Baseline Biodiversity Survey for the Escondido Creek Preserve

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LIST OF ACRONYMS AND ABBREVIATIONS

ACOE	U.S. Army Corps of Engineers
AMSL	above mean sea level
AOU	American Ornithologists' Union
APN	assessor's parcel number
ASMDs	Area-Specific Management Directives
CAL FIRE	California Department of Forestry and Fire Protection
Cal-IPC	California Invasive Plant Council
CDFG	California Department of Fish and Game
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CWA	Clean Water Act
DPR	County of San Diego Department of Parks and Recreation
°F	degrees Fahrenheit
FRAP	Fire and Resource Assessment Program
FRMP	Framework Resource Management Plan
GIS	geographic information system
GPS	Global Positioning System
MSCP	Multiple Species Conservation Program
NABA	North American Butterfly Association
NCCP	Natural Communities Conservation Planning
OMWD	Olivenhain Municipal Water District
PAMA	Pre-Approved Mitigation Area
Preserve	Escondido Creek Preserve
RMP	Resource Management Plan
RWQCB	Regional Water Quality Control Board
SANDAG	San Diego Association of Governments
SDCWA	San Diego County Water Authority
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

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EXECUTIVE SUMMARY

Dudek conducted a baseline biodiversity study of the Escondido Creek Preserve (Preserve) to provide the County of San Diego Department of Parks and Recreation (DPR) with current baseline biological data and information needed to develop a Resource Management Plan (RMP), including Area-Specific Management Directives (ASMDs), for the Preserve. The Preserve is located in the Elfin Forest community of unincorporated San Diego County and is owned and managed by DPR.

This report documents the methods and results of this study, and provides various management recommendations for AMSDs to preserve and enhance the function of the Preserve as biological open space in the context of the conservation goals and guidelines of the Draft North County Multiple Species Conservation Program (MSCP) Plan.

Dudek biologists performed the following baseline biological surveys on the Preserve from summer 2010 through spring 2011: vegetation mapping, focused botanical surveys, exotic species mapping, general butterfly surveys, herpetological pitfall trap surveys, avian point count surveys, bat surveys, small mammal trapping, and large and medium mammal surveys.

Thirteen vegetation communities and land cover types were identified on site including: Diegan coastal sage scrub, eucalyptus woodland, non-native grassland, southern coast live oak riparian forest, southern mixed chaparral, southern willow scrub, coast live oak woodland, southern riparian woodland, valley needlegrass grassland, non-native vegetation, disturbed habitat, developed land, and orchard.

A total of 184 plant species were recorded on the Preserve during the surveys. Six special-status plant species were observed, of which two are North County MSCP-covered species. A total of 145 wildlife species were observed or detected on the Preserve during the surveys, including 4 amphibians, 12 reptiles, 83 birds, 31 mammals, and 15 butterflies. Twenty-nine special-status wildlife species were observed or detected on the Preserve, including nine North County MSCP covered species.

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1.0 INTRODUCTION

The Escondido Creek Preserve (Preserve; Figures 1 and 2) is an approximately 346.59-acre[1] open space preserve located in the Elfin Forest community of unincorporated San Diego County, California. The Preserve is comprised of several different properties spread throughout the areas surrounding Elfin Forest Road and Harmony Grove Road. The County of San Diego began acquiring the properties that make up the Preserve beginning in 2001 with the most recent parcels added in 2010. Several of the Preserve parcels were purchased to provide mitigation for projects undertaken by the San Diego County Water Authority (SDCWA) and the San Diego Association of Governments (SANDAG). Currently, the Preserve is not open to the public.

The Preserve is included in the County of San Diego's North County Multiple Species Conservation Program (MSCP) preserve system and contains valuable native habitats including designated critical habitat for coastal California gnatcatcher (*Polioptila californica californica*). The County proposes to manage the Preserve in accordance with a Resource Management Plan (RMP) including Area-Specific Management Directives (ASMDs). At the request of DPR, Dudek conducted a biodiversity study to provide the County with the current baseline biological data needed to develop a RMP for the Preserve.

1.1 Purpose of the Report

This report describes the existing conditions of biological resources within the Preserve in terms of vegetation, flora, wildlife, and wildlife habitats, and provides recommendations for management and monitoring of these resources. The data presented in this report are intended to provide the baseline information necessary to manage, protect, and enhance the sensitive biological resources present on site and will be used by DPR to develop a RMP including ASMDs for the Preserve pursuant to the requirements of the Draft North County MSCP Plan.

The appendices to this report provide detailed information on the results of the inventory. Appendices A and B provide the list of observed or detected plant and wildlife species, respectively. Appendix C provides photographs of the avian point count survey locations. Appendices D and E provide the evaluation of the potential for occurrence of special-status plant and wildlife species, respectively. Appendix F provides photographs of the site and selected plant and wildlife species.

[1] The assessor's parcel data list the Preserve to be 352.16 acres; however, calculations generated from geographic information system (GIS) data show the Preserve as 346.59 acres. Therefore, this report references the Preserve as 346.59 acres.

1.2 North County MSCP Context

The Escondido Creek Preserve is located within the boundaries of the County of San Diego MSCP, and is included in the North County MSCP preserve system. The Preserve parcels are located throughout the Elfin Forest Core Area in the west and the Harmony Grove Core Area in the east. The Preserve parcels are designated as Baseline Preserve and Pre-Approved Mitigation Area (PAMA) (Figure 3).

According to the MSCP Habitat Evaluation Model, the habitats within the Preserve range from low to very high in value. The North County MSCP species-specific habitat evaluation model for coastal California gnatcatcher designates habitat within the western parcels of the Preserve as very high in value for this federally threatened species. These parcels are, in fact, located within designated USFWS Critical Habitat for the coastal California gnatcatcher

2.0 STUDY AREA DESCRIPTION

2.1 Project Location

The Escondido Creek Preserve is generally located in the unincorporated community of Elfin Forest in San Diego County. Elfin Forest is bordered to the north and northwest by the City of San Marcos; to the west by the City of Encinitas; to the south by the unincorporated community of Rancho Santa Fe; and to the east by the communities of Harmony Grove and Del Dios. The Preserve is within the Rancho Santa Fe, California U.S. Geological Survey (USGS) 7.5-minute quadrangle and is located in: Township 12 South, Range 3 West, Sections 25, 35 and 36; and Township 13 South, Range 3 West, Sections 3 and 4 (Figures 1 and 2).

The properties that make up the Preserve are more specifically located to the north and south of Elfin Forest Road and Harmony Grove Road and consist of the following Assessor's Parcel Numbers (APNs):

264-031-33	264-032-10	264-042-87	679-140-01	679-140-13
264-031-39	264-041-30	679-130-05	679-140-06	679-140-14
264-031-40	264-041-13	679-130-12	679-140-12	679-140-15

2.2 Geographical Setting

The Preserve is located in the lower chaparral biotic zone in the Peninsular Ranges of southern California along multiple ridgelines and valleys. The northeast portion of the Preserve lies along Escondido Creek and San Elijo Canyon. The rest of the Preserve lies north of Escondido Creek and west of San Elijo Canyon.

The topography of the Preserve is determined primarily by gentle to moderate slopes with a slightly higher elevation range in the eastern parcels compared to the western parcels of the Preserve. On-site elevations range from approximately 400 feet above mean sea level (AMSL) in the southwestern portion of the Preserve to approximately 1,000 feet AMSL in the northeastern portion of the Preserve. The majority of the Preserve is characterized by south and west facing slopes. Slope gradients reach up to 45°, with the majority of the Preserve between 5° and 20°.

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FIGURE 1

Regional Map

Escondido Creek Preserve - Baseline Biodiversity Survey

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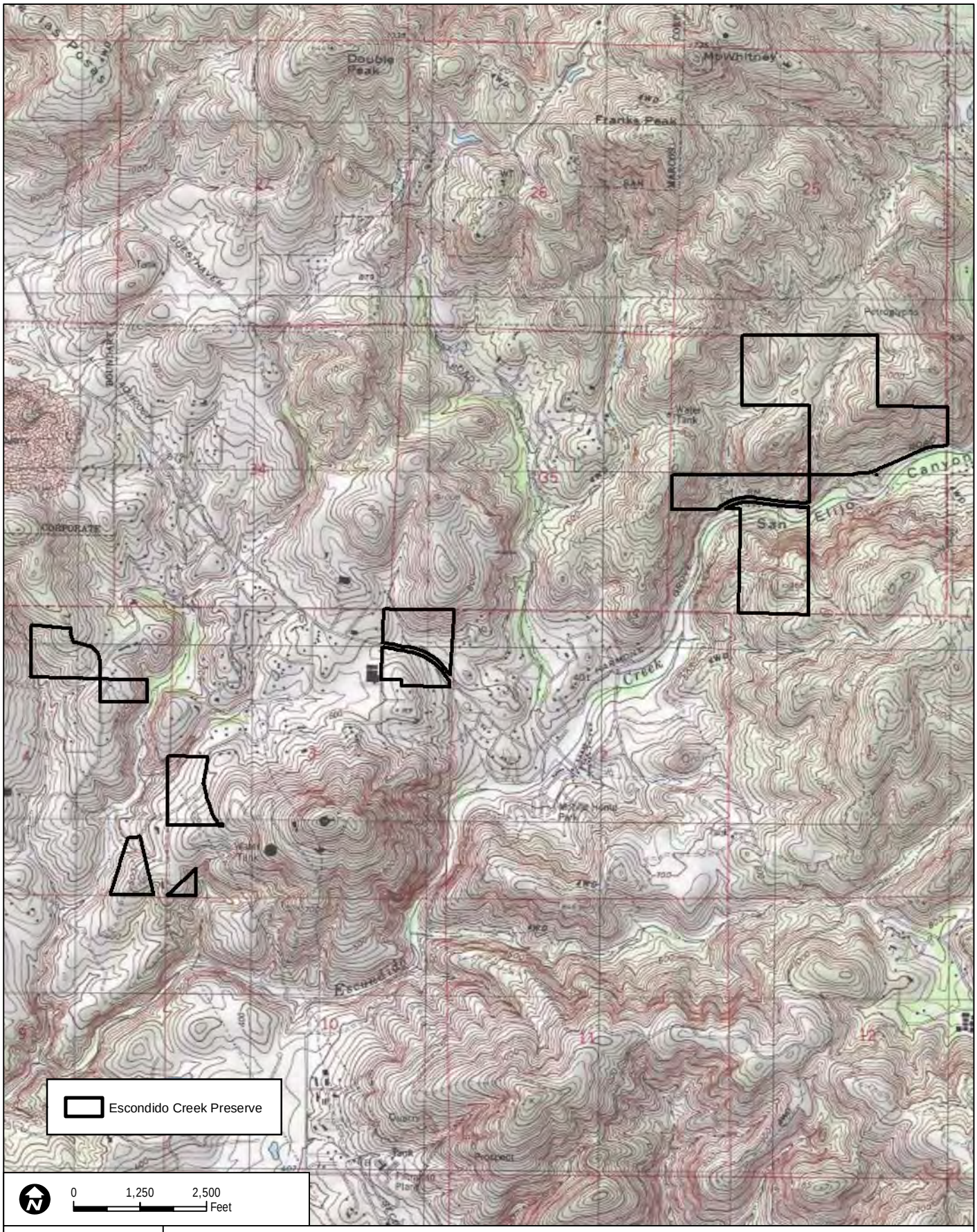

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SOURCE: USGS 7.5-Minute Series Quadrangle.

FIGURE 2

Vicinity Map

Escondido Creek Preserve - Baseline Biodiversity Survey

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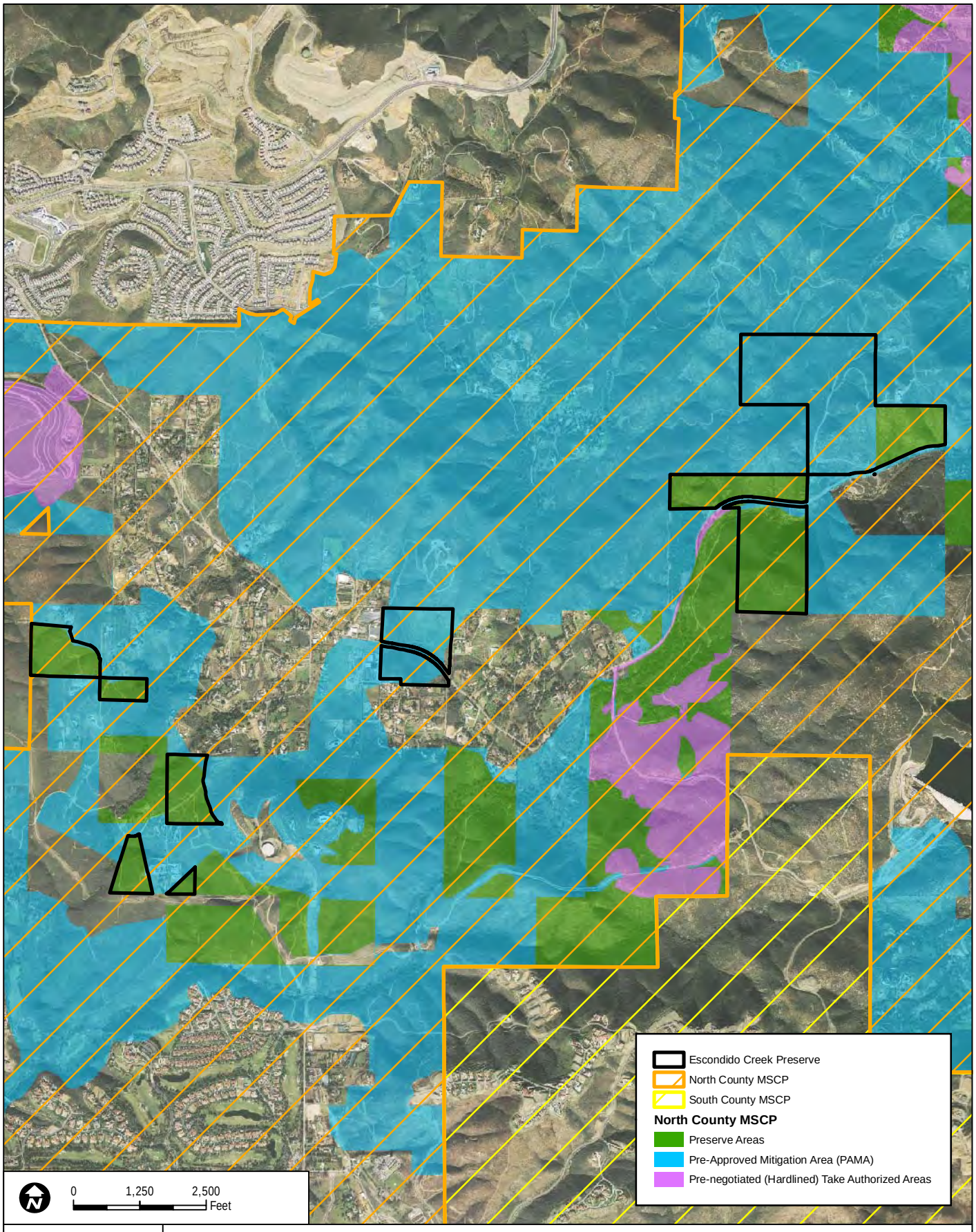

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SOURCE: Digital Globe 2008
MSCP 2008
SANGIS 2007

FIGURE 3

MSCP Designations and Conserved Lands

Escondido Creek Preserve - Baseline Biodiversity Survey

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2.3 Geology and Soils

The Preserve contains eight soil types belonging to five soil series including: Cieneba-Fallbrook rocky sandy loams, Escondido very fine sandy loam, Exchequer rocky silt loam, Huerhuero loam, San Miguel rocky silt loam, and San Miguel-Exchequer rocky silt loams (Figures 4a–d) (Bowman 1973). A brief description of each soil series and the associated soil types that occur in the Preserve is provided below.

Cieneba series

The Cieneba series consists of excessively drained, very shallow to shallow coarse sandy loams that form in material weathered in place from granitic rock. The topsoil layer is a brown coarse sandy loam about 10 inches deep over weathered granodiorite. Cieneba soils exhibit rapid to very rapid runoff with a high to very high erosion hazard (Bowman 1973). Cieneba-Fallbrook rocky sandy loams (9%–30% slopes, eroded) occupy the entire eastern portion of the Preserve and predominantly support southern mixed chaparral in this area. Cieneba-Fallbrook rocky sandy loams (30%–65% slopes, eroded) occupy the northeastern corner of the central parcel. This soil type supports coastal sage scrub within the parcel.

Escondido series

Escondido series soils are well-drained, moderately deep to deep very fine sandy loams formed in material weathered from metamorphosed sandstone. The topsoil layer is dark brown, slightly acid very fine sandy loam about 6 inches deep over neutral very fine sandy loam. Escondido very fine sandy loam (5%– 9% slopes) occur in the northwestern portion of the central parcel on the Preserve. This soil type supports Diegan coastal sage scrub within the parcel.

Exchequer series

Exchequer series soils are well-drained, shallow to very shallow silt loams formed in material weathered from hard metabasic rock. The topsoil layer is yellowish-red, slightly acid silt loam about 10 inches deep over hard metabasic rock. Rock outcrop covers about 10% of the surface. Exchequer rocky silt loam (30%–70% slopes) and Exchequer rocky silt loam (9%–30% slopes) occupy much of the western parcels on the Preserve. These soil types primarily support Diegan coastal sage scrub and southern mixed chaparral in the western parcels.

Huerhuero series

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. Due to the clay subsoil, Huerhuero loams may support special-status plant species that require or prefer clay soils, such as Blochman's dudleya (*Dudleya blochmaniae* spp. *blochmaniae*) and long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*), among others (Vanderwier, pers. comm. 2002). Huerhuero loam (5–9% slopes, eroded) occurs along Elfin Forest Road in the central parcel of the Preserve and supports Diegan coastal sage scrub, southern coast like oak riparian forest, and valley needlegrass grassland in this area.

San Miguel series

San Miguel series soils are well-drained, shallow to moderately deep silt loams with clay subsoil that are derived from metavolcanic rock. San Miguel soils also form a complex with Exchequer soil series. Exchequer series soils are well-drained, shallow silt loams derived from weathered hard metabasic (metamorphosed basalt), or mafic, 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 (5.0–6.5) (Bowman 1973). As a metavolcanic soil, San Miguel series soils may support special-status plant species that require this unique soil type, such as San Miguel savory (*Satureja chandleri*) (Vanderwier, pers. comm. 2002). San Miguel rocky silt loam (9%–30% slopes) and San Miguel-Exchequer rocky silt loams (9%–70% slopes) occur within the central parcel of the Preserve and in portions of the western parcels. These soil types primarily support Diegan coastal sage scrub within these parcels.

2.4 Climate

As with most of Southern California, the regional climate in the vicinity of the Preserve is influenced by the Pacific Ocean and is frequently under the influence of a seasonal, migratory subtropical high-pressure cell known as the Pacific High. Wet winters and dry summers, with mild seasonal changes, generally characterize the Southern California climate. This climate pattern is occasionally interrupted by extreme periods of hot weather; winter storms; or dry, easterly Santa Ana winds.

However, there is some local variance to the typical Southern California climate. The inland location of the Preserve affects the degree of influence of the Pacific Ocean, resulting in less-regulated temperatures. The average high temperature calculated from January 1900 to March 1979 for the Escondido area is approximately 75.9º Fahrenheit (°F), with higher temperatures in summer and early fall (July–September) reaching up to 88.2°F (Western Regional Climate Center 2009). The mean precipitation for the area is 16.22 inches per year, with the most rainfall concentrated in the months of December (2.67 inches), January (3.24 inches), and February (3.11

inches) (Western Regional Climate Center 2009). As of February 28, 2011, City of San Diego Water Department rain gauges at Lake Hodges had logged 16.45 inches of rain which is 123% of what was logged by the same period in 2009 (13.33 inches). Therefore, rainfall in early 2011 was above average for this area.

2.5 Hydrology

The Preserve is within the Carlsbad Watershed (Figure 5, Hydrology Map). The Carlsbad Watershed generally drains via small sub-drainages, gullies, and draws towards Escondido Creek, which traverses the eastern portion of the Preserve and continues south of the Preserve farther west. Escondido Creek flows approximately 11.5 miles from the Preserve to the Pacific Ocean via San Elijo Lagoon.

Designated beneficial uses for the Escondido Creek in this area include: agricultural supply; municipal and domestic supply; contact and non-contact water recreation; warm and cold freshwater habitat; and wildlife habitat (CRWQCB 1994). According to the 2006 Federal Clean Water Act (CWA) Section 303(d) list, Escondido Creek is impaired for dichlorodiphenyltrichloroethane (DDT), manganese, phosphate, selenium, sulfates, and total dissolved solids.

2.6 Fire History

Based on historical fire perimeter data (FRAP 2009)[2], all except a very small area in the eastern portion of the Preserve has burned at least once during the recorded data period, with at least portions of the Preserve having burned multiple times between 1943 and 1996. The average interval between wildfires in the study area was calculated to be 28 years with intervals ranging between 3 and 43 years. The median interval between fires is calculated at 7 years. Based on this analysis, it is expected that the Preserve would be subject to wildfire occurrence approximately every 7–28 years. However, less than 1% of the Preserve burned in 1986 and 1989, and excluding these fires results in a 53-year fire interval. Table 1, Escondido Creek Preserve Fire Interval, presents the fire interval data for the Preserve (Figure 6, Fire History Map).

[2] Based on polygon GIS data from California Department of Forestry and Fire Protection's (CAL FIRE's) Fire and Resource Assessment Program (FRAP), which includes data from CAL FIRE, U.S. Department of Agriculture Forest Service Region 5, Bureau of Land Management, U.S. National Park Service, Contract Counties and other agencies. The data set is a comprehensive fire perimeter GIS layer for public and private lands throughout the state and covers fires 10 acres and greater back to 1878.

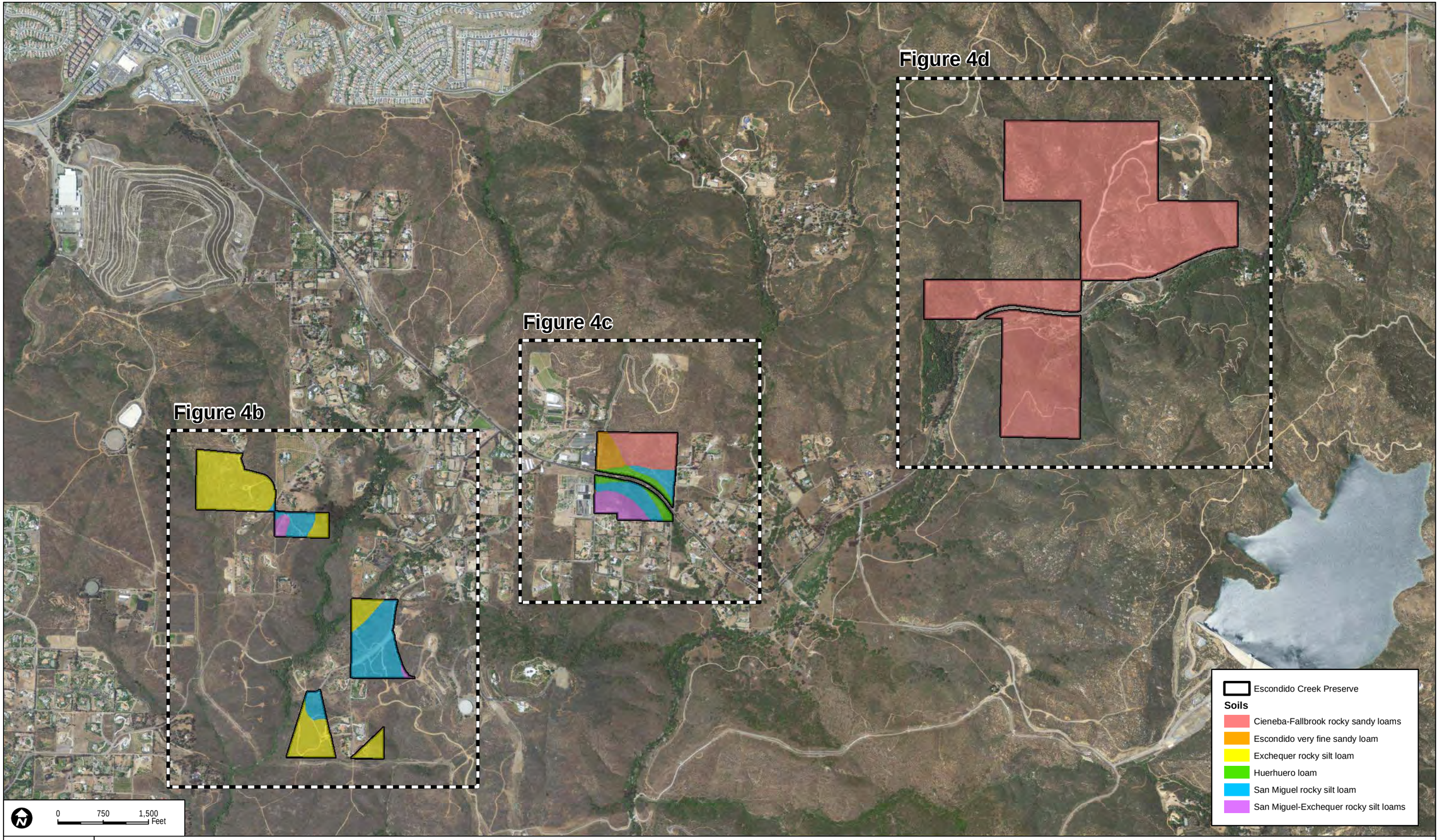
Table 1
Escondido Creek Preserve Fire Interval

Fire Year*	Fire Name	Interval (years)	Acreage Burned on Escondido Creek Preserve	Percent of Escondido Creek Preserve Burned**
1943	Unnamed	n/a	267.4	77.1
1986	Harmony	43	0.1	0.02
1989	Harmony	3	1.7	0.5
1996	Harmony	7	226.2	65.3

*FRAP 2009
**Based on the 346.59-acre total acreage of the Preserve.

2.7 Trails

The Preserve is currently not open to the public; however, there are existing local community trails/pathways that run alongside the roadways throughout the western and central parcels of the Preserve. In addition, there are a number of disturbed areas throughout the Preserve that show evidence of previous use and clearing, potentially for the purpose of creating trails. The Preserve also contains several utility easements with regularly maintained dirt access roads, which may function as informal trails. The existing disturbed trails and access roads are included on the vegetation maps and depicted as disturbed habitat (Figures 7a–d).



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SOURCE: NAIP 2009

FIGURE 4a

Soils - Index Map

Escondido Creek Preserve - Baseline Biodiversity Survey

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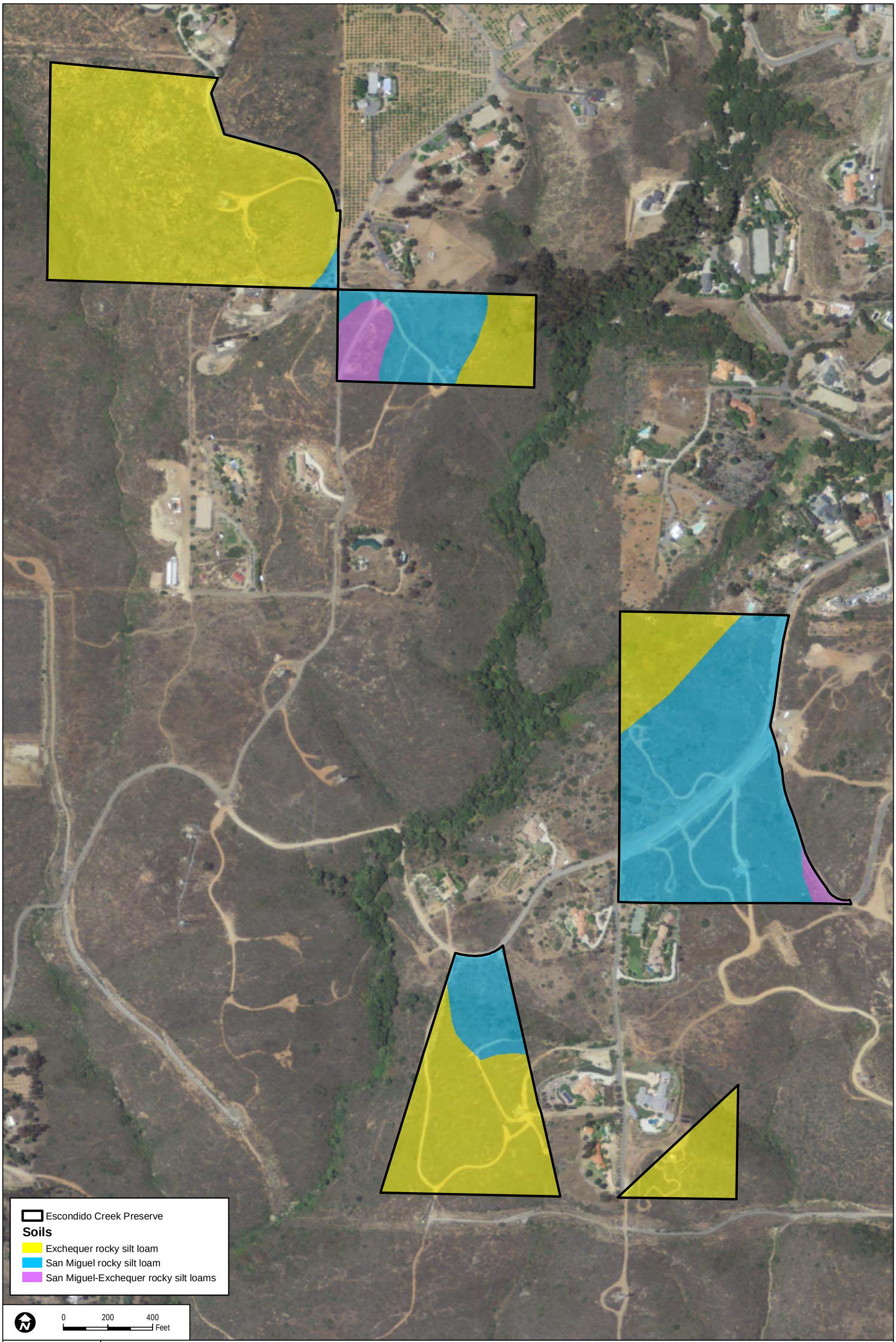

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SOURCE: NAIP 2009

FIGURE 4b

Soils Map

Escondido Creek Preserve - Baseline Biodiversity Survey

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Escondido Creek Preserve

Soils

- Cieneba-Fallbrook rocky sandy loams
- Escondido very fine sandy loam
- Huerhuero loam
- San Miguel rocky silt loam
- San Miguel-Exchequer rocky silt loams

0 150 300 Feet

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SOURCE: NAIP 2009

FIGURE 4c

Soils Map

Escondido Creek Preserve - Baseline Biodiversity Survey

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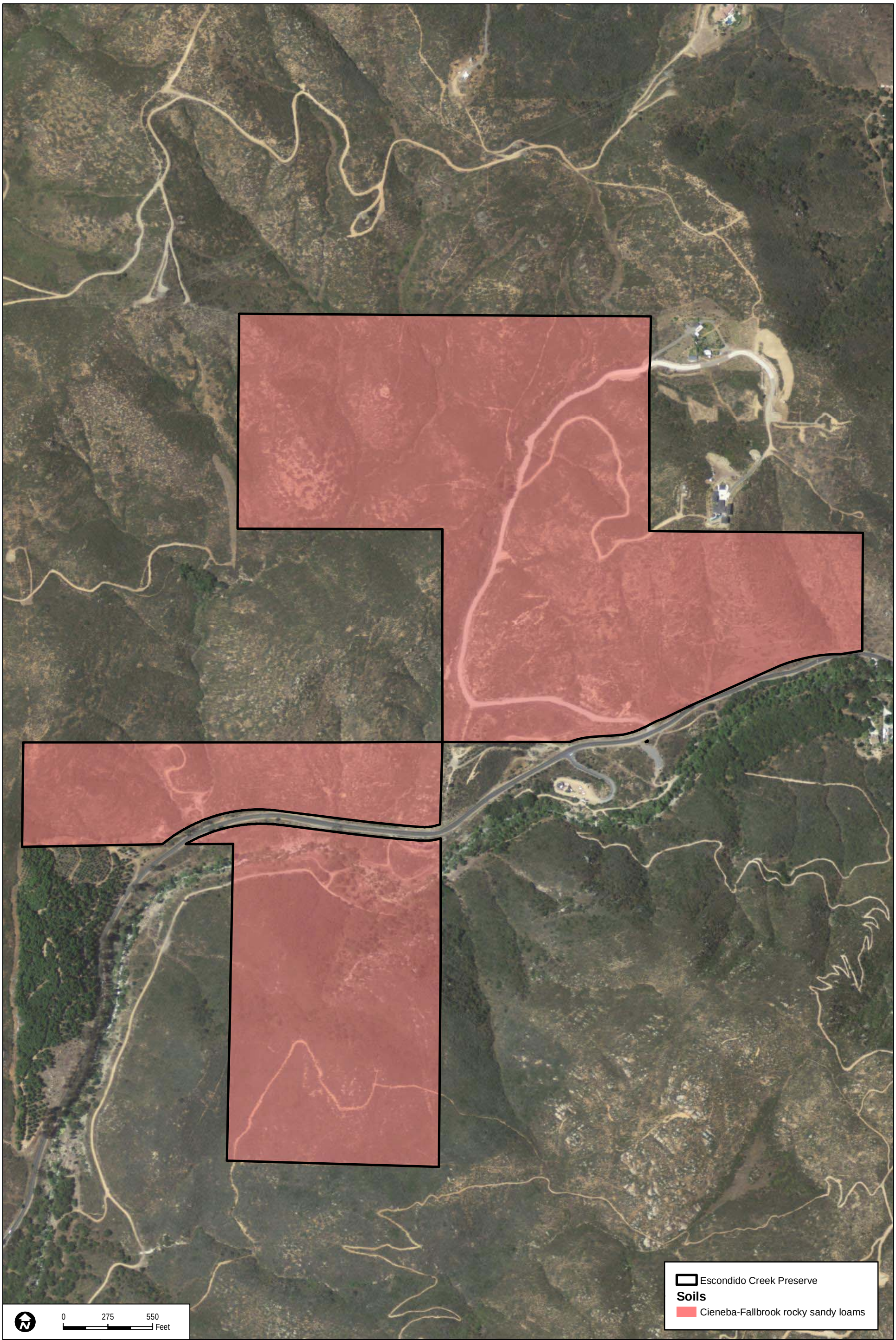

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SOURCE: NAIP 2009

FIGURE 4d

Soils Map

Escondido Creek Preserve - Baseline Biodiversity Survey

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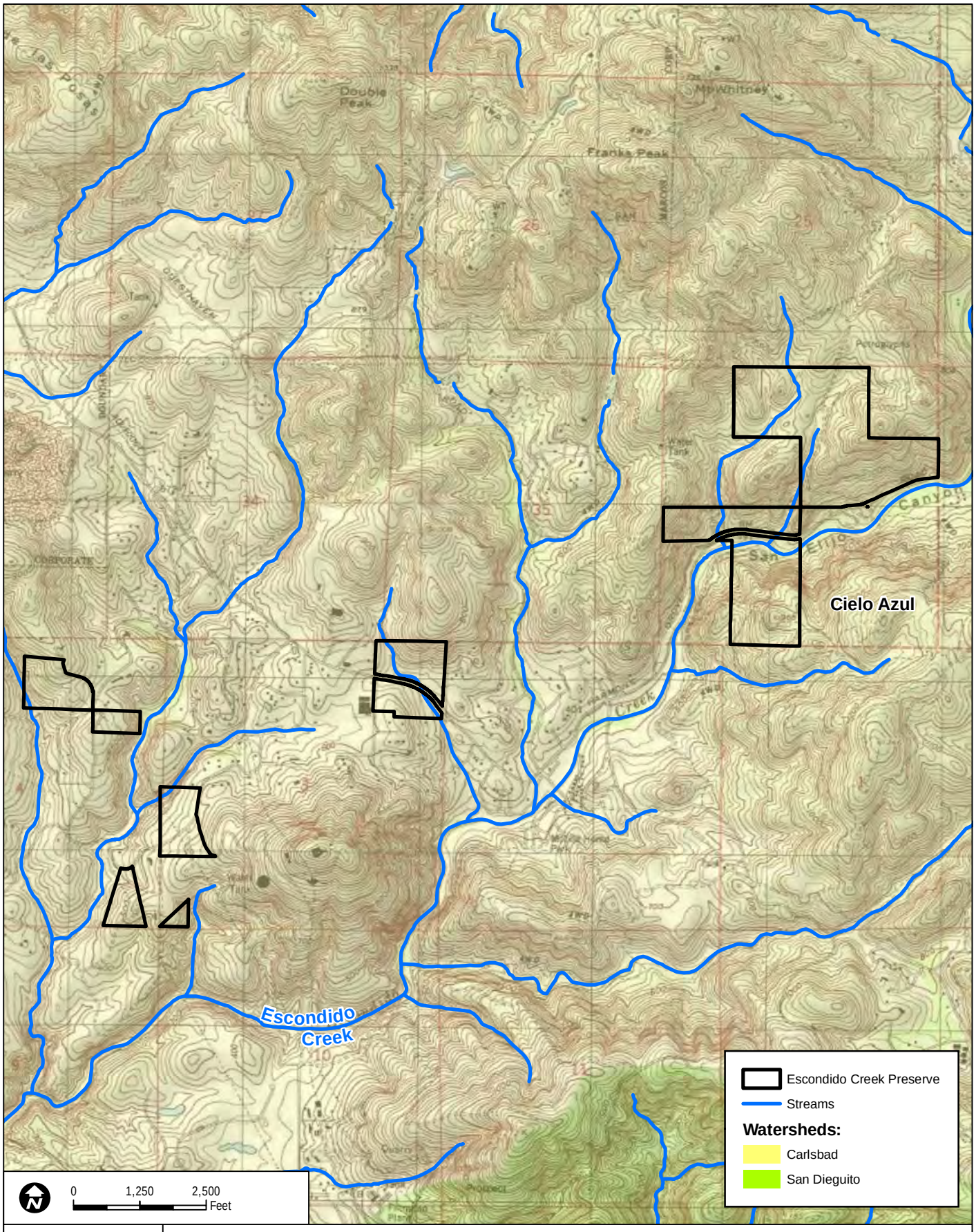

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SOURCE: USGS 7.5-Minute Series Quadrangle
SANGIS 2008
USGS NHD 2010

FIGURE 5
Hydrology Map

Escondido Creek Preserve - Baseline Biodiversity Survey

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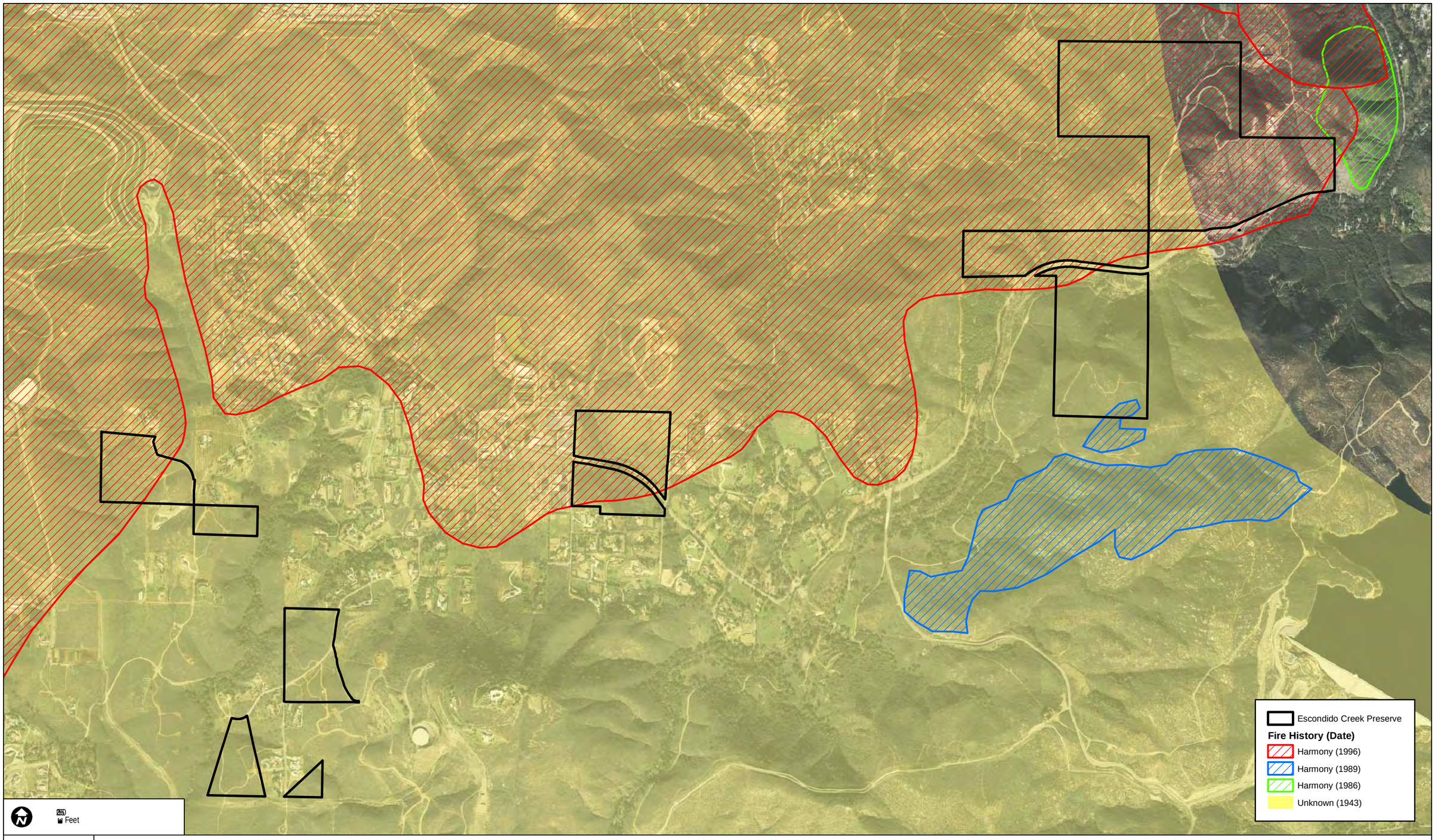

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SOURCE: Digital Globe 2008
FRAP 2009

FIGURE 6

Fire History

Escondido Creek Preserve - Baseline Biodiversity Survey

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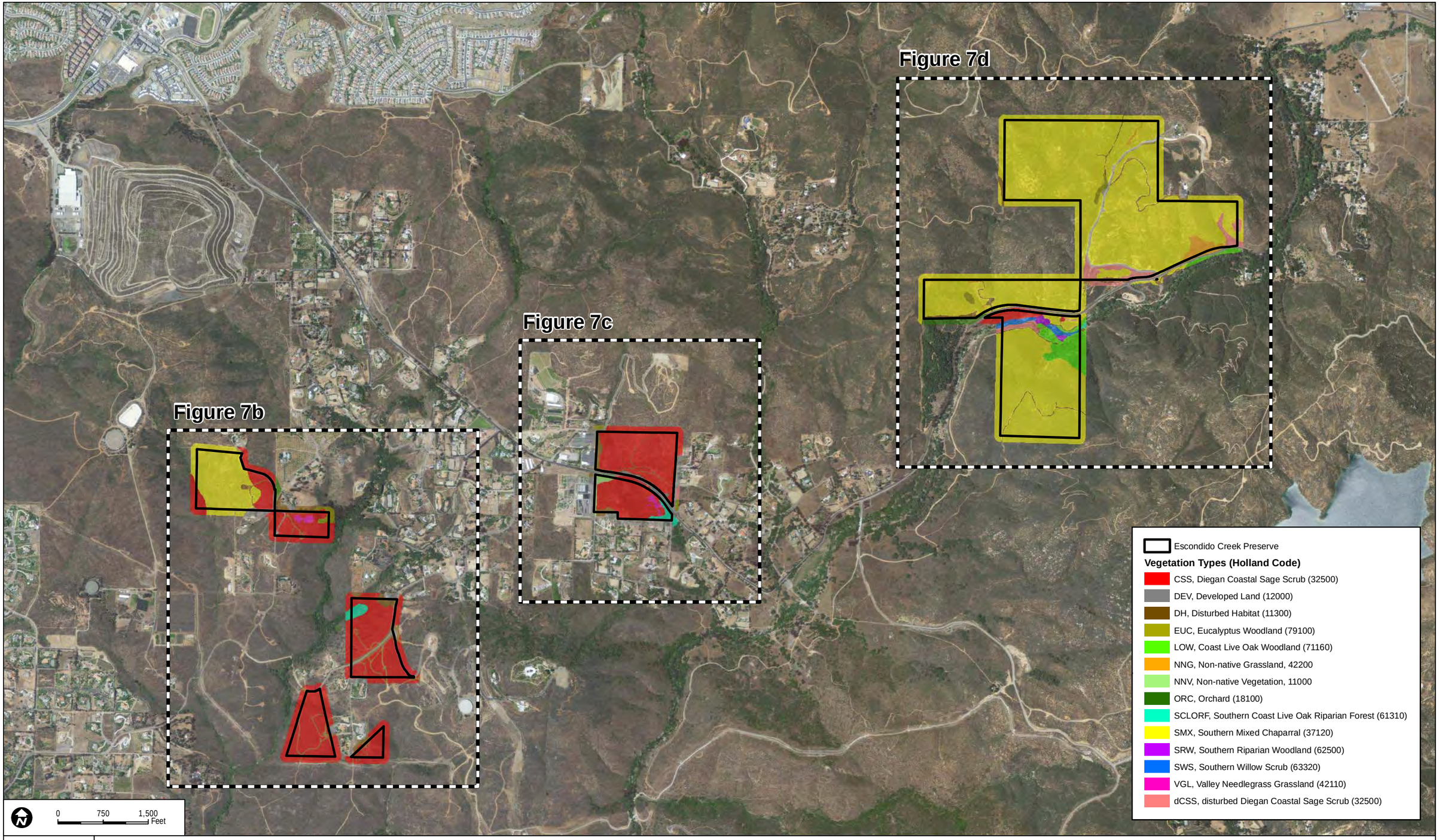

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SOURCE: NAIP 2009

FIGURE 7a

Vegetation Communities/Habitats - Index Map

Escondido Creek Preserve - Baseline Biodiversity Survey

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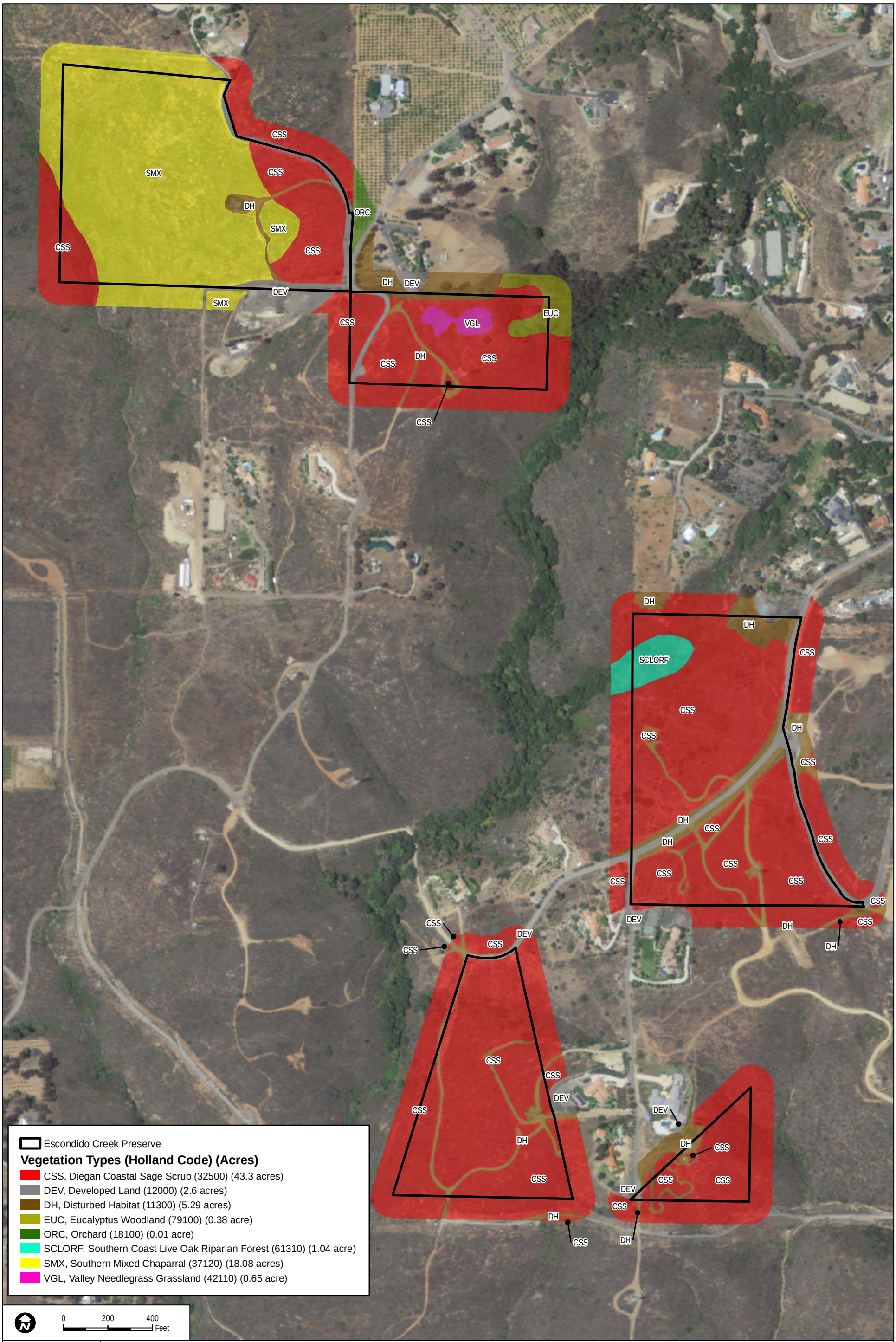

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SOURCE: NAIP 2009

FIGURE 7b

Vegetation Communities/Habitats

Escondido Creek Preserve - Baseline Biodiversity Survey

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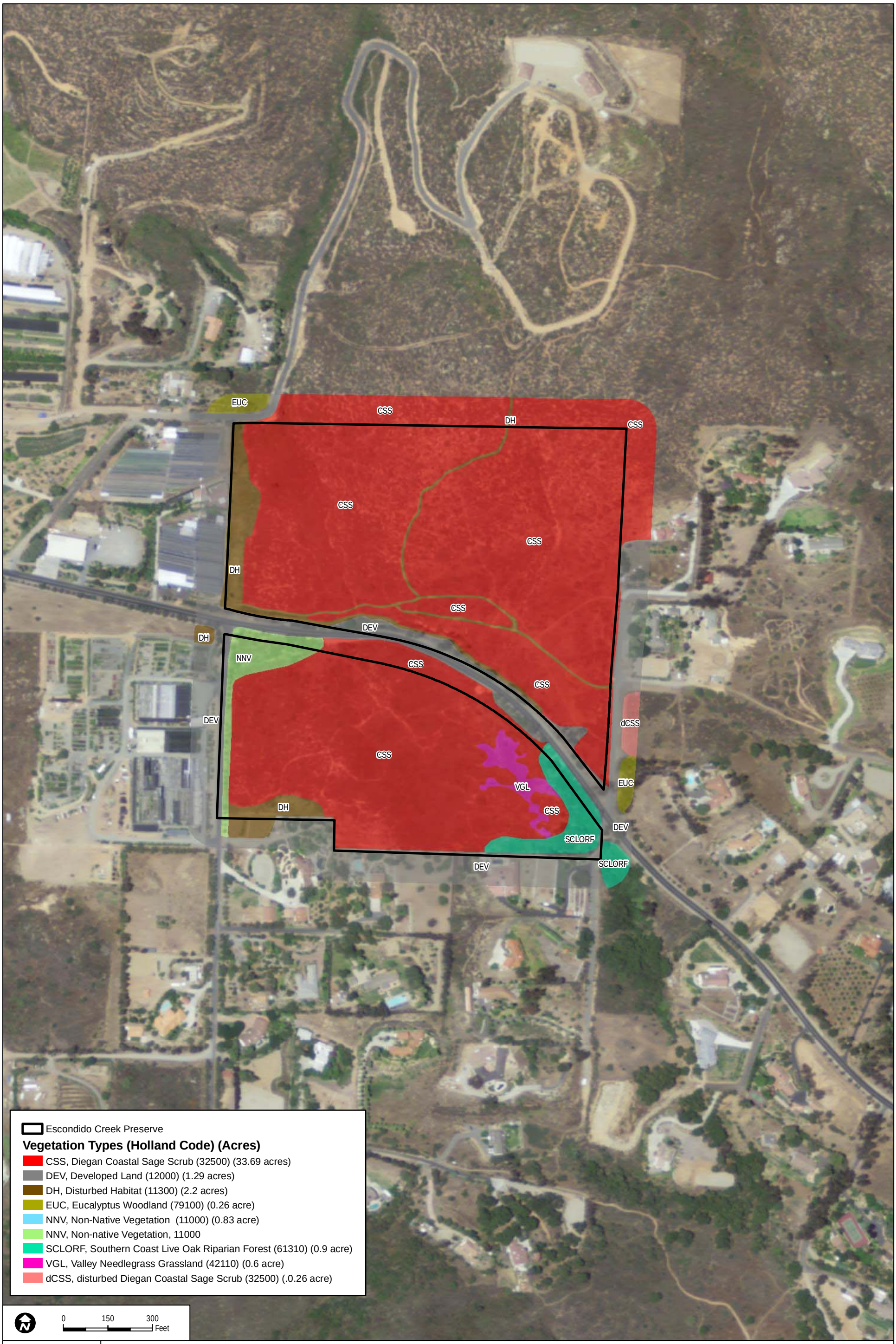

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SOURCE: NAIP 2009

FIGURE 7c

Vegetation Communities/Habitats

Escondido Creek Preserve - Baseline Biodiversity Survey

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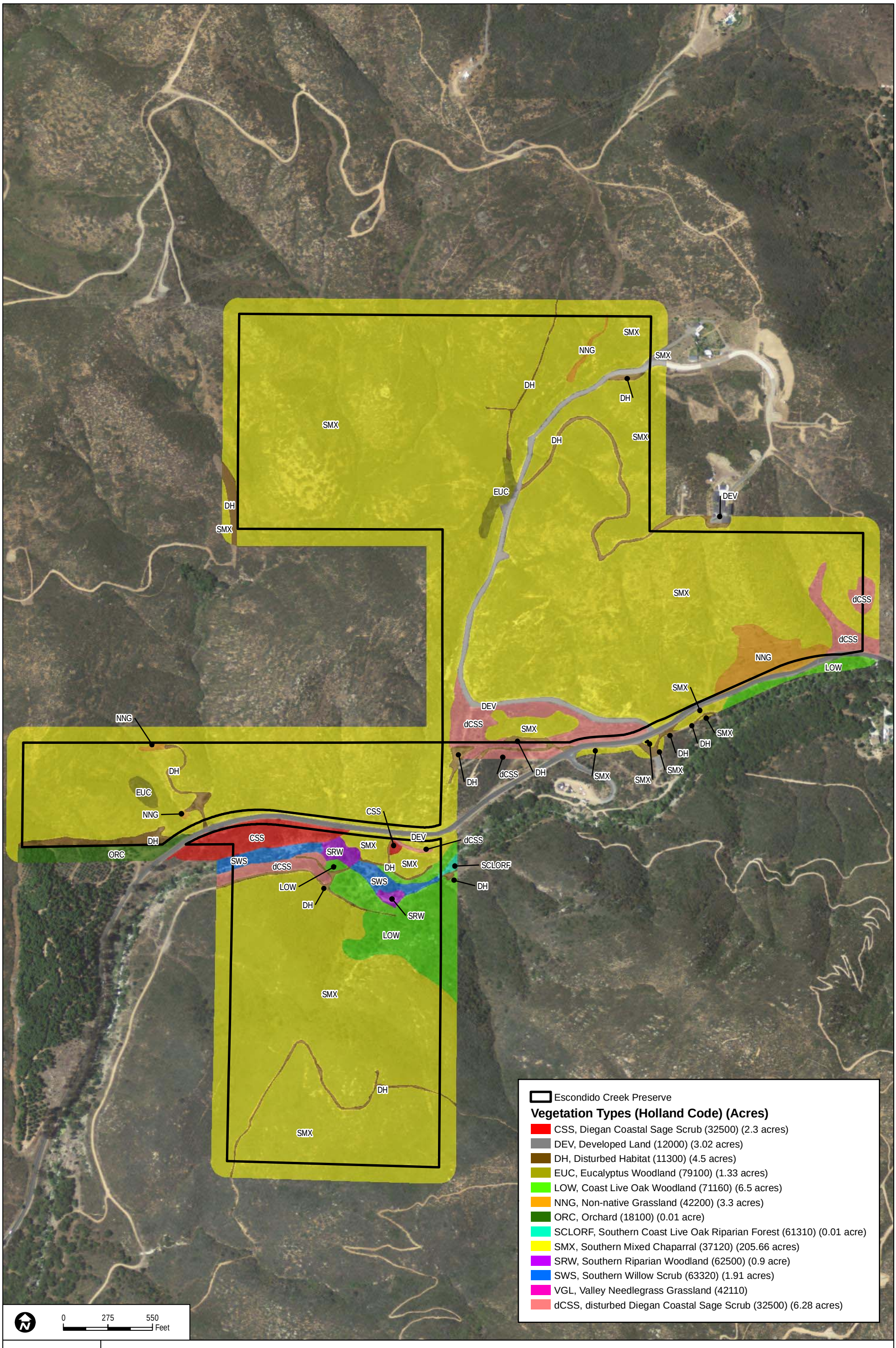

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SOURCE: NAIP 2009

FIGURE 7d

Vegetation Communities/Habitats

Escondido Creek Preserve - Baseline Biodiversity Survey

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3.0 METHODS

Dudek biologists conducted biological surveys beginning in August 2010 through March 2011. Table 2, Schedule of Surveys, shows the surveys conducted and the survey conditions. Surveys included: vegetation community mapping; sensitive/rare plant surveys and mapping of invasive non-native plants; butterfly surveys; herpetological surveys (using pitfall arrays and coverboards); avian point count surveys; small mammal trapping; acoustical bat surveys; and medium and large mammal camera surveys (location of sites shown on Figure 8).

Table 2
Schedule of Surveys

Date	Time	Personnel	Survey Type	Conditions
8/16/2010	1300–1600	VRJ	Vegetation mapping	Clear sky; wind 0–2 miles per hour (mph); 74°F
9/2/2010	0830–1230	PCS	Vegetation mapping	Clear sky; 70–75°F
11/17/10	0700–1200	ACT, CEO	Invasive species mapping	NR
11/23/10	0700–1300	ACT, CEO	Invasive species mapping	NR
12/7/2010	0940–1330	PML	Pitfall Trap Herpetological surveys	0–20% cc; wind 0–3 mph; 60°F–66°F
12/8/2010	1100–1400	PML	Pitfall Trap Herpetological surveys	10–20% cc; wind 0–2 mph; 61°F–67°F
12/9/2010	0950–1230	PML	Pitfall Trap Herpetological surveys	0% cc; wind 0–1 mph; 62°F–69°F
12/10/2010	0900–1230	PML	Pitfall Trap Herpetological surveys	10% cc; wind 0–2 mph; 61°F–71°F
1/5/11 – 1/10/11	NA	PML	Bat surveys at B1 (Canyon de Oro)	NR
1/6/2011	0730–0913	PML	Daytime avian bird count survey	30–40% cc; wind 0–3 mph; 47°F–55°F
1/6/2011	1805–1937	PML	Nighttime avian bird count survey	80% cc; wind 0–2 mph; 57°F–60°F
1/6/2011– 1/20/2011	NA	PML	Wildlife cameras	NR
1/12/11 – 1/19/11	NA	PML	Bat surveys at B2 (Wild Willow Hollow)	NR
1/24/11 - 1/31/11	NA	PML	Bat surveys at B3 (Escondido Creek)	NR
1/28/2011	0700–1730	BAS, KCD	Wart-stemmed ceanothus survey	0% cc; wind 0–1 mph; 34°F–62°F
1/28/2011	1300–1730	DM	Coverboards	0% cc; wind 3–4 mph; 59°F–77°F
2/10/2011– 4/6/2011	NA	EL	Wildlife cameras	NR
2/13/2011	1100-1500	BAO	Butterfly Survey	0% cc; wind 5 mph; 65°F–71°F

Table 2
Schedule of Surveys

Date	Time	Personnel	Survey Type	Conditions
2/14/2011	0640–0835	PML	Daytime avian bird count survey	5–10% cc; wind 0–2 mph; 50°F–62°F
2/14/2011	2011–2150	PML	Nighttime avian bird count survey	10% cc; wind 0–2 mph; 55°F–56°F
2/19/11 – 2/24/11	NA	PML	Bat surveys at B1 (Canyon de Oro)	NR
2/19/11 – 2/24/11	NA	PML	Bat surveys at B2 (Wild Willow Hollow)	NR
2/22/2011	0830–1115	EL	Pitfall Trap surveys	100% cc; wind 0–5 mph; 50°F–55°F
2/22/2011	1100-1500	BAO	Butterfly Survey	100-40% cc; wind 0–5 mph; 60°F–70°F
2/23/2011	0830–1000	EL	Pitfall Trap surveys	100% cc; wind 0–5 mph; 50°F–53°F
2/23/2011	1230–1600 1900–2200	BAO	Aquatic Survey	100% cc; wind 0–5 mph; 50°F–53°F; water - 51°F 100% cc; wind 0–3 mph; 48°F; water - 51°F
2/24/2011	NR	EL	Pitfall Trap surveys	NR
2/25/2011	0830–1010	EL	Pitfall Trap surveys	100% cc; wind 0–7 mph; 48°F–50°F
2/25/2011	1000–1500	DM	Coverboards	45–95% cc; wind 2–3 mph; 57°F–62°F
2/25/2011-2/28/2011	NR	PV	Small mammal trapping at Cielo Azul (Pass 1)	100% cc; 48°F–54°F
2/25/2011-3/1/2011	NR	PV	Small mammal trapping along Canyon de Oro (Pass 1)	50–100% cc; 48°F–54°F
2/28/2011	1200-1600	BAO	Butterfly Survey	0% cc; wind 3–5 mph; 60°F–65°F
2/28/11 - 3/8/11	NA	PML	Bat surveys at B3 (Escondido Creek)	NR
3/2/2011	0845–1015	KCD	Wart-stemmed ceanothus survey	0% cc; wind 0–3 mph; 52°F–67°F
3/15/2011	1042–1515	EL	Pitfall Trap surveys	Partly cloudy to clear; wind 0–5 mph; 69°F–85°F
3/16/2011	1030–1347	EL	Pitfall Trap surveys	Partly cloudy to clear; wind 0–5 mph; 64°F–81°F
3/16/2011	0730–1600	BAS, KCD	Rare plant survey	0–20% cc; wind 0–3 mph; 46°F–75°F
3/17/2011	1049–1330	EL	Pitfall Trap surveys	Partly cloudy to clear; wind 0–5 mph; 70°F–74°F
3/16/2011	1130-1630	BAO	Butterfly Survey	20% cc; wind 0–5 mph; 65°F–75°F
3/18/2011	1314–1716	EL	Pitfall Trap surveys	0% cc; wind 0–10 mph; 64°F–82°F
3/18/2011	0720–1745	BAS, KCD	Rare plant survey	0–10% cc; wind 0–2 mph; 39°F–65°F
3/20/2011-3/23/2011	NR	PV	Small mammal trapping at Cielo Azul and along Canyon de Oro (Pass 2)	100% cc; 48°F–50°F
3/23/2011	1420–1625 1945-2100	KH	Aquatic Survey	90-75% cc; wind 0–15 mph; 57°F; water - 58°F 100% cc; wind 0–3 mph; 51°F; water - 57°F; rain
3/29/2011	0740–0921	PML	Daytime avian bird count survey	50–100% cc; wind 0–3 mph; 58°F–66°F

Table 2
Schedule of Surveys

Date	Time	Personnel	Survey Type	Conditions
3/29/2011	2115–2242	PML	Nighttime avian bird count survey	15% cc; wind 0–1 mph; 61°F–62°F
3/30/2011	0900–1520	KCD	Rare plant survey	20–100% cc; wind 0–3 mph; 66°F–88°F
3/30/2011	1100-1800	BAO	Butterfly Survey	20% cc; wind 0–5 mph; 73°F–85°F
3/31/2011	1100-1720	BAO	Butterfly Survey	0% cc; wind 0–3 mph; 74°F–76°F
3/31/2011	0800–1132	DM	Coverboards	0% cc; wind 0–3 mph; 66°F–76°F
4/1/2011	1200-1600	BAO	Butterfly Survey	0% cc; wind 0–3 mph; 75°F
4/4/2011	2000-2400	JDP, PL	Active Bat Survey	N/R

Personnel Key:
- ACT: Andy Thomson
- BAS: Britney Strittmater
- BAO: Brock Ortega
- CEO: Chris Oesch
- DM: Danielle Mullen
- EL: Elishya Loveless
- JDP: Jeff D. Priest
- KCD: Kathleen Dayton
- KH: Kevin Hayworth
- PCS: Patricia Schuyler
- PML: Paul Lemons
- PV: Philippe Vergne
- VRJ: Vipul Joshi

cc = Cloud cover
NR = Not Recorded

During this same time period, Dudek biologists also conducted biological surveys on the adjacent Del Dios Highlands Preserve (Cielo Azul parcel). Because the western boundary of the Cielo Azul parcel directly borders the Escondido Creek Preserve, several survey locations (herpetological, avian, bat, and mammal) along Escondido Creek were used for both Preserves in order to reduce survey effort. Therefore, data gathered along Escondido Creek on the adjacent Del Dios Highlands Preserve will be included in this report as appropriate.

A review of existing biological resource information for the Preserve, as well as available state and federal databases, was conducted to provide baseline information regarding sensitive biological resources potentially occurring on the Preserve and in the surrounding area. The following sources were reviewed for pertinent information prior to conducting the baseline biological diversity surveys: California Natural Diversity Database (CNDDB) information provided by the California Department of Fish and Game (CDFG) (2010a, 2010b, 2010c, 2010d), and California Native Plant Society's (CNPS's) *Inventory of Rare and Endangered Vascular Plants* (2010).

3.1 Vegetation Communities/Habitat

3.1.1 Vegetation Communities Mapping

Vegetation communities and land cover types were mapped in the field directly onto 100-scale (1 inch = 100 feet) base maps of the project area using 1-foot resolution color aerial imagery from 2009 (CDFG NAIP 2009b). Vegetation surveys were conducted throughout the site on foot and vehicles

were used to traverse the site where access was available. Following the completion of fieldwork, vegetation polygons were transferred to acetate, scanned and digitized using ArcGIS, and geographic information system (GIS) coverage was created. Acreage calculations of vegetation communities and land cover types were determined using ArcGIS. Vegetation community classifications used in this report follow Holland (1986), as revised by Oberbauer et al. (2008).

3.2 Plants

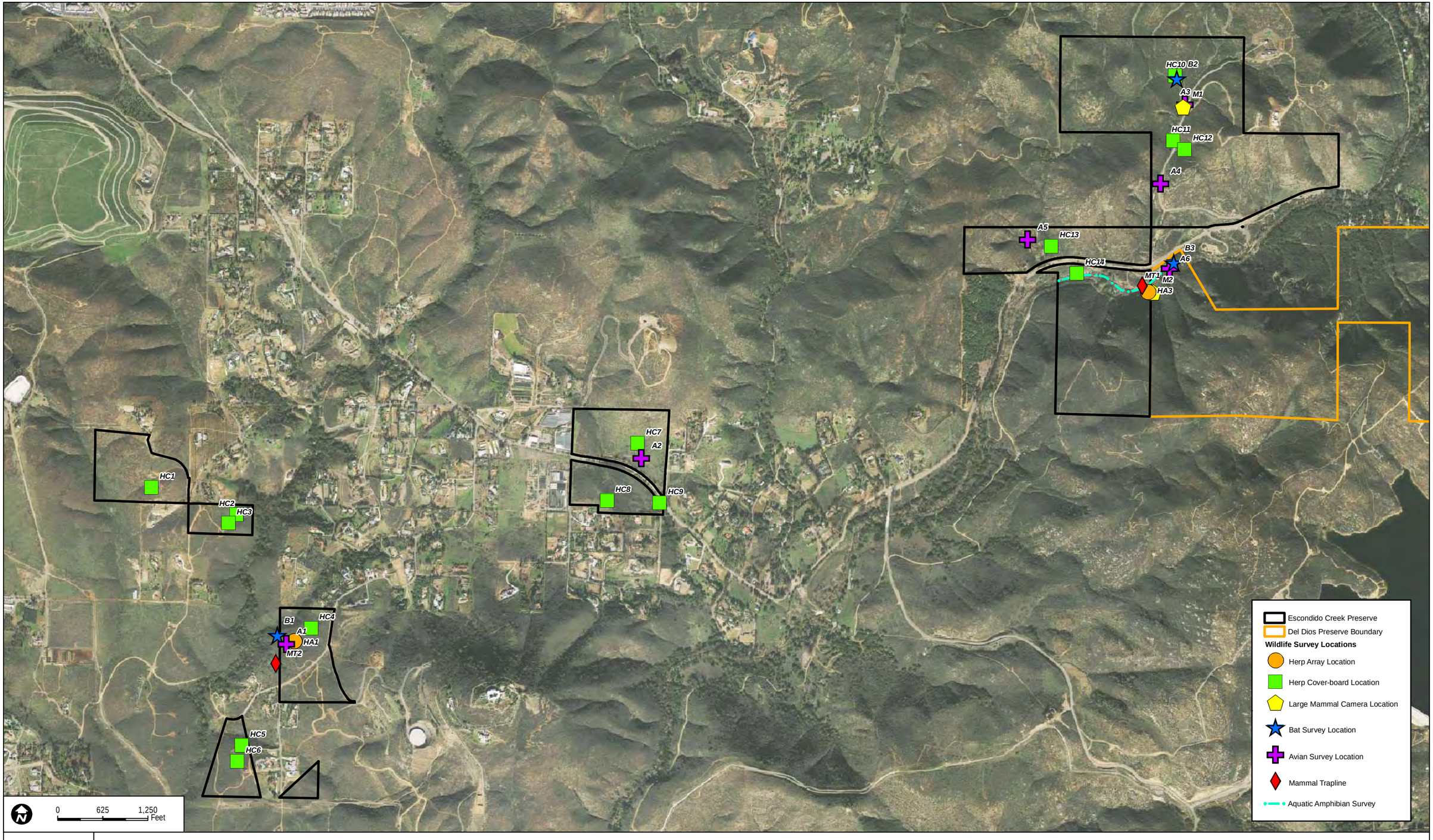
Dominant plant species encountered during the field surveys were identified and recorded. Latin and common names of plants follow *The Jepson Manual* (Hickman 1996) or more recent published taxonomical revisions of genera. Where not listed in Hickman (1996), common names are taken from Rebman and Simpson (2006). A list of plant species observed on the Preserve is presented in Appendix A.

3.2.1 Floristic Surveys

Sensitive/Rare Plant Surveys

Sensitive biological resources present or potentially present in the Preserve were identified through a literature search using the following sources: CNDDB (CDFG 2010a, 2010b, 2009a) and the *Inventory of Rare and Endangered Vascular Plants* (CNPS 2010). Special-status plant species considered in this report are those that are: (a) listed by federal and/or state agencies, proposed for listing as threatened or endangered, or are candidate species; (b) considered rare by CNPS; (c) listed on the County of San Diego rare species list (County of San Diego 2010); or (d) listed on the North County MSCP Covered Species list (County of San Diego 2008).

Dudek conducted surveys to maximize detection of sensitive/rare plants in January and March 2011. Dudek tracked the phenology of several plant species that have been previously identified in the immediate vicinity (e.g., wart-stemmed ceanothus (*Ceanothus verrucosus*) or have potential to occur on site so that surveys could be conducted as close as possible to the blooming period of those species. Based on usual blooming patterns, passes were conducted in January and March 2011 for wart-stemmed ceanothus (*Ceanothus verrucosus*), which is common where it occurs and readily visible during its peak bloom allowing mapping based on visual scans of hillsides across the site. Another pass was conducted as late as possible in March 2011 (given the constraints of the contract period) to detect annual and other spring blooming species. This pass was concentrated in areas that have the highest potential to support sensitive/rare plants including openings in chaparral, areas of clay soils, and areas around previously mapped sensitive/rare plant locations. Surveyors were prepared with a target list of species that have potential to occur on site, including all sensitive species previously identified within the Escondido Creek Preserve. Given the timing and intensity of the survey effort, a determination of presence/absence was not achieved for many species.



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SOURCE: Digital Globe 2008

FIGURE 8

Biological Inventory Locations

Escondido Creek Preserve - Baseline Biodiversity Survey

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Field survey methods conformed to County of San Diego Department of Planning and Land Use Biological Survey Guidelines (County of San Diego 2010); CNPS Botanical Survey Guidelines (CNPS 2001); Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities (CDFG 2000); and Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants (USFWS 1996). All plant species encountered during the field surveys were identified to subspecies or variety, if applicable, to determine sensitivity status. Latin and common names follow *The Jepson Manual* (Hickman 1996), including updates provided in the Jepson Manual Online (Jepson Flora Project 2011).

Where target species were encountered, field personnel recorded data points demarcating the occurrence polygon and assessed population numbers or the record point locations; field data was recorded on 200-scale aerial/topographic field maps or with a Global Positioning System (GPS) with sub-meter accuracy. All target species occurrences on site were mapped and quantified, although population sizes greater than 100 individuals were estimated using a standardized methodology. For species such as wart-stemmed ceanothus, a general visual estimate of density was recorded since this plant is common over large areas of the site and precise quantification would require extensive field studies (e.g., point intercept transects).

The potential for special-status plant species to occur on site was evaluated based on the elevation, soils, vegetation communities, and level of disturbance of the site, as well as their status and distribution in the vicinity of the Preserve, and the results of rare plant surveys. Appendix D summarizes the results of this analysis and includes all observed special-status plant species.

Non-native Invasive Species Mapping

Dudek mapped locations of non-native, invasive plant species within the Preserve. The entire Preserve area was surveyed; however, to maximize productivity, Dudek prioritized locations that identified as disturbed in the vegetation mapping, or areas that were expected to have experienced disturbance in the past due to their proximity to development or other disturbances. Dudek focused on mapping species with the greatest potential to invade native habitats, such as those listed on the California Invasive Plant Council's (Cal-IPC's) California Invasive Plant Inventory (2010) with a rating of moderate or high (e.g., giant reed (*Arundo donax*), tamarisk (*Tamarix* spp.), pampas grass (*Cortaderia selloana*), etc.), or species that may not be rated as moderate or high, but are considered to have a localized potential for habitat invasion (e.g., Canary Island date palm (*Phoenix canariensis*), castor bean (*Ricinus communis*), Brazilian pepper tree (*Schinus terebinthifolius*), etc.). Species that are ubiquitous and scattered across the site that pose limited potential for invasion into established habitats and would be impractical to control on an individual basis (e.g., brome grasses (*Bromus* spp.), tocalote (*Centaurea melitensis*), mustard (*Brassica* or

Hirschfeldia spp.), wild oat (*Avena* spp.), etc.) were not mapped as individual occurrences, but rather were mapped as polygons if they dominated large areas within the Preserve.

Species locations were mapped with a combination of field GPS and hand mapping onto field maps. All collected data was combined into a GIS data layer with points and polygons representing species locations. The points and polygons for the non-native, invasive species are shown on Figures 9a–d, Invasive Plant Species, and were quantified for inclusion in the vegetation management plan being prepared for the Preserve.

3.3 Wildlife

All wildlife species detected during the field surveys by sight, vocalizations, burrows, tracks, scat, and other signs were recorded. Binoculars (10×40) were used to aid in the identification of observed wildlife. A cumulative list of wildlife species observed by Dudek during the 2010/2011 surveys is presented in Appendix B. Latin and common names of animals follow Crother (2008) for reptiles and amphibians, American Ornithologists' Union (AOU 2008) for birds, Wilson and Reeder (2005) for mammals, and North American Butterfly Association (NABA 2001) for butterflies.

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

As indicated previously, several survey locations (herpetological, avian, bat, and mammal) along Escondido Creek were used for both the Escondido Creek Preserve and the adjacent Del Dios Highlands Preserve in order to reduce survey effort. Therefore, data gathered along Escondido Creek on the adjacent Del Dios Highlands Preserve will be included in this report as appropriate.

3.3.1 Invertebrates

General butterfly surveys were performed in the Preserve in 2011 at the approximate peak of the early spring butterfly activity period to record anecdotal butterfly species observations active during the early months of the year. In addition, Dudek conducted a Hermes copper butterfly (*Hermelycaena [Lycaena] hermes*) habitat assessment on the eastern parcels. While it was not possible to hit the absolute butterfly peak, surveys were conducted in February, March and April 2011 (Table 2). These surveys were also conducted simultaneously with other wildlife surveys and included anecdotal observations during other survey visits. The vegetation map, soils, and previous experience with various special-status butterfly species were used to determine areas that may be suitable for common and special-status butterfly species. Areas containing nectar or host plant resources, drainages, ridges, and hilltops, were emphasized during butterfly surveys. Host or nectar plants for quino checkerspot or Hermes copper were mapped as either a point or

polygon location depending on the size of the population. It should be noted that surveys for butterfly were conducted during the afternoon period when it was assumed that more butterflies would be visible, however, the early 2011 season was intermittently quite cold, windy, and wet and butterfly presence in general was reduced when compared to other years.

Representative photographs were taken of the butterflies observed, if possible.

3.3.2 Herpetofauna

Two pitfall trap arrays were constructed on the Preserve. One array was constructed in the western portion of the Preserve, while the other was constructed adjacent to Escondido Creek. After the first round of surveys was conducted, larger than expected rain events flooded the area and scoured out the array location adjacent to Escondido Creek. This array location was abandoned and all remnants were removed in March 2011. Upon coordination with DPR, this array was not re-established elsewhere. In addition, 14 coverboards were set within the Escondido Creek Preserve. An attempt was made to install arrays at locations that provide the greatest amount of diversity. For locations, see Figure 8, Biological Inventory Locations.

The arrays were constructed in accordance with the USGS document "Herpetological Monitoring Using a Pitfall Trapping Design in Southern California" (USGS 2008) that has been modified to include snake traps at the end of each arm of the array. Specifically, the array consists of three 15-meter (49-foot) arms of drift fence. Each arm radiates from a central pitfall bucket at approximate 120-degree increments. Additional pitfall buckets were placed in the center and terminal end of the array arms. 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. Drift fencing was keyed into the ground to prevent reptiles and snakes from crawling under it. In addition, an effort was made to minimize the number of creases that would provide reptile refuge between buckets. Typical 5-gallon buckets 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 providing an approximate 2-inch gap between the ground surface and the lid to encourage reptiles to crawl under. The lids fit the bucket securely and were protected from deterioration so that the bucket could be sealed off from captures when not in use. During the rainy season, small holes were drilled in the bottom of the pitfall traps and the traps were fitted with fine wire mesh (screen) material to prevent escapes.

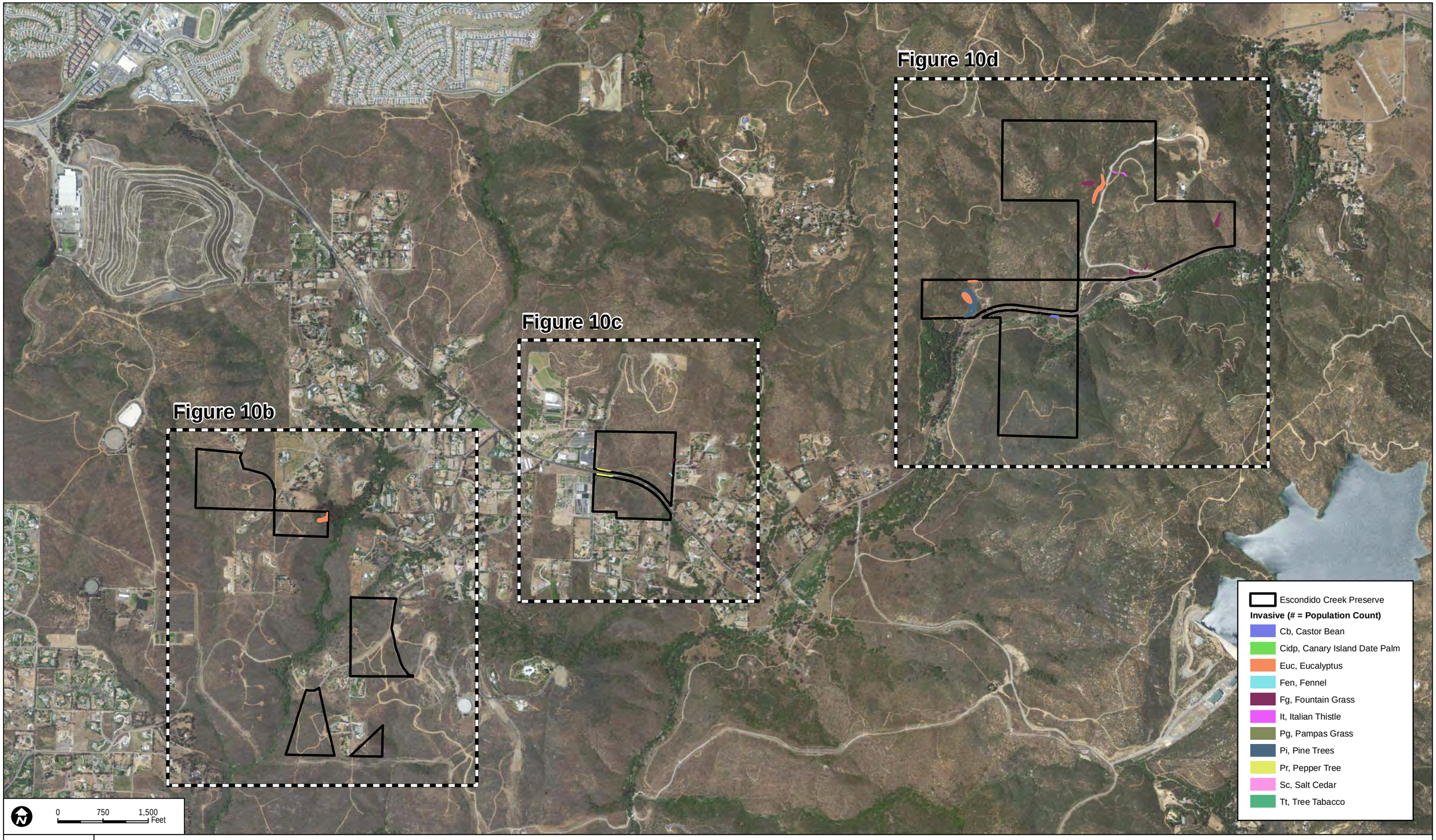
Traps were opened on day one and checked for the next 4 days; traps were closed after the fourth trap-check. The arrays were checked and all animals processed and released before daytime temperatures reached levels that could result in animal mortality. All captures were identified and sexed. Data was collected regarding the weight, snout-vent length, and age class of the individual. Finally, the individual was marked with permanent marker near the tail to determine

if it is a recapture during that session. No scale or toe-clipping, or any other means of permanent marking, was performed during this study. 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, scorpions, Jerusalem crickets, etc.) was counted and identified as feasible. Trap arrays were sampled for 3 months including December 2010, and February and March 2011 (Table 2).

The 14 coverboards were installed across the Escondido Creek Preserve in order to attempt to identify other reptile and amphibian species. A coverboard set simply consists of a 4-foot x 4-foot sheet of plywood that is left in the field for a period of time. Coverboard sets provide cover for these species during cold or hot periods. It is best to set these during the fall prior to reptilian torpor so that they seek the site out and use it consistently over the winter. Dudek set these at locations situated far enough from trails so that they were not obvious to passers-by and where they were likely to be attractive to reptiles (e.g., near rock clusters, interface of different community types). Individual capture data was collected similar to herp trap arrays and locations were recorded using GPS. Coverboards were installed in December 2010 and were checked monthly (once per month) through March 2011.

An aquatic survey was conducted within Escondido Creek on both the Escondido Creek Preserve and the adjacent Del Dios Highlands Preserve (Cielo Azul parcel). The aquatic survey consisted of combining diurnal and nocturnal surveys along the entire reach within County ownership (i.e., Escondido Creek Preserve and Del Dios Highlands Preserve). Surveys were conducted in February and March 2011 with one survey conducted per month. Surveys consisted of walking the entire creek segment while visually or aurally searching for amphibian egg clusters, larvae, juveniles, and adults. No hand capture or dip netting was necessary to identify species. When conducting the aquatic survey, the biologist took care to either walk along the edge of the watercourse, or to walk slowly within it. During the nocturnal portion of the survey, biologists used headlamps to navigate, turning off the headlamp at intervals and waiting silently for a half-hour to listen for amphibian calls. Data was collected regarding the species, number of individuals detected, age class, and location of identification (special-status species only). Special-status species were also visually sexed. The amphibian aquatic survey location is shown on Figure 8 and the sampling schedule is included in Table 2.

Representative photographs were taken of the arrays, coverboards, aquatic herpetological surveys, and the animals that were captured.



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SOURCE: NAIP 2009

FIGURE 9a

Invasive Plant Species - Index Map

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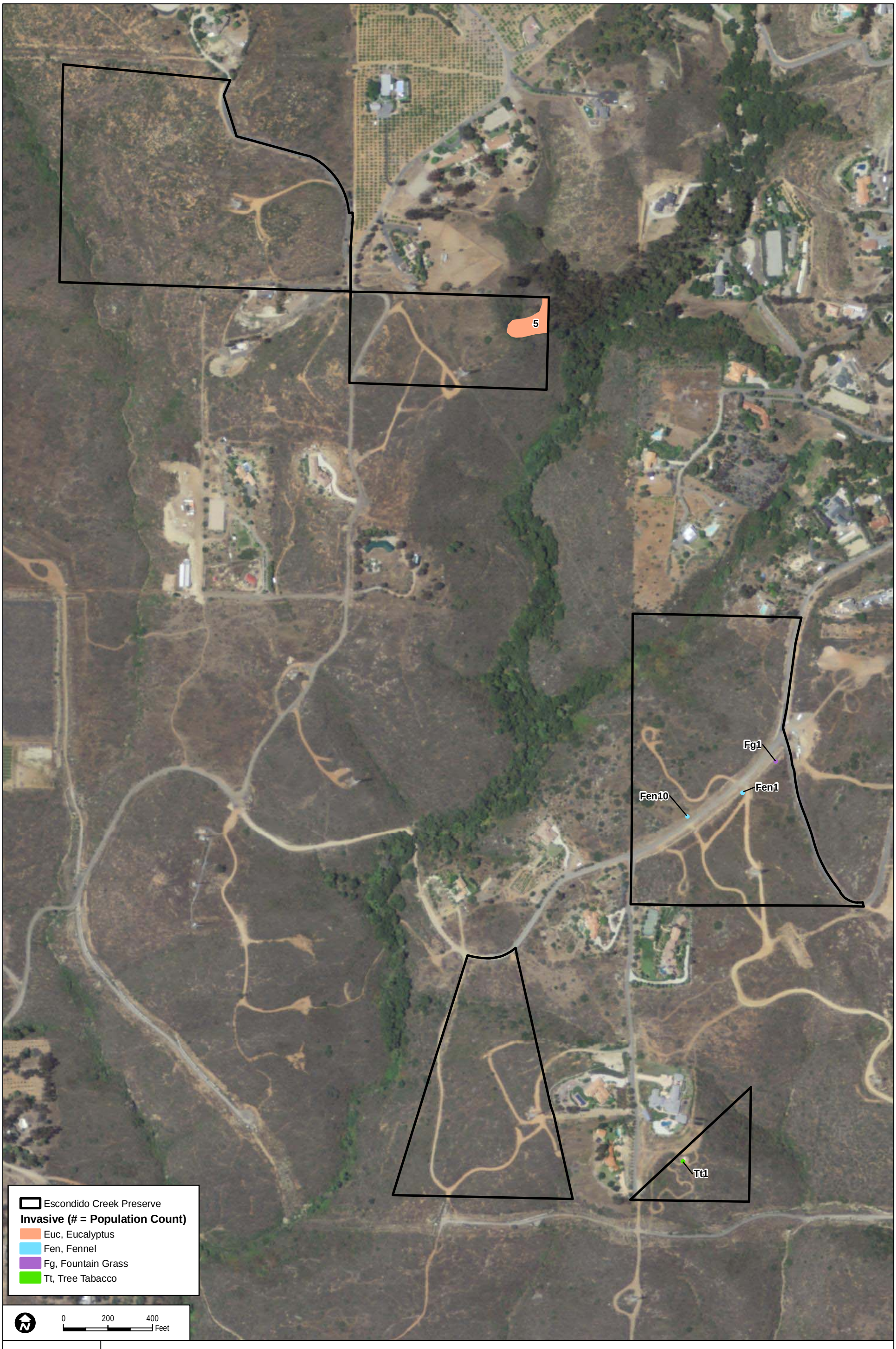

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SOURCE: NAIP 2009

FIGURE 9b

Invasive Plant Species

Escondido Creek Preserve - Baseline Biodiversity Survey

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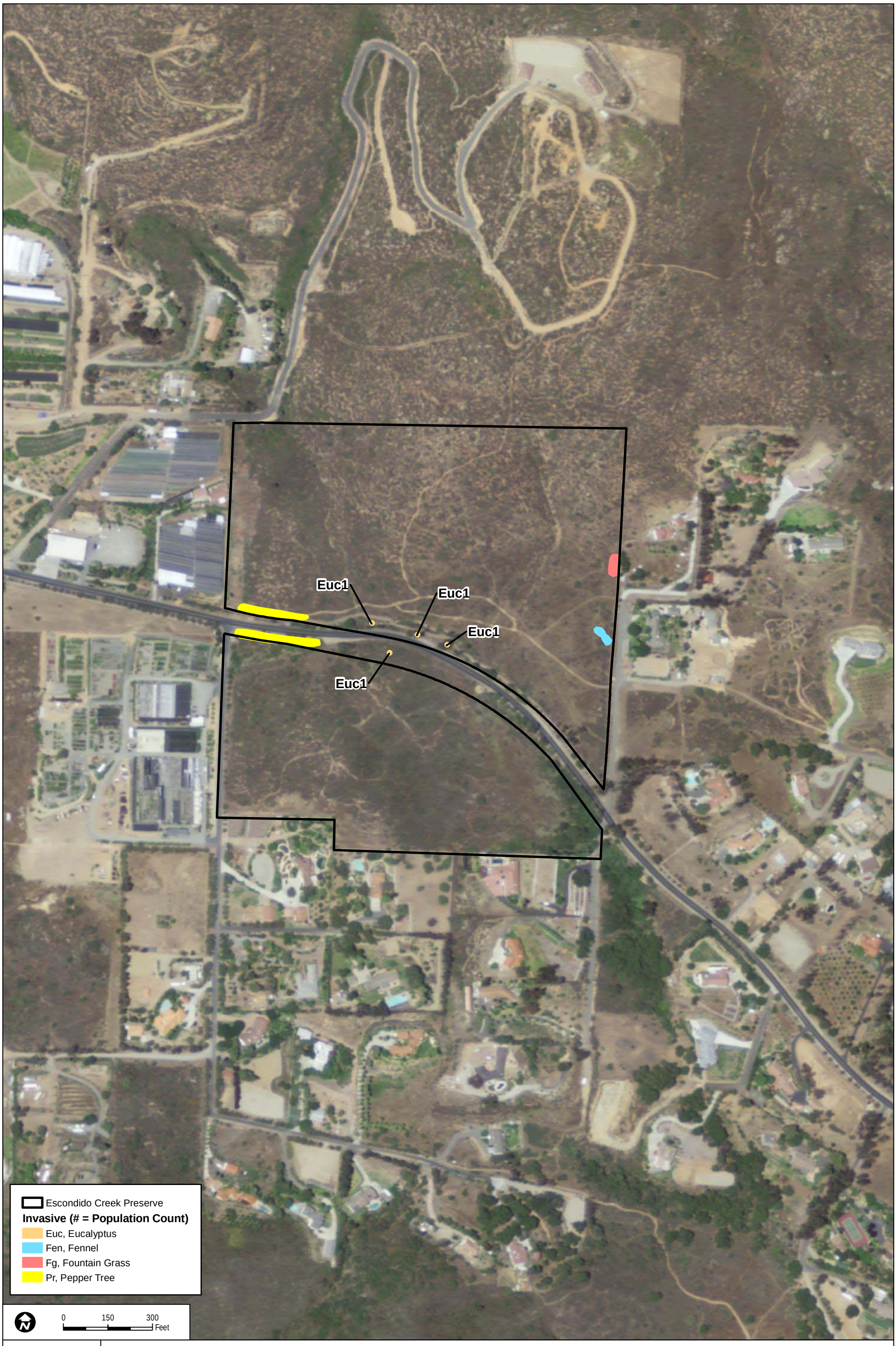

DUDEK

SOURCE: NAIP 2009

FIGURE 9c

Invasive Plant Species

6680-01

Escondido Creek Preserve - Baseline Biodiversity Survey

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Fen10
Sc5
40
Pg1
Euc2
Euc1
Euc5
Euc2
Euc100
Euc20
Euc2
Euc3
It1
Fen10
Euc1
Fen10
Tt2
Euc1
Tt1
Pi2
Tt1
Euc6
Tt8
Euc7
Cidp1
Cb2
0 275 550 Feet
Escondido Creek Preserve
Invasive (# = Population Count)
Cb, Castor Bean
Cidp, Canary Island Date Palm
Euc, Eucalyptus
Fen, Fennel
Fg, Fountain Grass
It, Italian Thistle
Pg, Pampas Grass
Pi, Pine Trees
Sc, Salt Cedar
Tt, Tree Tabacco

DUDEK

6680-01

SOURCE: NAIP 2009

FIGURE 9d

Invasive Plant Species

Escondido Creek Preserve - Baseline Biodiversity Survey

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3.3.3 Birds

Using point counts to track species presence over time is a standard practice and has been implemented over the long term by diverse entities including the Audubon Christmas Bird Count, Point Reyes National Seashore, Partners In Flight, Arizona State University, Florida Monitoring Project, National Park Service, California Department of Fish and Game Parks and Recreation Department, U.S. Geological Survey, U.S. Fish and Wildlife Service, and others.

Much variation exists between the various point count studies relating to detection radius, distance between stations, season, and amount of time spent at each station. Because the habitats and topographies present within the Escondido Creek Preserve are diverse, a radius of 50 meters was used around each point. This falls well within ranges found within the literature (20–400 meters; 66–1,312 feet) and allowed greater confidence of detection than larger radius designs.

Locations

Locations were established such that they covered as many different portions of the Preserve as possible given the road network constraints and parcel distribution. In addition, these point locations were distributed to cover more of the parcels. No point count station was situated closer than 700 feet of another point. A total of five point count stations were established on the Escondido Creek Preserve and one point count station was established along Escondido Creek within the adjacent Cielo Azul parcel of the Del Dios Highlands Preserve (Figure 8). All sites were situated in or adjacent to southern mixed chaparral, coastal sage scrub, or coast live oak woodland habitats. The distribution of points was based on the accessibility in the Preserve. The center point for each station was permanently established in the field by mapping the GPS coordinates and installing a 2-foot section of steel rebar into the soil so that the top 2 inches are visible, flagged, and painted. Each station along with the view shed from each station was photographed in the four cardinal compass directions (Appendix C).

Conducting the Point Count

When driving to the point count station, the vehicle traveled no faster than 5 miles per hour within 500 feet of any station. Upon entering the point count station, the observer stopped the vehicle and turned off the engine. The observer waited for 3 minutes before beginning the sampling period. During the waiting period, the observer filled out the weather conditions portion of the data sheet. After the 3-minute wait period had 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. Stations were counted in the same order each time, starting at approximately the same time relative to sunrise so that future data sets could be compared at the same study area.

When starting the survey, the observer identified and tallied all birds that were observed (audibly or visually) within the 50-meter (164-foot) study area. An attempt was made to count birds only once (i.e., minimize counting the same individual more than once) during the time period. Groups of birds (e.g., quail, family groups) were identified and the number of individuals noted. Birds detected outside the 50-meter area were noted in a separate column. Birds noted only in flight were additionally recorded as either utilizing 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). When multiple sightings of a species occurred within a point count area, multiple entries for a species were only included if the observer was reasonably certain that they were different individuals. Only different individuals of a given species were counted. All recorded species in the data sheets are assumed to be separate individuals (e.g., 10 California towhee means that 10 different California towhee were detected). Estimates for large flocks of birds (e.g. blackbirds, European starlings, etc.) were provided and noted as being estimates in the notes section of the data sheet. No differentiation between adult and juvenile birds was made during this study.

Unidentified birds were noted to the closest taxonomic group and notes describing the species were included within the "Notes" section of the data sheet.

The observer acted as unobtrusively as possible during the point count session. The observer 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 means.

Nocturnal surveys proceeded in the same manner as the diurnal surveys. A moderately powered flashlight was used to aid identifications.

Once the point count session was finished, all data sheets were gathered and data input into Excel or Access data files for future analysis.

Representative photographs were taken of the point locations and the birds observed if possible.

All point count stations were surveyed during the same 24-hour period. Diurnal surveys occurred between 0500 and 1200 hours and nocturnal surveys took place between 2030 and 1230 hours only. Surveys took place in January, February and March 2011 (Table 2). Only one day was required per month to cover these areas. Survey timing allowed the detection of both breeding and migratory bird species.

3.3.4 Mammals

Small Mammals

Sherman traps and pitfall traps (incidental capture during herpetological surveys) were used to conduct the small mammal surveys on the Escondido Creek Preserve. One trapping array was set along Escondido Creek on the adjacent Cielo Azul parcel addition to the Del Dios Highland Preserve and another was set along Canyon de Oro Road (Figure 8). Trapping took place over two rounds with the first round occurring in February 2011 and the second occurring in March 2011 (Table 2).

Trapping involved setting traps for three consecutive nights. The trapping effort was conducted when the weather had been relatively dry for at least 5 days prior to trapping. Each trap set included meandering parallel lines of Sherman live-traps set at 10- to 20-meter (32- to 65-foot) intervals. Traps were sign-set (i.e., set at burrow entrances, runs, woodrat nests, rock outcrops, etc.) to the extent feasible in order to capture the greatest diversity possible. Each line was set approximately 7 meters (23 feet) apart from one another. Each trap line consisted of 20 traps for a total of 40 traps set per night covering approximately 200 meters (656 feet) of distance. Meandering trap lines were set to sample the widest area for species and to obtain greater species diversity information. Traps were set in locations providing the greatest chance for diversified data collection (e.g., interface between community types, areas of microhabitat changes, etc.). The location of each trap was identified using GPS and the location marked in the field using whisker nails. All trapped individuals were temporarily marked with a Sharpie, sexed, identified to species, and released at the capture location.

Representative photographs were taken of the trap grid locations and the animals captured where possible.

In addition to the trapping study, other small mammal species identified through other surveys (e.g., pitfall arrays, nocturnal avian surveys) were included within the species compendium (Appendix B).

Medium to Large Mammals

Within the Preserve, San Elijo Canyon (Escondido Creek) and several drainages have the potential to function as wildlife corridors or high use areas. Two (2) baited motion sensing cameras were installed at the Preserve within these features (Figure 8). Each camera was set where they were accessible and protected from the public, but were placed near potential higher use movement areas (e.g., dirt roads leading to important resources such as to canyons or creeks). Each camera was baited with chicken in a wire-mesh cage and a scent lure, such as Gusto. Each camera was set so that the bait station and travel path were covered. Cameras were

set in place for 2 weeks per month and photographs were downloaded, the bait refreshed, and batteries were checked at approximate 1-week intervals. Camera stations were installed in January 2011 and were also used February through April 2011 (Table 2).

Following the camera study, all photographs were reviewed by at least two biologists to determine species and number present. All data, including time and date of photograph, species captured, and moon phase, were cataloged in an excel spreadsheet. Example photographs of each species captured are included in Appendix F.

Bats

Both Anabat and Sonobat technologies were used in surveys to identify foraging and roosting bats present within the Preserve. The primary potential roosting component within the study area includes rock outcrops with potential for crevice roosting bats. Prior to conducting bat habitat assessment and acoustical surveys, a review of the literature of bats in California was conducted to identify species with potential to occur in the survey area. All areas identified with high potential for bat roosting and foraging with vehicular access, were surveyed using both the Pettersson/Sonobat and Anabat systems.

Passive acoustic recording of bat calls was conducted at three monitoring locations along Canyon De Oro Road, Escondido Creek, and Wild Willow Hollow Road (B1–B3 on Figure 8). Two Anabat ultrasonic detectors (SD1 and SD2; Titley Electronics, Ballina, Australia) were utilized in these passive surveys. The Anabat units were deployed and ran continuously for approximately two weeks at each location between January and March 2011. Locations were selected by Dudek biologist Brock Ortega in consultation with the County. A site reconnaissance survey was conducted by Dudek biologists Paul Lemons and Jeff Priest to further refine the monitoring locations where it was presumed that bat activity would be highest based on localized topography and presence of drainages. The Anabat units were deployed on a post set in concrete or hung from a tree at each location following the reconnaissance survey.

Survey stations were distributed across the Preserve and sampled different habitats as feasible (Figure 8). Survey stations were set at least 2,000 feet from each other. The vehicle-accessible survey stations were surveyed three times using ultrasonic detectors to record bat vocalizations. One pass was conducted in April 2011 using an active method of surveying using an Anabat ultrasonic detector and a Pettersson ultrasonic detector. Surveys were conducted between approximately sunset and 1:00 A.M. One hour was spent at each location and all three locations were surveyed each night. When conducting the survey, biologists noted the species detected (if able), the recording identifier, location, and any other important information. After returning from the field, the data was saved to a hard drive and backed up on CD. In addition, two surveys

were conducted in December 2010 and February 2011 using the Anabat equipment, but passively recording data. The unit was left in place for a period of 1 week to record bat calls (Table 3).

Table 3
Schedule of Passive Acoustic Monitoring

Location	Dates of Deployment	Total # Detector Nights
B1 - Canyon de Oro	1/5/11 – 1/10/11; 2/19/11 – 2/24/11	12
B2 - Wild Willow Hollow	1/12/11 – 1/19/11; 2/19/11 – 2/24/11	14
B3 - Escondido Creek	1/24/11 - 1/31/11; 2/28/11 - 3/8/11	17

After completion of these surveys, identification of species used the methods of O'Farrell et al. (1999) based on frequency characteristics, call shape, and comparison with a comprehensive library of vocal signatures developed by O'Farrell and colleagues. Thus, species richness (number of species verified as present) was obtained for each location. An index of abundance (IA), or the magnitude of each species contribution to spatial use, was obtained using the sum of 1-minute time increments for which a species was detected as present divided by the number of nights of sampling (Miller 2001).

Representative photographs were taken of the bat survey locations.

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4.0 RESULTS AND DISCUSSION

4.1 Vegetation Communities/Habitat

Thirteen vegetation communities and land cover types (including disturbed forms) were mapped on the Preserve including: Diegan coastal sage scrub, southern mixed chaparral, non-native grassland, southern coast live oak riparian forest, southern willow scrub, coast live oak woodland, eucalyptus woodland, southern riparian woodland, valley needlegrass grassland, non-native vegetation, disturbed habitat, developed land, and orchard (Table 4, Vegetation Communities and Land Covers).

Sensitive vegetation communities on site include those listed as Tier I through Tier III in the County's MSCP. In addition, native grassland, such as valley needlegrass grassland, is considered a sensitive habitat land under the County's Resource Protection Ordinance (RPO) and coast live oak woodland is provided protection under the California Oak Woodland Conservation Act. Figures 7a–d show the distribution of vegetation communities and land cover types on the Preserve.

Table 4
Vegetation Communities and Land Covers

Vegetation Community/Land Cover Type (Holland Code)	North County MSCP Habitat Tier	Acres On Site[1]
Disturbed Habitat (11300)	Tier IV	12.0
Non-native Vegetation (11000)	Tier IV	0.8
Orchard (18100)	Tier IV	0.01
Developed Land (12000)	Tier IV	6.9
Eucalyptus Woodland (79100)	Tier IV	1.7
Diegan Coastal Sage Scrub[2] (32500)	Tier II	85.6
Southern Mixed Chaparral (37120)	Tier III	223.7
Non-Native Grassland (42200)	Tier III	3.3
Valley Needlegrass Grassland (42110)	Tier I	1.2
Southern Coast Live Oak Riparian Forest (61310)	Tier I	1.9
Southern Riparian Woodland (62500)	Tier I	0.9
Southern Willow Scrub (63320)	Tier I	1.9
Coast Live Oak Woodland (71160)	Tier I	6.5
	Total	**346.6**

[1] Does not include 100-foot buffer acreage
[2] Includes 6.3 acres of disturbed Diegan Coastal Sage Scrub

Southern Mixed Chaparral (Holland Code 37120)

This vegetation community is a drought- and fire-adapted community of woody shrubs, 1.5–3 meters (5–10 feet) tall, frequently forming dense, impenetrable stands. It develops primarily on mesic north-facing slopes and in canyons, and is characterized by crown- or stump-sprouting

species that regenerate following burns or other ecological catastrophes. This vegetation community is typically a mixture of chamise (*Adenostoma fasciculatum*), mission manzanita (*Xylococcus bicolor*), ceanothus (*Ceanothus* spp.), interior scrub oak (*Quercus berberidifolia*), laurel sumac (*Malosma laurina*), and black sage (*Salvia mellifera*). This community extends from the coastal foothills of San Diego County to northern Baja California, Mexico, generally below 3,000 feet AMSL.

There are 223.7 acres of southern mixed chaparral on the Preserve. Southern mixed chaparral occupies the majority of the eastern parcels and the northwestern parcel of the Preserve. The following species are dominant in the southern mixed chaparral in the Preserve: Ramona-lilac (*Ceanothus tomentosus*), chamise, laurel sumac, wart-stemmed ceanothus, California sagebrush (*Artemisia californica*), black sage (*Salvia mellifera*), Our Lord's candle (*Yucca whipplei*), tocalote (*Centaurea melitensis*), California buckwheat (*Eriogonum fasciculatum*), mission manzanita (*Xylococcus bicolor*). The southern mixed chaparral on site is underlain by Exchequer and Cieneba series soils, which are formed in material weathered from hard metabasic rock and granitic rock, respectively. Although the Exchequer soil series, being formed from metabasic rock, has some potential to support mafic conditions, no indicators of mafic soils (such as reddish colored exposed soils or mafic-endemic plant species) were observed and, therefore, none of the southern mixed chaparral is mapped as mafic. Southern mixed chaparral is a MSCP Tier III vegetation community.

Diegan Coastal Sage Scrub (Holland Code 32500)

According to Holland (1986), coastal sage scrub is composed of a variety of soft, low shrubs, characteristically dominated by drought-deciduous species, such as California sagebrush, California buckwheat, and sages (*Salvia* spp.), with scattered evergreen shrubs, including lemonadeberry (*Rhus integrifolia*) and laurel sumac. This vegetation community typically develops on xeric slopes. Diegan coastal sage scrub is widespread in coastal Southern California from Los Angeles into Baja California, Mexico (Holland 1986).

There is a total of 85.6 acres of Diegan coastal sage scrub on the Preserve, of which 6.3 acres (7.3%) is considered disturbed. Diegan coastal sage scrub occurs primarily in the central and western Preserve parcels, making up the majority of the vegetation in this part of the Preserve. Species such as California sage brush, black sage, and California buckwheat, California brickellbush (*Brickellia californica*), and laurel sumac occur in the coastal sage scrub on site. The 6.3 acres of disturbed Diegan coastal sage scrub are located along Harmony Grove Road in the northeastern portion of the Preserve and are considered disturbed due to a prevalence of non-native plant species

Diegan coastal sage scrub is a MSCP Tier II vegetation community. Coastal sage scrub is recognized as a sensitive plant community by local, state, and federal resource agencies. It supports a rich diversity of special-status plants and animals, and it is estimated that it has been reduced by 75% to 80% of its historical coverage throughout Southern California. It is the focus of the current State of California Natural Communities Conservation Planning (NCCP) Program.

Valley Needlegrass Grassland (Holland Code 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 on 1.2 acres in two areas on the Preserve. It occurs in the southeastern portion of the central parcel and in the parcel east of Seaquest Trail. It contains at least 10% cover of needlegrass (*Nassella* spp.) and less than 30% cover of native shrubs. The valley needlegrass grassland on site includes purple needlegrass, tarplant (*Deinandra* sp.), and bromes. Valley needlegrass grassland is a MSCP Tier I vegetation community, and as a native grassland, is considered a RPO sensitive land.

Non-Native Grassland (Holland Code 42200)

According to Oberbauer et al. (2008), non-native grassland is characterized by a dense to sparse cover of annual grasses, including wild oat, bromes, mustard (*Brassica* spp.), and filaree (*Erodium* spp.). Wildflowers are also often associated with non-native grassland. It may occur where disturbance by maintenance (e.g., mowing, scraping, disking, spraying), grazing, repetitive fire, agriculture, or other mechanical disruption have altered soils and removed native seed sources from areas formerly supporting native vegetation. Non-native grassland typically occurs adjacent to roads or other developed areas where there has been some historic disturbance. Non-native grassland may support special-status plant and animal species and provide valuable foraging habitat for raptors (birds of prey).

Non-native grassland occupies 3.3 acres on the Preserve and is located in the northeastern portion of the Preserve. Species dominant in this community on site include foxtail chess (*Bromus madritensis*), short-pod mustard (*Hirschfeldia incana*), and saw-toothed goldenbush (*Hazardia squarrosa*). Non-native grassland is a MSCP Tier III vegetation community and is considered natural vegetation per the North County MSCP Biological Mitigation Ordinance

(BMO) because it is a naturalized community that provides habitat for native and sensitive plants and animal species.

Southern Coast Live Oak Riparian Forest (Holland Code 61310)

Southern coast live oak riparian forest is an open to locally dense evergreen riparian woodland dominated by coast live oak (*Quercus agrifolia*). This community occurs on fine-grained, rich alluvium on bottomlands and outer floodplains along larger streams. Characteristic species of this habitat type include mugwort (*Artemisia douglasiana*), coast live oak, California blackberry (*Rubus ursinus*), California laurel (*Umbellularia californica*), and giant stinging nettle (*Urtica holosericea*). Compared to other riparian communities, southern coast live oak riparian forest is generally richer in herbs and poorer in understory shrubs. This community occurs from the Transverse and Peninsular Ranges from Point Conception south into Baja California Norte, Mexico (Holland 1986).

There are 1.9 acres of southern coast live oak riparian forest that occur in the southeastern corner of the central parcel of the Preserve and in the western portion of the Preserve north of Canyon del Oro. Southern coast live oak riparian forest on site is dominated by coast live oak and arroyo willow (*Salix lasiolepis*).

Southern coast live oak riparian forest is a MSCP Tier I vegetation community. In addition, some or all of the southern coast live oak riparian forest on the Preserve may be regulated by CDFG pursuant to Section 1600 of the California Fish and Game Code, the Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the federal CWA and the Porter-Cologne Act, and the U.S. Army Corps of Engineers (ACOE) pursuant to Section 404 of the federal CWA.

Southern Riparian Woodland (Holland Code 62500)

Southern riparian woodland is described by Oberbauer et al. (2008) as a moderately dense riparian woodland dominated by small trees or shrubs. Scattered taller riparian trees may be present. This community occurs along major rivers and tributaries where flood scour occurs. Characteristic species of this habitat type include broom baccharis (*Baccharis sarothroides*), California sycamore (*Platanus racemosa*), cottonwoods (*Populus* spp.), willows, and elderberry (*Sambucus* spp.). Although the full distribution of this community is unknown, it occurs throughout San Diego County (Oberbauer et al. 2008).

There is 0.9 acre of southern riparian woodland associated with Escondido Creek south of Harmony Grove Road in the eastern portion of the Preserve. Southern riparian woodland is a MSCP Tier I vegetation community. In addition, some or all of the southern riparian woodland may be regulated by CDFG pursuant to Section 1600 of the California Fish and Game Code, the

RWQCB pursuant to Section 401 of the federal CWA and the Porter-Cologne Act, and the ACOE pursuant to Section 404 of the federal CWA.

Southern Willow Scrub (Holland Code 63320)

According to Holland (1986), southern willow scrub has been described as a dense, broad-leafed, winter-deciduous riparian thicket dominated by several species of willow, with scattered emergent Fremont's cottonwood (*Populus fremontii*) and California sycamore. Most stands are too dense to allow much understory development. This habitat is considered seral due to repeated disturbance/flooding and is, therefore, unable to develop into the taller southern cottonwood–willow riparian forest.

There are approximately 1.9 acres of southern willow scrub in the northeastern portion of the Preserve along Escondido Creek. This community is dominated by arroyo willow. Southern willow scrub is a MSCP Tier I vegetation community. In addition, some or all of the southern willow scrub may be regulated by CDFG pursuant to Section 1600 of the California Fish and Game Code, RWQCB pursuant to Section 401 of the federal CWA and the Porter-Cologne Act, and ACOE pursuant to Section 404 of the federal CWA.

Coast Live Oak Woodland (Holland Code 71160)

According to Holland (1986), coast live oak woodland is dominated by a single evergreen species, coast live oak. Canopy height reaches 10–25 meters (33–82 feet). This community typically occurs on north-facing slopes and ravines in San Diego County (Holland 1986). The shrub layer is poorly developed, but may include toyon (*Heteromeles arbutifolia*), gooseberry (*Ribes* spp.), laurel sumac, or blue elderberry (*Sambucus mexicana*). The herb component is continuous, dominated by a variety of introduced species. Coast live oak woodland occurs in the outer South Coast Ranges, and coastally in the Transverse and Peninsular ranges, typically below 4,000 feet AMSL (Holland 1986).

There are 6.5 acres of coast live oak woodland in the northeastern portion of the Preserve south of Harmony Grove Road. The following species are associated with the coast live oak woodland on site: coast live oak, laurel sumac, and foxtail chess. Coast live oak woodland is a MSCP Tier I vegetation community and is protected under the California Oak Woodland Conservation Act.

Eucalyptus Woodland (Holland Code 79100)

Eucalyptus woodland typically consists of monotypic stands of introduced Australian eucalyptus trees (*Eucalyptus* spp.). The understory is either depauperate or absent owing to shade and the 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 several raptor species.

There are 1.7 acres of eucalyptus woodland mapped in the northwestern portion of the Preserve east of Seaquest Trail, and in the northeastern portion of the Preserve both north of Harmony Grove Road and along Wild Willow Hollow. Eucalyptus woodland is a MSCP Tier IV vegetation community.

Non-Native Vegetation (Holland Code 11000)

Non-native vegetation is nearly exclusively composed of non-native plant species, such as ornamentals or ruderal exotic forbs, such as thistles (*Centaurea* spp., *Carduus* spp., *Cynara* spp., *Sonchus* spp., *Salsola tragus*), horehound (*Marrubium vulgare*), London rocket (*Sisymbrium irio*), wild radish (*Raphanus* spp.), fig-marigold (*Carpobrotus edulis*), chrysanthemum (*Chrysanthemum* spp.), and fennel (*Foeniculum vulgare*). Non-native vegetation is a Tier IV vegetation community in the MSCP, indicating that it has limited habitat value. There is 0.8 acre of non-native vegetation on site located along the western edge of the central parcel of the Preserve, south of Elfin Forest Rd.

Orchard (Holland Code 18100)

Orchards refer to land that is set aside for cultivating nuts, fruits, or olives. This land has little biological resource value because it provides very limited habitat value for most native species.

There is 0.01 acre of orchards along the private road in northwestern portion of the Preserve and north of Harmony Grove Rd. in the northeastern portion of the Preserve. As agricultural land, orchards are a Tier IV vegetation community in the MSCP, indicating that they have limited habitat value.

Disturbed Habitat (Holland Code 11300)

Disturbed habitat refers to areas that are not developed yet lack native vegetation, and generally are the result of severe or repeated mechanical perturbation. Oberbauer et al. (2008) provides the following examples of disturbed land: areas that have been graded; repeatedly cleared for fuel management purposes; and/or experienced repeated use that prevents natural revegetation, such as dirt parking lots and well-established trails, recently graded firebreaks, graded construction pads, construction staging areas, off-road vehicle trails, and old home sites. Vegetation, if present, is nearly exclusively composed of non-native plant species, such as ornamentals or ruderal exotic forbs, such as thistles (*Centaurea* spp., *Carduus* spp., *Cynara* spp., *Sonchus* spp., *Salsola tragus*), horehound (*Marrubium vulgare*), London rocket (*Sisymbrium irio*), wild radish (*Raphanus* spp.), fig-marigold (*Carpobrotus edulis*), chrysanthemum (*Chrysanthemum* spp.), and fennel

(*Foeniculum vulgare*). Although some grass species may be present in disturbed habitat, most annual grass species are more typical of non-native grassland and do not dominate vegetative cover in disturbed habitat (Oberbauer et al. 2008).

There are 12.8 acres of disturbed habitat on site, which consists primarily of dirt roads occurring throughout the Preserve parcels. Disturbed habitat is a MSCP Tier IV vegetation community, indicating that it has limited habitat value.

Developed (Holland Code 12000)

Developed land is generally subject to significant human disturbance associated with development. There are 6.9 acres of developed land on the Preserve. Harmony Grove Road, Elfin Forest Lane, Canyon Del Oro, Fortuna De Este, and other unnamed paved roads make up the majority of the developed land on site. Developed land is a MSCP Tier IV vegetation community, indicating that it has limited habitat value.

4.2 Plants

A total of 184 vascular plant species, including six special-status plant species, two of which are North County MSCP covered species, were observed on the Preserve. Appendix A lists all of the plant species observed on the Preserve.

4.2.1 Special-Status Plant Species Observed

Six special-status plant species were identified on the Preserve: wart-stemmed ceanothus, San Diego sagewort (*Artemisia palmeri*), San Diego marsh-elder (*Iva hayesiana*), southwestern spiny rush (*Juncus acutus* spp. *leopoldii*), San Diego goldenstar (*Muilla clevelandii*), and ashy spike-moss (*Selaginella cinerascens*). Figures 10a–d show the distribution of the special-status plant species on the Preserve observed during the 2010-11 surveys.

San Diego (Palmer's) Sagewort (*Artemisia palmeri*)

CNPS List 4.2, County List D

San Diego sagewort (also known as Palmer's sagewort) is an aromatic herb typically located in perennial creeks and drainages near the coast (Reiser 1994). In California, San Diego sagewort is found only in San Diego County (CNPS 2010). This species is found in a wide range of habitat types including chaparral, coastal scrub, riparian forest, riparian scrub, and riparian woodland in sandy, mesic conditions between 15 and 915 meters (50 and 3,000 feet) in elevation (CNPS 2010). San Diego sagewort is most often found in a riparian context. San Diego sagewort grows within a shaded understory beneath willow, sycamore, or cottonwood canopy. Occasionally it

also is present beneath *Quercus agrifolia* canopy, but in decidedly mesic circumstances (Reiser 1994). Several large populations (100's of individuals) and scattered individuals of San Diego sagewort were observed along Escondido Creek and its tributaries north and south of Harmony Grove Road. In addition, approximately 30 individuals occur south of Canyon de Oro Road.

Wart-stemmed Ceanothus (*Ceanothus verrucosus*)

CNPS List 2.2, County List B, North County MSCP Covered Species

Wart-stemmed ceanothus is a perennial evergreen shrub in the buckthorn family (*Rhamnaceae*) that grows up to 3 meters (10 feet) tall, with oblanceolate to more or less round leaves. It bears white flowers that form an umbel (Jepson Flora Project 2011) in December to May (CNPS 2010). Wart-stemmed ceanothus occurs in San Diego and Riverside counties and Baja California, Mexico (CNPS 2010). This species occurs in chaparral below 380 meters (1,247 feet) AMSL (CNPS 2010). Wart-stemmed ceanothus is declining locally on the margins of San Diego's coastal cities as a result of urban sprawl (Reiser 1994).

Wart-stemmed ceanothus was noted throughout much of the Preserve as a common component of southern mixed chaparral. Figures 10a–d show the location of wart-stemmed ceanothus on site as well as the densities associated with each area. A low density corresponds to less than 33% cover of wart-stemmed ceanothus, moderate density is 33–66% cover, and high density is greater than 66% cover. A total of 226 acres were mapped as occupied by wart-stemmed ceanothus; 91 acres at a low density, 83 acres at a medium density, and 52 acres at a high density. Species associated with the population include chamise, black sage, and Ramona-lilac.

Previous surveys conducted on the Cielo Azul property of the adjacent Del Dios Highlands Preserve when under private ownership included a systematic estimate of the wart-stemmed ceanothus population by recording numbers and density of wart-stemmed ceanothus at 20 randomly selected points occupied by the species within the Cielo Azul project area and in the adjacent parcels. At each survey point, a 50-meter tape was extended in a randomly determined direction from the mapped starting location. All areas along the transect tape that intersected the leaf canopy of wart-stemmed ceanothus were recorded to estimate ceanothus density. Number of ceanothus were estimated by the counting the number of stems with at least half of the canopy within one meter on each side of the transect tape (a 100-square-meter survey area). The mean cover of wart-stemmed ceanothus within the transects was 25.4%; all transects were located within areas mapped as occupied by wart-stemmed ceanothus. The mean density of wart-stemmed ceanothus was 0.42 per square meter or 1,700 plants per acre; this results in an estimated population of 146,000 wart-stemmed ceanothus plants on Cielo Azul for this study (Dudek 2008). Assuming 1,700 plants per acre on average at Escondido Creek as well, there would be approximately 384,890 wart-stemmed ceanothus plants on the entire Escondido Creek

Preserve. However, it should be noted that the standard deviation for this estimate is relatively high reflecting the variability in the density of the plant within the occupied areas. In addition, the degree to which the species blooms, and thus its detectability, is dependent upon the amount of rainfall in the previous year. Regardless of the actual number of wart-stemmed ceanothus actually occurring within the study area, the population is relatively large and substantial in size, representing an important occurrence for the species in the region.

San Diego Marsh-Elder (*Iva hayesiana*)

CNPS List 2.2, County List B

San Diego marsh-elder is a perennial shrub found in marshes and swamps and on playas between 10 and 500 meters (33–1,640 feet) in elevation (CNPS 2010). This species is usually found along creeks or intermittent streambeds and is endemic to San Diego County (Reiser 1994; CNPS 2010). San Diego marsh-elder is considered stable, but may be threatened by the modification or degradation of coastal drainages (Reiser 1994). Approximately 60 San Diego marsh-elder individuals were observed along Escondido Creek on the Preserve.

Southwestern Spiny Rush (*Juncus acutus* spp. *leopoldii*)

CNPS List 4.2, County List D

Southwestern spiny rush is a rhizomatous herb in the rush family (Juncaceae) that grows up to 140 centimeters tall with sharp, ridged basal leaves (CNPS 2010; Jepson Flora Project 2011). In California, southwestern spiny rush is found in Imperial, Los Angeles, Orange, Santa Barbara, San Diego, San Luis Obispo, and Ventura counties (CNPS 2010). This species occurs on mesic coastal dunes, alkaline seeps, and coastal salt marsh and swamps, below 900 meters (2,953 feet) (CNPS 2010). Southwestern spiny rush is threatened by urbanization and flood control (CNPS 2010). Approximately 100 individuals of southwestern spiny rush were observed along Escondido Creek and its tributaries north and south of Harmony Grove Road on the Preserve. Approximately 10 individuals were observed within the central parcel of the Preserve south of Elfin Forest Road.

San Diego Goldenstar (*Muilla clevelandii*)

CNPS List 1B.1, County List A, North County MSCP Covered Species

San Diego goldenstar is a perennial bulbiferous herb in the Brodiaea family (Themidaceae) that grows up to 15 centimeters tall with yellow green-striped flowers (CNPS 2010; Jepson Flora Project 2011). In California, San Diego goldenstar is found in San Diego and Riverside counties (CNPS 2010). This species occurs in clay soils in chaparral, coastal scrub, valley and foothill grassland, and

vernal pools, between 50 and 465 meters (164 and 1,526 feet) (CNPS 2010). San Diego goldenstar is threatened by urbanization, road construction, vehicles, non-native plants, and illegal dumping (CNPS 2010). Five individuals of San Diego goldenstar were observed north of Canyon de Oro on the Preserve. This species was found in Diegan coastal sage scrub with California sagebrush, California buckwheat, soft brome (*Bromus hordeaceus*), and tocalote (*Centaurea melitensis*) as associated species. Because it was observed at the beginning of its typical blooming period (April–May) this population may have been larger than that which was detected.

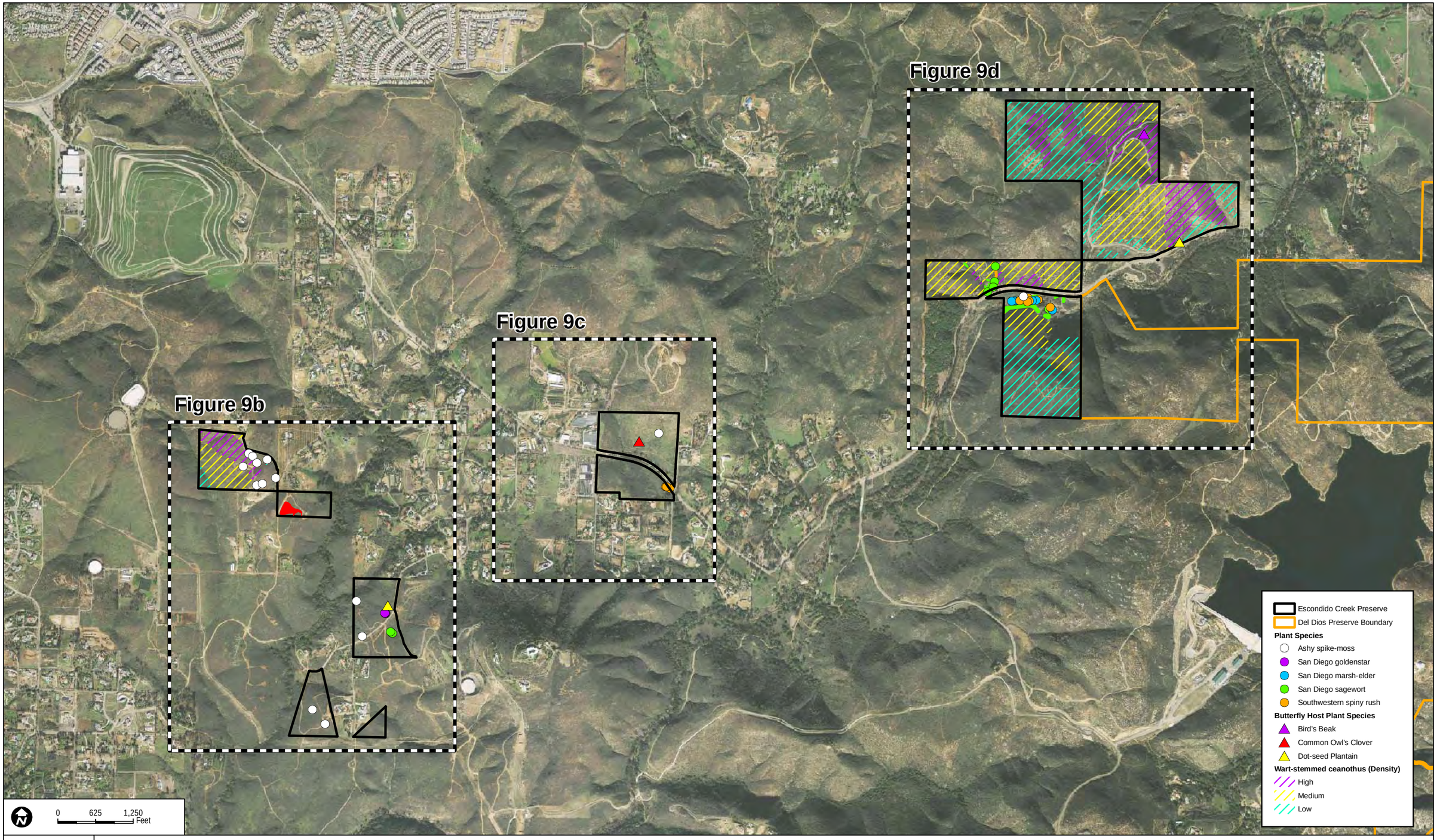
Ashy Spike-Moss (*Selaginella cinerascens*)

CNPS List 4.1, County List D

Ashy spike-moss is a perennial rhizomatous herb found in chaparral and coastal scrub habitats between 20 and 640 meters (66-2,100 feet) in elevation (CNPS 2010). This prostrate groundcover species is a good indicator of site degradation because it is rarely found on disturbed soils (Reiser 1994). There are records for this species in San Diego, Orange, and possibly Riverside counties as well as Baja California, Mexico (CNPS 2010). Although ashy spike-moss is substantially declining due to urban expansion along the coast, it still occurs at several thousand locales (Reiser 1994). Ashy spike-moss occurs in several locations across the Preserve, often in open or rocky areas.

4.2.2 Special-Status Plant Species with High Potential to Occur

Based on an analysis of the elevation, soils, vegetation communities, and level of disturbance on site in conjunction with the known distribution of special-status species in the vicinity of the Preserve and the results of rare plant surveys, seven plant species have a high potential to occur on the Preserve, all of which are proposed for coverage under the North County MSCP. The seven plant species with high potential to occur include: Orcutt's brodiaea (*Brodiaea orcuttii*), sticky dudleya (*Dudleya viscida*), felt-leaved monardella (*Monardella hypoleuca* ssp. *lanata*), Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*), Brewer's calandrinia (*Calandrinia breweri*), summer-holly (*Comarostaphylis diversifolia* ssp. *diversifolia*), and Encinitas baccharis (*Baccharis vanessae*).



DUDEK

6680-01

SOURCE: Digital Globe 2008

FIGURE 10a

Special-Status and Butterfly Host Plant Species

Escondido Creek Preserve - Baseline Biodiversity Survey

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Escondido Creek Preserve

Plant Species (# = population count)

- Ashy spike-moss
- San Diego goldenstar
- San Diego sagewort

Butterfly Host Plant Species

- Dot-seed Plantain
- Common Owl's Clover

Wart-stemmed ceanothus (Density)

- High
- Medium
- Low

0 200 400 Feet

DUDEK

6680-01

SOURCE: NAIP 2009

FIGURE 10b

Special-Status and Butterfly Host Plant Species

Escondido Creek Preserve - Baseline Biodiversity Survey

INTENTIONALLY LEFT BLANK

DUDEK

6680-01

SOURCE: NAIP 2009

FIGURE 10c

Special-Status and Butterfly Host Plant Species

Escondido Creek Preserve - Baseline Biodiversity Survey

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Escondido Creek Preserve
Del Dios Preserve Boundary

Plant Species (# = population count)

- Ashy spike-moss
- San Diego marsh-elder
- San Diego sagewort
- Southwestern spiny rush

Butterfly Host Plant Species

- Bird's Beak
- Dot-seed Plantain

Wart-stemmed ceanothus (Density)

- High
- Medium
- Low

0 275 550 Feet

DUDEK

SOURCE: NAIP 2009

FIGURE 10d

Special-Status and Butterfly Host Plant Species

6680-01

Escondido Creek Preserve - Baseline Biodiversity Survey

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Orcutt's Brodiaea (*Brodiaea orcuttii*)

CNPS List 1B.1, County List A, North County MSCP Covered Species

Orcutt's brodiaea is a perennial in the lily family (Liliaceae), with cylindric leaves. It bears six violet lobes in two petal-like whorls (Jepson Flora Project 2011) in May to July (CNPS 2010). Orcutt's brodiaea occurs in Riverside and San Diego counties, as well as Baja California, Mexico, between 30 and 1,692 meters (98 and 5,551 feet) amsl (CNPS 2010). This species occurs in a variety of habitats, including closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and mesic vernal pools with clay or serpentinite soils (CNPS 2010). Since this species is only detected during or just after its blooming period and given its relatively wide range of potential sites in vernally moist montane and coastal locales, areas with Orcutt's brodiaea may unknowingly be developed (Reiser 1994).

Orcutt's brodiaea has a high potential to occur on the Preserve since it is recorded within one mile of the Preserve and suitable habitat is present on site.

Sticky Dudleya (*Dudleya viscida*)

CNPS List 1B.2, County List A, North County MSCP Covered Species

Sticky dudleya is a perennial herb found in rocky coastal bluff scrub, chaparral, cismontane woodland, and coastal scrub habitats between 10 and 550 meters (33–1,804 feet) in elevation (CNPS 2010). This species is known from records in San Diego, Riverside, and Orange counties (CNPS 2010). Sticky dudleya is only known from approximately twenty occurrences and is threatened by development and road construction (CNPS 2010).

There is a high potential for sticky dudleya to occur on site because there are ssuitable rocky habitats present and this species was observed within one mile of the Preserve.

Felt-leaved Monardella (*Monardella hypoleuca* ssp. *lanata*)

CNPS List 1B.2, County List A, North County MSCP Covered Species

Felt-leaved monardella (also known as felt-leaved rock mint) is a suffrutescent perennial typically located in xeric areas beneath mature stands of chamise (Reiser 1994). In California, felt-leaved monardella is found only in San Diego and Orange counties (CNPS 2010). This species is found in chaparral and cismontane woodland between 300 and 1,575 meters (984–5,167 feet) in elevation (CNPS 2010). This species tends to occupy undeveloped peaks and mountainous ridgelines and has been found in association with San Miguel-Exchequer rocky silt loams and acid Igneous rock lands (Reiser 1994).

This species has a high potential to occur on site because suitable habitat is present and it was observed within one mile of the Preserve. Suitable habitat for felt-leaved monardella on site includes southern mixed chaparral and coast live oak woodland.

Brewer's Calandrinia (*Calandrinia breweri*)

CNPS List 4, County List D

In California, Brewer's calandrinia is found in San Diego, Los Angeles, San Bernardino, Contra Costa, Mendocino, Monterey, Mariposa, Marin, Napa, Santa Barbara, Santa Clara, Santa Cruz, San Luis Obispo, San Mateo, Sonora, and Ventura counties (Reiser 1994). The species is a fire-follower and typically reported in areas of recently burned chaparral and coastal sage scrub (Reiser 1994) on sandy or loamy soils (CNPS 2010). Brewer's calandrinia is apparently rare in southern California and its populations are presumed to be declining due to loss of habitat along the coast (Reiser 1994).

This species was previously observed within the adjacent Del Dios Highlands Preserve (TAIC 2008) and may occur in the southern mixed chaparral and coastal sage scrub within the eastern parcels.

Robinson's Pepper-grass (*Lepidium virginicum* var. *robinsonii*)

CNPS List 1B.2, County List A

Robinson's pepper-grass occurs in San Diego, Riverside, Orange, Los Angeles, San Bernardino, and Santa Barbara counties, on Santa Cruz Island, and in Baja California, Mexico (Reiser 1994). Robinson's pepper-grass occurs in chaparral and coastal scrub habitats between 1 and 885 meters (3.3-2,900 feet) in elevation (CNPS 2010). This annual herb grows in openings in chaparral and coastal sage scrub, generally well away from the coast in Southern California in foothill landscapes. Typically sites where this species is observed are relatively dry, exposed locales, rather than beneath a shrub canopy or along creeks (Reiser 1994).

This species was previously observed within the adjacent Del Dios Highlands Preserve (TAIC 2008) and may occur in the southern mixed chaparral and coastal sage scrub within the eastern parcels.

Summer Holly (*Comarostaphylis diversifolia* ssp. *diversifolia*)

CNPS List 1B.2, County List A

Summer holly is a large, showy, perennial shrub found in chaparral and cismontane woodland habitats between 30 and 550 meters (100–1,800 feet) in elevation (Reiser 1994, CNPS 2010).

This species is usually found in southern mixed chaparral on mesic north-facing slopes (Reiser 1994) and is known from records in San Diego, Riverside, and Orange counties and Baja California, Mexico (Reiser 1994). Summer holly is declining throughout its U.S. range where the species is threatened by residential development (Reiser 1994).

This species was previously observed within the adjacent Del Dios Highlands Preserve (TAIC 2008), and may occur in the chaparral and cismontane woodland habitat within the eastern parcels.

Encinitas Baccharis (*Baccharis vanessae*)

Federally Threatened, State Endangered, CNPS List 1B.1, County List A, MSCP Covered Species

Encinitas baccharis is a perennial deciduous shrub in the aster family (Asteraceae), with slightly fleshy, sticky leaves. It bears both staminate and pistillate flowers in August to November (Jepson Flora Project 2011; CNPS 2010). Encinitas baccharis is endemic to San Diego County, and occurs from 60 to 720 meters (197–2,362 feet) AMSL (CNPS 2010). This species occurs in maritime chaparral and cismontane woodland (CNPS 2010). This species is threatened by development and recreation (CNPS 2010).

Encinitas baccharis was previously observed within the adjacent Del Dios Highlands Preserve (TAIC 2008) and may occur within the eastern parcels.

4.2.3 Non-native and/or Invasive Plants

Eleven invasive non-native plant species have been identified in the Preserve, not including annual species. The perennial non-native species within the Preserve include: pampas grass (*Cortaderia selloana*), tree tobacco (*Nicotiana glauca*), fountaingrass (*Pennisetum setaceum*), Peruvian peppertree (*Schinus molle*), sweet fennel (*Foeniculum vulgare*), salt cedar (*Tamarix ramosissima*), Canary Island date palm (*Phoenix canariensis*), castor bean (*Ricinus communis*), pine trees (*Pinus* spp.), Italian thistle (*Carduus pycnocephalus*) and eucalyptus (*Eucalyptus* spp.). Table 5 lists the non-native perennial species and their associated California Invasive Plant Council (Cal-IPC) Inventory rating. Invasive plant species locations are shown on Figures 9a–d.

Table 5
Non-native Perennial Plant Species at the Escondido Creek Preserve

Scientific Name	Common Name	Cal-IPC Rating*
Canary Island date palm	*Phoenix canariensis*	Limited
Castor bean	*Ricinus communis*	Limited
Eucalyptus	*Eucalyptus* spp.	Limited/Moderate

Table 5
Non-native Perennial Plant Species at the Escondido Creek Preserve

Scientific Name	Common Name	Cal-IPC Rating*
Fennel	*Foeniculum vulgare*	High
Fountaingrass	*Pennisetum setaceum*	Moderate
Italian thistle	*Carduus pycnocephalus*	Moderate
Pampas grass	*Cortaderia selloana*	High
Peruvian pepper tree	*Schinus molle*	Limited
Pine trees (non-native varieties)	*Pinus* spp.	None
Tamarisk (salt cedar)	*Tamarix ramosissima*	High
Tree tobacco	*Nicotiana glauca*	Moderate

*Source: Cal-IPC California Invasive Plant Inventory Database, updated December 2010. Overall rating listed for southwest region, factoring impact, invasiveness, distribution and documentation level.

Inventory Categories

High: Species have severe ecological impacts, are conducive to moderate to high rates of dispersal/establishment and most are widely spread.

Moderate: Species have substantial and apparent, but generally not severe, ecological impacts, are conducive to moderate to high rates of dispersal, though establishment is generally dependent on ecological disturbance, and distribution may range from limited to widespread.

Limited: Species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score, have low to moderate rates of invasiveness, and are generally limited but may be locally persistent and problematic.

Canary Island Date Palm (*Phoenix canariensis*)

Native to the Canary Islands off the coast of Africa, Canary Island date palm has escaped cultivation in Southern California to invade stream channels, orchards, and landscaped areas. Canary Island date palm grows up to 25 meters (82 feet) tall, typically in clusters that form a dense canopy. The dense canopy excludes light from reaching below, leading to a loss of native plants underneath the canopy (Cal-IPC 2010). One Canary Island date palm tree occurs in the northeastern portion of the Preserve south of Harmony Grove Road (Figures 9a and 9d).

Castor Bean (*Ricinus communis*)

Castor bean is a herbaceous to semi-woody large shrub or small tree that grows quickly in mild climates. In Southern and Central California, it has escaped cultivation to become a noxious weed. Castor bean contains ricin, a highly toxic chemical (Cal-IPC 2010). There are approximately four individual castor bean plants and a 0.15-acre area of castor bean in the northeastern portion of the Preserve south of Harmony Grove Road (Figures 9a and 9d).

Eucalyptus *(Eucalyptus spp.*)

Eucalyptus is a tree found in Southern California. *Eucalyptus* can increase the risk of catastrophic wildfires and over-crowd native plants and trees. In addition, native plants can't grow underneath eucalyptus groves, potentially either because of a thick litter layer or an allelopathic effect (Cal-IPC 2010). There are approximately 206 eucalyptus trees throughout the

Preserve. These occur east of Seaquest Trail, along Elfin Forest Road, and in the northwestern portion of the Preserve (Figures 9a–9d).

Fennel (*Foeniculum vulgare*)

Fennel is an erect perennial herb common throughout California. Fennel has the potential to substantially alter the composition and structure of many vegetation communities, including grasslands, coastal scrub, riparian, and wetland communities (Cal-IPC 2010). There are approximately 42 fennel plants throughout the Preserve. These occur along Canyon de Oro Road, north of Elfin Forest Road, and north of Harmony Grove Road (Figures 9a–9d).

Fountaingrass (*Pennisetum setaceum*)

Fountaingrass is a coarse tufted perennial grass found along the coast of Southern California. Fountaingrass is well adapted to fire. Following a burn plants recover to pre-burn density and can even increase in density. Although cultivated as an ornamental, the red cultivar is sterile and not considered invasive (Cal-IPC 2010). Fountaingrass occupies approximately 0.97 acre throughout the Preserve, along Canyon de Oro Road, west of Elfin Creek Trail, and in the northeastern portion of the Preserve (Figures 9a–9d).

Italian Thistle (*Carduus pycnocephalus*)

Italian thistle is a winter annual forb that occurs throughout much of California. This species commonly occupies disturbed open sites, roadsides, pastures, annual grasslands, and waste areas (Cal-IPC 2010). Italian thistle occupies approximately 0.16 acre in the northeastern portion of the Preserve (Figures 9a and 9d).

Pampas Grass (*Cortaderia selloana*)

Pampas grass is a large perennial grass distributed along California's coast, and in the Coast Ranges, Central Valley, Western Transverse Ranges, and Mojave Desert. Pampas grass generally inhabits dunes, bluffs, coastal shrublands and marshes, inland riparian areas, and disturbed areas. This species was introduced as an ornamental plant and was used for erosion control. Pampas grass seeds are widely dispersed by wind and do not require fertilization to develop. While establishment is typically poor where seedlings have to compete with other grasses or sedges, it readily colonizes bare ground (Cal-IPC 2010). There are two pampas grass individuals along Wild Willow Hollow Road (Figure 9a and 9d).

Peruvian Peppertree (*Schinus molle*)

Peruvian peppertree is an aromatic, evergreen shrub or tree. Peruvian peppertree has escaped cultivation to become invasive in central and Southern California (Cal-IPC 2010). Peruvian peppertrees occupy approximately 0.30 acre along either side Elfin Forest Road (Figures 9a and 9c).

Pine Trees (*Pinus* spp.)

Non-native cultivated pine trees are not listed by the Cal-IPC (2010). Pine trees occupy approximately 1.84 acres north of Harmony Grove Road (Figures 9a and 9d).

Tamarisk (*Tamarix ramosissima*)

Tamarisk (saltcedar) is a shrub or a tree found throughout California along streams and lake shores. Tamarisk can substantially alter geomorphology, groundwater availability, soil chemistry, fire frequency, plant community composition, and native wildlife diversity (Cal-IPC 2010). There are approximately five tamarisk individuals along Wild Willow Hollow Road (Figures 9a and 9d).

Tree Tobacco (*Nicotiana glauca*)

Tree tobacco is a short-lived tree or shrub that grows up to 20 feet tall. Introduced to California approximately 100 years ago, tree tobacco can be found in disturbed soils, vacant lots, and along roadsides, streamsides, and other riparian areas up to 5,000 feet (Cal-IPC 2010). There are approximately 14 tree tobacco individuals east of Paint Mountain Road and along Harmony Grove Road (Figures 9a, 9b, and 9d).

Ubiquitous non-native annuals are also present throughout the Preserve, and comprise the majority of species in the non-native grassland on site, which is dominated by foxtail chess *(Bromus madritensis)*, wild oat (*Avena fatua*), tocalote (*Centaurea melitensis*), milk thistle (*Silybum marianum*) and shortpod mustard (*Hirschfeldia incana*). While non-native grassland consists primarily of non-native plant species, it is considered a natural vegetation community under the County's MSCP because it is a naturalized community that provides habitat for native and sensitive plants and animal species. Non-native annual plant species that are common to the Preserve are shown in Table 6. Other non-native invasive species that were not common and, therefore, not mapped, but were detected in limited numbers on the Preserve included poison-hemlock (*Conium maculatum*), crown daisy (*Glebionis [Chrysanthemum] coronarium*), Russian thistle (*Salsola tragus*), and olive (*Olea europaea*).

Table 6
Non-Native Annual Plant Species at the Escondido Creek Preserve

Common Name	Scientific Name
black mustard	*Brassica nigra*
foxtail chess	*Bromus madritensis ssp. rubens*
milk thistle	*Silybum marianum*
redstem filaree	*Erodium cicutarium*
ripgut brome	*Bromus diandrus*
shortpod mustard	*Hirschfeldia incana*
soft brome	*Bromus hordeaceus*
tocalote	*Centaurea melitensis*
wild oat	*Avena barbata; A. fatua*

4.3 Wildlife

A total of 145 wildlife species were observed or detected within the Preserve during the 2010-11 surveys including: 12 reptiles, 4 amphibians, 83 birds, 31 mammals, and 15 butterflies. A total of 29 special-status species were observed or detected including 9 North County MSCP covered species. Appendix B lists all of the wildlife species observed or detected on the Preserve.

4.3.1 Invertebrates

No large invertebrates were captured within pitfall trap arrays other than millipedes (Diplopoda), centipedes (Chilopoda), and smaller spiders (Araneae). Smaller invertebrates observed during surveys included bees (Apoidae), wasps (Vespidae), harvester ant colonies (*Pygonomyrex* sp.), earwigs (Dermaptera), pill bugs (Armadillidiidae), mosquitos (Culicidae), and flies (Diptera). Surveys were conducted outside the typical observation period for dragonflies (Anisoptera) and damselflies (Zygoptera). No other large invertebrates, such as tarantulas (Theraphosidae), scorpions (Scorpiones), or Jerusalem crickets (Stenopelmatidae), were observed.

4.3.1.1 Butterflies

Fifteen butterfly species were observed during surveys conducted on the Preserve: funereal duskywing (*Erynnis funeralis*), California ringlet (*Coenonympha californica californica*), cloudless sulfur (*Phoebis sennae*), checkered white (*Pontia protodice*), California white (*Pontia sisymbrii beringiensis*), Pacific Sara orangetip (*Anthocharis sara sara*), monarch (*Danaus plexippus*), pale swallowtail (*Papilio eurymedon*), western tiger swallowtail (*Papilio rutulus*), painted lady (*Vanessa cardui*), common buckeye (*Junonia coenia*), Behr's metalmark (*Apodemia mormo virgulti*), Edward's blue (*Hemiargus ceraunus*), southern blue (*Zizina oxleyi*), and acmon blue (*Icaria acmon acmon*).

No Quino checkerspot butterfly (*Euphydryas editha*), Hermes copper butterfly (*Hermelycaena [Lycaena] hermes*) or any other special-status butterfly species were observed on the Preserve. However, in accordance with the USFWS survey protocol (USFWS 2002) and based on the site assessment conducted on site, much of the habitat on the Preserve would be considered suitable for quino checkerspot butterfly, though the site is outside of the focused survey area. No host plants were observed for Hermes copper butterfly; however, Quino checkerspot butterfly larval host plants were observed. Common owl's clover (*Castilleja exserta* ssp. *exserta*) were observed within the parcels east of Sea Quest Trail (Figures 10a and b) and north of Elfin Forest Road (Figures 10a and c). Dot-seed plantain (*Plantago erecta*) was observed north of Canyon de Oro in the western part of the Reserve (Figures 10a and b) and north of Harmony Grove Road (Figures 10a and d). Bird's beak (*Cordylanthus* sp.) was observed in the northeastern portion of the Preserve (Figures 10a and d) north of Harmony Grove Road. It is expected that more may occur within moister and open soils within the Preserve. With the exception of riparian areas along Escondido Creek that would be excluded from focused surveys, the remaining portions of the Preserve include suitable sage scrub, open chaparral, and grassland habitats, as well as the presence of hilltop and ridgeline topography.

4.3.2 Herpetofauna

4.3.2.1 Amphibians

Three amphibian species were observed during the aquatic surveys conducted within Escondido Creek on both the Preserve and the adjacent Cielo Azul parcel of the Del Dios Highlands Preserve (Table 7).

Table 7
Aquatic Survey Results

Species			February 23, 2011			March 23, 2011			
Common Name	*Scientific Name*	*Status[1]*	*Number*	*Sex*	*Age*	*Number*	*Sex*	*Age*	**Total**
Amphibians									
Northern Pacific treefrog	*Pseudacris regilla*	None	100's	---	Adult	100's	---	Adult	**100's**
Western spadefoot	*Spea hammondii*	CSC, Group 2, NCMSCP	1	Male	Adult	---	---	---	**1**
Western toad	*Anaxyrus boreas*	None	4	Male/Female	Adult	---	---	---	**4**
Reptiles									
Two-striped garter snake	*Thamnophis hammondii*	CSC, Group 1, NCMSCP	1	Male	Adult	---	---	---	**1**

Table 7
Aquatic Survey Results

Species			February 23, 2011			March 23, 2011			
Common Name	*Scientific Name*	*Status*[1]	*Number*	*Sex*	*Age*	*Number*	*Sex*	*Age*	**Total**
San Diego ringneck snake	*Diadophis punctatus similus*	Group 2	1	Female	Adult	---	---	---	**1**
Western fence lizard	*Sceloporus occidentalis*	None	2	Male	SubAdult	---	---	---	**2**

[1] CSC: California Special Concern Species (CDFG); Group 1: Animals of high sensitivity (listed or specific natural history requirements) (County); Group 2: Animals declining, but not in immediate threat of extinction or extirpation (County); NCMSCP: Proposed for coverage under the North County MSCP.

In addition, two amphibian species were observed in the Preserve during coverboard herpetological surveys. Garden slender salamander (*Batrachoseps major*) was observed at coverboard locations HC4, HC10, and HC12 (Table 8, Figure 8). Northern pacific treefrog was observed at HC3 (Table 8, Figure 8) in January.

4.3.2.2 Reptiles

Three reptile species were observed in the Preserve during pitfall trap, coverboard, and aquatic herpetological surveys. Nine additional reptile species were observed during other surveys. Coronado skink (*Eumeces skiltonianus interparietalis*) was the most common reptile species observed during pitfall trap and coverboard surveys.

One special-status reptile species Coronado skink (*Eumeces skiltonianus interparietalis*) was observed during pitfall trap and coverboard herpetological surveys. In addition, special-status coastal western whiptail (*Aspidoscelis tigris stejnegeri*) and coast horned lizard (*Phrynosoma blainvillii*) were observed on site during other survey efforts, and two-striped garter snake (*Thamnophis hammondii*) and San Diego ringneck snake (*Diadophis punctatus similis*) were observed during the aquatic surveys. Two-striped garter snake and coast horned lizard are covered under the North County MSCP.

Table 8, Pitfall Trap and Coverboard Results, provides a summary of the species observed during pitfall trap and coverboard herpetological surveys. Note that the table only includes data for when wildlife was actually captured. Survey locations are shown on Figure 8.

Table 8
Pitfall Trap and Coverboard Results

Species			December 2010	January 2011				February 2011				March 2011		
Common Name	*Scientific Name*	*Status*[1]	*HA3*	*HC 3*	*HC 4*	*HC 11*	*HC1 2*	*HA 1*	*HC 3*	*HC 4*	*HC 10*	*HA 1*	*HC 12*	**Total**
Garden slender salamander	*Batrachoseps major*	None	—	—	1	—	1	—	—	—	1	—	1	**4**
Pacific treefrog	*Hyla regilla*	None	—	1	—		—	—	—	—	—	—	—	**1**
Southern alligator lizard	*Elgaria multicarinata*	None	—	—	—	1	—	—	—	—	—	—	—	**1**
Coronado skink	*Eumeces skiltonianus interparietalis*	CSC/ Group 2	—	—	—	—	—	2	—	—	—	—	—	**2**
Western fence lizard	*Sceloporus occidentalis*	None	–	—	—	—	—	—	—	—	1	—	—	**1**
California vole	*Microtus californicus*	None	—					2	1	—	—	1		**4**
Deermouse	*Peromyscus* sp.	None	—	—	—	—	—	—	—	1	1	—	—	**2**
Cactus deermouse	*Peromyscus eremicus*	None	5	—	—	—	—	2	—	—	—	—	—	**7**
Ornate shrew	*Sorex ornatus*	None	—	—	—	—	—	1	—	—	—	—	—	**1**
Total			**5**	**1**	**1**	**1**	**1**	**7**	**1**	**1**	**3**	**1**	**1**	**23**

Note: The table does not include the small mammal species observed in pit-fall arrays or under coverboards.
[1] **CSC**: California Special Concern Species (CDFG); **Group 2**: Animals declining, but not in immediate threat of extinction or extirpation (County).

4.3.3 Birds

Thirty-five bird species were observed at the Preserve during avian point count surveys. The most common species observed in terms of numbers of individuals recorded were Anna's hummingbird (*Calypte anna*), bushtit (*Psaltriparus minimus*), wrentit (*Chamaea fasciata*), yellow-rumped warbler (*Dendroica coronata*), and house finch (*Carpodacus mexicanus*). The following birds were observed during the nocturnal surveys: barn owl (*Tyto alba*), common poorwill (*Phalaenoptilus nuttallii*), and great horned owl (*Bubo virginianus*). Forty-eight additional bird species were observed during other surveys conducted on site for a total of 83 bird species detected within the study area (Appendix B).

Four special-status bird species were observed during avian point count stations: red-shouldered hawk (*Buteo lineatus*), coastal California gnatcatcher (*Polioptila californica californica*), Cooper's hawk (*Accipiter cooperii*), and barn owl (*Tyto alba*). Twelve additional special-status bird species were observed during other surveys conducted on site including gadwall (*Anas strepera*), Bell's sage sparrow (*Amphispiza belli belli*), great blue heron (*Ardea herodias*),

Canada goose (*Branta canadensis*), turkey vulture (*Cathartes aura*), northern harrier (*Circus cyaneus*), yellow warbler (*Dendroica petechia brewsteri*), white-tailed kite (*Elanus leucurus*), California gull (*Larus californicus*), white-faced ibis (*Plegadis chihi*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), and western bluebird (*Siala mexicana*) were observed during other surveys conducted on site. With the exception of gadwall, great blue heron, Canada goose, turkey vulture, northern harrier, California gull and white-faced ibis, it could be presumed that the rest likely nested within the area or on site, because most of these special-status species were observed during the breeding season. However, none of them were confirmed to be nesting on the Preserve.

Table 9, Avian Point Count Survey Results, provides a summary of the results of the avian point count survey for each survey point. 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 9
Avian Point Count Survey Results

Survey Point[1]	January 6, 2011		February 14, 2011		March 29, 2011		Total
	AM	*PM*	*AM*	*PM*	*AM*	*PM*	
A1	8 (19)	1 (1)	9 (22)	0	10 (36)	1	16 (79)
A2	11 (25)	1 (2)	10 (20)	1	10 (46)	2	20 (96)
A3	6 (25)	2 (3)	9 (30)	0	9 (19)	1	16 (78)
A4	6 (9)	0	6 (11)	0	7 (9)	1	15 (30)
A5	7 (26)	0	4 (10)	1	7 (42)	1	11 (80)
A6*	6 (12)	0	8 (16)	0	10 (25)	0	16 (53)
Total	**22 (116)**	**3 (6)**	**25 (109)**	**2**	**23 (177)**	**3 (6)**	**35 (416)**

Note: The numbers represent unique species counts. The number in parentheses is the total including flyover species if any were observed.
[1]Survey point locations are shown on Figure 8. Point A6 is located on the Cielo Azul parcel addition to the adjacent Del Dios Highland Preserve.

The survey point near Canyon de Oro (A2) had the greatest species richness. The survey point is located in the western portion of the Preserve within coastal sage scrub. Survey point A5 had the lowest bird species diversity. This point is located within the southern mixed chaparral north of Harmony Grove Road.

4.3.4 Mammals

4.3.4.1 Small Mammals

Seven small mammals, all rodents, were trapped on the Preserve during the small mammal surveys, including the special-status species San Diego pocket mouse (*Chaetodipus fallax fallax*) and San Diego desert woodrat (*Neotoma lepida intermedia*). The most common species trapped

was North American deer mouse (*Peromyscus maniculatus*). Northwestern San Diego pocket mouse was also relatively common on site. Table 10, Small Mammal Survey Results, provides a summary of total number of individuals captured in each trapline during the trapping sessions. The first number is the number of new individuals captured and the second number in parentheses is the total number captured, including recaptured individuals.

Table 10
Small Mammal Survey Results

Species			Session 1 February 25 – March 1, 2011		Session 2 March 20 – 23, 2011		
Common Name	Scientific Name	Status[1]	Trapline SM1	Trapline SM2	Trapline SM1	Trapline SM2	Total[2]
Cactus deermouse	Peromyscus eremicus	None	6 (7)	3 (5)	5 (7)	2 (4)	**16 (23)**
California deermouse	Peromyscus californicus	None	—	5 (7)	1 (1)	6 (9)	**12 (17)**
North American deermouse	Peromyscus maniculatus	None	22 (34)	15 (28)	25 (41)	22 (35)	**84 (138)**
Dulzura kangaroo rat	Dipodomys simul*ans*	None	4 (7)	2 (5)	3 (5)	2 (4)	**11 (21)**
Northwestern San Diego Pocket Mouse	*Chaetodipus fallax fallax*	CSC/ Group 2	4 (10)	6 (9)	8 (15)	6 (10)	**24 (44)**
San Diego desert woodrat	*Neotoma lepida intermedia*	CSC/ Group 2	1 (3)	---	2 (5)	---	**3 (8)**
Woodrat	*Neotoma lfuscipens*	CSC/ Group 2	---	4 (10)	---	2 (4)	**6 (14)**
Western harvest mouse	*Reithrodontomys megalotis*	None	4 (7)	---	1 (1)	---	**5 (8)**
		Total	**41 (68)**	**35 (61)**	**45 (75)**	**40 (66)**	**161 (273)**

[1] **CSC**: California Special Concern Species (CDFG); **Group 2**: Animals declining, but not in immediate threat of extinction or extirpation (County)
[2] Includes all captures – some individuals may have previously been captured.

Four small mammal species were also detected during herpetological surveys: California vole (*Microtus californicus*), deermouse (*Peromyscus* sp.), cactus deermouse, and ornate shrew (*Sorex ornatus*).

4.3.4.2 Medium and Large Mammals

Three large mammal species were detected using the wildlife cameras operated during the medium and large mammal surveys: coyote (*Canis latrans*), bobcat (*Lynx rufous*), and mule deer (*Odocoileus hemionus*), a special-status species. Additional medium-sized mammals detected include raccoon (*Procyon lotor*). A few other species and disturbance factors were identified and are noted within the table below (Table 11).

The San Elijo Canyon and Escondido Creek area which runs through the northwest portion of the Cielo Azul parcel may function as a wildlife corridor directing wildlife in a general west/east direction. This is bolstered by the presence of steep terrain to the south and a road to the north. An existing trail probably fosters use by wildlife such as mule deer, coyotes, and bobcats as they will typically use these resources when traveling through difficult terrain. The remainder of the study area is generally open to wildlife movement with no specific routes that could be identified.

Table 11
Wildlife Camera Study Results

Observation[1]	M1 – Wild Willow Hollow			M2 - Escondido Creek			Total
	January 6–20	*February 10–28*	*March 1–28*	*January 8–17*	*February 10–28*	*March 2–18*	
Coyote	27	29	27	7	11	8	**109**
Mule deer	–	–	2	–	–	–	**2**
Bobcat	–	–	–	–	–	4	**4**
Raccoon	1	–	–	8	4	5	**18**
Hiker	6	14	8	–	1	1	**30**
Dog	10	14	16	–	–	–	**40**
Vehicle	–	–	1	–	–	–	**1**
Biker	8	–	4	–	–	–	**12**
Equestrian	–	–	2	–	–	–	**2**
Total	**52**	**57**	**60**	**15**	**16**	**18**	**218**

[1] Number identified refers to the total number of detections. In many cases these represent numerous visits by the same individual(s) over the study period. However, due to the study design (i.e., no mark and recapture involved) it is not possible to differentiate between individuals in most cases.

4.3.4.3 Bats

Seven bat species were identified within the Preserve using the Anabat and Sonobat survey systems including: big brown bat (*Eptesicus fuscus*), hoary bat (*Lasiurus cinereus*), canyon bat (*Parastrellus hesperus*), Brazilian free-tailed bat (*Tadarida brasiliensis*) western red bat (*Lasiurus blossevillii*), Yuma myotis (*Myotis yumanensis*), and pocketed free-tailed bat (*Nyctinomops femorosaccus*).

Table 12, Bat Survey Results by Survey Pass, shows the number of minutes of bat activity during each passive survey pass and number of detections (active survey). Table 13, Bat Survey Results by Location, shows the number of minutes of bat activity (passive survey) or number of detections (active survey) for each bat survey location. Number of minutes of bat activity is more useful than exact numbers of individuals because they are not marked and thus we are unable to differentiate between individuals. Minutes of activity can be analyzed and compared to other sites more directly for future management and monitoring efforts.

Table 12
Bat Survey Results by Survey Pass (in minutes of detection for passive surveys or number of detections for active surveys)

Species			First Pass[2] January 5 -31, 2011	Second Pass February 19 – March 18, 2011	Total[3]	*Active Pass April 4, 2011*
Common Name	*Scientific Name*	*Status[1]*				
Big brown bat	*Eptesicus fuscus*	None	0	1	**1**	
Western red bat	*Lasiurus blossevillii*	CSC, Group 2	108	126	**234**	
Hoary bat	*Lasiurus cinereus*	None	10	13	**23**	
Yuma myotis	*Myotis yumanensis*	Group 2	9	492	**501**	**1**
Pocketed free-tailed bat	*Nyctinomops femorosaccus*	CSC, Group 2	21	7	**28**	
Canyon bat	*Parastrellus hesperus*	None	9	38	**47**	
Brazilian free-tailed bat	*Tadarida brasiliensis*	None	25	65	**90**	**2**
		Total	**182**	**742**	**924**	**3**

[1] **CSC**: California Special Concern Species (CDFG); **Group 2**: Animals declining, but not in immediate threat of extinction or extirpation (County); **NCMSCP**: Proposed for coverage under the Draft North County MSCP (February 2008)
[2] Refer to Table 3 for the specific dates of each bat survey location.
[3] Total for Passive surveys only.

Table 13
Bat Survey Results by Location (in minutes of detection for passive surveys or number of detections for active surveys)

Species			Location[2]			Total[3]
Common Name	*Scientific Name*	*Status[1]*	*B1*	*B2*	*B3*	
Big brown bat	*Eptesicus fuscus*	None	0	0	1	**1**
Western red bat	*Lasiurus blossevillii*	CSC/Group 2	5	13	216	**234**
Hoary bat	*Lasiurus cinereus*	None	0	1	22	**23**
Yuma myotis	*Myotis yumanensis*	Group 2	1	2	498 (1)[4]	**501**
Pocketed free-tailed bat	*Nyctinomops femorosaccus*	CSC/Group 2	3	17	8	**28**
Canyon bat	*Parastrellus hesperus*	None	1	0	46	**47**
Brazilian free-tailed bat	*Tadarida brasiliensis*	None	13 (1)	10 (1)	67	**90**
		Total	**23**	**43**	**858**	**924**

[1] **CSC**: California Special Concern Species (CDFG); **Group 2**: Animals declining, but not in immediate threat of extinction or extirpation (County); **NCMSCP**: Proposed for coverage under the Draft North County MSCP (February 2008)
[2] Survey locations are shown on Figure 8.
[3] Totals are for passive surveys only – in minutes of detection.
[4] Numbers in parenthesis indicate active pass survey results.

4.3.5 Special-Status Wildlife Observed

A total of 29 special-status wildlife species were observed or detected on the Preserve during the 2010-11 surveys (Figures 11a–d). Of the special-status species observed within the study area, nine species are covered species under the North County MSCP. Observed special-status species are discussed below.

4.3.5.1 Herpetofauna

Western Spadefoot (*Spea hammondi*)

State Species of Special Concern, County Group 2, North County MSCP Covered Species

Western spadefoot is distributed throughout the Central Valley and foothill regions. It is found in the Coast Ranges from Santa Barbara County to the Mexican border (Zeiner et al. 1988). This species occurs in grasslands but can also occur in valley-foothill hardwood woodlands. Breeding and egg-laying occur almost exclusively in shallow, temporary pools, such as vernal pools, formed by winter rain. The first rains of the fall and winter season initiate breeding activity of the western spadefoot, and breeding activity is normally completed by the end of March. After breeding, much of the year is spent in underground burrows, which the adults construct (Zeiner et al. 1988).

Two male western spadefoot were detected February 23, 2011 during amphibian surveys conducted along Escondido Creek, both on site and on the adjacent Cielo Azul parcel of the Del Dios Preserve.

Coastal Western Whiptail (*Aspidoscelis tigris stejnegeri*)

County Group 2

Coastal western whiptail occurs primarily in hot, dry open areas with little vegetation, including chaparral, woodland, and riparian habitats (CaliforniaHerps 2009). The coastal western whiptail occurs in coastal Southern California, ranging north into Ventura County and south into Baja California. Coastal western whiptails forage on small lizards and invertebrates, especially spiders, scorpions, centipedes, and termites. Coastal western whiptails lay eggs April to August (CaliforniaHerps 2009).

Coastal western whiptail was observed north and south of Harmony Grove Road in April 2011 (Figure 11d).

San Diego Ringneck Snake (*Diadophis punctatus similis*)

County Group 2

San Diego ringneck snake is widespread from the coast to the mountains at elevations from sea level to 7,000 feet, and is frequently found in coastal sage, chaparral, oak woodlands, pinyon-juniper woodlands, riparian areas and grasslands (Lemm 2006). This species uses damp environments like rotting logs, leaf litter, burrows, and rocks to seek out prey such as salamanders, lizards, frogs, earthworms and small snakes (Lemm 2006). Breeding occurs in May through June when females will lay up to 10 eggs in aerated soil; the eggs hatch approximately one month later (Zeiner et al. 1988).

One female San Diego ringneck snake was observed during aquatic surveys conducted in February along Escondido Creek (Figure 11d).

***Coronado Skink* (*Eumeces skiltonianus interparietalis*)**

State Species of Special Concern, County Group 2

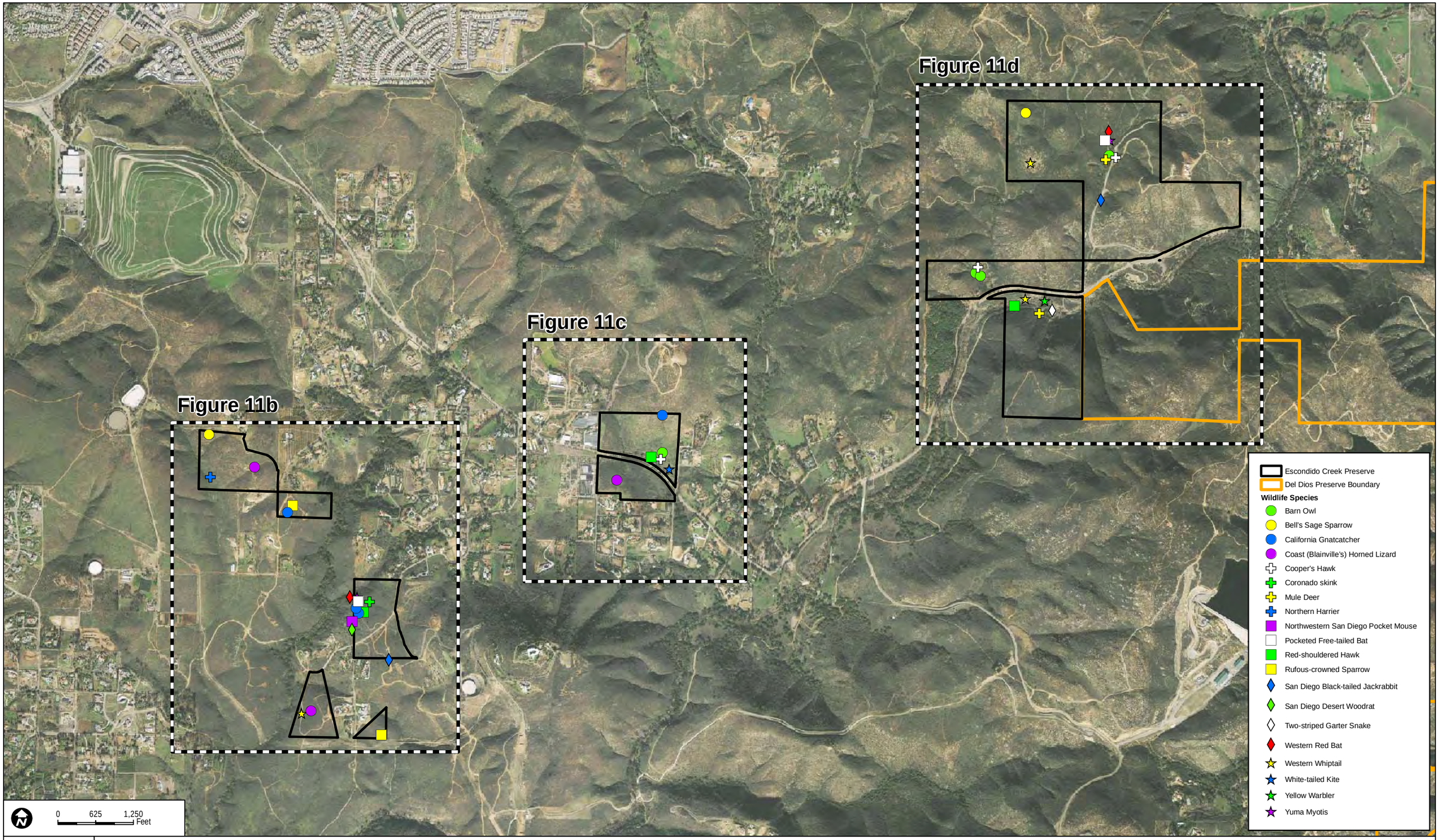
Coronado skink occurs in rocky areas near streams with vegetation, but is also found in areas away from water (CaliforniaHerps 2009). It occurs in grassland, woodlands, pine forests, chaparral, and in open sunny areas such as clearings. Coronado skink is found inland in southern California, south through the north Pacific coast region into Baja California. Coronado skink feeds on insects and other small invertebrates, especially spiders and sow bugs. The skinks lay 2 to 10 eggs in June and July, which hatch late in July and August (CaliforniaHerps 2009).

During the pitfall trap surveys, two Coronado skink individuals were captured in pitfall trap array HA1 on February 22, 2011 (Table 8, Figure 11b).

Coast Horned Lizard (*Phrynosoma blainvillei*)

State Species of Special Concern, County Group 2, North County MSCP Covered Species

Coast horned lizard inhabits valley-foothill hardwood, conifer, pine-cypress, juniper, annual grassland, and riparian habitats (Zeiner et al. 1988). The coast horned lizard occurs throughout the central and Southern California coast up to 6,000 feet and the Sierra Nevada foothills from Butte County to Kern County up to 4,000 feet (Zeiner et al. 1988). Horned lizards forage on the ground in open areas. Coast horned lizards' diet consists primarily of ants, but also includes large numbers of small beetles when especially abundant, and can include wasps, grasshoppers, flies, and caterpillars. In Southern California, egg-laying occurs from late May through June; the mean clutch size is 13 eggs (Zeiner et al. 1988).



DUDEK

6680-01

SOURCE: Digital Globe 2008

FIGURE 11a

Special Status Wildlife Species

Escondido Creek Preserve - Baseline Biodiversity Survey

INTENTIONALLY LEFT BLANK

Escondido Creek Preserve

Wildlife Species (# = population count)

- Bell's Sage Sparrow
- California Gnatcatcher
- Coast (Blainville's) Horned Lizard
- Coronado skink
- Northern Harrier
- Northwestern San Diego Pocket Mouse
- Pocketed Free-tailed Bat
- Red-shouldered Hawk
- Rufous-crowned Sparrow
- San Diego Black-tailed Jackrabbit
- San Diego Desert Woodrat
- Western Red Bat
- Western Whiptail
- Yuma Myotis

0 200 400 Feet

DUDEK

6680-01

SOURCE: NAIP 2009

FIGURE 11b

Special Status Wildlife Species

Escondido Creek Preserve - Baseline Biodiversity Survey

INTENTIONALLY LEFT BLANK

Escondido Creek Preserve

Wildlife Species (# = population count)

- Barn Owl
- California Gnatcatcher
- Cooper's Hawk
- Coast (Blainville's) Horned Lizard
- Red-shouldered Hawk
- White-tailed Kite

0 150 300 Feet

DUDEK

SOURCE: NAIP 2009

FIGURE 11c

Special Status Wildlife Species

6680-01

Escondido Creek Preserve - Baseline Biodiversity Survey

INTENTIONALLY LEFT BLANK

Escondido Creek Preserve
Del Dios Preserve Boundary

Wildlife Species (# = population count)

- Barn Owl
- Bell's Sage Sparrow
- Cooper's Hawk
- Mule Deer
- Pocketed Free-tailed Bat
- Red-shouldered Hawk
- San Diego Black-tailed Jackrabbit
- Two-striped Garter Snake
- Western Red Bat
- Western Whiptail
- Yellow Warbler
- Yuma Myotis
- San Diego Ringneck Snake
- Gadwall
- Great Blue Heron
- Northwestern San Diego Pocket Mouse
- Western Spadefoot Toad

0 275 550 Feet

DUDEK

6680-01

SOURCE: NAIP 2009

FIGURE 11d

Special Status Wildlife Species

Escondido Creek Preserve - Baseline Biodiversity Survey

INTENTIONALLY LEFT BLANK

Coast horned lizard was observed east of Sea Quest Trail and south of Canyon de Oro (Figures 11a and b), and south of Elfin Forest Road (Figure 11c) in April 2011.

Two-striped Garter Snake (*Thamnophis hammondii*)

State Species of Special Concern, County Group 1, North County MSCP Covered Species

Two-striped garter snake occurs along the coast of California from Monterrey County to the east desert of Victorville and down to San Diego County (Lemm 2006). Two-striped garter snake inhabits areas with sufficient water vegetation; such as pools, creeks, riparian areas chaparral, bushland and coniferous forests (Lemm 2006). Two-striped garter snake occurs at an elevation range of sea level to 8,000 feet (Lemm 2006). Two-striped garter snake has a diet that consists of frogs, salamanders, and fish and their eggs, and is able to climb trees up to 9 feet (Lemm 2006). Breeding occurs in the spring and as many as 36 live young are born in early fall (Lemm 2006).

Two male two-striped garter snakes were observed during aquatic surveys conducted in February along Escondido Creek. One on site and one on the adjacent Cielo Azul parcel of the Del Dios Preserve (Figure 11d).

4.3.5.2 Birds

Cooper's Hawk (*Accipiter cooperii*)

State Watch List, County Group 1

Cooper's hawk inhabits live oak, riparian deciduous or other forest habitats near water. Nesting and foraging usually occur near open water or riparian vegetation. Nests are built in dense stands with moderate crown depths, usually in second-growth conifer or deciduous riparian areas. Nests in deciduous trees are typically located in crotches 20 to 50 feet above the ground; in conifers, nests are in horizontal branches or the main crotch. Cooper's hawks use patchy woodlands and edges with snags for perching and hunting small birds, small mammals, reptiles, and amphibians (Zeiner et al. 1990a). Cooper's hawks are diurnally active and yearlong residents. Breeding occurs from March through August, with peak activity in May through July. Males defend an area about 330 feet around potential nest sites (Zeiner et al. 1990a).

Cooper's hawk was observed during avian bird count surveys in February and March 2011 at the bird point count locations north of Elfin Forest Road (A2), both north and south of Harmony Grove Road (A5 and A6), and along Wild Willow Hollow (A3) (Figures 11c&d). No nests were observed.

Southern California Rufous-crowned Sparrow *(Aimophila ruficeps canescens)*

State Watch List, County Group 1, MSCP Covered Species

Southern California rufous-crowned sparrow inhabits mixed chaparral and coastal sage scrub. In California, its range extends southward from Mendocino and Tehama counties, being most numerous in the western part of this range (Zeiner et al. 1990a). Rufous crowned-sparrows breed and forage on dry grass and/or forb-covered hillsides with scattered shrubs and rock outcrops. Nests are usually made on the ground, at the base of grass tussock or shrubs. It is a year-round resident and diurnally active, eating mostly insects and spiders during the breeding season, and seeds, grass and forb shoots throughout the year. It breeds from mid-March to mid-June with a peak in May. In southern California coastal sage scrub, the average sized territory is about two acres (Zeiner et al. 1990a).

One Southern California rufous-crowned sparrow was previously observed in the southeastern portion of the site during botanical surveys in May 2001 (RECON 2001). Two southern California rufous-crowned sparrows were also recorded East of Seaquest Trail and also east of Paint Mountain Road in February 2011 (Figure 11b). It is likely that this species breeds on site since it was observed during the breeding season and suitable habitat is present on site. Southern California rufous-crowned sparrow is well documented as a San Diego County breeding bird (Unitt 2004).

Bell's Sage Sparrow (*Amphispiza belli belli*)

State Watch List, County Group 1, North County MSCP Covered Species

Bell's sage sparrow inhabits chaparral dominated by chamise, and coastal scrub dominated by sage in cismontane California (Zeiner et al. 1990a). Sage sparrows nest in a cup of dry twigs and stems on the ground beneath a shrub or in a shrub usually near the ground, but up to 39 inches above the ground. This species feeds on insects, spiders, and seeds while breeding, and eats mainly seed in winter (Zeiner et al. 1990a). Bell's sage sparrows are residents from Marin County along the coast to Trinity County inland and south through coastal California to Baja California. This subspecies also occurs on the western slope of central Sierra Nevada from El Dorado County south to Mariposa County (Martin and Carlson 1998). Sage sparrows breed from late March to mid-August, with peak activity in May and June (Zeiner et al. 1990a).

Bell's sage sparrow was observed west of Sea Quest Trail (Figure 11b) and north of Harmony Grove Road (Figure 11d) in February and March 2011.

Gadwall (*Anas strepera*)

County Group 2

Gadwall is a duck found in interior valleys, wetlands, ponds, and streams throughout most of California. It may occur year-round in southern California. The gadwall uses freshwater lacustrine and emergent habitats, and to a lesser extent, estuarine and saline emergent habitats to forage and rest while nesting occurs in herbaceous and cropland habitats. Gadwalls glean the surface or subsurface waters for aquatic plants, such as grasses, sedges, pondweeds, and algae, and may also eat seeds and cultivated grains. Although mostly plant-based, their diet also includes aquatic invertebrates, especially insects, mollusks, and crustaceans, which are important to breeding adults and young ducklings. Gadwall usually nests from April to July and will lay 8 to 12 eggs per clutch (Zeiner et al. 1990a).

Gadwall was observed adjacent to Escondido Creek during aquatic surveys (Figure 11d).

Great Blue Heron (*Ardea herodias)*

County Group 2

Great blue heron is found in estuaries, and both fresh and saline wetlands throughout most of California where they feed off mostly fish and sometimes amphibians, small rodents, lizards, and birds (Zeiner et al 1990a). Great blue heron nests at the top of tall groves of trees near feeding areas, where the most active feeding takes place yearlong around dawn and dusk (Zeiner et al. 1990a). Great blue heron does very little migrating, many depart eastern and northeastern areas during winter. Great blue heron usually lay 3-5 eggs in February or March and the young are born approximately one month after (Zeiner et al. 1990a).

Great blue heron was observed adjacent to Escondido Creek during the February surveys (Figure 11d).

Canada Goose (*Branta canadensis*)

County Group 2

Canada goose is generally a year-round resident in northeastern California. Elsewhere in California, wintering populations migrate to breeding grounds in northeastern California, several western states, Canada, and Alaska. Canada goose is found in lacustrine, fresh emergent wetlands, and moist grasslands, croplands, pastures, and meadows (Zeiner et al 1990a). In California, the Canada goose consumes mostly green shoots, seeds of cultivated grains, wild grasses and forbs, and aquatic plants. Canada goose nests near water (Zeiner et al. 1990a).

Canada goose usually lays 4 to 6 eggs and typically nests March to June in northeastern California, and February to June on coastal slopes (Zeiner et al. 1990a).

Canada goose was observed flying overhead during the 2011 surveys.

Red-Shouldered Hawk (*Buteo lineatus*)

County Group 1

Red-shouldered hawk occurs throughout the coast of California and in the Central Valley in woodlands, swamps, wetlands, or dense riparian habitats up to 5,000 feet in elevation (Zeiner et al. 1990a). Red-shouldered hawk forages for small mammals, snakes, lizards, amphibians, birds and large insects in dense riparian foliage (Zeiner et al. 1990a). Red-shouldered hawk nests near permanent water, usually about half way up tall trees in dense riparian areas with edges adjacent to swamps, marshes, and wet meadows (Zeiner et al. 1990a). Peak breeding activity occurs in April and May and hawks will lay between 1 and 5 eggs in their clutch (Zeiner et al. 1990a). Territoriality displays against red-tailed hawks and golden eagles are common (Zeiner et al. 1990a).

Red-shouldered hawk was observed or detected on the western portion of the Preserve adjacent to Canyon de Oro (Figures 11b) and on the central parcel of the Preserve north of Elfin Forest Road (Figure 11c) during avian bird count surveys on March 29, 2011. Red-shouldered hawk was also observed on site and within the Escondido Creek portion of the adjacent Del Dios Highlands Preserve, during the 2010-11 surveys.

Turkey Vulture (*Cathartes aura*)

County Group 1

Turkey vulture most regularly inhabits a wide variety of habitats including pastured rangeland, non-intensive agriculture, and wild areas, with rock outcrops suitable for nesting. Turkey vultures feed on a wide variety of carrion, consisting largely of mammals, ranging from rodents to large ungulates (Kirk and Mossman 1998). Turkey vulture nests primarily on rocky cliffs or slopes. In California, this species occurs year-round in the Coast Ranges and inland. It breeds in the eastern portion of the state (Kirk and Mossman 1998).

Turkey vultures were often observed flying over the site during the spring; however, there is no suitable nesting habitat on site.

Northern Harrier (*Circus cyaneus*)

State Species of Special Concern, County Group 1, North County MSCP Covered Species

Northern harrier inhabits meadows, grasslands, open rangelands, desert sinks, and fresh and saltwater emergent wetlands; this species is rarely found in wooded areas. Northern harriers nest in shrubby vegetation on the ground, usually at the edge of a marsh, and feed on voles and other small mammals, birds, frogs, small reptiles, crustaceans, and insects; northern harriers rarely feed on fish (Zeiner et al. 1990a). Northern harrier is a permanent resident in the northeastern plateau and coastal areas of California and a less common resident of the Central Valley. This species is a widespread winter resident and migrant in suitable habitat.

Northern harrier was observed east of Sea Quest Trail in March 2011 (Figure 11b). However, there is no suitable nesting habitat present on the Escondido Creek Preserve, so this species likely only uses the site for foraging purposes.

Yellow Warbler (*Dendroica petechia brewsteri*)

State Species of Special Concern, County Group 2

Yellow warbler breeds in California's riparian woodlands, montane chaparral, ponderosa pine, and mixed conifer habitats ranging from coastal and desert lowlands up to 8,000 feet in the Sierra Nevada (Zeiner et al. 1990a) It arrives in California in April and is gone by October. Yellow warbler feeds on insects and spiders found in riparian deciduous habitats (Zeiner et al. 1990a). Yellow warbler nests in territories where there is both tall trees for singing and a dense brush understory for nesting (Zeiner et al. 1990a). Peak breeding activity occurs in June when females lay 3-6 eggs; the young begin to breed the following year (Zeiner et al. 1990a).

Male yellow warblers were detected along Escondido Creek both on site and on the adjacent Cielo Azul parcel of the Del Dios Preserve, during the late March surveys (Figure 11d).

White-tailed Kite (*Elanus leucurus caeruleus*)

State Fully Protected, County Group 1

White-tailed kites occur mainly in lowlands of southern and northwestern cismontane California in savanna, open woodland, marshes, cultivated fields and partially cleared lands (Zeiner et al 1990a). White-tailed kites hunt in the morning and late afternoon for voles and mice usually near farmlands. There are no known migrations for the white-tailed kite (Zeiner et al. 1990a). Nests are made of piled sticks and twigs and placed near the tops of oak, willow or other trees near

marshes and foraging areas (Zeiner et al. 1990a). Peak breeding occurs from May to August and females lay 3-5 eggs incubating for approximately one month (Zeiner et al. 1990a).

White-tailed kite was observed at the same location within the central parcel of the Preserve north of Elfin Forest Road during botanical surveys on January 28, 2011 and on March 18, 2011 (Figure 11c).

White-faced Ibis (*Plegadis chihi*)

State Watch List, County Group 1, North County MSCP Covered Species

White-faced ibis is an uncommon summer resident in parts of southern California, a rare visitor in the Central Valley, is more widespread in migration, and no longer breeds regularly anywhere in California. This species feeds on earthworms, insects, crustaceans, amphibians, small fishes, and invertebrates in fresh emergent wetland, shallow lacustrine waters, muddy ground of wet meadows, and irrigated or flooded pastures and croplands. Nesting habitat consists of dense, fresh emergent wetland. Nests are made of dead tules or cattails in tall marsh plants or on mounds of vegetation, (Zeiner et al. 1990a). Eggs were present May to July at Los Banos. Females typically lay 3-5 eggs and incubate them for approximately 21 days (Zeiner et al. 1990a).

White-faced ibis was observed flying overhead during 2011 surveys on site. However, suitable nesting, foraging, or roosting habitat is not present on the Preserve.

Coastal California Gnatcatcher (*Polioptila californica californica*)

Federally Threatened, State Species of Special Concern, County Group 1, North County MSCP Covered Species

Coastal California gnatcatcher is distributed from eastern Orange and southwestern Riverside counties south through the coastal foothills of San Diego County, and along the coast at Palos Verdes Peninsula. It typically occurs below 820 feet 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). Coastal California gnatcatcher is closely associated with coastal sage scrub habitat, and is thereby threatened primarily by loss, degradation, and fragmentation of this habitat. Gnatcatcher is also impacted by brown-headed cowbird (*Molothrus ater*) nest parasitism (Braden et al. 1997).

The Preserve contains USFWS designated critical habitat for California gnatcatcher. This species was observed during avian point count surveys on the central parcel of the Preserve north of Elfin Forest Road (Figure 11c). One individual was observed on January 6, 2011 and two individuals were observed on February 14, 2011. California gnatcatcher was also observed

in the far western portions of the Preserve north of Canyon de Oro and east of Sea Quest Trail (Figure 11b).

Barn Owl (*Tyto alba*)

County Group 2

Barn owl inhabits a variety of open habitats. Barn owls nest in cavities, both natural and man-made, including trees, cliffs, caves, riverbanks, church steeples, barn lofts, haystacks, and artificial nest boxes. Barn owls feed at night and locate prey by sound. Their diet consists primarily of rodents, but also includes shrews, bats, and leporids (rabbits and hares) and less frequently includes birds, reptiles, amphibians, and arthropods (Marti et al. 2005). Barn owls breed and winter throughout lowlands and lightly forested foothills in California. Where climate permits, barn owls can breed year-round (Marti et al. 2005).

Barn owl was observed during the night-time avian bird count surveys in January, February, and March at the bird point count locations adjacent to Canyon de Oro (A1), north of Harmony Grove Road (A5), and along Wild Willow Hollow (A3) (Figures 11b&d).

Western Bluebird (*Siala mexicana*)

County Group 2

Western bluebird inhabits open coniferous and deciduous woodlands, riparian woodlands, grasslands, coastal chaparral, desert habitats, and farmlands. Western bluebirds nest in rotted or previously excavated cavities in trees and snags, or between the trunk and bark of a tree. Western bluebirds feed on insects, small fruits, and seeds (Guinan et al. 2008). In California, western bluebird breeds from the Oregon border south to the area of Mono, Kern, and Santa Barbara counties, and from Ventura, Los Angeles, and San Bernardino counties south through the Transverse and Peninsular Ranges of southwestern California to southern San Diego County. Western bluebird winters in all areas west of the Klamath, Salmon, Trinity, and Panamint Mountains (Guinan et al. 2008).

Western bluebirds were observed at various locations along Escondido Creek during the winter and spring surveys. Western bluebirds have not been recorded as breeding regularly in San Diego County until recently. Although this species could breed on site, based on the late winter/early spring season observation, it may only be wintering on site.

California Gull (*Larus californicus*)

State Watch List, County Group 2

California gull is a fairly common nester east of the Sierra Nevada and Cascades and an abundant visitor to coastal and interior lowlands during the nonbreeding season. This species feeds on garbage, carrion, earthworms, adult insects, and larvae in winter and also eat larval insects, brine shrimp, and young birds on breeding grounds. Inland, the California gull occupies lacustrine, riverine, and cropland habitats, landfill dumps, and open lawns in cities. It nests in alkali and freshwater lacustrine habitats. Nests are scraps lined with grasses, feathers, or rubble (Zeiner et al. 1990a). California gull typically nests in colonies from mid-April through mid-August and produces a clutch size of 1 to 3 eggs (Zeiner et al. 1990a).

California gull was observed within the Preserve during 2011 surveys on site. However, suitable nesting, foraging, or roosting habitat is not present on the Preserve.

4.3.5.3 Mammals

Northwestern San Diego Pocket Mouse *(Chaetodipus fallax fallax)*

State Species of Special Concern, County Group 2

San Diego pocket mouse occurs mainly in the arid coastal and desert border areas of San Diego County, but also occurs in parts of Riverside and San Bernardino counties, from sea level to 6,000 feet AMSL. It inhabits coastal scrub, chamise-redshank chaparral, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon-juniper, and annual grassland, usually in sandy herbaceous areas with rocks or course gravel (Zeiner et al. 1990b). San Diego pocket mouse feeds mostly on seeds of forbs, grasses, and shrubs, but also eats some insects. San Diego pocket mice carry seeds in cheek pouches and store them in and around the burrow (Zeiner et al. 1990b). San Diego pocket mouse generally breeds from March to May with an average of four young per litter (Zeiner et al. 1990b).

Northwestern San Diego pocket mouse was detected during small mammal trapping near Canyon De Oro Road during both trapping sessions. A total of 25 individuals were caught during surveys, 13 of which were recaptured individuals (Table 10; Figure 11b). Northwestern San Diego pocket mouse was also detected on the adjacent existing Del Dios Highlands Preserve (TAIC 2008).

San Diego Desert Woodrat (*Neotoma lepida intermedia*)

State Species of Special Concern, County Group 2

San Diego desert woodrat occurs throughout San Diego County at elevations from sea level to 8,500 feet AMSL. It inhabits desert habitats including Joshua tree, pinyon-juniper, mixed and chamise-redshank chaparral, sagebrush, and most desert habitats. It is abundant in rocky areas (Zeiner et al. 1990b). The woodrat constructs houses or middens of twigs, sticks, cactus parts, and rocks. The middens are used for nesting, food caching, and predator escape. The San Diego desert woodrat eats buds, fruits, seeds, bark, leaves, and young shoots of a variety of plants (Zeiner et al. 1990b). San Diego desert woodrat generally breeds from October to May. It nests solitarily, and the average litter size ranges from one to five offspring (Zeiner et al. 1990b).

San Diego desert woodrat was captured eight times, five of which were recaptured individuals, during the small mammal trapping at the trapline adjacent to Canyon Del Oro Road during both sessions of trapping in 2011 (Figure 11b; Table 10).

Western Red Bat (*Lasiurus blossevillii*)

State Species of Special Concern, County Group 2

Western red bat occurs in California from Shasta County to the Mexican border and west of the Sierra Nevada/Cascade crest and deserts. Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests (Zeiner 1990b). The species feeds over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands. The western red bat is not found in desert areas. It roosts primarily in trees, and less often in shrubs, in edge habitats adjacent to streams, fields, or urban areas. Western red bat prefers edges or habitat mosaics that have trees for roosting and open areas for foraging.

Western red bat was detected during both passes of bat surveys at Escondido Creek, along Canyon de Oro Road, and Wild Willow Hollow Road (Figures 11b&d).

Yuma Myotis (*Myotis yumanensis*)

County Group 2

Yuma myotis occurs throughout California, but is uncommon in the Mojave and Colorado desert regions except the mountain ranges bordering the Colorado River Valley. They can be found in many habitat types, but prefer open forests and woodlands with sources of water they can forage over (Zeiner et al. 1990b). Yuma myotis ranges from sea level to 11,000 feet in elevation, but is generally found below 8,000 feet (Zeiner et al. 1990b). Yuma myotis roosts in groups of several

thousand in caves buildings, mines, and under bridges (Zeiner et al. 1990b). Reproduction for Yuma myotis begins in the fall and a single litter of one young is born sometime between May and June (Zeiner et al. 1990b).

Yuma myotis was observed during both passes of bat surveys conducted on the Preserve and at every station (Figures 11a-d).

San Diego Black-Tailed Jackrabbit (*Lepus californicus bennettii*)

State Species of Special Concern, County Group 2, North County MSCP Covered Species

San Diego black-tailed jackrabbit is found in coastal scrub and chaparral areas in San Diego, Riverside, San Bernardino, and Los Angeles counties (Zeiner et al. 1990b). San Diego black-tailed jackrabbit is herbivorous and grazes on grasses and forbs in the area as well as uses the shrubs for cover (Zeiner et al. 1990b). San Diego black-tailed jackrabbit breeds throughout the year and young are born beneath vegetation (Zeiner et al. 1990b). A litter of 3-4 offspring is produced 4 times throughout the year depending environmental conditions (Zeiner et al. 1990b).

Black-tailed jackrabbit was observed south of Canyon de Oro (Figure 11b) and north and south of Harmony Grove Road (Figure 11d) during the 2010-11 surveys. They occurred in more open sage scrub habitats or on trails.

Mule Deer (*Odocoileus hemionus*)

County Group 2

Southern mule deer occur throughout California and much of the western U.S. and Great Plains, north into Canada, and south to the southern end of the Mexican Plateau. Southern mule deer inhabit a broad range of habitats including agricultural and suburban areas, desert, woodlands and forests, grassland and herbaceous vegetation communities, savanna, shrubland, and chaparral. Mule deer are herbivorous and browse on a variety of woody plants, grasses, and forbs (NatureServe 2009). Breeding typically peaks late November to mid-December (NatureServe 2009).

Wildlife cameras on site detected two individual mule deer at M1 along Wild Willow Hollow Road in March 2011 (Figures 11a-d). However, it is likely several individuals commonly traverse the study area as pellets were routinely discovered across the Preserve.

Pocketed Free-tailed Bat (*Nyctinomops femorosaccus*)

State Species of Special Concern, County Group 2

Pocketed free-tailed bat occurs in San Diego, Riverside, and Imperial counties and is more common in Mexico. Pocketed free-tailed bat inhabits pinyon-juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oasis. Pocketed free-tailed bats roost in rock crevices, caverns, or buildings and feed on flying insects, especially large moths, detected by echolocation (Zeiner et al. 1990b). Pocketed free-tailed bats bear a single litter with one young in June and July, peaking in late June (Zeiner et al. 1990b).

Pocketed free-tailed bat was detected during both passes of bat surveys at each station within the Preserve (Figures 11b&d).

4.3.6 Special-Status Wildlife with High Potential to Occur

Based on an analysis of the elevation, soils, vegetation communities, and level of disturbance of the Preserve in conjunction with the known distribution of special-status species in the vicinity and the results of focused wildlife surveys, 11 wildlife species have a high potential to occur within the Preserve.

Orange-Throated Whiptail (*Aspidoscelis hyperythra*)

State Species of Special Concern, County Group 2, North County MSCP Covered Species

Orange-throated whiptail occurs in low-elevation coastal scrub, chamise-redshank chaparral, mixed chaparral, and valley-foothill hardwood habitats (Zeiner et al. 1988). Orange-throated whiptail occurs in Orange, Riverside, and San Diego counties west of the crest of the Peninsular Ranges, and in southwestern San Bernardino County near Colton. It extends up to 3,410 feet AMSL (Zeiner et al. 1988). Orange-throated whiptails forage on the ground and scratch through surface debris for food. Their diet consists of a variety of small arthropods, especially termites. Orange-throated whiptails likely lay eggs in loose, well-aerated soil under or near surface objects, or at the base of dense shrubs (Zeiner et al. 1988).

Orange-throated whiptail was previously detected on the adjacent Del Dios Highlands Preserve (TAIC 2008) and may occur in the southern mixed chaparral and coastal sage scrub on site.

Rosy Boa (*Charina trivirgata roseofusca*)

County Group 2

Rosy boa is widely but sparsely distributed in desert and chaparral habitats throughout southern California, south of Los Angeles, from the coast to the Mojave and Colorado Deserts (Zeiner et al. 1988). Rosy boa inhabits arid scrublands, semi-arid shrublands, rocky shrublands, rocky deserts, canyons, and other rocky areas. The species appears to be common in riparian areas, but does not require permanent water (CaliforniaHerps 2009). Rosy boa kills prey by constriction, and its diet includes rodents, small birds, lizards, small snakes, and amphibians (CaliforniaHerps 2009). Rosy boa is live-bearing, and young are born from October to November. Rosy boa is mostly nocturnal (Zeiner et al. 1988).

Rosy boa was observed during the 2010-11 surveys conducted on the adjacent Del Dios Highlands Preserve (Dudek 2011a) and has a high potential to occur in the southern mixed chaparral and coastal sage scrub on site.

Northern Red-diamond Rattlesnake (*Crotalus ruber ruber*)

State Species of Special Concern, County Group 2, North County MSCP Covered Species

Northern red diamond rattlesnake is distributed along coastal San Diego County to the eastern slopes of the mountains and north through western Riverside County into southernmost San Bernardino County. It occurs from sea level to 900 meters (3,000 feet) in chaparral, woodland, and arid desert habitats in rocky areas and dense vegetation (Zeiner et al. 1988). Northern red-diamond rattlesnake eats small mammals, including ground squirrels, wood rats, rabbits, lizards, and birds (CaliforniaHerps 2009). Northern red-diamond rattlesnake is primarily nocturnal and crepuscular during periods of excessive daytime heat (CaliforniaHerps 2009). Northern red-diamond rattlesnake young are live-born from July to September (CaliforniaHerps 2009).

Northern red-diamond rattlesnake has a high potential to occur on site because the Preserve contains suitable habitat and this species was observed during the 2010-11 surveys conducted on the adjacent Del Dios Highlands Preserve (Dudek 2011a).

Coast Patch-nosed Snake (*Salvadora hexalepis virgultea*)

State Species of Special Concern, County Group 2

Coast patch-nosed snake occurs in California from the northern Carrizo Plains in San Luis Obispo County, south through the coastal zone, south and west of the deserts, and into coastal

northern Baja California, Mexico. It inhabits semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains. Coast patch-nosed snake is active during daylight, even in times of extreme heat. The diet of this species consists primarily of lizards, along with small mammals, and possibly small snakes, nestling birds, and amphibians (CaliforniaHerps 2009).

Coast patch-nosed snake was previously detected on the adjacent Del Dios Highlands Preserve (TAIC 2008) and may occur within the southern mixed chaparral and coastal sage scrub on site.

Dulzura (California) Pocket Mouse (*Chaetodipus californicus femoralis*)

State Species of Special Concern, County Group 2

Dulzura pocket mouse inhabits coastal scrub, chamise-redshank, montane chaparral, sagebrush, grassland, valley foothill hardwood, valley foothill hardwood-conifer, and montane hardwood habitats from San Francisco Bay to Mexico (Zeiner et al. 1990b). Dulzura pocket mouse eats the seeds of annual grasses and forbs, insects and leafy vegetation in brushy areas while foraging mainly from the ground (Zeiner et al. 1990b). The pocket mouse is nocturnal and reduces activity during cold winters (Zeiner et al. 1990b). Between April and June, usually 4 offspring are born in the burrows pocket mice dig in soft soil (Zeiner et al. 1990b).

Dulzura pocket mouse was previously detected on the adjacent Del Dios Highlands Preserve (TAIC 2008) and has a high potential to occur on site given the presence of suitable habitat.

Townsend's Big-eared Bat (*Corynorhinus townsendii*)

State Species of Special Concern, County Group 2, North County MSCP Covered Species

Townsend's big-eared bat is distributed throughout California, but is most common in mesic habitats (Zeiner et al. 1990b). Townsend's big-eared bat roosts in caves, tunnels, or mines and the maternity roosts usually consist of small groups of less than 100 individuals (Zeiner et al 1990b). Townsend's big-eared bat feeds mainly on moths and sometimes soft bodied insects that they find at night by using echolocation (Zeiner et al. 1990b). Mating occurs between November and February and one offspring is born between May and June (Zeiner et al 1990b). Hibernation occurs from October through April (Zeiner et al 1990b).

Townsend's big-eared bat was detected during bat the 2010-11 surveys conducted at the adjacent Del Dios Highlands Preserve (Dudek 2011a) and has a high potential to occur on site given the presence of suitable habitat.

Greater Western Mastiff Bat (*Eumops perotis californicus*)

State Species of Special Concern, County Group 2

Greater western mastiff bat is found in San Joaquin Valley and coastal Ranges from Monterey County down through southern California, from the coast eastward to the Colorado Desert in open arid habitats including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, and desert scrub (Zeiner et al 1990b). Greater western mastiff bat is nocturnal and feeds while in flight on small low-flying insects (Zeiner et al. 1990b). Greater western mastiff bats typically roost alone in rock crevices, trees, cliff faces or buildings (Zeiner et al. 1990b). Reproduction begins in spring and one offspring is produced each year (Zeiner et al. 1990b).

Greater western mastiff bat was previously detected on the adjacent Del Dios Highlands Preserve (TAIC 2008) and has a high potential to occur on site given the presence of suitable habitat.

Western Yellow Bat (*Lasiurus xanthinus*)

State Species of Special Concern

Western yellow bat occurs year-round in California and is only known from Los Angeles and San Bernardino counties, south to the Mexican border. This species occurs in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats below 2,000 feet in elevation (Zeiner 1990b). Western yellow bats roosts and feed in and around palm oases and riparian habitats. This species gives birth in June and July, with peak birthing in mid-June. Western yellow bats produce a single litter per year that averages two young, but ranges from 1 to 5 young (Zeiner et al. 1990b).

Western yellow bat was detected during the 2010-11 bat surveys conducted at the adjacent Del Dios Highlands Preserve (Dudek 2011a) and has a high potential to occur on site given the presence of suitable habitat.

Big Free-tailed Bat (*Nyctinomops macrotis*)

State Species of Special Concern, County Group 2

Big free-tailed bat is a permanent resident of San Diego County in areas with rugged, rocky canyon terrain and up to 8,000 feet in elevation (Zeiner et al. 1990b). Big free-tailed bat roosts in crevices in high cliffs and rocky outcrops and forages for large moths late in the evening (Zeiner et al. 1990b). Young big free-tailed bats are born in June and July in nursery roosts found in high rocky crevices (Zeiner et al 1990b).

Big free-tailed bat was detected during the 2010-11 bat surveys conducted at the adjacent Del Dios Highlands Preserve (Dudek 2011a) and has a high potential to occur on site given the presence of suitable habitat.

Mountain Lion (*Felis concolor*)

County Group 2, North County MSCP Covered Species

Mountain lions range throughout most of California. In general, they occupy areas wherever deer or bighorn sheep are present. The most suitable mountain lion habitats include foothills and mountains. Although deer are their main food source, mountain lions have also been known to take livestock and pets (CDFG 2007).

Mountain lion scat and tracks were observed during the 2010-11 surveys conducted on the adjacent Del Dios Highlands Preserve (Dudek 2011a) and this species has a high potential to occur on site given the presence of its main food source (mule deer) and suitable habitat within the Preserve.

4.3.7 Non-native and/or Invasive Species

Two brown-headed cowbird individuals were detected along Escondido Creek during the butterfly survey conducted on March 3, 2011. Although only two brown-headed cowbirds were observed, the data may understate the level of cowbird use on site as cowbirds breed primarily between April and May and most work was conducted outside that window. The entire site would provide suitable breeding resources for them. In addition to the cowbird, Virginia opossum was detected along Escondido Creek in the adjacent Cielo Azul parcel of the Del Dios Preserve and is expected to occur on site. European starling (*Sturnus vulgaris*) was observed throughout the Preserve. Opossum are omnivorous and occur through the west, while starlings are cavity nesters, which outcompete native bird species for nest resources.

4.4 Wildlife Movement

The Preserve serves as an important part of a corridor connecting the coast to substantial open space in the inland portions of North and East San Diego County. The corridor connects the Preserve area to the coast through Escondido Creek. This corridor is somewhat fragmented given the development of this region. Specifically, urban development borders this drainage in some areas, which constricts wildlife movement. Along the coast, the open space is more extensive; San Elijo lagoon is surrounded by significant conserved natural areas. Because Escondido Creek contains water throughout the year, many species, including large mammals, are able to reside permanently and maintain stable populations within the corridor (TAIC 2008).

The corridor's core area lies west of I-15 and encompasses the Preserve, Del Dios Highlands Preserve, Elfin Forest Recreational Reserve, and the open space around Olivenhain Reservoir and Lake Hodges. Although wildlife are largely unable to pass over the interstate, most mammals can pass under the I-15 overpass of Lake Hodges. The corridor widens east of I-15 into the San Pasqual Valley, which is mostly open space, agriculture, and ranches. East of San Pasqual Valley, the corridor widens farther to include the largely undeveloped lands of Rancho Guejito, Boden Canyon, and the Cleveland National Forest (TAIC 2008).

The general area may function to convey large and small mammals within and through the Preserve because evidence is provided by the wildlife cameras of the presence of mule deer and coyote. Observation of mammal tracks and scat were documented anecdotally throughout the Preserve within no specific areas of concentrated activity. Deer and coyote may use the path of least resistance, which can include drainages, ridgelines, and the numerous dirt roads that are on site depending on time of day. Constraints to movement include the disjunct nature of the various Preserve parcels. Winged species such as birds and bats are not restricted to specific routes or linkage areas since these species are able to move freely over the entire site.

5.0 CONCLUSIONS AND MANAGEMENT RECOMMENDATIONS

Surveys conducted in 2010–2011 documented 13 vegetation communities or land cover types and 184 plant and 145 wildlife species within Preserve. The surveys detected 4 amphibians, 12 reptiles, 83 birds, 31 mammals, and 15 butterflies. This list includes 35 special-status species, of which 11 are covered species under the North County MSCP (9 wildlife and 2 plants).

This section provides resource-specific conclusions and management recommendations for each vegetation community and taxonomic group assessed during the 2010-11 survey effort. These recommendations are based on the results of the baseline biological diversity surveys, and the management and monitoring guidelines and conservation goals provided in the North County MSCP Framework Resource Management Plan (FRMP) (County of San Diego 2009). The FRMP includes: plan-wide stewardship and management guidelines; habitat- and species-specific management guidelines; and monitoring guidelines; as well as specific conservation goals for each of the 23 planning segments identified in the North County MSCP. The Preserve parcels are located within the Elfin Forest and Harmony Grove core area planning segments.

It should be noted that currently the North County MSCP FRMP does not detail the exact methods that should be implemented when conducting covered species monitoring, although the plan does suggest that the methods should be consistent with the monitoring methods that are being implemented by the South County MSCP.

5.1 Vegetation Communities/Habitat

The study area consists of 13 vegetation communities and land cover types (including disturbed forms) consisting of riparian habitats, coastal sage scrub, chaparral, grasslands and oak woodlands. As part of the Elfin Forest and Harmony Grove core areas, the FRMP conservation goals for the Preserve include the protection of the Escondido Creek floodplain, and minimization of impacts to coastal sage scrub and chaparral.

Areas along Escondido Creek in the eastern portion of the Preserve consist of riparian habitat including southern coast live oak riparian forest, southern riparian woodland, and southern willow scrub. The FRMP indicates the biggest challenges facing these habitats are related to hydrology and invasive species, and the management and monitoring guidelines provided for these habitats are specific to these threats. Specific recommendations regarding invasive species and hydrology are discussed in Sections 5.4 and 5.8.7, respectively.

The majority of the Preserve consists of coastal sage scrub, chaparral, and grassland habitats with several small areas of oak woodland in the eastern portion of the Preserve south of Harmony Grove Road. The challenges noted in the FRMP that these habitats face are primarily associated with fire

and invasive species. Fire recommendations are discussed in Section 5.6 and invasive species recommendations are discussed in Section 5.4.

Additionally, it is recommended that the County conduct on-going habitat monitoring within the Preserve to maintain an up-to-date inventory of the distribution and species composition, and other basic characteristics of the vegetation communities on site. Ongoing monitoring within the Preserve will identify any adverse changes in vegetation community distribution and habitat quality, such as changes from fire, invasion by non-natives or decline of existing species, and indicate if modifications to current management actions are needed. Per the FRMP, habitat monitoring should be repeated at least once every five years and should follow the CNPS Vegetation Rapid Assessment Protocol (CNPS 2004).

5.2 Plants

The 2010-11 survey effort documented six special-status plant species: wart-stemmed ceanothus, San Diego sagewort, San Diego marsh-elder, southwestern spiny rush, San Diego goldenstar, and ashy spike-moss. The North County MSCP recommends periodic botanical surveys in order to monitor covered plant species. Surveys should be scheduled during the appropriate time of year to maximize detection. The 2010-11 plant species compendium for the Preserve is based on limited surveys conducted in the fall and late winter (due to constraints of the contract period), and it is assumed that many spring-flowering species may have been missed. Therefore, additional surveys during the early to mid spring (late March to May) are recommended to ensure a complete the list of plant species present within the Preserve.

Wart-stemmed ceanothus and San Diego goldenstar are North County MSCP covered species, and MSCP recommended measures for species-specific management of these species are addressed below.

Wart-stemmed ceanothus

Wart-stemmed ceanothus is abundant in the Harmony Grove Core Area forming dense stands and one of the conservation goals for this area includes protecting this species. FRMP species-specific management measures for sensitive species are currently under development; however, wart-stemmed ceanothus is identified as a primary species that will benefit from the recommended resource management actions for chaparral habitats. The primary threats to this species include development and associated side effects including fuel modification, fire suppression, and invasion of non-native plants.

Wart-stemmed ceanothus is a highly fire-adapted species whose fire response is seed germination from a persistent seed bank after exposure to intense heat (*e.g.*, an obligate seeder after fire) (Keeley 1991). *Ceanothus* species are generally not considered to be very long lived.

Fire is necessary to provide for periodic natural reproduction to insure a sustainable population. Therefore, effective conservation of this species should include a fire management plan that incorporates controlled burn strategies for regeneration. Wart-stemmed ceanothus occurs in the northeastern and northwestern portions of the Preserve, generally as a common component of southern mixed chaparral in these areas. The most recent fire that affected much of the area where this species is mapped occurred in 1996 (Figure 6). Additional recommendations regarding fire management are addressed in Section 5.6.

Invasive non-native species do not appear to be affecting the observed stands of wart-stemmed ceanothus at this time; however, the invasive plant species should be monitored for any adverse effects they may have on wart-stemmed ceanothus in the future. Specific recommendations regarding non-native species are addressed in Section 5.4.

San Diego Goldenstar

The only mapped population of San Diego goldenstar in the North County MSCP planning area is within the Elfin Forest Core Area and one of the conservation goals for this area is to protect this species. FRMP species-specific management measures for sensitive species are currently under development; however, San Diego goldenstar is identified as a primary species that will benefit from the recommended resource management actions for coastal sage scrub, chaparral and grassland habitats.

San Diego goldenstar is threatened by urbanization, road construction, vehicles, non-native plants, and illegal dumping (CNPS 2010). The population of this species within the study area would not be subject to these threats with the exception of non-native plants. Invasive non-native species do not appear to be affecting the observed population of San Diego goldenstar at this time; however, the invasive plant species should be monitored for any adverse effects they may have on San Diego goldenstar in the future. Specific recommendations regarding non-native species are addressed in Section 5.4.

In addition, the FRMP discusses the methods that will be used to determine the species that will be monitored for trends in population change. The criteria that will be used to determine the species that will be monitored include: the ability to count all individuals or sample populations; an indication that the species is sensitive to anthropogenic threats; and natural history traits that allow the species to respond to these threats. Wart-stemmed ceanothus and San Diego goldenstar may be appropriate to monitor for population size changes, although this species is a common component of the southern mixed chaparral on site. If appropriate, monitoring of this species will be designed to identify the status or trends of the populations. Monitoring is recommended to follow the methods developed within the FRMP.

5.3 Wildlife

The current survey effort documented nine MSCP-covered wildlife species. Species-specific measures for management and monitoring of sensitive species are currently under development in the FRMP. Once these are developed, the County should include recommendations for of the proposed covered species on site. In the meantime, the FRMP indicates that the management recommendations provided for specific habitat types are intended to be adequate for the conservation of all species proposed for coverage under the North County MSCP.

5.3.1 Invertebrates

No special-status invertebrate species were observed or detected within the study area; however, based on a site assessment, much of the habitat within the study area would be considered suitable for Quino checkerspot butterfly. Quino checkerspot is covered under the North County MSCP. While the Preserve is outside of the USFWS focused survey area, this species was recorded in the area in the 1930s (TAIC 2008). It is recommended that future vegetation monitoring and plant surveys include mapping of Quino checkerspot preferred host plants. Areas with observed host plants should be protected or restored to allow establishment of these populations to aide in recovery of Quino checkerspot in the area.

5.3.2 Herptofauna

Amphibians

The North County MSCP covered western spadefoot was detected during aquatic surveys along Escondido Creek in February 2011. This species will benefit from the recommended resource management actions for riparian habitats as discussed in Section 5.1. Future monitoring of this species should follow the recommendations identified by the final North County MSCP FRMP.

Reptiles

Two North County MSCP covered species were observed on site, including two-striped garter snake and coast horned lizard. Coast horned lizard is identified in the FRMP as a primary species that will benefit from the recommended resource management actions for coastal sage scrub, chaparral, and grassland habitats, and two-striped garter snake will benefit from the recommended resource management actions for riparian habitats as discussed in Section 5.1. Monitoring protocols, including survey methods and frequencies, for these two species will follow those recommended by the final North County MSCP FRMP.

Many reptiles, especially coast horned lizard, are the focus of the public for unauthorized collection. Signage should be in place to inform the public of the impact of collection on these

species and that there are penalties for unauthorized collection. In addition, this species may be adversely affected by the invasive, non-native Argentine Ant, which can displace native ants that are an important food source for coast horned lizard. Recommended measures to protect against Argentine ants are discussed below in Section 5.4.2.

5.3.3 Birds

Proposed covered bird species of the North County MSCP that were observed include Bell's sage sparrow, white-faced ibis, coastal California gnatcatcher, Southern California rufous-crowned sparrow, and northern harrier. Monitoring protocols, including survey methods and frequencies, for these five species should follow those recommended by the final North County MSCP FRMP. The FRMP indicates that Bell's sage sparrow, California gnatcatcher and rufous-crowned sparrow are primary species that will benefit from recommended management actions for coastal sage scrub, chaparral and grassland habitats, as discussed in Section 5.1. Northern harrier will also benefit from these management actions and white-faced ibis will benefit from the recommended resource management actions for riparian habitat. In addition, Bell's sage sparrow, California gnatcatcher and rufous-crowned sparrow will benefit from FRMP recommended management actions for the invasive brown-headed cowbird. Recommended measures to protect against brown-headed cowbird are addressed in Section 5.4.2.

5.3.4 Mammals

San Diego black-tailed jackrabbit is the only proposed North County MSCP covered mammal species that was observed on the Preserve. Monitoring protocols, including survey methods and frequencies, for this species should follow those recommended by the final North County MSCP FRMP. In addition, the FRMP indicates San Diego black-tailed jackrabbit is a primary species that will benefit from recommended management actions for coastal sage scrub, chaparral and grassland habitats, as discussed in Section 5.1.

5.4 Non-Native Invasive Species Removal and Control

5.4.1 Plants

Eleven of the 20 invasive non-native plant species observed within the Preserve have been identified as target species in need of removal and control. A removal priority ranking system was established for these target species to assist management efforts. The criteria used for assigning removal priority rankings for the invasive non-native species included an evaluation of the Cal-IPC rating, the current cover and distribution in the Preserve, the potential for invading sensitive habitat and the potential for increasing fire intensity. These species and associated management/control recommendations are presented below along with a removal priority ranking. Table 14 summarizes this information. Species ranked as high priority are

recommended for control as soon as possible; species ranked as moderate priority are recommended for control as soon as high priority species are under control; and species ranked as low priority are recommended for control after high and moderate priority species are under control (Dudek 2011b).

Table 14
Removal Priority of Target Invasive Non-Native Species

Common Name	Scientific Name	Removal Priority
Eucalyptus	*Eucalyptus* spp.	High
Castor Bean	*Ricinus communis*	High
Fountain Grass	*Pennisetum setaceum*	Moderate
Pampas Grass	*Cortaderia selloana*	Moderate
Tree Tobacco	*Nicotiana glauca*	Moderate
Tamarisk (Salt Cedar)	*Tamarix ramosissima*	Moderate
Peruvian Peppertree	*Schinus molle*	Moderate
Pine Trees (non-native varieties)	*Pinus* spp.	Low
Sweet Fennel	*Foeniculum vulgare*	Low
Canary Island Date Palm	*Phoenix canariensis*	Low
Italian Thistle	*Carduus pycnocephalus*	Low

The selection of the appropriate removal methodology should be determined with consideration of many variables, including the time of year, severity of infestation, the presence of sensitive plants and wildlife, the degree of intermixing of invasive species with sensitive native habitats, access, and proximity to surface water. The U.S. Army Corps of Engineers and California Department of Fish and Game should be consulted regarding potential permitting requirements if invasive removal will occur in waterways or wetlands under their jurisdiction. Removal methods may include manual removal, mechanical removal, herbicides, and cut and daub. The *Escondido Creek Preserve Vegetation Management Plan* (Dudek 2011b) provides more information.

5.4.2 Wildlife

Brown-headed cowbirds were detected in the riparian habitat along Escondido Creek. This species is known to parasitize the nests of native songbirds, including Bell's sage sparrow, coastal California gnatcatcher and rufous-crowned sparrow (County of San Diego 2009; Zeiner et al 1990a). Although only two brown-headed cowbirds were observed, the data may understate the level of cowbird use on site as cowbirds breed primarily between April and May and most of the surveys were conducted from January through March. The FRMP states if management of cowbird populations within the Preserve is determined to be necessary, possible control methods include trapping adults or removing eggs from host nests (County of San Diego 2009). Additional monitoring and documentation to determine the distribution and abundance of brown-

headed cowbirds on site during the breeding season is recommended to understand the extent of breeding activity and the extent to which native species may be impacted.

Virginia opossum is a non-native species that may eat native birds, reptiles, and amphibians. However, this species is typically only of concern in urban areas and is not likely to adversely affect the Preserve, so no management actions are recommended at this time.

European starling may take over the cavity nest resources in an area, thus outcompeting native cavity nesters and reducing their reproductive success. Species which might be affected by European starlings include woodpeckers, bluebirds, wrens, and others. This is a region-wide issue and resources would probably not be well spent attempting to address the issue on this particular Preserve. Starling travel large distances between nesting and foraging resources, so would likely just re-occupy managed areas. They are probably best controlled en mass on wintering roost sites.

Non-native Argentine ants often displace native ants, an important food source for the coast horned lizard, which occurs on site. The FRMP suggests restriction of litter and food waste, inspection of planting stock, and education of nearby residents on measures they can take to reduce the risk and extent of invasion (County of San Diego 2009). Argentine ants are generally associated with a water source. It is recommended that monitoring for this invasive species be conducted within the more mesic portion of the Preserve and especially along Escondido Creek.

5.5 Restoration Opportunities

The Preserve is generally composed of high quality native vegetation communities and habitat restoration opportunities are limited within the Preserve. Within the Preserve, 2.9 acres of disturbed habitat are proposed for restoration, which primarily include old dirt road spurs, graded turnarounds and non-native plant removal areas.

Two methods of restoration are proposed for the disturbed areas within the Preserve: (1) passive restoration and (2) active restoration. Passive restoration involves performing weed and erosion control, as needed, in disturbed areas where natural recruitment of native plant species is actively occurring. Active restoration involves soil preparation and planting of disturbed or degraded areas where native vegetation recruitment is not actively occurring. Active restoration is recommended on cleared areas that are not showing significant natural recruitment of native plant species, and/or that are degraded from erosion (Dudek 2011b). Of the 2.9 acres proposed for restoration, 0.9 acre is identified as passive restoration and 2.0 acres as active restoration. *The Escondido Creek Preserve Vegetation Management Plan* (Dudek 2011b) identifies these specific restoration areas and details restoration methods.

5.6 Fire Management

The North County FRMP identifies the following threats to chaparral, coastal sage scrub, and grassland habitats posed by fire: affects recruitment of new trees, alters species composition, affects sensitive species both directly and indirectly through loss of habitat, damages soils, causes erosion, and removes the soil seed bank. Suggested guidelines for management and monitoring of the threats posed to vegetation communities by fire include prescribed fires where appropriate and public outreach and enforcement to prevent human-caused ignition of fires, review of fire history maps, inspection of fuel management zones, and post-fire management (County of San Diego 2009).

A Vegetation Management Plan is being developed for the Preserve (Dudek 2011b) and includes both a short-term tactical fire suppression plan and long-term strategic vegetation management plan, which considers strategic fire prevention activities, fire suppression with regard to fire effects on habitat, and post-fire monitoring and rehabilitation (Dudek 2011b). Fuel management recommendations include prescriptions specific to the high value vegetation resources present on site (i.e., annual grasslands, coastal sage scrub, southern mixed chaparral, coast live oak woodland, and southern coast live oak riparian forest areas), based on a combination of prevention practices including grazing, mowing, herbicides, prescribed fire, thinning, and fuel breaks. Preserve management recommendations that would complement fuel reduction practices are also identified, including maintaining and delineating fuel modification zones, providing emergency fire access, promoting data sharing, controlling illegal access, public education, ignition reduction, fuels management, and fire suppression (Dudek 2011b).

5.7 Wildlife Linkages and Corridors

Wildlife are expected to move freely within the Preserve given that is relatively open and the entire area is accessible to medium and large mammals. However, it is disjunct and the preservation status of intervening lands is unknown. Escondido Creek supports some wildlife movement along this riparian corridor, however, it did not appear that movement focused on this area. The entire Preserve is currently surrounded by open space or low-density development. Development in the vicinity of Elfin Forest Road and the western parcels may interfere with movement between the parcels in the future. Wildlife can probably also connect to the Del Dios Preserve area to the east.

Per the FRMP, target species for corridor use include California gnatcatchers, mountain lion, and southern mule deer, all of which were observed or detected within the study area. Monitoring protocol for dispersal of California gnatcatchers is still under development and should follow any recommendations identified in the final FRMP. Corridor usage by mammals should be monitored as described below.

Monitoring stations should be established along Escondido Creek and near dirt trails/roads that facilitate movement. At these stations, track identification, scat identification, and video observation methods should be employed to determine use by target mammal species. Wildlife corridor monitoring should occur every 5 years along each major corridor. The scope of monitoring will be sufficient to determine if corridors are being utilized, but not to determine the extent of use (i.e., how many individuals of any given species use a corridor).

5.8 Additional Management Recommendations

In some cases, additional management has been recommended to protect the biological resources within the Preserve.

5.8.1 Public Access

The Preserve is currently not open to the public except in those areas where existing community trails cross through the Preserve parcels. Recreational use of these trails is generally limited to passive uses (hiking or equestrian use) by residents in the surrounding communities. Public access is also possible along the multiple utility roads throughout the Preserve, which may function as informal trails. The portions of the community trails that cross through the Preserve and the utility roads should be regularly monitored to ensure that any recreational use is not adversely affecting the adjacent vegetation communities.

If, in the future, DPR decides to open the Preserve to the public, a comprehensive Public Access Plan should first be developed to determine the appropriate level of public access and recreational use within the Preserve, and provide recommendations for preferred trail alignments and features consistent with the protection and enhancement of biological and cultural resources.

5.8.2 Fencing and Gates

Gates are present where trails meet existing roads in most locations throughout the Preserve. These gates function to control unauthorized public access in the Preserve and should be regularly inspected and maintained to ensure they are in good working order.

5.8.3 Signage and Education

Preserve rules and regulations (e.g., Off Roading and ATV Activity Prohibited, Smoking and Open Flames Prohibited, No Trespassing, No Dumping, No Hunting) signs are currently posted on the existing gates located throughout the Preserve. These signs should be regularly inspected, kept free from vandalism, and repaired or replaced as necessary.

5.8.4 Hydrological Management

The North County MSCP Plan FRMP indicates some of the biggest challenges to riparian habitats, such as those within the Preserve along Escondido Creek, are directly related to hydrology factors including accumulation of contaminants in water sources, alteration of hydrologic regimes, and erosion due to human uses.

These threats are best addressed at the watershed level. Given that the project site includes a very small portion of the watershed, there are limited site-specific activities that can be done to control pollution or hydrologic changes that would impact riparian habitat. The majority of the effort aimed at protecting riparian habitat within Escondido Creek should be directed toward cooperation with regional watershed management efforts to address pollution and hydromodification. These efforts are principally led by the RWQCB through issuance of State Construction General Permit and Municipal Stormwater Permits and related stormwater management programs. Within the Preserve, maintenance of riparian cover along creek banks is the surest method of minimizing erosion and maximizing potential for nutrient transformation and pollutant removal.

In conjunction with the habitat monitoring described in Section 5.1, a visual assessment of channel conditions should be conducted. Where channel conditions are considered poor (e.g., unstable banks), follow up surveys should be conducted to determine if management actions are necessary. Currently, OMWD and the County of San Diego Flood Control District hold a conservation easement and flowage easement, respectively, over Escondido Creek. Where necessary, coordination with these agencies to determine appropriate measures to stabilize banks and control erosion should be undertaken.

In addition, land use adjacent to the creek bed and floodplain should be limited. Currently the City of Escondido holds a sewer easement and maintains a utility road south of the Creek, which may be used as an informal trail. Any off-trail use along the City of Escondido sewer easement should be controlled through installation of signage, access road management, and regular patrols as necessary. Such actions should be coordinated with the City of Escondido.

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APPENDIX A

Escondido Creek Preserve
Plant Species List

APPENDIX A
Escondido Creek Preserve Plant Species List

VASCULAR PLANT SPECIES

LYCOPODS

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

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

FERNS

***POLYPODIACEAE* – POLYPODY FERN FAMILY**

Polypodium californicum – California polypody

***PTERIDACEAE* – BRAKE FAMILY**

Pentagramma triangularis – goldenback or silverback fern

CONIFERS

***PINACEAE* – PINE FAMILY**

Pinus sp. – pine

ANGIOSPERMS (DICOTS)

***ANACARDIACEAE* – SUMAC FAMILY**

Malosma laurina – laurel sumac
Rhus integrifolia – lemonadeberry
* *Schinus molle* – Peruvian peppertree
Toxicodendron diversilobum – western poison oak

***APIACEAE* – CARROT FAMILY**

* *Conium maculatum* – poison-hemlock
* *Foeniculum vulgare* – fennel
* *Pastinaca sativa* – common parsnip
Sanicula arguta – sharp–toothed sanicle

***ASTERACEAE* – SUNFLOWER FAMILY**

Ambrosia acanthicarpa – annual bur-sage
Artemisia californica – California sagebrush
Artemisia palmeri – San Diego sagewort
Baccharis pilularis – chaparral broom, coyote brush
Baccharis salicifolia – mulefat, seep-willow, water-wally

Brickellia californica – California brickellbush
* *Carduus pycnocephalus* – Italian thistle
* *Centaurea melitensis* – tocalote
Chaenactis glabriuscula var. *glabriuscula* – yellow pincushion
* *Chamomilla suaveolens* – pineapple weed, rayless chamomile
Cirsium scariosum – meadow thistle
Conyza canadensis – horseweed
Corethrogyne filaginifolia – sand aster
* *Dimorphotheca sinuate* – African daisy
Encelia californica – California encelia
Eriophyllum confertiflorum var. *confertiflorum* – long-stem golden yarrow
* *Glebionis coronarium* – crown daisy
Gnaphalium bicolor – bicolor cudweed
Gnaphalium californicum – California everlasting
Gnaphalium canescens – white everlasting
Gnaphalium stramineum – cotton–batting plant
Hazardia squarrosa – saw–toothed goldenbush
* *Hedypnois cretica* – Crete hedypnois
Helianthus annuus – common sunflower
Helianthus gracilentus – slender sunflower
Heterotheca grandiflora – telegraph weed
* *Hypochaeris glabra* – smooth cat's ear
Isocoma menziesii –spreading goldenbush
Iva hayesiana – San Diego marsh-elder
Lasthenia gracilis – common goldfields
Layia platyglossa – common tidy tips
Pentachaeta aurea – golden-ray pentachaeta
* *Picris echioides* – bristly oxtongue
Rafinesquia californica – California chicory
* *Silybum marianum* – blessed milkthistle
* *Sonchus asper* –spiny sowthistle

***BORAGINACEAE* – BORAGE FAMILY**
Amsinckia menziesii –rancher's fireweed
Cryptantha micrantha – redroot cryptantha

***BRASSICACEAE* – MUSTARD FAMILY**
* *Brassica nigra* – black mustard
Cardamine californica – milkmaids, toothwort

* *Hirschfeldia incana* – shortpod mustard
Lepidium nitidum – shining pepper-grass
* *Raphanus sativus* – radish

***CACTACEAE* – CACTUS FAMILY**
* *Opuntia ficus–indica* – Indian-fig
Opuntia littoralis – coastal prickly-pear
Opuntia oricola – oracle cactus

***CAPRIFOLIACEAE* – HONEYSUCKLE FAMILY**
Sambucus nigra – blue elderberry

***CARYOPHYLLACEAE* – PINK FAMILY**
* *Silene gallica* – common catchfly
* *Stellaria media* – common chickweed

***CHENOPODIACEAE* – GOOSEFOOT FAMILY**
* *Salsola tragus* – Russian thistle

***CISTACEAE* – ROCK–ROSE FAMILY**
Helianthemum scoparium – peak rush-rose

***CONVOLVULACEAE* – MORNING–GLORY FAMILY**
Calystegia macrostegia – morning-glory

***CRASSULACEAE* – STONECROP FAMILY**
Crassula connata – pygmy-weed
Dudleya edulis – ladies' fingers
Dudleya pulverulenta – chalky live-forever

***CUCURBITACEAE* – GOURD FAMILY**
Marah macrocarpus – manroot, wild-cucumber

***CUSCUTACEAE* – DODDER FAMILY**
Cuscuta sp. – dodder

***ERICACEAE* – HEATH FAMILY**
Xylococcus bicolor – mission manzanita

***EUPHORBIACEAE* – SPURGE FAMILY**
Chamaesyce albomarginata – rattlesnake weed
Ricinus communis – castor bean

***FABACEAE* – LEGUME FAMILY**

Lathyrus vestitus – wild pea
* *Lathyrus odoratus* – sweet pea
Lotus scoparius – deerweed
Lotus strigosus – strigose deerweed
Lupinus bicolor – miniature lupine
Lupinus hirsutissimus – stinging lupine
Lupinus truncatus – collar lupine
* *Melilotus indica* – sourclover
* *Parkinsonia aculeata* – Mexican palo verde
Trifolium sp. – clover

***FAGACEAE* – OAK FAMILY**

Quercus agrifolia – coast live oak

***GERANIACEAE* – GERANIUM FAMILY**

* *Erodium botrys* – broadleaf filaree
* *Erodium cicutarium* – redstem filaree
* *Geranium dissectum* – cut–leaf geranium

***GROSSULARIACEAE* – CURRANT FAMILY**

Ribes indecorum – white flowering currant
Ribes speciosum – fuschia–flowered gooseberry

***HYDROPHYLLACEAE* – WATERLEAF FAMILY**

Emmenanthe penduliflora – whispering bells
Eucrypta chrysanthemifolia – common eucrypta
Phacelia cicutaria – caterpillar phacelia
Pholistoma auritum – fiesta flower

***LAMIACEAE* – MINT FAMILY**

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

***LINACEAE* – FLAX FAMILY**

Linum lewisii – Lewis flax

***MALVACEAE* – MALLOW FAMILY**

Malacothamnus fasciculatus – chaparral bushmallow

* *Malva parviflora* – cheeseweed, little mallow
Sidalcea malviflora ssp. *sparsifolia* – checker-bloom

***MYRTACEAE* – MYRTLE FAMILY**
* *Eucalyptus* sp. – eucalyptus

***NYCTAGINACEAE* – FOUR O'CLOCK FAMILY**
Mirabilis laevis var. *crassifolia* – wishbone bush

***OLEACEAE* – OLIVE FAMILY**
* *Olea europaea* – olive

***ONAGRACEAE* – EVENING–PRIMROSE FAMILY**
Camissonia sp. – sun cup

***OROBANCHACEAE* – BROOM–RAPE FAMILY**
Castilleja affinis ssp. *affinis* – coast paintbrush
Castilleja exserta ssp. *exserta* – common owl's-clover
Cordylanthus sp. – bird's beak

***OXALIDACEAE* – WOOD–SORREL FAMILY**
Oxalis albicans – California wood-sorrel
* *Oxalis pes–caprae* – Bermuda buttercup

***PAEONIACEAE* – PEONY FAMILY**
Paeonia californica – California peony

***PAPAVERACEAE* – POPPY FAMILY**
Eschscholzia californica – California poppy
Romneya sp. –matilija poppy

***PHRYMACEAE* — HOPSEED FAMILY**
Mimulus aurantiacus – coast monkey flower, bush monkey flower

***PLANTAGINACEAE* – PLANTAIN FAMILY**
Keckiella cordifolia – climbing bush penstemon
Keckiella ternata – scarlet keckiella
Plantago erecta – dot–seed plantain
* *Plantago lanceolata* – English plantain

***PLATANACEAE* – SYCAMORE FAMILY**
Platanus racemosa – California sycamore

***POLEMONIACEAE* – PHLOX FAMILY**

Gilia sp. – gilia
Linanthus dianthiflorus – farinose ground pink
Navarretia atractyloides – holly-leaf skunkweed

***POLYGONACEAE* – BUCKWHEAT FAMILY**

Eriogonum fasciculatum – California buckwheat
Pterostegia drymarioides – granny's hairnet
* *Rumex crispus* – curly dock
Rumex salicifolius – willow dock

***PORTULACACEAE* – PURSLANE FAMILY**

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

***PRIMULACEAE* – PRIMROSE FAMILY**

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

***RANUNCULACEAE* – CROWFOOT FAMILY**

Aquilegia formosa – western columbine

***RHAMNACEAE* – BUCKTHORN FAMILY**

Ceanothus leucodermis – chaparral whitethorn
Ceanothus tomentosus – Ramona-lilac
Ceanothus verrucosus – wart-stemmed ceanothus
Rhamnus ilicifolia – holly-leaf redberry

***ROSACEAE* – ROSE FAMILY**

Adenostoma fasciculatum – chamise
Cercocarpus betuloides var. *betuloides* – birch-leaf mountain-mahogany
Heteromeles arbutifolia – toyon
Rubus ursinus – California blackberry

***RUBIACEAE* – MADDER FAMILY**

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

***RUTACEAE* – RUE FAMILY**

Cneoridium dumosum – bushrue

***SALICACEAE* – WILLOW FAMILY**

Salix lasiolepis – arroyo willow

***SCROPHULARIACEAE* – FIGWORT FAMILY**

Scrophularia californica var. *floribunda* – California figwort

***SOLANACEAE* – NIGHTSHADE FAMILY**

Datura wrightii – jimson weed

* *Nicotiana glauca* – tree tobacco

Solanum douglasii – Douglas' nightshade

Solanum parishii – Parish's nightshade

***TAMARICACEAE* – TAMARISK FAMILY**

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

***VIOLACEAE* – VIOLET FAMILY**

Viola pedunculata – Johnny-jump-up

ANGIOSPERMS (MONOCOTS)

***ARECACEAE* – PALM FAMILY**

* *Phoenix canariensis* – Canary Island date palm

***CYPERACEAE* – SEDGE FAMILY**

Carex triquetra – triangular-fruit sedge

***IRIDACEAE* – IRIS FAMILY**

Sisyrinchium bellum – blue-eyed-grass

***JUNCACEAE* – RUSH FAMILY**

Juncus acutus ssp. *leopoldi* – southwestern spiny rush

Juncus balticus – wire rush

***LEMNACEAE* – DUCKWEED FAMILY**

Lemna miniscula – least duckweed

***LILIACEAE* – LILY FAMILY**

Calochortus sp. – mariposa lily

Chlorogalum parviflorum – small-flowered soap plant

Dichelostemma capitatum – blue dicks

Muilla clevelandii – San Diego goldenstar

Muilla maritima – common muilla
Yucca whipplei – our lord's candle
Zigadenus fremontii – Fremont's camas

***POACEAE* – GRASS FAMILY**

Achnatherum coronatum – giant stipa
* *Arundo donax* – giant reed
* *Avena barbata* – slender wild oat
* *Avena fatua* – wild oat
* *Bromus diandrus* – ripgut brome
* *Bromus hordeaceus* – soft brome
* *Bromus madritensis* ssp. rubens – foxtail chess
* *Bromus tectorum* – downy brome
* *Cortaderia selloana* – pampas grass
Distichlis spicata – saltgrass
* *Gastridium ventricosum* – nit grass
* *Hordeum marinum* – Mediterranean barley
* *Lamarckia aurea* – golden–top
Leymus condensatus – giant wild rye
Nassella pulchra – purple needlegrass
* *Pennisetum setaceum* – crimson fountaingrass
* *Rhynchelytrum repens* – Natal grass
* *Vulpia myuros* – rattail fescue

***TYPHACEAE* – CATTAIL FAMILY**

Typha domingensis – slender cattail
Typha latifolia – broad–leaved cattail

* signifies introduced (non–native) species

APPENDIX B

Escondido Creek Preserve
Wildlife Species List

APPENDIX B
Escondido Creek Preserve Wildlife Species List

WILDLIFE SPECIES – VERTEBRATES

AMPHIBIANS

***PLETHODONTIDAE* – LUNGLESS SALAMANDERS**

Batrachoseps major – garden slender salamander

***PELOBATIDAE* – SPADEFOOT TOADS**

Spea hammondii – western spadefoot

***BUFONIDAE* – TRUE TOADS**

Anaxyrus boreas – western toad

***HYLIDAE* – TREEFROGS**

Hyla regilla – Pacific treefrog

REPTILES

***IGUANIDAE* – IGUANID LIZARDS**

Phrynosoma blainvillii – Blainville's horned lizard
Sceloporus occidentalis – western fence lizard
Sceloporus orcutti – granite spiny lizard
Uta stansburiana – common side-blotched lizard

***SCINCIDAE* – SKINKS**

Plestiodon skiltonianus interparietalis – Coronado skink

***TEIIDAE* – WHIPTAIL LIZARDS**

Aspidoscelis tigris stejnegeri – coastal western whiptail

***ANGUIDAE* – ALLIGATOR LIZARDS**

Elgaria multicarinata – southern alligator lizard

***BOIDAE* – BOAS**

Diadophis punctatus similis – San Diego ringneck snake
Lampropeltis getula – common kingsnake
Pituophis cantifer – gophersnake
Thamnophis hammondii – two-striped gartersnake

***VIPERIDAE* – VIPERS**

Crotalus oreganus – western rattlesnake

BIRDS

***ARDEIDAE* – HERONS, BITTERNS, AND ALLIES**

Ardea herodias – great blue heron
Ardea alba – great egret
Egretta thula – snowy egret

***THRESKIORNITHIDAE* – IBISES AND SPOONBILLS**

Plegadis chihi – white-faced ibis

***ANATIDAE* – DUCKS, GEESE, AND SWANS**

Anas acuta – northern pintail
Anas platyrhynchos – mallard
Anas strepera – gadwall
Aythya affinis – lesser scaup
Branta canadensis – Canada goose

***CATHARTIDAE* – NEW WORLD VULTURES**

Cathartes aura – turkey vulture

***ACCIPIITRIDAE* – HAWKS, KITES, EAGLES, AND ALLIES**

Accipiter cooperii – Cooper's hawk
Buteo jamaicensis – red-tailed hawk
Buteo lineatus – red-shouldered hawk
Circus cyaneus – northern harrier
Elanus leucurus – white-tailed kite

***FALCONIDAE* – CARACARAS AND FALCONS**

Falco sparverius – American kestrel

***ODONTOPHORIDAE* – NEW WORLD QUAIL**

Callipepla californica – California quail

***RALLIDAE* – RAILS, GALLINULES, AND COOTS**

Fulica americana – American coot

***CHARADRIIDAE* – LAPWINGS AND PLOVERS**

Charadrius vociferus – killdeer

***LARIDAE* – GULLS, TERNS, AND SKIMMERS**

Larus californicus – California gull

***COLUMBIDAE* – PIGEONS AND DOVES**

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

***CUCULIDAE* – CUCKOOS, ROADRUNNERS, AND ANIS**

Geococcyx californianus – greater roadrunner

***TYTONIDAE* – BARN OWLS**

Tyto alba – barn owl

***STRIGIDAE* – TYPICAL OWLS**

Bubo virginianus – great horned owl

***CAPRIMULGIDAE* – GOATSUCKERS**

Phalaenoptilus nuttallii – common poorwill

***APODIDAE* – SWIFTS**

Aeronautes saxatalis – white-throated swift

***TROCHILIDAE* – HUMMINGBIRDS**

Calypte anna – Anna's hummingbird
Calypte costae – Costa's hummingbird
Selasphorus sasin – Allen's hummingbird

***ALCEDINIDAE* – KINGFISHERS**

Ceryle alcyon – belted kingfisher

***PICIDAE* – WOODPECKERS AND ALLIES**

Colaptes auratus – northern flicker
Melanerpes formicivorus – acorn woodpecker
Picoides nuttallii – Nuttall's woodpecker
Sphyrapicus ruber – red-breasted sapsucker

***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
Tachycineta thalassina – violet-green swallow

***CORVIDAE* – CROWS AND JAYS**

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

***PARIDAE* – CHICKADEES AND TITMICE**

Baeolophus inornatus – oak titmouse

***AEGITHALIDAE* – LONG-TAILED TITS AND BUSHTITS**

Psaltriparus minimus – bushtit

***TROGLODYTIDAE* – WRENS**

Catherpes mexicanus – canyon wren
Salpinctes obsoletus – rock wren
Thryomanes bewickii – Bewick's wren
Troglodytes aedon – house wren

***POLIOPTILIDAE* – GNATCATCHERS AND GNATWRENS**

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

***TURDIDAE* – THRUSHES**

Sialia mexicana – western bluebird
Turdus migratorius – American robin

***SYLVIIDAE* – SYLVIID WARBLERS**

Chamaea fasciata – wrentit

***MIMIDAE* – MOCKINGBIRDS AND THRASHERS**

Mimus polyglottos – northern mockingbird
Toxostoma redivivum – California thrasher

***BOMBYCILLIDAE* – WAXWINGS**

Bombycilla cedrorum – cedar waxwing

***PTILOGONATIDAE* – SILKY-FLYCATCHERS**

Phainopepla nitens – phainopepla

***STURNIDAE* – STARLINGS**

* *Sturnus vulgaris* – European starling

***PARULIDAE* – WOOD-WARBLERS**

Dendroica coronata – yellow-rumped warbler
Dendroica petechia – yellow warbler
Geothlypis trichas – common yellowthroat
Oreothlypis celata – orange-crowned warbler
Wilsonia pusilla – Wilson's warbler

***EMBERIZIDAE* – EMBERIZIDS**

Aimophila ruficeps canescens – Southern California Rufous-crowned Sparrow
Amphispiza belli – sage sparrow
Chondestes grammacus – lark sparrow
Melospiza melodia – song sparrow
Melozone crissalis – California towhee
Pipilo maculatus – spotted towhee
Spizella atrogularis – black-chinned sparrow
Zonotrichia leucophrys – white-crowned sparrow

***ICTERIDAE* – BLACKBIRDS**

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

***FRINGILLIDAE* – FRINGILLINE AND CARDUELINE FINCHES AND ALLIES**

Carpodacus mexicanus – house finch
Spinus psaltria – lesser goldfinch

MAMMALS

***DIDELPHIDAE* – NEW WORLD OPOSSUMS**

* *Didelphis virginiana* – Virginia opossum

***SORICIDAE* – SHREWS**

Sorex ornatus – ornate shrew

***VESPERTILIONIDAE* – EVENING BATS**

Eptesicus fuscus – big brown bat
Lasiurus blossevillii – western red bat
Lasiurus cinereus – hoary bat
Myotis yumanensis – Yuma myotis
Parastrellus hesperus – canyon bat

***MOLOSSIDAE* – FREE-TAILED BATS**

Nyctinomops femorosaccus – pocketed free-tailed bat
Tadarida brasiliensis – Brazilian free-tailed bat

***LEPORIDAE* – HARES & RABBITS**

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 fallax fallax – Northwestern San Diego pocket mouse
Dipodomys simulans – Dulzura kangaroo rat

***MURIDAE* – RATS AND MICE**

Microtus californicus – California vole
Neotoma lepida intermedia – San Diego desert woodrat
Neotoma fuscipes – dusky-footed woodrat
Peromyscus sp. – deermouse
Peromyscus californicus – California deermouse
Peromyscus eremicus – cactus deermouse
Peromyscus maniculatus – North American deermouse
* *Rattus norvegicus* – brown rat
Reithrodontomys megalotis – western harvest mouse

***CANIDAE* – WOLVES AND FOXES**

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

***PROCYONIDAE* – RACCOONS AND RELATIVES**

Procyon lotor – common raccoon

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

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

***FELIDAE* – CATS**

Felis catus – domestic cat
Lynx rufus – bobcat

***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 – western tiger swallowtail

***PIERIDAE* – WHITES AND SULFURS**

Anthocharis sara sara – Pacific sara orangetip
Phoebis sennae – cloudless sulfur
Pontia protodice – checkered white
Pontia sisymbrii beringiensis – California white

***RIODINIDAE* – METALMARKS**

Apodemia mormo virgulti – Behr's metalmark

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

Hemiargus ceraunus gyas – Edward's blue
Plebejus acmon – acmon blue
Zizina oxleyi – southern blue

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

Coenonympha californica californica – California ringlet
Danaus plexippus – monarch

Junonia coenia – common buckeye
Vanessa cardui – painted lady

* signifies introduced (non-native) species

APPENDIX C

Avian Point Location Photographs

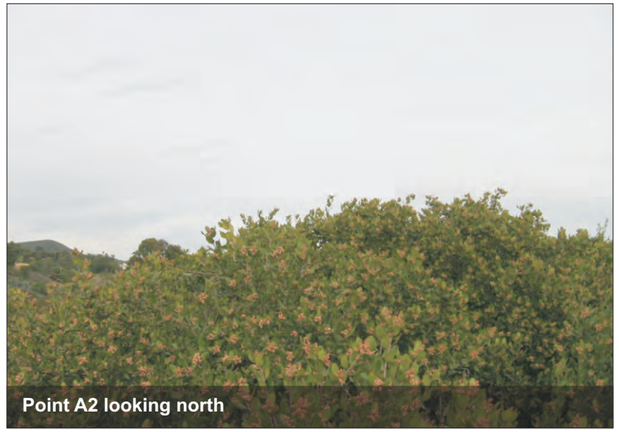
Point A1 looking north

Point A1 looking west

Point A1

Point A1 looking east

Point A1 looking south


Point A2 looking north


Point A2 looking west


Point A2

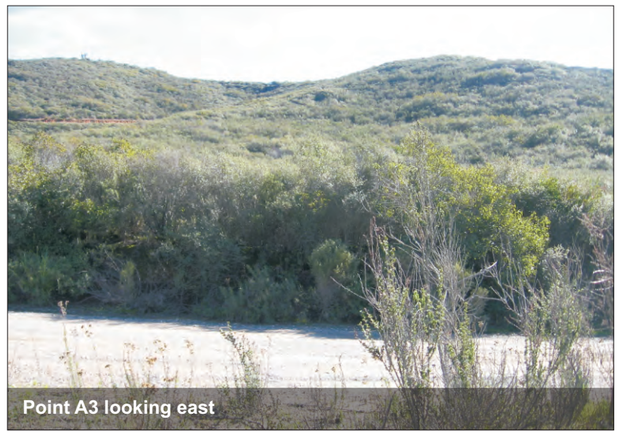

Point A2 looking east

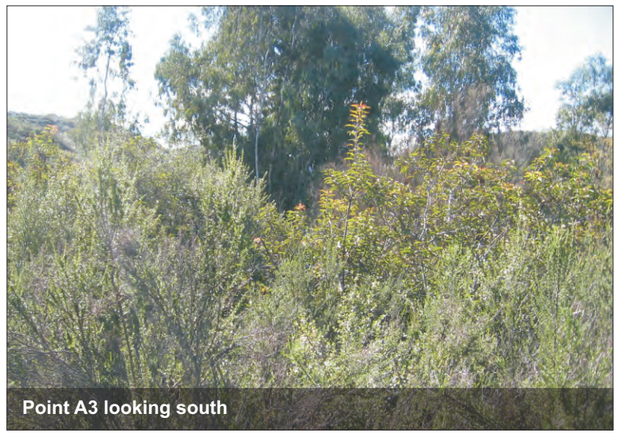

Point A2 looking south

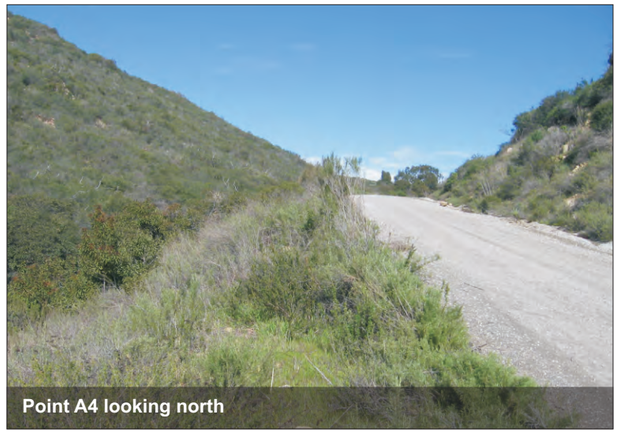

Point A3 looking north


Point A3 looking west


Point A3


Point A3 looking east


Point A3 looking south

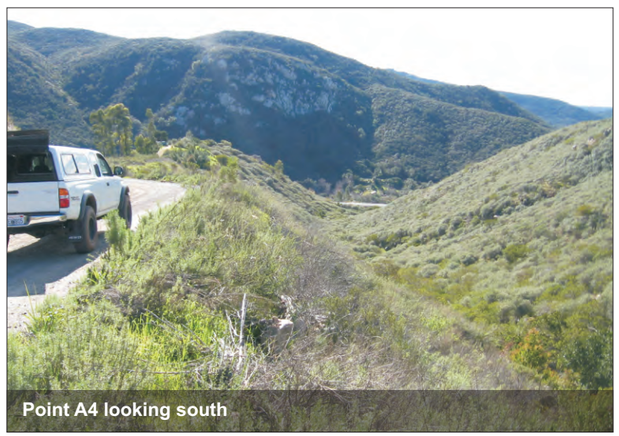


Point A4 looking north

Point A4 looking west

Point A4

Point A4 looking east



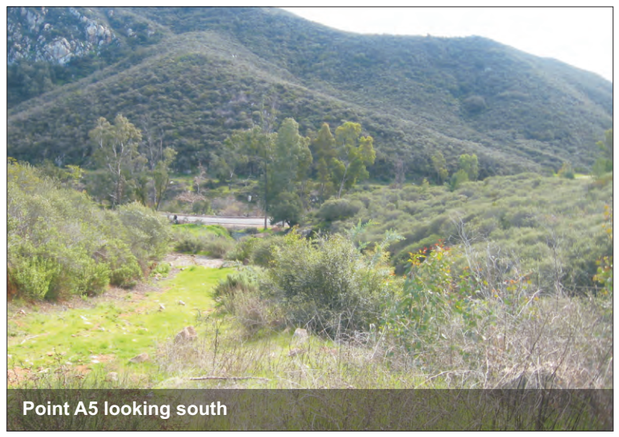
Point A4 looking south

Point A5 looking north

Point A5 looking west

Point A5

Point A5 looking east



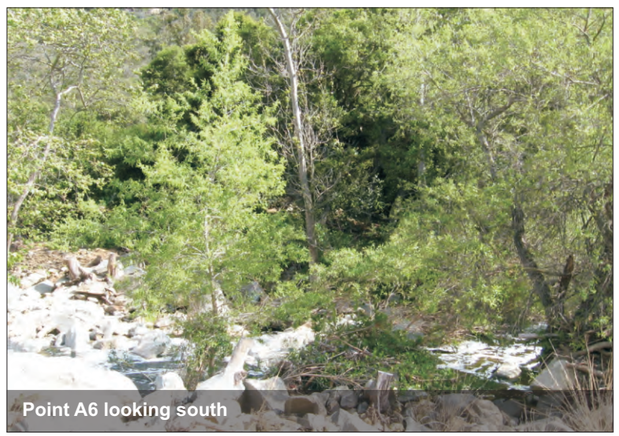
Point A5 looking south

Point A6 looking north

Point A6 looking west

Point A6

Point A6 looking east



Point A6 looking south

APPENDIX D

Sensitive Plant Species Detected or Potentially Occurring at Escondido Creek Preserve Site Elevation 400–1,040 Feet

APPENDIX D
Sensitive Plant Species Detected or Potentially Occurring at Escondido Creek Preserve Site Elevation 400–1,040 Feet

Scientific Name	Common Name	Status [1] Federal/ State/ CNPS / County List	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Known occurrences (CNDDB/CNPS)	Suitable Habitat/ Elevation	Status On Site or Potential to Occur
Acanthomintha ilicifolia	San Diego thornmint	FT/SE/1B.1/List A, NCMSCP	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; annual herb/ April–June/ 30–3,150 feet.	Within 5 miles.	Present	**Moderate potential to occur.** Suitable chaparral, coastal scrub, and grassland habitat with clay soils occur on site, but nearest CNDDB record is approximately two miles southwest of the Preserve. Timing of surveys in February/March not optimal for detection of this species; therefore, presence/absence cannot be determined.
Adolphia californica	Spineshrub	None/None/1B.1/ List B, NCMSCP	Chaparral, coastal scrub, valley and foothill grassland; clay/ perennial deciduous shrub/ December–May/ 145–2,430 feet.	Within 1 mile.	Present	**Low potential to occur.** Limited clay soils on site.
Agave shawii	Shaw's agave	None/ None/ 2.1/ List B	Coastal bluff scrub, coastal scrub/ leaf succulent/ September-May/ 30-250 ft.	Within surrounding quads.	Not present.	**Not likely to occur.** Site is above elevation range of species.
Ambrosia pumila	San Diego ambrosia	FE/None/1B.1/List A, NCMSCP	Chaparral, coastal scrub, valley and foothill grassland, vernal pools/ perennial rhizomatus herb/ April–October/ 60–1,360 feet.	Within 5 miles.	Present	**Moderate potential to occur.** Suitable habitat is present but is limited to areas of heavy soils. Also, the nearest CNDDB record is located approximately 2.5 miles south of the Preserve.
Aphanisma blitoides	Aphanisma	None/ None/ 1B.2/ List A	Coastal bluff scrub, coastal dunes, coastal scrub; sandy/ annual herb/ March-June/ <1,000 ft.	Within surrounding quads.	Present	**Moderate potential to occur.** Suitable habitat present, but nearest CNDDB occurrence is over 7 miles southwest of the Preserve.
Arctostaphylos glandulosa ssp. *crassifolia*	Del Mar Manzanita	FE/None/1B.1/List A, NCMSCP	Chaparral (maritime, sandy)/perennial evergreen shrub/ December–June/ 0–1,200 feet.	Within 1 mile.	Present	**Low potential to occur.** Chaparral on site is not maritime chaparral, which occurs within the coastal fog belt.

Scientific Name	Common Name	Status [1] Federal/ State/ CNPS / County List	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Known occurrences (CNDDB/CNPS)	Suitable Habitat/ Elevation	Status On Site or Potential to Occur
Arctostaphylos rainbowensis	Rainbow Manzanita	None/None/1B.1/List A, NCMSCP	Chaparral/ perennial evergreen shrub/ December–March/ 700–2,200 feet.	Within surrounding quads.	Present	**Moderate potential to occur.** Suitable habitat present, but nearest CNDDB occurrence is over 5 miles north of the Preserve.
Artemisia palmeri	San Diego sagewort	None/None/4.2/List D	Chaparral, coastal scrub, riparian forest, scrub, and woodland; sandy, mesic/ deciduous shrub/ May-September/ 50-3,000 ft.	Within 1 mile.	Present	**Present**. This species was observed along Escondido Creek and its tributaries north and south of Harmony Grove Road as well as south of Canyon De Oro Road.
Astragalus deanei	Dean's milk-vetch	None/None/1B.1/ List A	Chaparral, coastal scrub, riparian forest/ perennial herb/ February–May/ 250–2,200 feet.	None in the area.	Present	**Not likely to occur.** No known occurrences in the area.
Astragalus insularis var. *harwoodii*	Harwood's milk-vetch	None/None/ 2.2/List B	Desert dunes, Mojavean desert scrub/ annual herb/ January–May/ <2,200 feet.	None in the area.	Not present	**Not likely to occur.** No suitable habitat on site and no known occurrences in the area.
Astragalus oocarpus	Descanso milk-vetch	None/None/ 2.2/List A	Chaparral, cismontane woodland/ perennial herb/ May–August/ 1,000–5,000 feet.	None in the area.	Present	**Not likely to occur.** No known occurrences in the area.
Astragalus tener var. *titi*	Coastal dunes milk-vetch	FE/ SE/ 1B.1/ List A	Coastal bluff scrub, coastal dunes, coastal prairie; mesic, often vernallly mesic/ annual herb/ March-May/ < 170 feet.	Within surrounding quads.	Not present	**Not likely to occur.** Site is above elevation range of species.
Atriplex coulteri	Coulter's saltbush	None/None/1B.2/List A, NCMSCP	Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland/ perennial herb/ March–October/ <1,300 feet	Within 5 miles.	Present	**Moderate potential to occur.** Suitable habitat present, but nearest CNDDB record is approximately 4 miles south of the Preserve.
Atriplex pacifica	South Coast saltscale	None/ None/ 1B.2/ List A	Coastal bluff scrub, coastal dunes, coastal scrub, playas/ annual herb/ March-October/ < 500 feet.	Within surrounding quads.	Present	**Low potential to occur.** Suitable habitat present, but the majority of the Preserve is above the species' elevation range. In addition, this species would likely have been observed during focused surveys.

Scientific Name	Common Name	Status [1] Federal/ State/ CNPS / County List	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Known occurrences (CNDDB/CNPS)	Suitable Habitat/ Elevation	Status On Site or Potential to Occur
Atriplex parishii	Parish brittlescale	None/None/1B.1/List A, NCMSCP	Chenopod scrub, playas, vernal pools/ annual herb/ June–October/ 75–6,000 feet.	None in the area.	Not present	**Not likely to occur.** No suitable habitat on site.
Atriplex serenana var. *davidsonii*	Davidson's saltscale	None/ None/ 1B.2/ List A	Coastal bluff scrub, coastal scrub; alkaline/ annual herb/ April-October/ 30-650 feet.	Within surrounding quads.	Not present	**Not likely to occur.** No suitable alkaline soils in coastal scrub on site.
Baccharis vanessae	Encinitas baccharis	FT/SE/1B.1/List A, NCMSCP	Chaparral, cismontane woodland/ perennial deciduous shrub/ August–November/ 180–2,500 feet.	Within 1 mile.	Present	**High potential to occur.** Species is recorded on adjacent Del Dios Highlands Preserve and suitable habitat is present on site.
Berberis nevinii	Nevin's barberry	FE/SE/1B.1/List A, NCMSCP	Chaparral, cismontane woodland, coastal scrub/perennial evergreen shrub/March–June/900–2,700 feet.	Within surrounding quads.	Present	**Low potential to occur.** Only a small portion in the northeastern parcels of the site are within the species' elevation range.
Bergerocactus emoryi	Golden-spined cereus	None/ None/ 2.2/ List B	Closed-cone conifer forest, chaparral, coastal scrub; sandy/ shrub/ May-June/ 10-1,300 feet.	Within surrounding quads.	Present	**Low potential to occur.** Suitable habitat present, but nearest CNDDB occurrence is over 10 miles south of the Preserve.
Brodiaea filifolia	Thread-leaf brodiaea	FT/SE/1B.1/List A, NCMSCP	Chaparral, cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools/perennial bulbiferous herb/ March–June/ 80–4,000 feet.	Within 5 miles.	Present	**Moderate potential to occur.** Suitable habitat present; nearest CNDDB record is approximately 1.5 miles west of the Preserve. Species' typical blooming period may allow detection during focused surveys conducted in February/March 2011, but presence/absence cannot be determined.
Brodiaea orcutti	Orcutt's brodiaea	None/None/1B.1/List A, NCMSCP	Closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools/ perennial bulbiferous herb/ May–July/ 90–5,600 feet.	Within 1 mile.	Present	**High potential to occur.** Species is recorded within one mile of the Preserve and suitable habitat is present on site.

Scientific Name	Common Name	Status [1] Federal/ State/ CNPS / County List	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Known occurrences (CNDDB/CNPS)	Suitable Habitat/ Elevation	Status On Site or Potential to Occur
Calandrinia breweri	Brewer's calandrinia	None/None/4.2/List D	Chaparral, coastal scrub/ annual herb/ March–June/ 33–4,003 feet	None within area.	Present	**High potential to occur.** Suitable habitat present and previously observed on the adjacent Del Dios Highlands Preserve (TAIC 2008).
Calochortus dunnii	Dunn's mariposa lily	None/SR/1B.2/List A	Closed-cone coniferous forest, chaparral, valley and foothill grassland/ Perennial bulbiferous herb/ April–June/ 1,200–6,000 feet.	None within area.	Not present	**Not likely to occur.** No known occurrences in the area; site is below elevation range of species.
Camissonia lewisii	Lewis's evening primrose	None/None/3/List C	Coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland/ annual herb/ March–May/ <700 feet.	Within surrounding quads.	Present	**Low potential to occur.** Suitable habitat present; although there are CNPS records, there are no CNDDB occurrences within the surrounding quads.
Ceanothus cyaneus	Lakeside ceanothus	None/None/1B.2/List A	Closed-cone coniferous forest, chaparral/ Perennial evergreen shrub/ March–May/ 750–2,500 feet.	Within surrounding quads.	Present	**Low potential to occur.** Suitable habitat present, but nearest CNDDB record is over 10 miles south of the Preserve.
Ceanothus verrucosus	Wart-stemmed ceanothus	None/None/2.2/List B, NCMSCP	Chaparral/ perennial evergreen shrub/ December–May/ <1,250 feet.	Within 1 mile.	Present	**Present**. This species is a common component of the southern mixed chaparral on site.
Centromadia (=*Hemizonia*) *parryi* spp. *australis*	Southern tarplant	None/None/1B.1/List A, NCMSCP	Marshes and swamps (margins), valley and foothill grassland (vernally mesic), vernal pools/ annual herb/ May–November/ 0–1,400 feet	Within 5 miles.	Not present	**Not likely to occur.** No suitable habitat on site.
Centromadia (=*Hemizonia*) *pungens* ssp. *laevis*	Smooth tarplant	None/ None/ 1B.1/ List A	Chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland; alkaline/ annual herb/ April-September/ <1580 ft.	Within surrounding quads.	Not present	**Not likely to occur.** No suitable alkaline soils on site.
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	None/ None/ 1B.1/ List A	Coastal bluff scrub, coastal dunes/ annual herb/ January-August/ 10-330 feet.	Within surrounding quads.	Not present	**Not likely to occur.** No suitable habitat on site; site is above elevation range of species.

Scientific Name	Common Name	Status [1] Federal/ State/ CNPS / County List	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Known occurrences (CNDDB/CNPS)	Suitable Habitat/ Elevation	Status On Site or Potential to Occur
Chorizanthe orcuttiana	Orcutt's spineflower	FE/ SE/1B.1/List A, NCMSCP	Closed-cone coniferous forest, chaparral, coastal scrub/annual herb/ March–May/ 0–410 feet.	Within 5 miles.	Present	**Low potential to occur.** Only a small portion of the southern Preserve parcels is within the species' elevation range.
Chorizanthe polygonoides var. *longispina*	Long-spined spineflower	None/ None/ 1B.2/ List A	Chaparral, coastal scrub, meadows and seeps, valley and foothill grassland; often clay/ annual herb/ April-July/ 100-5,000 feet.	Within 5 miles.	Present	**Moderate potential to occur.** Limited suitable clay soils. Timing of surveys in February/March not optimal for detection of this species; therefore, presence/absence cannot be determined.
Clarkia delicata	Delicate clarkia	None/None/1B.2/List A	Chaparral, cismontane woodland/ annual herb/ April–June/ 750–3,500 feet.	Within surrounding quads.	Present	**Moderate potential to occur.** Suitable habitat present, but nearest CNDDB occurrence is over 8 miles southeast of the Preserve. Timing of surveys in February/March not optimal for detection of this species; therefore, presence/absence cannot be determined.
Comarostaphylis diversifolia ssp. *diversifolia*	Summer-holly	None/None/1B.2/List A, NCMSCP	Chaparral, cismontane woodland/ perennial evergreen shrub/ April–June/ 90–1,800 feet.	Within 1 mile.	Present	**High potential to occur.** Suitable chaparral and cismontane woodland present on site and species was observed within 1 mile.
Corethrogyne filaginifolia var. *incana*	San Diego sand aster	None/ None/ 1B.1/ List A	Chaparral, coastal bluff scrub, coastal scrub/ perennial herb/ June-September/ 10-380 feet.	Within surrounding quads.	Marginal	**Low potential to occur.** Although this species was observed on the adjacent Del Dios Highland Preserve (TAIC 2008), the site elevation is slightly above elevation range of the species.
Corethrogyne filaginifolia var. *linifolia*	Del Mar Mesa sand aster	None/ None/ 1B.1/ List A	Coastal bluff scrub, maritime chaparral (openings), coastal scrub; sandy/ perennial herb/ May-September/ 10-380 feet.	Within 5 miles.	Marginal	**Low potential to occur.** Site elevation is slightly above elevation range of the species.

Scientific Name	Common Name	Status [1] Federal/ State/ CNPS / County List	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Known occurrences (CNDDB/CNPS)	Suitable Habitat/ Elevation	Status On Site or Potential to Occur
Dudleya blochmaniae spp. *blochmaniae*	Blochman's dudleya	None/ None/ 1B.1/ List A	Chaparral, coastal bluff scrub, coastal scrub, valley and foothill grassland, rocky; often clay or serpentinite/ perennial herb/ April-June/ 15-1,500 feet.	Within surrounding quads.	Present	**Moderate potential to occur.** Limited clay soils on site. Timing of surveys in February/March not optimal for detection of this species; therefore, presence/absence cannot be determined.
Dudleya brevifolia	Short-leaf dudleya	None/SE/1B.1/List A, NCMSCP	Chaparral, coastal scrub/perennial herb/ April/ 90–850 feet.	Within surrounding quads.	Present	**Moderate potential to occur.** Suitable habitat present, but nearest CNDDB record is over 8 miles south of the Preserve. Timing of surveys in February/March not optimal for detection of this species; therefore, presence/absence cannot be determined.
Dudleya variegata	Variegated dudleya	None/None/1B.2/List A	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools; clay/ perennial herb/ April–June/ <1,900 feet.	Within 5 miles.	Present	**Moderate potential to occur.** Suitable habitat present, but nearest CNDDB occurrence is over 3 miles southeast of the Preserve. Timing of surveys in February/March not optimal for the detection of this species; therefore, presence/absence cannot be determined.
Dudleya viscida	Sticky dudleya	None/None/1B.2/List A, NCMSCP	Coastal bluff scrub, chaparral, cismontane woodland, coastal scrub; rocky/ perennial herb/May–June/ 30–1,800 feet.	Within 1 mile.	Present	**High potential to occur.** Species recorded within 1 mile. Timing of surveys in February/March not optimal for detection of this species; therefore, presence/absence cannot be determined.
Ericameria palmeri var. *palmeri*	Palmer's ericameria	None/None/2.2/List B	Chaparral, coastal scrub/ perennial evergreen shrub/ September–November/ 90–1,300 feet.	Within surrounding quads.	Present	**Moderate potential to occur.** Suitable habitat present, but nearest CNDDB occurrence is over 7 miles southeast of the Preserve.
Eryngium aristulatum var. *hooveri*	Hoover's button-celery	None/ None/ 1B.1/ None	Vernal pools/ annual-perennial herb/ July/ 10-150 feet.	Within surrounding quads.	Not present	**Not likely to occur.** Site is above elevation range of species; no vernal pools on site.

Scientific Name	Common Name	Status [1] Federal/ State/ CNPS / County List	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Known occurrences (CNDDB/CNPS)	Suitable Habitat/ Elevation	Status On Site or Potential to Occur
Eryngium aristulatum var. *parishii*	San Diego button-celery	FE/SE/1B.1/List A, NCMSCP	Coastal scrub, valley and foothill grassland, vernal pools/annual/perennial herb/ April–June/ 60–2,000 feet.	Within 5 miles.	Present	**Low potential to occur.** Suitable habitat present, but no vernal pools on site and nearest CNDDB record is over 3 miles north of the Preserve.
Erysimum ammophilum	Sand-loving wallflower	None/ None/ 1B.2/ None	Maritime chaparral, coastal dunes, coastal scrub; sandy, openings/ perennial herb/ February-June/ <200 feet.	Within surrounding quads.	Not present	**Not likely to occur.** Site is above elevation range of species.
Euphorbia misera	Cliff spurge	None/ None/ 2.2/ List B	Coastal bluff scrub, coastal scrub, Mojavean desert scrub; rocky/ shrub/ December-August/ 30-1,650 feet.	Within surrounding quads.	Present	**Low potential to occur.** Suitable coastal scrub on site, but nearest CNDDB record is over 5 miles south of the Preserve.
Ferocactus viridescens	San Diego barrel cactus	None/None/2.1/List B, NCMSCP	Chaparral, coastal scrub, valley and foothill grassland, vernal pools/ perennial stem succulent/ May–June/ <1,500 feet.	Within 5 miles.	Present	**Moderate potential to occur.** Suitable habitat present, but site appears to be north of the species' range based on CNDDB occurrences.
Geothaollus tuberosa	Campbell's liverwort	None/ None/ 1B.1/ None	Coastal scrub (mesic), vernal pools; soil/ ephemeral liverwort/ NA/ 30-2,000 feet.	Within surrounding quads.	Not present	**Not likely to occur.** No suitable mesic habitat or vernal pools on site.
Githopsis diffusa ssp. *filicaulis*	Mission Canyon bluecup	None/None/3.1/List C	Chaparral/ annual herb/ April–June/ 1,400–2,300 feet.	None within area.	Not present	**Not likely to occur.** Site is below elevation range of species.
Grindelia hirsutula var. *hallii*	San Diego gumplant	None/None/1B.2/List A	Chaparral, lower montane conifer forest, meadows and seeps, valley and foothill grassland/ perennial herb/ July–October/ 600–5,700 feet	Within surrounding quads.	Present	**Moderate potential to occur.** Suitable habitat present, but nearest CNDDB occurrence is over 20 miles east of the Preserve.
Harpagonella palmeri	Palmer's grapplinghook	None/ None/ 4.2/ List D	Chaparral, coastal scrub, valley and foothill grassland; clay/ annual herb/ March-May/ 60-3,100 ft.	Within 5 miles.	Present	**Low potential to occur.** Limited suitable clay soils on site.

Scientific Name	Common Name	Status [1] Federal/ State/ CNPS / County List	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Known occurrences (CNDDB/CNPS)	Suitable Habitat/ Elevation	Status On Site or Potential to Occur
Hazardia orcuttii	Orcutt's hazardia	FC/ ST/ 1B.1/ List A	Maritime chaparral, coastal scrub; often clay/ evergreen shrub/ August-October/ 250-280 ft.	Within 5 miles.	Not present	**Not likely to occur.** Site is above elevation range of species.
Hesperocyparis stephensonii	Cuyamaca cypress	None/None/1B.1/ List A	Closed-cone coniferous forest, chaparral, cismontane woodland, riparian forest/ perennial evergreen tree/ 3,000–6,000 feet.	None within area.	Not present	**Not likely to occur.** Site is below elevation range of species.
Heterotheca sessiliflora ssp. *sessiliflora*	False goldenaster	None/None/1B.1/None	Chaparral, coastal dunes, coastal scrub/ perennial herb/ March–December/ <4,000 feet.	Within 5 miles.	Present	**Moderate potential to occur.** Suitable habitat present on site, but nearest CNDDB record is approximately 5 miles southwest of the Preserve
Horkelia truncata	Ramona horkelia	None/None/1B.3/List A	Chaparral, cismontane woodland/ perennial herb/ May–June/ 1,200–4,000 feet.	Within surrounding quads.	Not present	**Not likely to occur.** Site is above elevation range of species.
Isocoma menziesii var. *decumbens*	Decumbent goldenbush	None/None/1B.2/List A	Chaparral, coastal scrub/ perennial shrub/ April–November/ <450 feet.	Within 5 miles.	Marginal	**Low potential to occur.** The majority of the study area is above the elevation range of species..
Iva hayesiana	San Diego marsh-elder	None/ None/ 2.2/ List B	Marshes and swamps, playas/ perennial herb/ April-November/ 30-1,650 feet.	Within 1 mile.	Present	**Present.** Located along Escondido Creek.
Juncus acutus spp. *leopoldii*	Southwestern spiny rush	None/ None/ 4.2/List D	Coastal dunes(mesic), meadows and alkaline seeps, coastal saltwater marshes and swamps/ rhizomatous herb/ May-June/ <3000 ft.	Within surrounding quads.	Present	**Present**. This species occurs along Escondido Creek and its tributaries north and south of Harmony Grove Road on the Preserve.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	None/ None/ 1B.1/ List A	Saltwater marsh and swamps, playas, vernal pools/ annual herb/ February-June/ <4000 feet.	Within 5 miles.	Not present	**Not likely to occur.** No suitable habitat on site.
Lepechinia cardiophylla	Heart-leaved pitchersage	None/None/1B.2/List A	Chaparral, coastal scrub/ perennial shrub/ April–July/ 1,700–4,500 feet.	None within area.	Not present	**Not likely to occur.** Site is below elevation range of species.

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Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	None/None/1B.2/List A	Chaparral, coastal scrub/ annual herb/ January–July/ <2,700 feet.	Within 5 miles.	Present	**High potential to occur.** Recorded on the adjacent Del Dios Highlands Preserve (TAIC 2008).
Leptosyne (=Coreopsis) maritima	Sea dahlia	None/ None/ 2.2/ List B	Coastal bluff scrub, coastal scrub/ perennial herb/ March-May/ 15-500 feet.	Within 1 mile.	Present	**Low potential to occur.** Although there is suitable coastal scrub habitat present on site, this species prefers sandstone cliffs near the ocean (Reiser 1994).
Lessingia glandulifera var. *tomentosa*	Warner Springs lessingia	None/None/1B.3/List A	Chaparral/ annual herb/ August–October/ 2,800–6,500 feet.	None within area.	Not present	**Not likely to occur.** Site is below elevation range of species.
Limnanthes gracilis ssp. *parishii*	Parish's slender meadowfoam	None/SE/1B.2/List A	Lower montane coniferous forest, meadows and seeps, vernal pools/ annual herb/ April–June/ 1,900–6,500 feet.	None within area.	Not present	**Not likely to occur.** Site is below elevation range of species.
Linanthus orcutti	Orcutt's linanthus	None/None/1B.3/List A	Chaparral, lower montane coniferous forest, pinyon and juniper woodland/ annual herb/ May–June/ 3,000–7,000 feet.	None within area.	Not present	**Not likely to occur.** Site is below elevation range of species.
Lotus nuttallianus	Nuttall's lotus	None/ None/ 1B.1/ List A	Coastal dunes, coastal scrub; sandy/ annual herb/ March-June/ <35 feet.	Within surrounding quads.	Not present	**Not likely to occur.** Site is above elevation range of species.
Monardella hypoleuca ssp. *lanata*	Felt-leaved rock-mint	None/None/1B.2/List A, NCMSCP	Chaparral, cismontane woodland/ perennial rhizomatous herb/ June–August/ 900–5,200 feet.	Within 1 mile.	Present	**High potential to occur.** Suitable chaparral habitat present and species recorded within 1 mile of the site.
Monardella viminea	Willowy monardella	FE/SE/1B.1 /List A	Chaparral, coastal scrub, riparian forest, woodland, and scrub; alluvial ephemeral washes/ perennial herb/ June–August/ 160–750 feet	Within surrounding quads.	Present	**Low potential to occur.** Suitable habitat present but nearest CNDDB occurrence is over 9 miles south of the Preserve.

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Muilla clevelandii	San Diego goldenstar	None/None/1B.1/ List A NCMSCP	Chaparral, coastal scrub, valley and foothill grasslands, vernal pools; clay/ perennial bulbiferous herb/ April–May/ 150–1,550 feet.	Within 1 mile.	Present	**Present.** This species was observed north of Canyon Del Oro Road on the Preserve.
Myosurus minimus ssp. *apus*	Little mousetail	None/None/3.1/List C, NCMSCP	Valley and foothill grassland, vernal pools/ annual herb/ March–June/ 60–2,100 feet.	Within surrounding quads.	Marginal	**Low potential to occur.** Minimal suitable grassland habitat on site.
Nama stenocarpum	Mud nama	None/ None/ 2.2/ List B	Marshes and swamps, lake margins, riverbanks/ annual-perennial herb/ January-July/ 15-1,650 feet.	Within surrounding quads.	Marginal	**Low potential to occur.** Minimal suitable riverbank habitat on site.
Navarretia fossalis	Spreading navarretia	FT/None/1B.1/List A, NCMSCP	Chenopod scrub, shallow freshwater marshes and swamps, playas, vernal pools/ annual herb/ April–June/ 100–4,300 feet	Within 5 miles.	Not present	**Not likely to occur.** No suitable habitat on site.
Nemacaulis denudata var. *denudata*	Coast woolly-heads	None/ None/ 1B.2/ List A	Coastal dunes/ annual herb/ April-September/ < 330 feet.	Within 5 miles.	Not present	**Not likely to occur.** Site is above elevation range of species; no suitable habitat on site.
Nemacaulis denudata var. *gracilis*	Slender woolly-heads	None/ None/ 2.2/ List B	Coastal dunes, desert dunes, Sonoran desert scrub/ annual herb/ (March)April-May/ 160-1,300 feet.	Within surrounding quads.	Not present	**Not likely to occur.** No suitable habitat on site.
Nolina cismontana	Chaparral beargrass	None/None/1B.2/List A, NCMSCP	Chaparral, coastal scrub/perennial evergreen shrub/May–July/ 450–4,200 feet.	None within area.	Present	**Not likely to occur.** No known occurrences in the area.
Opuntia californica var. *californica*	Snake cholla	None/ None/ 1B.1/ List A	Chaparral, coastal scrub/ stem succulent/ April-May/ 100-500 feet.	Within surrounding quads.	Present	**Not likely to occur.** Suitable habitat present, but most of the Preserve is above the species' range and the nearest CNDDB occurrence is over 11 miles south of the Preserve.

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Orcuttia californica	California Orcutt grass	FE/ SE/ 1B.1/ List A	Vernal pools/ annual herb/ April-August/ 50-2,200 feet.	Within surrounding quads.	Not present	**Not likely to occur.** No vernal pools on site.
Orobanche parishii ssp. *brachyloba*	Short-lobed broom-rape	None/ None/ 4.2/ List D	Coastal bluff scrub, coastal dunes, coastal scrub; sandy/ perennial herb parasitic/ April - October/ <1,000 feet.	Within 5 miles.	Present	**Low potential to occur.** Limited sandy soils below 1,000 feet on the Preserve.
Packera ganderi	Gander's ragwort	None/SR/B.2/List A, NCMSCP	Chaparral (burns)/ perennial herb/ April–June/ 1,200–4,000 feet.	None within area.	Present	**Not likely to occur.** Site is below elevation range of species.
Pinus torreyana spp. *torreyana*	Torrey pine	None/ None/ 1B.2/ List A	Closed-cone conifer forest, chaparral; sandstone/ evergreen tree/ NA/ 250-550 feet.	Within surrounding quads.	Not present	**Not likely to occur.** No suitable sandstone soils on site.
Pogogyne abramsii	San Diego mesa mint	FE/ SE/ 1B.1/ List A	Vernal pools/ annual herb/ May-July/ 300-650 ft.	Within surrounding quads.	Not present	**Not likely to occur.** No vernal pools on site.
Pogogyne nudiuscula	Otay Mesa mint	FE/ SE/ 1B.1/ List A	Vernal pools/ annual herb/ May-July/ 300-620 ft.	Within surrounding quads.	Not present	**Not likely to occur.** No vernal pools on site.
Quercus dumosa	Nuttall's scrub oak	None/None/1B.1/List A, NCMSCP	Closed-cone coniferous forest, chaparral, coastal scrub/ perennial evergreen shrub/ February–April/ <1,300 feet.	Within 5 miles.	Present	**Low potential to occur.** Suitable habitat present, but nearest CNDDB occurrence is over 4 miles southwest of the Preserve.
Quercus engelmannii	Engelmann oak	None/None/4.2/List D, NCMSCP	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland/ perennial deciduous tree/ March–June/ 150–4,300 feet.	Within one mile	Present	**Moderate potential to occur.** Previously documented on the adjacent Del Dios Highlands Preserve (TAIC 2008), but this perennial deciduous tree would have been observed during focused surveys.
Ribes canthariforme	Moreno currant	None/None/1B.3/List A	Chaparral, riparian scrub/ perennial deciduous shrub/ February–May/ 1,100–4,000 feet.	None within area.	Present	**Not likely to occur.** No known occurrences in the area.

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Satureja chandleri	San Miguel savory	None/None/1B.2/List A, NCMSCP	Chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland; rocky, gabbroic or metavolcanic/ shrub/ March–July/ 400–3,550 feet	None within area.	Present	**Not likely to occur.** No known occurrences in the area.
Scutellaria bolanderi ssp. *austromontana*	Southern mountains skullcap	None/None/1B.2/List A	Chaparral, cismontane woodland, lower montane coniferous forest/ perennial rhizomatous herb/ June–August/ 1,300–6,600 feet.	None within area.	Present	**Not likely to occur.** No known occurrences in the area.
Selaginella cinerascens	Ashy spike-moss	None/ None/ 4.1/ List D	Chaparral, coastal scrub/ perennial rhizomatous herb/ 66–2,100 feet	None within area.	Present	**Present**. Ashy spike-moss occurs in several locations across the Preserver, often in open or rocky areas.
Senecio aphanactis	Chaparral ragwort	None/ None/ 2.2/List B	Chaparral, cismontane woodland, coastal scrub; sometimes alkaline/ annual herb/ January-April/ 50-2,630 feet.	Within surrounding quads.	Present	**Low potential to occur.** Suitable vegetation present, but no alkaline soils recorded on the site.
Sphaerocarpus drewei	Bottle liverwort	None/ None/ 1B.1/ None	Chaparral, coastal scrub; openings, soil/ ephemeral liverwort/ NA/ 300-1,970 feet.	Within surrounding quads.	Present	**Moderate potential to occur.** Suitable habitat present, but no CNDDB records in the vicinity.
Stemodia durantifolia	Purple stemodia	None/None/2.1/List B	Sonoran desert scrub/ perennial herb/ January–December/ 550–1,000 feet.	Within 5 miles.	Not present	**Not likely to occur.** No suitable habitat on site.
Suaeda esteroa	Estuary seablite	None/ None/ 1B.2/ List A	Coastal salt marshes and swamps/ perennial herb/ May-October (Jan)/ < 20 feet.	Within 5 miles.	Not present	**Not likely to occur.** Site is above elevation range of species.
Tetracoccus dioicus	Parry's tetracoccus	None/None/1B.2/List A, NCMSCP	Chaparral, coastal scrub/ perennial deciduous shrub/ April–May/ 500–3,500 feet.	Within 5 miles.	Present	**Moderate potential to occur.** Suitable habitat present, but nearest CNDDB record is over 3 miles north of the Preserve.

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Thermopsis californica var. *semota*	Velvety false lupine	None/None/1B.2/List A	Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland/ perennial rhizomatus herb/ March–June/ 3,200–6,200 feet.	None within area.	Not present	**Not likely to occur.** Site is below elevation range of species.

[1] Status
FE: Federally listed as endangered
FT: Federally listed as threatened
SE: State-listed as endangered
SR: State-listed as rare
CNPS List 1B, County List A: Considered rare, threatened, or endangered in California and elsewhere.
CNPS List 2, County List B: Considered rare, threatened, or endangered in CA, but more common elsewhere.
CNPS List 3, County List C: Plants which need more information
CNPS List 4, County List D: Limited distribution – a watch list
NCMSCP: Proposed for coverage under the Draft North County MSCP (February 2008)

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APPENDIX E

Sensitive Wildlife Species Detected or Potentially Occurring at Escondido Creek Preserve

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Sensitive Wildlife Species Detected or Potentially Occurring at Escondido Creek Preserve

Scientific Name / Common Name	Status (Federal/ State/ County)1	Habitat Preferences / Requirements	Status On site or Potential to Occur
		Amphibians	
Anaxyrus (= *Bufo microscaphus*) *californicus* Arroyo toad	FE/CSC/Group 1, NCMSCP	Stream channels for breeding(typically 3rd order); adjacent stream terraces and uplands for foraging and wintering	**Not expected to occur**. No suitable habitat present.
Ensatina eschscholtzii klauberi Large-blotched salamander	None/CSC/Group 1	Oak woodland, chaparral, coastal sage scrub, coastal dunes, conifer forest	**Low potential to occur**. Minimal moist sites available on the Preserve.
Rana aurora draytoni California red-legged frog	FT/CSC/Group 1	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands	**Not expected to occur**. No suitable habitat present.
Rana muscosa Mountain yellow-legged frog	FE/CSC/Group 1	Meadow streams, isolated pools, lake borders, rocky stream courses within ponderosa pine, montane hardwood-conifer and montane riparian habitat types	**Not expected to occur**. No suitable habitat present. Preserve is outside of the species' range.
Spea [=*Scaphiopus*] *hammondi* Western spadefoot	None/CSC/Group 2, NCMSCP	Most common in grasslands, coastal sage scrub near rain pools or vernal pools; riparian habitat	**Present**. Detected on site during 2010-11 amphibian surveys conducted along Escondido Creek.
Taricha torosa torosa Coast Range newt (Monterey Co. south only)	None/CSC/Group 2, NCMSCP	Coastal drainages from Mendocino Co. to San Diego Co. Lives in terrestrial habitats and will migrate over 1 km to breed in ponds, reservoirs and slow moving streams.	**Not expected to occur**. No suitable habitat present.
		Fish	
Eucyclogobius newberryi Tidewater goby	FE/ CSC/Group 1	Low-salinity waters in coastal wetlands	**Not expected to occur**. No suitable habitat present.
		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	**Moderate potential to occur**. Suitable habitat and soils (i.e., sandy drainages) on site; however, the closest recorded location is over 10 miles from the site.
Aspidoscelis hyperythra beldingi Orange-throated whiptail	None/CSC/Group 2, NCMSCP	Coastal sage scrub, chaparral, grassland, juniper and oak woodland; sandy soils, washes	**High potential to occur**. Previously detected on the adjacent existing Del Dios Highlands Preserve (TAIC 2008).
Aspidoscelis tigris stejnegeri Coastal western whiptail	None/None/Group 2	Coastal sage scrub, chaparral; sandy areas, gravelly arroyos, or washes	**Present**. Observed during 2010-11 surveys.

Scientific Name / Common Name	Status (Federal/ State/ County)1	Habitat Preferences / Requirements	Status On site or Potential to Occur
Charina trivirgata roseofusca Rosy boa	None/None/Group 2	Rocky chaparral, coastal sage scrub, oak woodlands, desert and semi-desert scrub	**High potential to occur**. Observed on the adjacent Del Dios Highlands Preserve parcel additions (Dudek 2011a).
Coleonyx switaki Barefoot gecko	None/ST/Group 2	Rocky areas at the heads of canyons	**Low potential to occur**. Not expected to occur within the region. The distribution includes the east face of the Peninsular Range.
Coleonyx variegatus abbotti San Diego banded gecko	None/None/Group 1	Cismontane chaparral, coastal sage scrub, desert scrub; granite outcrops	**Moderate potential to occur**. Suitable habitat and rocky areas are present on site; however, the site does not contain the required massive boulders that this species prefers.
Crotalus ruber ruber Northern red-diamond rattlesnake	None/CSC/Group 2, NCMSCP	Variety of shrub habitats where there is heavy brush, large rocks, or boulders	**High potential to occur**. Observed on the adjacent Del Dios Highlands Preserve parcel additions (Dudek 2011a).
Diadophis punctatus similis San Diego ringneck snake	None/None/Group 2	Open, rocky areas in moist habitats near intermittent streams: marsh, riparian woodland, sage scrub	**Present**. Observed during aquatic surveys conducted in 2010-11 along Escondido Creek.
Actinemys marmorata pallida Western pond turtle	None/CSC/Group 1, NCMSCP	Slow-moving permanent or intermittent streams, ponds, small lakes, reservoirs with emergent basking sites; adjacent uplands used during winter	**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	**Present**. Observed in western parcels during 2010-11 pitfall trap surveys.
Lampropeltis zonata (San Diego population) San Diego mountain kingsnake	None/CSC/Group 2	Valley-foothill hardwood, hardwood-conifer, chaparral, coniferous forest, wet meadow	**Low potential to occur**. It is known to occur only in the San Diego county peninsular ranges.
Phrynosoma coronatum (blainvillei population) Coast (San Diego) horned lizard	None/CSC/ Group 2, NCMSCP	Coastal sage scrub, annual grassland, chaparral, oak and riparian woodland, coniferous forest, sandy areas, washes, flood plains	**Present**. Observed during 2010-11 surveys.
Salvadora hexalepis virgultea Coast patch-nosed snake	None/CSC/Group 2	Chaparral, washes, sandy flats, rocky areas	**High potential to occur**. Previously detected on the adjacent Del Dios Highlands Preserve (TAIC 2008).

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Sceloporus graciosus vanderburgianus Southern sagebrush lizard	None/None/Group 2	Montane chaparral, hardwood and conifer forest, juniper, coastal sage scrub	**Low potential to occur**. It is known to occur only in the San Diego county peninsular and transverse ranges.
Thamnophis hammondii Two-striped garter snake	None/CSC/Group 1, NCMSCP	Marshes, meadows, sloughs, ponds, slow-moving water courses	**Present**. Observed during aquatic surveys conducted in 2010-11 along Escondido Creek.
Thamnophis sirtalis ssp. South Coast garter snake	None/CSC/Group 2	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	**Low potential to occur**. Limited suitable habitat on site.
Birds			
Accipiter cooperii Cooper's hawk (nesting)	None/WL/Group 1	Riparian and oak woodlands, montane canyons	**Present**. Observed on site during 2010-11 surveys at the bird point count locations adjacent to Canyon de Oro, both north and south of Harmony Grove Road, and along Wild Willow Hollow Road. No nests were observed.
Accipiter striatus (nesting) Sharp-shinned hawk	None/WL/Group 1	Nests in coniferous forests, ponderosa pine, black oak, riparian deciduous, mixed conifer, Jeffrey pine; winters in lowland woodlands and other habitats	**Moderate potential to occur**. Previously detected on the adjacent Del Dios Highlands Preserve (TAIC 2008); however, this species does not nest along the coastal slope of southern California and would only be expected as a winter migrant.
Agelaius tricolor Tricolored blackbird	BCC/CSC/ Group 1, NCMSCP	Nests near fresh water, emergent wetland with cattails or tules; forages in grasslands, woodland, agriculture	**Low potential to occur**. Suitable foraging habitat on site, but no suitable nesting habitat.
Aimophila ruficeps canescens Southern California rufous-crowned sparrow	None/WL/Group 1, NCMSCP	Grass-covered hillsides, coastal sage scrub, chaparral with boulders and outcrops	**Present**. Previously recorded south of Canyon de Oro during studies conducted in 2001 (RECON 2001). Observed in this area in 2011.
Anser caerulescens Snow goose	None/None/Group 2	Fresh emergent wetlands, adjacent lacustrine waters, and nearby wet croplands, pastures, meadows, and grasslands. Occasionally found in saline (brackish) emergent wetlands and adjacent estuarine waters.	**Not expected to occur**. No suitable habitat.
Anas strepera Gadwall	None/None/Group 2	Interior valleys, wetlands, ponds, and streams. Feeds and rests in freshwater lacustrine and emergent habitats, and to a lesser extent, estuarine and saline emergent habitats, and nests in nearby herbaceous and cropland habitats.	**Present**. Observed during 2010-11 aquatic surveys.

Scientific Name / Common Name	Status (Federal/ State/ County)1	Habitat Preferences / Requirements	Status On site or Potential to Occur
Amphispiza belli belli Bell's sage sparrow	BCC/WL/Group 1, NCMSCP	Coastal sage scrub and dry chaparral along coastal lowlands and inland valleys	**Present**. Observed during 2010-11 surveys.
Ammodramus savannarum Grasshopper sparrow	None/CSC/Group 1, NCMSCP	Restricted to native grassland.	**Low potential to occur**. Poor suitable habitat on site.
Aquila chrysaetos Golden eagle (nesting and wintering)	BCC/WL, FP/Group 1, NCMSCP	Open country, especially hilly and mountainous regions; grassland, coastal sage scrub, chaparral, oak savannas, open coniferous forest	**Moderate potential to occur**. Suitable foraging habitat present on site, but this species has not been recorded as using the area by Unitt (2004)
Ardea herodias Great blue heron	None/None/Group 2	Variety of habitats, but primarily wetlands; lakes, rivers, marshes, mudflats, estuaries, saltmarsh, riparian habitats	**Present**. Observed adjacent to Escondido Creek during 2010-11 surveys.
Asio flammeus Short-eared owl	None/CSC/Group 2	Grassland, prairies, dunes, meadows, irrigated lands, saline and freshwater emergent wetlands	**Moderate potential to occur** as a wintering species. Suitable habitat on site; however, the species has not been recorded within the vicinity.
Asio otus Long-eared owl	None/CSC/Group 1	Riparian, live oak thickets, other dense stands of trees, edges of coniferous forest	**Low potential to occur**. Limited suitable habitat on site.
Athene cunicularia Burrowing owl	BCC/CSC/Group 1, NCMSCP	Grassland, lowland scrub, agriculture, coastal dunes and other artificial open areas	**Moderate potential to occur**. Suitable habitat on site; however, species has not been recorded as using the area by Unitt (2004)
Aythya americana Redhead	None/None/Group 2	Lacustrine waters, foothills and coastal lowlands, and along the coast and Colorado river. Nests in fresh emergent wetland bordering open water.	**Not expected to occur**. No suitable nesting habitat on site.
Branta canadensis Canada goose	None/None/Group 2	Lakes, fresh emergent wetlands, moist grasslands, croplands, pastures, and meadows.	**Present**. Observed flying overhead during 2010-11 surveys.
Buteo lineatus Red-shouldered hawk	None/None/Group 1	Riparian and woodland habitats, eucalyptus	**Present**. Observed during 2010-11 surveys on central parcel of the Preserve north of Elfin Forest Rd, adjacent to Canyon de Oro and along Escondido Creek.
Buteo regalis Ferruginous hawk	BCC/WL/Group 1	Open, dry country, grasslands, open fields, agriculture	**Low potential to occur**. Previously detected on the adjacent Del Dios Highlands Preserve (TAIC 2008); however, this would have been a migratory animal and its potential to occur on site is low as the site only provides for marginal foraging habitat.

Scientific Name / Common Name	Status (Federal/ State/ County)1	Habitat Preferences / Requirements	Status On site or Potential to Occur
Buteo swainsoni Swainson's hawk	BCC/ST/ Group 1	Open grassland, shrublands, croplands	**Low potential to occur** during migration only. Suitable foraging habitat on site is marginal.
Butorides virescens Green heron	None/None/Group 2	Lakes, marshes, streams	**Not expected to occur**. No suitable habitat on site.
Campylorhynchus brunneicapillus sandiegensis Coastal (San Diego) cactus wren	BCC/CSC/Group 1, NCMSCP	Southern cactus scrub, maritime succulent scrub, cactus thickets in coastal sage scrub	**Not expected to occur**. No suitable habitat on site.
Cathartes aura Turkey vulture	None/None/Group 1	Rangeland, agriculture, grassland; uses cliffs and large trees for roosting, nesting and resting	**Present**. Observed foraging on site during 2010-11 surveys. Suitable nesting habitat on site is limited.
Chaetura vauxi Vaux's swift	None/CSC/None	Prefers redwood and Douglas-fir habitats with nest-sites in large hollow trees and snags, especially tall, burned-out stubs.	**Low potential to occur**. Previously detected on the adjacent Del Dios Highlands Preserve (TAIC 2008); however, there is low potential for this species to occur as a winter migrant only as it is known to migrate through San Diego in very low numbers. The site possesses mostly poor foraging opportunities and does not support any suitable winter roost areas.
Charadrius alexandrinus nivosus Western snowy plover	FT, BCC/CSC/Group 1	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.	**Not expected to occur**. No suitable habitat on site.
Charadrius montanus Mountain plover	PT, BCC/CSC/ Group 2	Nests in open, shortgrass prairies or grasslands; winters in shortgrass plains, plowed fields, open sagebrush, and sandy deserts	**Low potential to occur**. Marginal habitat present on site.
Circus cyaneus Northern harrier	None/CSC/Group 1, NCMSCP	Open wetlands (nesting), pasture, old fields, dry uplands, grasslands, rangelands, coastal sage scrub	**Present**. Observed during 2010-11 surveys. No nesting habitat is present so will only use the site for foraging purposes.
Coccyzus americanus occidentalis Western yellow-billed cuckoo	FC, BCC/SE/Group 1	Dense, wide riparian woodlands and forest with well-developed understories	**Not expected to occur**. No suitable habitat on site.
Contopus cooperi [*borealis*] Olive-sided flycatcher	BCC/CSC/ Group 2	Summer resident in a wide variety of forest and woodland habitats. Preferred nesting habitats include mixed conifer, montane hardwood-conifer, Douglas-fir, redwood, red fir, and lodgepole pine	**Not expected to occur**. No suitable habitat on site.

Scientific Name / Common Name	Status (Federal/ State/ County)1	Habitat Preferences / Requirements	Status On site or Potential to Occur
Cypseloides niger Black swift	BCC/CSC/Group 2	Nests in moist crevices or caves on sea cliffs or near waterfalls in deep canyons; forages over many habitats	**Not expected to occur**. No suitable habitat on site.
Dendrocygne bicolor Fulvous whistling-duck	None/CSC/Group 2	Fresh emergent wetlands, shallow lacustrine and quiet riverine waters; feeds in wet croplands and pastures. Nests in dense wetlands of cattails.	**Not expected to occur**. No suitable habitat on site.
Dendroica petechia brewsteri Yellow warbler	BCC/CSC/Group 2	Nests in lowland and foothill riparian woodlands dominated by cottonwoods, alders and willows; winters in a variety of habitats	**Present**. Observed on site during 2010-11 surveys. A single male yellow warbler was detected along Escondido Creek in late March.
Elanus leucurus (*caeruleus*) White-tailed kite	None/FP/Group 1	Open grasslands, savanna-like habitats, agriculture, wetlands, oak woodlands, riparian	**Present**. Observed during 2010-11 surveys on the central parcel of the Preserve north of Elfin Forest Road. No nests were observed.
Empidonax traillii extimus Southwestern willow flycatcher	FE/SE/ Group 1, NCMSCP	Riparian woodlands along streams and rivers with mature, dense stands of willows or alders; may nest in thickets dominated by tamarisk	**Not expected to occur**. No suitable habitat on site.
Eremophila alpestris actia California horned lark	None/WL/Group 2	Open habitats, grassland, rangeland, shortgrass prairie, montane meadows, coastal plains, fallow grain fields	**Low potential to occur**. Site does not support the open habitat that they require.
Falco columbarius Merlin	None/WL/Group 2	Nests in open country, open coniferous forest, prairie; winters in open woodlands, grasslands, cultivated fields, marshes, estuaries and sea coasts	**Moderate potential to occur** for wintering. Suitable habitat present on site.
Falco mexicanus Prairie falcon	BCC/WL/Group 1	Grassland, savannas, rangeland, agriculture, desert scrub, alpine meadows; nest on cliffs or bluffs	**Moderate potential to occur** for wintering. Suitable habitat present on site.
Falco peregrinus anatum American peregrine falcon	FD, BCC/SD,FP/ Group 1	Nests on cliffs, buildings, bridges; forages in wetlands, riparian, meadows, croplands, especially where waterfowl are present	**Moderate potential to occur** as a migrant. Detected on the adjacent Del Dios Highlands Preserve (TAIC 2008). No suitable nesting habitat on site.
Grus canadensis canadensis Lesser sandhill crane	ST, P/Group 2	Wet meadow, shallow lacustrine, and fresh emergent wetland habitats (summer); annual and perennial grassland habitats, moist croplands with rice or corn stubble, and open, emergent wetlands. It prefers relatively treeless plains (winter).	**Not expected to occur**. No suitable habitat on site.
Grus canadensis tabida Greater sandhill crane	CSC, FP/Group 2	Wet meadow, shallow lacustrine, and fresh emergent wetland habitats (summer); annual and perennial grassland habitats, moist croplands with rice or corn stubble, and open, emergent wetlands. It prefers relatively treeless plains (winter).	**Not expected to occur**. No suitable habitat on site.

Scientific Name / Common Name	Status (Federal/ State/ County)1	Habitat Preferences / Requirements	Status On site or Potential to Occur
Haliaeetus leucocephalus Bald eagle	FD/SE, FP/Group 1	Seacoasts, rivers, swamps, large lakes; winters at large bodies of water in lowlands and mountains	**Not expected to occur**. No suitable habitat on site.
Icteria virens Yellow-breasted chat	None/CSC/Group 1, NCMSCP	Dense, relatively wide riparian woodlands and thickets of willows, vine tangles and dense brush.	**Moderate potential to occur**. Previously detected on the adjacent Del Dios Highlands Preserve (TAIC 2008); however, only marginal habitat present onsite.
Ixobrychius exilis Least bittern	BCC/CSC/Group 2	Dense emergent wetland vegetation, sometimes interspersed with woody vegetation and open water	**Not expected to occur**. No suitable habitat on site.
Laterallus jamaicensis coturniculus California black rail	BCC/ST, FP/Group 2	Saline, brackish, and fresh emergent wetlands	**Not expected to occur**. No suitable habitat on site.
Lanius ludovicianus Loggerhead shrike	BCC/CSC/ Group 1	Open ground including grassland, coastal sage scrub, broken chaparral, agriculture, riparian, open woodland	**Moderate potential to occur**. Only marginal habitat present. This species requires a matrix of open habitat and shrub/trees. Habitat on site is generally too closed.
Larus californicus California gull	WL/ Group 2	Along the coast: sandy beaches, mudflats, rocky intertidal, and pelagic areas of marine and estuarine habitats, fresh and saline emergent wetlands. Inland: lacustrine, riverine, and cropland habitats, landfill dumps, and open lawns in cities. Nests in alkali and freshwater lacustrine habitats; adults roost along shorelines, landfills, pastures, and on islands.	**Present.** Was observed flying overhead during February surveys. Would not be expected to use the site.
Melanerpes lewis Lewis' woodpecker	BCC/None/Group 1	Open oak savannahs, broken deciduous and coniferous habitats.	**Not expected to occur**. No suitable habitat on site.
Mycteria americana Wood stork (Non-breeding, very rare)	None/CSC/Group 2	Shallow, relatively warm waters with fish for prey. Nests colonially.	**Not expected to occur**. No suitable habitat on site.
Numenius americanus Long-billed curlew	BCC/WL/ Group 2	Nests in upland shortgrass prairies and wet meadows in northeast California; winters in coastal estuaries, open grasslands and croplands	**Not expected to occur**. No suitable habitat on site.
Oreotyx pictus eremophila Mountain quail	None/None/Group 2	Dense montane chaparral and brushy areas within coniferous forest, pinyon-juniper-yucca associations; uses shrubs, brush stands and trees on steep slopes for cover	**Not expected to occur**. No suitable habitat on site.
Pandion haliaetus Osprey	None/WL/Group 1, NCMSCP	Large waters (lakes, reservoirs, rivers) supporting fish; usually near forest habitats, but widely observed along the coast	**Not expected to occur**. No suitable habitat on site.

Scientific Name / Common Name	Status (Federal/ State/ County)1	Habitat Preferences / Requirements	Status On site or Potential to Occur
Passerculus sandwichensis beldingi Belding's savannah sparrow	None/ SE/Group 1	Saltmarsh, pickleweed	**Not expected to occur**. No suitable habitat on site.
Phalacrocorax auritus *(rookery site)* Double-crested cormorant	None/ WL/None	Lakes, rivers, reservoirs, estuaries, ocean; nests in tall trees, rock ledges on cliffs, rugged slopes	**Low potential to occur**. Previously detected on the adjacent Del Dios Highlands Preserve (TAIC 2008); however, this species was likely observed flying to or from one of the adjacent lakes. There is no suitable nesting, loafing, foraging, or roosting habitat on site.
Piranga rubra (nesting) Summer tanager	None/ CSC/Group 2	Nests in riparian woodland; winter habitats include parks and residential areas	**Low potential to occur**. Limited suitable habitat on site.
Plegadis chihi White-faced ibis (rookery site)	None/WL/Group 1, NCMSCP	Nests in marsh; winter foraging in shallow lacustrine waters, muddy ground of wet meadows, marshes, ponds, lakes, rivers, flooded fields and estuaries	**Present**. Observed flying overhead during 2010-11 surveys; however, suitable nesting, foraging, or roosting habitat not present.
Polioptila californica californica Coastal California gnatcatcher	FT/CSC/ Group 1, NCMSCP	Coastal sage scrub, coastal sage scrub-chaparral mix, coastal sage scrub-grassland ecotone, riparian in late summer	**Present**. Observed during 2010-11 surveys on the central parcel of the Preserve north of Elfin Forest Road and in the far western portions of the Preserve.
Progne subis (nesting) Purple martin	None/CSC/Group 1	Nests in tall sycamores, pines, oak woodlands, coniferous forest; forages over riparian, forest and woodland	**Not expected to occur**. No suitable habitat on site.
Pyrocephalus rubinus Vermilion flycatcher	None/CSC/Group 1	Nesters inhabit cottonwood, willow, mesquite, and other vegetation in desert riparian habitat adjacent to irrigated fields, irrigation ditches, pastures and other open, mesic areas in isolated patches.	**Not expected to occur**. No suitable habitat on site.
Rallus longirostris levipes Light-footed clapper rail	FE/ SE, FP/Group 1, NCMSCP	Coastal saltmarsh	**Not expected to occur**. No suitable habitat on site.
Riparia riparia Bank swallow	None/ST/Group 1	Nests in lowland country with soft banks or bluffs; open country and water during migration	**Not expected to occur**. No suitable habitat on site.

Scientific Name / Common Name	Status (Federal/ State/ County)1	Habitat Preferences / Requirements	Status On site or Potential to Occur
Siala mexicana Western bluebird	None/None/Group 2	Open forests of deciduous, coniferous or mixed trees, savanna, edges of riparian woodland	**Present**. Western bluebirds were observed along Escondido Creek during the 2010-11 surveys. Western bluebirds have not been recorded as breeding regularly in San Diego County until recently. Although this species could breed on site, based on the late winter/early spring season observation, it may be wintering on site and may not breed.
Sternula antillarum browni California least tern	FE/ SE, FP/Group 1	Coastal waters, estuaries, large bays and harbors, mudflats; nests on sandy beaches	**Not expected to occur**. No suitable habitat on site.
Strix occidentalis occidentalis California spotted owl	BCC/CSC/ Group 1	Forests and woodlands dominated by hardwoods, oak and oak-conifer woodlands, and conifers at high elevations	**Not expected to occur**. No suitable habitat on site.
Tyto alba Barn owl	None/None/Group 2	Open habitats including grassland, chaparral, riparian, and other wetlands.	**Present**. Observed during 2010-11 surveys adjacent to Canyon de Oro, north of Harmony Grove Road, and along Wild Willow Hollow Road.
Vireo bellii pusillus Least Bell's vireo (nesting)	FE/ SE/Group 1, NCMSCP	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	**Low potential to occur**. Marginal habitat on site.
Vireo vicinior Gray vireo	BCC/CSC/Group 1	Summer resident in arid pinyon-juniper, juniper, and chamise-redshank chaparral habitats	**Not expected to occur**. No suitable habitat on site.
Mammals			
Antrozous pallidus Pallid bat	None/CSC/Group 2, NCMSCP	Rocky outcrops, cliffs, and crevices with access to open habitats for foraging	**Moderate potential to occur**. Suitable habitat on site but there are limited cliff and crevice opportunities for roost. Could forage over the site.
Bassariscus astulus Ringtail	None/None/Group 2	Mixed forests and shrublands near rocky areas or riparian habitats.	**Low potential to occur** due to poor riparian habitat.
Chaetodipus californicus femoralis Dulzura (California) pocket mouse	None/CSC/Group 2	Coastal sage scrub, chaparral, riparian-scrub ecotone; more mesic areas	**High potential to occur**. Detected on the adjacent Del Dios Highlands Preserve (TAIC 2008). Suitable habitat on site.
Chaetodipus fallax fallax Northwestern San Diego pocket mouse	None/CSC/Group 2	Coastal sage scrub, grassland, sage scrub-grassland ecotones, sparse chaparral; rocky substrates, loams and sandy loams	**Present**. Observed during the 2010-11 surveys near Canyon De Oro

Scientific Name / Common Name	Status (Federal/ State/ County)1	Habitat Preferences / Requirements	Status On site or Potential to Occur
Chaetodipus fallax pallidus Pallid San Diego pocket mouse	None/CSC/Group 2	Coastal scrub, chamise-redshank chaparral, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon-juniper, and annual grassland.	**Low potential to occur**. It is known to occur only in the San Diego county peninsular and transverse ranges.
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.	**Not expected to occur**. No suitable habitat on site.
Coryorhinus townsendii Townsend's big-eared bat	None/CSC/Group 2, NCMSCP	Mesic habitats, gleans from brush or trees or feeds along habitat edges	**High potential to occur**. Detected during the 2010-11 surveys on the adjacent Del Dios Highlands Preserve (Dudek 2011a).
Dipodomys stephensi Stephens' kangaroo rat	FE/ST/Group 1, NCMSCP	Open habitat, grassland, sparse coastal sage scrub, sandy loam and loamy soils with low clay content; gentle slopes (<30%)	**Not expected to occur**. Outside of range and poor habitat suitability.
Euderma maculatum Spotted bat	None/CSC/Group 2	Rock crevices, riparian forest, woodland, and scrub, ponds, lakes, grasslands	**Moderate potential to occur**. Suitable habitat on site but there are limited cliff and crevice opportunities for roost. Could forage over the site however it prefers foraging over water. Not detected during surveys.
Eumops perotis californicus Greater western mastiff bat	None/CSC/Group 2	Roosts in small colonies in cracks and small holes, seeming to prefer man-made structures	**High potential to occur**. Previously detected on the adjacent Del Dios Highlands Preserve (TAIC 2008).
Lasiurus blossevillii Western red bat	None/CSC/Group 2	Prefers edges with trees for roosting and open areas for foraging. Roosts in woodlands and forests. Forages over grasslands, shrublands, woodlands, forests, and croplands.	**Present**. Detected during the 2010-11 surveys at Escondido Creek, along Canyon de Oro, and Wild Willow Hollow.
Lasiurus xanthinus Western yellow bat	None/CSC/None	Desert and montane riparian, desert succulent scrub, desert scrub, and pinyon-juniper woodland.	**High potential to occur**. Detected during the 2010-11 surveys on the adjacent Del Dios Highlands Preserve (Dudek 2011a).
Lepus californicus bennettii San Diego black-tailed jackrabbit	None/CSC/Group 2, NCMSCP	Arid habitats with open ground; grasslands, coastal sage scrub, agriculture, disturbed areas, rangelands	**Present**. Observed during the 2010-11 surveys at the Cielo Azul parcel of the adjacent Del Dios Highland Preserve.
Macrotus californicus California leaf-nosed bat	None/CSC/Group 2	Desert riparian, desert wash, desert scrub, desert succulent shrub, alkali desert scrub, and palm oasis.	**Moderate potential to occur**. Habitat is only moderately suitable.
Myotis ciliolabrum Small-footed myotis	None/None/Group 2	Caves, old mines, abandoned buildings	**Not expected to occur**. No suitable habitat on site.

Scientific Name / Common Name	Status (Federal/ State/ County)1	Habitat Preferences / Requirements	Status On site or Potential to Occur
Myotis evotis Long-eared myotis	None/None/Group 2	Roosts in buildings, crevices, under bark, and snags. Caves used as night roosts. Feeds along habitat edges, in open habitats, and over water.	**Low potential to occur**. Suitable habitat for foraging occurs on site; however, this species prefers to occur in coniferous forests and woodlands.
Myotis thysanodes Fringed myotis	None/None/Group 2	Maternity colonies in caves, mines, buildings, or crevices. Forages over open habitats, early successional stages, streams, lakes, and ponds.	**Moderate potential to occur**. Suitable foraging habitat occurs on site; however, its preferred habitat, pinyon-juniper, valley foothill hardwood and hardwood-conifer is not present.
Myotis volans Long-legged myotis	None/None/Group 2	Feeds over open water and over open habitats, using denser woodlands and forests for cover and reproduction	**Low potential to occur**. Limited suitable habitat on site.
Myotis yumanensis Yuma myotis	None/None/Group 2	Closely tied to open water which is used for foraging; open forests and woodlands are optimal habitat	**Present**. Observed during 2010-11 surveys conducted on site and at every station.
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	**Present**. Observed during both sessions of the small mammal trapping on site near Canyon De Oro Road.
Nyctinomops femorosaccus Pocketed free-tailed bat	None/CSC/Group 2	Rocky desert areas with high cliffs or rock outcrops	**Present**. Detected during 2010-11 surveys conducted on site and at each station.
Nyctinomops macrotis Big free-tailed bat	None/CSC/Group 2	Rugged, rocky canyons	**High potential to occur**. Observed during the 2010-11 surveys on the adjacent Del Dios Highlands Preserve (Dudek 2011a).
Odocoileus hemionus Mule deer	None/None/Group 2	Coastal sage scrub, chaparral, riparian, woodlands, forest; often browses in open areas adjacent to cover	**Present**. Wildlife cameras detected two individual mule deer in 2010-11. However, it is likely several individuals commonly traverse the Preserve as pellets were routinely discovered on most sites.
Onychomys torridus ramona Southern grasshopper mouse	None/CSC/Group 2	Grassland, sparse coastal sage scrub	**Moderate potential to occur**. Suitable habitat on site. Not detected during either the small mammal trapping or the herpetological pit trap surveys, however the location of the trapping was directed towards areas that appear suitable for the species.
Ovis canadensis nelsoni Peninsular bighorn sheep	FE/ ST, FP/Group 1	Alpine dwarf-shrub, low sage, sagebrush, bitterbrush, pinyon-juniper, palm oasis, desert riparian, desert succulent shrub, desert scrub, subalpine conifer, perennial grassland, montane chaparral, and montane riparian.	**Not expected to occur**. Habitat is unsuitable and site is outside of species range.

Scientific Name / Common Name	Status (Federal/ State/ County)1	Habitat Preferences / Requirements	Status On site or Potential to Occur
Perognathus longimenmbris pacificus Pacific pocket mouse	FE/CSC/Group 1	Grassland, coastal sage scrub with sandy soils; along immediate coast	**Not expected to occur**. Habitat is unsuitable and site is outside of species range.
Puma [=*Felis*] *concolor* Mountain lion	None/None/Group 2, NCMSCP	Coastal sage scrub, chaparral, riparian, woodlands, forest; rests in rocky areas, and on cliffs and ledges that provide cover	**High potential to occur**. Track and scat observed in 2010-11 on the adjacent Del Dios Highland Preserve (Dudek 2011a).
Taxidea taxus American badger	None/CSC/Group 2, NCMSCP	Dry, open treeless areas, grasslands, coastal sage scrub	**Low potential to occur**. Habitat quality is marginal due to proximity to urban development and lack of openness.
Invertebrates			
Branchinecta sandiogonensis San Diego fairy shrimp	FE/None/Group 1, NCMSCP	Small, shallow vernal pools, occasionally ditches and road ruts	**Not expected to occur**. No suitable habitat on site.
Callophyrs (=*Mitoura*) *thornei* Thorne's hairstreak butterfly	None/None/Group 1	Tecate cypress	**Not expected to occur**. No suitable habitat on site.
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.	**Not expected to occur**. No suitable habitat on site.
Cicindela senilis frosti Senile tiger beetle	None/None/Group 2	Salt marshes.	**Not expected to occur**. No suitable habitat on site.
Coelus globosus Globose dune beetle	None/None/Group 1	Coastal dunes.	**Not expected to occur**. No suitable habitat on site.
Danaus plexippus Monarch butterfly (wintering sites)	None/None/Group 2	Overwinters in eucalyptus groves	**Moderate potential to occur** during migrations. No suitable roost habitat present.
Euphydryas editha quino Quino checkerspot butterfly	FE/None/Group 1, NCMSCP	Sparsely vegetated hilltops, ridgelines, occasionally rocky outcrops; host plant *Plantago erecta* and nectar plants must be present	**Low potential to occur**. Site is outside of survey area for species and few host plants were detected. Habitat is generally too closed.
Euphyes vestris harbisoni Harbison's dun skipper	None/None/Group 1, NCMSCP	Restricted to wetland, riparian, oak woodlands, and chaparral habitats supporting host plant *Carex spissa*	**Not expected to occur**. Host plant not observed on site.
Linderiella occidentalis California linderiella	None/None/Group 1	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. Water in the pools has very low alkalinity, conductivity and TDS.	**Not expected to occur**. No suitable habitat on site.

Scientific Name / Common Name	Status (Federal/ State/ County)1	Habitat Preferences / Requirements	Status On site or Potential to Occur
Lycaena hermes Hermes copper butterfly	None/None/Group 1, NCMSCP	Coastal sage scrub, southern mixed chaparral supporting at least 5% cover of host plant *Rhamnus crocea*	**Not expected to occur**. Host plant not observed on site.
Papilio multiculdata Two-tailed swallowtail	None/None/Group 1	Foothill slopes and canyons, moist valleys, streamsides, woodlands, parks, roadsides, suburbs, and cities	**Not expected to occur**. No suitable habitat on site.
Streptocephalus woottonii Riverside fairy shrimp	FE/None/Group 1, NCMSCP	Deep, long-lived vernal pools, vernal pool-like seasonal ponds, stock ponds; warm water pools that have low to moderate dissolved solids	**Not expected to occur**. No suitable habitat on site.
Tryonia imitator Mimic tryonia (California brackishwater snail)	None/None/Group 2	Coastal lagoons, estuaries and salt marshes	**Not expected to occur**. No suitable habitat on site.

1 Status
Federal Designations (USFWS):
- BCC Fish and Wildlife Service: Birds of Conservation Concern
- FC Candidate for federal listing as threatened or endangered
- FD Federally-delisted
- FE Federally-listed Endangered
- FT Federally-listed as Threatened
- PT Proposed Threatened

State Designations (CDFG):
- CSC California Species of Special Concern
- FP Fully Protected Species
- SD State-delisted
- SE State-listed as Endangered
- ST State-listed as Threatened
- WL Watch List

County Designations:
- Group 1 Animals of high sensitivity (listed or specific natural history requirements)
- Group 2 Animals declining, but not in immediate threat of extinction or extirpation
- NCMSCP Proposed for coverage under the Draft North County MSCP (February 2008)

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APPENDIX F

Site Photographs

APPENDIX F
Site Photographs

Photograph of bobcat (*Lynx rufus*) taken with wildlife camera.

Photograph of coyote (*Canis latrans*) taken with wildlife camera.

Photograph of common raccoon (*Procyon lotor*) taken with wildlife camera.

Photograph of California vole (*Microtus californicus*) found under coverboard.

Photograph of garden slender salamander (*Batrachoseps major*) found under coverboard.

Photograph of cactus mouse (*Peromyscus eremicus*) found in pitfall trap.

Photograph of bat survey station B1.

Photograph of bat survey station B2.