIX A

Plant Species Observed at
Otay Ranch Preserve – Salt Creek

APPENDIX A
Plant Species Observed at Otay Ranch Preserve – Salt Creek

VASCULAR PLANT SPECIES

LYCOPODS

***SELAGINELLACEAE* – SPIKE-MOSS FAMILY**

Selaginella bigelovii – Bigelow's spike-moss

CONIFERS

***CUPRESSACEAE* – CYPRESS FAMILY**

Cupressus forbesii – tecate cypress

ANGIOSPERMS (DICOTS)

***AIZOACEAE* – FIG-MARIGOLD FAMILY**

* *Aptenia cordifolia* – baby sun rose

***ANACARDIACEAE* – SUMAC FAMILY**

Malosma laurina – laurel sumac

Rhus integrifolia – lemonadeberry

* *Schinus molle* – Peruvian pepper tree

***APIACEAE* – CARROT FAMILY**

* *Apium graveolens* – celery

* *Conium maculatum* – common poison hemlock

Daucus pusillus – rattlesnake weed

* *Foeniculum vulgare* – fennel

***ASCLEPIADACEAE* – MILKWEED FAMILY**

Sarcostemma cynanchoides ssp. *hartwegii* – climbing milkweed

***ASTERACEAE* – SUNFLOWER FAMILY**

Achillea millefolium – yarrow, milfoil

Ambrosia acanthicarpa – annual bur-sage

Ambrosia psilostachya – western ragweed

Artemisia californica – California sagebrush

Artemisia douglasiana – mugwort

Baccharis pilularis – chaparral broom, coyote brush

Baccharis salicifolia – mulefat, seep-willow, water-wally

Baccharis sarothroides – broom baccharis

Bahiopsis laciniata – San Diego County viguiera
Brickellia californica – California brickellbush
* *Centaurea melitensis* – tocalote
* *Chamomilla suaveolens* – pineapple weed, rayless chamomile
* *Chrysanthemum* sp. – daisy
* *Cirsium vulgare* – bull thistle
Corethrogyne filaginifolia – sand-aster
* *Cotula coronopifolia* – brass-buttons
* *Cynara cardunculus* – cardoon, artichoke thistle
Deinandra [=*Hemizonia*] *fasciculata* – fascicled tarweed
Encelia californica – California encelia
Encelia farinosa – brittlebush, incienso
Ericameria sp. – goldenbush
Eriophyllum confertiflorum – long-stem golden yarrow
Filago californica – California filago
* *Filago gallica* – narrow-leaf filago
Gnaphalium californicum – California everlasting
* *Gnaphalium luteo-album* – white-head cudweed
Grindelia camporum var. *bracteosum* – rayless gumplant
Gutierrezia sarothrae – broom snake-weed, matchweed
* *Hedypnois cretica* – Crete hedypnois
Holocarpha virgata – graceful tarplant
Isocoma menziesii -spreading goldenbush
Iva hayesiana – San Diego marsh-elder
Osmadenia tenella – osmadenia
* *Picris echioides* – bristly ox-tongue
Psilocarphus brevissimus var. *brevissimus* – dwarf woolly-heads, woolly marbles
* *Silybum marianum* – milk thistle
* *Sonchus asper* – prickly sow thistle
* *Sonchus oleraceus* – common sow thistle
* *Taraxacum officinale* – common dandelion

***BORAGINACEAE* – BORAGE FAMILY**

Amsinckia menziesii -rancher's fireweed
Cryptantha intermedia – Nievitas cryptantha
Heliotropium curassavicum – salt heliotrope
Pectocarya linearis ssp. *ferocula* – slender pectocarya

***BRASSICACEAE* – MUSTARD FAMILY**

* *Brassica nigra* – black mustard
* *Capsella bursa-pastoris* – shepherd's purse
* *Cardaria draba* – heart-podded hoary cress
* *Hirschfeldia incana* – short-pod mustard
Lepidium nitidum – shining peppergrass
Rorippa nasturtium-aquaticum – water cress

***CACTACEAE* – CACTUS FAMILY**

Ferocactus viridescens – coast barrel cactus
Cylindropuntia prolifera – cholla
Mammillaria dioica – fish-hook cactus
Opuntia basilaris – beavertail cactus
Opuntia littoralis – coastal prickly-pear

***CAPPARACEAE* – CAPER FAMILY**

Isomeris arborea – bladderpod

***CAPRIFOLIACEAE* – HONEYSUCKLE FAMILY**

Sambucus mexicana – blue elderberry

***CARYOPHYLLACEAE* – PINK FAMILY**

* *Silene gallica* – common catchfly
* *Spergularia villosa* – villous sand-spurry

***CHENOPODIACEAE* – GOOSEFOOT FAMILY**

Atriplex pacifica – south coast saltbush
* *Atriplex semibaccata* – Australian saltbush
* *Chenopodium album* – pigweed, lamb's-quarters
* *Salsola tragus* – Russian thistle, tumbleweed

***CONVOLVULACEAE* – MORNING-GLORY FAMILY**

Calystegia macrostegia – morning-glory
* *Convolvulus arvensis* – bindweed, orchard morning-glory
Dichondra occidentalis – western dichondra

***CRASSULACEAE* – STONECROP FAMILY**

Crassula connata – pygmy-weed
Dudleya lanceolata – lanceleaf or coastal dudleya
Dudleya pulverulenta – chalky live-forever

***CUCURBITACEAE* – GOURD FAMILY**

Marah macrocarpus – manroot, wild-cucumber

***ERICACEAE* – HEATH FAMILY**

Arctostaphylos sp. – manzanita

***EUPHORBIACEAE* – SPURGE FAMILY**

Chamaesyce albomarginata – rattlesnake weed
Eremocarpus setigerus – doveweed

***FABACEAE* – PEA FAMILY**

Astragalus sp. – locoweed
Lotus purshianus var. *purshianus* – Spanish-clover
Lotus scoparius – deerweed
Lupinus succulentis – arroyo lupine
* *Medicago lupulina* – black medick, yellow trefoil
* *Melilotus indica* – sourclover
Trifolium sp. – clover

***FAGACEAE* – OAK FAMILY**

Quercus agrifolia – coast live oak, encina
Quercus berberidifolia – scrub oak

***GENTIANACEAE* – GENTIAN FAMILY**

Centaurium venustum – canchalagua

***GERANIACEAE* – GERANIUM FAMILY**

* *Erodium botrys* – long-beak filaree/storksbill
* *Erodium cicutarium* – red-stemmed filaree/storksbill
* *Geranium* sp. – geranium

***HYDROPHYLLACEAE* – WATERLEAF FAMILY**

Eriodictyon trichocalyx – hairy yerba santa
Phacelia cicutaria – caterpillar phacelia

***LAMIACEAE* – MINT FAMILY**

* *Marrubium vulgare* – horehound
Salvia apiana – white sage
Salvia mellifera – black sage

***LYTHRACEAE* – LOOSESTRIFE FAMILY**

* *Lythrum hyssopifolia* – grass poly

***MALVACEAE* – MALLOW FAMILY**

Malacothamnus fasciculatus – chaparral bushmallow

* *Malva parviflora* – cheeseweed, little mallow

Sidalcea malviflora – checker-bloom

***MYRTACEAE* – MYRTLE FAMILY**

* *Eucalyptus* sp. – eucalyptus

* *Eucalyptus globulus* – blue gum

***NYCTAGINACEAE* – FOUR O'CLOCK FAMILY**

Mirabilis laevis var. *crassifolia* – wishbone bush

***ONAGRACEAE* – EVENING-PRIMROSE FAMILY**

Camissonia bistorta – California sun cup

***OXALIDACEAE* – WOOD-SORREL FAMILY**

Oxalis albicans – California wood-sorrel

***PAPAVERACEAE* – POPPY FAMILY**

Eschscholzia californica – California poppy

Romneya coulteri – Coulter's matilija poppy

***PLANTAGINACEAE* – PLANTAIN FAMILY**

Plantago erecta – dot-seed plantain

***PLATANACEAE* – SYCAMORE FAMILY**

Platanus racemosa – western sycamore

***POLEMONIACEAE* – PHLOX FAMILY**

Gilia sp. – gilia

Navarretia hamata – hooked skunkweed

***POLYGONACEAE* – BUCKWHEAT FAMILY**

Chorizanthe fimbriata – fringed spineflower

Eriogonum fasciculatum – California buckwheat

* *Rumex crispus* – curly dock

***PORTULACACEAE* – PURSLANE FAMILY**

Claytonia perfoliata var. *perfoliata* – miner's-lettuce

***PRIMULACEAE* – PRIMROSE FAMILY**

* *Anagallis arvensis* – poor man's weatherglass, scarlet pimpernel
Dodecatheon clevelandii – Padre's shooting star

***RANUNCULACEAE* – CROWFOOT FAMILY**

Delphinium parryi – Parry's larkspur

***RHAMNACEAE* – BUCKTHORN FAMILY**

Rhamnus crocea – spiny redberry

***ROSACEAE* – ROSE FAMILY**

Adenostoma fasciculatum – chamise
Heteromeles arbutifolia – toyon, Christmas berry
Rosa californica – California rose

***RUBIACEAE* – MADDER FAMILY**

Galium angustifolium – narrow-leaved bedstraw
* *Galium aparine* – goose grass
Galium nuttallii ssp. *nutallii* – San Diego bedstraw

***SALICACEAE* – WILLOW FAMILY**

Populus fremontii ssp. *fremontii* – alamo or Fremont cottonwood
Salix sp. – willow
Salix exigua – narrow-leaved willow
Salix gooddingii – Goodding's black willow
Salix lasiolepis – arroyo willow

***SCROPHULARIACEAE* – FIGWORT FAMILY**

Antirrhinum coulterianum – Coulter's snapdragon
Antirrhinum nuttallianum – Nuttall's snapdragon
Castilleja affinis – coast paintbrush
Mimulus aurantiacus – coast monkey flower, bush monkey flower

***SIMMONDSIACEAE* – JOJOBA FAMILY**

Simmondsia chinensis – jojoba, goatnut

***SOLANACEAE* – NIGHTSHADE FAMILY**

Datura wrightii – jimson weed
Lycium andersonii – waterjacket
* *Nicotiana glauca* – tree tobacco
Solanum douglasii – Douglas' nightshade

***TAMARICACEAE* – TAMARISK FAMILY**

* *Tamarix ramosissima* – salt-cedar, Mediterranean tamarisk

***URTICACEEAE* – NETTLE FAMILY**

Urtica dioica – hoary nettle

***VERBENACEAE* – VERVAIN FAMILY**

Verbena menthifolia – mint-leaf vervain

ANGIOSPERMS (MONOCOTS)

***CYPERACEAE* – SEDGE FAMILY**

Bolboschoenus maritimus ssp. *paludosus* – prairie bulrush

Eleocharis macrostachya – pale spike-sedge

***IRIDACEAE* – IRIS FAMILY**

Sisyrinchium bellum – blue-eyed-grass

***JUNCACEAE* – RUSH FAMILY**

Juncus acutus ssp. *leopoldi*- southwestern spiny rush

***LILIACEAE* – LILY FAMILY**

Bloomeria crocea – common goldenstar

Calochortus splendens – splendid mariposa lily

Chlorogalum parviflorum – small-flowered soap plant

Dichelostemma capitatum ssp. *capitatum* – blue dicks

Yucca whipplei – our lord's candle

***POACEAE* – GRASS FAMILY**

Achnatherum coronatum – giant stipa

Achnatherum diegoensis – San Diego County needlegrass

Aristida adscensionis – six weeks three-awn

* *Arundo donax* – giant reed

* *Avena barbata* – slender wild oat

* *Avena fatua* – wild oat

Bothriochloa barbinodis – cane bluestem

* *Brachypodium distachyon* – purple falsebrome

* *Bromus diandrus* – ripgut grass

* *Bromus hordeaceus* – soft chess

* *Bromus madritensis* – foxtail chess

* *Cortaderia selloana* – pampas grass

* *Cynodon dactylon* – Bermuda grass
Distichlis spicata – saltgrass
* *Hordeum* sp. – barley
* *Lamarckia aurea* – golden-top
* *Lolium multiflorum* – Italian ryegrass
* *Lolium perenne* – perennial ryegrass
Melica imperfecta – coast range melic
Nassella lepida – foothill needlegrass
Nassella pulchra – purple needlegrass
* *Polypogon monspeliensis* – annual beard grass
Sporobolus airoides – alkali sacaton
* *Vulpia myuros* – rattail fescue

***TYPHACEAE* – CATTAIL FAMILY**
Typha angustifolia – narrow-leaved cattail

* signifies introduced (non-native) species

APPENDIX B

Plant Species Observed at
Otay Ranch Preserve – San Ysidro

APPENDIX B
Plant Species Observed at Otay Ranch Preserve – San Ysidro

VASCULAR PLANT SPECIES

LYCOPODS

***SELAGINELLACEAE* – SPIKE-MOSS FAMILY**

Selaginella bigelovii – Bigelow's spike-moss
Selaginella cinerascens – ashy spike-moss

***DENNSTAEDTIACEAE* – BRACKEN FAMILY**

Pteridium aquilinum var. *pubescens* – western bracken

***PTERIDACEAE* – BRAKE FAMILY**

Adiantum jordani – California maiden-hair
Pellaea andromedifolia – coffee fern
Pentagramma triangularis – silverback fern

CONIFERS

***CUPRESSACEAE* – CYPRESS FAMILY**

Cupressus forbesii – Tecate cypress

ANGIOSPERMS (DICOTS)

***ALLIACEAE* – ONION FAMILY**

Allium haematochiton – *redskin onion*

***ANACARDIACEAE* – SUMAC FAMILY**

Malosma laurina – laurel sumac
Rhus integrifolia – lemonadeberry
Toxicodendron diversilobum – western poison oak

***APIACEAE* – CARROT FAMILY**

Daucus pusillus – rattlesnake weed
* *Foeniculum vulgare* – fennel
Lomatium lucidum – shiny lomatium
Sanicula bipinnata – poison sanicle

***ASCLEPIADACEAE* – MILKWEED FAMILY**

Asclepias fascicularis – narrow-leaf milkweed

***ASTERACEAE* – SUNFLOWER FAMILY**

Achillea millefolium – yarrow, milfoil
Acourtia microcephala – sacapellote
Artemisia californica – California sagebrush
Artemisia dracunculus – tarragon
Baccharis pilularis – chaparral broom, coyote brush
Baccharis salicifolia – mule fat, seep-willow, water-wally
Baccharis sarothroides – broom baccharis
Bahiopsis laciniata – San Diego sunflower
Brickellia californica – California brickellbush
* *Centaurea melitensis* – tocalote
Chaenactis artemisiifolia – Artemisia pincushion
* *Cirsium vulgare* – bull thistle
Corethrogyne filaginifolia – California-aster
Deinandra [=*Hemizonia*] *fasciculata* – fascicled tarweed
Erigeron foliosus var. *foliosus*- leafy daisy
Eriophyllum confertiflorum var. *confertiflorum* – long-stem golden yarrow
* *Filago gallica* – narrow-leaf filago
Gnaphalium bicolor – bicolor cudweed
Gnaphalium canescens var. *beneolens* – white everlasting
Grindelia sp. – gumplant
Hazardia squarrosa ssp. *grindelioides* – saw-toothed goldenbush
Heterotheca grandiflora – telegraph weed
Isocoma menziesii – spreading goldenbush
Iva hayesiana – San Diego marsh-elder
* *Lactuca serriola* – prickly lettuce
Microseris douglasii – Douglas' microseris
Osmadenia tenella – osmadenia
Porophyllum gracile – odora
* *Silybum marianum* – milk thistle
Solidago sp. – goldenrod
* *Sonchus asper* – prickly sow thistle
Stephanomeria virgata ssp. *virgata* – virgate wreath-plant
Uropappus lindleyi – silver puffs

***BORAGINACEAE* – BORAGE FAMILY**

Amsinckia menziesii -rancher’s fireweed
Cryptantha sp. – cryptantha

***BRASSICACEAE* – MUSTARD FAMILY**

* *Hirschfeldia incana* – short-pod mustard
Lepidium nitidum – shining peppergrass
Thysanocarpus curvipes – field penny-cress, fan weed

***CACTACEAE* – CACTUS FAMILY**

Ferocactus viridescens – coast barrel cactus

***CAPRIFOLIACEAE* – HONEYSUCKLE FAMILY**

Lonicera subspicata var. *denudata* – southern honeysuckle
Sambucus mexicana – blue elderberry

***CARYOPHYLLACEAE* – PINK FAMILY**

* *Silene gallica* – common catchfly

***CHENOPODIACEAE* – GOOSEFOOT FAMILY**

* *Salsola tragus* – Russian thistle, tumbleweed

***CISTACEAE* – ROCK-ROSE FAMILY**

Helianthemum scoparium -peak rush-rose

***CONVOLVULACEAE* – MORNING-GLORY FAMILY**

Calystegia macrostegia – morning-glory

***CRASSULACEAE* – STONECROP FAMILY**

Dudleya edulis – ladies' fingers
Dudleya pulverulenta – chalky live-forever

***CUCURBITACEAE* – GOURD FAMILY**

Marah macrocarpus var. *macrocarpus* – manroot, wild-cucumber

***CUSCUTACEAE* – DODDER FAMILY**

Cuscuta californica – dodder

***ERICACEAE* – HEATH FAMILY**

Arctostaphylos glandulosa – manzanita
Xylococcus bicolor – mission manzanita

***EUPHORBIACEAE* – SPURGE FAMILY**

Chamaesyce albomarginata – rattlesnake weed

***FABACEAE* – PEA FAMILY**

Lathyrus vestitus – sweet pea
Lotus scoparius var. *scoparius* – deerweed
Lupinus sp. – lupine
Pickeringia montana var. *tomentosa* – chaparral-pea
Trifolium sp. – clover

***FAGACEAE* – OAK FAMILY**

Quercus agrifolia var. *agrifolia* – coast live oak, encina
Quercus berberidifolia – scrub oak

***GENTIANACEAE* – GENTIAN FAMILY**

Centaurium venustum – canchalagua

***GERANIACEAE* – GERANIUM FAMILY**

* *Erodium botrys* – long-beak filaree/storksbill
* *Erodium cicutarium* – red-stemmed filaree/storksbill

***GROSSULARIACEAE* – CURRANT FAMILY**

Ribes sp. – gooseberry

***HYDROPHYLLACEAE* – WATERLEAF FAMILY**

Eriodictyon trichocalyx var. *trichocalyx* – hairy yerba santa
Phacelia cicutaria – caterpillar phacelia
Phacelia parryi – Parry's phacelia

***LAMIACEAE* – MINT FAMILY**

Salvia apiana – white sage
Salvia mellifera – black sage
Stachys ajugoides var. *rigida* – hillside hedge-nettle

***MALVACEAE* – MALLOW FAMILY**

Malacothamnus fasciculatus – chaparral bushmallow
* *Malva parviflora* – cheeseweed, little mallow
Sidalcea malviflora – checker-bloom

***NYCTAGINACEAE* – FOUR O'CLOCK FAMILY**

Mirabilis laevis var. *crassifolia* – wishbone bush

***ONAGRACEAE* – EVENING-PRIMROSE FAMILY**

Clarkia purpurea – clarkia
Epilobium canum ssp. *canum* – California fuchsia, zauchernia

***OXALIDACEAE* – WOOD-SORREL FAMILY**

Oxalis albicans – California wood-sorrel

***PAPAVERACEAE* – POPPY FAMILY**

Eschscholzia californica – California poppy
Romneya trichocalyx – hairy matilija poppy

***PLANTAGINACEAE* – PLANTAIN FAMILY**

* *Plantago* sp. – plantain

***PLATANACEAE* – SYCAMORE FAMILY**

Platanus racemosa – western sycamore

***POLYGONACEAE* – BUCKWHEAT FAMILY**

Chorizanthe fimbriata – fringed spineflower
Chorizanthe staticoides – Turkish rugging
Eriogonum fasciculatum var. *foliolosum* – California buckwheat
* *Rumex crispus* – curly dock

***PORTULACACEAE* – PURSLANE FAMILY**

Claytonia perfoliata – miner's-lettuce

***PRIMULACEAE* – PRIMROSE FAMILY**

Dodecatheon clevelandii ssp. *clevelandii* – Padre’s shooting star

***RANUNCULACEAE* – CROWFOOT FAMILY**

Clematis pauciflora – ropevine
Delphinium cardinale – cardinal or scarlet larkspur
Delphinium parryi ssp. *parryi* – Parry's larkspur

***RHAMNACEAE* – BUCKTHORN FAMILY**

Ceanothus oliganthus var. *oliganthus* – hairy lilac
Ceanothus tomentosus – Ramona-lilac
Rhamnus crocea – spiny redberry
Rhamnus ilicifolia – holly-leaf redberry

***ROSACEAE* – ROSE FAMILY**

Adenostoma fasciculatum – chamise
Cercocarpus minutiflorus – San Diego mountain-mahogany
Heteromeles arbutifolia – toyon, Christmas berry
Prunus ilicifolia – islay, holly-leaf cherry
Rosa californica – California rose
Rosa minutifolia – small-leaved rose

***RUBIACEAE* – MADDER FAMILY**

Galium angustifolium – narrow-leaved bedstraw

***SALICACEAE* – WILLOW FAMILY**

Salix gooddingii – Goodding's black willow
Salix laevigata – red willow

***SCROPHULARIACEAE* – FIGWORT FAMILY**

Antirrhinum nuttallianum ssp. *nuttallianum* – Nuttall's snapdragon
Castilleja affinis ssp. *affinis* – coast paintbrush
Keckiella cordifolia – climbing bush penstemon
Mimulus aurantiacus – coast monkey flower, bush monkey flower
Mimulus brevipes – slope semaphore
Mimulus cardinalis – scarlet monkey flower
Scrophularia californica var. *floribunda* – California figwort

***SOLANACEAE* – NIGHTSHADE FAMILY**

Solanum douglasii – Douglas' nightshade

***TAMARICACEAE* – TAMARISK FAMILY**

* *Tamarix ramosissima* – salt-cedar, Mediterranean tamarisk

ANGIOSPERMAE (MONOCOTYLEDONES)

***CYPERACEAE* – SEDGE FAMILY**

* *Cyperus* sp. – flatsedge

***IRIDACEAE* – IRIS FAMILY**

Sisyrinchium bellum – blue-eyed-grass

***JUNCACEAE* – RUSH FAMILY**

Juncus acutus ssp. *leopoldi*- southwestern spiny rush

***LILIACEAE* – LILY FAMILY**

Brodiaea sp. – brodiaea
Calochortus dunnii – Dunn's mariposa lily
Calochortus splendens – splendid mariposa lily
Calochortus weedii var. *weedii* – Weed's mariposa lily
Dichelostemma capitatum ssp. *capitatum* – blue dicks
Yucca whipplei – our lord's candle

***POACEAE* – GRASS FAMILY**

Achnatherum coronatum – giant stipa
Agrostis sp. – bent grass
* *Avena barbata* – slender wild oat
* *Brachypodium distachyon* – purple falsebrome
* *Bromus diandrus* – ripgut grass
* *Bromus hordeaceus* – soft chess
* *Bromus madritensis* ssp. *rubens* – foxtail chess
* *Cortaderia selloana* – pampas grass
* *Gastridium ventricosum* – nit grass
Hordeum sp. – barley
* *Lolium perenne.* – perennial ryegrass
Melica imperfecta – coast range melic
Muhlenbergia rigens – deergrass
Muhlenbergia microsperma – littleseed muhly
Nassella pulchra – purple needlegrass
* *Phalaris aquatica* – harding grass
* *Polypogon monspeliensis* – annual beard grass
* *Vulpia myuros* – rattail fescue

***THEMIDACEAE* – BRODIAEA FAMILY**

Muilla clevelandii – San Diego goldenstar

***TYPHACEAE* – CATTAIL FAMILY**

Typha domingensis – slender cattail

* signifies introduced (non-native) species

INTENTIONALLY LEFT BLANK

APPENDIX C

Wildlife Species Observed or Detected at Otay Ranch Preserve – Salt Creek

APPENDIX C
Wildlife Species Observed or Detected at Otay Ranch Preserve – Salt Creek

VERTEBRATES

REPTILES

***IGUANIDAE* – IGUANID LIZARDS**

Sceloporus occidentalis – western fence lizard
Uta stansburiana – side-blotched lizard

***TEIIDAE* – WHIPTAIL LIZARDS**

Aspidoscelis hyperythrus – orange-throated whiptail

***ANGUIDAE* – ALLIGATOR LIZARDS**

Gerrhonotus multicarinatus – southern alligator lizard

***COLUBRIDAE* – COLUBRID SNAKES**

Lampropeltis getulus – common kingsnake
Tantilla planiceps – western black-headed snake
Thamnophis hammondii – two-striped garter snake

***VIPERIDAE* – VIPERS**

Crotalus atrox – western diamondback rattlesnake
Crotalus ruber – red-diamond rattlesnake

BIRDS

***ARDEIDAE* – HERONS**

Butorides virescens – green heron
Nycticorax nycticorax – black-crowned night-heron

***ANATIDAE* – WATERFOWL**

Anas platyrhynchos – mallard

***CATHARTIDAE* – NEW WORLD VULTURES**

Cathartes aura – turkey vulture
Circus cyaneus – Northern harrier

***ACCIPITRIDAE* – HAWKS**

Accipiter cooperii – Cooper's hawk

Accipiter striatus – sharp-shinned hawk
Buteo jamaicensis – red-tailed hawk
Buteo lineatus – red-shouldered hawk
Circus cyaneus – Northern harrier

***FALCONIDAE* – FALCONS**
Falco sparverius – American kestrel

***PHASIANIDAE* – PHEASANTS AND QUAILS**
Callipepla californica – California quail

***CHARADRIIDAE* – PLOVERS**
Charadrius vociferus – killdeer

***RALLIDAE* – RAILS AND GALLINULES**
Fulica americana – American coot

***LARIDAE* – GULLS AND TERNS**
Larus sp. – gull

***COLUMBIDAE* – PIGEONS AND DOVES**
* *Columba livia* – rock dove
Zenaida macroura – mourning dove

***CUCULIDAE* – CUCKOOS AND ROADRUNNERS**
Geococcyx californianus – greater roadrunner

***STRIGIDAE* – TRUE OWLS**
Bubo virginianus – great horned owl

***CAPRIMULGIDAE* – GOATSUCKERS**
Chordeiles acutipennis – lesser nighthawk

***TROCHILIDAE* – HUMMINGBIRDS**
Calypte anna – Anna's hummingbird
Calypte costae – Costa's hummingbird

***TYRANNIDAE* – TYRANT FLYCATCHERS**
Sayornis nigricans – black phoebe
Sayornis saya – Say's phoebe
Myiarchus cinerascens- ash-throated flycatcher

Tyrannus vociferans – Cassin's kingbird
Tyrannus verticalis – western kingbird

***PICIDAE* – WOODPECKERS**
Colaptes auratus – Northern flicker
Picoides nuttallii - Nuttall's woodpecker

***ALAUDIDAE* – LARKS**
Eremophila alpestris – horned lark

***HIRUNDINIDAE* – SWALLOWS**
Petrochelidon pyrrhonota – cliff swallow
Stelgidopteryx serripennis – northern rough-winged swallow
Tachycineta thalassina – violet-green swallow

***CORVIDAE* – JAYS AND CROWS**
Aphelocoma californica – western scrub-jay
Corvus brachyrhynchos – American crow
Corvus corax – common raven

***AEGITHALIDAE* – BUSHTITS**
Psaltriparus minimus – bushtit

***TROGLODYTIDAE* – WRENS**
Campylorhynchus brunneicapillus – cactus wren
Cistothorus palustris – marsh wren
Thryomanes bewickii – Bewick's wren
Troglodytes aedon – house wren

***SYLVIIDAE* – GNATCATCHERS**
Polioptila caerulea – blue-gray gnatcatcher
Polioptila californica – California gnatcatcher

***TIMALIIDAE* – LAUGHINGTHRUSH AND WRENTIT**
Chamaea fasciata – wrentit

***MIMIDAE* – THRASHERS**
Mimus polyglottos – northern mockingbird
Toxostoma redivivum – California thrasher

***PTILOGONATIDAE* – SILKY-FLYCATCHERS**

Phainopepla nitens – phainopepla

***STURNIDAE* – STARLINGS**

* *Sturnus vulgaris* – European starling

***VIREONIDAE* – VIREOS**

Vireo bellii pusillus – least Bell's vireo

***PARULIDAE* – WOOD WARBLERS**

Dendroica coronata – yellow-rumped warbler
Geothlypis trichas – common yellowthroat
Icteria virens – yellow-breasted chat
Dendroica petechia brewsteri - yellow warbler

***EMBERIZIDAE* – BUNTINGS AND SPARROWS**

Aimophila ruficeps – rufous-crowned sparrow
Ammodramus savannarum – grasshopper sparrow
Amphispiza belli belli – Bell's sage sparrow
Chondestes grammacus – lark sparrow
Melospiza melodia – song sparrow
Passerculus sandwichensis – Savannah sparrow
Pipilo crissalis – California towhee
Pipilo maculatus – spotted towhee
Zonotrichia leucophrys – white-crowned sparrow

***CARDINALIDAE* – CARDINALS AND GROSBEAKS**

Passerina caerulea – blue grosbeak

***ICTERIDAE* – BLACKBIRDS AND ORIOLES**

Agelaius phoeniceus – red-winged blackbird
Icterus bullockii – Bullock's oriole
Sturnella neglecta – western meadowlark

***FRINGILLIDAE* – FINCHES**

Carpodacus mexicanus – house finch
Carduelis psaltria – lesser goldfinch

MAMMALS

***LEPORIDAE* – HARES AND RABBITS**

Lepus californicus bennettii – San Diego black-tailed jackrabbit
Sylvilagus bachmani – brush rabbit

***SCIURIDAE* – SQUIRRELS**

Spermophilus beecheyi – California ground squirrel

***GEOMYIDAE* – POCKET GOPHERS**

Thomomys bottae – Botta's pocket gopher

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

Chaetodipus californicus - California pocket mouse

***MURIDAE* – RATS AND MICE**

Microtis californicus – California vole
Neotoma sp. – woodrat (midden)
Peromyscus maniculatus – deer mouse

***CANIDAE* – WOLVES AND FOXES**

Canis latrans – coyote

***PROCYONIDAE* – RACCOONS AND RELATIVES**

Procyon lotor – common raccoon

***FELIDAE* – CATS**

Felis concolor – mountain lion (scat)
Lynx rufus – bobcat

***CERVIDAE* – DEERS**

Odocoileus hemionus – mule deer

WILDLIFE SPECIES – INVERTEBRATES

BUTTERFLIES AND MOTHS

***HESPERIIDAE* – SKIPPERS**

Erynnis funeralis – funereal duskywing

***PAPILIONIDAE* – SWALLOWTAILS**

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

***PIERIDAE* – WHITES AND SULFURS**

Anthocharis sara sara – Pacific Sara orangetip
Colias eurytheme – orange sulfur
Colias Eurydice – California dogface
Pieris rapae rapae – cabbage butterfly
Pontia protodice – checkered white

***RIODINIDAE* – METALMARKS**

Apodemia mormo virgulti – Behr's metalmark

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

Brephidium exile – western pygmy blue
Callophrys dumetorum perplexa – perplexing hairstreak
Glaucopsyche lygdamus australis – southern blue
Icaria acmon acmon – acmon blue

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

Chlosyne gabbii gabbii – Gabb's checkerspot
Coenonympha californica californica – California ringlet
Danaus gilippus – queen
Euphydryas editha quino – quino checkerspot
Junonia coenia – buckeye
Vanessa annabella – west coast lady
Vanessa atalanta – red admiral
Vanessa cardui – painted lady
Vanessa virginiensis – Virginia lady

ARACHNIDS

***THERAPHOSIDAE* - TARANTULAS**

Aphonopelma sp. – tarantula species

* signifies introduced (non-native) species

APPENDIX D

Wildlife Species Observed or Detected at Otay Ranch Preserve – San Ysidro

APPENDIX D
Wildlife Species Observed or Detected at Otay Ranch Preserve – San Ysidro

VERTEBRATES

REPTILES

***IGUANIDAE* – IGUANID LIZARDS**

Phrynosoma coronatum – coast horned lizard
Sceloporus occidentalis – western fence lizard
Uta stansburiana – side-blotched lizard

***PHRYNOSOMATIDAE* – SPINY LIZARDS**

Sceloporus orcutti - granite spiny lizard

***TEIIDAE* – WHIPTAIL LIZARDS**

Aspidoscelis tigris stejnegeri –coastal whiptail

***SCINCIDAE* – SKINKS**

Plestiodon skiltonianus – western skink

***ANGUIDAE* – ALLIGATOR LIZARDS**

Gerrhonotus multicarinatus – southern alligator lizard

***COLUBRIDAE* – COLUBRID SNAKES**

Masticophis lateralis – California whipsnake
Salvadora hexalepis virgultea – coast patch-nosed snake

***VIPERIDAE* – VIPERS**

Crotalus atrox – western diamondback rattlesnake

BIRDS

***PODICIPEDIDAE* – GREBES**

Aechmophorus occidentalis – western grebe

***ARDEIDAE* – HERONS**

Ardea alba – great egret

***ACCIPITRIDAE* – HAWKS**

Accipiter cooperii – Cooper's hawk
Buteo jamaicensis – red-tailed hawk
Circus cyaneus – Northern harrier
Pandion haliaetus – osprey

***FALCONIDAE* – FALCONS**

Falco sparverius – American kestrel

***PHASIANIDAE* – PHEASANTS AND QUAILS**

Callipepla californica – California quail

***RALLIDAE* – RAILS AND GALLINULES**

Fulica americana – American coot

***LARIDAE* – GULLS AND TERNS**

Larus sp. – gull

***COLUMBIDAE* – PIGEONS AND DOVES**

* *Columba livia* – rock dove
Zenaida macroura – mourning dove

***CUCULIDAE* – CUCKOOS AND ROADRUNNERS**

Geococcyx californianus – greater roadrunner

***TYTONIDAE* – BARN OWLS**

Tyto alba – barn owl

***STRIGIDAE* – TRUE OWLS**

Bubo virginianus – great horned owl

***APODIDAE* – SWIFTS**

Aeronautes saxatalis – white-throated swift

***TROCHILIDAE* – HUMMINGBIRDS**

Calypte anna – Anna's hummingbird
Calypte costae – Costa's hummingbird
Selasphorus rufus – rufous hummingbird

***HIRUNDINIDAE* – SWALLOWS**

Petrochelidon pyrrhonota – cliff swallow

***CORVIDAE* – JAYS AND CROWS**

Corvus brachyrhynchos – American crow
Corvus corax – common raven

***AEGITHALIDAE* – BUSHTITS**

Psaltriparus minimus – bushtit

***TROGLODYTIDAE* – WRENS**

Cistothorus palustris – marsh wren
Salpinctes obsoletus – rock wren

***SYLVIIDAE* – GNATCATCHERS**

Polioptila californica – California gnatcatcher

***TIMALIIDAE* – LAUGHINGTHRUSH AND WRENTIT**

Chamaea fasciata – wrentit

***MIMIDAE* – THRASHERS**

Mimus polyglottos – northern mockingbird

***LANIIDAE* – SHRIKES**

Lanius ludovicianus – loggerhead shrike

***EMBERIZIDAE* – BUNTINGS AND SPARROWS**

Aimophila ruficeps – rufous-crowned sparrow
Ammodramus savannarum – grasshopper sparrow
Chondestes grammacus – lark sparrow
Pipilo crissalis – California towhee
Pipilo maculatus – spotted towhee
Zonotrichia leucophrys – white-crowned sparrow

***CARDINALIDAE* – CARDINALS AND GROSBEAKS**

Passerina caerulea – blue grosbeak

***ICTERIDAE* – BLACKBIRDS AND ORIOLES**

Sturnella neglecta – western meadowlark

***FRINGILLIDAE* – FINCHES**

Carpodacus mexicanus – house finch
Carduelis psaltria – lesser goldfinch

MAMMALS

***LEPORIDAE* – HARES AND RABBITS**

Lepus californicus bennettii – San Diego black-tailed jackrabbit
Sylvilagus bachmani – brush rabbit

***SCIURIDAE* – SQUIRRELS**

Spermophilus beecheyi – California ground squirrel

***GEOMYIDAE* – POCKET GOPHERS**

Thomomys bottae – Botta's pocket gopher

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

Dipodomys agilis – agile (Pacific) kangaroo rat
Dipodomys merriami – Merriam's kangaroo rat

***MURIDAE* – RATS AND MICE**

Neotoma sp. – woodrat (midden)
Peromyscus maniculatus – deer mouse

***CANIDAE* – WOLVES AND FOXES**

Canis latrans – coyote
Urocyon cinereoargenteus – gray fox

***PROCYONIDAE* – RACCOONS AND RELATIVES**

Procyon lotor – common raccoon

***FELIDAE* – CATS**

Felis concolor – mountain lion (scat)
Lynx rufus – bobcat

***CERVIDAE* – DEERS**

Odocoileus hemionus – mule deer

WILDLIFE SPECIES – INVERTEBRATES

BUTTERFLIES AND MOTHS

***HESPERIIDAE* – SKIPPERS**

Erynnis funeralis – funereal duskywing

***PAPILIONIDAE* – SWALLOWTAILS**

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

***PIERIDAE* – WHITES AND SULFURS**

Anthocharis sara sara – Pacific Sara orangetip
Colias eurytheme – orange sulfur

Pieris rapae rapae – cabbage butterfly
Pontia protodice – checkered white
Pontia sisymbrii – California white

***RIODINIDAE* – METALMARKS**

Apodemia mormo virgulti – Behr's metalmark

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

Brephidium exile – western pygmy blue
Callophrys dumetorum perplexa – perplexing hairstreak
Glaucopsyche lygdamus australis – southern blue
Icaria acmon acmon – acmon blue
Incisalia augustinus iriodes – western brown elfin
Leptotes marina – marine blue

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

Chlosyne gabbii gabbii – Gabb's checkerspot
Coenonympha californica californica – California ringlet
Euphydryas editha quino – quino checkerspot
Junonia coenia – buckeye
Vanessa annabella – west coast lady
Vanessa atalanta – red admiral
Vanessa cardui – painted lady
Vanessa virginiensis – Virginia lady

ARACHNIDS

***THERAPHOSIDAE* - TARANTULAS**

Aphonopelma sp. – tarantula species

* signifies introduced (non-native) species

APPENDIX E

Sensitive Plant Species Detected or Potentially Occurring at Otay Ranch Preserve

APPENDIX E
Sensitive Plant Species Detected or Potentially Occurring at Otay Ranch Preserve

Scientific Name	Common Name	Status Federal/ State/ County	CNPS	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Acanthomintha ilicifolia	San Diego thorn-mint	FT/SE/ MSCP NE	1B.1	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; clay/ annual herb/ April–June/ 30–3,150 feet (ft.)	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Achnatherum diegoense	San Diego County needle grass	None/None/ None	4.2	Chaparral, coastal scrub; rocky, often mesic/ perennial herb/ February–June/ 30–2,300 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Adolphia californica	California adolphia	None/None/ None	2.1	Chaparral, coastal scrub, valley and foothill grassland; clay/ deciduous shrub/ December–May/ 150–2,430 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Agave shawii	Shaw's agave	None/None/ MSCP NE	2.1	Coastal bluff scrub, coastal scrub/ leaf succulent/September–May/ 30–250 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Ambrosia chenopodiifolia	San Diego bur-sage	None/None/ None	2.1	Coastal scrub/ shrub/ April–June/ 180–500 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Ambrosia monogyra	Singlewhort burrobrush	None/None/ None	2.2	Chaparral, Sonoran desert scrub; sandy/ shrub/ August–November/ 30–1,650 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Ambrosia pumila	Dwarf burr ambrosia	FE/None/ MSCP NE	1B.1	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; often disturbed, sometimes alkaline/ rhizomatous herb/ May –October/ 60–1,360 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Aphanisma blitoides	Aphanisma	None/None/ MSCP	1B.2	Coastal bluff scrub, coastal dunes, coastal scrub; sandy/ annual herb/ March –June/ <1,000 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Arctostaphylos glandulosa ssp. *crassifolia*	Del Mar manzanita	FE/ None/ MSCP	1B.1	Maritime chaparral; sandy/ evergreen shrub/ December–June/ < 1,200 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.

Scientific Name	Common Name	Status Federal/ State/ County	CNPS	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Arctostaphylos otayensis	Otay manzanita	None/None/ MSCP	1B.2	Chaparral, cismontane woodland; metavolcanic/ evergreen shrub/ January–March/ 900–5,600 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Artemisia palmeri	San Diego sagewort	None/None/ None	4.2	Chaparral, coastal scrub, riparian forest, scrub, and woodland; sandy, mesic/ deciduous shrub/ May–September/ 50–3,000 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Asplenium vespertinum	Western spleenwort	None/None/ None	4.2	Chaparral, cismontane woodland, coastal scrub; rocky/ February–June/ 600–3,300 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Astragalus deanei	Dean's milk-vetch	None/None/ None	1B.1	Chaparral, coastal scrub, riparian forest / perennial herb/ February–May/ 250–2,200 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Astragalus oocarpus	San Diego milk-vetch	None/None/ None	1B.2	Chaparral (openings), cismontane woodland/perennial herb/ May–August/ 1,000–5,000 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Astragalus tener var. *titi*	Coastal dunes milk-vetch	FE/SE/ MSCP	1B.1	Coastal bluff scrub, coastal dunes, coastal prairie; mesic, often vernally mesic/ annual herb/ March–May/ < 170 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Atriplex coulteri	Coulter's saltbush	None/None/ None	1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland; alkaline or clay/ perennial herb/ March–October/ 10–1,500 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Atriplex pacifica	South Coast saltscale	None/None/ None	1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, playas/ annual herb/ March–October/ < 500 ft.	One individual on a slope in the central portion of the site, another individual in the west-central portion, and seven individuals in two separate occurrences mapped along the eastern boundary.	Not expected; would have been detected during surveys.

Scientific Name	Common Name	Status Federal/ State/ County	CNPS	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Baccharis vanessae	Encinitas baccharis	FT/SE/ MSCP NE	1B.1	Chaparral, cismontane woodland; sandstone/ deciduous shrub/ August–November/ 200–2,400 ft.	Low potential to occur. Not observed during surveys however timing of the surveys was not optimal for detection.	Moderate potential to occur. Not observed during surveys however timing of the surveys was not optimal for detection and there is a recorded occurrence on Otay Mountain, which has a similar elevation.
Berberis nevinii	Nevin's barberry	FE/SE/ MSCP NE	1B.1	Chaparral, cismontane woodland, coastal scrub, riparian scrub; sandy or gravelly/ shrub/ March–April/ 900–2,700 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Bergerocactus emoryi	Golden-spined cereus	None/None/ None	2.2	Closed–cone conifer forest, chaparral, coastal scrub; sandy/ shrub/ May–June/ 10–1,300 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Bloomeria (=*Muilla*) *clevelandii*	San Diego goldenstar	None/None/ MSCP	1B.1	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; clay/ bulbiferous herb/ April–May/ 160–1,550 ft.	Not expected; would have been detected during surveys.	Occurs throughout the site with the exception of the western and southeastern portions. Occurrences varied from as little as six individuals to much larger areas consisting of thousands of individuals.
Brodiaea filifolia	Thread-leaved brodiaea	FT/SE/ MSCP NE	1B.1	Chaparral (openings) cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools; often clay/ bulbiferous herb/ March–June/ 400–2,800 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.

Scientific Name	Common Name	Status Federal/ State/ County	CNPS	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Brodiaea orcuttii	Orcutt's brodiaea	None/None/ MSCP NE	1B.1	Closed–cone conifer forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools; mesic, clay, sometimes serpentine/ bulbiferous herb/ May–July/ 100–5,550 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Calandrinia breweri	Brewer's calandrinia	None/None/ None	4.2	Chaparral, coastal scrub; sandy or loamy, disturbed sites and burns/ annual herb/ March–June/ 30–4,000 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Calamagrostis koelerioides = (=densa)	Dense reed grass	None/None/ MSCP	None	Chaparral, yellow pine forest; dry hills/ rhizomatous perennial/ June – July/ < 3,000– 4,000 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
California (=*Erodium*) *macrophyllum*	Round-leaved filaree	None/None/ None	1B.1	Cismontane woodland, valley and foothill grassland; clay / annual herb/ March–May/ 50–4,000 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Calitropsis (=*Cupressus*) *forbesii*	Tecate cypress	None/None/ MSCP	1B.1	Closed–cone conifer forest, chaparral/ evergreen tree/ NA/ 800–5,900 ft.	Fourteen localities, generally numbering between 25 and 50 individuals, were mapped in the southwestern portion of the site.	Two occurrences, generally numbering between 25 and 50 individuals, were mapped in the west-central portion of the site, one in the disturbed wetlands in the north-eastern portion of the site, and two occurrences in the south-eastern corner of the site. Five individuals were mapped in the south-central portion of the site.

Scientific Name	Common Name	Status Federal/ State/ County	CNPS	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Calochortus dunnii	Dunn's mariposa lily	None/SR/ MSCP NE	1B.2	Closed–cone conifer forest, chaparral; gabbroic or metavolcanic/ bulbiferous herb/ April–June/ 1,250–6,000 ft.	Not expected; would have been detected during surveys.	Approximately 300 individuals were observed in the south-central portion of the site.
Camissonia lewisii	Lewis's evening primrose	None/None/ None	3	Coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland; sandy or clay/ annual herb/ March–May (June)/ <1,000 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Caulanthus simulans	Payson's jewel-flower	None/None/ None	4.2	Chaparral, coastal scrub; sandy and granitic/ annual herb/ (Feb) March–May (June)/ 300–7,200 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Caulanthus stenocarpus (=*C. heterophyllus* var. *hertophyllus*)	Slender-pod jewel-flower	None/None/ MSCP	None	Chaparral, coastal scrub/ annual herb; fire follower/ annual herb/ March–May/ < 4,250 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Ceanothus cyaneus	Lakeside ceanothus	None/None/ MSCP NE	1B.2	Closed–cone conifer forest, chaparral/ evergreen shrub/ April–June/ 770–2,500 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Ceanothus otayensis	Otay Mountain ceanothus	None/None/ None	1B.2	Chaparral; metavolcanic or gabbroic/ evergreen shrub / January–April/ 2,000 – 3,600 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Ceanothus verrucosus	Wart-stemmed ceanothus	None/None/ MSCP	2.2	Chaparral/ evergreen shrub/ December–May/ < 1,250 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	None/ None/ None	1B.1	Coastal bluff scrub, coastal dunes/ annual herb/ January –August/ 10–330 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Chamaebatia australis	Southern mountain misery	None/None/ None	4.2	Chaparral; gabbroic or metavolcanic/ evergreen shrub/ November–May/ 1,000–2,300 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.

Scientific Name	Common Name	Status Federal/ State/ County	CNPS	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Chorizanthe procumbens var. *albiflora* (current name = *C. procumbens)*	Fallbrook spineflower	None/None/ None	None	Coastal scrub, chaparral/ annual, perennial herb/ April–June/ <2,625 ft	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Chorizanthe leptotheca	Peninsular spineflower	None/None/ None	4.2	Chaparral, coastal scrub, lower montane conifer forest; alluvial fan, granitic/ annual herb/ May–August/ 1,000–6,300 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Clarkia delicata	Delicate clarkia	None/None/ None	1B.2	Chaparral, cismontane woodland/ annual herb/ April–June/ 770–3,300 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Comarostaphylis diversifolia ssp. *diversifolia*	Summer-holly	None/None/ None	1B.2	Chaparral, cismontane woodland/ evergreen shrub/ April–June/ 100–1,800 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Convolvulus simulans	Small-flowered morning-glory	None/None/ None	4.2	Chaparral (openings), coastal scrub, valley and foothill grassland; clay, serpentinite seeps/ annual herb/ March–July/ 100–2,300 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Cordylanthus maritimus ssp. *maritimus*	Salt marsh bird's-beak	FE/SE/ MSCP NE	1B.2	Coastal dunes, coastal saltwater marshes and swamps/ annual herb; hemiparisitic / May–October/ < 100 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Cordylanthus orcuttianus	Orcutt's bird's-beak	None/None/ MSCP	2.1	Coastal scrub/ annual herb/ (Mar) April–July (Sept)/ 30–1,150 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Cordylanthus parviflorus	Small-flowered bird's-beak	None/None/ None	2.3	Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland / hemiparasitic annual herb / August–October / 2,300 – 7,300 ft.	Not expected; no suitable habitat on site and outside elevational range.	Not expected; no suitable habitat on site and outside elevational range.

Scientific Name	Common Name	Status Federal/ State/ County	CNPS	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Coreopsis maritima	Sea dahlia	None/None/ None	2.2	Coastal bluff scrub, coastal scrub/ perennial herb/ March–May/ 15–500 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Corethrogyne filaginifolia var. *incana*	San Diego sand aster	None/None/ None	1B.1	Chaparral, coastal bluff scrub, coastal scrub/ perennial herb/ June–September/ 10–380 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Corethrogyne filaginifolia var. *linifolia*	Del Mar Mesa sand aster	None/None/ MSCP	1B.1	Coastal bluff scrub, maritime chaparral (openings), coastal scrub; sandy/ perennial herb/ May–September/ 10–380 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Deinandra [=*Hemizonia*] *conjugens*	Otay tarplant	FT/SE/ MSCP NE	1B.1	Coastal scrub, valley and foothill grassland; clay/ annual herb/ May–June/ 80–1,000 ft.	Not expected; would have been detected during surveys.	Not expected; would have been detected during surveys.
Deinandra [=*Hemizonia*] *floribunda*	Tecate tarplant	None/None/ None	1B.2	Chaparral, coastal scrub/ annual herb/ August–October/ 230–4,000 ft.	Not expected; would have been detected during surveys. Outside species range.	Not expected; would have been detected during surveys. Outside species range.
Dichondra occidentalis	Western dichondra	None/None/ None	4.2	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/ rhizomatous herb/ March–May/ 160–1,650 ft.	One occurrence of approximately 25 individuals is mapped in the southeastern corner of the site.	There are three occurrences on site, including in the western portion, central portion, and east-central portion. Besides the easternmost occurrence, which consists of 5 individuals, occurrences typically include approximately 25 individuals.
Dudleya attenuata ssp. *orcuttii*	Orcutt's dudleya	None/None/ None	2.1	Coastal bluff scrub, chaparral, coastal scrub; rocky or gravelly/ perennial herb/ May–July/ < 165 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys

Scientific Name	Common Name	Status Federal/ State/ County	CNPS	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Dudleya blochmaniae spp. *blochmaniae*	Blochman's dudleya	None/None/ None	1B.1	Chaparral, coastal bluff scrub, coastal scrub, valley and foothill grassland, rocky; often clay or serpentinite/ perennial herb/ April–June/ 15–1,500 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Dudleya brevifolia	Short-leaved dudleya	None/SE/ MSCP NE	1B.1	Maritime chaparral (openings), coastal scrub, Torrey sandstone/ perennial herb/ April/ 100–800 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Dudleya variegata	Variegated dudleya	None/None/ MSCP NE	1B.2	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools; clay/ perennial herb/ April–June/ < 1,900 ft.	There is one occurrence that includes hundreds of individuals mapped just south of the one of the main roads in the northwestern portion of the site.	Not expected; would have been detected during surveys
Dudleya viscida	Sticky dudleya	None/None/ MSCP	1B.2	Coastal bluff scrub, chaparral, coastal scrub; rocky/ perennial herb/ May–June/ 30–1,800 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Ericameria palmeri ssp. *palmeri*	Palmer's goldenbush	None/None/ MSCP NE	2.2	Chaparral, coastal scrub; mesic/ evergreen shrub/ (July) September–November	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Eryngium aristulatum var. *hooveri*	Hoover's button-celery	None/None/ None	1B.1	Vernal pools/ annual–perennial herb/ July/ 10–150 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Eryngium aristulatum var. *parishii*	San Diego button-celery	FE/SE/ MSCP	1B.1	Coastal scrub, valley and foothill grassland, vernal pools, mesic/annual–perennial herb/ April–June/ 60–2,000 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Erysimum ammophilum	Sand-loving wallflower	None/None/ MSCP	1B.2	Maritime chaparral, coastal dunes, coastal scrub; sandy, openings/ perennial herb/ February–June/ <200 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys

Scientific Name	Common Name	Status Federal/ State/ County	CNPS	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Euphorbia misera	Cliff spurge	None/None/ None	2.2	Coastal bluff scrub, coastal scrub, Mojavean desert scrub; rocky/ shrub/ December–August/ 30–1,650 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Ferocactus viridescens	San Diego barrel cactus	None/None/ MSCP	2.1	Chaparral, coastal scrub, valley and foothill grassland, vernal pools/ perennial stem succulent/ May–June/ < 1,500 ft.	Commonly observed on site.	Commonly observed on site.
Frankenia palmeri	Palmer's frankenia	None/None/ None	2.1	Coastal dunes, coastal saltwater marsh and swamps, playas/ perennial herb/ May–July/ < 30 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Fraxinus parryi	Chaparral ash	None/None/ None	2.2	Chaparral/ shrub/ March–May/ 700–2,000 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Fremontodendron mexicanum	Mexican flannelbush	FE/SR/ None	1B.1	Closed–cone conifer forest, chaparral, cismontane woodland; gabbroic, metavolcanic, or serpentinite/ evergreen shrub/ March–June/ 30–2,400 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Grindelia hirsutula var. *hallii*	San Diego gumplant	None/None/ None	1B.2	Chaparral, lower montane conifer forest, meadows and seeps, valley and foothill grassland/ perennial herb/ July–October/ 600–5,700 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Harpagonella palmeri	Palmer's grapplinghook	None/None/ None	4.2	Chaparral, coastal scrub, valley and foothill grassland; clay/ annual herb/ March–May/ 60–3,100 ft.	There are ten localities, each numbering approximately 1,000 or more individuals, of Palmer's grapplinghook located centrally on the Salt Creek site that were incidentally recorded during April quino checkerspot butterfly surveys. This species likely occurs in additional areas on site.	Moderate potential to occur. Focused survey conducted after blooming period. Incidental recordings on Salt Creek.

Scientific Name	Common Name	Status Federal/ State/ County	CNPS	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Heterotheca sessiliflora ssp. *sessiliflora*	Beach goldenaster	None/None/ None	1B.1	Coastal dunes, coastal scrub, coastal chaparral/ annual herb/ July –November/ < 35 ft.	Not expected; would have been detected during surveys. Outside species range.	Not expected; would have been detected during surveys. Outside species range.
Holocarpha virgata ssp. *elongata*	Graceful tarplant	None/ None/ None	4.2	Chaparral, coastal scrub, cismontane woodland, chaparral , valley and foothill grassland/ annual herb/ May–November/ 200–3,600 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Horkelia truncata	Ramona horkelia	None/None/ None	1B.3	Chaparral, cismontane woodland, clay, gabbroic/ perennial herb/ May–June/ 1,300–4,300 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Isocoma menziesii var. *decumbens*	Decumbent goldenbush	None/None/ None	1B.2	Chaparral, coastal scrub (sandy, often disturbed areas)/ shrub/ April–November	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Iva hayesiana	San Diego marsh-elder	None/None/ None	2.2	Marshes and swamps, playas/ perennial herb/ April–November/ 30–1,650 ft.	Ninety-two occurrences, each typically between 25 and 50 individuals, were mapped throughout the drainages on Salt Creek. These are located primarily in the western and southern portion of the site.	Seven localities were mapped within one drainage in the north-central portion of the site. In general, localities included between 25 and 50 individuals.
Juglans californica	Southern California black walnut	None/None/ None	4.2	Chaparral, cismontane woodland, coastal scrub; alluvial/ deciduous tree/ March–August/ 160–3,000 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Juncus acutus spp. *leopoldii*	Southwestern spiny rush	None/None/ None	4.2	Coastal dunes(mesic), meadows and alkaline seeps, coastal saltwater marshes and swamps/ rhizomatous herb/ May–June/ <3,000 ft.	There are 59 occurrences, each typically numbering between 25 and 50 individuals that occur along the drainages on Salt Creek, primarily in the western and southern portions of the site.	Two localities of approximately 25 to 50 individuals occur in the eastern portion of San Ysidro and one individual is mapped at the edge of the southern mixed chaparral in the center of the site.

Scientific Name	Common Name	Status Federal/ State/ County	CNPS	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	None/None/ None	1B.1	Saltwater marsh and swamps, playas, vernal pools/ annual herb/ February–June/ <4,000 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Lathyrus splendens	Pride-of-California	None/None/ None	4.3	Chaparral/ perennial herb/ May–June/ 650–5,000 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Lepechinia cardiophylla	Heart-leaved pitcher sage	None/None/ MSCP	1B.2	Closed–cone conifer forest, chaparral, cismontane woodland/ shrub/ April–July/ 1,700–4,500 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Lepechinia ganderi	Gander's pitcher sage	None/None/ MSCP NE	1B.3	Closed–cone conifer forest, chaparral, coastal scrub, valley and foothill grassland; gabbroic or metavolcanic/ shrub/ June–July/ 1,000–3,300 ft.	Low potential to occur. May not have been detectable at the time of focused surveys, but outside elevation range and site lacks suitable soils.	Low potential to occur. May not have been detectable at the time of focused surveys. Nearby locality recorded, but site lacks suitable soils.
Lepidium latipes var. *latipes*	Dwarf pepper-grass	None/None/ None	None	Alkaline soils, vernal pools, grasslands/ <2,600 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	None/None/ None	1B.2	Chaparral, coastal scrub/ annual herb/ January–July/ < 2,900 ft.	Approximately 12 samples were examined from throughout the two sites and none were confirmed as this variety; however, identification of this taxa is very difficult and different varieties can co-occur making a definitive absence determination difficult. A species-specific focused survey, conducted in early-spring would be required to make a definitive determination regarding this species.	Approximately 12 samples were examined from throughout the two sites and none were confirmed as this variety; however, identification of this taxa is very difficult and different varieties can co-occur making a definitive absence determination difficult. A species-specific focused survey, conducted in early-spring would be required to make a definitive determination regarding this species.

Scientific Name	Common Name	Status Federal/ State/ County	CNPS	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Lotus crassifolius var. *otayensis*	Otay Mountain lotus	None/None/ None	1B.1	Chaparral (metavolcanic, often in disturbed areas)/ perennial herb/ May–August/ 3,000–3,300 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Lotus nuttallianus	Nuttall's lotus	None/None/ MSCP	1B.1	Coastal dunes, coastal scrub; sandy/ annual herb/ March–June/ < 35 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Lycium californicum	California box-thorn	None/None/ None	4.2	Coastal bluff scrub, coastal scrub/ shrub/ (Dec) March–August/ 15–500 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Microseris douglasii var. *platycarpha*	Small-flowered microseris	None/None/ None	4.2	Cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools; clay/ annual herb/ March–May/ 50–3,500 ft.	Low potential to occur. Four samples were examined at the Salt Creek site and none were confirmed as this variety; however, identification of this taxa is very difficult at the time surveys were conducted. A species-specific focused survey, conducted in early-spring would be required to make a definitive determination regarding this species.	Moderate potential to occur. Timing of surveys made it difficult to identify this taxa. A species-specific focused survey, conducted in early-spring would be required to make a definitive determination regarding this species.
Mimulus aridus	Low bush monkeyflower	None/None/ None	4.3	Chaparral; rocky/ evergreen shrub/ April–July/50–3,500 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Mimulus clevelandii	Cleveland's bush monkeyflower	None/None/ None	4.2	Chaparral, cismontane woodland, ower montane conifer forest; gabbroic, often disturbed, openings, rocky/ perennial rhizomatous herb/ April–July/ 2,700–6,600 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Monardella hypoleuca ssp. *lanata*	Felt-leaved monardella	None/None/ MSCP NE	1B.2	Chaparral, cismontane woodland/ rhizomatous herb/ June–August/ 1,000–3,600 ft.	Low potential to occur. May not have been detectable at the time of focused surveys. Outside of elevation range.	Moderate potential to occur. May not have been detectable at the time of focused surveys.

Scientific Name	Common Name	Status Federal/ State/ County	CNPS	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Monardella stoneana	Jennifer's monardella	None/None/ None	1B.2	Closed–cone coniferous forest, chaparral, coastal scrub, riparian scrub; usually rocky intermittent streambeds/ perennial herb/ June–September/ 30–2,600 ft.	Low potential to occur. May not have been easily detectable during focused surveys.	Low potential to occur. May not have been easily detectable during focused surveys; however, an effort was made to detect this perennial species within suitable habitat.
Monardella viminea	Willowy monardella	FE/SE/ MSCP NE	1B.1	Chaparral, coastal scrub, riparian forest, woodland, and scrub; alluvial ephemeral washes/ perennial herb/ June–August/ 160–750 ft.	Low potential to occur. May not have been easily detectable during focused surveys.	Low potential to occur. May not have been easily detectable during focused surveys; however, an effort was made to detect this perennial species within suitable habitat.
Myosurus minimus ssp. *apus*	Little mousetail	None/None/ None	3.1	Vernal pools, valley and foothill grassland; alkaline/ annual herb/ March–June/ 60–2,100 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Nama stenocarpum	Mud nama	None/None/ None	2.2	Marshes and swamps, lake margins, riverbanks/ annual–perennial herb/ January–July/ 15–1,650 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Navarretia fossalis	Spreading navarretia	FT/ None/ MSCP	1B.1	Chenopod scrub, shallow freshwater marshes and swamps, playas, vernal pools/ annual herb/ April–June/ 100–4,300 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Navarretia prostrata	Prostrate navarretia	None/None/ None	1B.1	Coastal scrub, meadows and seeps, valley and foothill grassland (alkaline), vernal pools; mesic/annual herb/ April–July/ 50–2,300 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys

Scientific Name	Common Name	Status Federal/ State/ County	CNPS	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Nemacaulis denudata var. *denudata*	Coast woolly-heads	None/None/ None	1B.2	Coastal dunes/ annual herb/ April–September/ < 330 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Nemacaulis denudata var. *gracilis*	Slender woolly-heads	None/None/ None	2.2	Coastal dunes, desert dunes, Sonoran desert scrub/ annual herb/ (March)April–May/ 160–1,300 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Nolina interrata	Dehesa nolina	None/SE/ MSCP NE	1B.1	Chaparral; gabbroic, metavolcanic or serpentinite/ perennial herb/ June–July/ 600–2,800 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Ophioglossum californicum	California adder's-tongue	None/None/ None	4.2	Chaparral, valley and foothill grassland, vernal pools (margins); mesic/ rhizomatous herb/ (Dec)January–June/ 200–1,730 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Opuntia californica var. *californica*	Snake cholla	None/None/ MSCP NE	1B.1	Chaparral, coastal scrub/ stem succulent/ April–May/ 100–500 ft.	Five occurrences of individuals with characteristics of snake cholla (Cylindropuntia californica), totaling approximately 55 individuals, were mapped in the eastern portion of Salt Creek, south of the road that transverses the site. However, additional examination of this locality may be required. A definitive determination would require collections and a more in-depth review that was outside of the scope of the focused survey.	Not expected; would have been detected during surveys
Orcuttia californica	California Orcutt grass	FE/SE/ MSCP	1B.1	Vernal pools/ annual herb/ April–August/ 50–2,200 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Ornithostaphylos oppositifolia	Baja California birdbush	None/SE	2.1	Chaparral/ evergreen shrub/ January–April/180–2,600 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys

Scientific Name	Common Name	Status Federal/ State/ County	CNPS	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Orobanche parishii ssp. *brachyloba*	Short-lobed broom-rape	None/None/ None	4.2	Coastal bluff scrub, coastal dunes, coastal scrub; sandy/ perennial herb parasitic/ April –October/ <1,000 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Packera [=*Senecio*] *ganderi*	Gander's ragwort	None/ SR/ MSCP	1B.2	Chaparral (burns and gabbroic outcrops)/ perennial herb/ April–June/ 1,300–4,000 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Pentachaeta aurea spp. *allenii*	Allen's golden-rayed pentachaeta	None/None/ None	1B.1	Coastal scrub, valley and foothill grassland; openings/ annual herb/ March–June/ 250–1,700 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Pentachaeta aurea	Golden-rayed pentachaeta	None/None/ None	4.2	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland, valley and foothill grassland/ annual herb/ March–July/ 260–6,100 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Phacelia stellaris	Brand's phacelia	FC/ None	1B.1	Coastal dunes, coastal scrub/ annual herb/ March–June/ <1,300 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Physalis crassifolia	Greene's ground-cherry	None/None/ ?	None	Gravelly to rocky flates, washes, slopes/ perennial shrub or subshrub/ Mar–May/ < 4,200 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Pinus torreyana spp. *torreyana*	Torrey pine	None/None/ MSCP	1B.2	Closed–cone conifer forest, chaparral; sandstone/ evergreen tree/ NA/ 250–550 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Pogogyne abramsii	San Diego mesa mint	FE/ SE/ MSCP NE	1B.1	Vernal pools/ annual herb/ May–July/ 300–650 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Pogogyne nudiuscula	Otay Mesa mint	FE/ SE/ MSCP	1B.1	Vernal pools/ annual herb/ May–July/ 300–620 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys

Scientific Name	Common Name	Status Federal/ State/ County	CNPS	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Polygala cornuta var. *fishiae*	Fish's milkwort	None/None/ None	4.3	Chaparral, cismontane woodland, riparian woodland/ deciduous shrub/ May–August/ 330–3,600 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Quercus cedrosensis	Cedros Island oak	None/None/ None	2.2	Closed–cone coniferous forest, chaparral, coastal scrub/ evergreen tree/ April–May/ 830–1,600 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Quercus dumosa	Nuttall's scrub oak	None/None/ None	1B.1	Chaparral, coastal scrub, closed–cone coniferous forest; sandy, clay loam/ evergreen shrub/ February–April/ 50–1,300 ft.	Not expected; would have been detected during surveys. Previous identification at Salt Creek was not confirmed. Current identification is scrub oak (*Q. berberidifolia*).	Not expected; would have been detected during surveys
Quercus engelmannii	Engelmann oak	None/None/ None	4.2	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland/ deciduous tree/ March –June/ 400–4,250 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Ribes canthariforme	Moreno currant	None/None/ None	1B.3	Chaparral/ deciduous shrub/ February–April/ 1,100–3,950 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Ribes viburnifolium	Santa Catalina Island currant	None/None/ None	1B.2	Chaparral, cismontane woodland/ evergreem shrub/ February–April/ 100–1,000 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Romneya coulteri	Coulter's matilija poppy	None/None/ None	4.2	Chaparral, coastal scrub; often in burns/ rhizomatous herb/ March–July/ 60–4,000 ft.	Occurrences, including approximately 10 to 30 individuals, are scattered throughout Salt Creek with the majority in the southern portion of the site.	Not expected; would have been detected during surveys
Rosa minutifolia	Small-leaved rose	None/SE/ MSCP	2.1	Chaparral, coastal scrub/ deciduous shrub/ January–June/ 490–525 ft.	Not expected; would have been detected during surveys	Two individuals of small-leaved rose occur in the central portion of San Ysidro.

Scientific Name	Common Name	Status Federal/ State/ County	CNPS	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Saltugilia [=*Gilia*] *caruifolia*	Caraway-leaved gilia	None/None/ None	4.3	Chaparral, lower montane conifer forest; sandy, openings/ annual herb/ May–August/ 4,600–7,550 ft.	Outside of elevational range; low potential.	Outside of elevational range; low potential.
Salvia munzii	Munz's sage	None/None/ None	2.2	Chaparral, coastal scrub/ evergreen shrub/ February–April/ 400–3,500 ft.	Not expected; would have been detected during surveys	In the western portion of San Ysidro, 22 individuals were mapped at three separate localities within the same area.
Satureja chandleri	San Miguel savory	None/None/ MSCP	1B.2	Chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland; rocky, gabbroic or metavolcanic/ shrub/ March–July/ 400–3,550 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Selaginella cinerascens	Ashy leaved spike-moss	None/None/ None	None	Dry, open sites or under other plants/ plants mat–like/ <980 ft.	Occurs throughout much of the eastern portion of Salt Creek.	Occurs throughout much of the northern portion of San Ysidro.
Senecio aphanactis	Chaparral ragwort	None/None/ None	2.2	Chaparral, cismontane woodland, coastal scrub; sometimes alkaline/ annual herb/ January–April/ 50–2,630 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Solanum tenuilobatum	Narrow-leaved nightshade	None/None/ MSCP	None	Chaparral; dry open places/ herb or shrub/ March – April/ 3,300 – 9,000 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Stemodia durantifolia	Purple stemodia	None/None/ None	2.1	Sonoran desert scrub; often mesic, sandy/ perennial herb / January – December/ 600–1,000 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Suaeda esteroa	Estuary seablite	None/None/ None	1B.2	Coastal salt marshes and swamps/ perennial herb/ May–October (Jan)/ < 20 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys
Tetracoccus dioicus	Parry's tetracoccus	None/None/ MSCP	1B.2	Chaparral, coastal scrub/ deciduous shrub/ April–May/ 550–3,300 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys

Scientific Name	Common Name	Status Federal/ State/ County	CNPS	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Viguiera laciniata	San Diego County viguiera	None/None/ None	4.2	Chaparral, coastal scrub/ shrub/ February–June/ 200–2,460 ft.	There are 338 mapped occurrences throughout Salt Creek. Each occurrence of San Diego County sunflower typically numbers several hundred individuals.	There are 135 occurrences, typically numbering several hundred individuals, throughout San Ysidro.
Xanthisma junceum (=*Machaeranthera juncea*)	Rush-like bristleweed	None/None/ None	4.3	Chaparral, coastal scrub/ perennial herb/ June–January/ 780–3,300 ft.	Not expected; would have been detected during surveys	Not expected; would have been detected during surveys

FC = Federal candidate
FE = Federally listed as endangered
FT = Federally listed as threatened
MSCP = MSCP covered species
SE = State-listed as endangered
ST = State-listed as threatened
SR = State rare
? = unknown

APPENDIX F

Sensitive Wildlife Species Detected or Potentially Occurring at Otay Ranch Preserve

APPENDIX F
Sensitive Wildlife Species Detected or Potentially Occurring at Otay Ranch Preserve

Scientific Name Common Name	Status Federal/ State/ County	Habitat Preferences / Requirements	Verified on Site (Direct/ Indirect Evidence)	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Amphibians					
Bufo microscaphus californicus Arroyo southwestern toad	FE/ CSC/ Group 1, MSCP	Stream channels for breeding(typically 3rd order); adjacent stream terraces and uplands for foraging and wintering	N	Not expected to occur. No suitable habitat present.	Not expected to occur. No suitable habitat present.
Spea [=*Scaphiopus*] *hammondi* Western spadefoot	None/ CSC/ Group 2	Most common in grasslands, coastal sage scrub near rain pools or vernal pools; riparian habitat	N	Moderate to high potential to occur. Not observed during surveys; however no rain pools were present during surveys.	Moderate to high potential to occur. Not observed during surveys; however no rain pools were present during surveys.
Reptiles					
Anniella pulchra pulchra Silvery legless lizard	None/ CSC/ Group 2	Loose soils (sand, loam, humus) in coastal dune, coastal sage scrub, woodlands, and riparian habitats	N	Moderate to high potential to occur. Suitable habitat and soils on site. Not detected during surveys.	Moderate to high potential to occur. Suitable habitat and soils on site. Not detected during surveys.
Aspidoscelis hyperythra beldingi Orange-throated whiptail	None/ CSC/ Group 2, MSCP	Coastal sage scrub, chaparral, grassland, juniper and oak woodland; sandy soils, washes	Y – Salt Creek	Observed on site. Suitable habitat present on site.	Moderate to high potential to occur. Suitable habitat and soils on site. Not detected during surveys.
Aspidoscelis tigris stejnegeri Coastal western whiptail	None/ None/ Group 2	Coastal sage scrub, chaparral; sandy areas, gravelly arroyos, or washes	Y – San Ysidro	Moderate to high potential to occur. Suitable habitat and soils on site. Not detected during surveys.	Observed on site. Suitable habitat present on site.
Charina trivirgata roseofusca Rosy boa	None/ None/ Group 2	Rocky chaparral, coastal sage scrub, oak woodlands, desert and semi-desert scrub	N	Moderate to high potential to occur. Suitable habitat and rocky areas on site. Not detected during surveys.	Moderate to high potential to occur. Suitable habitat and rocky areas on site. Not detected during surveys.

Scientific Name Common Name	Status Federal/ State/ County	Habitat Preferences / Requirements	Verified on Site (Direct/ Indirect Evidence)	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Crotalus ruber rubber Northern red-diamond rattlesnake	None/ CSC/ Group 2	Variety of shrub habitats where there is heavy brush, large rocks, or boulders	Y – Salt Creek	Observed on site. Suitable habitat present on site.	Moderate to high potential to occur. Suitable habitat present on site.
Emys [=*Clemmys*] *marmorata pallida* Western pond turtle	None/ CSC/ Group 1, MSCP	Slow-moving permanent or intermittent streams, ponds, small lakes, reservoirs with emergent basking sites; adjacent uplands used during winter	N	Not expected to occur. No suitable habitat on site.	Not expected to occur. No suitable habitat on site.
Eumeces skiltonianus interparietalis Coronado skink	None/ CSC/ Group 2	Grassland, riparian and oak woodland; found in litter, rotting logs, under flat stones	N	Moderate to high potential to occur. Suitable habitat and rocky areas on site. Not detected during surveys.	Moderate to high potential to occur. Suitable habitat and rocky areas on site. Not detected during surveys.
Phrynosoma coronatum (blainvillei population) Coast (San Diego) horned lizard	None/ CSC/ Group 2, MSCP	Coastal sage scrub, annual grassland, chaparral, oak and riparian woodland, coniferous forest, sandy areas, washes, flood plains	Y – San Ysidro	Moderate to high potential to occur. Suitable habitat present on site. Not detected during surveys.	Observed on site. Suitable habitat present on site.
Salvadora hexalepis virgultea Coast patch-nosed snake	None/ CSC/ Group 2	Chaparral, washes, sandy flats, rocky areas	Y – San Ysidro	Moderate to high potential to occur. Suitable habitat present on site. Not detected during surveys.	Observed on site. Suitable habitat present on site.
Thamnophis hammondii Two-striped garter snake	None/ CSC/ Group 1	Marshes, meadows, sloughs, ponds, slow-moving water courses	Y – Salt Creek	Observed on site. Suitable habitat present on site.	Moderate to high potential to occur. Suitable habitat present on site. Not detected during surveys.

Scientific Name Common Name	Status Federal/ State/ County	Habitat Preferences / Requirements	Verified on Site (Direct/ Indirect Evidence)	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Birds					
Accipiter cooperii Cooper's hawk (nesting)	None/ CSC/ Group 1, MSCP	Riparian and oak woodlands, montane canyons	Y – Salt Creek and San Ysidro	Observed on site. Likely nesting on site.	Observed on site. Likely nesting on site.
Agelaius tricolor Tricolored blackbird	BCC, USBC/ CSC/ Group 1, MSCP	Nests near fresh water, emergent wetland with cattails or tules; forages in grasslands, woodland, agriculture	N	Moderate to high potential to occur. Suitable habitat present on site.	Moderate to high potential to occur. Suitable habitat present on site.
Aimophila ruficeps canescens Southern California rufous-crowned sparrow	None/ CSC/ Group 1	Grass-covered hillsides, coastal sage scrub, chaparral with boulders and outcrops	Y – Salt Creek and San Ysidro	Observed on site. Suitable habitat present on site.	Observed on site. Suitable habitat present on site.
Amphispiza belli belli Bell's sage sparrow	BCC/ CSC/ Group 1	Coastal sage scrub and dry chaparral along coastal lowlands and inland valleys	Y – Salt Creek	Observed on site. Suitable habitat present on site.	Moderate to high potential to occur. Suitable habitat present on site.
Ammodramus savannarum Grasshopper sparrow	None/ None/ Group 1	Restricted to native grassland	Y – Salt Creek and San Ysidro	Observed on site. Suitable habitat present on site.	Observed on site. Suitable habitat present on site.
Aquila chrysaetos Golden eagle (nesting and wintering)	BCC/ CSC, P/ Group 1, MSCP	Open country, especially hilly and mountainous regions; grassland, coastal sage scrub, chaparral, oak savannas, open coniferous forest	N	Moderate to high potential to occur for foraging. No nesting habitat is present. Suitable foraging habitat on site. Not detected during surveys.	Moderate to high potential to occur for foraging. No nesting habitat is present. Suitable foraging habitat on site. Not detected during surveys.
Athene cunicularia Burrowing owl	BCC/CSC/ Group 1, MSCP	Grassland, lowland scrub, agriculture, coastal dunes and other artificial open areas	N	Moderate to high potential to occur. Suitable habitat present on site.	Moderate to high potential to occur. Suitable habitat present on site.

Scientific Name Common Name	Status Federal/ State/ County	Habitat Preferences / Requirements	Verified on Site (Direct/ Indirect Evidence)	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Campylorhynchus brunneicapillus sandiegensis Coastal (San Diego) cactus wren	BCC / CSC/ Group 1, MSCP	Southern cactus scrub, maritime succulent scrub, cactus thickets in coastal sage scrub	Y – Salt Creek	Observed on site. Suitable habitat present on site.	Moderate to high potential to occur. Suitable habitat present on site.
Charadrius alexandrinus nivosus Western snowy plover (coastal population)	FT, BCC, USBC/ CSC/ Group 1, MSCP	Nests primarily on coastal beaches, in flat open areas, with sandy or saline substrates; less commonly in salt pans, dredged spoil disposal sites, dry salt ponds and levees	N	Not expected to occur. No suitable habitat present.	Not expected to occur. No suitable habitat present.
Circus cyaneus hudsonius Northern harrier	None/ CSC/ Group 1, MSCP	Open wetlands (nesting), pasture, old fields, dry uplands, grasslands, rangelands, coastal sage scrub	Y – Salt Creek and San Ysidro	Observed on site. Suitable habitat present on site.	Observed on site. Suitable habitat present on site.
Coccyzus americanus occidentalis Western yellow-billed cuckoo	FC, BCC/ SE/ Group 1	Dense, wide riparian woodlands and forest with well-developed understories	N	Not expected to occur. No suitable habitat present.	Not expected to occur. No suitable habitat present.
Empidonax traillii extimus Southwestern willow flycatcher	FE, USBC/ None/ Group 1, MSCP	Riparian woodlands along streams and rivers with mature, dense stands of willows or alders; may nest in thickets dominated by tamarisk	N	Not expected to occur. No suitable habitat present.	Not expected to occur. No suitable habitat present.
Eremophila alpestris actia California horned lark	None/ CSC/ Group 2	Open habitats, grassland, rangeland, shortgrass prairie, montane meadows, coastal plains, fallow grain fields	Y – Salt Creek	Observed on site. Suitable habitat present on site.	Moderate to high potential to occur. Suitable habitat present on site.

Scientific Name Common Name	Status Federal/ State/ County	Habitat Preferences / Requirements	Verified on Site (Direct/ Indirect Evidence)	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Falco mexicanus Prairie falcon	BCC/ CSC/ Group 1	Grassland, savannas, rangeland, agriculture, desert scrub, alpine meadows; nest on cliffs or bluffs	N	Moderate to high potential to occur for foraging. No nesting habitat is present. Suitable foraging habitat on site. Not detected during surveys.	Moderate to high potential to occur for foraging. No nesting habitat is present. Suitable foraging habitat on site. Not detected during surveys.
Icteria virens Yellow-breasted chat	None/ CSC/ Group 1	Dense, relatively wide riparian woodlands and thickets of willows, vine tangles and dense brush.	Y – Salt Creek	Observed on site. Suitable habitat present on site.	Moderate to high potential to occur. Suitable habitat present on site.
Ixobrychus exilis Least bittern	None/ CSC/ Group 2	Dense emergent wetland vegetation, sometimes interspersed with woody vegetation and open water	N	Not expected to occur. No suitable habitat present.	Not expected to occur. No suitable habitat present.
Laterallus jamaicensis coturniculus California black rail	ST, BCC, USBC/ P/ Group 2	Saline, brackish, and fresh emergent wetlands	N	Not expected to occur. No suitable habitat present.	Not expected to occur. No suitable habitat present.
Passerculus sandwichensis beldingi Belding's savannah sparrow	None/ SE/ Group 1, MSCP	Saltmarsh, pickleweed	N	Not expected to occur. No suitable habitat present.	Not expected to occur. No suitable habitat present.
Phalacrocorax auritus Double-crested cormorant	None/ CSC/ Group 2	Lakes, rivers, reservoirs, estuaries, ocean; nests in tall trees, rock ledges on cliffs, rugged slopes	N	Not expected to occur. No suitable habitat present.	Not expected to occur. No suitable habitat present.
Polioptila californica californica Coastal California gnatcatcher	FT, USBC/ CSC/ Group 1, MSCP	Coastal sage scrub, coastal sage scrub-chaparral mix, coastal sage scrub-grassland ecotone, riparian in late summer	Y – Salt Creek and San YSidro	Observed on site. Suitable habitat present on site.	Observed on site. Suitable habitat present on site.

Scientific Name Common Name	Status Federal/ State/ County	Habitat Preferences / Requirements	Verified on Site (Direct/ Indirect Evidence)	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Rallus longirostris levipes Light-footed clapper rail	FE, USBC/ SE, P/ Group 1, MSCP	Coastal saltmarsh	N	Not expected to occur. No suitable habitat present.	Not expected to occur. No suitable habitat present.
Sterna antillarum browni California least tern (nesting colony)	FE, USBC/ SE, P/ Group 1, MSCP	Nests along the coast from San Francisco Bay south to northern Baja California	N	Not expected to occur. No suitable habitat present.	Not expected to occur. No suitable habitat present.
Vireo bellii pusillus Least Bell's vireo (nesting)	FE, BCC, USBC/ SE/ Group 1, MSCP	Nests in southern willow scrub with dense cover within 1-2 meters of the ground; habitat includes willows, cottonwoods, baccharis, wild blackberry or mesquite on desert areas	Y – Salt Creek	Observed on site. Likely nesting on site.	Moderate to high potential to occur. Suitable habitat present on site.
Mammals					
Antrozous pallidus Pallid bat	None/ CSC/ Group 2	Rocky outcrops, cliffs, and crevices with access to open habitats for foraging	N	Not expected to occur. No suitable roosting habitat present.	Not expected to occur. No suitable roosting habitat present.
Chaetodipus californicus femoralis Dulzura (California) pocket mouse	None/CSC/ Group 2	Coastal sage scrub, chaparral, riparian-scrub ecotone; more mesic areas	Y – Salt Creek	Observed on site. Suitable habitat present on site.	Moderate to high potential to occur. Suitable habitat present on site.
Choeronycteris mexicana Mexican long-tongued bat	None/ CSC/ Group 2	Desert and montane riparian, desert succulent scrub, desert scrub, and pinyon-juniper woodland. Roosts in caves, mines, and buildings.	N	Not expected to occur. No suitable roosting habitat present.	Not expected to occur. No suitable roosting habitat present.

Scientific Name Common Name	Status Federal/ State/ County	Habitat Preferences / Requirements	Verified on Site (Direct/ Indirect Evidence)	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Corynorhinus townsendii Townsend's big-eared bat	None/ CSC/ Group 2, MSCP	Mesic habitats, gleans from brush or trees or feeds along habitat edges	N	Moderate to high potential to occur. Suitable foraging habitat on site. Not detected during surveys.	Moderate to high potential to occur. Suitable foraging habitat on site. Not detected during surveys.
Eumops perotis californicus Greater western mastiff bat	None/ CSC/ Group 2, MSCP	Roosts in small colonies in cracks and small holes, seeming to prefer man-made structures	N	Not expected to occur. No suitable roosting habitat present.	Not expected to occur. No suitable roosting habitat present.
Lepus californicus bennettii San Diego black-tailed jackrabbit	None/ CSC/ Group 2	Arid habitats with open ground; grasslands, coastal sage scrub, agriculture, disturbed areas, rangelands	Y – Salt Creek and San Ysidro	Observed on site. Suitable habitat on site. Observed during multiple surveys.	Observed on site. Suitable habitat on site. Observed during multiple surveys.
Neotoma lepida intermedia San Diego desert woodrat	None/ CSC/ Group 2	Coastal sage scrub, chaparral, pinyon-juniper woodland with rock outcrops, cactus thickets, dense undergrowth	N	Moderate potential to occur. Some suitable habitat on site.	Moderate potential to occur. Some suitable habitat on site.
Nyctinomops femorosaccus Pocketed free-tailed bat	None/ CSC/ Group 2	Rocky desert areas with high cliffs or rock outcrops	N	Not expected to occur. No suitable habitat present.	Not expected to occur. No suitable habitat present.
Nyctinomops macrotis Big free-tailed bat	None/ CSC/ Group 2	Rugged, rocky canyons	N	Not expected to occur. No suitable habitat present.	Not expected to occur. No suitable habitat present.

Scientific Name Common Name	Status Federal/ State/ County	Habitat Preferences / Requirements	Verified on Site (Direct/ Indirect Evidence)	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Odocoileus hemionus Mule deer	None/ None/ Group 2, MSCP	Coastal sage scrub, chaparral, riparian, woodlands, forest; often browses in open areas adjacent to cover	Y – Salt Creek and San Ysidro	Observed on site. Suitable habitat on site. Observed during multiple surveys.	Observed on site. Suitable habitat on site. Observed during multiple surveys.
Perognathus longimembris pacificus Pacific pocket mouse	FE/ CSC/ Group 1, MSCP	Grassland, coastal sage scrub with sandy soils; along immediate coast	N	Moderate to high potential to occur. Suitable habitat present on site.	Moderate to high potential to occur. Suitable habitat present on site.
Puma [=*Felis*] *concolor* Mountain lion	None/ None/ Group 2, MSCP	Coastal sage scrub, chaparral, riparian, woodlands, forest; rests in rocky areas, and on cliffs and ledges that provide cover	Y – Salt Creek and San Ysidro	Sign observed on site. Suitable habitat on site. Mountain lion scat was observed on site.	Sign observed on site. Suitable habitat on site. Mountain lion scat was observed on site.
Invertebrates					
Branchinecta sandiegonensis San Diego fairy shrimp	FE/ None/ Group 1	Small, shallow vernal pools, occasionally ditches and road ruts	N	Not expected to occur. No suitable habitat present.	Not expected to occur. No suitable habitat present.
Callophrys (=Mitoura) thornei Thorne's hairstreak butterfly	None/ None/ Group 1, MSCP	Tecate cypress	N	Moderate to high potential to occur. Host plant occurs on site. Not detected during surveys.	Moderate to high potential to occur. Host plant occurs on site. Not detected during surveys.
Cicindela gabbii Gabb's tiger beetle	None/ None/ Group 2	Estuaries and mudflats; generally on dark-colored mud; occasional on dry saline flats of estuaries.	N	Not expected to occur. No suitable habitat present.	Not expected to occur. No suitable habitat present.
Cicindela hirticollis gravida Sandy beach tiger beetle	None/ None/ Group 2	Sandy areas adjacent to non-brackish water along California coast; found in dry sand in upper zone	N	Not expected to occur. No suitable habitat present.	Not expected to occur. No suitable habitat present.

Scientific Name Common Name	Status Federal/ State/ County	Habitat Preferences / Requirements	Verified on Site (Direct/ Indirect Evidence)	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Cicindela latesignata latesignata Sand dune tiger beetle	None/ None/ Group 2	Mudflats and beaches in coastal Southern California.	N	Not expected to occur. No suitable habitat present..	Not expected to occur. No suitable habitat present.
Cicindela similis frosti Tiger beetle	None/ None/ Group 2	Salt marshes	N	Not expected to occur. No suitable habitat present.	Not expected to occur. No suitable habitat present.
Coelus globosus Globose dune beetle	None/ None/ Group 1	Coastal dunes	N	Not expected to occur. No suitable habitat present.	Not expected to occur. No suitable habitat present.
Danaus plexippus Monarch butterfly (wintering sites)	None/ None/ Group 2	Overwinters in eucalyptus groves	N	Not expected to occur. No suitable habitat present.	Not expected to occur. No suitable habitat present.
Euphydryas editha quino Quino checkerspot butterfly	FE/None/ Group 1	Sparsely vegetated hilltops, ridgelines, occasionally rocky outcrops; host plant *Plantago erecta* and nectar plants must be present	Y – Salt Creek and San Ysidro	Observed on site. Suitable habitat on site. Observed during focused surveys.	Observed on site. Suitable habitat on site. Observed during focused surveys.
Lycaena hermes Hermes copper butterfly	None/ None/ Group 1	Coastal sage scrub, southern mixed chaparral supporting at least 5% cover of host plant *Rhamnus crocea*	N	High potential to occur. Suitable habitat on site. Not detected during focused surveys.	High potential to occur. Suitable habitat on site. Not detected during focused surveys.
Panoquina errans Wandering (= saltmarsh) skipper	None/None/ Group 1, MSCP	Salt marsh from Los Angeles to Baja, Mexico	N	Not expected to occur. No suitable habitat present.	Not expected to occur. No suitable habitat present.
Streptocephalus woottoni Riverside fairy shrimp	FE/ None/ Group 1	Deep, long-lived vernal pools, vernal pool-like seasonal ponds, stock ponds; warm water pools that have low to moderate dissolved solids	N	Not expected to occur. No suitable habitat present.	Not expected to occur. No suitable habitat present.

Scientific Name Common Name	Status Federal/ State/ County	Habitat Preferences / Requirements	Verified on Site (Direct/ Indirect Evidence)	Status on Site or Potential to Occur – Salt Creek	Status on Site or Potential to Occur – San Ysidro
Tryonia imitator Mimic tryonia, California brackishwater snail	None/ None/ Group 2	Coastal lagoons, estuaries and salt marshes	N	Not expected to occur. No suitable habitat present.	Not expected to occur. No suitable habitat present.

[1] Status Designations:

Federal

BCC = Fish and Wildlife Service: Birds of Conservation Concern
FC = Candidate for federal listing as threatened or endangered
(FD) = Federally delisted; monitored for five years
FE = Federally listed Endangered
FT = Federally listed as Threatened
MNBMC = Fish and Wildlife Service Migratory Nongame Birds of Management Concern
USBC = United States Bird Conservation Watch List

State Designations:

CSC = California Special Concern Species
P = California Department of Fish and Game Protected and Fully Protected Species
SE = State-listed as Endangered
ST = State-listed as Threatened

County Designations:

MSCP = MSCP covered species

APPENDIX G

USFWS Letter Regarding Focused Survey for California Gnatcatcher at Otay Ranch Preserve

DUDEK

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

December 16, 2008 6056-02

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

Subject: ***Focused California Gnatcatcher Survey, Otay Ranch Preserve, San Diego County, California***

Dear Recovery Permit Coordinator:

This report documents the results of three protocol-level presence/absence surveys for the coastal California gnatcatcher (*Polioptila californica californica*; gnatcatcher) that were conducted for the Otay Ranch Preserve by Dudek in summer 2008. The surveys were conducted in all areas of suitable habitat, including coastal sage scrub, disturbed coastal sage scrub, maritime succulent scrub, and disturbed maritime succulent scrub.

The California gnatcatcher is a federally listed threatened species and a California Department of Fish and Game species of Special of Special Concern. It is closely associated with coastal sage scrub habitat, and is thereby threatened primarily by loss, degradation, and fragmentation of this habitat. Gnatcatcher typically occurs below 820 feet above mean sea level (amsl) within 22 miles of the coast, and 1,640 feet amsl for inland regions (Atwood and Bolsinger 1992). In addition, studies have suggested that gnatcatchers avoid nesting on very steep slopes (greater than 40%) (Bontrager 1991). Gnatcatcher is also impacted by brown-headed cowbird (*Molothrus ater*) nest parasitism (Braden et al. 1997).

LOCATION AND EXISTING CONDITIONS

The Otay Ranch Preserve (Preserve) consists of approximately 525 acres in the San Ysidro Mountains and approximately 826 acres in Salt Creek. These two areas of land occur within the City of Chula Vista (City) and within an unincorporated portion of the County of San Diego (County), California (Figure 1). The Salt Creek portion of the Preserve is mapped on the U.S. Geological Survey 7.5-minute Otay Mesa quadrangle and the southern portion of the Jamul Mountains Quadrangle, Township 18 South, Range 1 West, on unsectional lands associated with Salt Creek Canyon, located approximately 0.5 mile west of Lower Otay Reservoir and north of Otay River Valley (Figure 2A). The San Ysidro portion of the Preserve is located at the northeastern portion of the U.S. Geological Survey 7.5-minute Otay Mesa quadrangle,

Township 18 South, Range 1 East, Sections 17 and 18, located immediately east of the southernmost tip of Lower Otay Reservoir (Figure 2B).

The southwestern corner of the Salt Creek portion of the Preserve lies within a Formerly Used Defense Site (FUDS) previously used by the Department of Defense. No focused gnatcatcher surveys were conducted within the FUDS area.

Elevation at the Salt Creek portion of the Preserve ranges from approximately 265 amsl in the Otay River Valley to approximately 600 feet amsl at the ridge tops in the north portion of Salt Creek. Topography at the Salt Creek portion of the Preserve consists of several moderately sloping ridgelines and tributary canyons that drain into the canyon that supports Salt Creek. Salt Creek flows in a north to south direction, discharging into the Otay River. Elevation at the San Ysidro Mountains portion of the Preserve ranges from approximately 360 amsl in the western portion of the site to approximately 1,270 feet amsl at the peaks in the southern portion of site. Topography at the San Ysidro Mountains portion of the Preserve is highly diverse, including very steep slopes, canyons, peaks and ridgelines.

VEGETATION COMMUNITIES

Twenty-three plant communities or land cover types were identified on the Salt Creek parcel: annual (non-native) grassland, annual (non-native) grassland/disturbed coastal sage scrub, cismontane alkali marsh, disturbed cismontane alkali marsh, cismontane alkali marsh/freshwater marsh, chamise chaparral, coastal sage scrub, disturbed coastal sage scrub, developed land, disturbed habitat, eucalyptus woodland, freshwater marsh, mule fat scrub, mule fat scrub/freshwater marsh, maritime succulent scrub, disturbed maritime succulent scrub, ornamental plantings, southern mixed chaparral, scrub oak chaparral, southern willow scrub, disturbed southern willow scrub, valley needlegrass grassland, and disturbed valley needlegrass grassland.

Fourteen plant communities or land cover types were identified on the San Ysidro parcel: annual (non-native) grassland, annual (non-native) grassland/disturbed coastal sage scrub, annual (non-native) grassland/disturbed southern mixed chaparral, chamise chaparral, disturbed chamise chaparral, coast live oak woodland, coastal sage scrub, disturbed coastal sage scrub, disturbed habitat, disturbed wetland, mule fat scrub, southern mixed chaparral, disturbed southern mixed chaparral, disturbed sycamore alluvial woodland.

Habitat types suitable for coastal California gnatcatcher (including disturbed forms) are described below. Acreages for all habitat types are presented in Tables 1 and 2 with suitable gnatcatcher habitats in **bold** text. All plant community descriptions follow Holland (1986).

Table 1
Vegetation Communities and Land Cover Types Salt Creek Parcel

Vegetation Community/Land Cover Type	Acreage*
Annual (non-native) Grassland	10.04
Annual (non-native) Grassland/Disturbed Coastal Sage Scrub	36.25
Cismontane Alkali Marsh	3.57
Disturbed Cismontane Alkali Marsh	0.73
Cismontane Alkali Marsh/ Freshwater Marsh	1.24
Chamise Chaparral	6.46
Coastal Sage Scrub	**455.20**
Disturbed coastal sage scrub	**85.91**
Developed land	2.37
Disturbed Habitat	32.38
Eucalyptus Woodland	1.02
Freshwater Marsh	1.52
Mulefat Scrub	4.98
Mulefat Scrub/Freshwater Marsh	0.31
Maritime Succulent Scrub	**37.38**
Disturbed Maritime Succulent Scrub	**1.97**
Ornamental	4.78
Southern Mixed Chaparral	1.05
Scrub Oak Chaparral	0.19
Southern Willow Scrub	10.55
Disturbed Southern Willow Scrub	28.16
Valley Needlegrass Grassland	3.28
Disturbed Valley Needlegrass Grassland	2.66
Total	732.00
Total suitable gnatcatcher habitat	**580.46**

* Acreages do not include the portion of the preserve within the FUDS area.

Table 2
Vegetation Communities And Land Cover Types San Ysidro Parcel

Vegetation Community/Land Cover Type	Acreage
Annual (non-native) Grassland	2.44
Annual (non-native) Grassland/Disturbed Coastal Sage Scrub	251.74
Annual (non-native) Grassland/Disturbed Southern Mixed Chaparral	62.17
Chamise Chaparral	0.83
Disturbed Chamise Chaparral	6.22
Coast Live Oak Woodland	0.58
Coastal Sage Scrub	**35.26**
Disturbed coastal sage scrub	**72.10**
Disturbed Habitat	0.23
Disturbed Wetland	0.57
Disturbed Sycamore Alluvial Woodland	0.52
Southern Mixed Chaparral	21.40
Disturbed Southern Mixed Chaparral	71.45
Mulefat Scrub	0.03
Total	525.54
Total suitable gnatcatcher habitat	**107.36**

Coastal Sage Scrub (including Disturbed Coastal Sage Scrub)

Coastal sage scrub is a native plant community characterized by a variety of low-statured, aromatic, drought-deciduous shrubs, such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), California bush sunflower (*Encelia californica*), coastal goldenbush (*Isocoma menziesii*), and sages (*Salvia* spp.). Also present are sclerophyllous shrub species such as lemonadeberry (*Rhus integrifolia*) and laurel sumac (*Malosma laurina*). Common coastal sage scrub constituents within the areas surveyed include California sagebrush, laurel sumac, California bush sunflower, California buckwheat, coastal goldenbush, black sage (*Salvia mellifera*) and needlegrass (*Nassella* sp.). Approximately 490 acres of coastal sage scrub occurs within the Salt Creek and San Ysidro Preserve areas.

Disturbed coastal sage scrub is similar to coastal sage scrub; however, it has been disturbed (typically by anthropogenic means) and has a large component of nonnative weed species and/or bare ground (up to 80%). Typical weedy species on site include artichoke thistle (*Cynara cardunuculus*), foxtail chess (*Bromus madritensis* ssp. *rubens*), soft chess (*Bromus hordeaceus*),

and ripgut grass (*Bromus diandrus*). There is approximately 158 acres of disturbed coastal sage scrub within the Salt Creek and San Ysidro Preserve areas.

Areas mapped as annual grassland/disturbed coastal sage scrub typically has 5% to 10% native shrub cover with the remaining areas covered with annual grassland vegetation, which often includes other herbaceous plants, particularly filaree (*Erodium* spp.) and tocalote (*Centaurea melitensis*) or bare rock (up to 50% on some slopes). Focused gnatcatcher surveys did not cover areas on either parcel mapped as annual grassland/disturbed coastal sage scrub. This habitat type is determined to be unsuitable for gnatcatchers due to the sparseness of native shrub cover.

Maritime Succulent Scrub (including Disturbed Maritime Succulent Scrub)

Maritime succulent scrub habitat is found on thin rocky or sandy soils, often on steep slopes, where there is a small amount of summer rainfall. Maritime succulent scrub is a low, open (25% to 75% cover) scrub dominated plant community consisting of drought-deciduous shrubs and succulents. Disturbed maritime succulent scrub is similar to maritime succulent scrub; however, it has been disturbed (typically by anthropogenic means) and has a large component of nonnative weed species and/or bare ground (up to 80%).

On-site maritime succulent scrub contains at least 30% cover of cholla (*Cylindropuntia prolifera*) and generally supports xeric coastal sage scrub species including California buckwheat, California sagebrush, San Diego sunflower, and San Diego barrel cactus (*Ferocactus viridescens*). Maritime succulent scrub and disturbed maritime succulent scrub occurs within the Salt Creek Preserve area and not within the San Ysidro area. There are approximately 37 acres of maritime succulent scrub and approximately 2 acres of disturbed maritime succulent scrub within the Salt Creek Preserve area.

METHODS

The Salt Creek portion of the Otay Ranch Preserve supports approximately 580 acres of suitable gnatcatcher habitat (excluding FUDS land, see page 2), and the San Ysidro Mountains portion supports approximately 107 acres of suitable gnatcatcher habitat. The Salt Creek portion of the Preserve was divided into six survey areas to adequately cover all suitable gnatcatcher habitat during focused surveys. All suitable gnatcatcher habitat within the San Ysidro area of the Otay Ranch Preserve was able to be surveyed for in one day, therefore this area was not divided.

Suitable habitat within each survey area was surveyed three times by Dudek wildlife biologists Paul M. Lemons (Permit # TE051248-2, PML), Kam J. Muri (Permit # TE051250-1, KJM), Jeff D. Priest (Permit # TE840619-3, JDP), and Tricia Wotipka (covered under Permit # TE840619, TLW). Survey conditions for each visit are described in Table 3. The surveys were conducted in

conformance with the currently accepted protocol of the U.S. Fish and Wildlife Service (USFWS), *Coastal California Gnatcatcher* (*Polioptila californica californica*) *Presence/Absence Survey Protocol* (*July 28, 1997*). Protocol surveys within an NCCP/HCP enrolled area include three surveys at seven day intervals covering all habitat suitable for gnatcatcher.

Table 3
Survey Details and Conditions

Survey Area	Date	Biologist's Initials	Time	Survey Conditions (skies, wind, temp)
Salt Creek Area				
1	7/18/2008	JDP	6:00 a.m. – 12:00 p.m.	65°–80° Fahrenheit (F); 100%–0% cloud cover (cc); 0–5 mile per hour (mph) winds
	8/1/2008	JDP	6:00 a.m. – 12:10 p.m.	65°–86° F; 0% cc; 0–4 mph winds
	8/8/2008	JDP	6:00 a.m. – 12:00 p.m.	66°–84° F; 0%–10% cc; 0–6 mph winds
2	7/15/2008	KJM	7:00 a.m. – 11:30 a.m.	70°–81° F; 30%–10% cc; 2–7 mph winds
	7/22/2008	KJM	7:25 a.m. – 11:00 a.m.	66°–76° F; 100%–40% cc; 1–5 mph winds
	8/18/2008	TLW	7:30 a.m. – 11:50 a.m.	72°–84° F; 0% cc; 1–6 mph winds
3	7/22/2008	JDP	7:30 a.m. – 12:20 p.m.	65°–81° F; 0%–5% cc; 0–6 mph winds
	8/7/2008	JDP	6:00 a.m. – 12:00 p.m.	65°–84° F; 50%–20% cc; 0–6 mph winds
	8/14/2008	JDP	6:00 a.m. – 12:00 p.m.	63°–86° F; 5%–75% cc; 0–5 mph winds
4	7/23/2008	PML	7:00 a.m. – 11:30 a.m.	67°–84° F; 20%–5% cc; 0–4 mph winds
	7/30/2008	PML	7:00 a.m. – 11:30 a.m.	66°–84° F; 100%–0% cc; 0–5 mph winds, 6–8 mph gusts
	8/6/2008	PML	7:00 a.m. – 11:30 a.m.	68°–75° F; 0% cc, 1–7 mph winds
5	7/18/2008	PML	7:00 a.m. – 11:15 a.m.	68°–84° F; 100%–5% cc; 0–4 mph winds, 6–8 mph gusts
	7/25/2008	PML	6:30 a.m. – 11:30 a.m.	66°–84° F; 100%–0% cc; 0–2 mph winds, 3–6 mph gusts
	8/1/2008	PML	6:30 a.m. – 10:50 a.m.	65°–86° F; 100%–0% cc; 0–5 mph winds
6	7/24/2008	PML	7:00 a.m. – 12:00 p.m.	67°–84° F; 50%–15% cc; 0–6 mph winds
	7/31/2008	PML	6: 40 a.m. – 11:30 a.m.	65°–84° F; 100%–0% cc; 0–4 mph winds
	8/7/2008	PML	6:30 a.m. – 11:30 a.m.	68°–88° F; 70%–40% cc, 0–4 mph winds
San Ysidro Area				
1	8/8/2008	PML	7:00 a.m. – 11:15 a.m.	69°–91° F; 50% cc; 0–4 mph wind, 5–7 mph gusts
	8/15/2008	PML	6:30 a.m. – 10:30 a.m.	66°–80° F; 100%–0% cc; 0–3 mph wind
	8/22/2008	PML	6:30 a.m. – 10:45 a.m.	67°–83° F; 0% cc; 0–3 mph wind

A tape of recorded California gnatcatcher vocalizations played approximately every 50–100 feet was used to induce responses from potentially present California gnatcatchers. If a California gnatcatcher was detected, tape-playback was terminated to minimize potential for harassment. A 400-scale (1 inch = 400 feet) digital ortho quarter quad map of the site overlaid with the limits of grading, vegetation polygons and topography was used to map any California gnatcatchers detected. Binoculars (7x50 and 8x32) were used to aid in detecting and identifying bird species. Weather conditions, time of day, and season were appropriate for the detection of California gnatcatcher. All mapped locations of this species were digitized by Dudek using ArcGIS.

RESULTS

A total of 21 gnatcatcher pairs were observed within the Salt Creek portion of the Otay Ranch Preserve. Two of the 21 pairs were observed with one juvenile. In addition, 23 non-capped gnatcatchers and 11 individual male gnatcatchers were observed within the Salt Creek portion of the Otay Ranch Preserve. It should also be noted that one lone male and one non-capped gnatcatcher were observed on July 18, 2008, immediately adjacent to Survey Area 1. Figures 3 through 3F illustrate all gnatcatchers observed within the Salt Creek portion of the Otay Ranch Preserve during focused surveys in 2008. One gnatcatcher pair was observed within the San Ysidro portion of the Otay Ranch Preserve (Figure 4).

In cases where non-capped gnatcatchers were mapped in groups of two or more birds, it is assumed that these are juvenile gnatcatchers that have not yet dispersed. Individual non-capped gnatcatchers could either be dispersed juveniles born early in the breeding season, or female gnatcatchers. Table 4 summarizes the results of gnatcatchers observed within each survey area of the Salt Creek portion of the Otay Ranch Preserve.

Table 4
Results of Gnatcatchers Observed on the Salt Creek Portion of the Otay Ranch Preserve

Survey Area	Gnatcatcher Pair	Gnatcatcher pair + 1 juvenile	Lone Male Gnatcatcher	Non-capped Gnatcatcher	Group of 2 non-capped Gnatcatchers	Group of 3 non-capped Gnatcatchers
1	5		3	6		1
2	5	2	4	1		
3	2		2	3	1	1
4	1		1	4		
5	4			1		
6	2		1			
Totals	**19**	**2**	**11**	**15**	**1**	**2**

In accordance with the permit conditions, the gnatcatcher locations have been included on a 7.5-minute USGS map (Figures 2A and 2B). Seventy-nine species of wildlife were observed during the surveys. A full list of wildlife species observed during the survey is provided in Appendix A. Please feel free to contact Paul Lemons at 760.942.5147 with questions or if you require additional information. I certify that the information in this survey report and attached exhibits fully and accurately represent my work.

Sincerely,

Paul Lemons
Survey Coordinator
Wildlife Biologist
TE051248-3

Jeff Priest
Wildlife Biologist
TE840619-3

Kam Muri
Wildlife Biologist
TE051250-1

Tricia Wotipka
Wildlife Biologist
TE840619-3

Att: Figures 1–4
Appendix A

cc: Brock Ortega, Dudek
Kam Muri, Dudek
Jeff Priest, Dudek
Tricia Wotipka, Dudek

REFERENCES

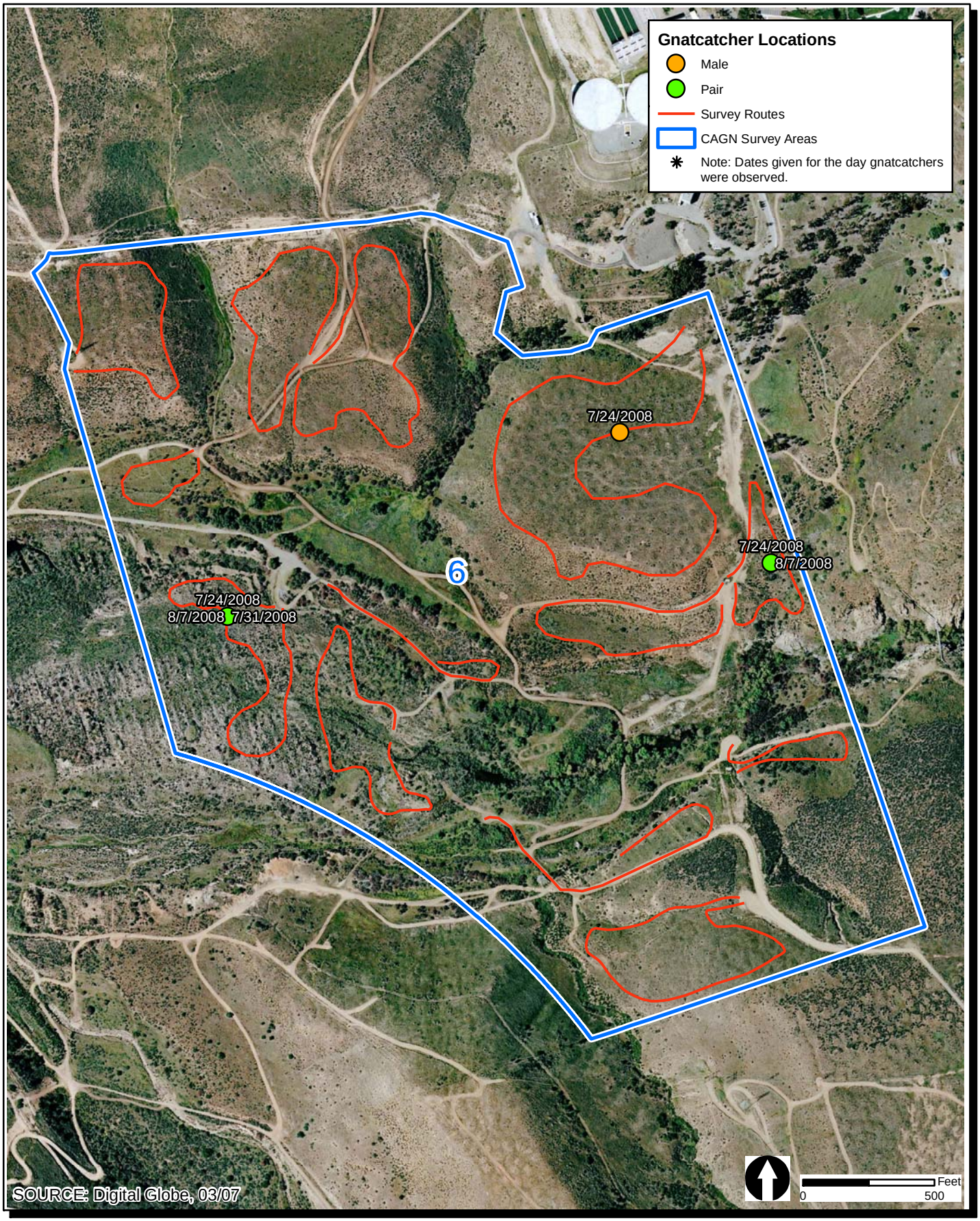
Atwood, J.L. and J.S. Bolsinger. 1992. Elevational distribution of California gnatcatchers in the United States. J. Field Ornithology 63: 159-168.

Bontrager, D.R. 1991. Habitat requirements, home range and breeding biology of the California gnatcatcher (*Polioptila californica*) in South Orange County, California. Prepared for Santa Margarita Company, Rancho Santa Margarita, California.

Braden, G.T, R.L. McKernan, and S.M. Powell. 1997. Effects of nest parasitism by the brown-headed cowbird on nesting success of the California gnatcatcher. Condor 99: 858-865.

Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Nongame-Heritage Program, California Department of Fish and Game. 156 pp.

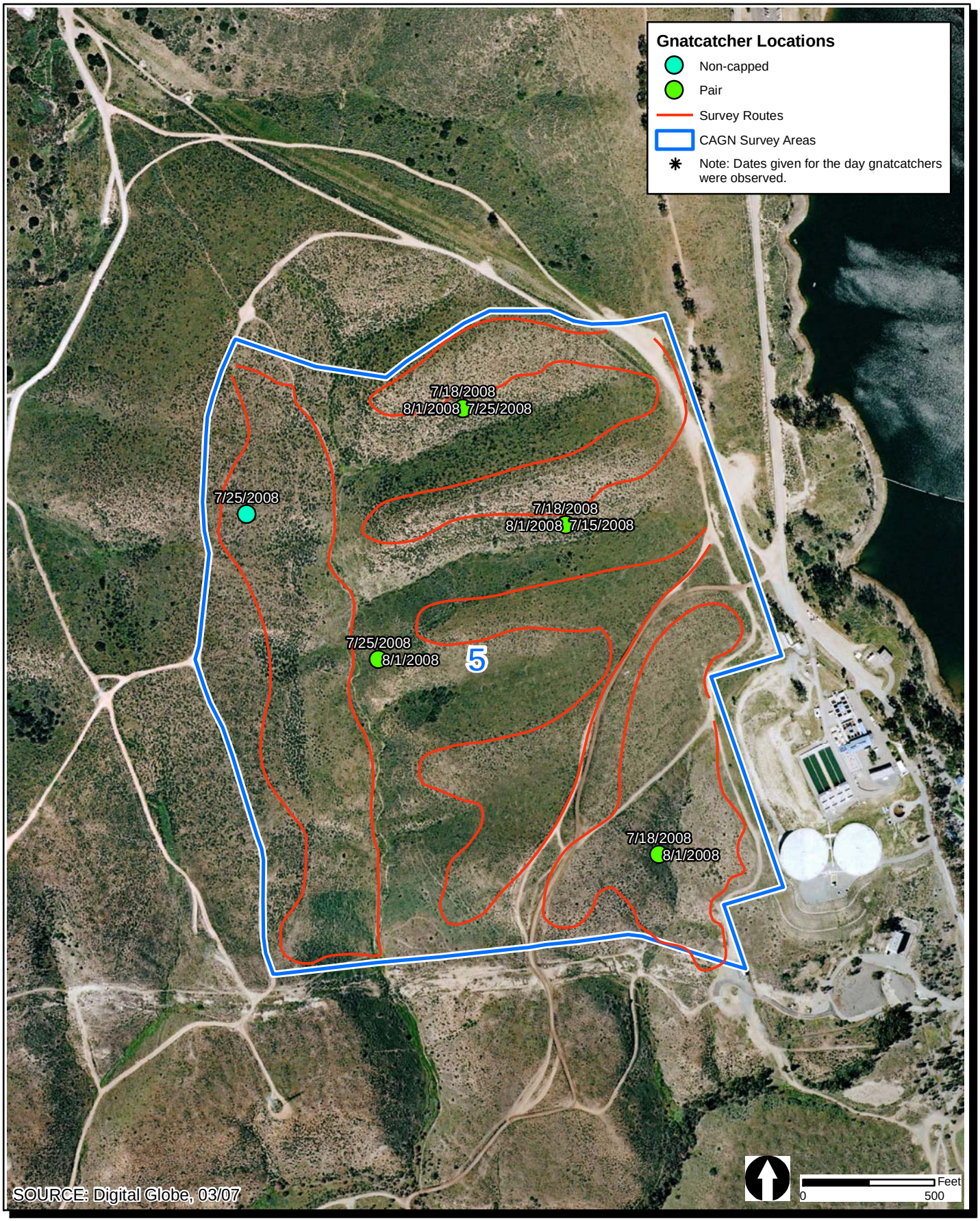
U.S. Fish and Wildlife Service. 1997. *Coastal California Gnatcatcher* (*Polioptila californica californica*) *Presence/Absence Survey Protocol*. July 28.



Focused California Gnatcatcher Survey - Otay Ranch Preserve

Salt Creek Survey Area 6

FIGURE
3F

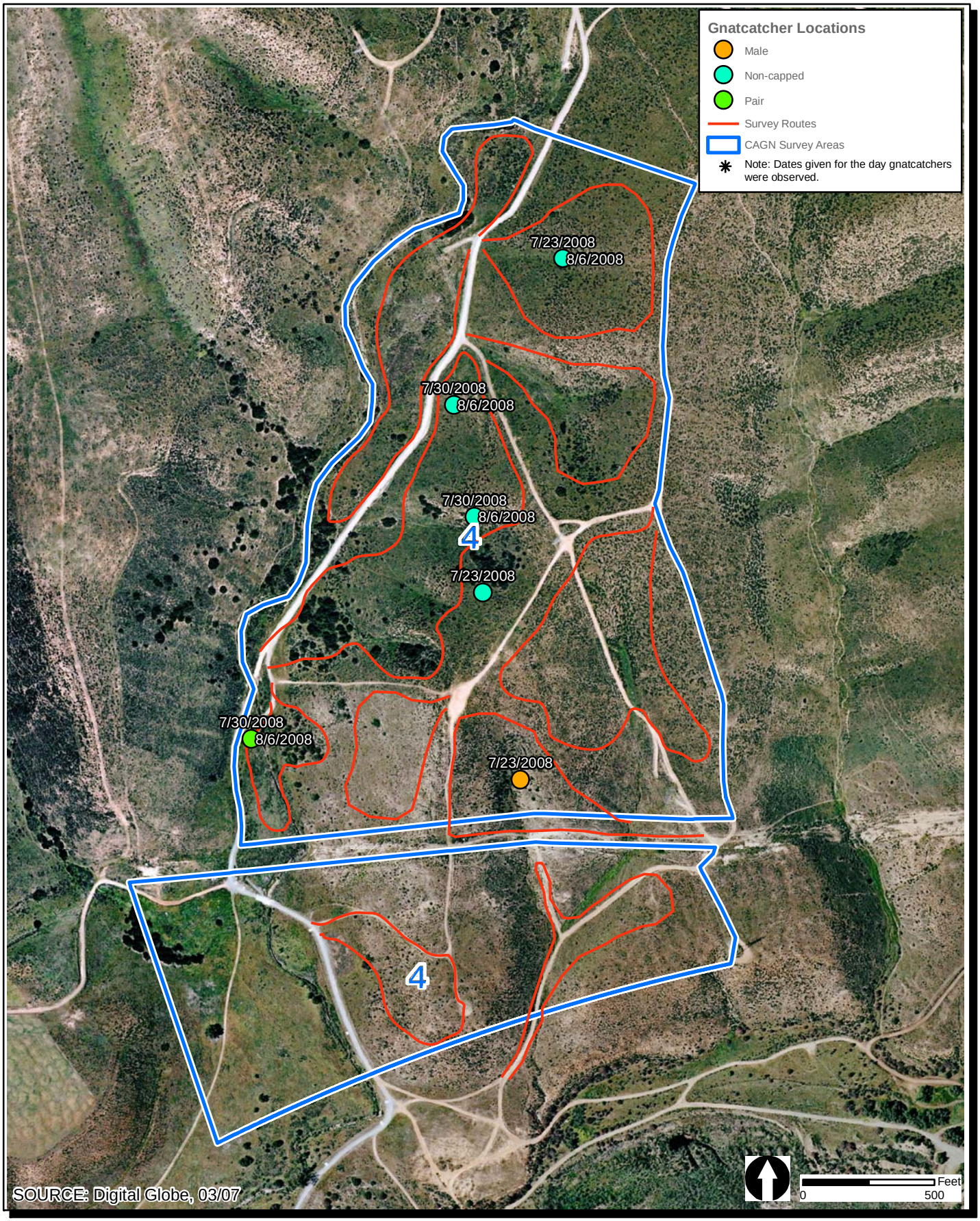


Z:\Projects\j6056001\MAPDOC\Focused CAGN Survey- Otay Racnch Preserve\Fig3E_SaltCreek_SurveyArea5.mxd

Focused California Gnatcatcher Survey - Otay Ranch Preserve

Salt Creek Survey Area 5

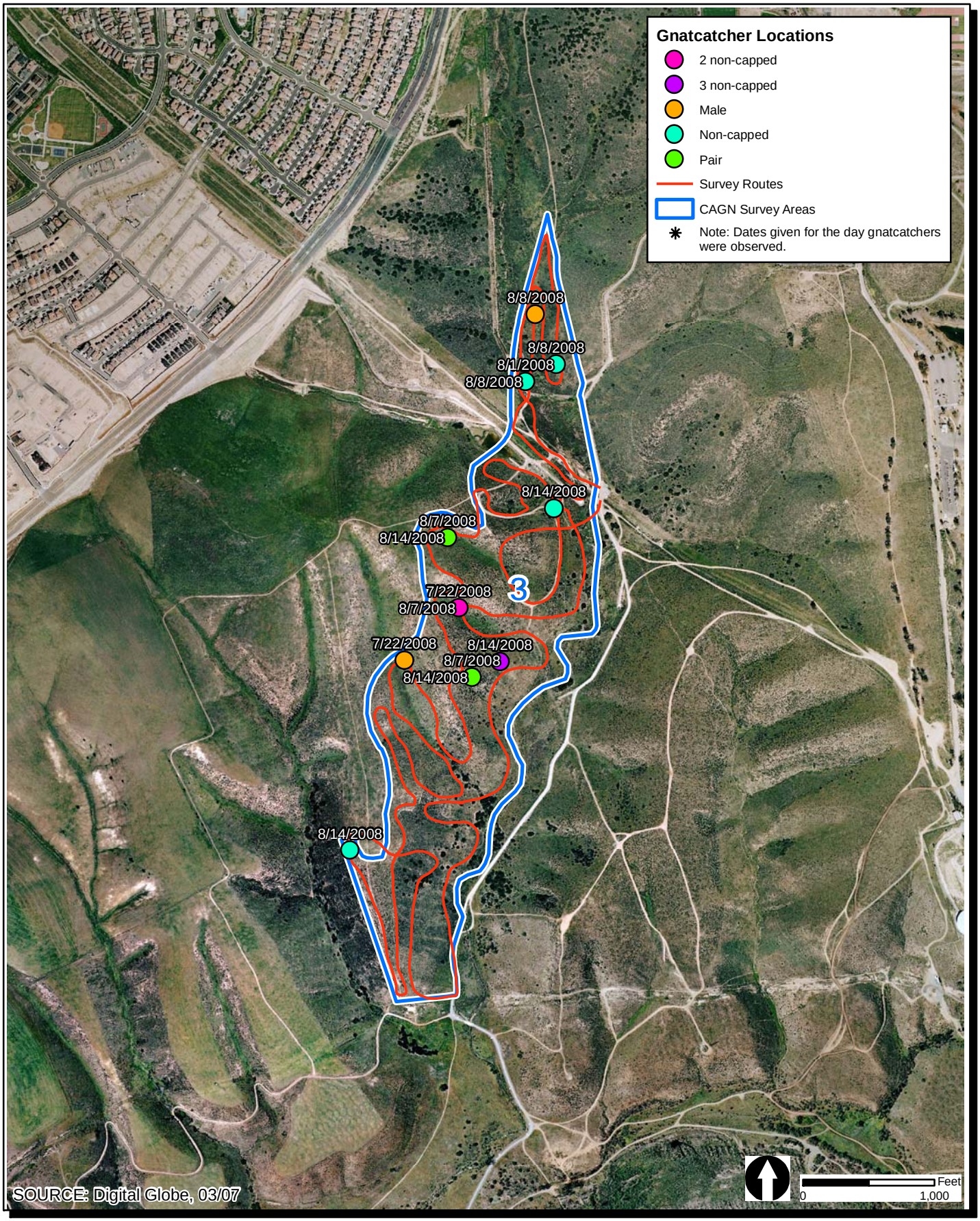
FIGURE
3E



Focused California Gnatcatcher Survey - Otay Ranch Preserve

Salt Creek Survey Area 4

FIGURE
3D

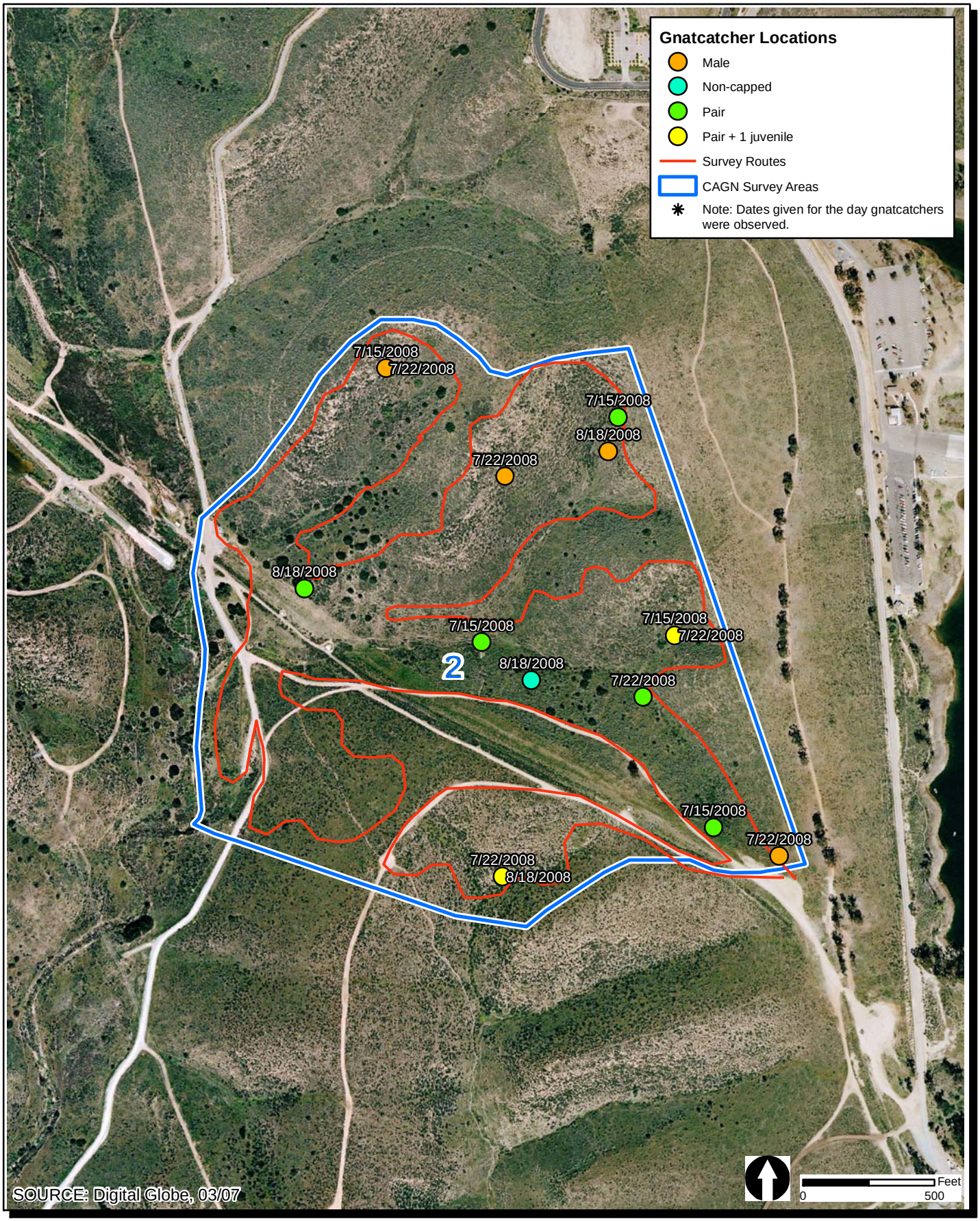


Z:\Projects\j605601\MAPDOC\Focused CAGN Survey- Otay Racnch Preserve\Fig3C_SaltCreek_SurveyArea3.mxd

Focused California Gnatcatcher Survey - Otay Ranch Preserve

Salt Creek Survey Area 3

FIGURE
3C

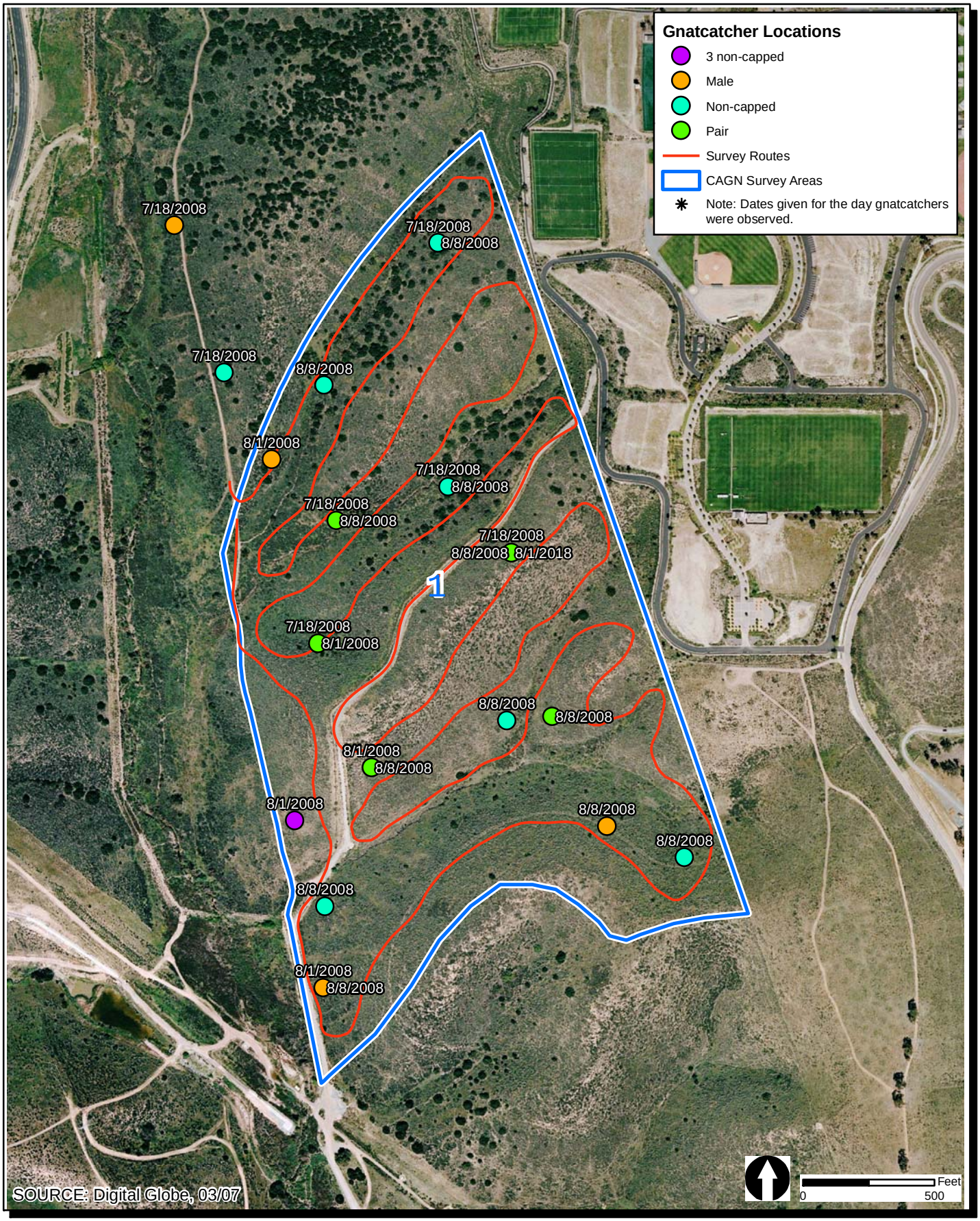


Z:\Projects\j605601\MAPDOC\Focused CAGN Survey- Otay Racnch Preserve\Fig3B_SaltCreek_SurveyArea2.mxd

Focused California Gnatcatcher Survey - Otay Ranch Preserve

Salt Creek Survey Area 2

FIGURE
3B

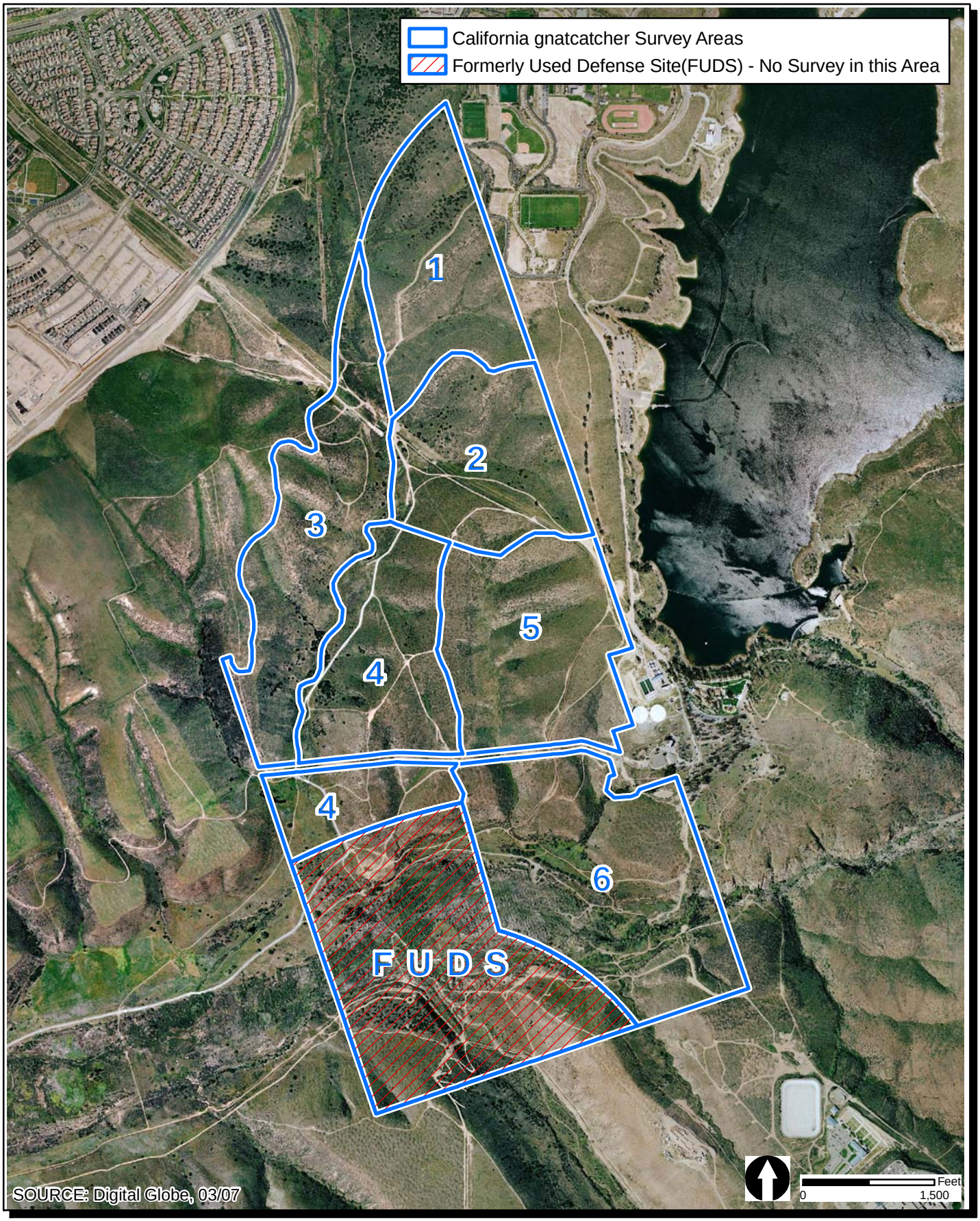


Z:\Projects\j605601\MAPDOC\Focused CAGN Survey- Otay Racnch Preserve\Fig3A_SaltCreek_SurveyArea1.mxd

Focused California Gnatcatcher Survey - Otay Ranch Preserve

Salt Creek Survey Area 1

FIGURE
3A

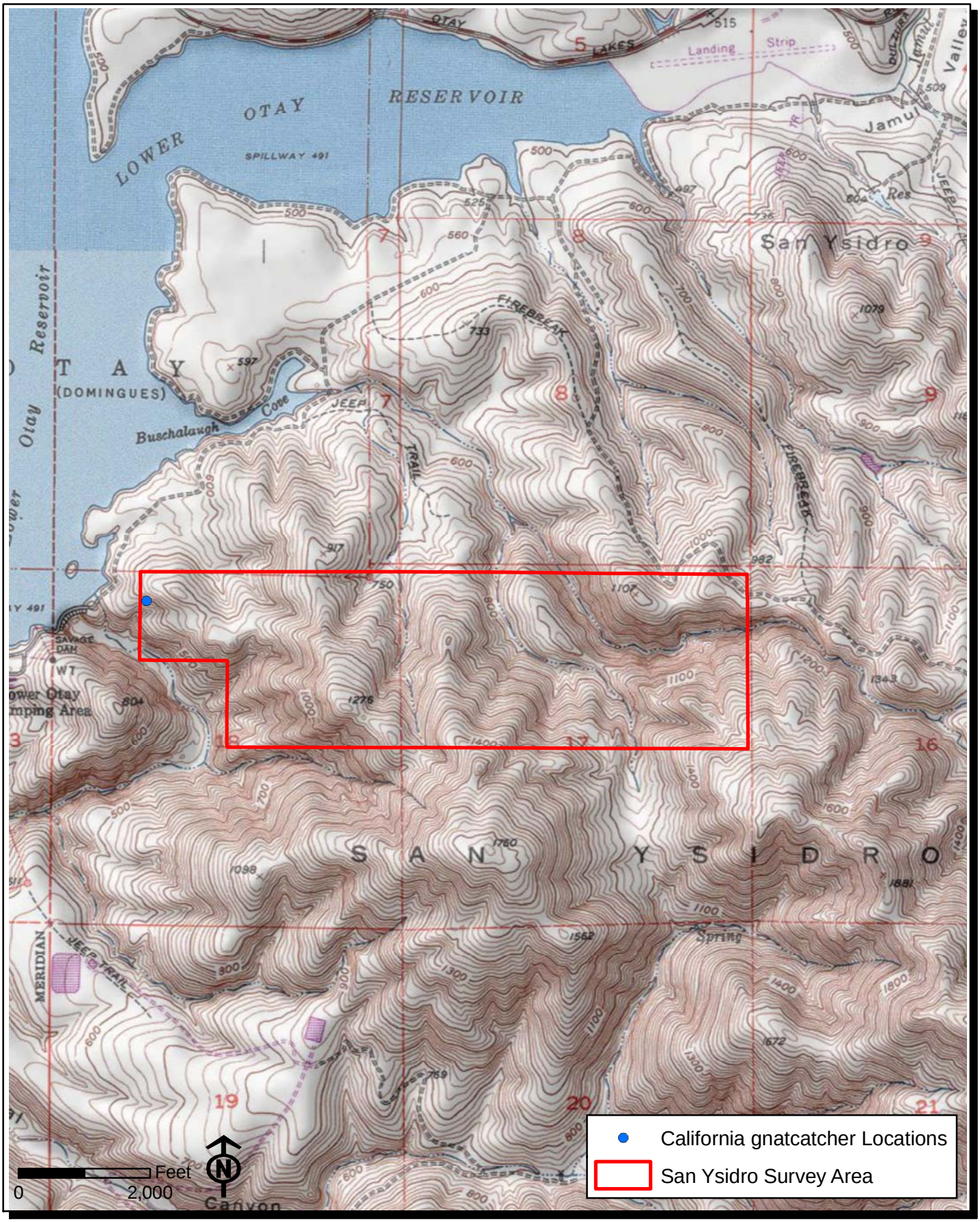


Z:\Projects\j605601\MAPDOC\Focused CAGN Survey- Otay Racnch Preserve\Fig3_SaltCreek_IndexMap.mxd

Focused California Gnatcatcher Survey - Otay Ranch Preserve

Index Map for Salt Creek Survey Areas

FIGURE
3

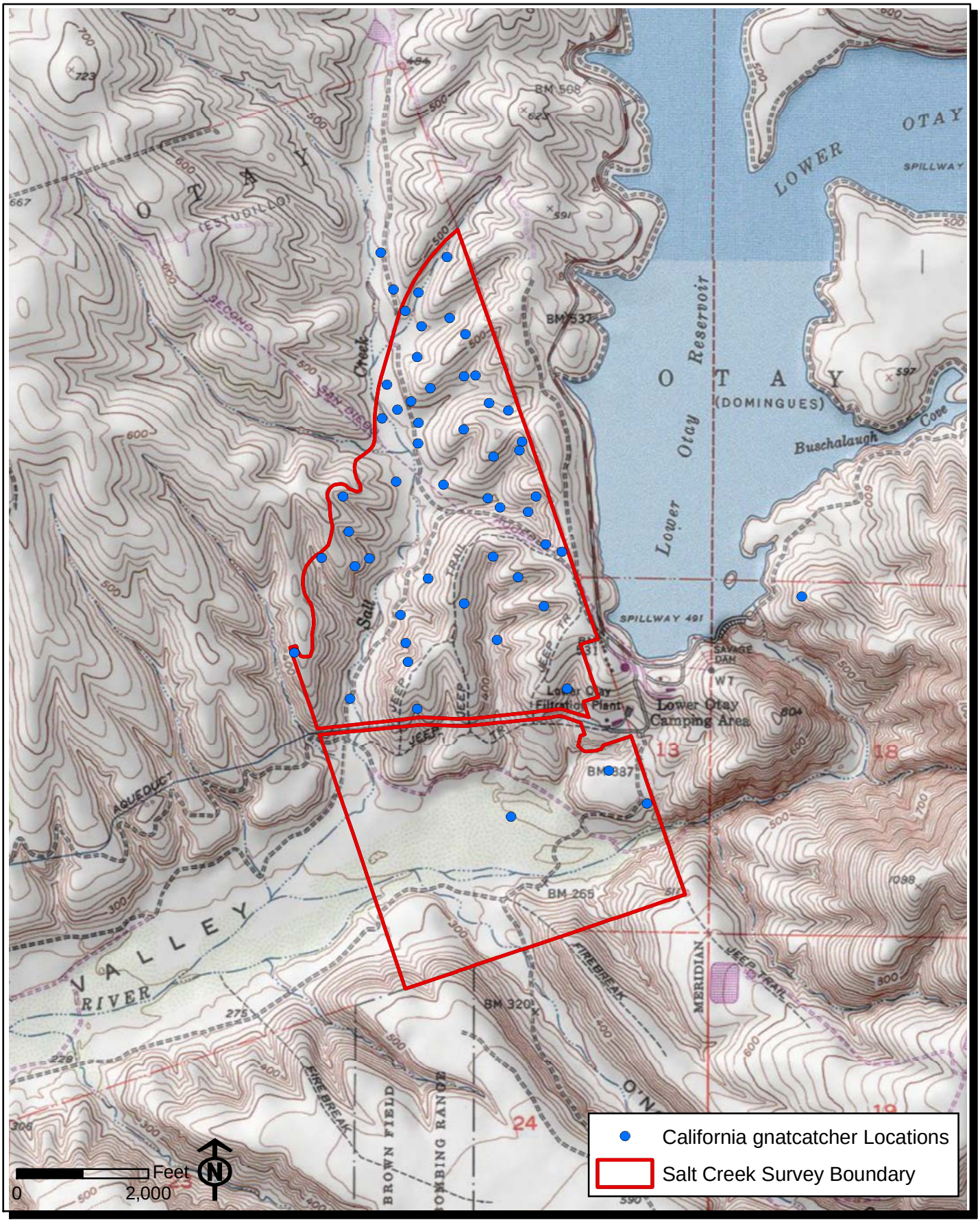


Z:\Projects\j605601\MAPDOC\Focused CAGN Survey- Otay Racnch Preserve\Fig2B_SanYsidro_Vicinity.mxd

Focused California Gnatcatcher Survey - Otay Ranch Preserve

San Ysidro Vicinity Map

FIGURE 2B

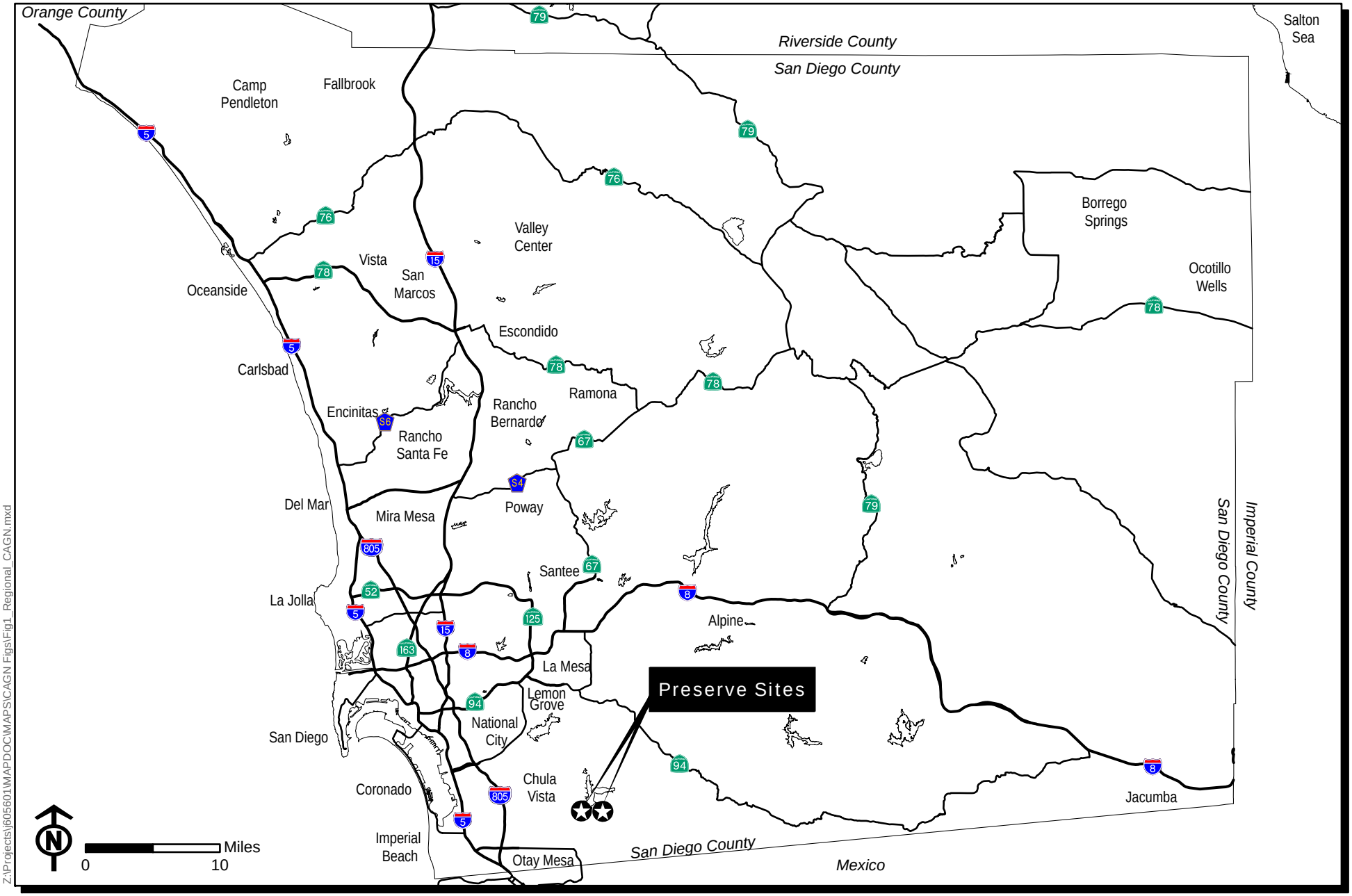


Z:\Projects\j605601\MAPDOC\Focused CAGN Survey- Otay Racnch Preserve\Fig2A_SaltCreek_Vicinity.mxd

Focused California Gnatcatcher Survey - Otay Ranch Preserve

Salt Creek Vicinity Map

FIGURE
2A



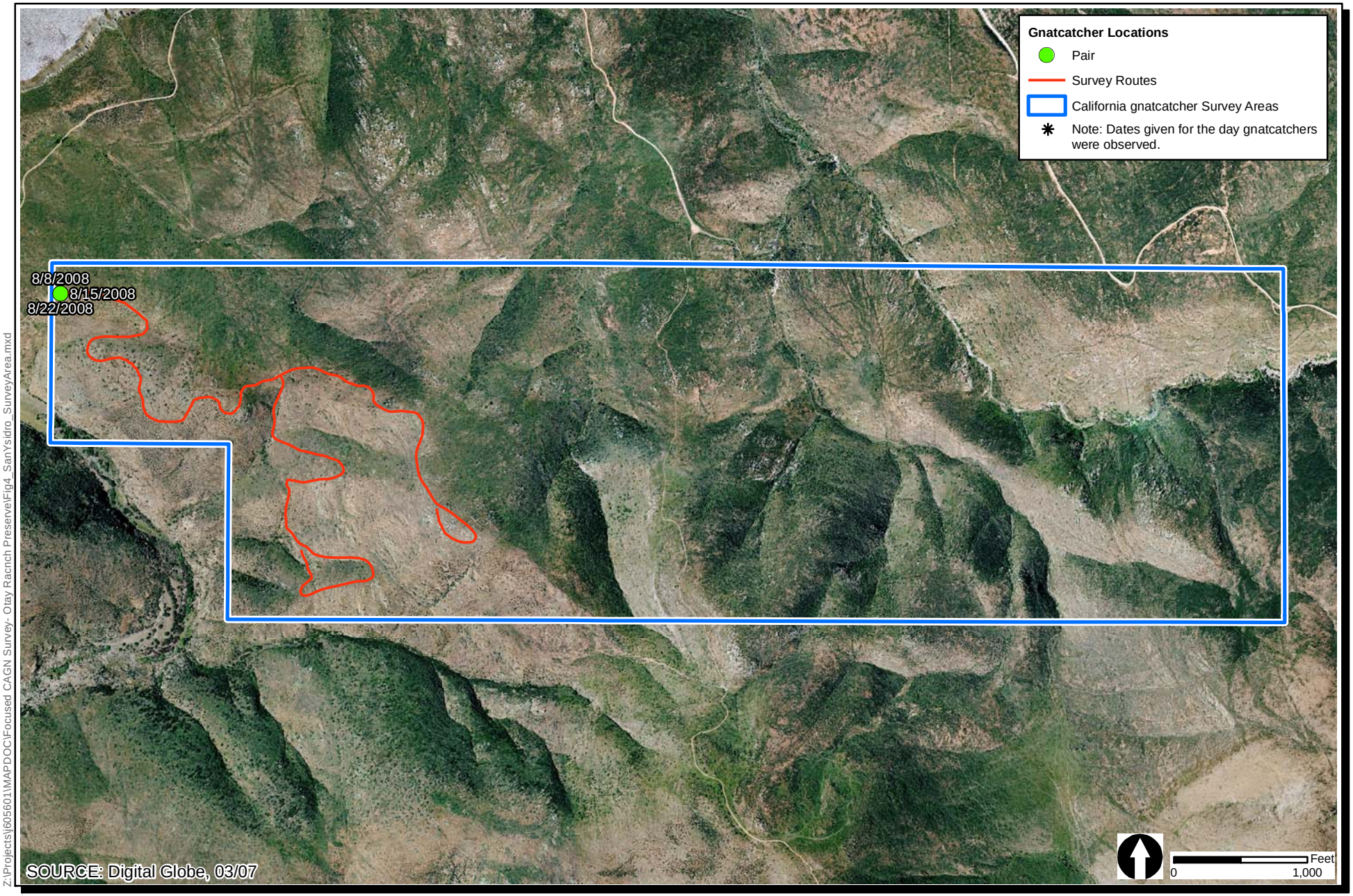
Z:\Projects\j605601\MAPDOC\MAPS\CAGN Figs\Fig1_Regional_CAGN.mxd

BASE MAP SOURCE: San Diego Association of Governments (SANDAG)

Focused California Gnatcatcher Survey - Otay Ranch Preserve

Regional Map

FIGURE 1



Focused Califronia Gnatcatcher Survey - Otay Ranch Preserve

San Ysidro Survey Area

FIGURE 4

APPENDIX A

Wildlife Species Observed
or Detected at the Project Site

APPENDIX A
Wildlife Species Observed or Detected at the Project Site

WILDLIFE SPECIES -VERTEBRATES

REPTILES

IGUANIDAE – IGUANID LIZARDS

Sceloporus occidentalis – western fence lizard
Uta stansburiana – side-blotched lizard

TEIIDAE – WHIPTAIL LIZARDS

Cnemidophorus hyperythrus – orange-throated whiptail
Cnemidophorus tigris – western whiptail

COLUBRIDAE – COLUBRID SNAKES

Lampropeltis getulus – common kingsnake

VIPERIDAE – VIPERS

Crotalus ruber – red-diamond rattlesnake

BIRDS

ARDEIDAE – HERONS

Butorides virescens – green heron
Ardea alba – great egret
Nycticorax nycticorax – black-crowned night-heron

ANATIDAE – WATERFOWL

Anas platyrhynchos – mallard

CATHARTIDAE – NEW WORLD VULTURES

Cathartes aura – turkey vulture

ACCIPITRIDAE – HAWKS

Accipiter cooperii – Cooper's hawk
Buteo jamaicensis – red-tailed hawk
Buteo lineatus – red-shouldered hawk

FALCONIDAE – FALCONS

Falco sparverius – American kestrel

PHASIANIDAE – PHEASANTS AND QUAILS

Callipepla californica – California quail

RALLIDAE – RAILS AND GALLINULES

Fulica americana – American coot

LARIDAE – GULLS AND TERNS

Larus sp. – gull

COLUMBIDAE – PIGEONS AND DOVES

* *Columba livia* – rock dove

Zenaida macroura – mourning dove

CUCULIDAE – CUCKOOS AND ROADRUNNERS

Geococcyx californianus – greater roadrunner

STRIGIDAE – TRUE OWLS

Bubo virginianus – great horned owl

TROCHILIDAE – HUMMINGBIRDS

Calypte anna – Anna's hummingbird

Calypte costae – Costa's hummingbird

TYRANNIDAE – TYRANT FLYCATCHERS

Sayornis nigricans – black phoebe

Sayornis saya – Say's phoebe

Tyrannus vociferans – Cassin's kingbird

Tyrannus verticalis – western kingbird

HIRUNDINIDAE – SWALLOWS

Petrochelidon pyrrhonota – cliff swallow

Stelgidopteryx serripennis – northern rough-winged swallow

CORVIDAE – JAYS AND CROWS

Aphelocoma californica – western scrub-jay

Corvus brachyrhynchos – American crow

Corvus corax – common raven

AEGITHALIDAE – BUSHTITS

Psaltriparus minimus – bushtit

TROGLODYTIDAE – WRENS

Campylorhynchus brunneicapillus – cactus wren

Cistothorus palustris – marsh wren

Thryomanes bewickii – Bewick's wren
Troglodytes aedon – house wren

SYLVIIDAE – GNATCATCHERS

Polioptila caerulea – blue-gray gnatcatcher
Polioptila californica – California gnatcatcher

TIMALIIDAE – LAUGHINGTHRUSH AND WRENTIT

Chamaea fasciata – wrentit

MIMIDAE – THRASHERS

Mimus polyglottos – northern mockingbird
Toxostoma redivivum – California thrasher

PTILOGONATIDAE – SILKY-FLYCATCHERS

Phainopepla nitens – phainopepla

STURNIDAE – STARLINGS

* *Sturnus vulgaris* – European starling

VIREONIDAE – VIREOS

Vireo bellii – Bell's vireo

PARULIDAE – WOOD WARBLERS

Geothlypis trichas – common yellowthroat
Icteria virens – yellow-breasted chat

EMBERIZIDAE – BUNTINGS AND SPARROWS

Aimophila ruficeps – rufous-crowned sparrow
Chondestes grammacus – lark sparrow
Melospiza melodia – song sparrow
Pipilo crissalis – California towhee
Pipilo maculatus – spotted towhee

CARDINALIDAE – CARDINALS AND GROSBEAKS

Passerina caerulea – blue grosbeak

ICTERIDAE – BLACKBIRDS AND ORIOLES

Agelaius phoeniceus – red-winged blackbird
Icterus bullockii – Bullock’s oriole
Sturnella neglecta – western meadowlark

FRINGILLIDAE – FINCHES

Carpodacus mexicanus – house finch
Carduelis psaltria – lesser goldfinch

MAMMALS

LEPORIDAE – HARES AND RABBITS

Lepus californicus – black-tailed jackrabbit
Sylvilagus bachmani – brush rabbit

SCIURIDAE – SQUIRRELS

Spermophilus beecheyi – California ground squirrel

GEOMYIDAE – POCKET GOPHERS

Thomomys bottae – Botta's pocket gopher

HETEROMYIDAE – POCKET MICE AND KANGAROO RATS

Dipodomys pr. – kangaroo rat (prints)

MURIDAE – RATS AND MICE

Neotoma sp. – woodrat (midden)

CANIDAE – WOLVES AND FOXES

Canis latrans – coyote
Urocyon cinereoargenteus – gray fox

PROCYONIDAE – RACCOONS AND RELATIVES

Procyon lotor – common raccoon

FELIDAE – CATS

Felis concolor – mountain lion (scat)
Lynx rufus – bobcat

CERVIDAE – DEERS

Odocoileus hemionus – mule deer

WILDLIFE SPECIES – INVERTEBRATES

BUTTERFLIES AND MOTHS

PAPILIONIDAE – SWALLOWTAILS

Papilo zelicaon lucas – anise swallowtail

PIERIDAE – WHITES AND SULFURS

Pontia protodice – checkered white
Colias eurytheme – orange sulfur
Colias Eurydice – California dogface

RIODINIDAE – METALMARKS

Apodemia mormo virgulti – Behr's metalmark

LYCAENIDAE – BLUES, HAIRSTREAKS, AND COPPERS

Leptotes marina – marine blue

NYMPHALIDAE – BRUSH-FOOTED BUTTERFLIES

Danaus gilippus – queen
Junonia coenia – buckeye

* signifies introduced (non-native) species

APPENDIX H

USFWS Letter Regarding Quino Checkerspot Survey Effort for Otay Ranch Preserve

DUDEK

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

July 31, 2009 6056-04

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

Subject: ***2009 Focused Quino Checkerspot Butterfly Survey, Otay Ranch Preserve, San Diego County, California***

Dear Recovery Permit Coordinator:

This letter report documents the results of a focused survey conducted by Dudek for the federally listed endangered Quino checkerspot butterfly (*Euphydryas editha quino*; QCB) that was conducted for the Otay Ranch Preserve (Preserve) by Dudek in spring 2009.

QUINO CHECKERSPOT BUTTERFLY

The QCB 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 U.S. Fish and Wildlife Service (USFWS) completed the Recovery Plan for QCB.

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 1- to 2-month flight period. QCB larvae can live for several years by undergoing periods of diapause between plant growing seasons.

SURVEY LOCATION AND EXISTING CONDITIONS

The Preserve consists of approximately 525 acres in the San Ysidro Mountains and approximately 826 acres in Salt Creek. These two areas of land occur within the City of Chula Vista (City) and within an unincorporated portion of the County of San Diego (County), California (Figure 1). The Salt Creek portion of the Preserve is mapped on the U.S. Geological Survey (USGS) 7.5-minute Otay Mesa quadrangle and the southern portion of the Jamul Mountains Quadrangle, Township 18 South, Range 1 West, on unsectional lands associated with Salt Creek Canyon, located approximately 0.5 mile west of Lower Otay Reservoir and north of Otay River Valley (Figure 2). The San Ysidro portion of the Preserve is located at the northeastern portion of the USGS 7.5-minute Otay Mesa quadrangle, Township 18 South, Range 1 East, Sections 17 and 18, located immediately east of the southernmost tip of Lower Otay Reservoir (Figure 2).

Elevation at the Salt Creek portion of the Preserve ranges from approximately 265 above mean sea level (amsl) in the Otay River Valley to approximately 600 feet amsl at the ridge tops in the north portion of Salt Creek. Topography at the Salt Creek portion of the Preserve consists of several moderately sloping ridgelines and tributary canyons that drain into the canyon that supports Salt Creek. Salt Creek flows in a north to south direction, discharging into the Otay River. The southwestern corner of the Salt Creek portion of the Preserve lies within a Formerly Used Defense Site (FUDS) previously used by the Department of Defense (Figure 3). No focused QCB surveys were conducted within the FUDS area.

Elevation at the San Ysidro Mountains portion of the Preserve ranges from approximately 360 amsl in the western portion of the site to approximately 1,270 feet amsl at the peaks in the southern portion of site. Topography at the San Ysidro Mountains portion of the Preserve is highly diverse, including very steep slopes, canyons, peaks and ridgelines (Figure 4).

VEGETATION COMMUNITIES

Twenty-three plant communities or land cover types were identified on the Salt Creek parcel: annual (non-native) grassland, annual (non-native) grassland/disturbed coastal sage scrub, cismontane alkali marsh, disturbed cismontane alkali marsh, cismontane alkali marsh/freshwater marsh, chamise chaparral, coastal sage scrub, disturbed coastal sage scrub, developed land, disturbed habitat, eucalyptus woodland, freshwater marsh, mule fat scrub, mule fat scrub/freshwater marsh, maritime succulent scrub, disturbed maritime succulent scrub, ornamental plantings, southern mixed chaparral, scrub oak chaparral, southern willow scrub,

disturbed southern willow scrub, valley needlegrass grassland, and disturbed valley needlegrass grassland.

Fourteen plant communities or land cover types were identified on the San Ysidro parcel: annual (non-native) grassland, annual (non-native) grassland/disturbed coastal sage scrub, annual (non-native) grassland/disturbed southern mixed chaparral, chamise chaparral, disturbed chamise chaparral, coast live oak woodland, coastal sage scrub, disturbed coastal sage scrub, disturbed habitat, disturbed wetland, mule fat scrub, southern mixed chaparral, disturbed southern mixed chaparral, disturbed sycamore alluvial woodland. All plant community descriptions follow Holland (1986) and Oberbauer (1996). The acreages of each community type within the Salt Creek and San Ysidro parcels are shown in Tables 1 and 2.

Table 1
Vegetation Communities and Land Cover Types Salt Creek Parcel

Vegetation Community/Land Cover Type	Acreage*
Annual (non-native) Grassland	10.04
Annual (non-native) Grassland/Disturbed Coastal Sage Scrub	36.25
Cismontane Alkali Marsh	3.57
Disturbed Cismontane Alkali Marsh	0.73
Cismontane Alkali Marsh/ Freshwater Marsh	1.24
Chamise Chaparral	6.46
Coastal Sage Scrub	455.20
Disturbed coastal sage scrub	85.91
Developed Land	2.37
Disturbed Habitat	32.38
Eucalyptus Woodland	1.02
Freshwater Marsh	1.52
Mulefat Scrub	4.98
Mulefat Scrub/Freshwater Marsh	0.31
Maritime Succulent Scrub	37.38
Disturbed Maritime Succulent Scrub	1.97
Ornamental	4.78
Southern Mixed Chaparral	1.05
Scrub Oak Chaparral	0.19
Southern Willow Scrub	10.55
Disturbed Southern Willow Scrub	28.16
Valley Needlegrass Grassland	3.28
Disturbed Valley Needlegrass Grassland	2.66
Total	732.00

* Acreages do not include the portion of the preserve within the FUDS area.

Table 2
Vegetation Communities and Land Cover Types San Ysidro Parcel

Vegetation Community/Land Cover Type	Acreage
Annual (non-native) Grassland	2.44
Annual (non-native) Grassland/Disturbed Coastal Sage Scrub	251.74
Annual (non-native) Grassland/Disturbed Southern Mixed Chaparral	62.17
Chamise Chaparral	0.83
Disturbed Chamise Chaparral	6.22
Coast Live Oak Woodland	0.58
Coastal Sage Scrub	35.26
Disturbed Coastal Sage Scrub	72.10
Disturbed Habitat	0.23
Disturbed Wetland	0.57
Disturbed Sycamore Alluvial Woodland	0.52
Southern Mixed Chaparral	21.40
Disturbed Southern Mixed Chaparral	71.45
Mulefat Scrub	0.03
Total	525.54

Annual (Non-Native) Grassland

Annual (non-native) grassland has a cover of annual grasses typically up to two feet tall, with many annual wildflowers present in years with favorable rainfall. This vegetation community typically occurs on fine-textured soils that are moist or wet in the winter and very dry during summer and fall. (Holland 1986). Characteristic species in San Diego County include foxtail chess (*Bromus madritensis* ssp. *rubens*), ripgut grass (*Bromus diandrus*), wild oats (*Avena* spp.), fescues (*Vulpia* spp.), red-stem filaree (*Erodium cicutarium*), mustards (*Brassica* spp.), lupines (*Lupinus* spp.), and goldfields (*Lasthenia* spp.).

To be classified as non-native grassland, 50% to 90% of the vegetation cover must be annual plants, mostly non-native species, including some (typically at least 30%) non-native grasses, and emergent shrubs and trees comprise less 15% of the vegetative cover (San Diego County 2008). There are 10.04 acres of annual (non-native) grassland mapped in the Salt Creek parcel and 2.44 acres mapped in the San Ysidro parcel.

Areas with predominantly non-native grasses and 5% to 10% native shrub cover (may be up to 20% in small areas) are mapped as either annual grassland/disturbed coastal sage scrub or annual grassland/disturbed southern mixed chaparral.

Annual (Non-Native) Grassland/Disturbed Coastal Sage Scrub

Annual (non-native) grassland/disturbed coastal sage scrub typically has 5% to 10% native shrub cover, often laurel sumac, with the remaining areas covered with annual grassland vegetation, which often includes other herbaceous plants, particularly filaree (*Erodium* spp.) and tocalote (*Centaurea melitensis*) or bare rock (up to 50% on some slopes). There are 36.25 acres of annual (non-native) grassland/disturbed coastal sage scrub mapped in the Salt Creek parcel and 251.74 acres mapped in the San Ysidro parcel.

Annual (Non-Native) Grassland/Disturbed Southern Mixed Chaparral

Annual (non-native) grassland/disturbed southern mixed chaparral typically has 5% to 10% native shrub cover, with the remainder primarily non-native grasses and herbs. Shrub cover is composed of a mix of species, usually chamise (*Adenostoma fasciculatum*), mission manzanita (*Xylococcus bicolor*) and laurel sumac. Lemonadeberry, spiny redberry (*Rhamnus crocea*), broom baccharis, and our lord's candle (*Hesperoyucca whipplei*) may also comprise a small portion of the woody vegetation. There are 62.17 acres of annual (non-native) grassland/disturbed southern mixed chaparral mapped in the San Ysidro parcel.

Cismontane Alkali Marsh (including Disturbed Cismontane Alkali Marsh)

Cismontane alkali marsh is dominated by perennial, emergent, herbaceous monocots that grow up to seven feet tall. This vegetation occurs on sites that have standing water or saturated soils through most of the year. Characteristic species include yerba mansa (*Anemopsis californica*), sedges (*Carex* spp.), rushes (*Juncus* spp.) and cattails (*Typha* spp.). There are 3.57 acres of cismontane alkali marsh mapped in the Salt Creek parcel.

Disturbed cismontane alkali marsh includes non-native vegetation at 50% cover or more. There is 0.73 acre of disturbed cismontane alkali marsh mapped in the Salt Creek parcel.

Chamise Chaparral (including Disturbed Chamise Chaparral)

Chamise chaparral contains shrubs, overwhelmingly dominated by chamise, from three to ten feet tall with little cover provided by other species. Stump sprouting allows this vegetation to adapt to repeated fires. Chamise chaparral typically occurs on dry slopes and ridges. There are 6.46 acres of chamise chaparral mapped in the Salt Creek parcel and 0.83 acre mapped in the San Ysidro parcel.

Disturbed chamise chaparral on the San Ysidro parcel contains 20% to 50% (typically about 30%) chamise, which are small shrubs (up to 3 feet tall) that are regrowing after relatively recent fire. The remaining cover is composed of non-native grasses, fascicled tarweed (*Deinandra fasciculata*), wreath-plant (*Stephanomeria* spp.), or bare ground. There are 6.22 acres of disturbed chamise chaparral mapped in the San Ysidro parcel.

Coastal Sage Scrub (including Disturbed Coastal Sage Scrub)

Coastal sage scrub is a native plant community characterized by a variety of low-statured, aromatic, drought-deciduous shrubs, such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), California bush sunflower (*Encelia californica*), coastal goldenbush (*Isocoma menziesii*), and sages (*Salvia* spp.). Also present are sclerophyllous shrub species such as lemonadeberry (*Rhus integrifolia*) and laurel sumac (*Malosma laurina*). Common coastal sage scrub constituents within the areas surveyed include California sagebrush, laurel sumac, California bush sunflower, California buckwheat, coastal goldenbush, black sage (*Salvia mellifera*) and needlegrass (*Nassella* sp.). There are 455.20 acres of coastal sage scrub mapped in the Salt Creek parcel and 35.26 acres mapped in the San Ysidro parcel.

Disturbed coastal sage scrub is similar to coastal sage scrub; however, it has been disturbed (typically by anthropogenic means) and has a large component of nonnative weed species and/or bare ground (up to 80%). Typical weedy species on site include artichoke thistle (*Cynara cardunuculus*), foxtail chess, soft chess (*Bromus hordeaceus*), and ripgut grass (*Bromus diandrus*). There are 85.91 acres of disturbed coastal sage scrub mapped in the Salt Creek parcel and 72.10 acres mapped in the San Ysidro parcel.

Developed Land

Developed land refers to areas that lack vegetation and support permanent or temporary structures; 2.31 acres of developed land occurs on the Salt Creek parcel.

Disturbed Habitat

Disturbed land consists of areas where there is evidence of soil surface disturbance and compaction from previous legal activity; these areas must have less than 10% vegetative cover (disregarding natural rock outcrops) or the presence of building foundations and debris from legal activities, not illegal dumping. Any vegetation present is dominated by non-native, weedy species that are indicative of soil disturbance; non-native grasses are not dominant (San Diego County 2008).

Disturbed habitat includes major roads (easily passable by vehicle) and not trails or old roads which have become overgrown or eroded. Dirt roads throughout the Salt Creek and San Ysidro parcels are mapped as disturbed habitat. There are 32.38 acres of disturbed habitat mapped in the Salt Creek parcel and 0.23 acre mapped in the San Ysidro parcel.

Disturbed Wetland

Disturbed wetland includes non-native hydrophytic, herbaceous vegetation at 50% cover or more. Disturbed wetland is mapped in several locations along the creek in the northeastern part of the San Ysidro Preserve, where the shrub layer is dominated by salt-cedar (*Tamarix ramosissima*) with some mule fat (*Baccharis salicifolia*) also present over an herbaceous layer that includes curly dock (*Rumex crispus*) and rye grass (*Lolium* sp.). There is 0.57 acre of disturbed wetland mapped in the San Ysidro parcel.

Eucalyptus Woodland

Oberbauer (1996) includes eucalyptus woodland as a non-native vegetation type that is fairly widespread in southern California. It typically consists of monotypic stands of introduced Australian eucalyptus trees (*Eucalyptus* spp.). The understory is either poor or lacking owing to shade and possible allelopathic (toxic) properties of the eucalyptus leaf litter. Although eucalyptus woodlands are of limited value to most native plants and animals, they frequently provide nesting and perching sites for some raptors.

Eucalyptus woodland is dominated by eucalyptus (*Eucalyptus* spp.) and may contain an understory of coastal sage scrub or annual grassland species. Tree cover is generally 50% or greater. The largest stand of eucalyptus occurs in the floodplain of Salt Creek, in the southwestern part of the site. Other patches occur in a drainage in the southeastern part of the Salt Creek parcel and on a hillside on the eastern edge of the parcel. There are 1.02 acres of eucalyptus woodland occurs on the Salt Creek parcel.

Freshwater Marsh

Freshwater marsh is dominated by perennial herbaceous monocots, such as sedges, nutsedges (*Scirpus* spp.), and cattails that grow up to 15 feet tall. This vegetation type occurs in permanently flooded areas without a significant current, allowing deep, peaty soils to develop. 1.52 acres of freshwater marsh occurs in the Salt Creek parcel. The parcel is dominated by cattails (*Typha* spp.) and/or bulrush (*Scirpus* spp.).

Mule Fat Scrub (Including Mulefat Scrub/Freshwater Marsh)

Mule fat scrub is a tall, herbaceous riparian scrub strongly dominated by mule fat (*Baccharis salicifolia*). It typically occurs along intermittent stream channels with generally sandy soils and a moderate depth to the water table. The community is maintained by frequent flooding, or succeeds to cottonwood (*Populus* sp.) or sycamore (*Platanus* sp.) dominated communities. Willows (*Salix* spp.), stinging nettle (*Urtica* sp.), and sedge may also be present. Mule fat scrub (4.98 acres) occurs in several patches along the tributary to Salt Creek that runs through the western part of the Salt Creek Preserve. In the San Ysidro parcel, mule fat scrub, with slightly over 50% cover of mule fat, occurs in one location (0.03 acre) along the streambed in the northern part of the site.

Mulefat scrub/freshwater marsh occurs in patches along the eastern tributary where mule fat is co-dominant with bulrush or southwestern spiny rush (*Juncus acutus*). There is 0.31 acre of mulefat scrub/freshwater marsh on the Salt Creek parcel.

Maritime Succulent Scrub (Including Disturbed Maritime Succulent Scrub)

Maritime succulent scrub habitat is found on thin rocky or sandy soils, often on steep slopes, where there is a small amount of summer rainfall. Maritime succulent scrub is a low, open (25% to 75% cover) scrub dominated plant community consisting of drought-deciduous shrubs and succulents. Disturbed maritime succulent scrub is similar to maritime succulent scrub; however, it has been disturbed (typically by anthropogenic means) and has a large component of nonnative weed species and/or bare ground (up to 80%).

On-site maritime succulent scrub contains at least 30% cover of cholla (*Cylindropuntia prolifera*) and generally supports xeric coastal sage scrub species including California buckwheat, California sagebrush, San Diego sunflower, and San Diego barrel cactus (*Ferocactus viridescens*). Maritime succulent scrub and disturbed maritime succulent scrub occurs within the Salt Creek parcel and not within the San Ysidro parcel. There are 37.38 acres of maritime succulent scrub and 1.97 acres of disturbed maritime succulent scrub within the Salt Creek Preserve area.

Ornamental

Ornamental vegetation is not included as a vegetation type by Holland (1986) or Oberbauer (1996), but is included as a distinct plant community here because it may provide nesting habitat for birds. Ornamental vegetation in the Salt Creek Preserve (4.78 acres) includes areas that support Peruvian pepper trees (*Schinus molle*) with an annual grassland understory.

Scrub Oak Chaparral

Scrub oak chaparral contains dense evergreen vegetation up to 20 feet tall. It typically occurs in somewhat moister areas than other types of chaparral and recovers from fire more quickly. The dominant species is either scrub oak (*Quercus berberidifolia*) or Nuttall's scrub oak (*Q. dumosa*) with considerable San Diego mountain mahogany present.

A small patch (0.19 acre) of scrub oak chaparral**,** with greater than 50% cover of scrub oak is present in the central eastern part of the Salt Creek parcel. The area is dominated by Nuttall's scrub oak with a small understory of non-native grasses.

Southern Mixed Chaparral (including Disturbed Southern Mixed Chaparral)

Southern mixed chaparral is composed of deep-rooted shrubs with thick, hard (sclerophyllous) leaves that form a dense canopy five to then feet tall. This vegetation typically occurs on dry, rocky, slopes with little soil. Its plants are adapted to fire, with many shrubs responding by stump-sprouting (Holland 1986). Typical plant species include chamise (*Adenostoma fasciculatum*), ceanothus (*Ceanothus* spp.), mission manzanita, scrub oak, and San Diego mountain-mahogany (*Cercocarpus minutiflorus*). There are 1.03 acres of southern mixed chaparral at the Salt Creek parcel and 21.40 acres within the San Ysidro parcel.

Disturbed southern mixed chaparral also occurs on north-facing slopes in the southern part of the San Ysidro Preserve where the post-fire native shrub cover is from 20% to 50%, with relatively more slender wild oats, filaree, fascicled tarplant, and California-aster (*Lessingia filaginifolia* var. *filaginifolia*). There are 71.45 acres of disturbed southern mixed chaparral within the San Ysidro parcel of the Preserve.

Southern Willow Scrub (Including Disturbed Southern Willow Scrub)

Southern willow scrub forms a dense thicket dominated by willows (*Salix* spp.) with little understory development and scattered emergent Fremont poplar (*Populus fremontii*) or western sycamore (*Platanus racemosa*) trees. Southern willow scrub establishes on loose sandy alluvium deposited by flooding streams. Southern willow scrub contains over 70% willow (*Salix* spp.) cover. Other subdominant species may include mulefat and salt-cedar.

10.55 acres of southern willow scrub occurs in the eastern portion of Salt Creek where arroyo willow (*Salix laseolepis*) is dominant.

Disturbed southern willow scrub is typically dominated by salt-cedar at 30% to 90% cover. This community type is mapped within the Salt Creek parcel (28.16 acres) in the Otay River valley.

Disturbed Sycamore Alluvial Woodland

Sycamore alluvial woodland is a fairly open broad-leafed riparian woodland dominated by western sycamore (*Platanus racemosa*), a winter-deciduous tree. This vegetation typically occurs in braided, depositional channels of intermittent streams with cobbly or bouldery substrates.

Along a streambed in the extreme eastern part of the San Ysidro preserve, 0.52 acre of disturbed sycamore alluvial woodland is present. The recent fire on the site, resulting in a relatively open tree canopy, was the source of the disturbance. This vegetation includes western sycamore at 30% or greater cover with understory species that include willows, mulefat and herbaceous species.

Valley Needlegrass Grassland

Valley needlegrass grassland is dominated by purple needlegrass (*Nassella pulchra*), a tussock-forming perennial grass that reaches about two feet in height. It usually occurs on fine-textured soils that are moist or wet in winter, becoming very dry in summer. On moister sites it often occurs among oak woodlands. Native annuals and grasses and non-native grasses, such as bromes (*Bromus* spp.) and wild oats, occur between the bunchgrasses, often forming most of the vegetative cover. Valley needlegrass grassland is typically mapped when purple needlegrass exceeds 10% cover.

Valley needlegrass grassland often occurs on more mesic exposures and at the base of slopes. Species composition varies based on levels of disturbance. Typical native species include purple needlegrass (*Nassella pulchra*), foothill needlegrass (*N. lepida*), blue-eyed grass (*Sisyrinchium helium*), common goldenstar (*Bloomeria crocea* var. *crocea*), shooting star (*Dodecatheon clevelandii*), checker mallow (*Sidalcea malvaeflora*), Johnny jump-up (*Viola pedunculata*) and California melic (*Melica imperfecta*).

Valley needlegrass grassland occurs in several patches in a matrix of coastal sage scrub in the eastern part of the Salt Creek parcel (3.28 acres). It contains at least 10% cover of needlegrass (*Nassella* spp.) and less than 30% cover of native shrubs.

Disturbed valley needlegrass grassland occurs in areas that have been repeatedly burned or grazed. Annual grasses (such as *Avena barbata, Bromus madritensis* and *B. hordeaceus*) and non-native plants (*Erodium botrys, Filago gallica*) are dominant, with less than 10% cover of

needlegrass. 2.66 acres of disturbed valley needlegrass grassland occurs on the Salt Creek parcel.

METHODS

The focused QCB survey was conducted on the project site from March 10 through April 1, 2009, by Dudek biologists Anita M. Hayworth, Ph.D. (TE-781084), Brock A. Ortega (TE-813545-5), Jeff D. Priest (TE-840619-2), Kam J. Muri (TE-051250-0), Tricia Wotipka (TE-840619-2), Paul M. Lemons (TE-051248-2), and Vipul R. Joshi (TE-019949-0). Survey conditions for each visit are described in Table 3.

Based on previous visits and surveys of the Salt Creek and San Ysidro parcels of the Preserve, portions of the Salt Creek parcel associated with the Otay River Valley were considered unsuitable for QCB. In addition, the FUDS area within the Salt Creek parcel was not surveyed. The entire 526-acre San Ysidro parcel was considered to be potentially suitable for QCB and no exclusion areas were drawn. The Preserve was divided into 14 survey polygons, each representing a single day survey effort (i.e., 4 to 6 survey hours to be in accordance with USFWS protocol) (Table 4). These survey areas were labeled A though N and assigned to Dudek QCB permitted biologists. The biologists were provided with 200-scale aerial photographs for mapping QCB and host plant populations. The survey maps included topography lines and survey area boundaries. Binoculars were used to aid in detecting and identifying butterfly and other wildlife species. Global positioning system (GPS) units also were available for recording locations of QCB and host plant populations.

Typical protocol level focused surveys for QCB call for five or more survey passes within suitable QCB areas. Because the goal of this study was to cost-effectively determine QCB presence on the Preserve and not to determine impacts, the survey consisted of three visits conducted during the appropriate flight season as determined by the timing of QCB adults flying at USFWS reference populations, rather than the typical five visits. The surveys were conducted in conformance with the currently accepted protocol of the USFWS (2002).

Table 3
Survey Details and Conditions

Survey Area	Date	Biologist's Initials	Time	Survey Conditions (skies, wind, temp)
San Ysidro Area				
A	3/18/2009	TLW	1020-1540	72° Fahrenheit (F)–84°F; 0% cloud cover (cc); 0–2 mile per hour (mph) winds
	3/25/2009	JDP	0930-1515	70°F–80°F; 0% cc; 0–5 mph winds

Table 3 (Continued)

Survey Area	Date	Biologist's Initials	Time	Survey Conditions (skies, wind, temp)
	3/31/2009	PML	0900-1400	73°F–81°F; 0% cc; 0–4 mph winds with 5–8 mph gusts
B	3/18/2009	PML	1040-1540	72°F–84°F; 0% cc; 1–4 mph winds with 5–7 mph gusts
	3/25/2009	TLW	1105-1612	78°F–82°F; 0% cc; 4–5 mph winds with 7 mph gusts
	4/1/2009	PML	0940-1630	68°F–75°F; 60%-0% cc; 2–5 mph winds with 6–8 mph gusts
C	3/14/2009 (west half)	JDP	1008-1240	62°F–72°F; 40%–0% cc; 0–5 mph winds with 7 mph gusts
	3/15/2009 (east half)	JDP	1100-1340	63°F–72°F; 50%–10% cc; 0–6 mph winds
	3/19/2009	JDP	1000-1545	72°F–78°F; 80%–5% cc; 1–7 mph winds
	3/23/2009	PML	1130-1630	70°F–72°F; 5%–0% cc; 1–7 mph winds with 8–12 mph gusts
D	3/17/2009	KJM	1020-1525	68°F–74°F; 0% cc; 2–8 mph winds with 10–12 mph gusts
	3/20/2009	VRJ	1130-1700	72°F–73°F; 0% cc; 2–8 mph winds
	3/27/2009	VRJ	0930-1530	72°F–74°F; 0% cc; 2–7 mph winds
E	3/13/2009	KJM	1045-1602	60°F; 0% cc; 1–8 mph winds with 10 mph gusts
	3/15/2009	VRJ	1000-1530	68°F–70°F; 50%–5% cc; 0–5 mph winds
	3/25/2009	KJM	1130-1630	73°F–70°F; 0% cc; 4–8 mph winds
F	3/10/2009	JDP	0930-1430	61°F–81°F; 0% cc; 0–7 mph winds with 9 mph gusts
	3/18/2009	VRJ	1030-1600	74°F–78°F; 0% cc; 0–6 mph winds
	3/28/2009	VRJ	1030-1630	70°F–74°F; 0% cc; 2–8 mph winds
Salt Creek Area				
G	3/10/2009	PML	0900-1615	62°F –73°F; 0% cc; 0–4 mph winds with 5–8 mph gusts
	3/20/2009	PML	0950-1500	73°F –77°F; 0% cc w/haze; 0–4 mph winds with 5–7 mph gusts
	3/27/2009	PML	0900-1415	67°F–74°F; 0% cc; 0–5 mph winds with 6–10 mph gusts
H	3/13/2009	PML	0940-1500	67°F; 0% cc; 0–5 mph winds with 7–10 mph gusts
	3/16/2009	KJM	1045-1545	64°F–72°F; 0% cc; 3–7 mph winds
	3/28/2009	PML	0930-1430	71°F–79°F; 0% cc; 1–6 mph winds with 7–12 mph gusts
I	3/15/2009	TLW	0930-1500	67°F–74°F; 50%–10% cc; 2–3 mph winds
	3/21/2009	TLW	1030-1543	74°F–82°F; 10% cc; 2–10 mph winds
	3/24/2009	KJM	1032-1608	72°F–78°F; 0% cc; 2–6 mph winds
J	3/10/2009	AMH	1010-1510	61°F–64°F; 0% cc; 1–8 mph winds
	3/16/2009	AMH	0915-1430	63°F–70°F; 0% cc; 0–10 mph winds
	3/25/2009	AMH	0930-1520	68°F–75°F; 0% cc; 1–8 mph winds
K	3/13/2009	TLW	1020-1600	68°F–72°F; 0% cc; 0–3 mph winds
	3/19/2009	PML	1120-1605	72°F–73°F; 10–5% cc; 2–5 mph winds with 6–9 mph gusts
	3/24/2009	JDP	1030-1440	84°F–85°F; 0% cc; 0–15 mph winds
	3/30/2009	JDP	1300-1345	79°F; 0% cc; 4–8 mph winds
L	3/13/2009	VRJ	1100-1430	70°F–72°F; 0% cc; 2–8 mph winds
	3/17/2009	TLW	1030-1515	74°F–82°F; 0% cc; 1–9 mph winds with 10 mph gusts
	3/24/2009	TLW	1030-1525	72°F–82°F; 0% cc; 5–13 mph winds

Table 3 (Continued)

Survey Area	Date	Biologist's Initials	Time	Survey Conditions (skies, wind, temp)
M	3/13/2009	BAO	0910-1530	62°F–66°F; 0% cc; 0–7 mph winds
	3/20/2009	BAO	1100-1600	60°F–65°F; 30% cc; 0–4 mph winds
	3/24/2009	BAO	1030-1450	70°F–78°F; 0% cc; 0–5 mph winds
N	3/11/2009	KJM	1005-1520	62°F–66°F; 30%–50% cc; 0–4 mph winds
	3/18/2009	JDP	0930-1435	67°F –84°F; 0% cc; 0–6 mph winds
	3/23/2009	JDP	1130-1630	74°F–79°F; 5–0% cc; 0–6 mph winds with 9 mph gusts
	3/30/2009	JDP	1350-1450	81°F; 0% cc; 5–8 mph winds with 12 mph gusts

AMH = Anita M. Hayworth; BAO = Brock A. Ortega; JDP = Jeffrey D. Priest; KJM = Kam J. Muri; PML = Paul M. Lemons; TLW: Tricia L. Wotipka; VRP = Vipul R. Joshi

Table 4
2009 Quino Checkerspot Butterfly
Survey Polygons

Survey Area	Acreage of Survey Area
A	74.31
B	75.59
C	79.8
D	76.25
E	79.31
F	74.29
G	73.15
H	75.2
I	78.57
J	79.52
K	72.41
L	68.66
M	77.51
N	75.74

RESULTS

A total of 35 QCB were observed and recorded during the 2009 QCB focused survey on the Preserve (Figures 5a through 5d). Dudek biologists Jeffrey Priest, Vipul Joshi, Tricia Wotipka, Kam Muri, and Paul Lemons observed QCB on hill tops or ridgelines within Survey Areas A, E, F, and L. A number of these observations took place in the same location from one week to the next thus it is likely that a number of these observations were of the same individual and could be considered duplicate counts. Table 5 summarizes the details of the QCB observations.

Table 5
2009 Quino Checkerspot Butterfly Observation Details

Survey Area	Date	Biologist	Time	Number of QCB Observed
A	3/18/2009	TLW	1110–1145	3
	3/18/2009	TLW	1215–1335	4
	3/25/2009	JDP	1110–1130	2
	3/25/2009	JDP	1159–1215	3
	3/25/2009	JDP	1240–1247	1
	3/31/2009	PML	1248–1320	2
E	3/13/2009	KJM	1343–1427	1
	3/15/2009	VRJ	1135–1150	2
	3/15/2009	VRJ	1348–1350	2
	3/17/2009	KJM	1355–1420	2
	3/17/2009	KJM	1355–1420	2
F	3/10/2009	JDP	1008–1018	1
	3/10/2009	JDP	1137–1206	2
	3/18/2009	VRJ	1230–1242	2
L	3/17/2009	TLW	1251–1355	2
	3/17/2009	TLW	1450–1510	1
	3/24/2009	TLW	1115–1130	1
	3/26/2009	AMH	1040	2
			Total QCB Observed	35

AMH = Anita M. Hayworth; JDP = Jeff D. Priest; KJM = Kam J. Muri; PML = Paul M. Lemons; TLW: Tricia L. Wotipka; VRJ = Vipul R. Joshi

Two QCB larval host plants, dot-seed plantain (*Plantago erecta*) and owl's clover (*Castilleja exserta*) were observed and recorded over much of the Preserve. Larval host plant locations are illustrated on Figures 6a through 6n. All patches of plantain and owl's clover were recorded as point locations. Very large patches of plantain were observed where clusters of points are shown on the figures.

A list of all wildlife species observed for the site, including butterfly species observed during each week's survey is provided in Appendix A. A list of all nectar plant species observed for the site is provided in Appendix B. Appendix C provides a copy of the 24-hour notifications that were emailed or faxed to USFWS regarding the QCB sightings, including photographs to the USFWS. Appendix D provides a copy of the field notes of the biologist for each survey visit.

Please feel free to call Brock Ortega at 760.479.4254 if you have any questions regarding the contents of this letter.

The undersigned certify that the information in this survey report and attached exhibits fully and accurately represents the work of each individual permittee.

Very truly yours,

Brock A. Ortega
Permit #TE813545-5

Paul M. Lemons
Permit #TE051248-2

Anita M. Hayworth
Permit #TE781084

Vipul R. Joshi
Permit #TE019949-0

Jeffrey D. Priest
Permit #TE840619-2

Kam J. Muri
Permit #TE051250-0

Tricia L. Wotipka
Permit #TE840619-2

Att: *Figure 1 – Regional Map*
Figure 2 – Vicinity Map
Figure 3 – Survey Areas and Acreages – Salt Creek Parcel
Figure 4 – Survey Areas and Acreages – San Ysidro Parcel
Figures 5a through 5d – QCB locations by Survey Area
Figures 6a through 6n – Larval Host Plant Locations by Survey Area
Appendix A – Wildlife Species Observed or Detected at the Project Site
Appendix B – Nectaring Plants Observed or Detected at the Project Site
Appendix C – QCB Observation Notifications with photographs to USFWS
Appendix D – Field Notes

cc: *Cheryl Goddard, San Diego County Department of Parks and Recreation*

REFERENCES

62 FR 2313–2322. Final rule: Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Laguna Mountains Skipper and Quino Checkerspot Butterfly. January 16, 1997.

Emmel, T.C. and J.F. Emmel. 1973. *The Butterflies of Southern California*. Natural History Museum of Los Angeles County. Science Series No. 26.

Holland, R.F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. State of California, The Resources Agency. October 1986.

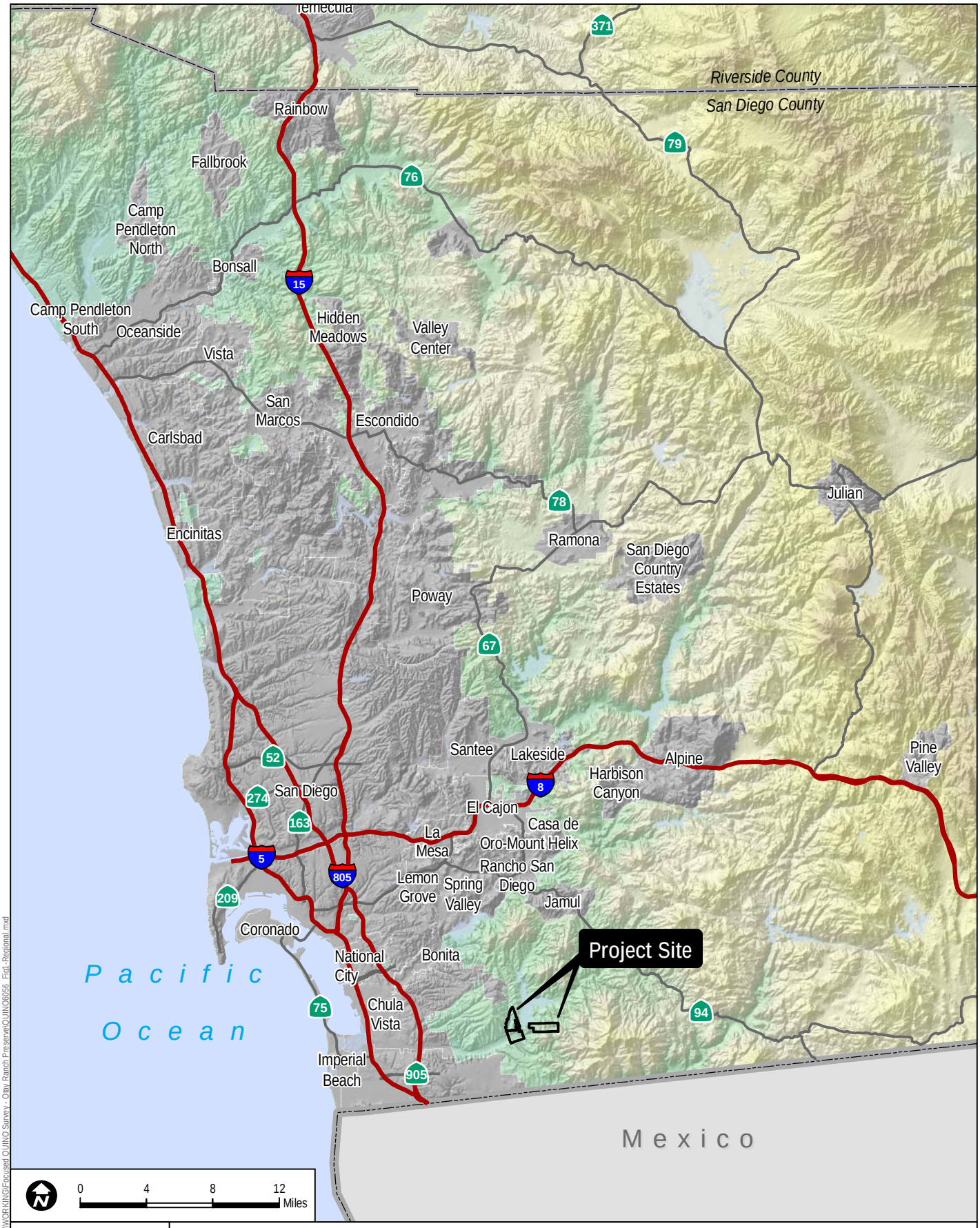
Mattoni, R., G.F. Pratt, T.R. Longcore, J.F. Emmel, and J.N. George. 1997. "The Endangered Quino Checkerspot Butterfly, *Euphydryas editha quino* (Lepidoptera: Nymphalidae)." *Journal of Research on the Lepidoptera* 34:99–118.

Oberbauer, Thomas. 1996. *Terrestrial Vegetation Communities of San Diego County Based on Holland's Descriptions*.

San Diego, County of. 2008. Report Format and content Requirements. Biological Resources. Second Revision. July 30. Department of Planning and Land Use. 75 pp.

USFWS (U.S. Fish and Wildlife Service). 2002. "Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey Protocol Information." Carlsbad, California. February 2002.

USFWS. 2003. *Recovery Plan for the Quino Checkerspot Butterfly* (Euphydryas editha quino). Portland, Oregon.



DUDEK

6056-04

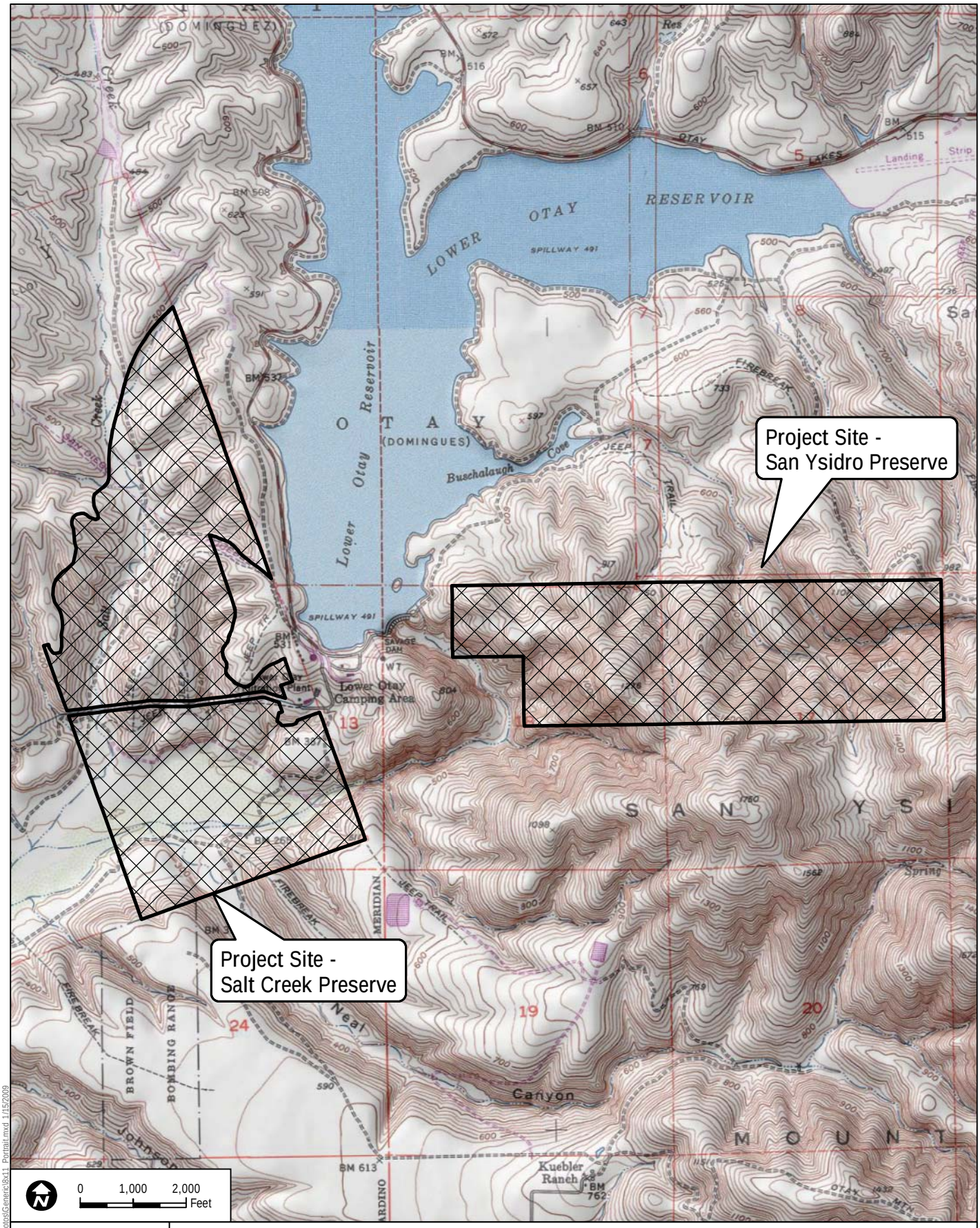
JULY 2009

FIGURE 1

Regional Map

Otay Ranch Preserve - 2009 Focused Quino Checkerspot Butterfly Report

Z:\Projects\6056\04\MAPDOC\WORKING\Focused QUINO Survey - Otay Ranch Preserve\QUINO6056_Fig1-Regional.mxd



DUDEK

6056-04

JULY 2009

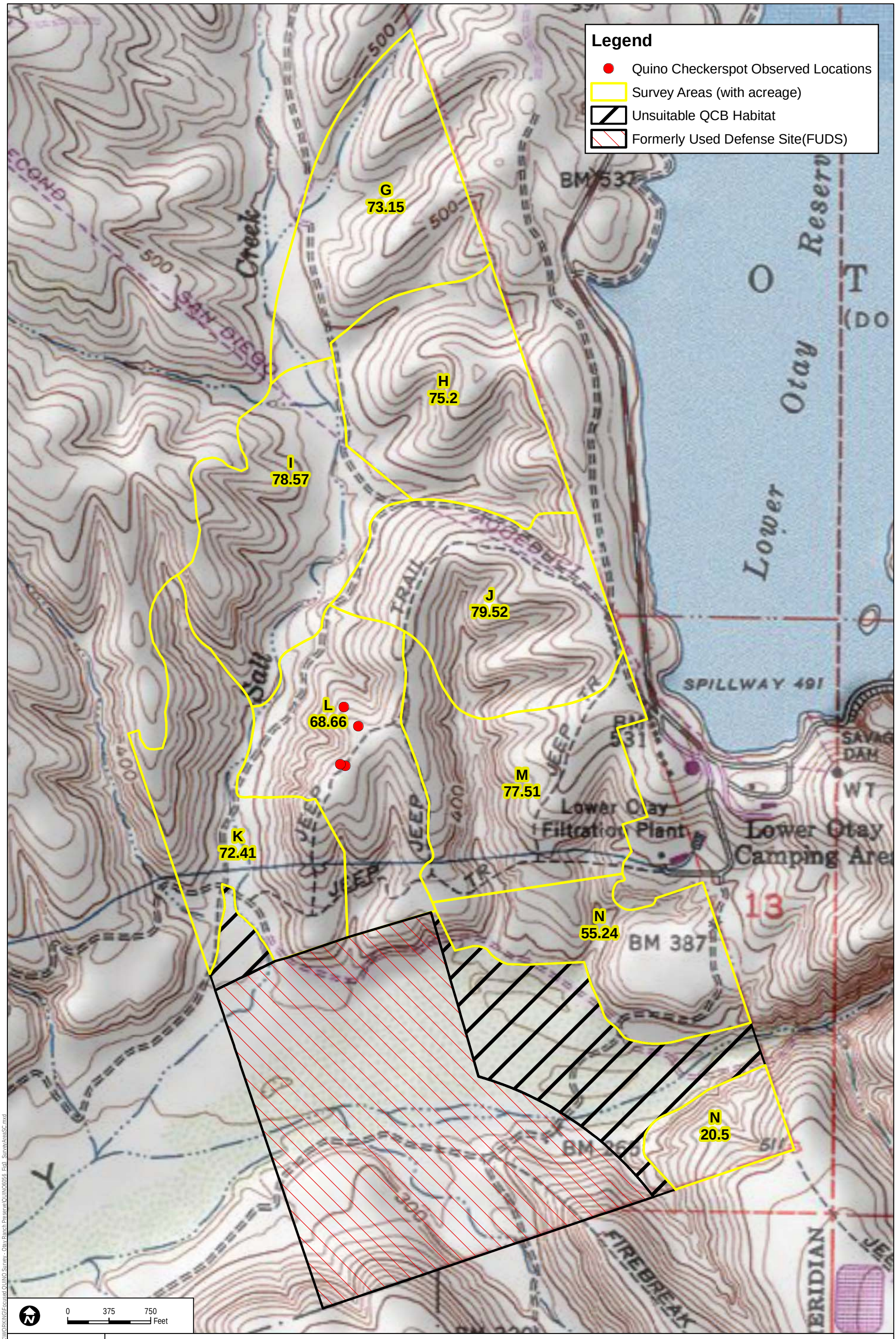
SOURCE: USGS 7.5 Minute Series Otay Mesa Quadrangle.

FIGURE 2

Vicinity Map

Otay Ranch Preserve - 2009 Focused Quino Checkerspot Butterfly Report

Z:\Templates\Arcmap\New Protos\Generic\8x11 Portrait.mxd 1/15/2009



DUDEK

6056-04

JULY 2009

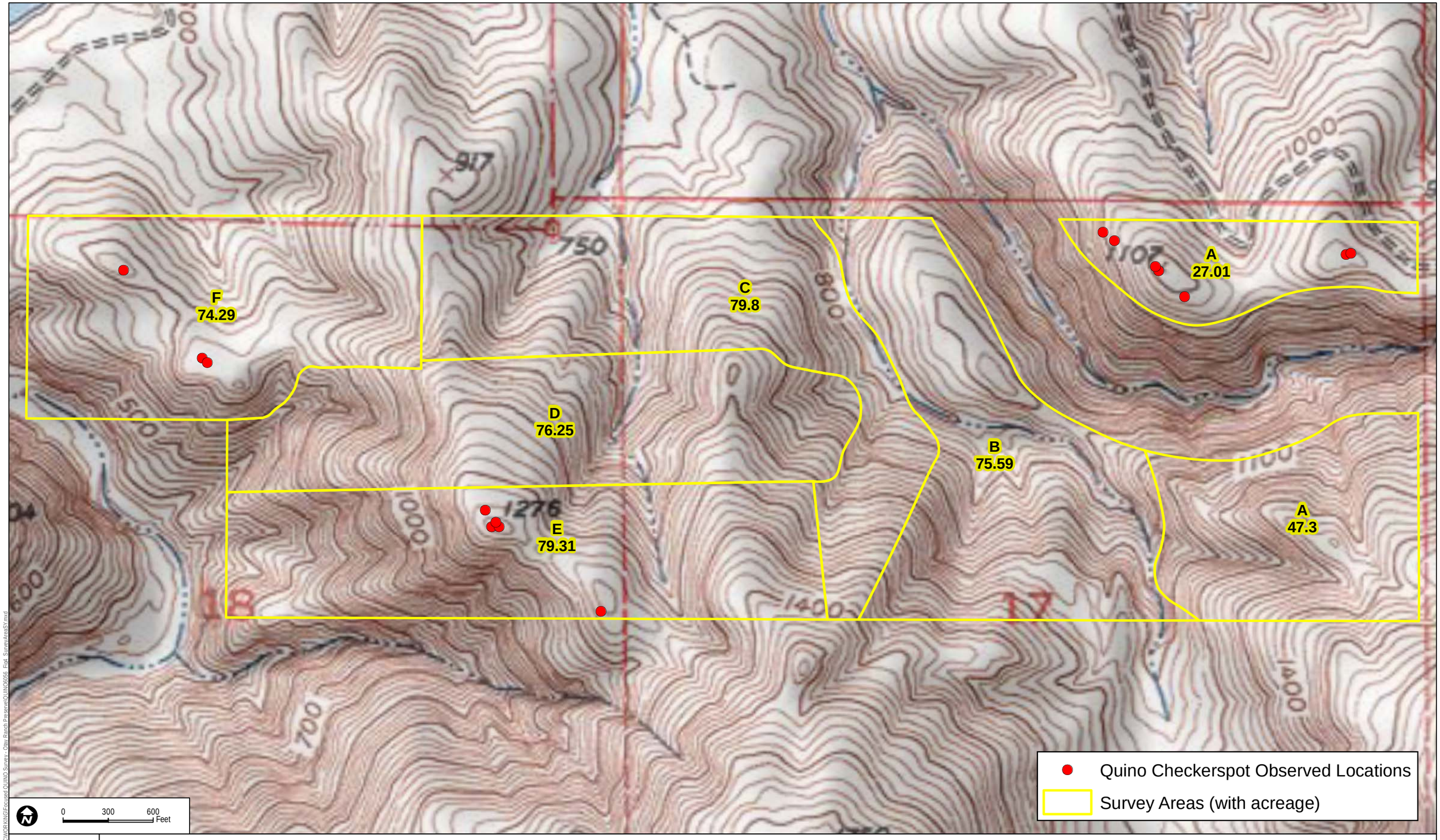
SOURCE: USGS 7.5 Minute Series Otay Mesa Quadrangle.

FIGURE 3

Survey Areas and Acreages - Salt Creek Parcel

Otay Ranch Preserve- 2009 Focused Quino Checkerspot Butterfly Report

Z:\Projects\6056\MAPDOC\WORKING\Focused QUINO Survey - Otay Ranch Preserve\QUINO6056_Fig3_SurveyAreaSc.mxd



SOURCE: USGS 7.5 Minute Series Otay Mesa Quadrangle.

DUDEK

6056-04

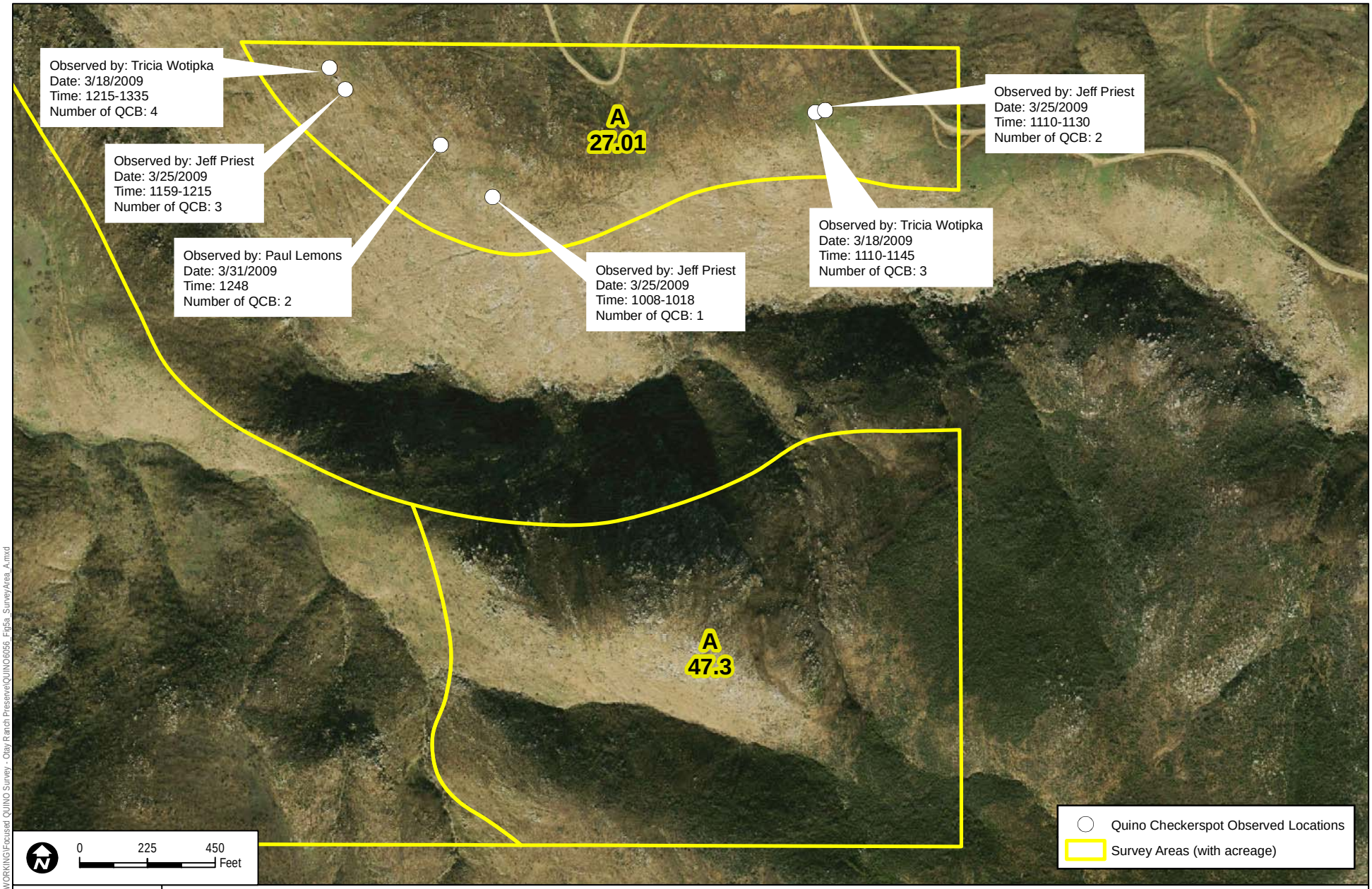
JULY 2009

FIGURE 4

Survey Areas and Acreages - San Ysidro Parcel

Otay Ranch Preserve- 2009 Focused Quino Checkerspot Butterfly Report

Z:\Projects\605604\MAPDOC\WORKING\Focused QUINO Survey - Otay Ranch Preserve\QUINO6056_Fig4_SurveyAreasSY.mxd



Z:\Projects\605604\MAPDOC\WORKING\Focused QUINO Survey - Otay Ranch Preserve\QUINO6056_Fig5a_SurveyArea_A.mxd

DUDEK

SOURCE: DigitabGlobe 1/2008

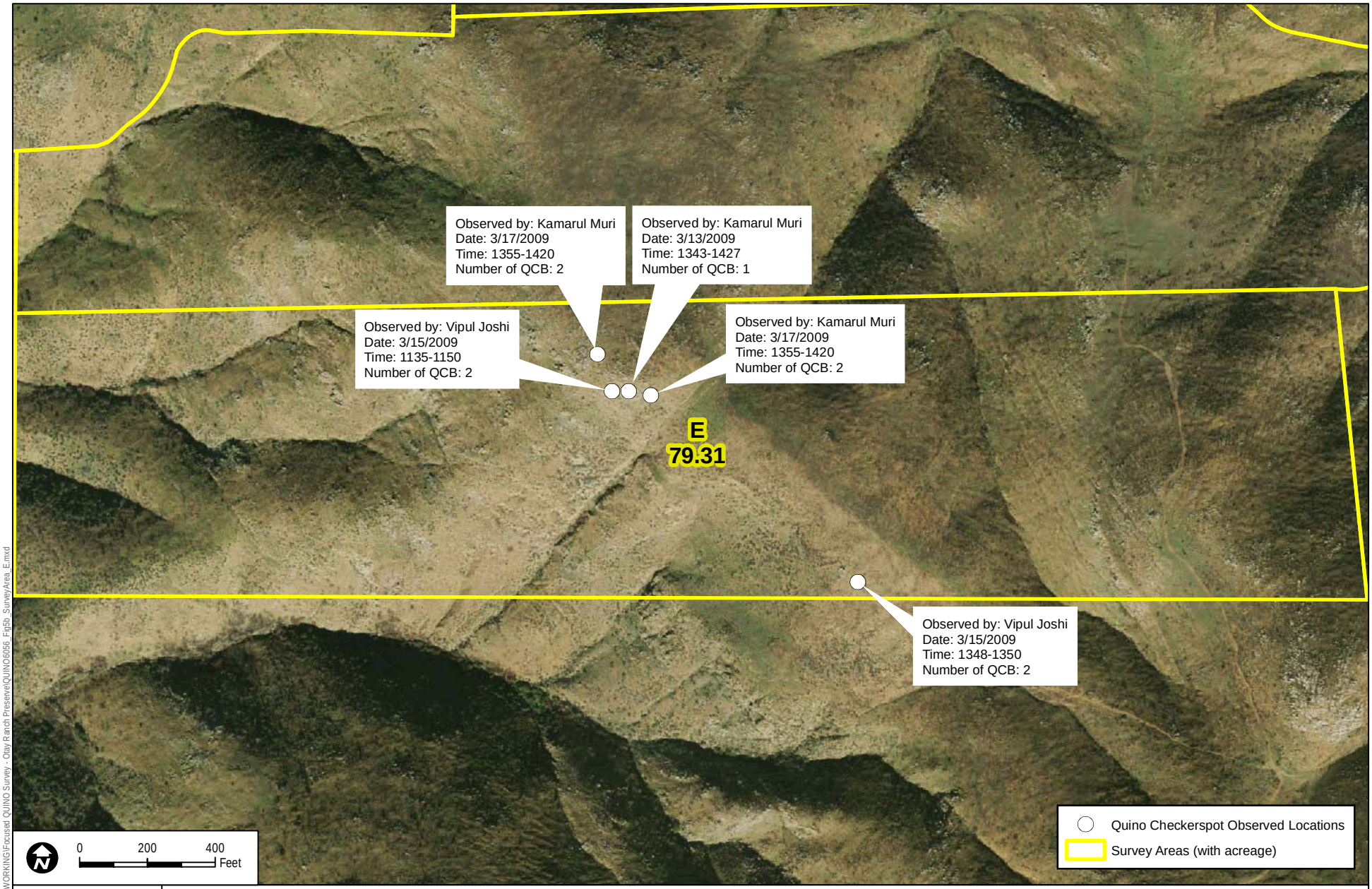
FIGURE 5a

Survey Area A

6056-04

JULY 2009

Otay Ranch Preserve- 2009 Focused Quino Checkerspot Butterfly Report



Z:\Projects\605604\MAPDOC\WORKING\Focused QUINO Survey - Otay Ranch Preserve\QUINO6056_Fig5b_SurveyArea_E.mxd

DUDEK

SOURCE: DigitabGlobe 1/2008

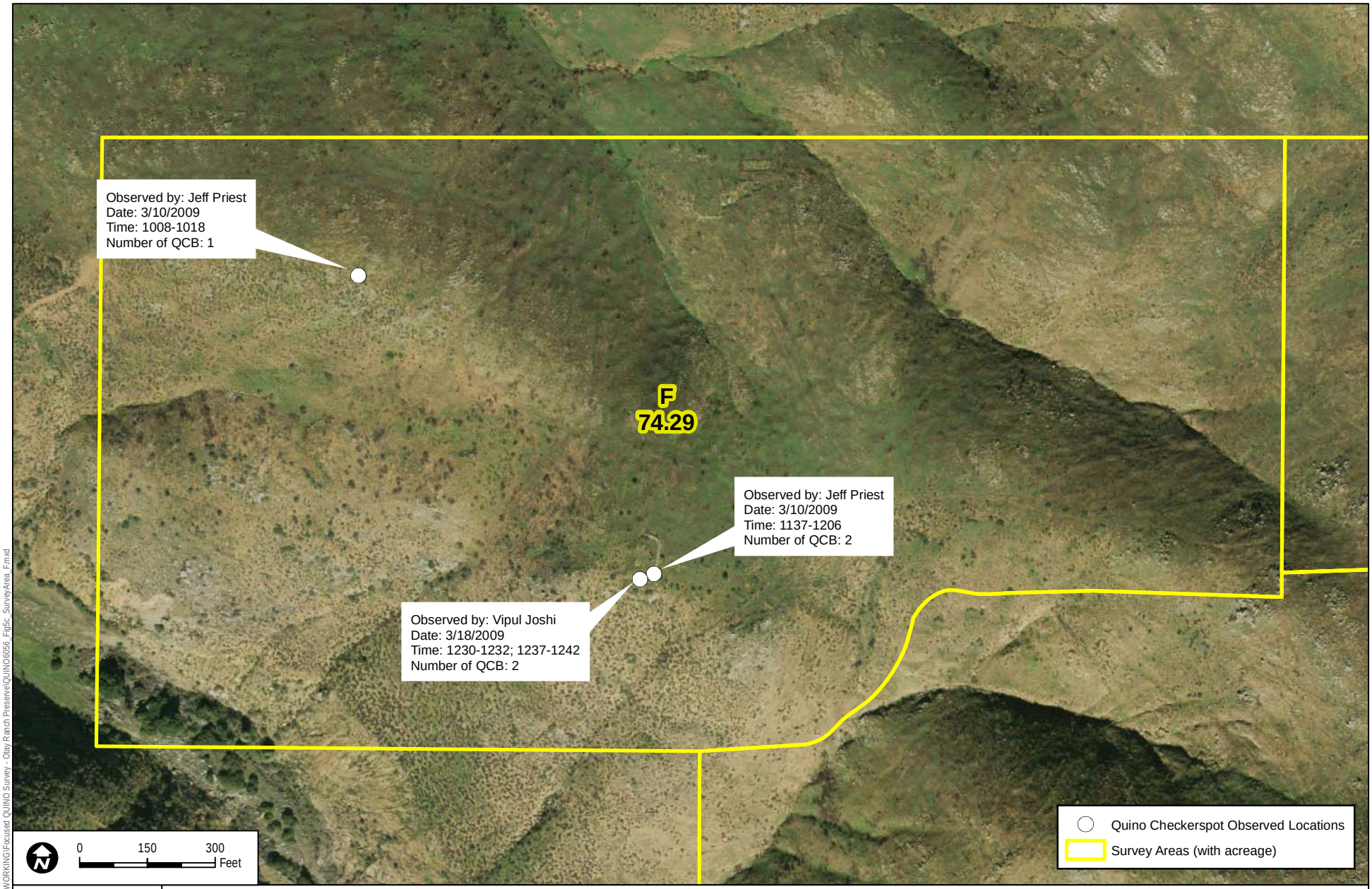
FIGURE 5b

Survey Area E

6056-04

JULY 2009

Otay Ranch Preserve- 2009 Focused Quino Checkerspot Butterfly Report



DUDEK

SOURCE: DigitabGlobe 1/2008

FIGURE 5c

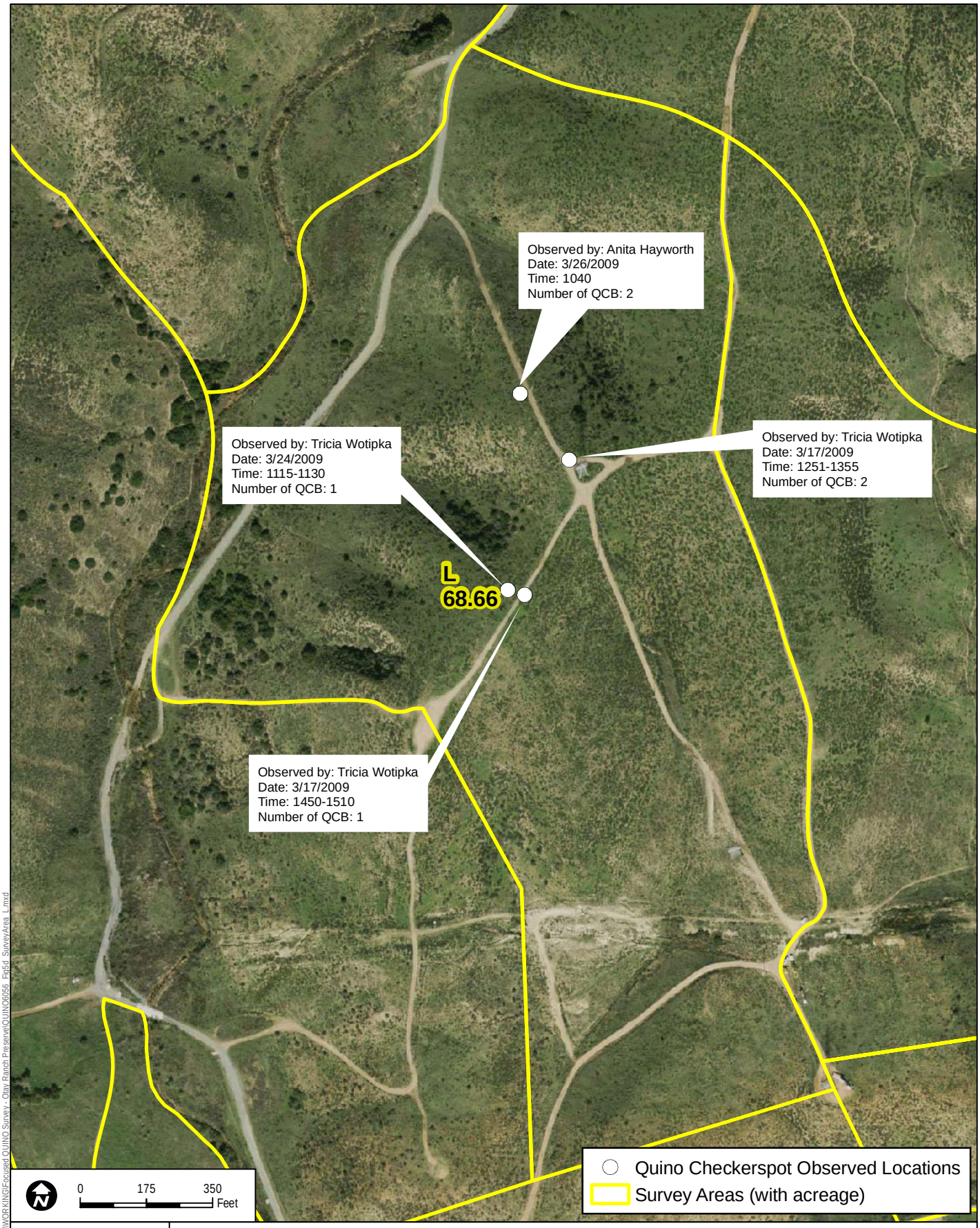
Survey Area F

6056-04

JULY 2009

Otay Ranch Preserve- 2009 Focused Quino Checkerspot Butterfly Report

Z:\Projects\6056\04\MAPDOC\WORKING\Focused QUINO Survey - Otay Ranch Preserve\QUINO6056_Fig5c_SurveyArea_F.mxd



Z:\Projects\6056\04\MAPDOC\WORKING\Focused QUINO Survey - Otay Ranch Preserve\QUINO6056_Fig5d_SurveyArea_L.mxd

DUDEK

6056-04

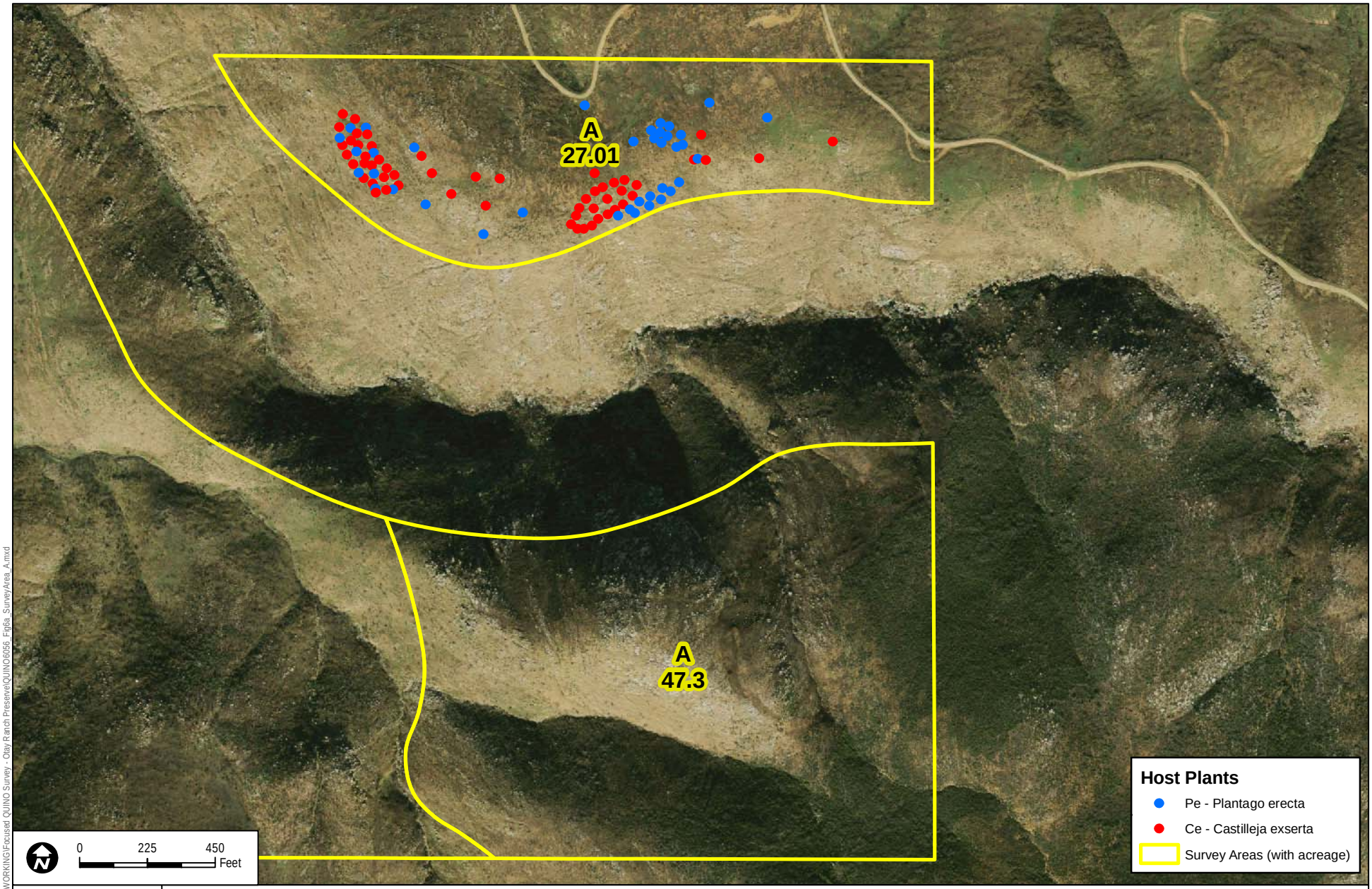
JULY 2009

SOURCE: DigitabGlobe 1/2008

FIGURE 5d

Survey Area L

Otay Ranch Preserve- 2009 Focused Quino Checkerspot Butterfly Report



Z:\Projects\605604\MAPDOC\WORKING\Focused QUINO Survey - Otay Ranch Preserve\QUINO6056_Fig6a_SurveyArea_A.mxd

DUDEK

SOURCE: DigitalGlobe, 01/2008

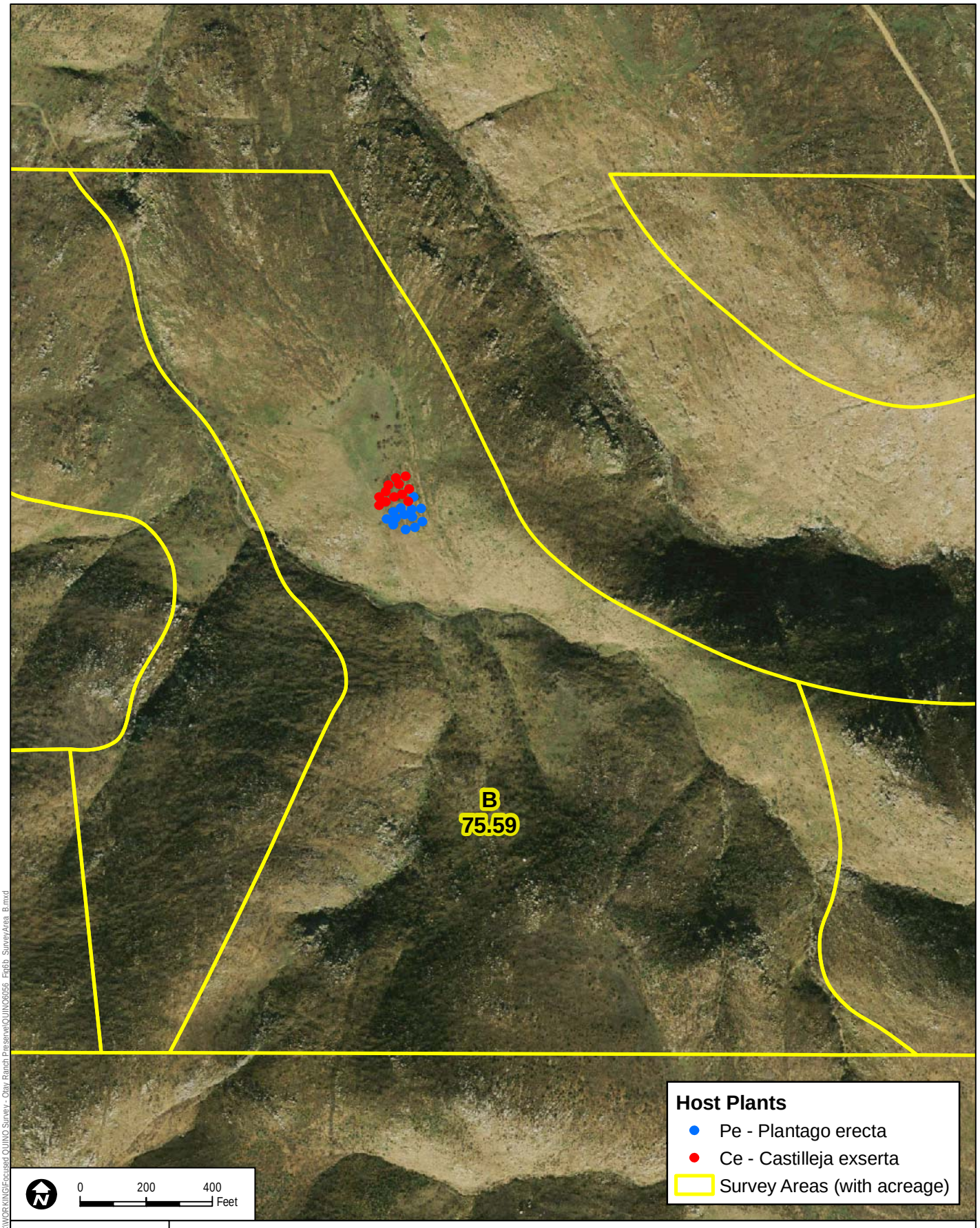
FIGURE 6a

Survey Area A

6056-04

JULY 2009

Otay Ranch Preserve- 2009 Focused Quino Checkerspot Butterfly Report



DUDEK

6056-04

JULY 2009

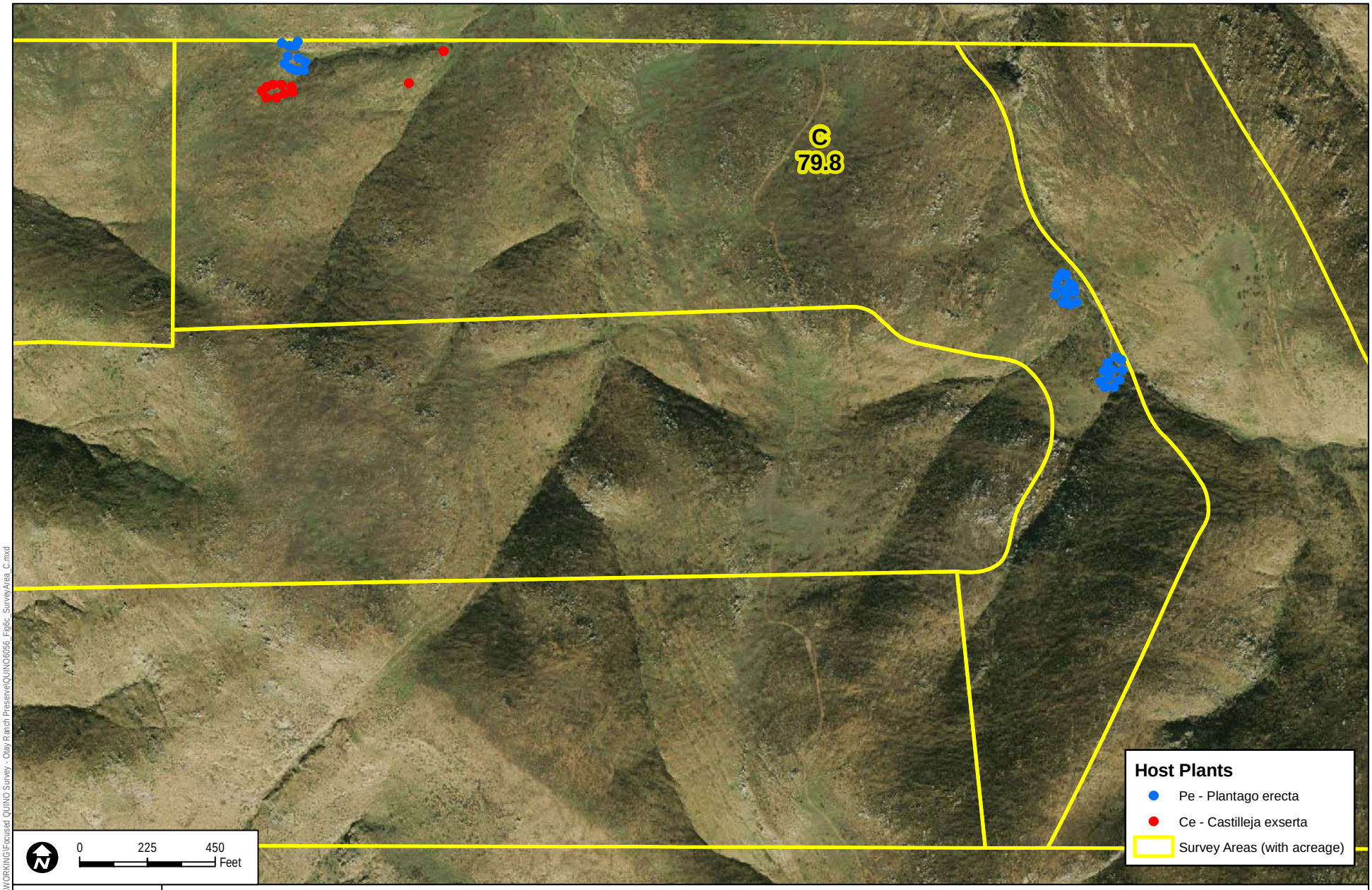
SOURCE: DigitalGlobe 1/2008

FIGURE 6b

Survey Area B

Otay Ranch Preserve- 2009 Focused Quino Checkerspot Butterfly Report

Z:\Projects\6056\04\MAPDOC\WORKING\Focused QUINO Survey - Otay Ranch Preserve\QUINO6056_Fig6b_SurveyArea_B.mxd



SOURCE: DigitalGlobe, 01/2008

FIGURE 6c

Survey Area C

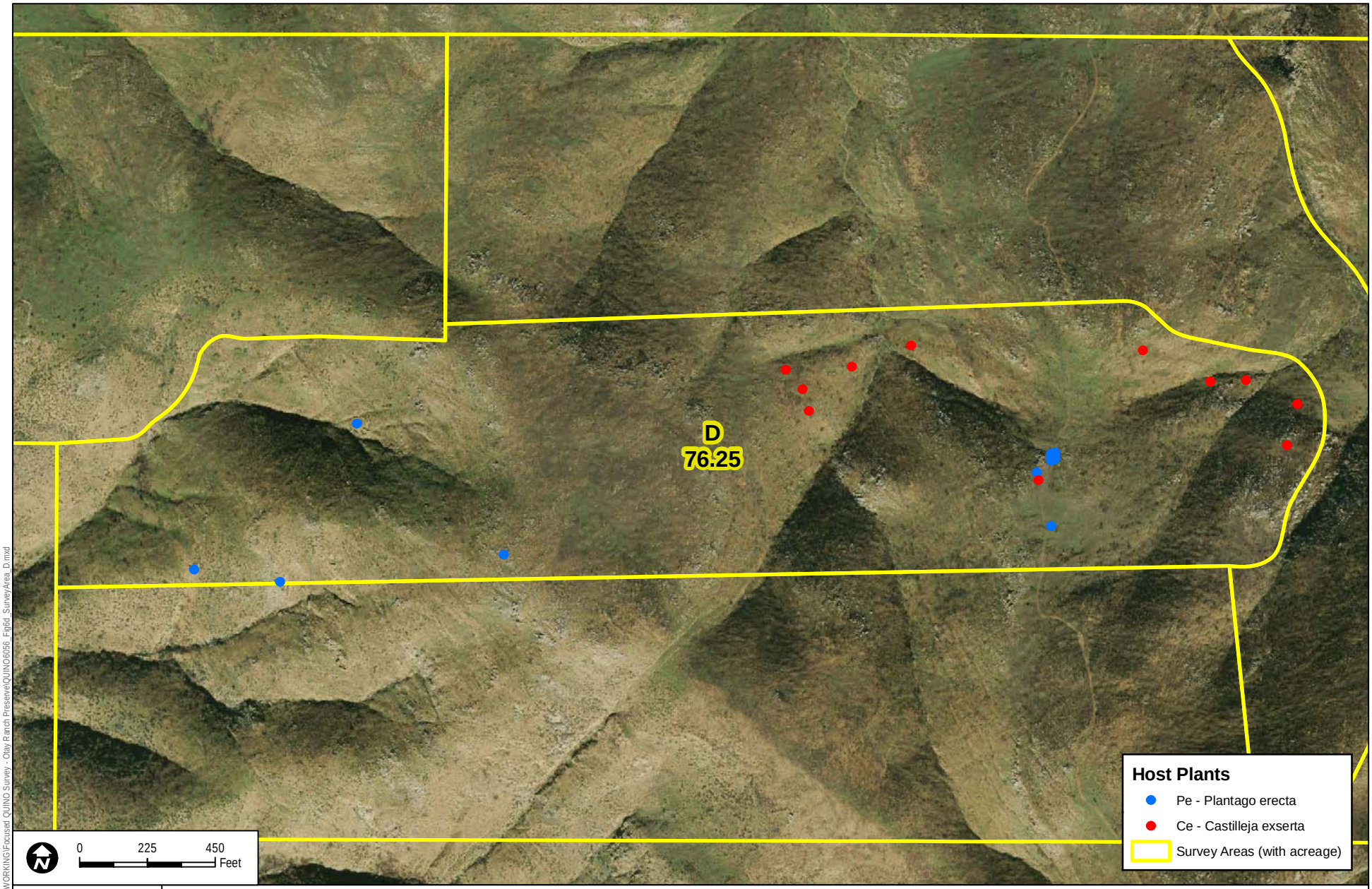
DUDEK

6056-04

JULY 2009

Otay Ranch Preserve- 2009 Focused Quino Checkerspot Butterfly Report

Z:\Projects\6056\MAPDOC\WORKING\Focused QUINO Survey - Otay Ranch Preserve\QUINO6056_Fig6c_SurveyArea_C.mxd



DUDEK

SOURCE: DigitalGlobe, 01/2008

FIGURE 6d

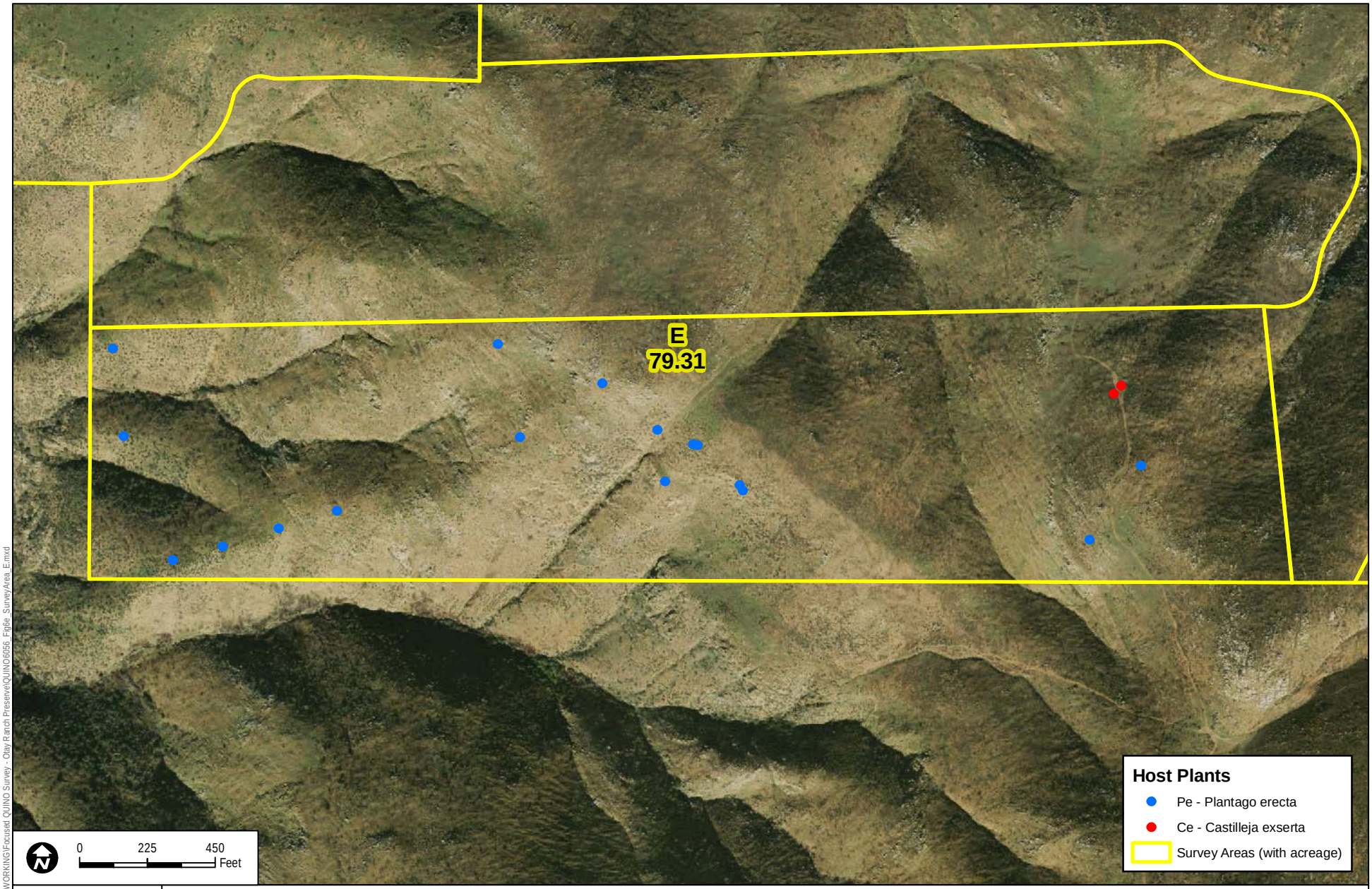
Survey Area D

6056-04

JULY 2009

Otay Ranch Preserve- 2009 Focused Quino Checkerspot Butterfly Report

Z:\Projects\6056\MAPDOC\WORKING\Focused QUINO Survey - Otay Ranch Preserve\QUINO6056_Fig6d_SurveyArea_D.mxd



DUDEK

SOURCE: DigitalGlobe, 01/2008

FIGURE 6e

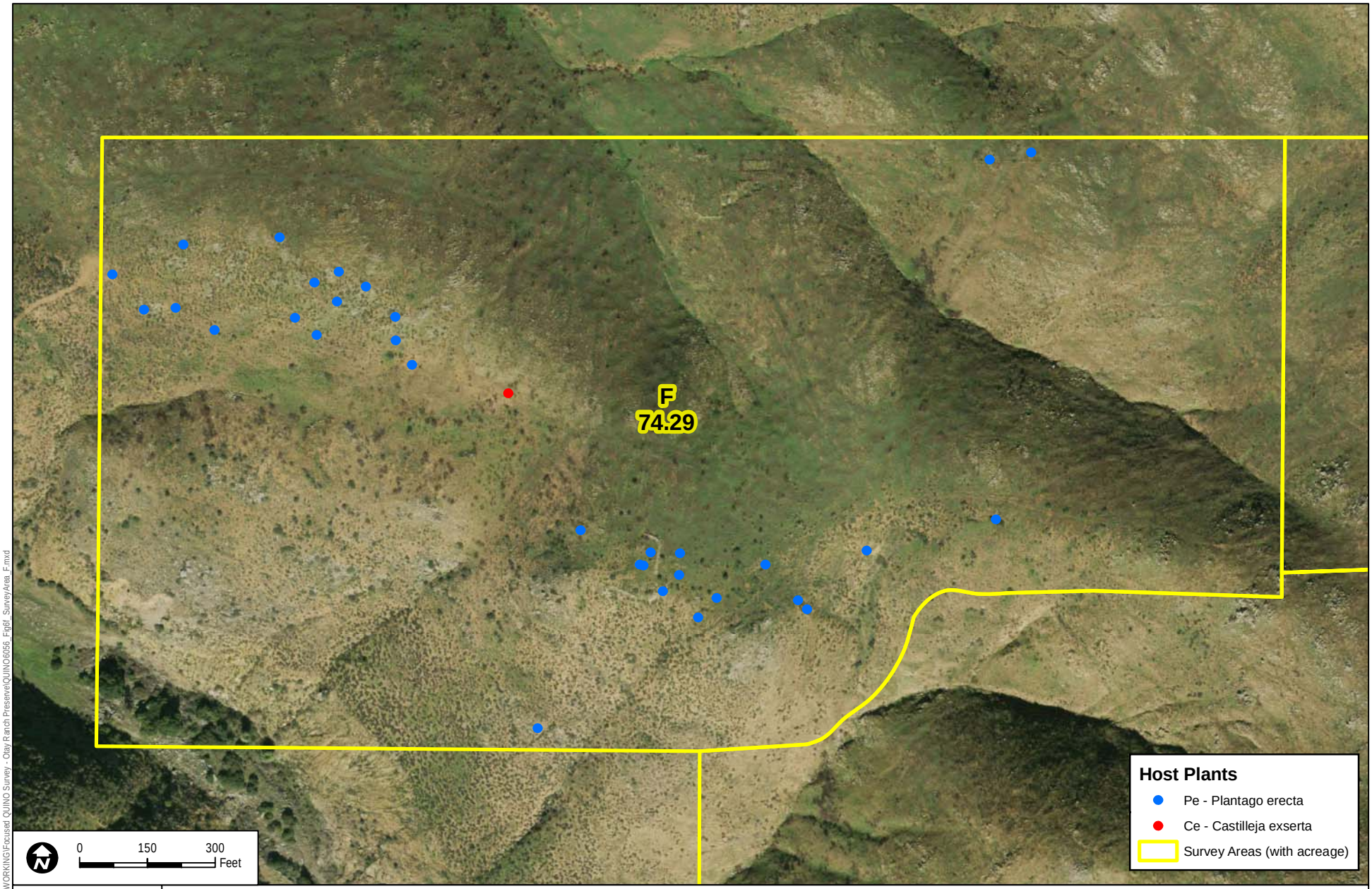
Survey Area E

6056-04

JULY 2009

Otay Ranch Preserve- 2009 Focused Quino Checkerspot Butterfly Report

Z:\Projects\6056\MAPDOC\WORKING\Focused QUINO Survey - Otay Ranch Preserve\QUINO6056_Fig6e_SurveyArea_E.mxd



SOURCE: DigitalGlobe, 01/2008

FIGURE 6f

Survey Area F

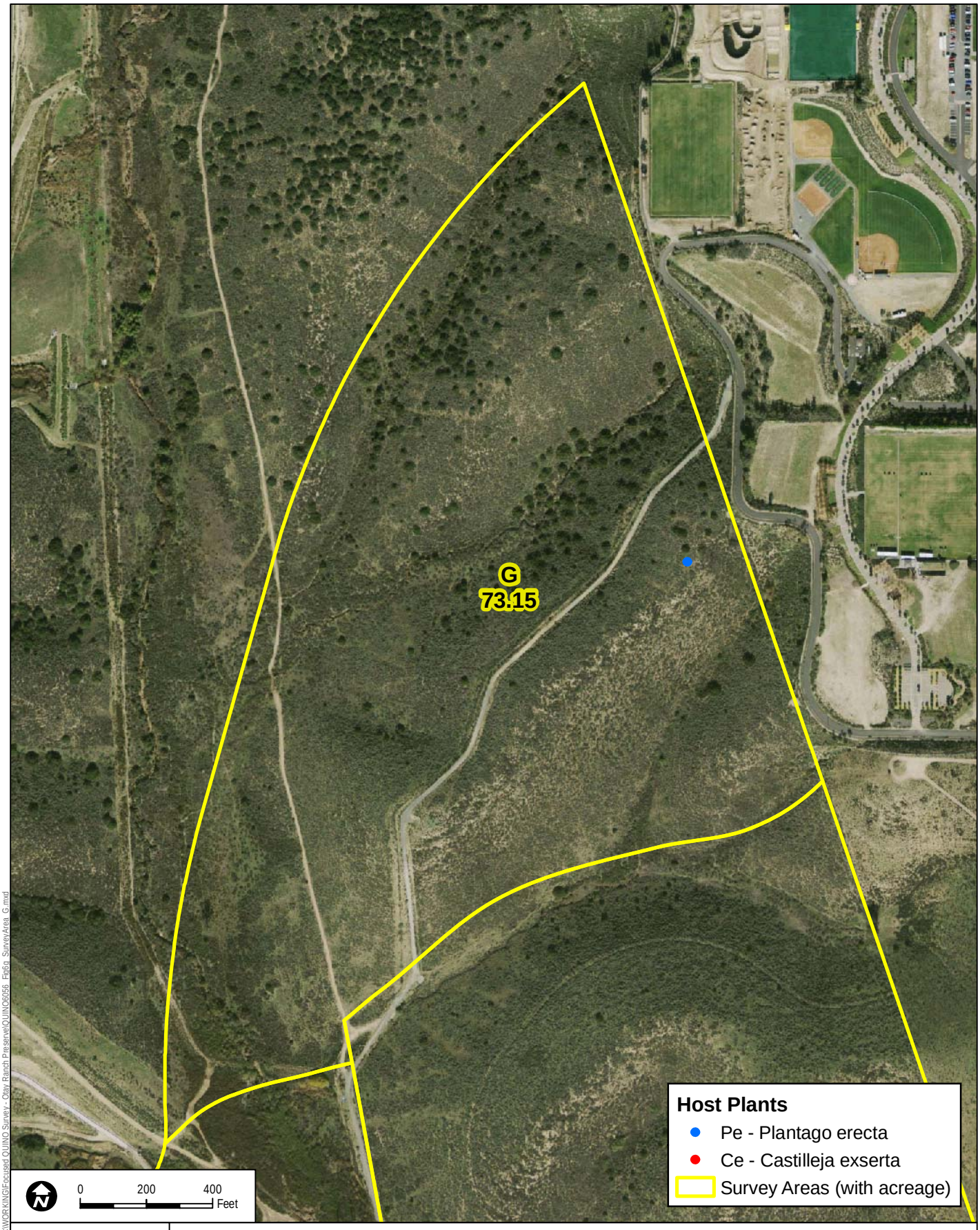
DUDEK

6056-04

JULY 2009

Otay Ranch Preserve- 2009 Focused Quino Checkerspot Butterfly Report

Z:\Projects\6056\MAPDOC\WORKING\Focused QUINO Survey - Otay Ranch Preserve\QUINO6056_Fig6f_SurveyArea_F.mxd



DUDEK

6056-04

JULY 2009

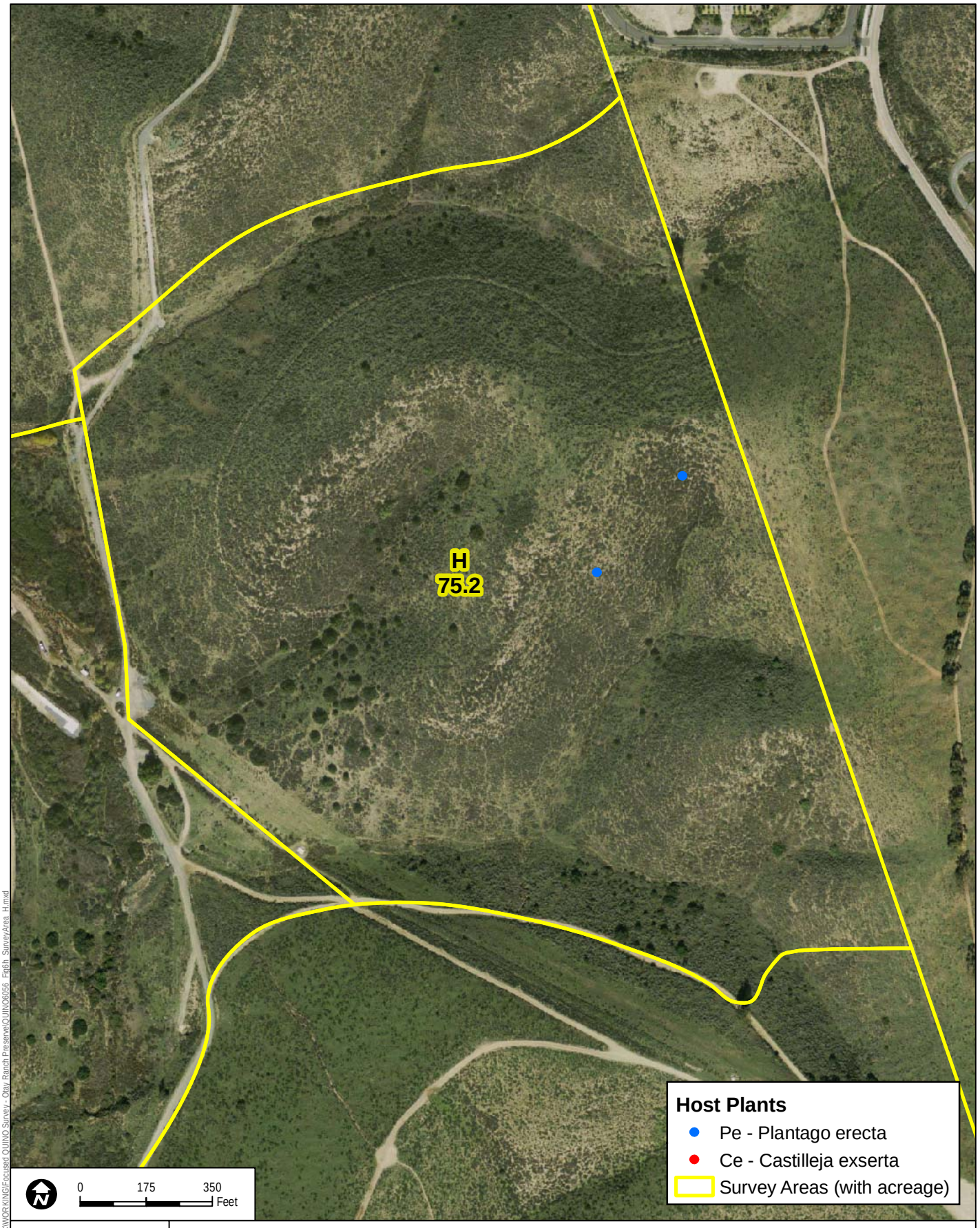
SOURCE: DigitalGlobe 1/2008

FIGURE 6g

Survey Area G

Otay Ranch Preserve- 2009 Focused Quino Checkerspot Butterfly Report

Z:\Projects\6056\04\MAPDOC\WORKING\Focused QUINO Survey - Otay Ranch Preserve\QUINO6056_Fig6g_SurveyArea_G.mxd



DUDEK

6056-04

JULY 2009

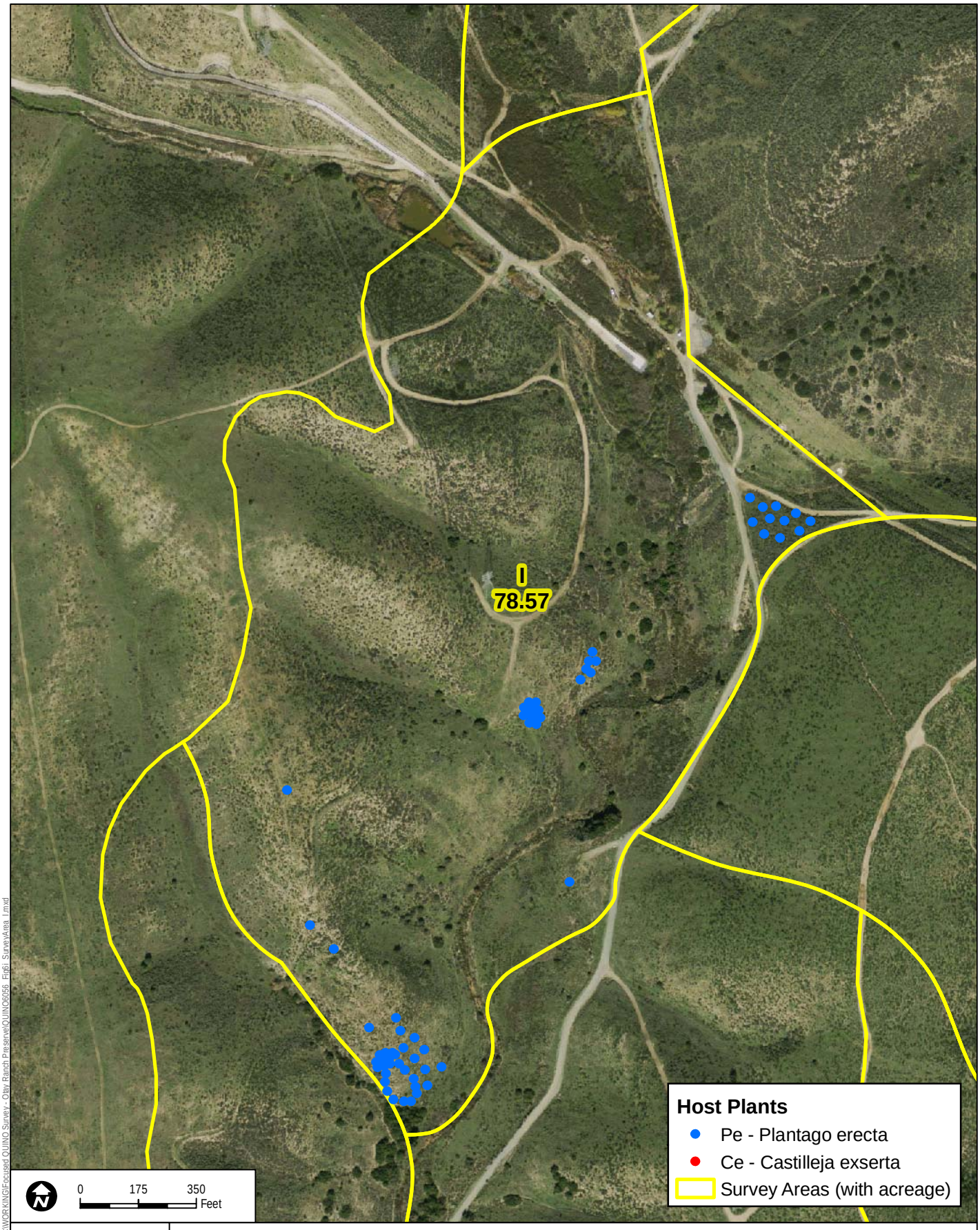
SOURCE: DigitalGlobe 1/2008

FIGURE 6h

Survey Area H

Otay Ranch Preserve- 2009 Focused Quino Checkerspot Butterfly Report

Z:\Projects\6056\04\MAPDOC\WORKING\Focused QUINO Survey - Otay Ranch Preserve\QUINO6056_Fig6h_SurveyArea_H.mxd



DUDEK

6056-04

JULY 2009

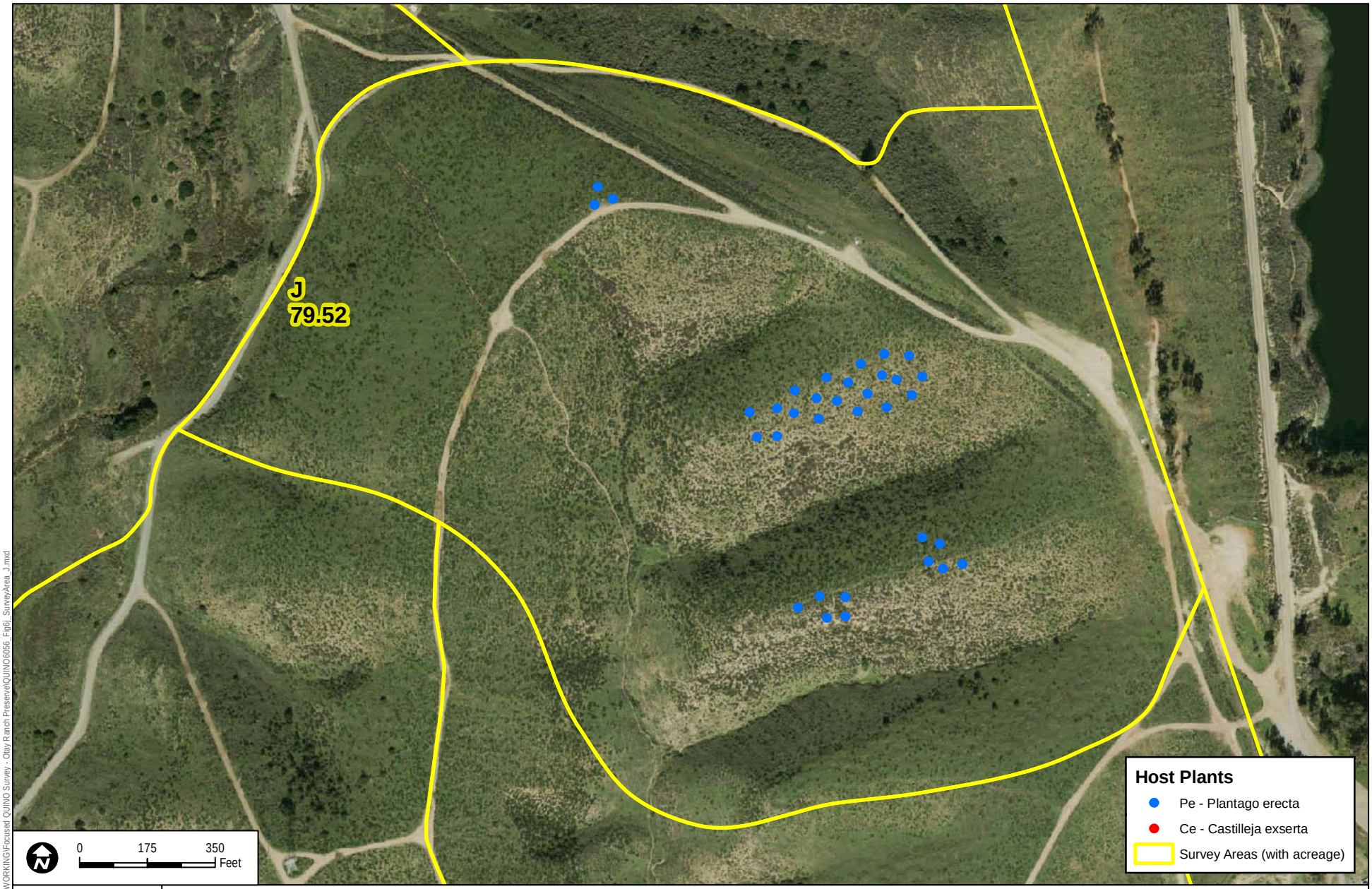
SOURCE: DigitalGlobe 1/2008

FIGURE 6i

Survey Area I

Otay Ranch Preserve- 2009 Focused Quino Checkerspot Butterfly Report

Z:\Projects\6056\04\MAPDOC\WORKING\Focused QUINO Survey - Otay Ranch Preserve\QUINO6056_Fig6i_SurveyArea_I.mxd



DUDEK

SOURCE: DigitalGlobe, 01/2008

FIGURE 6j

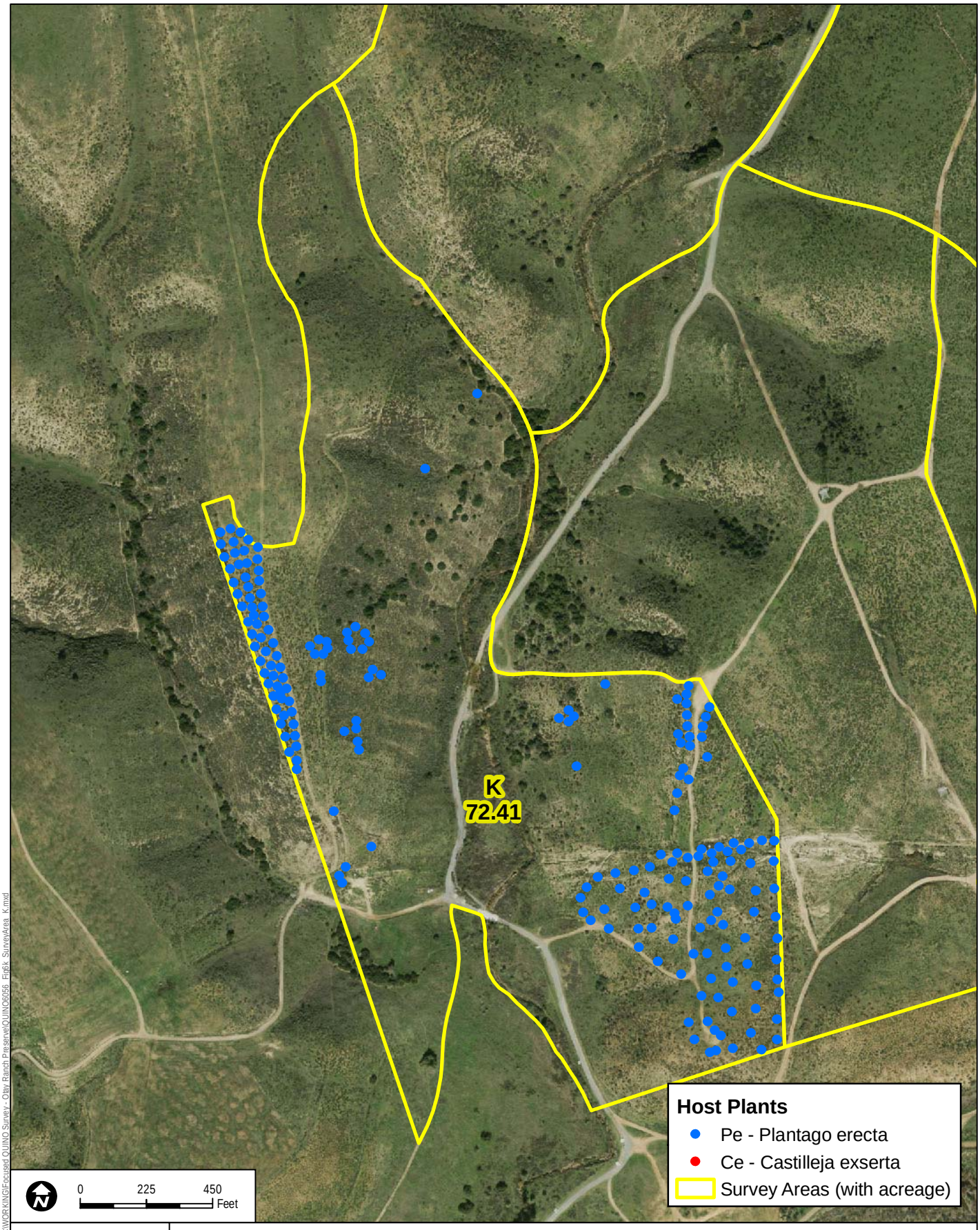
Survey Area J

6056-04

JULY 2009

Otay Ranch Preserve- 2009 Focused Quino Checkerspot Butterfly Report

Z:\Projects\6056\MAPDOC\WORKING\Focused QUINO Survey - Otay Ranch Preserve\QUINO6056_Fig6j_SurveyArea_J.mxd



DUDEK

6056-04

JULY 2009

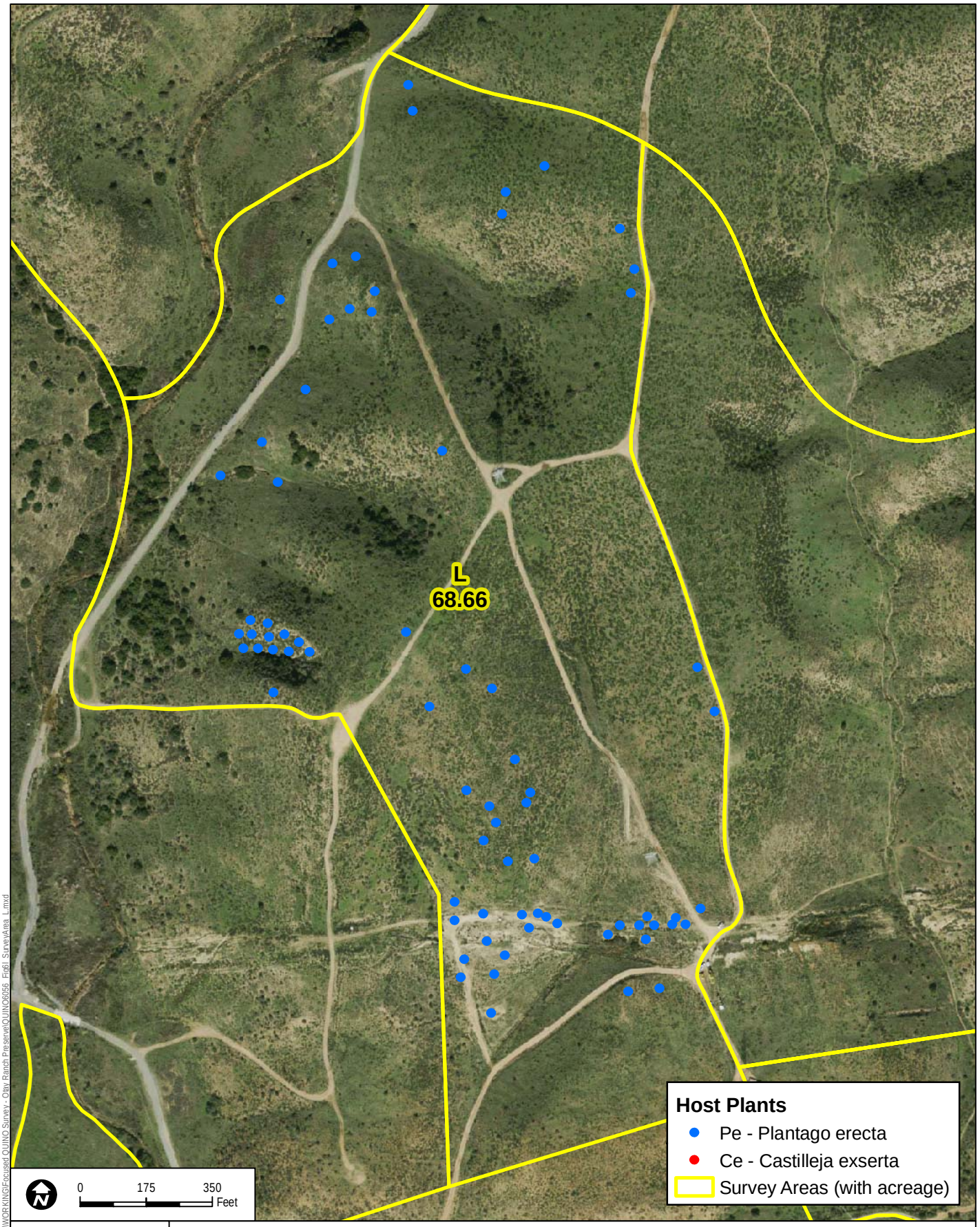
SOURCE: DigitalGlobe 1/2008

FIGURE 6k

Survey Area K

Otay Ranch Preserve- 2009 Focused Quino Checkerspot Butterfly Report

Z:\Projects\6056\04\MAPDOC\WORKING\Focused QUINO Survey - Otay Ranch Preserve\QUINO6056_Fig6k_SurveyArea_K.mxd



DUDEK

6056-04

JULY 2009

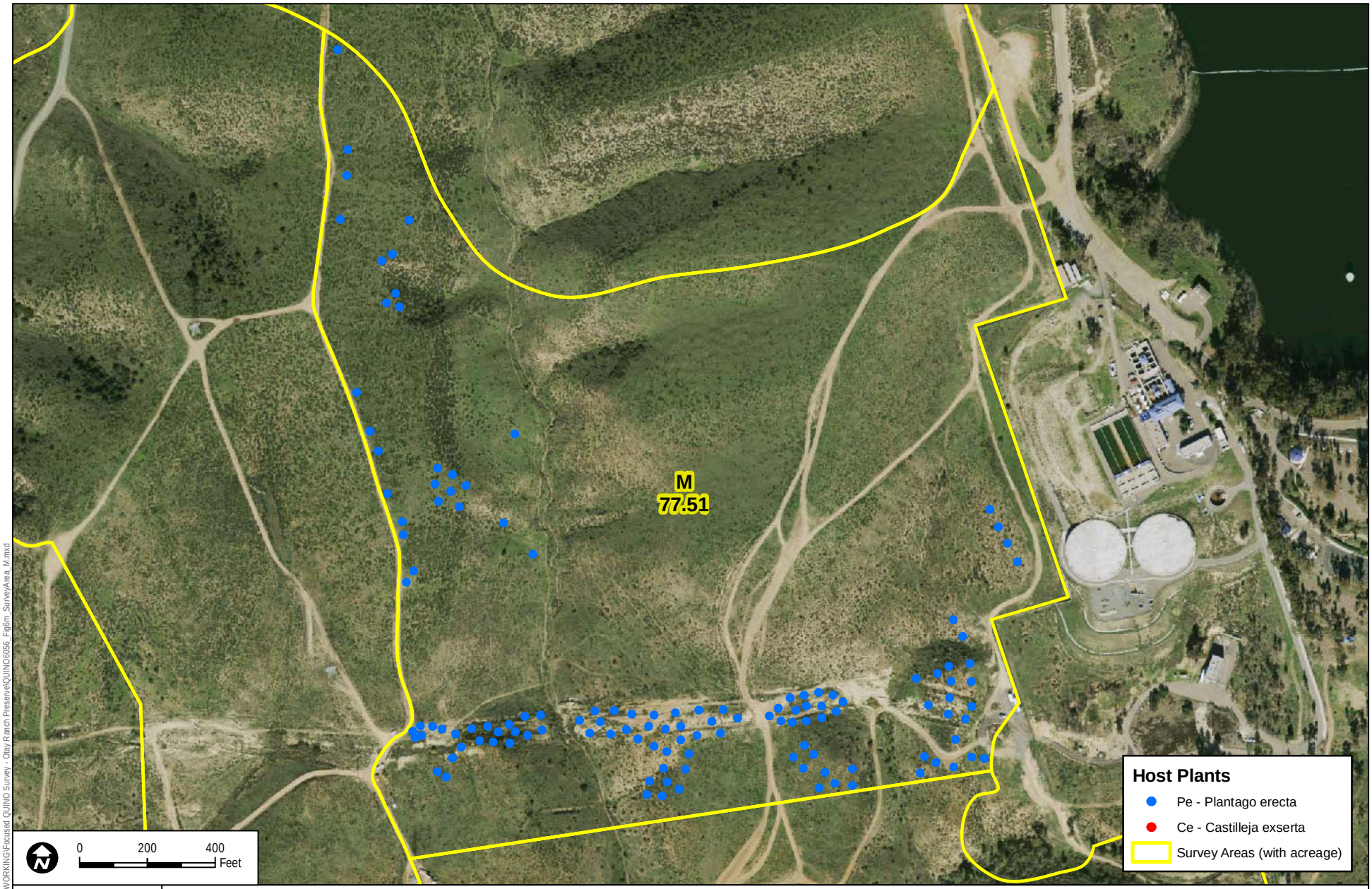
SOURCE: DigitalGlobe 1/2008

FIGURE 6I

Survey Area L

Otay Ranch Preserve- 2009 Focused Quino Checkerspot Butterfly Report

Z:\Projects\6056\04\MAPDOC\WORKING\Focused QUINO Survey - Otay Ranch Preserve\QUINO6056_Fig6I_SurveyArea_L.mxd



SOURCE: DigitalGlobe, 01/2008

FIGURE 6m

Survey Area M

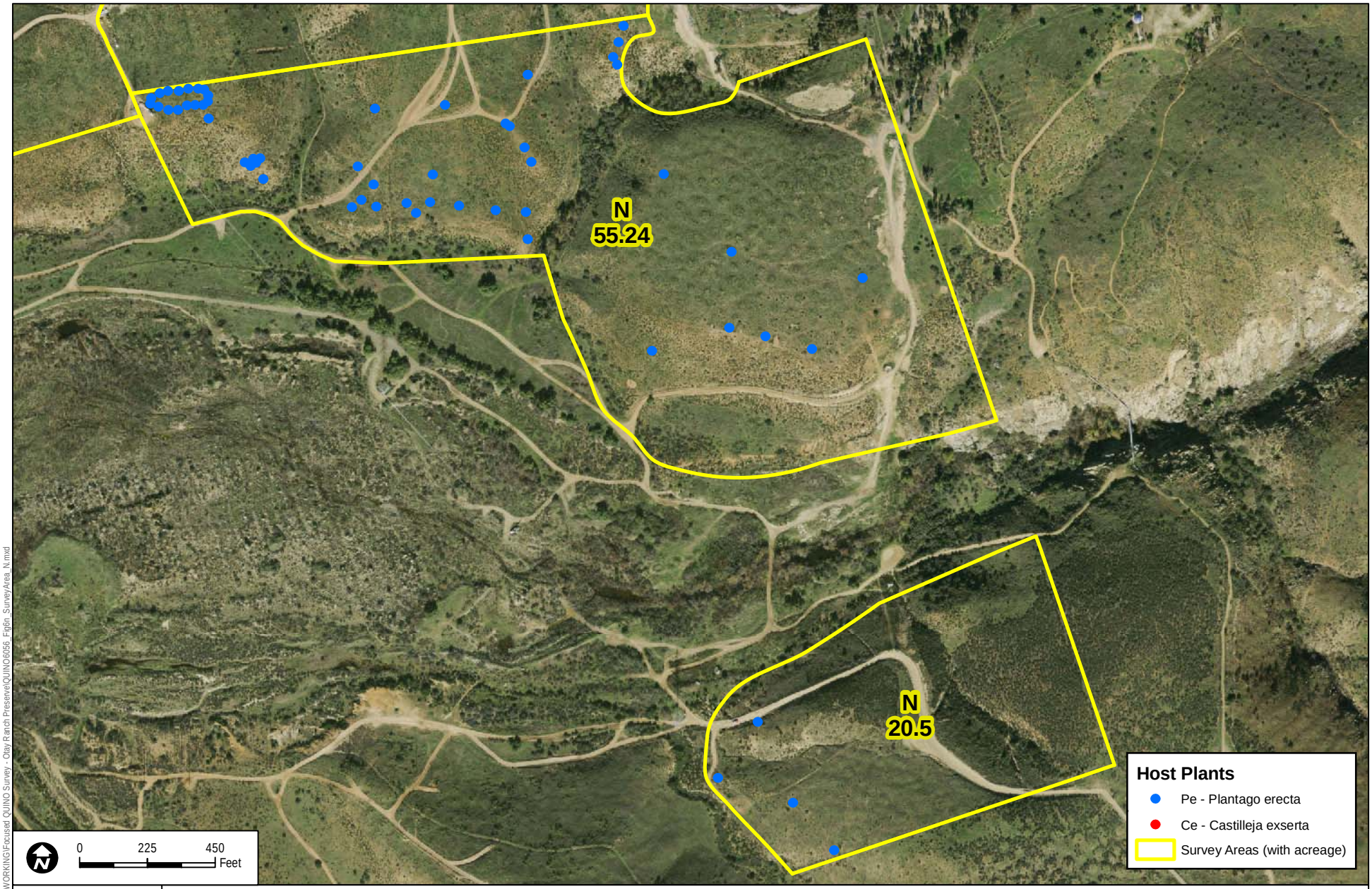
DUDEK

6056-04

JULY 2009

Otay Ranch Preserve- 2009 Focused Quino Checkerspot Butterfly Report

Z:\Projects\6056\04\MAPDOC\WORKING\Focused QUINO Survey - Otay Ranch Preserve\QUINO6056_Fig6m_SurveyArea_M.mxd



SOURCE: DigitalGlobe, 01/2008

FIGURE 6n

Survey Area N

DUDEK

6056-04

JULY 2009

Otay Ranch Preserve- 2009 Focused Quino Checkerspot Butterfly Report

Z:\Projects\6056\04\MAPDOC\WORKING\Focused QUINO Survey - Otay Ranch Preserve\QUINO6056_Fig6n_SurveyArea_N.mxd

APPENDIX A

Wildlife Species Observed or Detected at the Project Site

Appendix A
Wildlife Species Observed or Detected at the Project Site

WILDLIFE SPECIES – VERTEBRATES

AMPHIBIANS

REPTILES

IGUANIDAE – IGUANID LIZARDS

Phrynosoma coronatum – coast horned lizard
Sceloporus occidentalis – western fence lizard
Uta stansburiana – side-blotched lizard

TEIIDAE – WHIPTAIL LIZARDS

Cnemidophorus hyperythrus – orange-throated whiptail
Cnemidophorus tigris – western whiptail

ANGUIDAE – ALLIGATOR LIZARDS

Gerrhonotus multicarinatus – southern alligator lizard

VIPERIDAE – VIPERS

Crotalus atrox – western diamondback rattlesnake
Crotalus ruber – red-diamond rattlesnake

BIRDS

ANATIDAE – WATERFOWL

Anas platyrhynchos – mallard

CATHARTIDAE – NEW WORLD VULTURES

Cathartes aura – turkey vulture

ACCIPITRIDAE – HAWKS

Accipiter cooperii – Cooper's hawk
Accipiter striatus – sharp-shinned hawk
Buteo jamaicensis – red-tailed hawk
Circus cyaneus – northern harrier

FALCONIDAE – FALCONS

Falco sparverius – American kestrel

PHASIANIDAE – PHEASANTS AND QUAILS

Callipepla californica – California quail

CHARADRIIDAE – PLOVERS

Charadrius vociferus – killdeer

COLUMBIDAE – PIGEONS AND DOVES

Zenaida macroura – mourning dove

CUCULIDAE – CUCKOOS AND ROADRUNNERS

Geococcyx californianus – greater roadrunner

STRIGIDAE – TRUE OWLS

Bubo virginianus – great horned owl

APODIDAE – SWIFTS

Aeronautes saxatalis – white-throated swift

TROCHILIDAE – HUMMINGBIRDS

Calypte anna – Anna's hummingbird
Calypte costae – Costa's hummingbird
Selasphorus rufus – rufous hummingbird

TYRANNIDAE – TYRANT FLYCATCHERS

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

ALAUDIDAE – LARKS

Eremophila alpestris – horned lark

HIRUNDINIDAE – SWALLOWS

Petrochelidon pyrrhonota – cliff swallow
Tachycineta thalassina – violet-green swallow

CORVIDAE – JAYS AND CROWS

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

AEGITHALIDAE – BUSHTITS

Psaltriparus minimus – bushtit

TROGLODYTIDAE – WRENS

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

SYLVIIDAE – GNATCATCHERS

Polioptila californica – California gnatcatcher

TIMALIIDAE – LAUGHINGTHRUSH AND WRENTIT

Chamaea fasciata – wrentit

MIMIDAE – THRASHERS

Mimus polyglottos – northern mockingbird
Toxostoma redivivum – California thrasher

LANIIDAE – SHRIKES

Lanius ludovicianus – loggerhead shrike

STURNIDAE – STARLINGS

* *Sturnus vulgaris* – European starling

VIREONIDAE – VIREOS

Vireo bellii – Bell's vireo

PARULIDAE – WOOD WARBLERS

Dendroica coronata – yellow-rumped warbler
Geothlypis trichas – common yellowthroat

EMBERIZIDAE – BUNTINGS AND SPARROWS

Aimophila ruficeps – rufous-crowned sparrow
Ammodramus savannarum – grasshopper sparrow
Amphispiza belli – sage sparrow
Chondestes grammacus – lark sparrow
Melospiza melodia – song sparrow
Passerculus sandwichensis – Savannah sparrow
Pipilo crissalis – California towhee
Pipilo maculatus – spotted towhee
Zonotrichia leucophrys – white-crowned sparrow

CARDINALIDAE – CARDINALS AND GROSBEAKS

Passerina caerulea – blue grosbeak

ICTERIDAE – BLACKBIRDS AND ORIOLES

Agelaius phoeniceus – red-winged blackbird
Sturnella neglecta – western meadowlark

FRINGILLIDAE – FINCHES

Carpodacus mexicanus – house finch
Carduelis psaltria – lesser goldfinch

MAMMALS

LEPORIDAE – HARES AND RABBITS

Lepus californicus – black-tailed jackrabbit
Sylvilagus bachmani – brush rabbit

SCIURIDAE – SQUIRRELS

Spermophilus beecheyi – California ground squirrel

GEOMYIDAE – POCKET GOPHERS

Thomomys bottae – Botta's pocket gopher

HETEROMYIDAE – POCKET MICE AND KANGAROO RATS

Dipodomys merriami – Merriam's kangaroo rat

MURIDAE – RATS AND MICE

Neotoma sp. – woodrat (midden)

CANIDAE – WOLVES AND FOXES

Canis latrans – coyote

CERVIDAE – DEERS

Odocoileus hemionus – mule deer

WILDLIFE SPECIES – INVERTEBRATES

BUTTERFLIES AND MOTHS

HESPERIIDAE – SKIPPERS

Erynnis funeralis – funereal duskywing

PAPILIONIDAE – SWALLOWTAILS

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

PIERIDAE – WHITES AND SULFURS

Anthocharis sara sara – Pacific Sara orangetip
Pieris rapae rapae – cabbage butterfly
Pontia protodice – checkered white
Pontia sisymbrii – California white
Colias Eurydice – California dogface

RIODINIDAE – METALMARKS

Apodemia mormo virgulti – Behr's metalmark

LYCAENIDAE – BLUES, HAIRSTREAKS, AND COPPERS

Brephidium exile – western pygmy blue
Callophrys dumetorum perplexa – perplexing hairstreak
Glaucopsyche lygdamus – southern blue
Icaria acmon acmon – acmon blue
Incisalia augustinus – brown elfin
Leptotes marina – marine blue

NYMPHALIDAE – BRUSH-FOOTED BUTTERFLIES

Chlosyne gabbii gabbii – Gabb's checkerspot
Coenonympha californica californica – California ringlet
Danaus gilippus – queen
Euphydryas editha quino – quino checkerspot
Junonia coenia – buckeye
Vanessa annabella – west coast lady
Vanessa atalanta – red admiral
Vanessa cardui – painted lady
Vanessa virginiensis – Virginia lady

* signifies introduced (non-native) species

APPENDIX B

Nectaring Plants Observed or Detected at the Project Site

APPENDIX B
Nectaring Plants Observed or Detected at Project Site

VASCULAR PLANT SPECIES

ANGIOSPERMS (DICOTS)

ANACARDIACEAE – SUMAC FAMILY

Malosma laurina – laurel sumac
Rhus integrifolia – lemonadeberry

APIACEAE – CARROT FAMILY

Lomatium sp. – lomatium
Sanicula arguta – sharp-toothed sanicle

ASTERACEAE – SUNFLOWER FAMILY

Eriophyllum sp. – yarrow
Gnaphalium bicolor – bicolor cudweed
Lasthenia californica – common goldfields
Osmadenia tenella – osmadenia
Porophyllum gracile – odora
* *Senecio vulgaris – common groundsel*
* *Taraxacum officinale – common dandelion*
Viguiera laciniata – San Diego County viguiera

BORAGINACEAE – BORAGE FAMILY

Amsinckia menziesii -rancher's fireweed
Amsinckia menziesii var. *intermedia* – rancher's fiddleneck
Cryptantha intermedia – Nievitas cryptantha
Heliotropium curassavicum – salt heliotrope
Plagiobothrys collinus var. *californicus* – rough popcornflower

BRASSICACEAE – MUSTARD FAMILY

* *Brassica* sp. – mustard
* *Hirschfeldia incana* – short-pod mustard
Lepidium sp. – peppergrass
Thysanocarpus curvipes – field penny-cress, fan weed

CAPPARACEAE – CAPER FAMILY

Isomeris arborea – bladderpod

CONVOLVULACEAE – MORNING-GLORY FAMILY

Calystegia macrostegia – morning-glory

FABACEAE – PEA FAMILY

Astragalus sp. – locoweed

* *Lathyrus vestitus* – wild pea

Lotus purshianus var. *purshianus* – Spanish-clover

Lotus scoparius var. *scoparius* – deerweed

Lupinus bicolor – miniature lupine

Lupinus hirsutissimus – stinging lupine

Lupinus sparsiflorus – Coulter's lupine

Pickeringia montana var. *tomentosa* – chaparral-pea

GERANIACEAE – GERANIUM FAMILY

* *Erodium botrys* – long-beak filaree/storksbill

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

GROSSULARIACEAE – CURRANT FAMILY

Ribes sp. – currant/gooseberry

HYDROPHYLLACEAE – WATERLEAF FAMILY

Eucrypta chrysanthemifolia – common eucrypta

Nemophila menziesii – baby blue-eyes

Phacelia cicutaria – caterpillar phacelia

Phacelia distans – wild-heliotrope

LAMIACEAE – MINT FAMILY

Salvia columbariae – chia

Scutellaria tuberosa – Danny's skullcap

MALVACEAE – MALLOW FAMILY

Malacothamnus fasciculatus – chaparral bushmallow

NYCTAGINACEAE – FOUR O'CLOCK FAMILY

Mirabilis laevis var. *crassifolia* – wishbone bush

OXALIDACEAE – WOOD-SORREL FAMILY

Oxalis albicans ssp. *californica* – California wood-sorrel

PAPAVERACEAE – POPPY FAMILY

Dicentra chrysantha – golden ear-drops
Eschscholzia californica – California poppy

PLANTAGINACEAE – PLANTAIN FAMILY

Plantago erecta – dot-seed plantain

POLEMONIACEAE – PHLOX FAMILY

Gilia capitata ssp. *abrotanifolia* – ball gilia
Linanthus dianthiflorus – farinose ground pink

POLYGONACEAE – BUCKWHEAT FAMILY

Eriogonum fasciculatum var. *foliolosum* – California buckwheat

PORTULACACEAE – PURSLANE FAMILY

Calandrinia ciliata – red maids

PRIMULACEAE – PRIMROSE FAMILY

Dodecatheon clevelandii ssp. *clevelandii* – Padre's shooting star

ROSACEAE – ROSE FAMILY

Adenostoma fasciculatum – chamise

SCROPHULARIACEAE – FIGWORT FAMILY

Castilleja affinis ssp. *affinis* – coast paintbrush
Castilleja exserta ssp. *exserta* – common owl's-clover
Castilleja foliolosa – woolly Indian paintbrush
Cordylanthus rigidus ssp. *setiger* – dark-tipped bird's-beak
Mimulus aurantiacus – coast monkey flower, bush monkey flower

SOLANACEAE – NIGHTSHADE FAMILY

Solanum parishii – Parish's nightshade

VIOLACEAE – VIOLET FAMILY

Viola pedunculata – Johnny-jump-up

ANGIOSPERMS (MONOCOTS)

LILIACEAE – LILY FAMILY

Allium haematochiton – red-skin onion
Allium praecox – early onion

Dichelostemma capitatum ssp. *capitatum* – blue dicks
Fritillaria biflora – chocolate lily, mission bells
Yucca schidigera – Mohave yucca
Yucca whipplei – our lord's candle

* signifies introduced (non-native) species

APPENDIX C

QCB Observation Notifications with Photographs to USFWS

DUDEK

CORPORATE OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760 942 5147 T 800 450 1818 F 760 632 0164

March 11, 2009 6056-04

U.S. Fish and Wildlife Service
Attn: Recovery Permit Coordinator
6010 Hidden Valley Road
Carlsbad, CA 92009

Re: Notification of Observation of Quino Checkerspot Butterfly for the Otay Preserve, County of San Diego, California.

Dear Recovery Permit Coordinator,

The purpose of this letter is to provide the U. S. Fish and Wildlife Service written notification of Quino checkerspot butterfly (*Euphydryas editha quino*; QCB) observations on the Otay Preserve Property on March 10, 2009. A total of 3 QCB were identified by Jeff Priest (TE-840619) at two locations along the same ridgeline to the southeast of Lower Otay Reservoir. Specifically the butterflies were detected within the USGS 7.5 minute Otay Mesa quadrangle, with all 3 being observed in the NW ¼ of Section 18 T18S, R1E.

The first QCB was observed between 1008 and 1018 on a micro peak/ridgeline. Environmental conditions included 0% cloud cover, winds 0-3 miles per hour (mph), and 67 degrees Fahrenheit (F) at the ground in the shade. The adult QCB was observed flying, chasing off a European cabbage white butterfly (*Pieris rapae*), and sunning on bare ground and rock. The habitat was previously burned disturbed coastal sage scrub (dCSS). The dominant shrubs were deerweed (*Lotus scopar*ius), California sagebrush (*Artemisia californica*), and flat-top buckwheat (*Eriogonum fasciculatum*). The ground cover included approximately 40% bare ground and Erodium (*Erodium botrys* and *E. cicutarium*) as the dominant species. Large patches of plantago (*Plantago erecta*) were in the vicinity of the observation and nectar species included blue dicks (*Dichelostemma capitatum*), deerweed, morning glory (*Calystegia macrostegia*), San Diego county viguiera (*Viguiera laciniata*) and wishbone bush (*Mirabilis californica*).

The second and third QCB were observed on a small peak between 1137 and 1206. Environmental conditions included 0% cloud cover, wind 0-3 mph, and 68 degrees F at the ground in the shade. The 2 QCB were located along the same ridgeline as the first QCB observation, but approximately 800 feet to the southeast. The 2 adults were observed sunning, nectaring on California goldfields (*Lathesinia californica*), chasing off other butterfly species, and interacting with each other by spiraling up into the air together intermittently. The habitat was dCSS; dominant shrubs included flat-top buckwheat, California sagebrush; dominant ground cover was erodium, plantago and California goldfields. Large swaths of plantago and goldfields were present on the peak.

Attached are photos of the 3 QCB observed and the habitat at the 2 locations. Also attached is a copy of the USGS quadrangle with the locations depicted.

Please contact me or Brock Ortega at (760) 942-5147 if there are any questions concerning this observation.

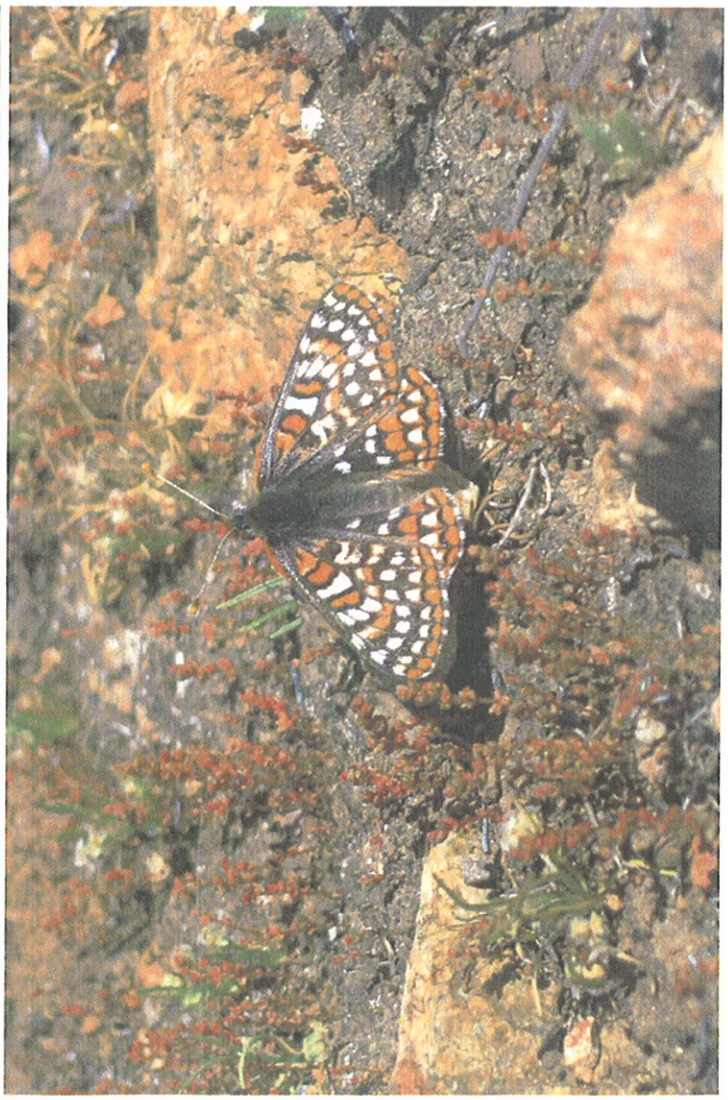
Sincerely,

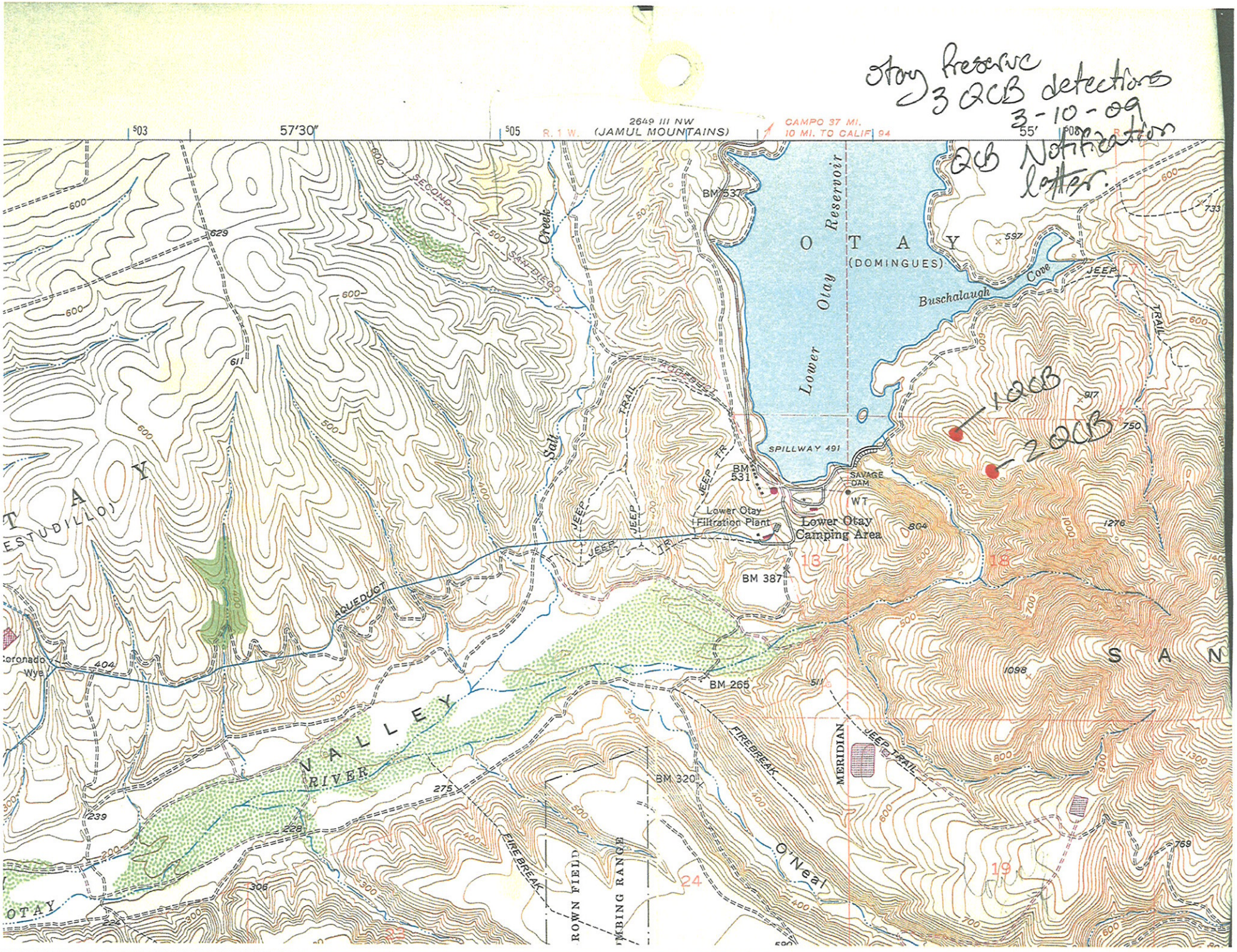
DUDEK

Jeff Priest
Wildlife Biologist

Habitat (2) GQCB location #2

Habitat GQCB location #1




Otay Reserve
3 QCB detections
3-10-09
QCB Notification
letter.
1 QCB
2 QCB
2649 III NW
(JAMUL MOUNTAINS)
CAMPO 37 MI.
10 MI. TO CALIF. 94
57'30"
55'
R. 1 W.
Lower Otay Reservoir
O T A Y
(DOMINGUES)
Buschalaugh Cove
JEEP TRAIL
SECOND
SAN DIEGO
AQUEDUCT
Salt Creek
BM 537
SPILLWAY 491
BM 531
SAVAGE DAM
WT
Lower Otay Filtration Plant
Lower Otay Camping Area
BM 387
JEEP TR
AQUEDUCT
Coronado Wye
BM 265
BM 320
FIREBREAK
MERIDIAN
JEEP TRAIL
O'Neal
ROWN FIELD
MBING RANGE
VALLEY
RIVER
OTAY
S A M
18
19
24

DUDEK

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

March 16, 2009 6056-04

U.S. Fish and Wildlife Service
Attn: Recovery Permit Coordinator
6010 Hidden Valley Road
Carlsbad, CA 92009

Re: Notification of Observation of Quino Checkerspot Butterfly for the Otay Preserve, County of San Diego, California.

Dear Recovery Permit Coordinator,

The purpose of this letter is to provide the U. S. Fish and Wildlife Service written notification of Quino checkerspot butterfly (*Euphydryas editha quino*; QCB) observations on the Otay Preserve Property on March 15, 2009. A total of 4 QCB were identified by Vipul Joshi (TE-019949-2) at two locations along the same ridgeline to the southeast of Lower Otay Reservoir. Specifically the butterflies were detected within the USGS 7.5 minute Otay Mesa quadrangle, with all 4 being observed in the NW ¼ of Section 18 T18S, R1E.

The first two QCB were observed between 1135 and 1150 on a hilltop peak. Environmental conditions included 40% cloud cover, winds 4-8 miles per hour (mph), and 70 degrees Fahrenheit (F) at the ground in the shade. The first QCB was observed flying, chasing off a European cabbage white butterfly (*Pieris rapae*), and sunning on bare ground. The habitat was previously burned southern mixed chaparral (SMX). The dominant shrubs were chamise *(Adenostoma fasiculatum)*, laurel sumac *(Malosma laurina)*, and lemonade berry *(Rhus integrifolia)*. The ground cover included approximately 10% bare ground and filaree (*Erodium botrys* and *E. cicutarium*) as the dominant species. No host plants were located in the immediate vicinity; nectar species included San Diego county viguiera (*Viguiera laciniata*) and popcorn flower *(Cryptantha intermedia)*. The first QCB was observed consistently from 1135 until I left the area at 1150. For approximately 2 minutes at approximately 1140, a second QCB was observed in flight and on the ground. Both QCB individuals were observed simultaneously. Only the first QCB was able to be photographed.

A second observation of QCB occurred between 1348 and 1350. The hilltop where the first QCB observation was made was re-visited at 1340 and no QCB were observed. I proceeded along the ridgeline, down slope and briefly observed two QCB approximately 1,000 feet southeast from the first observation location. Environmental conditions included 10% cloud cover, wind 4-10 mph, and 73 degrees F at the ground in the shade. The 2 adults were observed very briefly on the ground between quick flights in the air together, before they split up and flew across the adjacent slope offsite and could not be relocated. The habitat was a mixture of coastal sage scrub (CSS)

and SMX; dominant shrubs included chamise, San Diego county viguiera, and laurel sumac. Dominant ground cover was filaree, popcorn flower, slender wild oats *(Avena barbata)*, and rock-rose *(Helianthemum scoparium)*. Dot-seed plantain patches are present between the two QCB observation locations. No photos could be taken of these individuals. No individual features were observed that could distinguish the second pair of individuals from the first pair observed and therefore these may be the same individual. All four observations appeared to be freshly emerged butterflies.

Attached are photos of the first QCB observed and the habitat at the two observation locations. Also attached is a copy of the USGS quadrangle with the locations depicted.

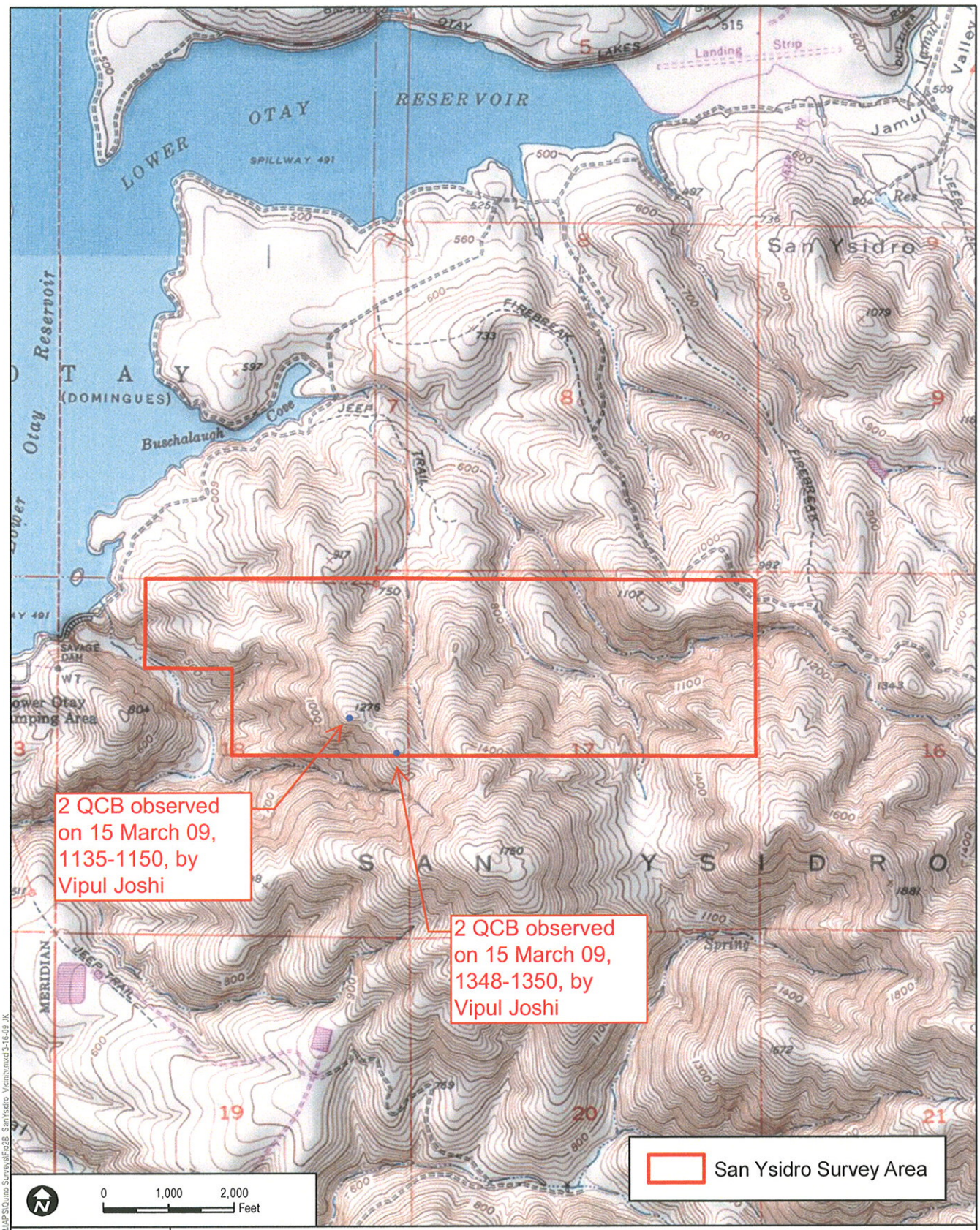
Please contact me or Brock Ortega at (760) 942-5147 if there are any questions concerning this observation.

Sincerely,

DUDEK

Vipul Joshi
Biologist

cc: Brock Ortega, Dudek
Cheryl Goddard, County of San Diego



DUDEK

SOURCE: USGS 7.5 Minute Map Series Otay Mesa and Jamul Mountains Quadrangles.

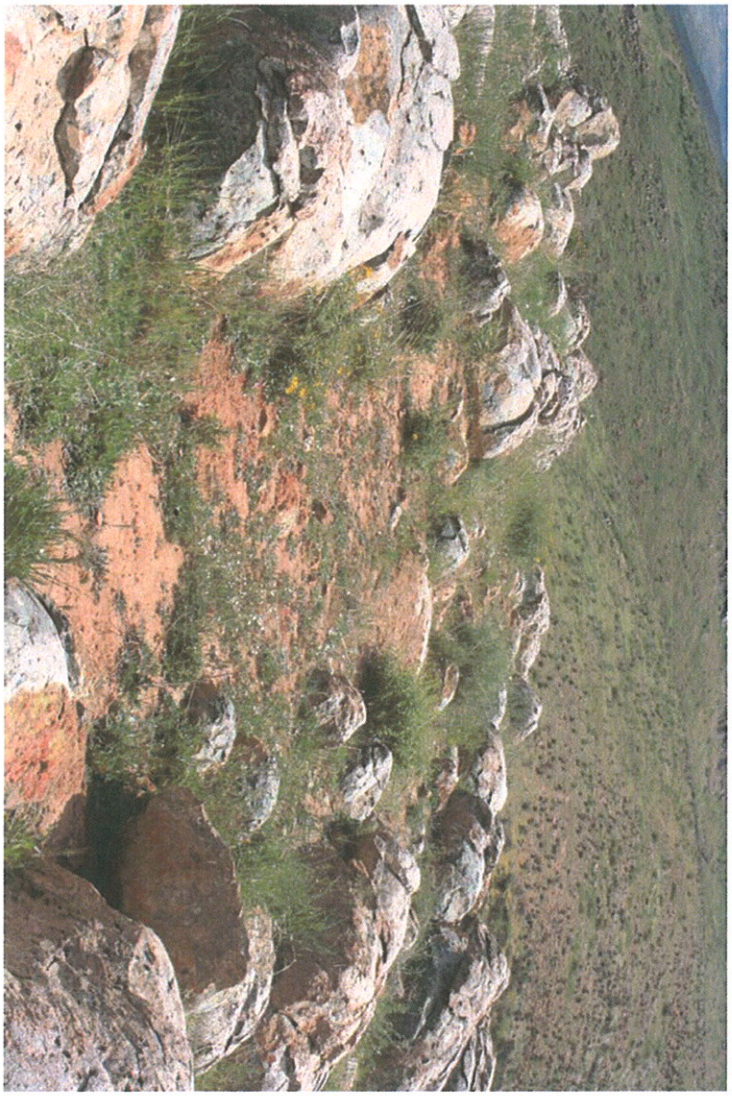
FIGURE 2B
San Ysidro Vicinity Map

6056-04
MARCH 2009

OTAY RANCH PRESERVE

FINAL

Z:\Projects\6056\01\MAPS\CIMAPS\Outro Survey\sir\fig2B_SanYsidro_Vicinity.mxd 3-16-09 JK



Photos of western location taken on 15 March 09 by Vipul Joshi between 1135-1150. General habitat facing southeast (above left); adult QCB (above right); general habitat facing west (right).

Easterly QCB observation location, photos taken by Vipul Joshi on 15 March 09 between 1348-1350. General habitat facing southwest, down slope.

General habitat facing northwest, top of ridge and adjacent slope.

DUDEK

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

March 31, 2009 6056-04

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

Re: Notification of Observation of Quino Checkerspot Butterfly for the Otay Preserve, County of San Diego, California.

Dear Recovery Permit Coordinator,

The purpose of this letter is to provide the U. S. Fish and Wildlife Service written notification of Quino checkerspot butterfly (*Euphydryas editha quino*; QCB) observations on the Otay Preserve Property on March 31, 2009. A total of 2 QCB were identified by Paul Lemons (TE051248) at one location to the south of Lower Otay Reservoir. Specifically the butterflies were detected within the USGS 7.5 minute Otay Mesa quadrangle, with both QCB being observed in the NE ¼ of Section 17 T18S, R1E.

The two QCB were observed on a peak at 12:48pm. Environmental conditions included 0% cloud cover, winds 2-4 miles per hour (mph) with gusts up to 8 mph, and 72 degrees Fahrenheit (F) at the ground in the shade. Both adult QCB were observed flying, chasing off an anise swallowtail and several European cabbage white butterfly (*Pieris rapae*), sunning on bare ground and rock, and interacting with each other by spiraling up into the air together intermittently. The habitat was previously burned chamise chaparral. The dominant shrubs were chamise (*Adenostoma fasciculatum*) and deerweed (*Lotus scopar*ius). The ground cover included approximately 30% bare ground with Erodium (*Erodium botrys* and *E. cicutarium*) as the dominant species. Large patches of plantago (*Plantago erecta*) were in the vicinity of the QCB observation location and nectar species included blue dicks (*Dichelostemma capitatum*), deerweed, morning glory (*Calystegia macrostegia*), San Diego county viguiera (*Viguiera laciniata*) and wishbone bush (*Mirabilis californica*).

Attached is a copy of the USGS quadrangle with the locations depicted.

Please contact me or Brock Ortega at (760) 942-5147 if there are any questions concerning this observation.

Sincerely,

DUDEK

Paul Lemons
Wildlife Biologist


OTAY RESERVOIR
LOWER OTAY
SPILLWAY 491
BM 508
BM 510
BM 515
OTAY
5 LAKES
Landing Strip
Buzzard
Jamul Valley
Jamul
Res
JEEP TR
San Ysidro Mts
3610000m.N.
32°37'30"
BM 537
O T A Y
(DOMINGUES)
Lower Otay Reservoir
Buschalaugh Cove
FIREBREAK
TRAIL
3609
3608
SPILLWAY 491
BM 531
SAVAGE DAM
WT
Lower Otay Filtration Plant
Lower Otay Camping Area
BM 387
BM 265
MERIDIAN
O'Neal
S A N Y S I D R O
Spring
160 000 FEET
3607
3606
3/3/69
Zacb Assmnt
PAUL LEMOS

DUDEK

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

March 19, 2009 6056-04

U.S. Fish and Wildlife Service
Attn: Recovery Permit Coordinator
6010 Hidden Valley Road
Carlsbad, CA 92009

Re: Notification of Observation of Quino Checkerspot Butterfly for the Otay Preserve, County of San Diego, California.

Dear Recovery Permit Coordinator,

The purpose of this letter is to provide the U. S. Fish and Wildlife Service written notification of Quino checkerspot butterfly (*Euphydryas editha quino*; QCB) observations on the Otay Preserve Property on March 18, 2009. A total of 2 QCB were identified by Vipul Joshi (TE-019949-2) at a single hilltop location southeast of Lower Otay Reservoir. Specifically the butterflies were detected within the USGS 7.5 minute Otay Mesa quadrangle, with both being observed in the NW ¼ of Section 18 T18S, R1E.

The two QCB were observed between 1230 and 1232 and again between 1237 and 1242 on a hilltop peak. The location of the observation is the same location in which Jeff Priest observed two QCB on March 10, 2009. Environmental conditions included 0% cloud cover, winds 2-4 miles per hour (mph), and 86 degrees Fahrenheit (F) at the ground in the shade. Both QCBs were observed flying in the air together, on the ground, and on plants. The habitat was disturbed coastal sage scrub; dominant shrubs included flat-top buckwheat *(Eriogonum fasiculatum)*, California sagebrush *(Artemesia californica)* with dominant ground cover consisting of filaree *(Erodium* spp.), dot-seed plantain *(Plantago erecta)*, and California goldenfields *(Lasthenia californica)*.

The other location where Mr. Priest observed a single QCB on March 10, 2009 was also surveyed but no QCB were detected in that area. Attached is a copy of the USGS quadrangle with the location of March 18th observation depicted.

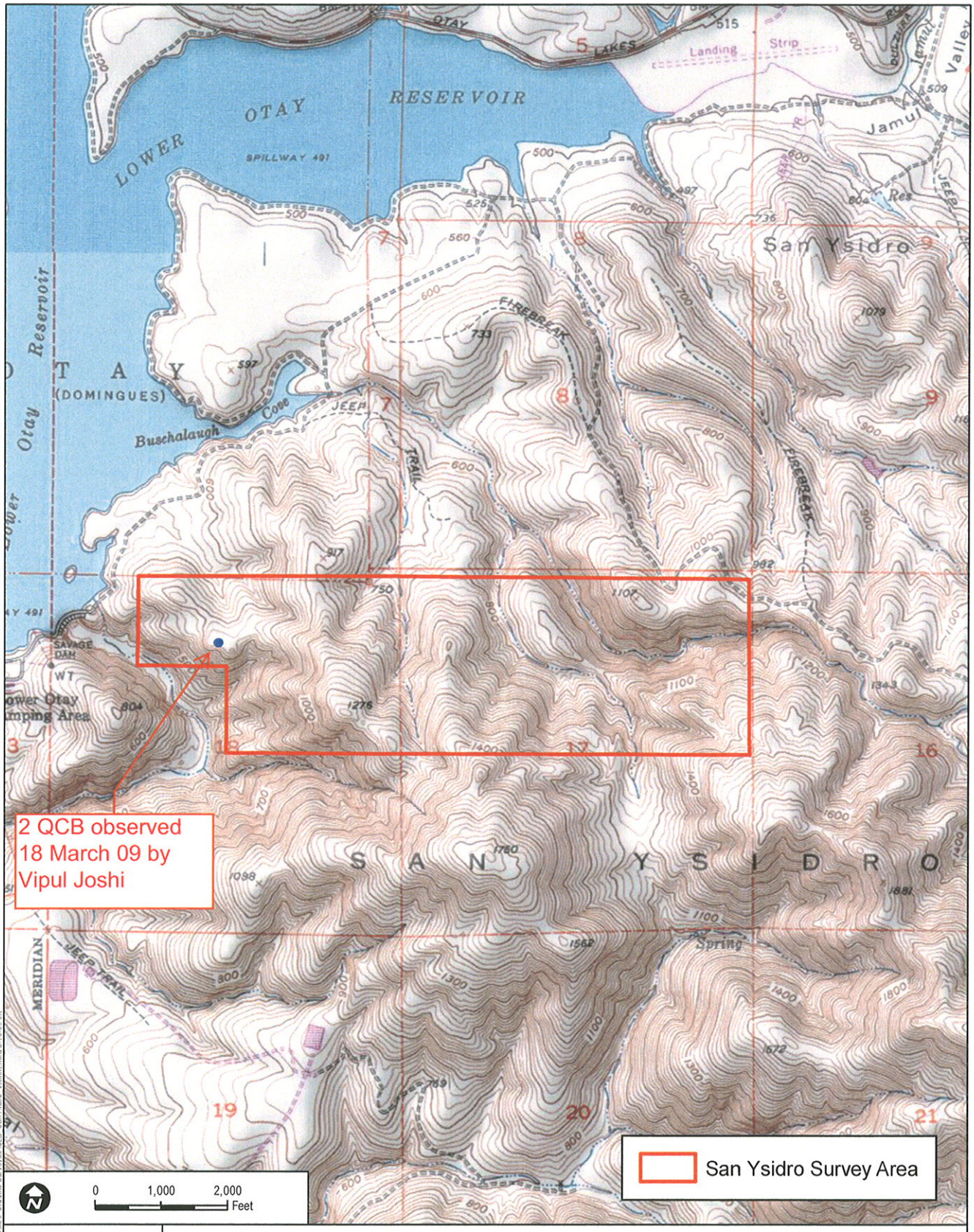
Please contact me or Brock Ortega at (760) 942-5147 if there are any questions concerning this observation.

Sincerely,

DUDEK

Vipul Joshi
Biologist

cc: Brock Ortega, Dudek
Cheryl Goddard, County of San Diego



DUDEK

SOURCE: USGS 7.5 Minute Map Series Otay Mesa and Jamul Mountains Quadrangles.

FIGURE 2B

San Ysidro Vicinity Map

6056-04

MARCH 2009

OTAY RANCH PRESERVE

FINAL

Z:\Projects\6056011\MAPS\Quino Survey\sFig2B_SanYsidro_Vicinity.mxd 3-16-09 JK

DUDEK

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

March 16, 2009 6056-04

U.S. Fish and Wildlife Service
Attn: Recovery Permit Coordinator
6010 Hidden Valley Road
Carlsbad, CA 92009

Re: Notification of Quino Checkerspot Butterfly Detection at Otay Preserve, County of San Diego, California. Permit Number TE-05125.

Dear Recovery Permit Coordinator,

The purpose of this letter is to provide the U. S. Fish and Wildlife Service written notification of an adult Quino checkerspot butterfly (*Euphydryas editha quino*; QCB) observation on the Otay Preserve Property on March 13, 2009. A single adult QCB was identified by Kamarul Muri (TE 05125-1) on a hilltop located along a ridgeline to the southeast of Lower Otay Reservoir. Specifically, the butterfly was detected within the USGS 7.5 minute Otay Mesa quadrangle in the NW ¼ of Section 18 T18S, R1E.

The QCB was observed between 1343 and 1427 hours. Conditions at the time of the observation included clear, sunny skies (0% cloud cover), winds at 3-6 miles per hour, and air temperature of 60 °F in the shade at ground level. The adult QCB was observed intermittently thermo-regulating on patches of bare ground for a few seconds at a time and being stirred by and pursuing other butterflies. Other butterflies observed at the hilltop location included west coast lady (Vanessa annabella), green hairstreak (*Callophrys dumetorum perplexa)*, Behr's metalmark (*Apodemia mormo virgulti)*, Anise swallowtail (*Papilo zelicaon lucas)*, pale swallowtail (*Papilio eurymedon)*, funereal duskywing (*Erynnis funeralis*) and Pacific Sara orangetip (*Anthocharis sara sara)*.

The habitat on the hilltop consisted of previously burned disturbed coastal sage scrub among rocky outcroppings. Vegetation was relatively open, with less than 20% shrub cover. Dominant shrubs included deerweed (*Lotus scopar*ius), California sagebrush (*Artemisia californica*), and flat-top buckwheat (*Eriogonum fasciculatum*). The ground cover included approximately 30% bare ground. Cover of non-native annuals in the area was relatively sparse consisting primarily of filaree (*Erodium botrys* and *E. cicutarium*) and grasses (*Avena barbata*, *Bromus madritensis*). Moderately sized patches of plantago (*Plantago erecta*), between approximately 5 and 16 square feet in size, were located nearby along the top of the gently sloped southwest-facing side of the hilltop. Nectar sources in the vicinity included blue dicks (*Dichelostemma capitatum*), common goldfields (*Lasthenia californica*), deerweed, morning glory (*Calystegia macrostegia*), San Diego county viguiera (*Viguiera laciniata*) and wishbone bush (*Mirabilis californica*).

Attached are photos of the adult QCB and a view of the hilltop location seen from a position on the ridge above the hilltop (i.e. south of the hilltop location). Also attached is a USGS quadrangle showing the location of the hilltop observation.

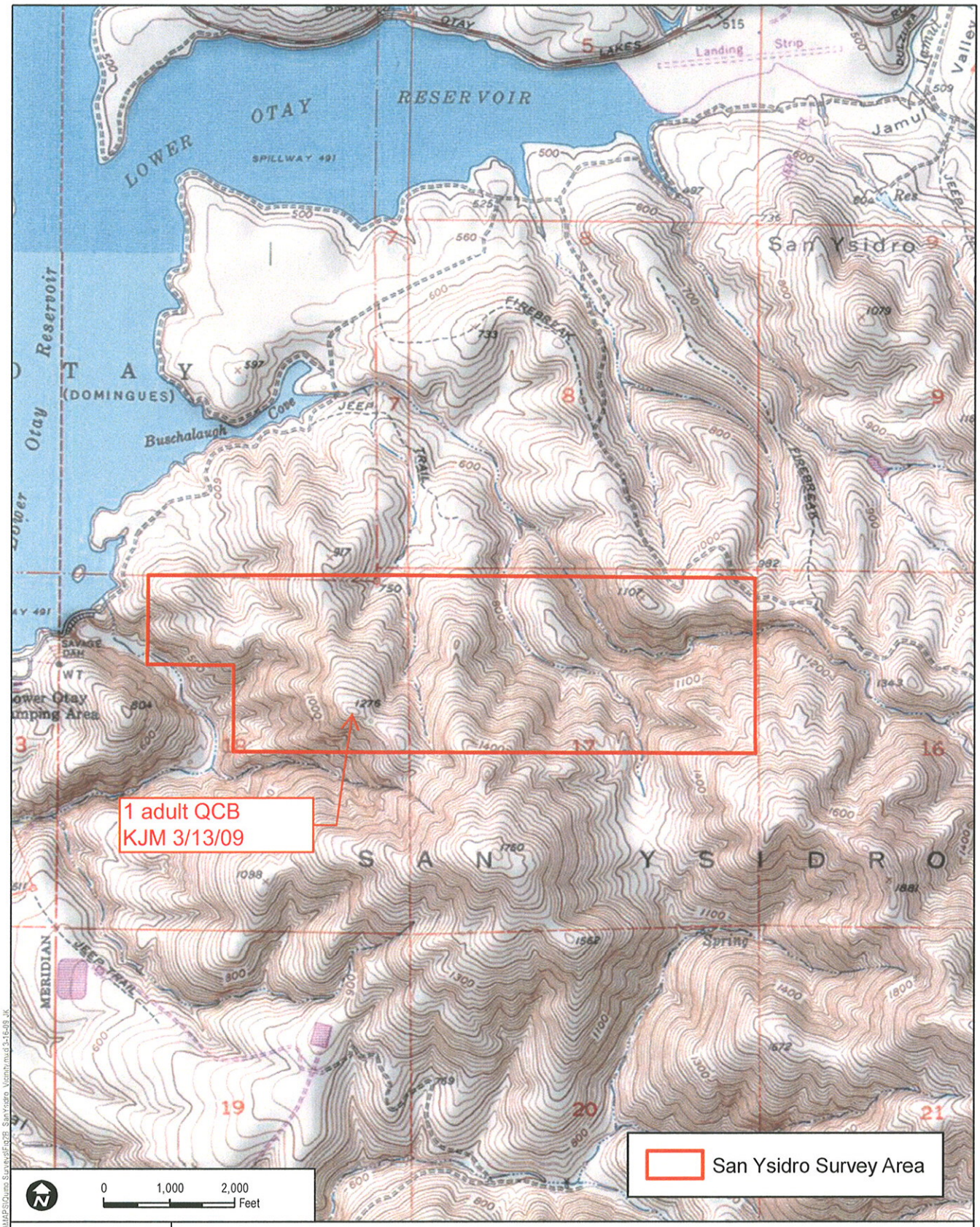
Please contact me or Brock Ortega at (760) 942-5147 if there are any questions concerning this observation.

Sincerely,

DUDEK

Kamarul Muri
Wildlife Biologist

Att: Photos (2)
Figure 2 – San Ysidro Vicinity Map



DUDEK

SOURCE: USGS 7.5 Minute Map Series Otay Mesa and Jamul Mountains Quadrangles

FIGURE 2B
San Ysidro Vicinity Map

6056-04
MARCH 2009

OTAY RANCH PRESERVE

FINAL

Z:\Projects\6056011\MAPDOC\MAPS\Quino Survey\sFig2B_SanYsidro_Vicinity.mxd 3-16-09 JK

DUDEK

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

March 18, 2009 6056-04

U.S. Fish and Wildlife Service
Attn: Recovery Permit Coordinator
6010 Hidden Valley Road
Carlsbad, CA 92009

Re: Notification of Quino Checkerspot Butterfly Detection at Otay Preserve, County of San Diego, California. Permit Number TE-051250.

Dear Recovery Permit Coordinator,

The purpose of this letter is to provide the U. S. Fish and Wildlife Service written notification of the observation of 4 adult Quino checkerspot butterfly (*Euphydryas editha quino*; QCB) on the Otay Preserve Property on March 17, 2009. Four adult QCB were detected by Kamarul Muri (TE 051250-1) on two nearby hilltops located along a ridgeline to the southeast of Lower Otay Reservoir. Specifically, the butterfly was detected within the USGS 7.5 minute Otay Mesa quadrangle in the NW ¼ of Section 18 T18S, R1E.

The QCB were observed between 1355 and 1420 hours. Conditions at the time of the observation included clear, sunny skies (0% cloud cover), winds at 4-8 miles per hour, and air temperature of 72 °F in the shade at ground level. Two of the adult QCB were observed on the main hilltop peak, while another 2 adult QCB were observed on a lesser peak on the same ridgeline approximately 100 feet to the north. At both locations, the adult QCB were observed displaying typical hilltop behavior: intermittently thermo-regulating on patches of bare ground or on rocky areas for a few seconds at a time and being stirred by and pursuing other butterflies.

The 2 adult QCB observed on the main hilltop peak were detected in the same location as a single adult QCB was previously observed on March 13, 2009 by the same surveyor. The 2 QCB appeared to be competing over the same portion of the hilltop and periodically pursued or engaged each other in flight. Other butterflies observed at the hilltop location included west coast lady (Vanessa annabella), green hairstreak (*Callophrys dumetorum perplexa)*, Anise swallowtail (*Papilo zelicaon lucas)*, pale swallowtail (*Papilio eurymedon)*, funereal duskywing (*Erynnis funeralis*) and cabbage white butterfly (*Pieris rapae)*. The habitat on the hilltop consisted of previously burned disturbed coastal sage scrub among rocky outcroppings. Vegetation was relatively open, with less than 20% shrub cover. Dominant shrubs included low-statured San Diego sunflower (*Viguera laciniata*), deerweed (*Lotus scopar*ius), California sagebrush (*Artemisia californica*), and flat-top buckwheat (*Eriogonum fasciculatum*). The ground cover included approximately 30% bare ground. Cover of non-native annuals in the immediate area was relatively sparse consisting primarily of filaree (*Erodium botrys* and *E. cicutarium*) and

grasses (*Avena barbata*, *Bromus madritensis*); however, cover of non-native annuals in the vicinity was much greater. Moderately sized patches of dot-seed plantain (*Plantago erecta*), between approximately 5 and 16 square feet in size, were located nearby along the top of the gently sloped southwest-facing side of the hilltop. Nectar sources in the vicinity included blue dicks (*Dichelostemma capitatum*), common goldfields (*Lasthenia californica*), deerweed, San Diego county viguiera (*Viguiera laciniata*), and popcorn flower (*Cryptantha intermedia*). Attached are photos of one of the adult QCB and the hilltop location where the observations occurred.

The 2 other adult QCB were observed on a lesser hilltop peak slightly down slope approximately 100 feet to the north of where the other 2 QCB were detected (see attached map). Compared to the location where the other 2 QCB were observed, overall butterfly activity was noticeably less. The 2 QCB at this location did not appear to be competing as directly with each other as the previous 2 QCB, i.e. they did not pursue or engage each other in flight to the same extent. Instead, the 2 QCB appeared to maintain positions approximately 20-25 feet apart and were more often disturbed by other butterflies than by each other. The 2 QCB each displayed typical hilltopping behavior, intermittently thermoregulating on the ground or on rock surfaces, and being stirred by and pursuing other butterflies. Other butterflies observed at this location included pale swallowtail (*Papilio eurymedon)*, funereal duskywing (*Erynnis funeralis*), southern blue (*Glaucopsyche lygdamus*) and cabbage white butterfly (*Pieris rapae)*. The habitat was similar to the previous location with previously burned disturbed coastal sage scrub among rocky outcroppings. Vegetation was relatively open, with less than 20% shrub cover. Dominant shrubs included laurel sumac, deerweed, flat-top buckwheat and caterpillar phacelia (*Phacelia cicutaria*). The ground cover included approximately 20% bare ground. Cover of non-native annuals in the immediate area was high and consisted primarily of filaree, foxtail chess and slender wild oat. Nectar sources in the vicinity included blue dicks, deerweed, popcorn flower, and caterpillar phacelia. Attached are photos of the 2 adult QCB observed at this location.

Also attached to this notification is a USGS quadrangle showing the two locations where the QCB detections occurred.

Please contact Brock Ortega or myself at (760) 942-5147 if there are any questions concerning this notification.

Sincerely,

DUDEK

Kamarul Muri
Wildlife Biologist

Att: *Photos (7)*
Figure 2 – San Ysidro Vicinity Map

Cc: *Brock Ortega, Dudek*
Cheryl Goddard, County of San Diego

Photo 1. QCB thermoregulating on rock on main hilltop peak.

Photo 2. Close-up view of same QCB above.

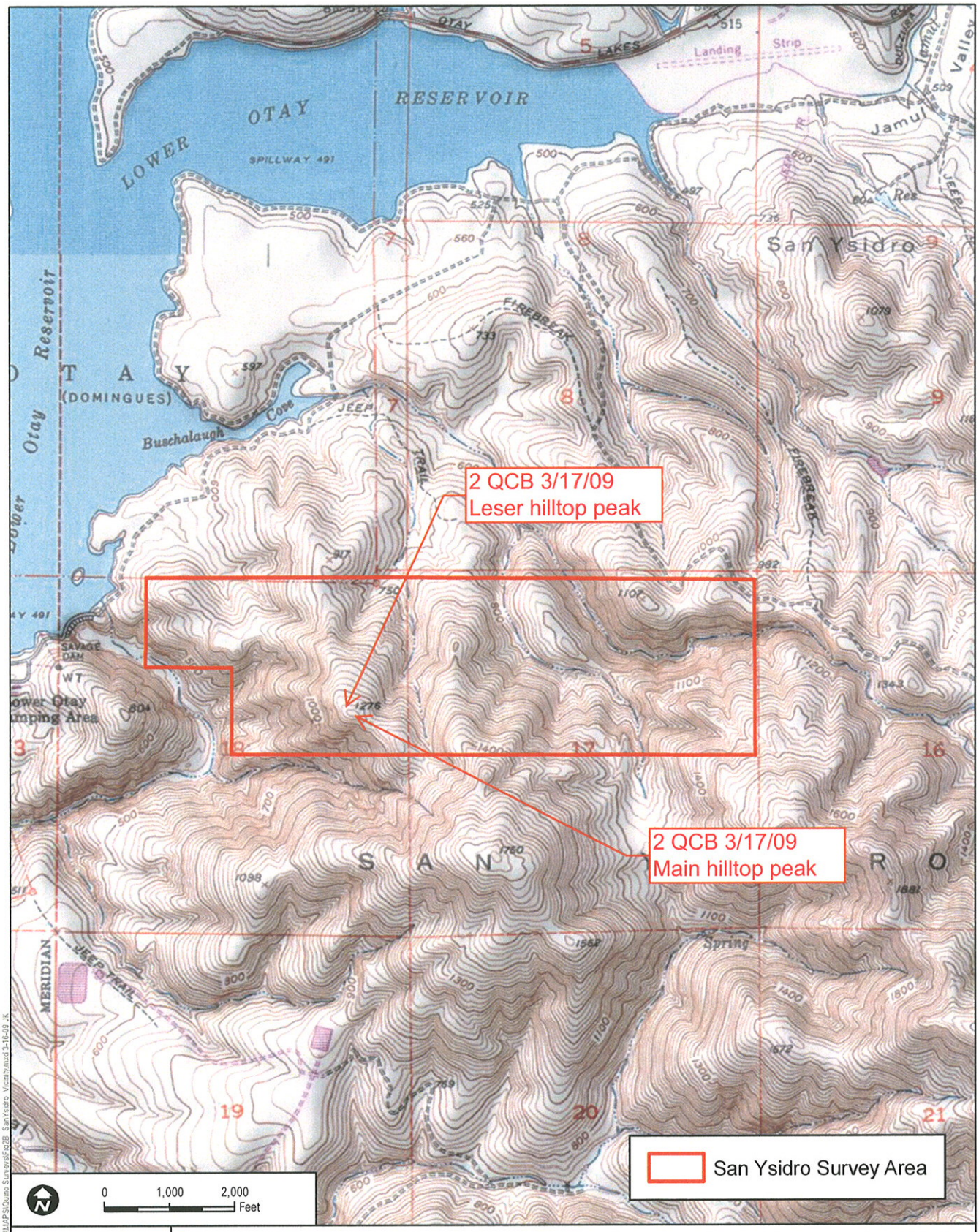
Photo 3. QCB on rocky outcrop at lesser hilltop location down slope approximately 100 feet.

Photo 4. Same QCB resting on a different rock at same location as above.

Photo 5. Second QCB at lesser hilltop location.

Photo 6. Close-up view of same QCB above.

Photo 7. View of hilltop where QCB observations occurred. Main hilltop peak is in the foreground, lesser hilltop area is in the distance approximately 100 feet down slope



DUDEK

SOURCE: USGS 7.5 Minute Map Series Otay Mesa and Jamul Mountains Quadrangles.

FIGURE 2B
San Ysidro Vicinity Map

6056-04
MARCH 2009

OTAY RANCH PRESERVE

FINAL

Z:\Projects\6056\01\MAPDOC\MAPS\Quino Surveys\Fig2B_SanYsidro_Vicinity.mxd 3-16-09 JK

DUDEK

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

March 23, 2009 6056-04

U.S. Fish and Wildlife Service
Attn: Recovery Permit Coordinator
6010 Hidden Valley Road
Carlsbad, CA 92009

Re: Notification of Observation of Quino Checkerspot Butterfly for the Otay Preserve, County of San Diego, California.

Dear Recovery Permit Coordinator,

The purpose of this letter is to provide the U. S. Fish and Wildlife Service written notification of Quino checkerspot butterfly (*Euphydryas editha quino*; QCB) observations on the Otay Preserve Property on March 17, 2009. A total of 3 QCB were identified by Tricia Wotipka (independent investigator under TE-840619) at two locations along the same ridgeline just southwest of the Lower Otay Reservoir. Specifically the butterflies were detected within the USGS 7.5 minute Otay Mesa quadrangle, with all 3 being observed in the SE ¼ of Section 13 T18S, R1W.

Two QCB were observed between 1251 and 1355 along a ridgeline traversed by an approximately 10 foot-wide gravel/rock road. Environmental conditions included 0% cloud cover, winds 2-4 miles per hour (mph), and 79 degrees Fahrenheit (F) at ground level in the shade. The two adult QCB were observed flying, chasing off one another in addition to a European cabbage white butterfly (*Pieris rapae*), interacting with each other by spiraling up into the air together intermittently, and sunning on bare ground and rock. Dominant shrubs in the immediate vicinity of the detection were deerweed (*Lotus scopar*ius), California sagebrush (*Artemisia californica*), and flat-top buckwheat (*Eriogonum fasciculatum*). Ground cover in the immediate vicinity of the road included approximately 10% bare ground, Erodium (*Erodium botrys* and *E. cicutarium*), and ripgut brome (*Bromus diandrus*). Although no plantago (*Plantago erecta*) was detected in the vicinity of the observation, several nectar species were present in adjacent areas including blue dicks (*Dichelostemma capitatum*), deerweed, morning glory (*Calystegia macrostegia*), San Diego County viguiera (*Viguiera laciniata*) and rigid fiddleneck (*Amsinckia menziesii* var. *menziesii*).

The third QCB was located along the same ridgeline as the first QCB observation, but approximately 560 feet to the southwest. It was observed between 1450 and 1510. Environmental conditions included 0% cloud cover, wind 6-9 mph, and 82 degrees F at ground level in the shade. The adult QCB was observed flying, chasing off an anise swallowtail (*Papilo zelicaon lucas*), and sunning on bare ground, rock, and slender wild oat (*Avena barbata*). The habitat was disturbed coastal sage scrub (dCSS); dominant shrubs included flat-top buckwheat,

California sagebrush, and laurel sumac (*Malosma laurina*); dominant ground cover was erodium, slender wild oat, and ripgut brome. Scattered blue dicks were also present along the roadway/ridgeline.

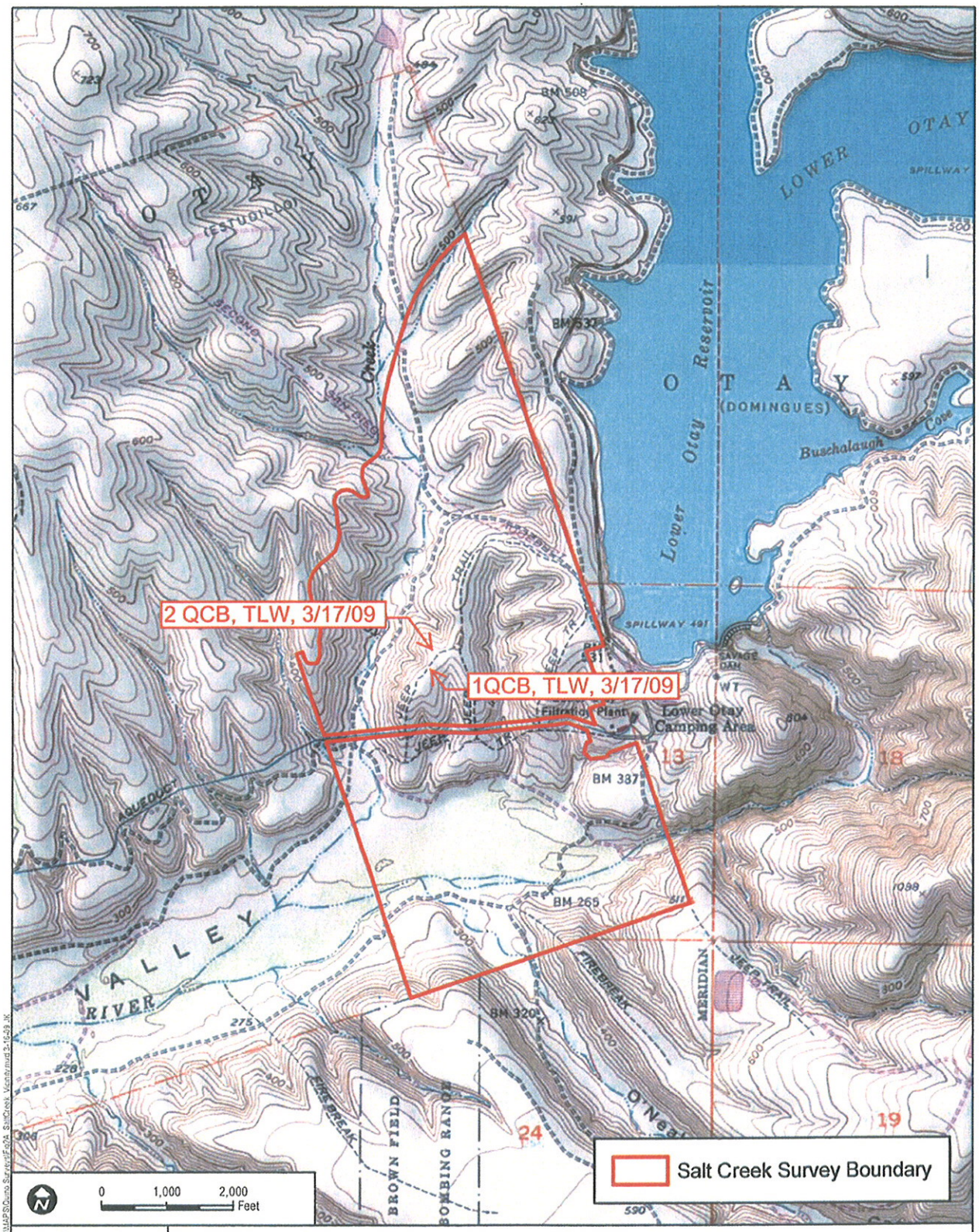
Attached are photos of the 3 QCB observed and the habitat at the 2 locations. Also attached is a copy of the USGS quadrangle with the locations depicted.

Please contact me or Brock Ortega at (760) 942-5147 if there are any questions concerning this observation.

Sincerely,

Tricia Wotipka

Tricia Wotipka
Wildlife Biologist



SOURCE: USGS 7.5 Minute Map Series Otay Mesa and Jamul Mountains Quadrangles.

FIGURE 2A
Salt Creek Vicinity Map

DUDEK

6056-04
MARCH 2009

OTAY RANCH PRESERVE

FINAL

J:\Projects\6056\mxd\PDC\USFWS\Salt Survey\Fig2A_SaltCreek_Vicinity.mxd 3-16-09 JK


Habitat Location #1
2 QCB observed
3/17/09
TLW


Habitat Location #2
1 GCB observed
3/17/09
TLW

DUDEK

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

March 25, 2009 6056-04

U.S. Fish and Wildlife Service
Attn: Recovery Permit Coordinator
6010 Hidden Valley Road
Carlsbad, CA 92009

Re: Notification of Observation of Quino Checkerspot Butterfly for the Otay Preserve, County of San Diego, California.

Dear Recovery Permit Coordinator,

The purpose of this letter is to provide the U. S. Fish and Wildlife Service written notification of Quino checkerspot butterfly (*Euphydryas editha quino*; QCB) observations on the Otay Preserve Property on March 24, 2009. One QCB was identified by Tricia Wotipka (independent investigator under TE-840619) on a 10 foot-wide dirt access along a ridgeline just southwest of the Lower Otay Reservoir. Specifically the QCB was detected within the USGS 7.5 minute Otay Mesa quadrangle in the SE ¼ of Section 13, T18S, R1W.

The adult QCB was observed between 1115 and 1130 along a ridgeline traversed by an approximately 10 foot-wide gravel/rock road. Environmental conditions included 0% cloud cover, winds 6-9 miles per hour (mph), and 82 degrees Fahrenheit (F) at ground level in the shade. The adult QCB was observed flying, chasing off a European cabbage white butterfly (*Pieris rapae*), and sunning on bare ground and rock. Dominant shrubs in the immediate vicinity of the detection were deerweed (*Lotus scopar*ius), California sagebrush (*Artemisia californica*), and flat-top buckwheat (*Eriogonum fasciculatum*). Ground cover in the immediate vicinity of the road included approximately 10% bare ground, Erodium (*Erodium botrys* and *E. cicutarium*), and ripgut brome (*Bromus diandrus*). Although no plantago (*Plantago erecta*) was detected in the immediate vicinity of the observation, several nectar species were present in adjacent areas including blue dicks (*Dichelostemma capitatum*), deerweed, morning glory (*Calystegia macrostegia*), San Diego County viguiera (*Viguiera laciniata*) and rigid fiddleneck (*Amsinckia menziesii* var. *menziesii*).

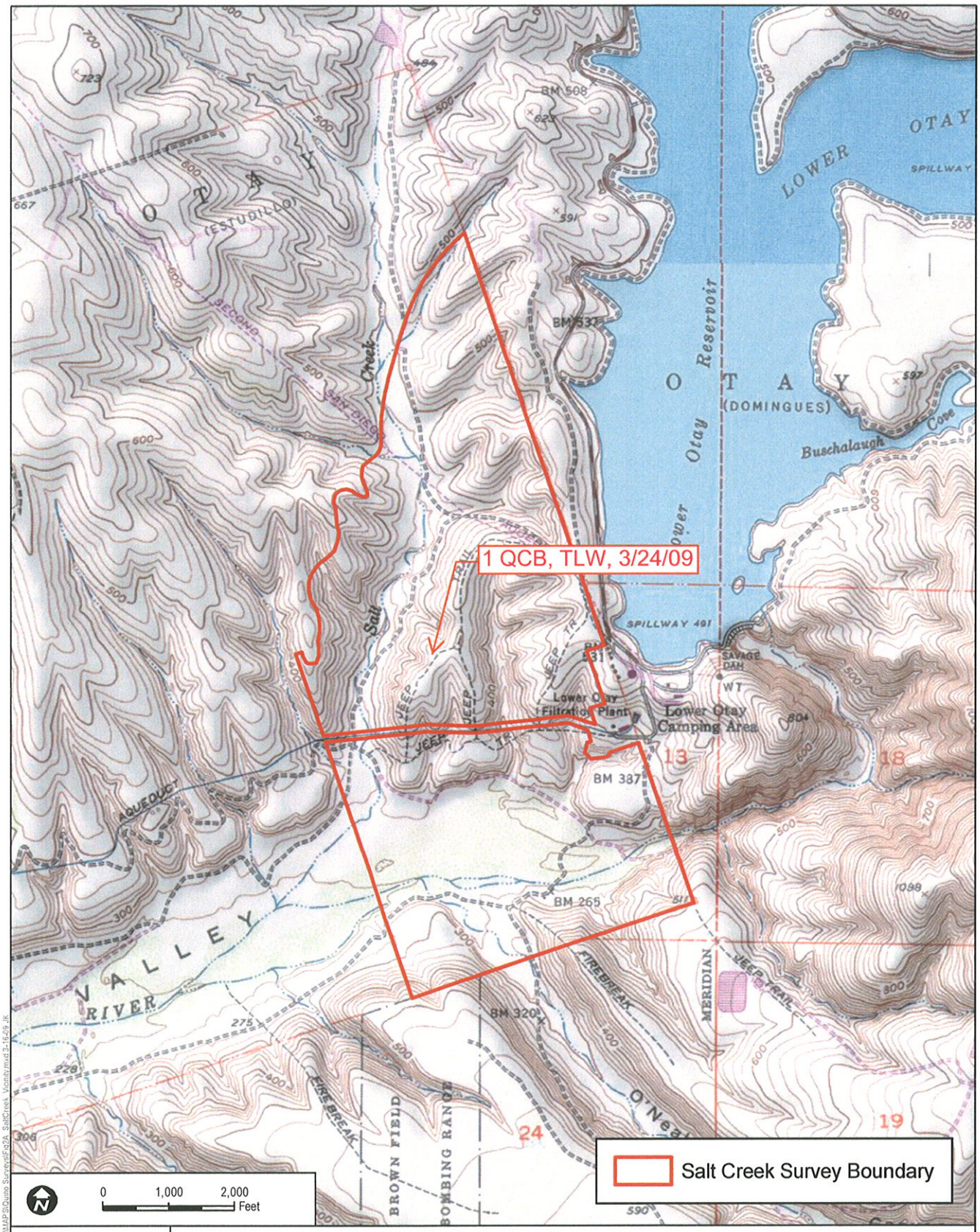
Please find attached a photo of the adult QCB observed along with a photo of the habitat conditions. Also attached is a copy of the USGS quadrangle with the observation location depicted.

Please contact me or Brock Ortega at (760) 942-5147 if there are any questions concerning this observation.

Sincerely,

Tricia Wotipka

Tricia Wotipka
Wildlife Biologist



DUDEK

6056-04
MARCH 2009

SOURCE: USGS 7.5 Minute Map Series Otay Mesa and Jamul Mountains Quadrangles

FIGURE 2A
Salt Creek Vicinity Map

OTAY RANCH PRESERVE

FINAL

Z:\Projects\6056\01\MAPS\Quino Surveys\Fig2A_SaltCreek_Vicinity.mxd 3-16-09 JK

DUDEK

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

March 23, 2009 6056-04

U.S. Fish and Wildlife Service
Attn: Recovery Permit Coordinator
6010 Hidden Valley Road
Carlsbad, CA 92009

Re: Notification of Observation of Quino Checkerspot Butterfly for the Otay Preserve, County of San Diego, California.

Dear Recovery Permit Coordinator,

The purpose of this letter is to provide the U. S. Fish and Wildlife Service written notification of Quino checkerspot butterfly (*Euphydryas editha quino*; QCB) observations on the Otay Preserve Property on March 18, 2009. A total of 7 QCB were identified by Tricia Wotipka (independent investigator under TE-840619) at two locations along the same ridgeline to the southeast of the Lower Otay Reservoir. Specifically the butterflies were detected within the USGS 7.5 minute Otay Mesa quadrangle, with all 7 being observed in the NE ¼ of Section 17 T18S, R1E.

Three QCB were observed between 1100 and 1145 on a small hilltop/ridgeline. Two of the 3 QCB were seen flying between the observation peak and another peak offsite and to the east. The third QCB was seen only once for a period of 5 minutes. Environmental conditions included 0% cloud cover, winds less than one mile per hour (mph), and 72 degrees Fahrenheit (F) at ground level in the shade. The three adult QCB were observed flying, chasing off each other as well as an anise swallowtail (*Papilo zelicaon lucas*) and European cabbage white butterfly (*Pieris rapae*), interacting with each other by spiraling up into the air together intermittently, and sunning on bare ground, rock, and areas vegetated with red-stemmed filaree (*Erodium cicutarium*). The observation area supports previously burned disturbed mixed chaparral. Dominant shrubs included flat-top buckwheat (*Eriogonum fasciculatum*), laurel sumac (*Malosma laurina*), chamise (*Adenostoma fasciculatum*), deerweed (Lotus scoparius), and San Diego County viguiera (*Viguiera laciniata*). The ground cover included approximately 40% bare ground and Erodium (*Erodium botrys* and *E. cicutarium*) as the dominant species. Although no plantago (*Plantago erecta*) was detected in the vicinity of the observation area, other nectar species present included blue dicks (*Dichelostemma capitatum*), deerweed, morning glory (*Calystegia macrostegia*), San Diego county viguiera and cryptantha (*Cryptantha* sp.).

The remaining four QCB were detected on a small peak along the same ridgeline as the first QCB observation but approximately 1,500 feet to the west. They were observed between 1215 and 1335. Environmental conditions included 0% cloud cover, winds 1-2 mph, and 80 degrees F at ground level in the shade. All four QCB were seen frequently interacting with one another by

chasing off one another and spiraling up into the air together intermittently as well as chasing off other butterflies, sunning on bare ground and rocks, and nectaring on cryptantha. The habitat was comprised of previously burned mixed chaparral; dominant shrubs included flat-top buckwheat and chamise; dominant ground cover was erodium, slender wild oat, tocalote (*Centaurea melitensis*), morning glory, and ripgut brome.

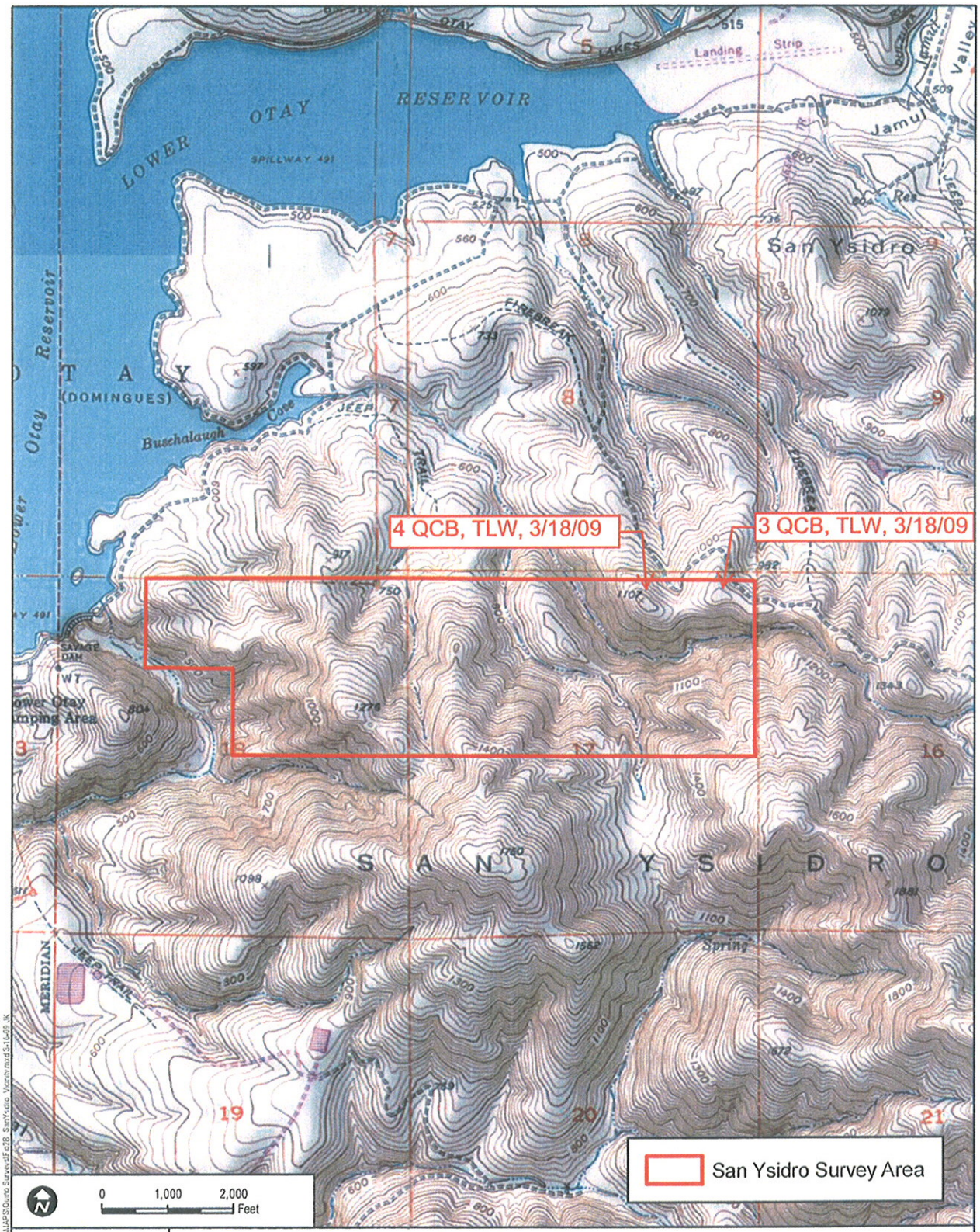
Attached are photos of the 7 QCB observed and the habitat at the 2 locations. Also attached is a copy of the USGS quadrangle with the locations depicted.

Please contact me or Brock Ortega at (760) 942-5147 if there are any questions concerning this observation.

Sincerely,

Tricia Wotipka

Tricia Wotipka
Wildlife Biologist



DUDEK

SOURCE: USGS 7.5 Minute Map Series Otay Mesa and Jamul Mountains Quadrangles.

FIGURE 2B
San Ysidro Vicinity Map

6056-04
MARCH 2009

OTAY RANCH PRESERVE

FINAL

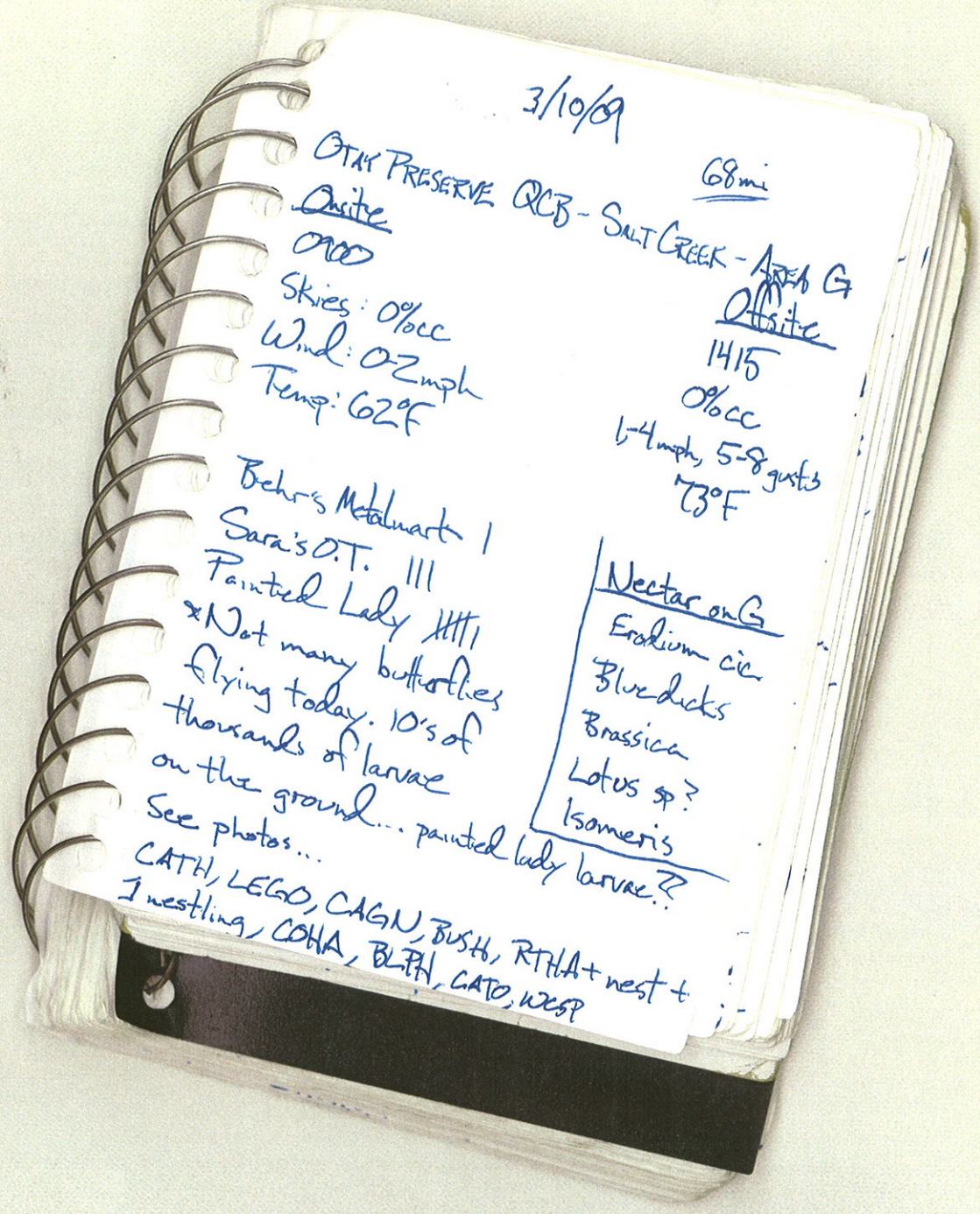
Z:\Projects\6056\01\MAPDOC\MSPSDocno Surveys\Fig2B_SanYsidro_Vicinity.mxd 5/15/09 JK


Habitat Location #1
3 GACB observed
3/18/09
TLW


Habitat Location #2
4 QLB observed
3/18/09
TCW

APPENDIX D

Field Notes



3/10/09

68 mi

OTAY PRESERVE QCB - SALT CREEK - AREA G

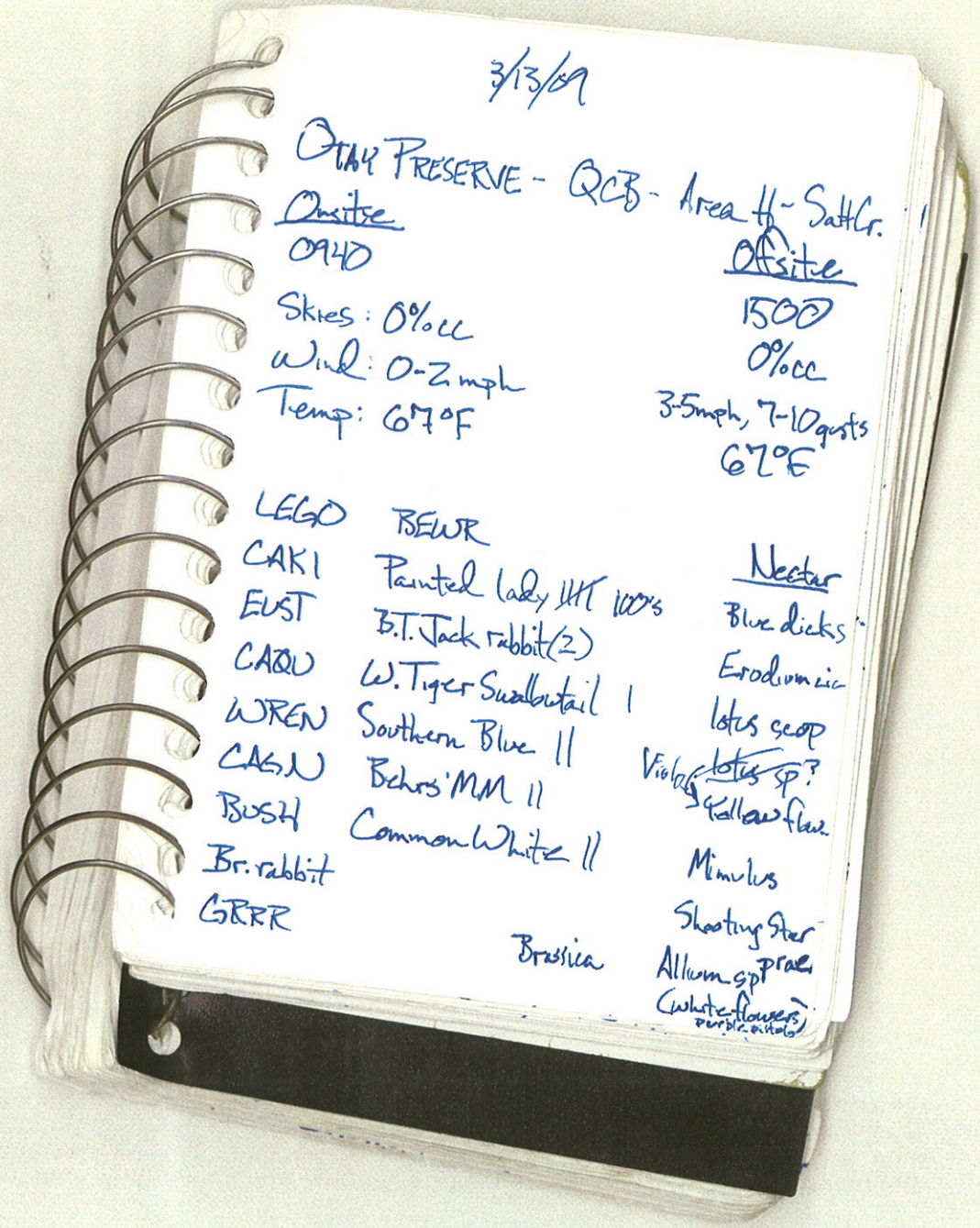
Onsite
0900
Skies: 0%cc
Wind: 0 Zmph
Temp: 62°F

Offsite
1415
0%cc
1-4 mph, 5-8 gusts
73°F

Behr's Metalmark I
Sara's O.T. III
Painted Lady IIII
*Not many butterflies flying today. 10's of thousands of larvae on the ground... painted lady larvae??
See photos...

Nectar on G
Erodium cic
Bluedicks
Brassica
Lotus sp?
Isomeris

CATH, LEGO, CAGN, BUSH, RTHA+ nest + 1 nestling, COHA, BLPH, CATO, WCSP



3/13/09

Otay Preserve - QCB - Area H - SathCr.

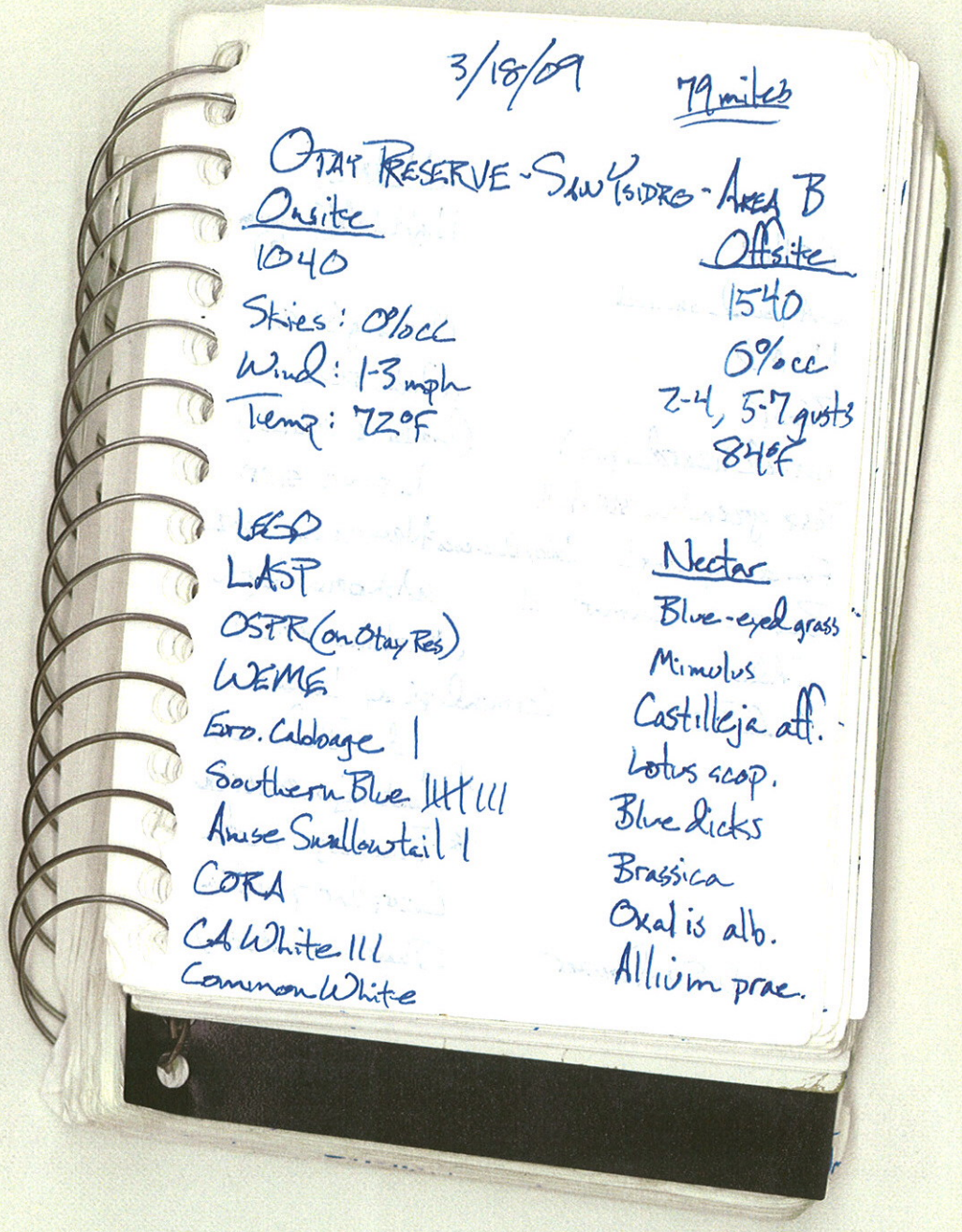
Onsite
0940
Skies: 0% cc
Wind: 0-2 mph
Temp: 67°F

Offsite
1500
0% cc
3-5 mph, 7-10 gusts
67°F

LEGO BEWR
CAKI Painted lady III 100's
EUST B.T. Jack rabbit (2)
CAQU W. Tiger Swallowtail 1
WREN Southern Blue II
CASN Behrs' MM II
BUSH Common White II
Br. rabbit
GRRR

Brassica

Nectar
Blue dicks
Erodium sic
lotus scop
Viola ~~lotus sp~~?
Yellow flwr
Mimulus
Shooting Star
Allium spp
Cultivated flowers



3/18/09 79 miles

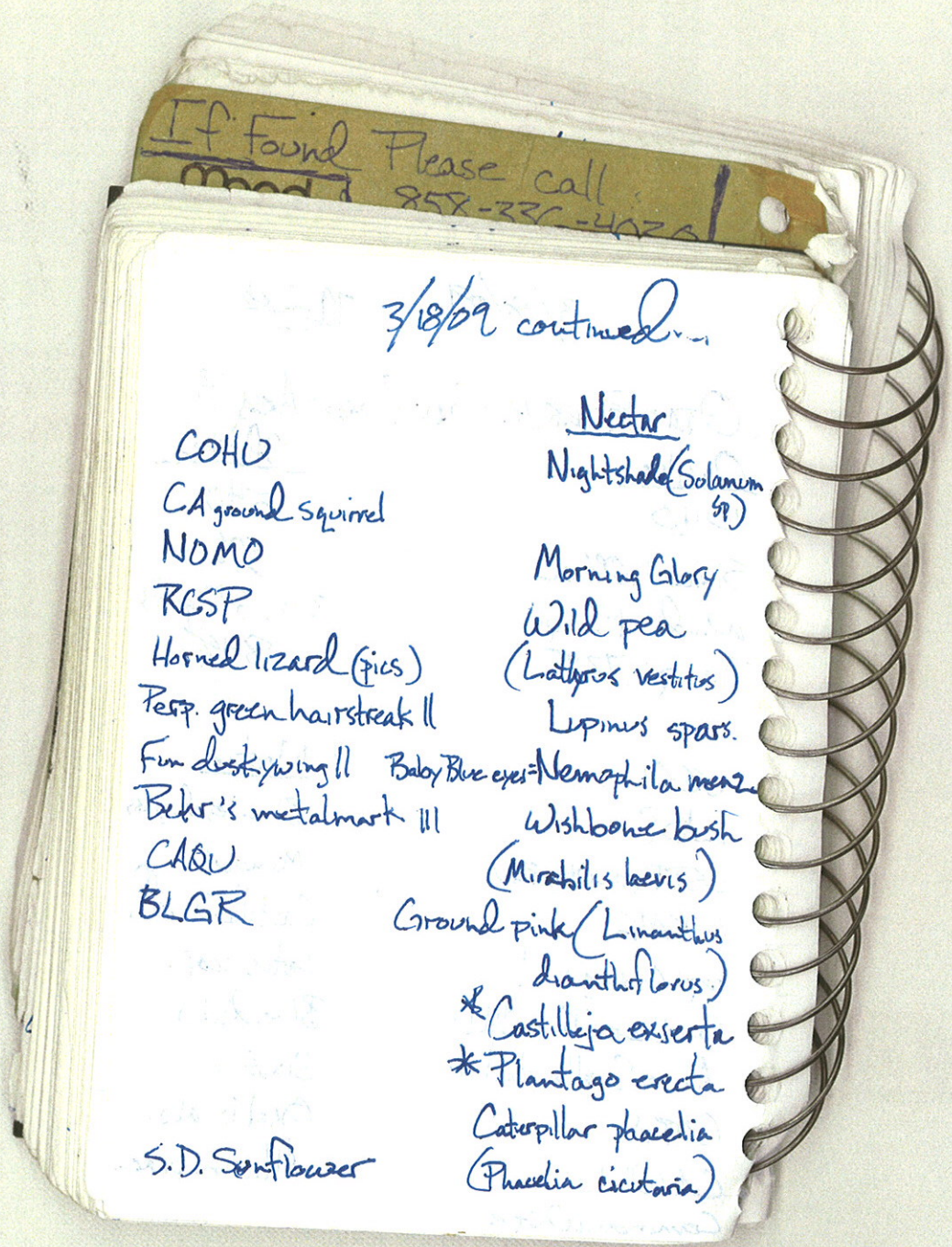
OTAY RESERVE - SAN YSIDRO - AREA B

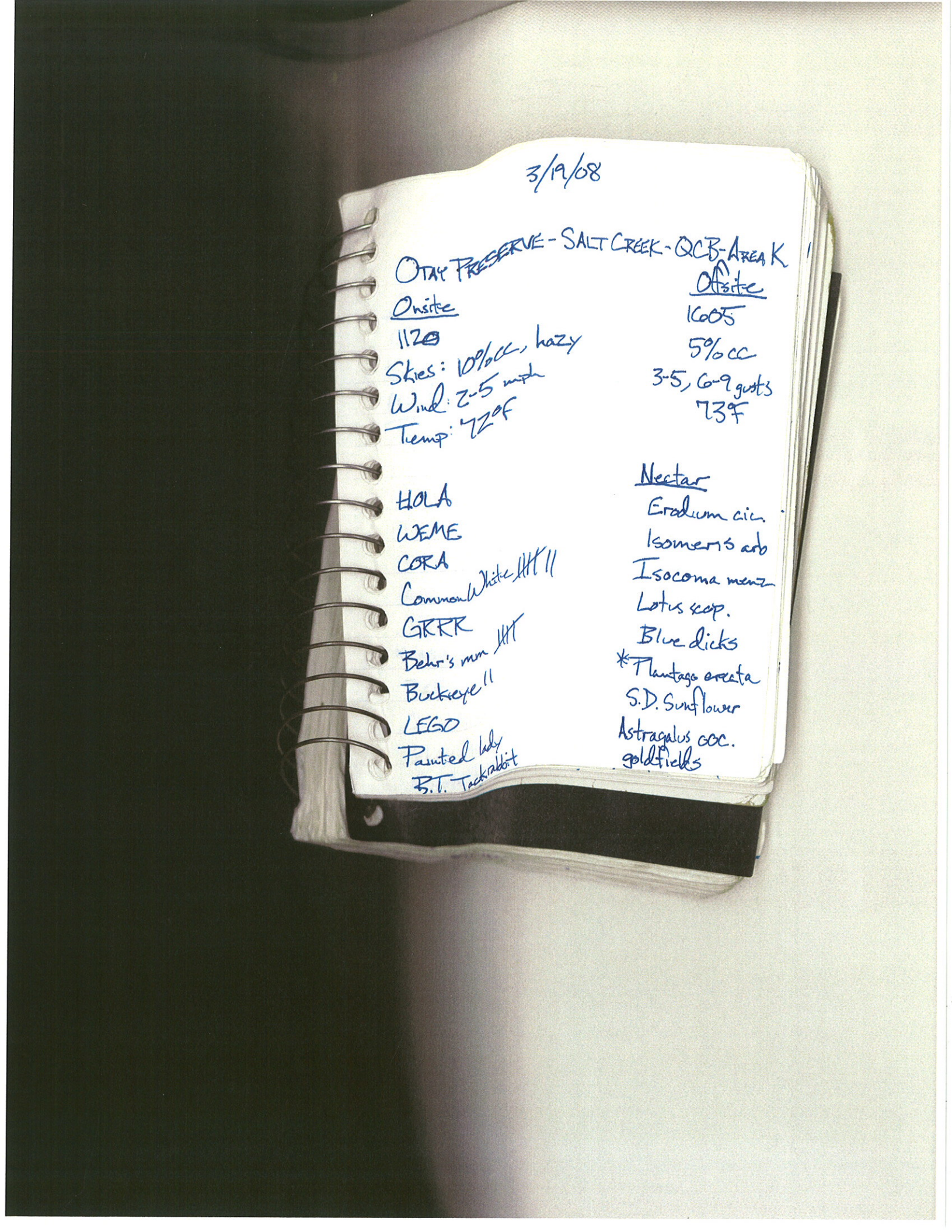
Onsite
1040
Skies: 0% cc
Wind: 1-3 mph
Temp: 72°F

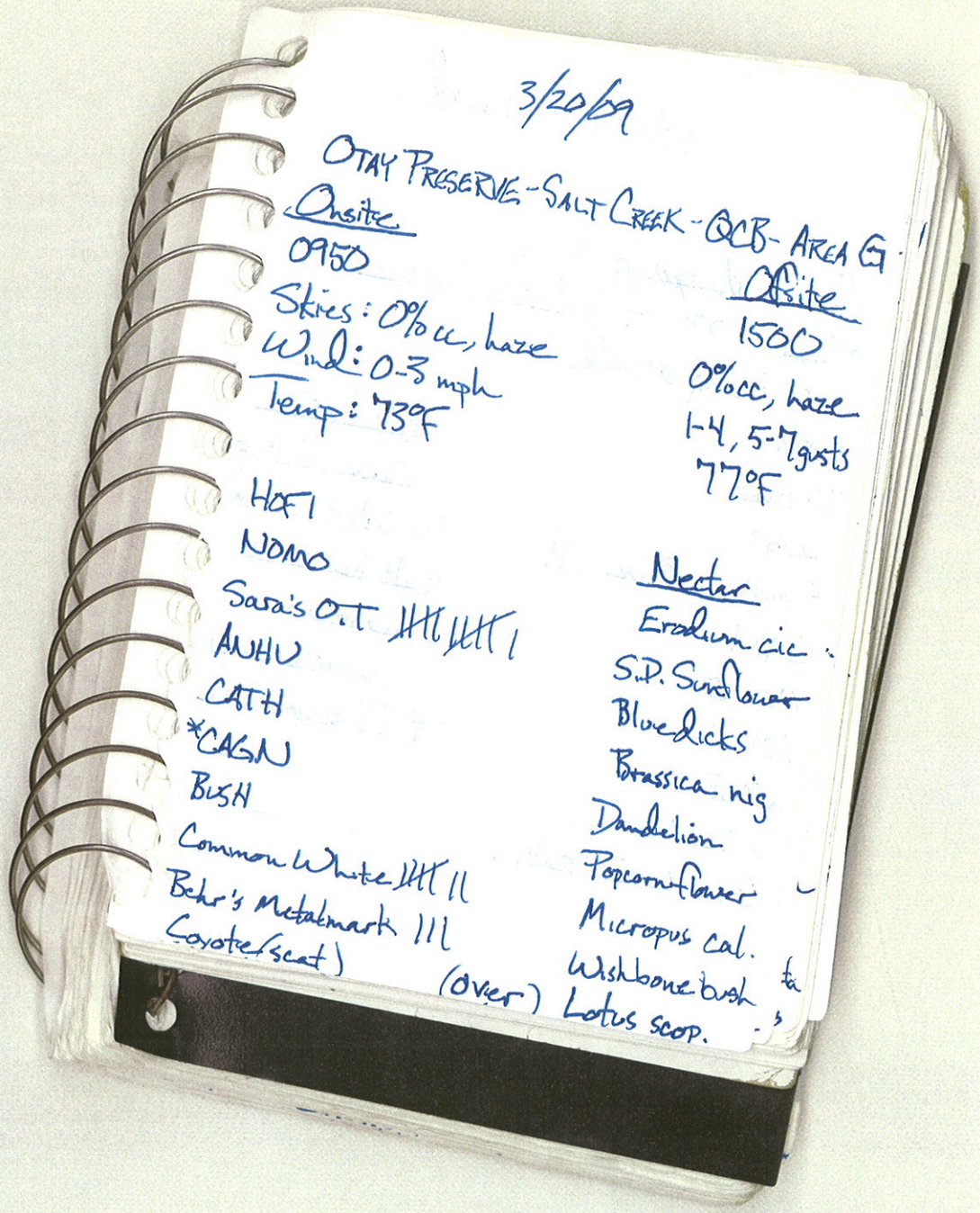
Offsite
1540
0% cc
2-4, 5-7 gusts
84°F

LEGD
LASP
OSPR (on Otay Res)
WEME
Euro. Cabbage |
Southern Blue IIIIIII
Anise Swallowtail |
CORA
CA White III
Common White

Nectar
Blue-eyed grass
Mimulus
Castilleja aff.
Lotus scop.
Blue dicks
Brassica
Oxalis alb.
Allium prae.


If Found Please call
858-336-4024
3/18/09 continued...
Nectar
COHU
CA ground squirrel
NOMO
RCSP
Horned lizard (pics)
Persp. green hairstreak II
Fun dusky wing II
Behr's metalmark III
CAQU
BLGR
S.D. Sunflower
Nightshade (Solanum sp)
Morning Glory
Wild pea
(Lathyrus vestitus)
Lupinus spars.
Baby Blue eyes = Nemophila menz.
Wishbone bush
(Mirabilis laevis)
Ground pink (Linanthus dianthiflorus)
* Castilleja exserta
* Plantago erecta
Caterpillar phacelia
(Phacelia cicutaria)


3/19/08
OTAY PRESERVE - SALT CREEK - QCB - AREA K
Onsite
1120
Skies: 10% cc, hazy
Wind: 2-5 mph
Temp: 72°F
Offsite
1605
5% cc
3-5, 6-9 gusts
73F
HOLA
WEME
CORA
Common White IIII
GRRR
Behr's mm III
Buckeye II
LEGO
Painted lady
B.T. Jackrabbit
Nectar
Erodium cic.
Isomeris arb
Isocoma menz
Lotus scop.
Blue dicks
*Plantago erecta
S.D. Sunflower
Astragalus ccc.
goldfields



3/20/09

OTAY PRESERVE - SALT CREEK - QCB - AREA G

Onsite
0950
Skies: 0% cc, haze
Wind: 0-3 mph
Temp: 73°F

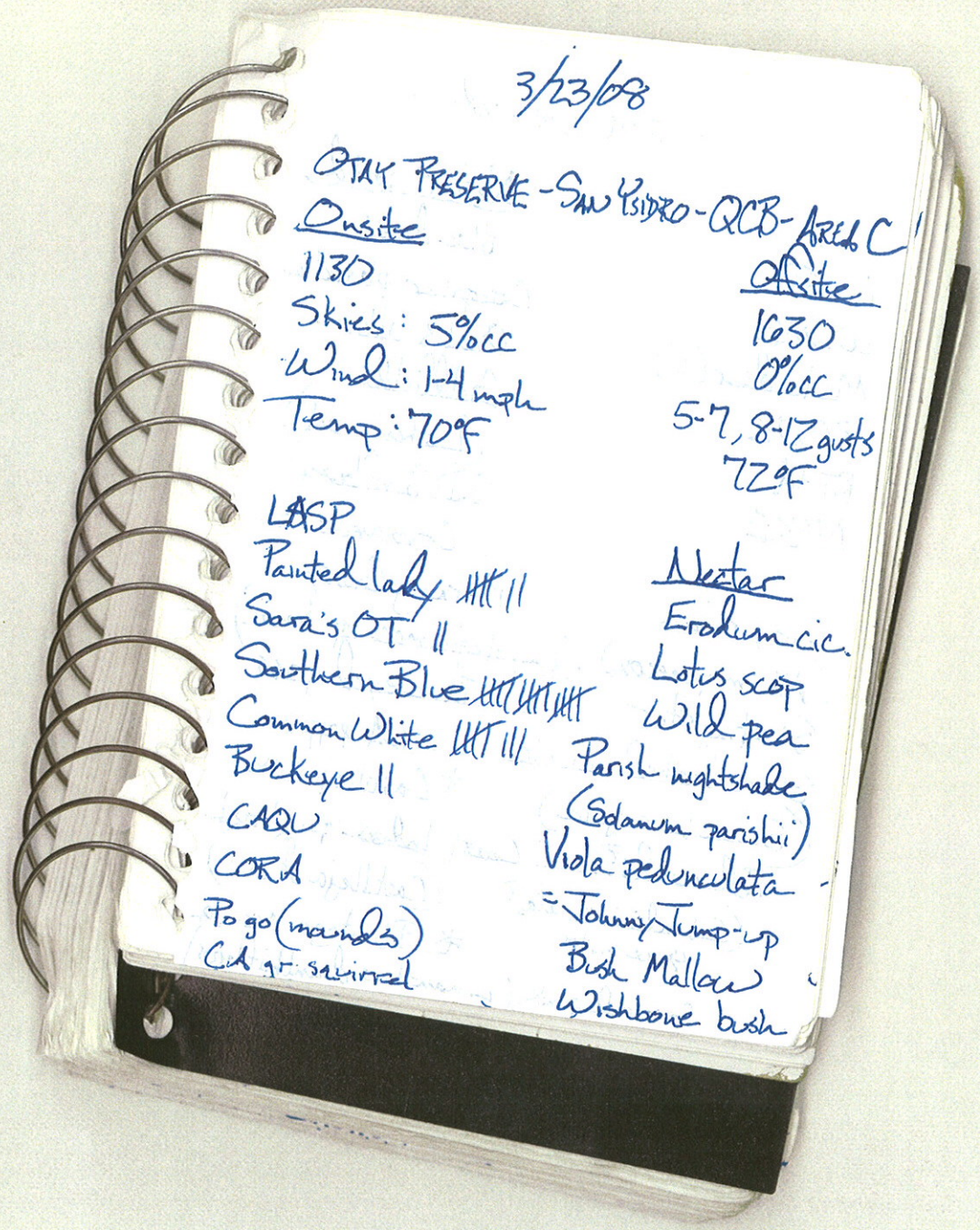
Offsite
1500
0% cc, haze
1-4, 5-7 gusts
77°F

HOFI
NOMO
Sara's O.T IIII IIII I
ANHU
CATH
*CAGN
BUSH
Common White IIII II
Behr's Metalmark III
Coyote (scat)

Nectar
Erodium cic.
S.D. Sunflower
Bluedicks
Brassica nig
Dandelion
Popcornflower
Micropus cal.
Wishbone bush
Lotus scop.

(over)


If Found Please call
3/29/09 continued..
funereal duskywing II
*Still 1000's of butterfly larvae
cruising around.
CATO
Br rabbit
LEGO
Southern Blue IIII
CAKI
MODO
AMKE
WESP
WREN
Green hairstreak I
Nectar
Danny's skullcap
(Scutellaria tuberosa)
Salt heliotrope
(Heliotropium
curassavicum)
* Plantago erecta



3/23/08

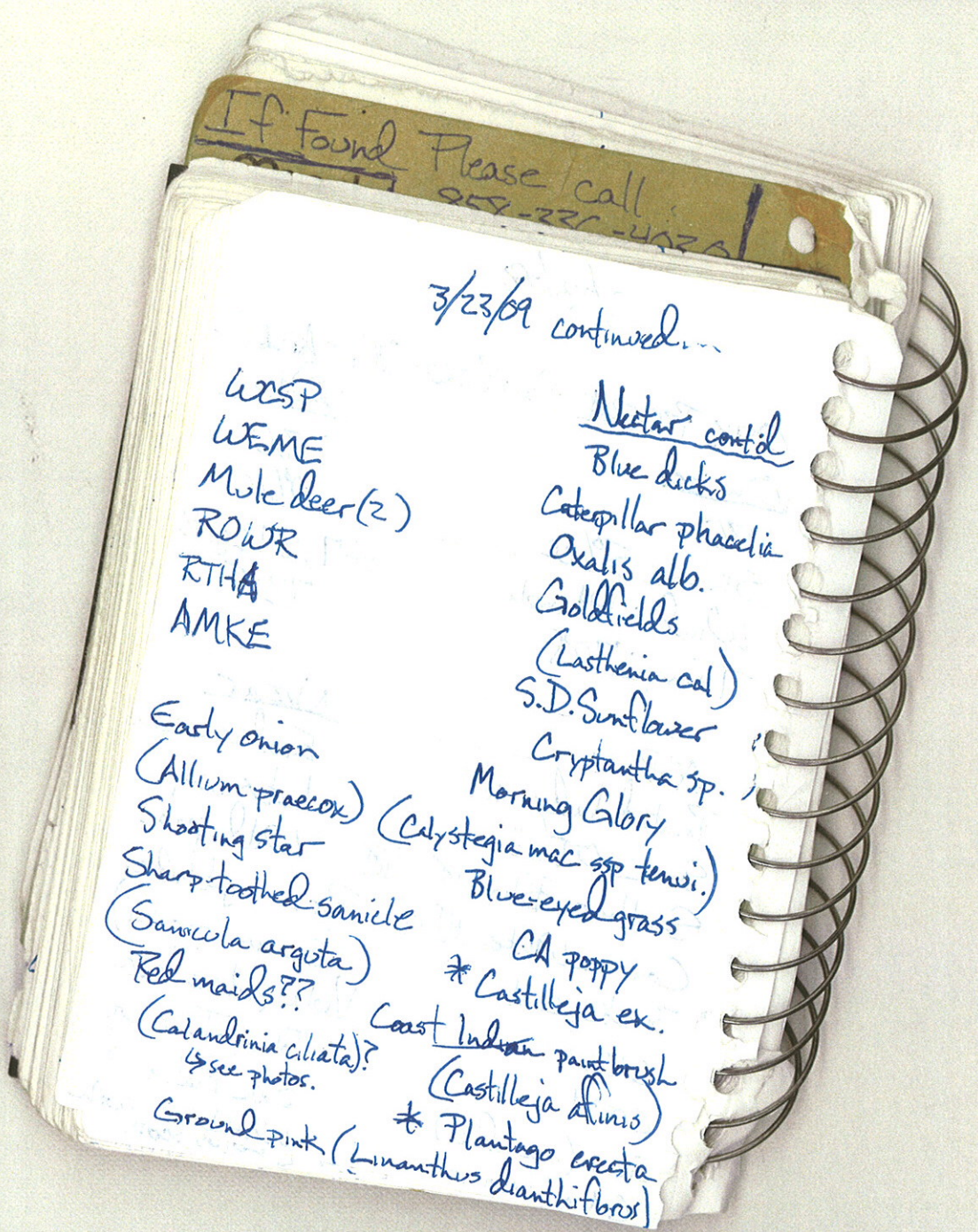
OTAY PRESERVE - SAN YSIDRO - QCB - Area C

Onsite
1130
Skies: 5% cc
Wind: 1-4 mph
Temp: 70°F

Offsite
1630
0% cc
5-7, 8-12 gusts
72°F

LASP
Painted lady HHT II
Sara's OT II
Southern Blue HHT HHT HHT
Common White HHT III
Buckeye II
CAQU
CORA
Pogo (mounds)
Cal gr. squirrel

Nectar
Erodium cic.
Lotus scop
Wild pea
Parish nightshade (Solanum parishii)
Viola pedunculata = Johnny Jump-up
Bush Mallow
Wishbone bush

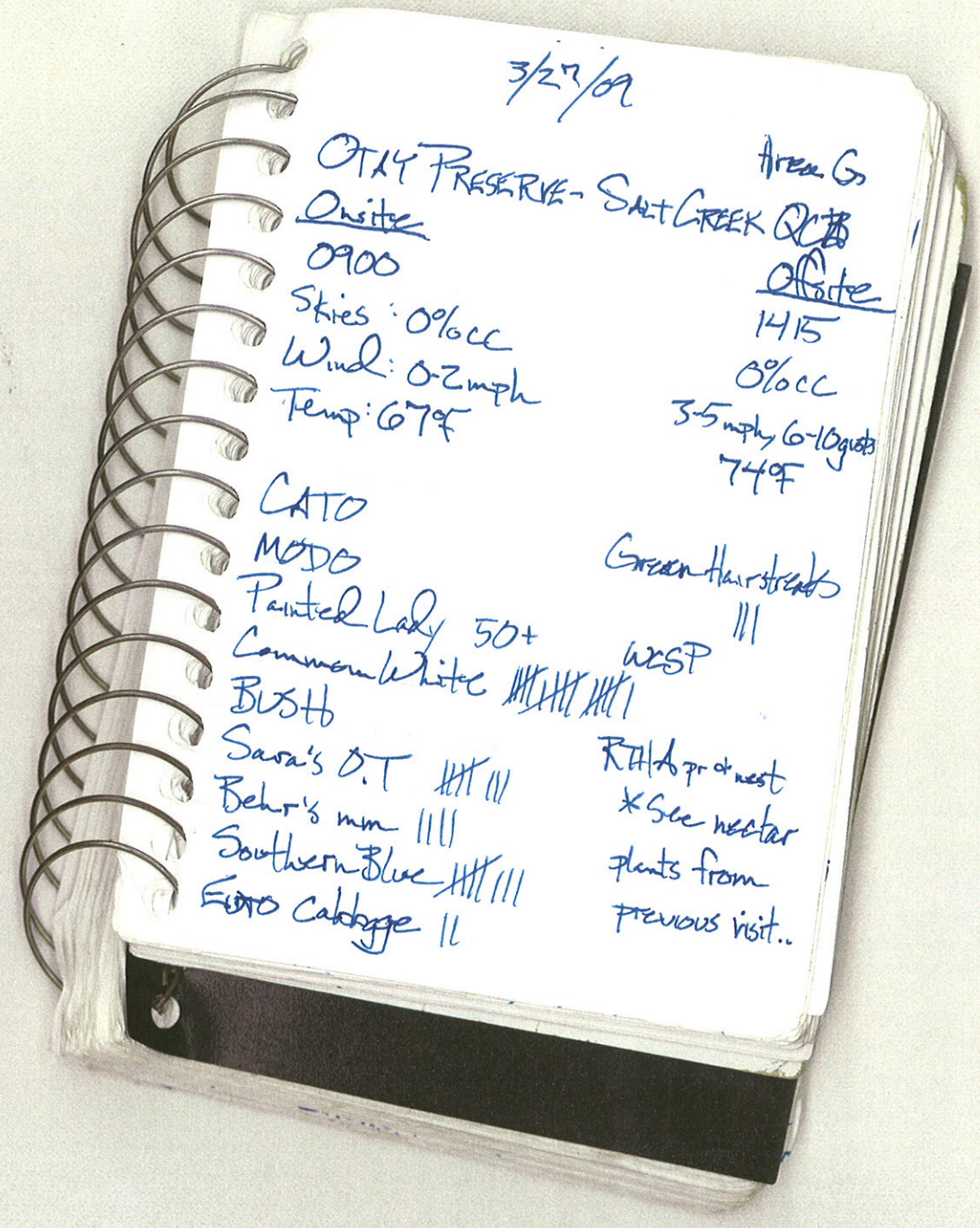


3/23/09 continued...

WCSP
WEME
Mule deer (2)
ROWR
RTHA
AMKE

Early onion (Allium praecox)
Shooting star
Sharp-toothed sanicle (Sanicula arguta)
Red maids??
(Calandrinia ciliata)?
↳ see photos.
Ground pink (Linanthus dianthiflorus)

Nectar contd
Blue ducks
Caterpillar phacelia
Oxalis alb.
Goldfields (Lasthenia cal)
S.D. Sunflower
Cryptantha sp.
Morning Glory (Calystegia mac ssp tenuis.)
Blue-eyed grass
CA poppy
* Castilleja ex.
Coast Indian paintbrush (Castilleja affinis)
* Plantago erecta


3/27/09

OTAY PRESERVE - SALT CREEK

Area G

Onsite

0900

Skies: 0% cc

Wind: 0-2 mph

Temp: 67°F

Offsite

1415

0% cc

3-5 mph, 6-10 gusts

74°F

CATO

MODO

Painted Lady 50+

Common White ||||-||||-||||-|

BUSH

Sara's O.T |||| |||

Behr's ||||

Southern Blue |||| |||

Euro Cabbage ||

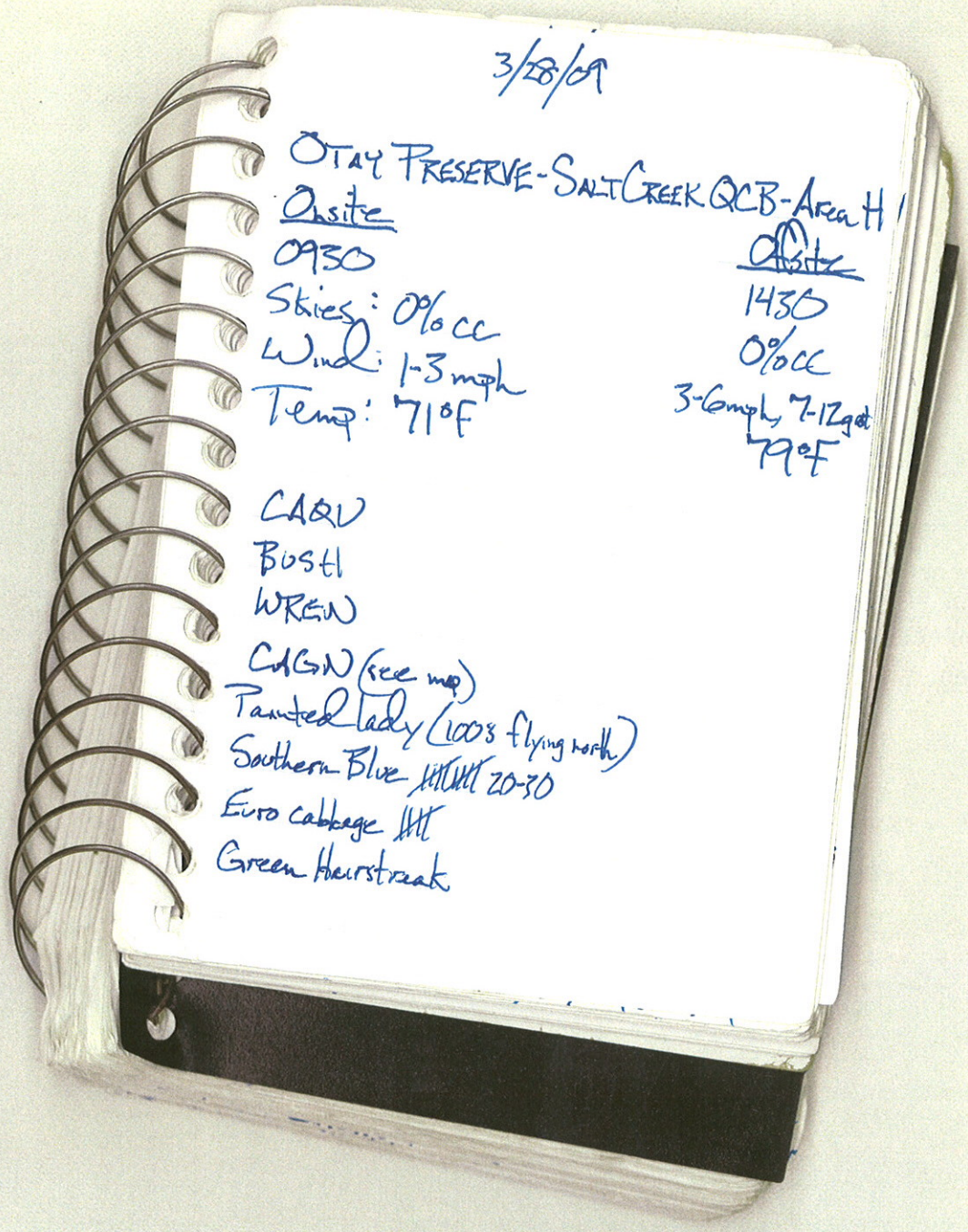
Green Hairstreaks

|||

WSP

RHA pr at nest

*See nectar plants from previous visit..



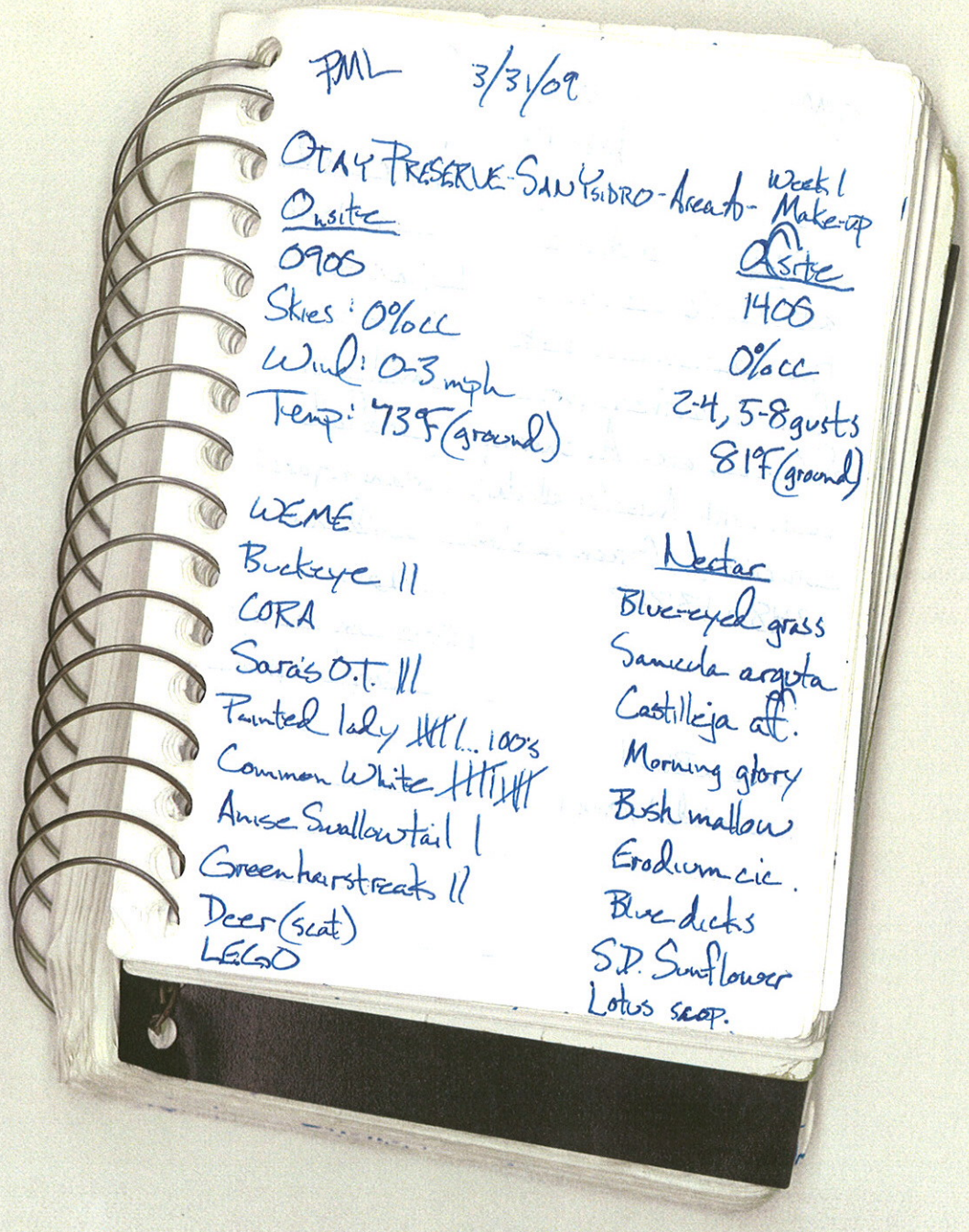
3/28/09

OTAY PRESERVE - SALT CREEK QCB - Area H

Onsite
0930
Skies: 0% cc
Wind: 1-3 mph
Temp: 71°F

Offsite
1430
0% cc
3-6 mph, 7-12 gst
79°F

CAQV
BUSH
WREN
CAGN (see map)
Painted Lady (100s flying north)
Southern Blue ||||| 20-30
Euro cabbage |||
Green Hairstreak



PML 3/3/09

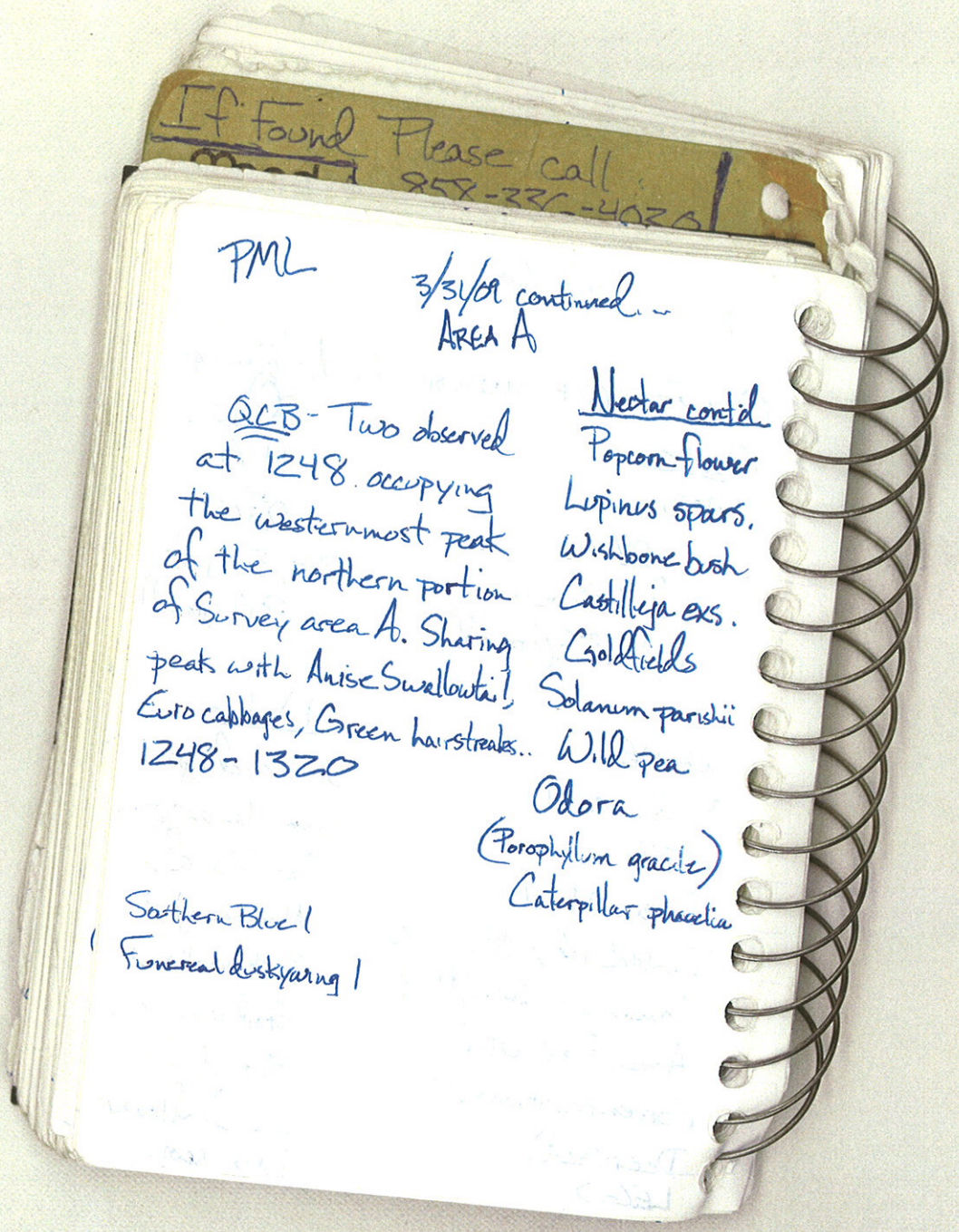
OTAY PRESERVE-SAN YSIDRO-Area A- Week 1 Make-up

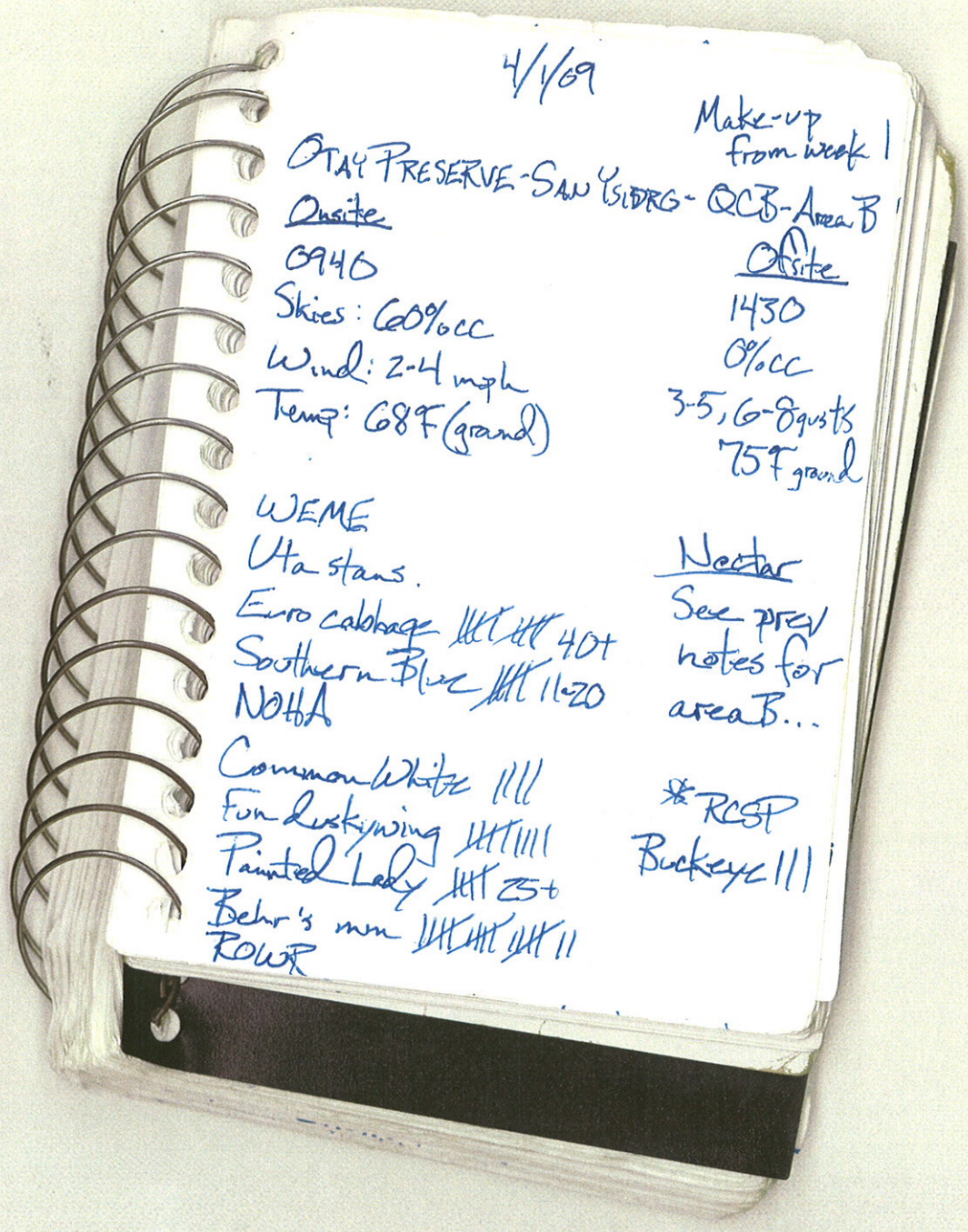
Onsite
0905
Skies: 0% cc
Wind: 0-3 mph
Temp: 73°F (ground)

Onsite
1405
0% cc
2-4, 5-8 gusts
81°F (ground)

WEME
Buckeye II
CORA
Sara's O.T. III
Painted lady IIII... 100's
Common White IIIIIIII
Anise Swallowtail I
Greenhairstreaks II
Deer (scat)
LEGO

Nectar
Blue-eyed grass
Sanicula arguta
Castilleja aff.
Morning glory
Bush mallow
Erodium cic.
Blue dicks
S.D. Sunflower
Lotus scop.


If Found Please call
PML
3/31/08 continued...
AREA A
QCB - Two observed at 1248 occupying the westernmost peak of the northern portion of Survey area A. Sharing peats with Anise Swallowtail, Euro cabbages, Green hairstreaks..
1248 - 1320
Nectar contd.
Popcorn flower
Lupinus spars.
Wishbone bush
Castilleja exs.
Goldfields
Solanum parishii
Wild pea
Odora
(Porophyllum gracile)
Caterpillar phacelia
Southern Blue 1
Funereal duskywing 1



4/1/09

Make-up from week 1

OTAY PRESERVE - SAN YSIDRO - QCB - Area B

Onsite

0940

Skies: 60% cc

Wind: 2-4 mph

Temp: 68°F (ground)

Offsite

1430

0% cc

3-5, 6-8 gusts

75°F ground

WEME

Uta stans.

Euro cabbage ||||| ||||| 40+

Southern Blue ||||| 11-20

NOHA

Common White ||||

Fun Lucky wing ||||| |||

Painted Lady ||||| 25+

Behr's mon ||||| ||||| ||

ROWR

Nectar

See prev notes for area B...

* RCSP

Buckeye |||

*SW Gate: master lock w/ blue plastic edge

3-10-09 Otay Preserve QCB Area F
0700 – 1530 ~~8 1/2 hr~~ miles: ~~8~~
met for key at 0830
Protocol conditions @ 0930 – 1430
① start: 0930; 0% CC; wo-3 mph; 61°F @ ground/s.
② 1025; 0% CC; wo-3 mph; 67°F @ ground/shade
③ 1140; 0% CC; wo-3 mph; 68°F @ 5' in sh.
④ 1430; wind 4-7, gusts to 9 mph; clear; 81°F

CAKI	BUSH	~~XXX~~ QCB : ●
COLA	CACU	Cab W. : :
HEME	CLSW	Fun. skip ☒ : :
Coyote(sc)	MOLO	Perplex HS : ●
AMCR	Br. rab.	Sona OT : ○
BEWR	po. go (no)	Anise SWT ●
LEGO	CATO	WC Lady ●
RTHA	WTSW	Check. W. ☒
*NOHA	GRRA	So. Blue ●
		Sheris mm : ●
		Com. W ○

Flowering plants
*P.e.
Popcorn flower
Erodium cic.
Viz. las.
Blue Dicks
Lupin sp.
Morn. glory
Wishbone
Deerweed
Phacelia sp.
CA poppy
Clover sp.
Dandelion sp.
Nightshade
CHP pea
Johnny jump-ups
Blue-eyed grass
Gold fields
Pink Lady
Indian paint brush

* good nectar sources scattered throughout area.

3/10/09 JDP

QCB Observations

(1) Adult QCB observed flying + alighting on bare ground + rock. Photos taken of QCB + 1 general habitat shot.

Habitat: low growing dcss ~40% bare ground; prev. burned

Dominant Ground cover: Erodium bot. + E. cic

Dom. shrubs: Deerweed, CA sage, buckwheat, Nig. las.

Obs. time: ~1008-1018, Area F, on ridgeline + micro peak.

Host Plant: large patches of Plantago erecta in area.

Nectar: Blue Dicks, Deerweed, Morn glory, Nig. las., wishbone

Behavior: Sunning + chasing off Cabbage white + flight

Conditions: 0% Cloud Cover; wind 0-3 mph; 67° F @ ground in shade

Flagged a bush w/ 2 notebook pages marked "QCB 3-10-09" adj. to QCB location.

3/10/09 JDP

* Copies of keys
* QCB Obs. ~~letter~~ + photos to Brad

---

(2) 1137-1206 (*) 2 QCB; Small Peak (Area F)

Behavior: (*) Adult QCB observed sunning + nectaring on Lathenia (goldfields)
2 photos from approx 6' away

Behavior: * 2nd QCB flew up + 1st chased it. They spiraled up + around each other, then separated.

(*) Additional photos taken, including close-ups.

(2 QCB confirmed 100% + photos)

Habitat: dCSS; prev. burned; cryptogamic soil crusts; Dom shrubs: Buckwheat, CA sagebrush; Dom ground cover: Eriodictyon, Pc + goldfields

Host Plants/Nectar: large swaths of P.c. + goldfields (photos)

Conditions: 68°F; 0% CC; W 0-3

3/10/09 JDP

(2 continued) QCB Observations

Behavior: Both QCB remained flying slowly around peak, occasionally spiraling w/ each other.

Both kept returning to the same spots & some of same perches/landing spots on bare ground and rock primarily.

One was observed nectaring on Lasthenia (goldfields)

Location is peak w/ relic wall made of rock (clear on air photo)

* a couple of photos w/ both QCB (on ground (me holding up 2 fingers) double check w/ zoom on computer

Notebook paper flagging placed on a few shrubs. "2 QCB 3-10-09"

3-14-09 Otay Preserve QCB Area C
0915 - 1345 ~~W 1/2~~ (3/4 burned) West 1/2
Survey: 1008 - 1240 miles: ~~8~~ 6
Start: 62°F; 90% CC; WO-5
(2) 1030; clouds burned off 40% CC in distance
~~(3)~~ 69°F; WO-5
(4) end: 0% CC; 72°F; W 1-5 gusts to 7

WEME	MOSO	WC Lady :
CORA	HOFI	Cal W :
AMCR	LEGO	CA Ringlet ::
CAQU	K-rat(t-d)	Purplex HS :
WF. Liz.		Anise sw :
		Sp. Blue ::

Spring Cucumber
pink Lady
Lasth. cal
Padre's Shooting star
Blue D-ick
CHP pea
Ind. p-b
Morn glory
Gnaph. sp.
Lupin sp.
Allium sp.
Erod. cic; E. bot.
Mim aur

*Survey cut short
Mom in Emergency Room
Continue w/ East ½ tomorrow

3-15-09 Stay Preserve QCB Area C (2nd ½ (East.
0915 - 1445 ~~5½ hr~~ miles. ~~88~~
@Survey: 1100 - 1340

① St: 50% CC; WO-3; 63°F (N.-facing slope) ground
② 1125; flat/peak; 50% CC; W2-5; 72°F @ ground
③ 1231; 20% CC; W1-5; 72°F @ ground
④ 1340; 10% CC; W1-6; 72°F @ ground

CORA	WEME
*NOHA	Coyote (sc)
go. go.	Mule Dr (sc)
MOLO	HOFI
LEGO	CAg. sq.
AMCR	WF. Liz.
K-rat (t.d)	CATO
CAQU	

Funer. skip
So. Blue
Bther's mm
Painted Lady
Perdex. HS
Cheek W
Anise SWT
CA ringlet
Sora OT
Gabb's Ck
Pygmy Blue sp
Cab W
Blue sp
WC Lady

*Nectar scattered throughout
Vis. log. mustard

Allium sp
Lotus sco.
Erod. cic. + E. bot.
Blue Dicks
Popcorn flower
Ctl. pea
Phacelia sp.
Morn. glory
Indian paint brush
Lasth. cal.
Padre's shooting stars
Lupin. bicolor.
Mim. aur.
W.M. Seneca (?)
Clover sp.
Ceanothus sp.
CA poppy
Spiny cucumber
Nightshade
Gnaph. sp.

3-18-09 Okay OCR Area N
0830 - 1545
@ Site: 0930 - 1435 miles: ~~86~~
① St: 0930; 0% CC; WO-1; 67°F @ ground
② 1147; 0% CC; WO-2; 78°F @ ground
③ end: 0% CC; WZ-6; 84°F; 1435
④

CORA HOFI
NOFL CATO
BUSH AMCR
RTHA Br. rab.
CAQU LEGO
ANHU So. Go.
~~[illegible]~~ *LBVI
LASP *BTSR Juv

tiger moth larvae
100's - 1,000's
Checkered W
So. Blue
CA Ringlet
Fun. skipper
Painted Lady
WC Lady
Tiger Swt
Sara OT
Buckeye
Pygmy Blue
Behr's met
Cab. W.

Mustard
Erod. cic.; E. bot.
Deerweed
Blue Dicks
Veg. lab.
P.e. - drying up
Wild Seneca (sp.)
Eriogh. sp.
Min. aur.
Allium sp.
Popcorn fl.
Goldfields
Pink Ladies
Bladder pod
Moon Flower
Lupin sp.

3/19/09 Otay QCB Area C
0830 - 5 Pax
@Site: 1000 - 1545 miles: 82

1. start: 1000; 80% high hazy clouds w/ sun shining through & casting shadows; W <1; 72°F @ ground N-fac slope
2. 1148; 30% CC; W 1-4; 72°F E-fac slope @ ground
3. 1328; <5% CC; 79°F @ ground; W 0-5 mph

END: 1545; 5% CC; W 2-7; 78°F @ ground

WEME	CORA
CAQU	sp. sq.
Mulc Pr (pr/sc)	HOFI
ANHU	AMCR
Coyote (sc)	CA g. sq.
*COSH	*WWT
[redacted]	COHU
WCSP	WF Liz.
*GRSP	Utah st.

So. Blue ::
Cab W. :
Sora OT ::
Fem. Sk. ::
Perplex HS :
Check W. :
Blue sp :
Anise SW ::
Tiger SW :
Pale SW ::
Marine Bl :
[redacted] Sher's mm ::
CA Ringlet :
Buckeye ::

See prev. days for flowering plants; new sp. added:

Choc. lily ? (verb. sp.) brownish-red up hanging down
Blue-e-grass

3-23-09 Otay QCB Area N
1000-1630
@Site: 1130-1530
notes: ~~qpf~~

(1) ~~Set~~: 1130; 5% CC; W0-5 mph; 74°F @ ground
(2) 1410; 0% CC; 75°F @ ground; W 4-6 gu. to 8
(3) END: 79°F @ ground; 0% CC; W 4-6 gu. to 9
(4)

CORA	MOLO
WEME	HOFI
AMCR	NOMO
ANHU	CA g. sq.
Po. go. (mo.)	BUSH
CAKI	YRWA
CCSW	COGO
CATO	CAQU
Mulebr (3C)	Br. rab.
SAPH	SOSP
WCSP	RTHA

Check. W ☆
Bker's mm ☆
Cab W. ::
Painted Lady :
WC Lady .
Unk Lady (flyby) ::
Buckeye ::
Sara OT :
S. Queen .
CA Ringlet :

Emerg - fas. (B/FQ)
(see prev. notes for full list of flowering plants)

☆ 1 Additional Survey hour needed this week

3-24-09 Otay 2CB Area K
0900 – 1530 6½
@ site: 1030 – 1440 miles: ~~90~~

1. st: 1030; 0% CC; wind 0-2 mph; 84°F @ ground
2. 1337; W 8-10 mph gusts to 20; 0% CC; 85°F
   └ peak/ridge
3. 1416 Lee side slope wind 3-9 mph; 85°F; 0% CC
4. 1440; 85°F; W 10-15 (Ridge/Peak); 0% CC

CAQU	CATO	Sara OT
MODO	HOFI	Fun skip.
SCJA	CORA	Buckeye
WEME	RTHA	Check W
SPTO	BTJR	Cal. W
Cordc(sc)	SAPH	Bher's mm
WREN	BUSH	Lada sp
BLPH	BEWR	Painted lady
Br-rob.	MoeBr(sc)	Perplex HS
		Anise SW
		WC Lady
		Gabbs ck

*Need 45 min more in Area K

3-25-09 Day QCB Area A

0800 – 1630 8½ ~~miles~~

C Site: 0930 – 1515

① St: 0930; 0% CC; WO-2mph; 70°F

② 1215; 78°F; W 2-5; 0% CC

③ 1344; W 2-6 gusts to 9; 0% CC; 84°F @ ground

↳ Southern Peak

④

↳ End: 1515; 80°F; W 2-5; 0% CC

CORA	WEME
MODO	CATO
LEGO	ARCR

Average SW :

Cab W :

Check W ☒ :

Agra OT ☒ :

Red Admiral :

So. Blue :

Fun Shop :

☆QCB :

Painted L. :

Purple HS :

3.25.09 JDP

QCB Obs 1110-1130

(same peak TW found QCB last week.)

Area A North 1/2, East peak.

(★) 2 QCB Observed

Sunning, chasing off other butterfly sp. and circling each other up into the air

Conditions: 77°F; 0% CC; ~0 MPH

Habitat: burned (recovering) Chamise chaparral

Dom. shrub: Chamise

Additional sp: Malosma laur; Lotus scop; Art. cal.

Ground cover: ~40% Bare Ground to 25%; Erodium cic. + E. bot are dom. ground cover

★ Photos

Nectar: Deerweed, popcorn flower

3-25-09 JDP

QCB Obs. 1159-1215
↳ (some other peak QCB obs. last week by TW)
↳ Area A North ½, West peak

⭐ 3 QCB observed.
↳ a lot of interaction between the 3 QCB; twirling up in air with each other; chasing off other butterfly sp; and sunning.

Conditions: 0% CC; W 2-5; 78°F @ ground

Habitat: burn-recovery CC.

Dom shrubs: Chamise
Add'l shrubs: Manzanita, Deerweed

Ground cover: 75% bare ground - 50%, Rock rose, Erodium cic. + E. bot.

⭐ Photos

Nectar: Viz. las, Deerweed, popcorn flower

3.25.09 JDP

QCB Obs. 1240-1247

(*) 1 QCB (same peak as last 3 but approx 150' North)

- sunning + flying
- photos (good close-ups)

Conditions: 78°F; 0%CC; W 3-7

Habitat: burn-recovery CC

Dom shrub: Chamise
others: manzanita + deerweed

Groundcover: 50% bare ground;
Erod. bot. + E. cal. dominate

Nectar: deerweed, popcorn flower;
Vis. sp.; morn. glory

3-30-09 Otay QCB finishing Surveys (high wind cancellation last week)

1300 - 1345 (K)

1350 - 1450 (N)

1145 - 1545

~~#surveys~~

miles: ~~8~~ 7

@ site: 1300 - 1450

① start; 1300; 0% CC; W 4-8 mph; 79°F @ ground

② END: 1450; W 5-8, gusts to 12; 0% CC; 81°F

CATO	CORA
MODO	WREN
HOFI	CAQU
LEGO	RTHA

Check W.

Sora OT :

Gnat's nm

Painted Lady :

Buckeye :

WC Lady :

Cab W :

VIPUL

13 March 2009

Otay Preserve - Area L
QCB survey - wk. 1
1100 1245
0% clouds 0%
70°F 72°F
2-4 mph 2-7 mph

1430
0%
72°F
2-8 mph

recording flors + butterflies, Plantago on map.

Calif. ringlet - HH.I
Vig. lacin.
Dich. capit.
Cryptantha
Microseris
Uropappus
Lotus scop.
Sisyrin.
Clirabalis.
Hirschfeldia incana

Viola ped.
Lomatium sp
Calanchinia
Osmadenia ten.
Salvia columb.
Lupin. bicolor.
funereal duskywing skip - I
Common white - I
Ann's hum
Acmon blue - III
lady sp. - HHH HHH II
blue sp. - IIII

Isomeris arborea
Allium haem.
Linanthus ?
Dodeca. ?
Lasthe. cal.
Lupin. hirst.
Manual division

Sara's orangetip - I
American lady - III

West. Coast lady HHH II
Anise swallowtail II

15 March 09 — Otay Preserve - Area E
QCB Survey
Wk. 1

1000	1530
0-2	3-5
50% clouds	5%
68° F	70°

Flowers ad butterflies

- Lust. cal.
- Cordylanthus ? sp.
- Ero. cic.
- Lom. dasy.
- Lot. scop.
- Caly. mac.
- Eucr. calif.
- Thysano. coarip.
- Lepid. sp.
- Carop. bico.
- Allium han.
- Ribes sp
- lady sp. III
- Dichel. cap.
- Oxalis > common sp.
- Pickeringia
- Mimul. aurt.
- Vic. ped.
- bunch grass ?
- scrop. sp.
- Cyrtanthe ainter.
- Common white IIII

- Esc. calif
- blk tips on lvs.
- Dicentra
- Solanum sp.
- blue sp. - 1
- Sara's orangetip - 1
- Phacel. cic
- Senecio sp
- Pale swallowtail - II

1 QCB observed @ 1135
2nd QCB " @ 1145, 2 indiv.
observed simultaneously

1 observed predom. in area, thermoreg.
and displaying territorial beha.
2nd observed briefly ~ 2 min.

On hilltop w/ burned SMX

- ✓ Aden. fas.
- ✓ Mal. laurin.
- ✓ Rhus. int.
- ✓ Y.e. sch.
- ✓ Vig. lac.
- Aven. barb
- Erod. cic.
- Cryp. inte
- Oxalis

Conditions
40% clouds
4-8 mph winds
70° F
Several pics taken of dom., 1 or 2 of other.

---

1 QCB observed @ 1348
followed offsite down hill, observed for 20 sec on grd. but no photos taken
2nd QCB observed @ 1350
both indiv. observed in air quickly and then moving in seperate directions, neither could be relocated

Conditions - 10% cloudy
4-10 mph winds
73° F

SMX/CSS - burned

patches of chamise - domin.
" Vij. lac. + Mal. lav. domin.

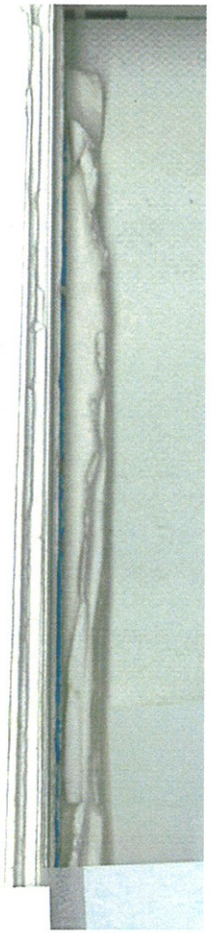
Abundant Comp. inter.
Helianth scop.
Avena barb.
Yucca whip.

SW-facing slope adj to ridgeline

15 March 09 - Otay Preserve - Area L
QCB Survey continued
wk 1

1530 - 1730
0% 0%
4-8 mph 4-8 mp
76° 72°

Buckeye - 1
Virg. lady - 11
Calif. ring - 111
Behrs metalm. - 11



18 March 09 . Otay Preserve - QCB wk 2
Area F

1030	1600
0%	0%
0-2 mph	0-6 mph
74°	78°

Behr's metalmark - HHH 1111
lady sp - 111
white sp - HHH 11
sara's orangetip - HHH 1
marine blue - 11
common white - 1111
blue sp - HHH 11
funeral skipper - 1
west. tiger swallowtail - 11
Virginia lady - 111
bramble hairstreak - 11

1230-1232 — 2 ACB in air together
1237-1242 — 1 on ground
2 on plants (buckwheat +

hab. strat - ✓ Eriog. fas. - dom.
Bacc. sarm.
Lot. scop
Art. Cal

grnd cove - Cassia am.
Lasthen. gal.
Plantago erect.
Brod. cic.

1% cloud
2-4 mph wind
86° F

20 March 08 Stay Prepare - Area D
QCB wk 2

1130 - 1700
0% 0%
2-6 mph 2-8 mph
73°F 72°

butterfly tally on map.
→ transfer

Edwards's
pipevine blue sp. - |||| |||| |
Sara's orangetip - |||| |||
brown elfin - |
Calif. ringlet - |||
funereal skipper - |||| |
Cabbage white - ||||

cabbage white – ++++ ++++ |||
lady sp. – ++++ ++++ ++++
blue sp. – +++ ||
Sara's orangetip – +++
Behr's metalmark – +++ ||
Pale swallowtail – ||

Virgina lady – |
lady sp. – ++++
Sara's orangetip – ||
Behr's metalmark – ||
common white – +++ |
blue sp. – ||
perplexing hairstreak – |

27 March 2009 Otay Preserve QCB wk 3
Area D

0930 – 1530
2-6 mph 2-7
72° 74°
0% clouds 0% clouds

butterflies on mp

28 March 2009 Otay Preserve QCB wk 3
Area F

1030 – 1630
2-4 mph 4-8 mph
70°f 74°
0% clouds 0% clouds

butterflies on mp

TRICIA

(9.5)(78.5mi)

(1 hr conf. call. 2286-4)

Otay Preserve GCB Surveys - Area K 3/13/09

S: 1020
clear skies
winds < 1 mph
68°F

E: 400
clear skies
winds 2-3 mph
72°F

BUSH	Cabbage white
HOFI	painted lady
MODO	southern blue
SOSP	Ca ringlet (5 dots, 1 large dot)
COVE	rattlesnake (8 buttons) (not sidewinder red)
BEWR	black-tailed jackrabbit
CORA	Behris mm
MELA	western tiger swallowtail
CATO	anise swallowtail
CAGL	Alligator lizard
WREN	funereal dusky wing
CAWR (offsite, west)	
ANHU	
swallow sp.	
MALL	
WEKI	

(815. 415)

Otay Ranch Preserve QAB Survey- Area I 3/15/09

S: 0930 E: 300

50↑cc 10↑cc

winds 2-3mph winds 2-3mph

67°F 74°F

BEWR	black-tailed jackrabbit
CATO	Ca. gr. sq.
SCJA	coyote
MELA	Ca. ringlet
BUSH	anise swallowtail
WREN	west coast lady
CORA	Behr's metalmark
HOFI	buckeye
CAQU	
SPTO	
CAGN	
LASP	

(930-430)(102mi)

Otay Ranch Preserve QUB Surveys - Area L 3/17/09

S: 1030
clear skies
winds 1-2mph
74°F

E: 315
clear skies
winds 6-9mph (gusts up to 10)
82°F

CORA	Ca. ringlet	sulfur
WREN	painted lady	
BLPH	cabbage white	
SPTD	western tiger swallowtail	
GHSP	anise swallowtail	
MELA	sara's orangetip	
HOFI	southern blue	
LEGD	Behris metalmark	
CAQU	buckeye	
BUSH	west coast lady	
CATO	funereal dusky wing	
	quino checkerspot	
	gray hairstreak	

Quino checkerspot was identified on a dirt gravel road (north facing) adjacent to coastal sage scrub and annual/non-native grasses.

ero ac, blue dicks, amsinkia mens., eri fas
ar cal, lot sco, brodia,

Another QUB was found perching on our bar

(9-5)

Otay Ranch Preserve QCB Surveys - Area A 3/18/09

TLW

S: 1020

clear skies onsite; haze in distance

winds < 1mph

72°F

E: 340

clear skies

winds 1-2mph

84°F

cabbage white	PIRA
Behr's metalmark	LEGO
blue sp.	CORA
sara's orangetip	WREN
anise swallowtail	SOSP
pale swallowtail	PADO
persius hairstreak	rattlesnake
west coast lady	

3 QCB were detected on flat knoll vegetated with
ero ac, aden fas, mal lau, ave bar, sol doug.
w/ scattered rocks + stones (less than 30% of area)
& lot so, rig lan

No host plants were detected

funereal duskywing
southern blue
buckeye

(9.4)(80mi)

Otay Ranch Preserve Area I QUB Surveys 3/21/09

TLW

S: 1030
partly cloudy
winds 2-4mph
74°F

E: 343
10% cc
winds 8-10mph
62°F

WCSP	rattlesnake (sidewinder; red & red-diamond)
CORA	painted lady
CATO	Sara's orangetip
NOMO	funereal duskywing
CAGN	Behr's metalmark
GHSP	checkered white
HOWR	southern blue
WREN	rattlesnake (brown)(western diamondback)
BUSH	
HOFI	
MELA	
SOSP	

(915-445) 29.5 mi)

Otay Preserve Salt Creek QCB Surveys - Area L 3/24/09

TLW

S: 1030
clear skies
winds 5-9 mph
72°F (ground level; shade)

E: 1525
clear skies
winds 10-13 mph
62°F

cabbage white CORA
southern blue ANTHL
west coast lady VAMEL
Sara's orangetip
Behr's metalmark VGSW(?)
quino checkerspot (1)

QCB #1 was relocated/identified on 3/24/09 along same ridgeline, in same location as before.
↳ watched adult QCB from 1115-1130
↳ he chased off a cabbage white but the majority of time was spent sunning on road/rock.
↳ species present include en fas, blue dicks, erodium, silene gallica, ams inter, ave bar, bro dia, avt cal, ren mel, pla ere, lot sco

painted lady
anise swallowtail
California ringlet
CA dogface
buckeye
funereal duskywing

(9:15 - 6:15)(

Otay Preserve San Ysidro QUB Surveys - Area B 3/25/09

TLW

S: 1105
winds 4-5 (gusts up to 7mph)
clear skies
82°F (ground level; shade)

E: 412
winds
clear skies
78°F

CORA CA nnglet
CATO southern blue
CAQU Sara's orangetip
LASP perplexing hairstreak
NOMO brown elfin
ANTH Cabbage white
RCTH painted lady
Lwhite throat patch, purple-head patch buckeye

SPTO

KAM

Otay Preserve QCB 3/11/09

Area N

Kam Muri

10:05h : 62°F ; 30% clouds/sunny ; 0-1 mph

15:20h : 66°F ; 50% clouds ; 1-4 mph

black-tailed JR, brush rabbit, LASP

LEGO HOFI CAQU CLSW BEWR

CATO RCSP(map) ANHU GRRO Bro di

RTHA SPTO LEGO WCSP

WEKI NOMO CORA BUSH

caterpillars
1-1.5", black, hairy, orange spines (not tubercles), green spots

CAGN calls (map)

CA ringlet

Behrs mm

lady sp.

painted lady

Iaris orangetip

funereal duskywing

blue sp.

buckeye

pale swallowtail

Weeds-

Allium Dudleyi spaces

✓ Laoth cal Esch

Erod bot cal mac

Arena ✓ Erod cic

Brom mad Arms men

✓ Lepidium ✓ chis

✓ Plagio ✓ Mirab

✓ Dich cap Lupino

Bra ror ✓ Eriog fas

Vir cal ✓ Lot purs

Bpa Hirsch inc

✓ Lot sco cracchalagua

✓ Lolium ✓ Giliacap

✓ *Plantago erecta (map)

jojoba

yellow fl spine-tipped dreadly loped lvs, infl of umbelliated heads

Hordeum Lomatium

Otay Preserve QCB
San Ysidro - Area E

3/13/09

Kam Muri

1045h: 60°F ; clear/sunny; 1-3 mph W
1150h: 60°F ; clear/sunny ; 6-8 mph W
1602h: 60°F ; clear/sunny ; 6-8 mph, 10 mph gusts
clouds to east

WEME sparrow sp.
NOHA CATO
LEGO RCSP
CORA COHU? (calls)
CLSW LASP

Sara's orangetip
painted lady
silvery blue
green hairstreak
funereal duskywing
Behr's metalmark
Anise swallowtail
pale swallowtail

west coast lady
clear/sunny

QCB 1343 - 1350h 3-6 mph W 58°F
first obs chasing other butterflies away, then would land, orient E&S and thermoreg; stirred up by other butterflies, but came back 3 times.
Other spp: Sara's otip, green hairstreak, WC lady, anise swt,
got good photos 1421h

(N) Cas exs Esc cal
(N) Allium (N) Lot pur
(N) Plagio canadatagus
Erod spp. Vig lac
Lomatium (N) Plant or
(N) Lot sco Gilia cap
Dodecatheon (N) Mir cal
red warrior (SCROPH)
(N) Dich cap
pink 2/5/7 yellow
Sol xant
(N) Las cal
(N) Plac ciliata

Otay Preserve [redacted] QCB 3/16/09
Area H

Kam [redacted]

1045h: 64° F; 0% cc; 3-5 mph W
1545h: 72° F; 0% cc; 3-7 mph W

NOMO LEGO WSCJ BUSH BLPH KILD RCSP (map)
brush rabbit CATO MODO HOFI orangethr whiptail (map)
CAGN (map) SPTO LEGO CAWR WCSP CLSW TOVU ANHU
COEA CAQU CORA BEWR WEKI RTHU CAHU COYE
blk-tailed JR (map) CAKI GRHO (map) HOWR GRRO woodrat sp. KILD (middens)

woolly bear caterpillar (tiger moth) Lo sco Eri fas
Ams mem
painted lady Vig lac
Sara orangetip Cal mac
CA ringlet Dich cap
west coast lady Allium sp.
red admiral Dodeca
painted lady clover (yellow) 5/5 sceopu?
silvery blue Lomatium
Behrs metalmark Mir ol
funereal duskywing Plagio sp.
Las col

Overall very poor & QCB habitat. Low cover of nectar sources, and mostly spread out and not in concentrated patches. No host plant observed at all, Herbaceous cover is heavily non-native, w/ Bromus mad, Erodium spp., Centaurea met the dominant spp. Very little butterfly activity compared to San Ysidro, no obvious aggregations of butterflies along ridgelines or hilltops.

Otay Preserve QCB
Area D

3/17/09

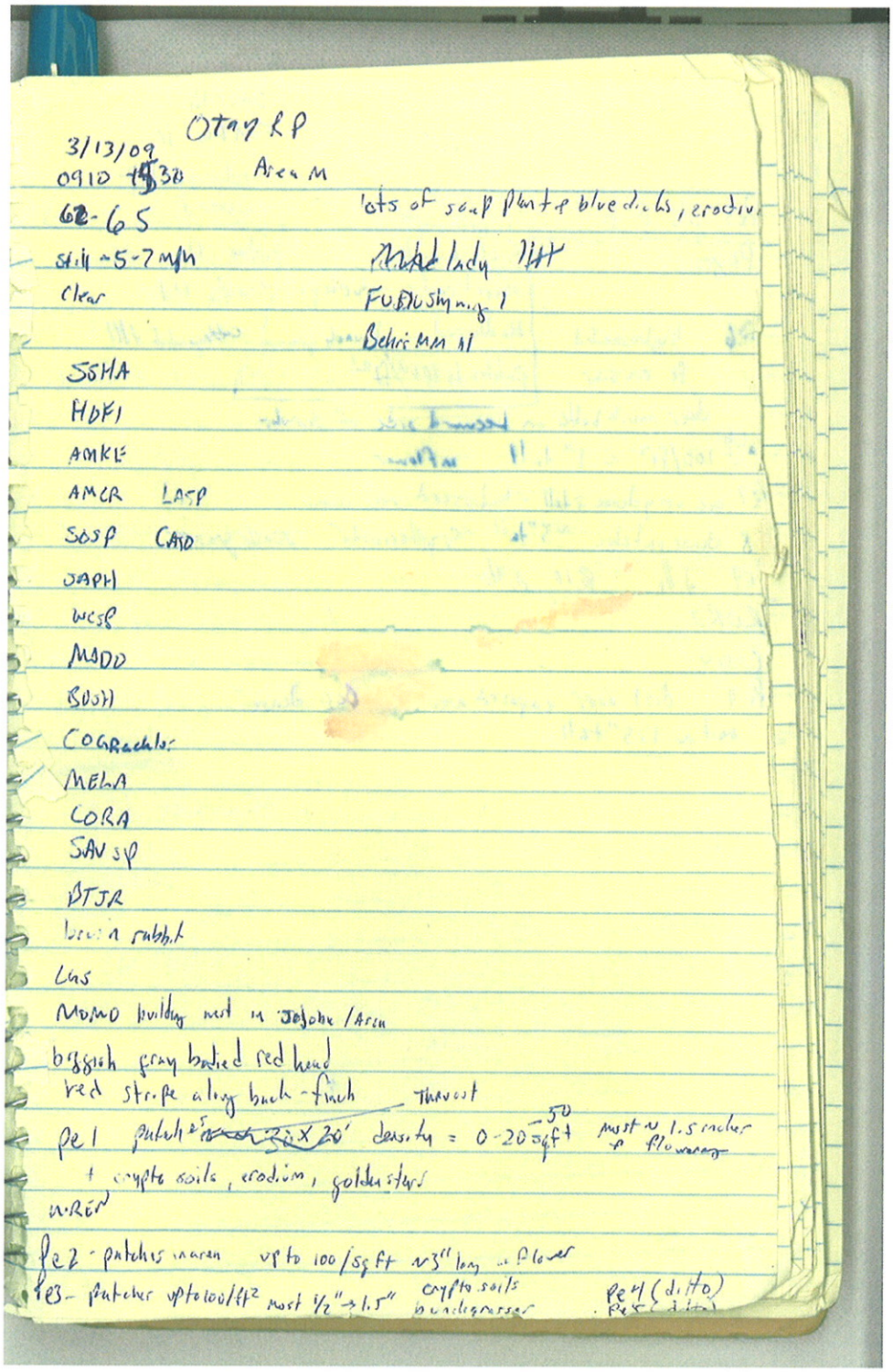
Kam Muri

1020h: 68° F; 0% cc; 2-4 mph W
1525h: 74° F; 0% cc; 4-8 mph, 10-12 gusts

WEME LASP CORA mule deer RCSP (many) CAQU LEGO
WREN NOMO CATO fence liz MODO COHU ERRO COHA pr
WCSP CLSW brush rabbit

	Silgall	Viglac
	Cas ~~sss~~	Esch cal
Sara orangetip cardamines	Lot sco	Erod spp.
painted lady	Plagio	Avena
gray hairstreak	Pha cic	Bro mad
funereal dusky wing	Dic cap	
silvery blue	Lupinus spp	Brit sp. (choc)
cabbage white	Lot purch?	4/4/6 (8/6) white/gil reflexed down
red admiral	Cal mac	
Area E - hilltop check	Mir cal	Allium sp.
1355-1420h	Lomatium	Lepidium sp.
2 QCB at main hilltop; 2	Dod cle (fr)	Las cal
more on hilltop to north (map)	Sil xan	Sis bel
main hilltop: competing w/	Min aur	red marks
pale sw, anise sw, green hs, Sara	Mar mac	virgins bower
orangetip, silvery blue, painted lady		
burned CSS, Viglac, 20% shrubs, rocky		
Erodium, Avena, Bromus; Pe nearby		

BROCK'S NOTES



Otay RP

3/13/09
0910 - 1530 Area M

62 - 65 lots of scalp plants + blue dicks, eroding

SW ~5-7 mph Mild Indy Hill

Clear FO Blue Sky mag 1

Behrens #1

SSHA

HDFI

ANKL

AMCR LASP

SOSP CAND

JAPH

WCSP

MSDD

BUSH

COGR Rachis

MELA

CORA

SAVSP

BTJR

brush rabbit

Lins

MOMO building nest in Jojoba / Area

biggish gray bodied red head

red stripe along back - finch Thrasher

pe 1 patch 2' ~~X 20'~~ density = 0-20 ~~5~~ 50 sqft most w 1.5 inches + flowering

+ crypto soils, erosion, golden stars

WREN

pe 2 - patches in area up to 100/sq ft w 3" long + flower

pe 3 - patches up to 100/ft² most 1/2" → 1.5" crypto soils bunchgrasses pe 4 (ditto) pe 5 (ditto)

3/13/09 continued... cal poppy

SAOT III
FonDw II
buckeye IIII
Queen)
lady II
cloudy III
cabbageweed +III

Pes lots of fe.
POYO

	cryptocrust	
	fishhook cactus	
	barrel cactus	dudleya
26 hydroseeded	bladderpod	bunch grass
fe on scar	patches to 100+/ft²	

does much better on Leeward side of shrubs
after of 100/ft² ~ 1" tall mflower
27 occ very dense 2 tall - hydroseed over scar
8 dense patches ~3" tall cryptocrust bunch grasses
eg d.fe Re10 d.fe
RORV
CAQV
Fe II dist over exposed area Occ dense
most ~ 1.5" tall

3/20/09 OTR Preserve QCB survey

OTAY

1100 — 1600

30% - 30%

60 — 65°

lady - XXXXXX+

Anise swallowtail - II

Pipeplex HS - III

Tiger swallowtail - II

Cal sinylet - II V

buckeye - XXX X

Behr's MM - XXXXX

Co white - HHT IHT HHT V V XX

cabbage white - HHT I

Sara Orangetip - V X I

Queen - I

Fun. Dusky - XX

Blue sp. - XXXX

3/24/09 otay

1030 - 1300 - 1430
70 - 76 - 78
clr - clr - clr
still - 1 - 3-5 mph

cowbird XX
Debris MM XXXX
Calbucheye XXXXX
SAOT 11
Lady XXXXXX
PeregrexHS 11
Fun Duo XXXX
Ac blue 1111
Palo Swallowtail 11
GRRO
Longtail 1111X
Crabbs - 1

ANTTA

3/10/09
Clear
1-3 MPH
16C
Sunny + Warm
1010+ time

Otay QCB Anitas
area J
pl qz

SAPH
LEGO
CATH
ANTH
CORA
HOPI
SPTO
CAQU

BTJR (on map)
And Cottont.

Funereal duskywing
Side blotch
BUSH
Ringlet ||| || numerous in drainage
Blue sp |||
Buckeye |
Southern blue ||
Sara Orangtip ||||
LASP
RTHA - soaring over area J+H
RCSP - on map

p2 of 2

Otay QCB
aka 15
5/10/07

West Coast Lady 1115
WCSP
BEWR
CAGN pair
Behr's HHH 111
Pygmy blue 1
red admiral
Lady sp → ~6-10
MOPE

end 310
18C
Clear
5-8 MPH

No QCB

0915
17C
Wind 0-1
Clear

Otay QCB
area J
3/16/09

NOFI	CATH	GRSP
LEGO	WCSP	RCSP
MODO	ANHU	BEWR
CORA	GRRO	SPTO
CAKI	CAQU	CAGN
CATO	NOMO	

RTHA - Fly over

Behr's metalmark ++++ ||
Lady sp. (flying too fast to I.D.) ||
Funereal duskywing ++++ |
so. Blue ++++
Painted lady ++++
West Coast Lady ++++ |
Sara Orangetip ++++ ++++ |
Red admiral |
Common white |
Ringlet ++++ ||

lady sp - 10-20
traveling fast.

Southern hill/ridge
very grassy -
both native +
non native

Middle hill/ridge
has more open stuff
but lots of erodium
+ lepidium below
edges.

Bell's Sage Sparrow
Song Phoebe

End
2:30
21C
5-10mph
Clear

3/25/09
0930
Clear
1-3MPH
20C

PL 82
Otay Preserve
Area J
QCB Survey

SOSP	BELOR	MODO
HOFI	CATO	BGGSP - map
GRRO	CATH	EUST
AMTH	WETME	CAKI
CAQU	CAGN (map)	NOHA - ♂
WCSP	RCSP - same @ 3/16	RTHA - fly over
CORA	LEGO	
HOLA (map)	NOMO	
(Anise-2 in area K)		

Behr's	++++ || many
Common White	++++ ||
Lady Sp	||
West Coast Lady	++++ ||
Sara Orange	++++ |
Paint Lady	++++ ||
Funereal	|| many
Ringlet	++++-++++ |
Buckeye	++++ ++++ |||
Blue Sp	||

Dogface - 1

(got 2 QCB in area h on 3/25)

Anise swallowtail - 1
Cabbage - 11
Red admiral - 1
Tiger swallowtail - 1
Southern blue - 11

End
1520
Clear
3-8 MPH
24C

NO QCB this area