

**Baseline Biodiversity Survey for the
Pascoe, Helix-Lambron and Cielo Azul Parcel Additions
to the Del Dios Highlands Preserve**

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Baseline Biodiversity Survey for the Pascoe, Helix-Lambron and Cielo Azul Parcel Additions to the Del Dios Highlands Preserve

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LIST OF ACROYNYS

ACOE	U.S. Army Corps of Engineers
AMSL	above mean sea level
AOU	American Ornithologists' Union
ASMDs	Area-Specific Management Directives
Cal-IPC	California Invasive Plant Council
CDFG	California Department of Fish and Game
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CWA	Clean Water Act
DDT	dichlorodiphenyltrichloroethane
DPLU	Department of Planning and Land Use
DPR	County of San Diego Department of Parks and Recreation
ESP	Emergency Storage Project
FRMP	Framework Resource Management Plan
MSCP	Multiple Species Conservation Program
NABA	North American Butterfly Association
NPS	U.S. National Park Service
OMWD	Olivenhain Municipal Water District
PAMA	Pre-Approved Mitigation Area
Preserve	Del Dios Highlands Preserve
RMP	Resource Management Plan
RWQCB	Regional Water Quality Control Board
SDCWA	San Diego County Water Authority
TDS	Total dissolved solids
TECC	The Escondido Creek Conservancy
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

Baseline Biodiversity Survey for the Pascoe, Helix-Lambron and Cielo Azul Parcel Additions to the Del Dios Highlands Preserve

EXECUTIVE SUMMARY

In 2009-10, the County of San Diego Department of Parks and Recreation (DPR) acquired the Pascoe, Cielo Azul, and Helix-Lambron parcels as additions to the Del Dios Highlands Preserve (Preserve). The County manages the Preserve in accordance with an existing Resource Management Plan (RMP) including Area-Specific Management Directives (ASMDs). Dudek conducted a baseline biodiversity study of the parcel additions to provide DPR with current biological data needed to revise the existing Del Dios Highlands Preserve RMP to include the Pascoe, Cielo Azul and Helix-Lambron parcels.

This report documents the methods and results of these surveys and provides various recommendations for ASMDs to preserve and enhance the function of the parcel additions as biological open space in the context of the existing Preserve RMP as well as the Draft North County Multiple Species Conservation Program (MSCP) Plan and South County MSCP.

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

Eight vegetation communities were identified on site including: Diegan coastal sage scrub, southern mixed chaparral, non-native grassland, southern coast live oak riparian woodland, southern willow scrub, coast live oak woodland, eucalyptus woodland, and disturbed habitat. A total of 136 plant species were recorded on the parcel additions during surveys. Four special-status plant species were observed, of which two are MSCP-covered species, and one of these, Encinitas baccharis (*Baccharis vanessae*), is federally and state listed. A total of 147 wildlife species were observed or detected on the parcel additions during surveys, including 4 amphibians, 13 reptiles, 73 birds, 35 mammals, and 22 invertebrates. Twenty-eight special-status wildlife species were observed or detected on the Preserve, including 13 MSCP-covered species.

Baseline Biodiversity Survey for the Pascoe, Helix-Lambron and Cielo Azul Parcel Additions to the Del Dios Highlands Preserve

1.0 INTRODUCTION

In 2009-10, the County of San Diego Department of Parks and Recreation (DPR) acquired the 59.8-acre Pascoe parcel, 153.1-acre Helix-Lambron parcel and 100.1-acre Cielo Azul parcel as additions to the existing Del Dios Highlands Preserve (Preserve)¹. These parcels, totaling approximately 313 acres, provide additional acreage along the northern, southern and western boundaries of the Preserve. The Preserve is currently managed in accordance with an existing Resource Management Plan (RMP) including Area-Specific Management Directives (ASMDs) (County of San Diego 2009a). At the request of DPR, Dudek conducted a baseline biodiversity study of the parcel additions to provide the County with current biological data needed to revise the existing Del Dios Highlands Preserve RMP to include the Pascoe, Helix-Lambron and Cielo Azul parcels.

1.1 Purpose of the Report

This report describes the existing biological resources within the Pascoe, Helix-Lambron, and Cielo Azul parcels in terms of vegetation, flora, wildlife, and wildlife habitats, and provides recommendations for monitoring and management of these resources. The data and recommendations 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 revise the Del Dios Highlands Preserve RMP, including ASMDs, pursuant to the requirements of the South County Multiple Species Conservation Program (MSCP) and the Draft North County MSCP Plan.

The appendices to this report provide detailed information about 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 an 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.

1.2 MSCP Context

The Pascoe and Cielo Azul parcels are included in the Harmony Grove Core Area of the North County MSCP and are designated as Pre-Approved Mitigation Area (PAMA). The Helix-Lambron parcel is included in the Hodges Reservoir/San Pasqual Valley Core Area of the South County MSCP North Metro-Lakeside-Jamul Segment and is designated as either Hardline

¹ There is a known discrepancy between the acreages provided by the assessor's parcel data and GIS data. This report references acreages calculated using GIS data throughout.

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Preserve or Take Authorized Area (Figure 3). According to the Habitat Evaluation Map developed for the MSCP, the Pascoe and Cielo Azul parcels consist of habitats ranging from moderate to very high in overall quality; while habitats on Helix-Lambron range from low to very high (County of San Diego 1997, 2009b).

2.0 STUDY AREA DESCRIPTION

2.1 Project Location

The study area consists of the Cielo Azul, Pascoe, and Helix-Lambron parcels, which are generally located southwest of the City of Escondido, west of Del Dios Highway, and northwest of Lake Hodges within an unincorporated portion of the County of San Diego, California (Figure 1, Regional Location). The study area is mapped on the U.S. Geological Survey (USGS) 7.5-minute Escondido and Rancho Santa Fe quadrangles: Township 12 South, Range 2 West, Section 31; Township 12 South, Range 3 West, Section 36; and Township 13 South, Range 2 West, Sections 6 and 7 (Figure 2, Park/Preserve Vicinity Map).

The study area is comprised of the following Assessor's Parcel Numbers (APNs):

<u>Pascoe</u>	<u>Helix-Lambron</u>	<u>Cielo Azul</u>
238-021-07	270-030-17	679-140-11
	270-290-08	679-140-16
	272-060-01	
	272-161-03	
	272-161-04	

2.2 Geographical Setting

The study area is located in the coastal foothills of the Peninsular Ranges of southern California. The Pascoe, Helix-Lambron and Cielo Azul parcels are comprised of moderately to steeply sloping terrain (the majority of the parcels have a slope greater than 20%) ranging in elevation from approximately 480 feet above mean sea level (AMSL) to 1,240 feet AMSL.

The topography of Cielo Azul parcel is determined primarily by a higher plateau area in the southeastern portion of the site that slopes steeply down to San Elijo Canyon and Escondido Creek in the northwest. On-site elevations range from approximately 480 feet above mean sea level (AMSL) along Escondido Creek to approximately 1,200 feet AMSL at the peak in the southeast portion of the parcel.

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The main topographic feature of the Pascoe parcel is a northeast–southwest trending ridgeline. On-site elevations range from approximately 640 feet AMSL along the eastern boundary of the property to approximately 1,000 feet AMSL at the southwest corner of the parcel and at the peak along the ridgeline in the northwestern portion of the parcel.

The Helix-Lambron parcel is characterized by slopes of varying aspects. On-site elevations range from approximately 480 feet AMSL along Del Dios Highway at the eastern boundary of the parcel to approximately 1,240 feet AMSL at the peak in the northwest corner of the parcel.

2.3 Geology and Soils

The study area contains nine soil types belonging to seven soil series: Cieneba very rocky coarse sandy loam, Cieneba-Fallbrook rocky sandy loams, Fallbrook sandy loam, Las Posas fine sandy loam, San Miguel-Exchequer rocky silt loams, Steep gullied land, Stony land, and Visalia sandy loam (Figure 4, Soils Map) (Bowman 1973). A brief description of each soil series and the associated soil type that occurs in the study area 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 (30–65% slopes, eroded) occupy the majority of the Cielo Azul and Pascoe parcels. On these parcels, this soil type supports southern mixed chaparral, Diegan coastal sage scrub, coast live oak woodland, southern willow scrub, southern coast live oak riparian forest, non-native grassland, and disturbed habitat. Cieneba-Fallbrook rocky sandy loams (9–30% slopes, eroded) occupies the southeastern portion of Cielo Azul and supports southern mixed chaparral. Cieneba very rocky coarse sandy loam (30–75% slopes), occurs in approximately the northern half of the Helix-Lambron parcel. This soil type supports southern mixed chaparral within the parcel.

Fallbrook Series

Fallbrook series soils are well-drained, moderately deep to deep sandy loams formed from material weathered in place from granodiorite. The topsoil layer is brown, slightly acid sandy loam about 6 inches deep over sandy clay loam and loam subsoil. Fallbrook sandy loam (15%–30% slopes, eroded) is mapped on site (Bowman 1973). Fallbrook series soils cover a small area in the southeast corner of the Pascoe parcel. This soil type supports southern mixed chaparral within the parcel.

Baseline Biodiversity Survey for the Pascoe, Helix-Lambron and Cielo Azul Parcel Additions to the Del Dios Highlands Preserve

Las Posas Series

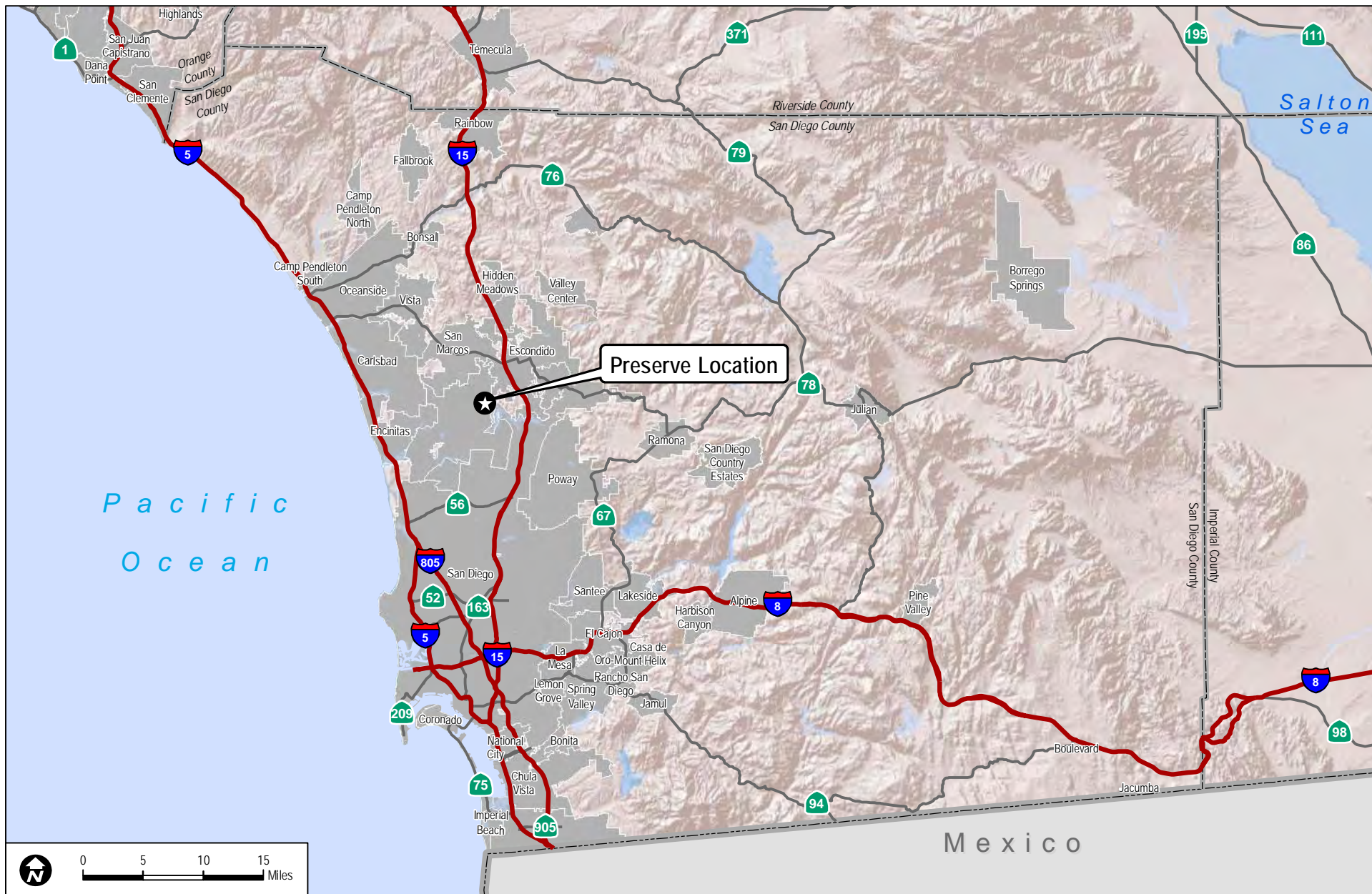
Las Posas series soils are well-drained, moderately deep, stony fine sandy loams formed in material weathered from basic igneous rocks. The topsoil layer is reddish-brown, stony fine sandy loam about 4 inches deep over clay loam and clay subsoil with a gabbro substratum. (Bowman 1973). The soil profiles of Las Posas stony fine sandy loam include clays that are generally associated with special-status plant taxa including mafic chaparral endemic species such as Parry's tetracoccus (*Tetracoccus parryi*). Small inclusions of Las Posas soils may occur within the Cieneba and Fallbrook soil units on site. Las Posas fine sandy loam (15–30% slopes, eroded) occurs in a small area along the northern boundary of the Pascoe parcel. This soil type supports southern mixed chaparral and non-native grassland within the parcel.

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. 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). In addition, the San Miguel-Exchequer is known to support sensitive plant taxa (Vanderwier, pers. comm. 2002). San Miguel-Exchequer rocky silt loam (9–70% slopes) occurs in the southern portion of the Helix-Lambron parcel. This soil type supports southern mixed chaparral within the parcel.

Steep Gullied Land

Steep gullied land is composed of large individual gullies or a network of multiple gullies in strongly sloping to steep areas that are actively eroding to old alluvium or decomposed rock. These areas are characterized by sparse vegetation, very rapid runoff, and a very high erosion hazard (Bowman 1973). Steep gullied land occurs in the northeastern portion of the Pascoe parcel and extends into the Helix-Lambron parcel from the east. This soil type supports southern mixed chaparral and non-native grassland within these parcels.

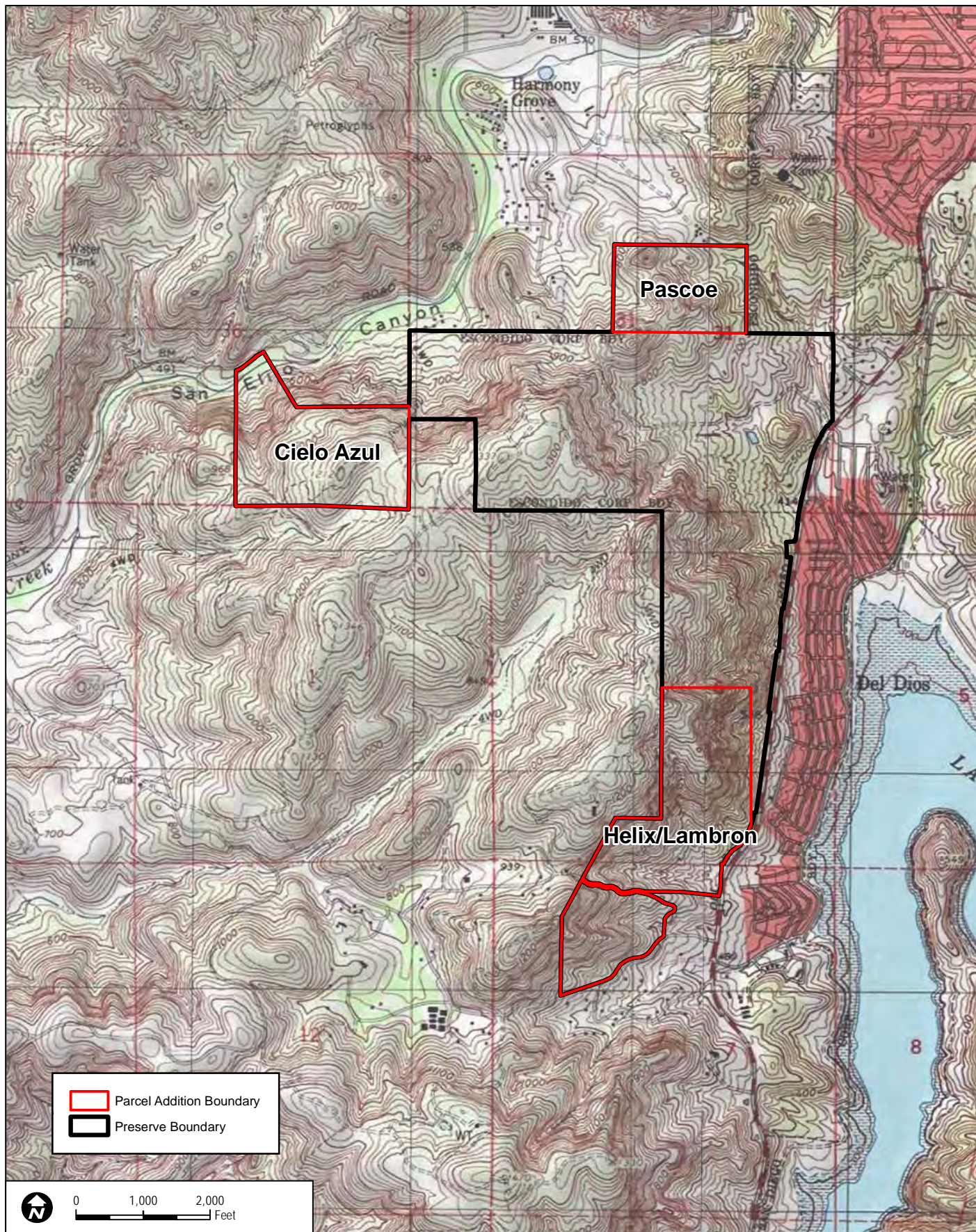


	<p align="right">FIGURE 1</p> <p align="right">Regional Map</p>
<p>6680-01</p>	

Pascoe, Helix-Lambron and Cielo Azul Parcel Additions to the Del Dios Highlands Preserve - Baseline Biodiversity Survey

Baseline Biodiversity Survey for the Pascoe, Helix-Lambron and Cielo Azul Parcel Additions to the Del Dios Highlands Preserve

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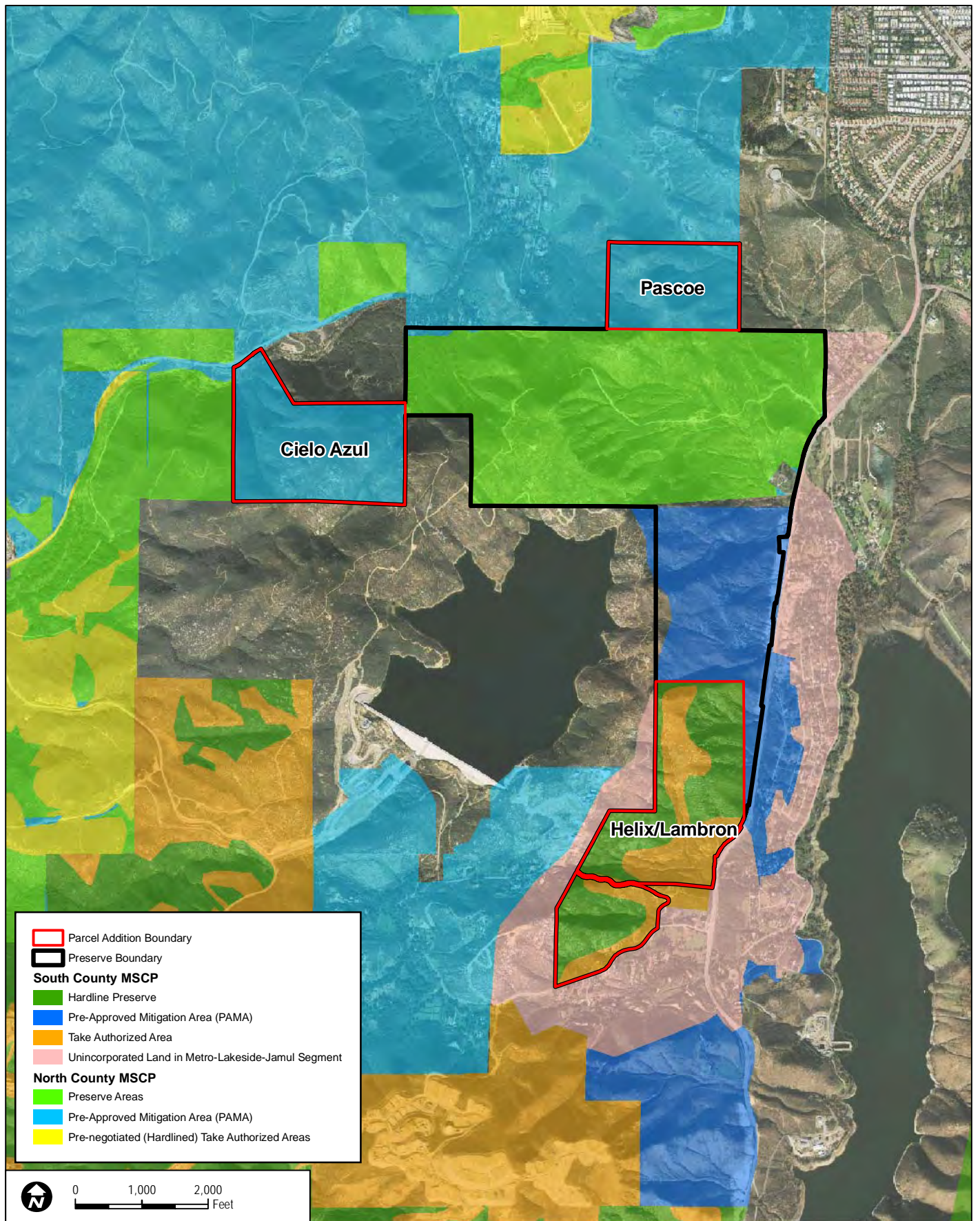
SOURCE: USGS 7.5-Minute Series Quadrangle.

FIGURE 2
Vicinity Map

Pascoe, Helix-Lambron and Cielo Azul Parcel Additions to the Del Dios Highlands Preserve - Baseline Biodiversity Survey

Baseline Biodiversity Survey for the Pascoe, Helix-Lambron and Cielo Azul Parcel Additions to the Del Dios Highlands Preserve

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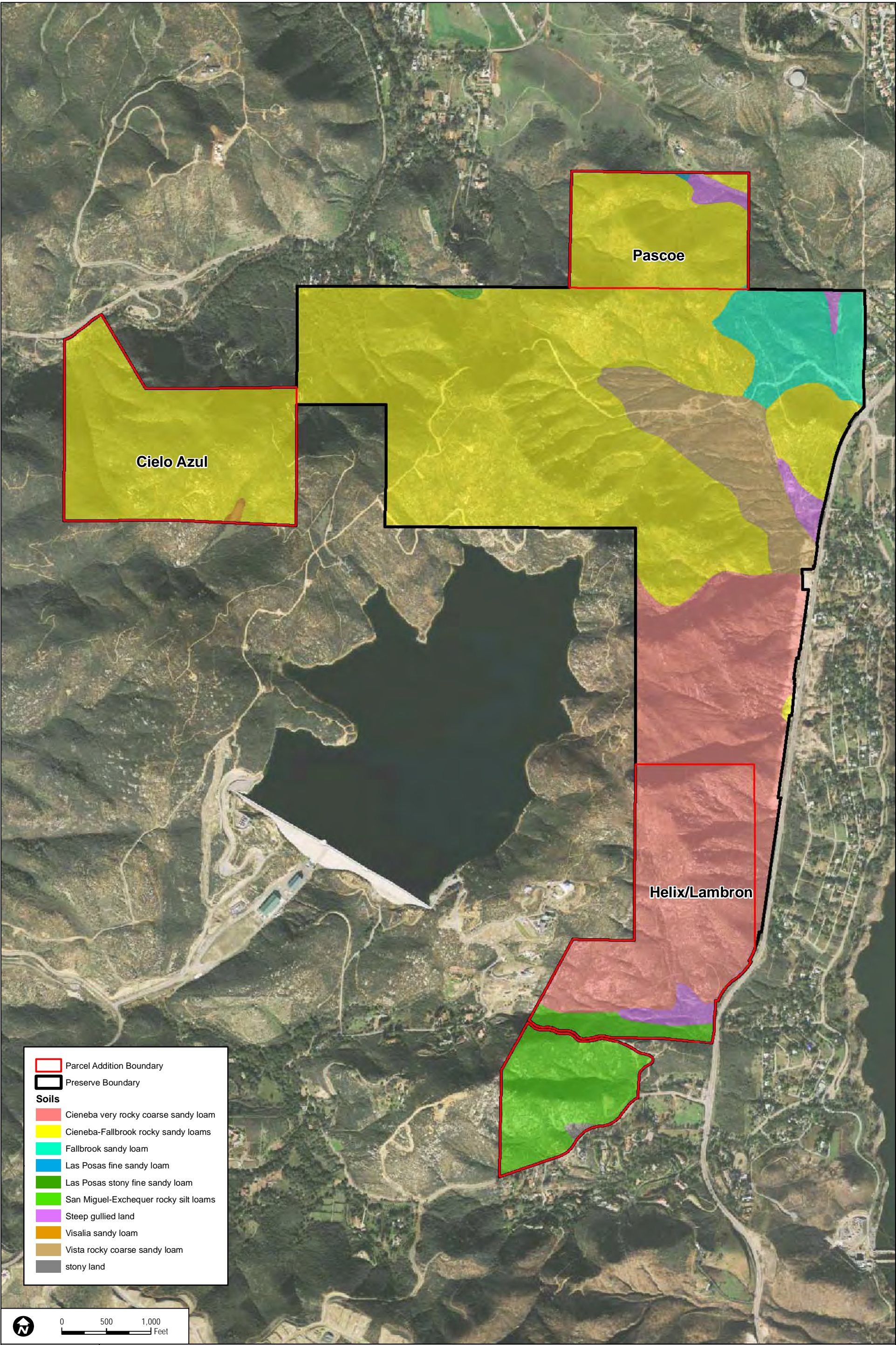
SOURCE: Digital Globe 2008
MSCP 2008
SANGIS 2007

FIGURE 3 MSCP Designations and Conserved Lands

Pascoe, Helix-Lambron and Cielo Azul Parcel Additions to the Del Dios Highlands Preserve - Baseline Biodiversity Survey

Baseline Biodiversity Survey for the Pascoe, Helix-Lambron and Cielo Azul Parcel Additions to the Del Dios Highlands Preserve

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Baseline Biodiversity Survey for the Pascoe, Helix-Lambron and Cielo Azul Parcel Additions to the Del Dios Highlands Preserve

Stony Land

Stony land is made of many stones, boulders, cobblestones, and some finer material. It occurs at the base of cliffs or below steep rocky slopes in areas that are strongly sloping to very steep (Bowman 1973). Stony land occurs in the southeastern portion of the Helix-Lambron parcel. This soil type supports southern mixed chaparral within the parcel.

Visalia Series

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

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 75.9° Fahrenheit (F), with higher temperatures in summer and early fall (July through 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). For Lake Hodges, the 2009/2010 wet season cataloged 14.0 inches of rain; by 28 March 2011, the 2010/2011 wet season had already cataloged 20.38 inches of rain (City of San Diego Water Operations Report – March 28, 2011).

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2.5 Hydrology

The western portion of the Pascoe parcel and the entire Cielo Azul parcel is within the Carlsbad Watershed, and the eastern portion of the Pascoe parcel and the entire Helix-Lambron parcel is within the San Dieguito Watershed (Figure 5, Hydrology Map). The area within the Carlsbad Watershed generally drains to the northwest via small sub-drainages, gullies, and draws toward Escondido Creek, which is located approximately a third of a mile northeast of the Pascoe parcel and runs through the northeastern portion of the Cielo Azul parcel. Escondido Creek flows approximately 11.5 miles from the Cielo Azul parcel to the Pacific Ocean via San Elijo Lagoon.

The portion of the study area in the San Dieguito Watershed generally drains to the southeast. Lake Hodges is the nearest receiving water body, located approximately 0.2 mile east of the Helix-Lambron parcel. Lake Hodges flows into the San Dieguito River, which flows approximately 12 miles from the Helix-Lambron parcel into the Pacific Ocean via San Dieguito Lagoon.

Designated beneficial uses for 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. According to the 2006 Clean Water Act (CWA) Section 303(d) list, Escondido Creek is impaired for dichlorodiphenyltrichloroethane (DDT), manganese, phosphate, selenium, sulfates, and total dissolved solids (TDS).

2.6 Fire History

Based on historical fire perimeter data (FRAP 2009)², all except a small area along the northern boundary of the Cielo Azul parcel has burned at least once during the recorded data period, with at least portions of Cielo Azul and Helix-Lambron having burned multiple times between 1919 and 2007 (Figure 6). The average interval between wildfires in the study area was calculated to be 22 years with intervals ranging between 7 and 47 years. The median interval between fires is calculated at 17 years. Based on this analysis, it is expected that the study area would be subject to wildfire occurrence approximately every 17–22 years. Table 1 presents the fire interval data for the study area.

² Based on polygon geographic information system (GIS) data from California Department of Forestry and Fire Protection, (CAL FIRE's) Fire and Resource Assessment Program (FRAP), which includes data from CAL FIRE, U.S. Department of Agriculture (USDA) Forest Service Region 5, Bureau of Land Management (BLM), U.S. National Park Service (NPS), 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.

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Table 1
Study Area Fire Interval

Fire Year*	Fire Name	Interval (years)	Acreage Burned	Percent of Study Area Burned**
1919	Unnamed	n/a	126.5	40.4
1943	Unnamed	24	214.0	68.4
1990	Paint	47	127.1	40.6
1997	Del Dios	7	124.1	39.6
2007	Witch	10	27.4	8.8

*FRAP 2009

**Based on the 313-acre total acreage of the study area.

2.7 Trails

The Pascoe, Helix-Lambron and Cielo Azul parcels contain designated trails, unofficial trails, and several unpaved dirt roads. Less than 0.25 mile of unofficial trail occurs in the northeastern corner of the Pascoe parcel and extends to the north and east of the Pascoe parcel. Another disturbed trail extends south of the residence located directly north of the Pascoe parcel. However, these areas are under private ownership and are not accessible to the public.

Approximately 0.3-mile of the Elfin Forest Recreational Reserve's (Reserve) 11-mile trail system traverses the eastern boundary of Cielo Azul. The Reserve's Way Up Trail begins north of Cielo Azul, crosses into the parcel along the eastern boundary, and then crosses out again continuing east and south where it meets up with the Equine Incline Loop Trail, which runs south of Cielo Azul. Stemming from the Equine Incline Loop Trail, an unofficial trail, not part of the Reserve's formal trail system, crosses the southwestern corner of Cielo Azul. In addition, there is an existing sewer easement and dirt access road along the south side of Escondido Creek in the northwest corner of the parcel, which may serve as an informal trail.

A private dirt road, Mt. Israel Place, bisects the Helix-Lambron parcel, running east-west, and connects to Mt. Israel Road. Additionally, approximately 1 mile of unofficial, discontinuous trails occur throughout the parcel, mainly in the southern portion, with the exception of a small segment along the northwest border. The trails in the southern portion of the site are currently fenced and cannot be accessed, although they do connect with Mt. Israel Place and South Del Dios Highway.

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3.0 METHODS

Dudek biologists conducted biological surveys beginning in August 2010 through April 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.

Table 2
Schedule of Surveys

Date	Time	Personnel	Survey Type ¹	Conditions
8/6/2010	1000–1650	BAS, VRJ	Vegetation mapping –Pascoe and Helix-Lambron	Clear sky; wind 1–4 miles per hour (mph); 67°F –91°F
8/16/2010	1000–1300	VRJ	Vegetation mapping –Pascoe and Helix-Lambron	Clear sky; wind 0–2 mph; 74°F
11/17/2010	1200–1700	ACT, CEO	Invasive plant species mapping	NR
11/23/2010	0730–1500	PCS	Vegetation mapping – Cielo Azul	Sunny to 40% cloud cover (cc); 60°F –70°F
11/23/2010	1300–1700	ACT, CEO	Invasive plant 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
12/23/10 - 12/30/10	NA	PML	Bat surveys at B6 (Mt. Israel Rd.)	NR
12/23/10; 1/5/11 – 1/10/11	NA	PML	Bat surveys at B5 (Del Dios Hwy.)	NR
1/6/2011	0941–1130	PML	Daytime avian bird count survey	50–75% cc; wind 0–2 mph; 55°F– 60°F
1/6/2011	1958–2154	PML	Nighttime avian bird count survey	90–100% cc; wind 0–2 mph; 56°F– 57°F
1/6/2011– 1/20/2011	NA	PML	Wildlife cameras	NR
1/12/11 – 1/19/11	NA	PML	Bat surveys at B4 (Pascoe)	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

Baseline Biodiversity Survey for the Pascoe, Helix-Lambron and Cielo Azul Parcel Additions to the Del Dios Highlands Preserve

Table 2
Schedule of Surveys

Date	Time	Personnel	Survey Type ¹	Conditions
1/28/2011	1300–1730	DM	Coverboards	0% cc; wind 3–4 mph; 59°F–77°F
2/5/2011	1020–1430	BAO	Butterfly Survey	10–0% cc; wind 3–10 mph; 63°F–68°F
2/10/2011– 4/6/2011	NA	EL	Wildlife cameras	NR
2/11/11 – 2/17- 11	NA	PML	Bat surveys at B5 (Del Dios Hwy.)	NR
2/11/11 – 2/17/11	NA	PML	Bat surveys at B6 (Mt. Israel Rd.)	NR
2/12/2011	1100–1500	BAO	Butterfly Survey	0% cc; wind 5 mph; 67°F–81°F
2/14/2011	0910–1105	PML	Daytime avian bird count survey	5% cc; wind 1–4 mph; 66°F–71°F
2/14/2011	1750–1945	PML	Nighttime avian bird count survey	10–20% cc; wind 0–1 mph; 56°F–58°F
2/19/2011– 2/28/2011	NA	PML	Bat surveys	NR
2/22/2011	0830–1115	EL	Pitfall Trap surveys	100% cc; wind 0–5 mph; 50°F–55°F
2/22/2011– 2/24/2011	NR	PV	Small mammal trapping at Helix-Lambron (Pass 1)	100% cc; 47°F–48°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
2/28/11 - 3/8/11	NA	PML	Bat surveys at B3 (Escondido Creek)	NR
2/28/11 – 3/8/11	NA	PML	Bat surveys at B4 (Pascoe)	NR
3/1/2011	1200–1600	BAO	Butterfly Survey	0% cc; wind 3–5 mph; 67°F–70°F
3/4/2011	1130–1340	BAO	Butterfly Survey	0–30% cc; wind 3–10 mph; 63°F–68°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	0700–1600	BAS, KCD, VRJ	Rare plant survey–Pascoe and Helix-Lambron	15–20% cc; wind 0–10 mph; 45°F–65°F
3/16/2011	1030–1347	EL	Pitfall Trap surveys	Partly cloudy to clear; wind 0–5 mph; 64°F–81°F

Baseline Biodiversity Survey for the Pascoe, Helix-Lambron and Cielo Azul Parcel Additions to the Del Dios Highlands Preserve

Table 2
Schedule of Surveys

Date	Time	Personnel	Survey Type ¹	Conditions
3/17/2011	1049–1330	EL	Pitfall Trap surveys	Partly cloudy to clear; wind 0–5 mph; 70°F–74°F
3/18/2011	0720–1745	BAS, KCD	Rare plant survey– Cielo Azul	0–10% cc; wind 0–2 mph; 39°F–65°F
3/18/2011	1314–1716	EL	Pitfall Trap surveys	0% cc; wind 0–10 mph; 64°F–82°F
3/20/2011– 3/23/2011	NR	PV	Small mammal trapping at Helix-Lambron and Cielo Azul (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–57°F; water - 58°F 100% cc; wind 0–3 mph; 51°F; water - 57°F; rain
3/29/2011	0946–1127	PML	Daytime avian bird count survey	40% cc; wind 0–3 mph; 67°F–71°F
3/29/2011	1937–2103	PML	Nighttime avian bird count survey	10% cc; wind 0–1 mph; 63°F–64°F
3/31/2011	0800–1132	DM	Coverboards	0% cc; wind 0–3 mph; 66°F–76°F
4/2/2011	1000–1600	BAO	Butterfly Survey	10% cc; wind 0–3 mph; 67°F–85°F
4/3/2011	1030–1630	BAO	Butterfly Survey	60% cc; wind 3–10 mph; 63°F–68°F
4/3/2011	2000–2400	PL, JDP	Active Bat Survey	N/R

¹ Each survey includes all three parcels unless otherwise indicated.

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

NA = Not Applicable

NR = Not Recorded

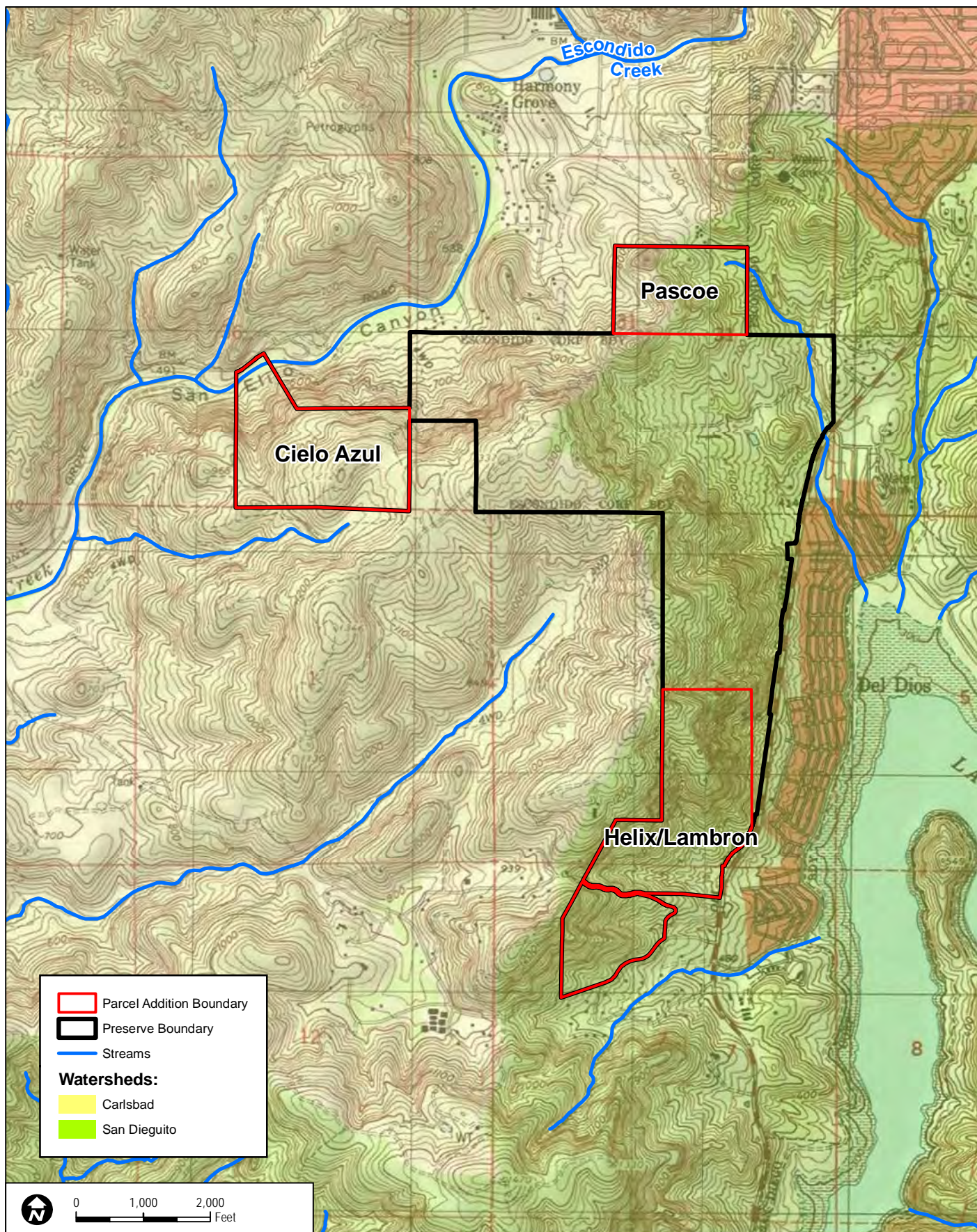


FIGURE 5
Hydrology Map

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

Pascoe, Helix-Lambron and Cielo Azul Parcel Additions to the Del Dios Highlands Preserve - Baseline Biodiversity Survey

DUDEK

6680-01

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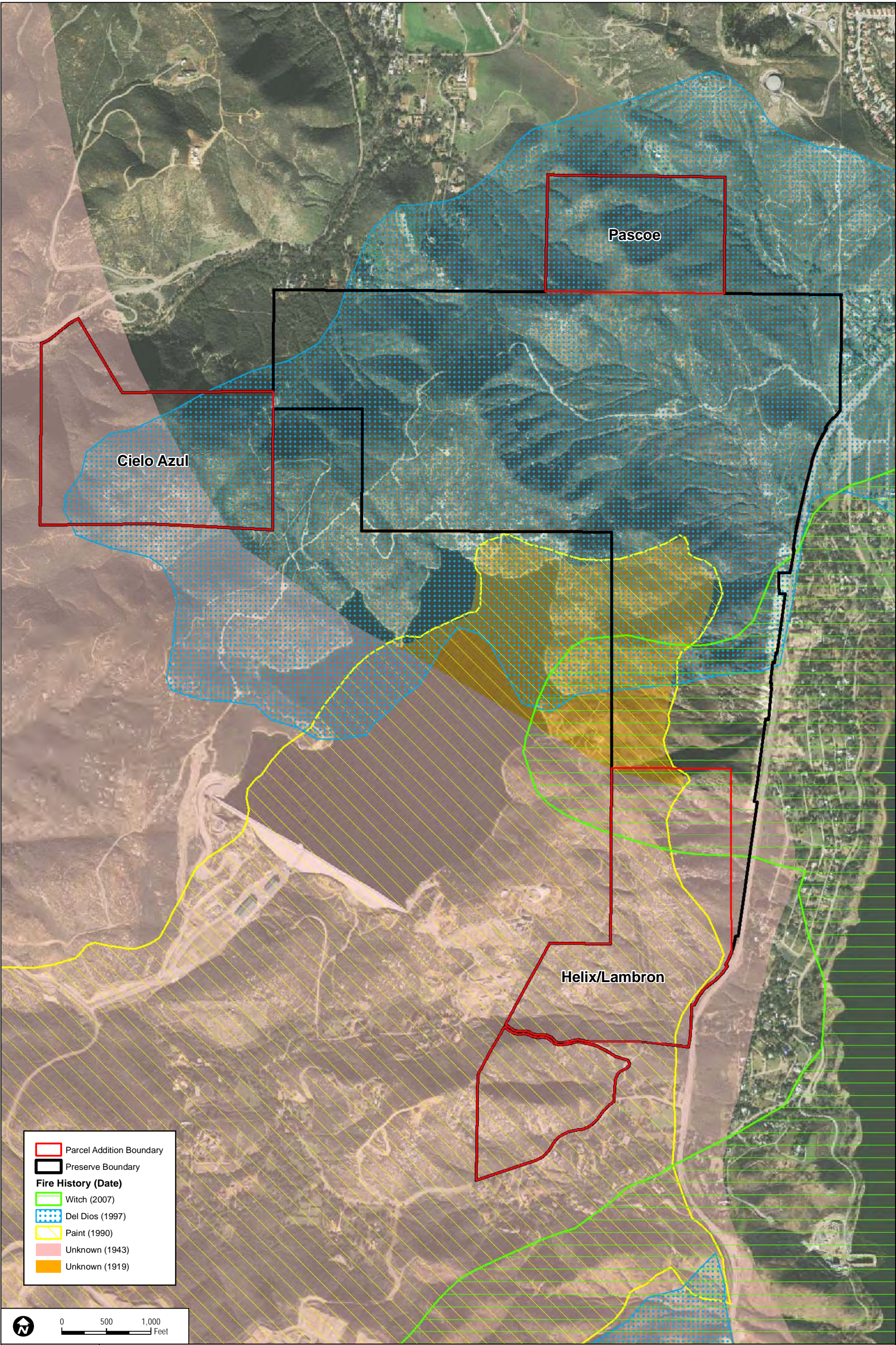


FIGURE 6
Fire History

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Baseline Biodiversity Survey for the Pascoe, Helix-Lambron and Cielo Azul Parcel Additions to the Del Dios Highlands Preserve

During this same time period, Dudek biologists also conducted biological surveys on the adjacent Escondido Creek Preserve. 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 Escondido Creek Preserve (Dudek 2011a) will be included in this report as appropriate.

A review of existing biological resource information for the study area, as well as available state and federal databases, was conducted to provide baseline information regarding sensitive biological resources potentially occurring on the study area 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 (CNDDDB), 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* (CNPS 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). Vegetation surveys were conducted throughout the site on foot and using vehicles where access was available. Following the completion of fieldwork, vegetation polygons were transferred to acetate, scanned and digitized using ArcGIS, and 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 in the study area is presented in Appendix A.

Baseline Biodiversity Survey for the Pascoe, Helix-Lambron and Cielo Azul Parcel Additions to the Del Dios Highlands Preserve

3.2.1 Floristic Surveys

Sensitive/Rare Plant Surveys

Sensitive biological resources present or potentially present in the study area were identified through a literature search using the following sources: CNDDDB (CDFG 2010a, 2010b, 2010d) and the *Inventory of Rare and Endangered Vascular Plants* (CNPS 2010). Special-status plant species considered in this report are those (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 2009a); 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 on the Preserve (e.g., wart-stemmed ceanothus (*Ceanothus verrucosus*)) or have potential to occur on site (e.g., Encinitas baccharis (*Baccharis vanessae*)) so that surveys could be conducted as close as possible to the blooming period of those species. One fall survey was conducted in August 2010 during vegetation mapping on the Helix-Lambron parcel to confirm locations of Encinitas baccharis, a state endangered and federally threatened species. Based on usual blooming patterns, a single pass was conducted in late January 2011 for wart-stemmed ceanothus, which is common where it occurs and readily visible during its peak bloom allowing mapping based on visual scans of hillsides across the site. A second pass was conducted in March 2011 (given the constraints of the contract period) to detect annual and other spring blooming species. The second 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 Preserve. Given the timing and intensity of the survey effort, a determination of presence/absence was not achieved for many species.

Field survey methods conformed to County of San Diego Department of Planning and Land Use (DPLU) 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).

Baseline Biodiversity Survey for the Pascoe, Helix-Lambron and Cielo Azul Parcel Additions to the Del Dios Highlands Preserve

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 were recorded on 200-scale aerial/topographic field maps or using 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 species status and distribution in the vicinity of the study area, 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 study area. The entire study area was surveyed; however, to maximize productivity, Dudek prioritized locations 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) 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 and 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 study area.

Species locations were mapped with a combination of field GPS and hand mapping onto field maps. All collected data were combined into a GIS data layer with points and polygons representing species locations. The points and polygons for the non-native, invasive species are quantified for inclusion in the vegetation management plan being prepared for the Preserve (Dudek 2011b).

Baseline Biodiversity Survey for the Pascoe, Helix-Lambron and Cielo Azul Parcel Additions to the Del Dios Highlands 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 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 study area and the adjacent Escondido Creek Preserve in order to reduce survey effort. Therefore, data gathered along Escondido Creek on the adjacent Escondido Creek Preserve will be included in this report as appropriate.

3.3.1 Invertebrates

Two general butterfly surveys, or passes, were performed in the study area 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. While it was not possible to hit the absolute 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 from 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. Host or nectar plants for certain special-status butterflies (e.g., quino checkerspot (*Euphydryas editha quino*) or hermes copper (*Lycaena hermes*), if observed, were mapped as either a point or polygon location depending on the size of the population. Areas containing nectar or host plant resources, drainages, ridges, and hilltops, were emphasized during butterfly surveys. 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.

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3.3.2 Herpetofauna

Two pitfall trap arrays were constructed on the Helix-Lambron and Cielo Azul parcels. In addition, two coverboards were set at the Pascoe and Helix-Lambron parcels within the study area. 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. An attempt was made to install the arrays at locations that provided the greatest amount of potential species diversity. For locations, see Figure 7, 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) and was 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 approximately 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 while seeking cover. 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 the first day and checked over the next four 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 were 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 was 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

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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).

Two coverboards were installed: one at the Pascoe parcel, and one in the southern portion of the Helix-Lambron parcel, in an attempt to identify other reptile and amphibian species (Figure 7). A coverboard set simply consists of a 4-foot-by-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. These appear to be most effective during the colder months of the year. Dudek set the coverboards within locations situated far enough from a trail 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). Similar individual capture data were collected for herp trap arrays, and the locations were indicated using GPS (Figure 7). Coverboards were installed in December 2010 and checked monthly (once per month) through March 2011 (Table 2).

An aquatic survey was conducted within Escondido Creek on both the Cielo Azul parcel of Del Dios Highlands Preserve and the adjacent Escondido Creek Preserve. 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 7 and the sampling schedule is included in Table 2.

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

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

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Count, Point Reyes National Seashore, Partners in Flight, Arizona State University, Florida Monitoring Project, NPS, CDFG Parks and Recreation Department, USGS, U.S. Fish and Wildlife Service (USFWS), and others.

Much variation exists among 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 study area are diverse, a radius of 50 meters (164 feet) was used around each point. This falls well within ranges found within the literature (20 to 400 meters; 66 to 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 study area 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 from another point. A total of seven point count stations were established within the study area (Figure 7). All sites were situated in or adjacent to southern mixed chaparral habitat or oak woodland habitat. The distribution of points was based on accessibility in the study area. 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 were 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 waiting period, 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

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flight were additionally recorded as either using the landscape (e.g., actively foraging swallows and raptors, and raptors using thermal updrafts) or not (e.g., birds commuting between distant habitat patches off site, such as cormorants over an upland site, or birds migrating high overhead). 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 was as unobtrusive as possible during the point count session. The observer wore drab clothing, did not talk, turned 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 were 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.

To augment the point count studies, birds identified during the course of other survey work were also included within the species compendium (Appendix B), though their relative abundance was not noted.

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3.3.4 Mammals

Small Mammals

Two trapping arrays were set on the study area. One trap array was located in the southern mixed chaparral off Mt. Israel Road at Helix-Lambron and one trap array was located along Escondido Creek at Cielo Azul (Figure 7). 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 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 indicated using GPS and the location marked in the field using whisker nails. All trapped individuals were temporarily marked with a permanent marker, 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, small mammal species identified through other surveys (e.g., herp arrays, nocturnal surveys) were included within the species compendium (Appendix B).

Medium to Large Mammals

The northwestern portion of Cielo Azul includes San Elijo Canyon and Escondido Creek, which may function as a wildlife corridor or high use area. One (1) baited motion sensing camera was installed at the adjacent Escondido Creek Preserve within this feature. The remainder of the study area does not include any obvious wildlife corridor or high use areas to focus on. Therefore, two baited motion-sensing cameras were installed within the study area (Figure 7). Each was set where it was accessible and protected from the public, but placed near potential higher-use movement areas (e.g., dirt roads leading to important resources, such as 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

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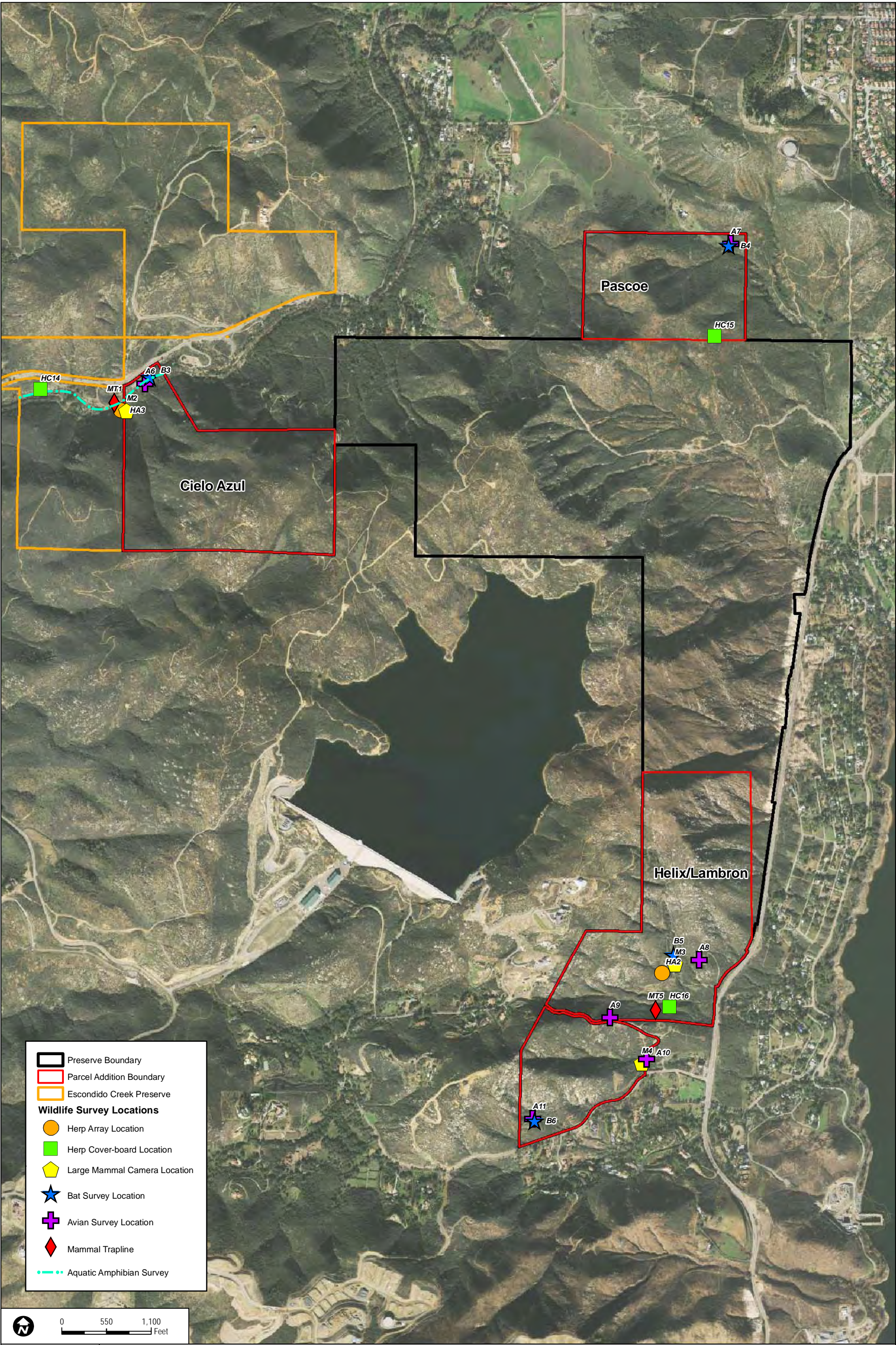
set in place for 2 weeks per month, and photographs were downloaded, the bait refreshed, and batteries checked at approximately 1-week intervals. Camera stations were installed in January 2011 and were also used February through April 2011 (Table 2).

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 on an excel spreadsheet. Example photographs of each species captured are included in Appendix F.

Bats

Both Anabat and Sonobat technologies were used to identify foraging and roosting bats present within the study area. 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 four monitoring locations along Escondido Creek, Mt. Israel Road, and Del Dios Highway as well as on the Pascoe parcel (B3–B6 on Figure 7). 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 2011 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.



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The survey stations were distributed across the study area and sampled different habitats as feasible. 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 four locations were surveyed each night (Table 2). 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 were 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
B3 - Escondido Creek	1/24/11 - 1/31/11; 2/28/11 - 3/8/11	17
B4 - Pascoe	1/12/11 - 1/19/11; 2/28/11 - 3/8/11	17
B5 - Del Dios Hwy.	12/23/10 (unit stopped recording after 1 night); 1/5/11 - 1/10/11; 2/11/11 - 2/17/11	14
B6 - Mt. Israel Rd.	12/23/10 - 12/30/10; 2/11/11 - 2/17/11	15

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

Eight vegetation communities and land cover types (including disturbed forms) were mapped on the study area including: Diegan coastal sage scrub, southern mixed chaparral, disturbed southern mixed chaparral, non-native grassland, southern coast live oak riparian forest, southern willow scrub, coast live oak woodland, and disturbed habitat (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, coast live oak woodland is provided protection under the California Oak Woodland Conservation Act. Figures 8a–d, Vegetation Communities/Habitats, show the distribution of vegetation communities and land covers within the study area.

Table 4
Vegetation Communities and Land Covers¹

Vegetation Community/Land Cover Type (Holland Code)	MSCP Habitat Tier	Acres On Site
Disturbed Habitat (11300)	Tier IV	3.89
Diegan Coastal Sage Scrub ² (32500)	Tier II	2.07
Southern Mixed Chaparral ³ (37120)	Tier III	289.05
Non-Native Grassland (42200)	Tier III	1.23
Southern Coast Live Oak Riparian Forest (61310)	Tier I	1.32
Southern Willow Scrub (63320)	Tier I	0.33
Coast Live Oak Woodland (71160)	Tier I	15.12
Total		313.00

¹ Does not include 100-foot buffer acreage

² Includes 1.53 acres of disturbed coastal sage scrub

³ Includes 2.56 acres of disturbed southern mixed chaparral

Southern Mixed Chaparral (Holland Code 37120)

Southern mixed chaparral 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

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from the coastal foothills of San Diego County to northern Baja California, Mexico, generally below 3,000 feet AMSL.

The majority of the study area is mapped as southern mixed chaparral with a total of 289.05 acres of this community on site. Of this, there are approximately 2.56 acres located in the northern portion of the Helix-Lambron parcel, which are considered disturbed due to invasion by African fountain grass (*Pennisetum setaceum*).

The following species are associated with the southern mixed chaparral in the study area: laurel sumac, wart-stemmed ceanothus, chamise, lemonadeberry (*Rhus integrifolia*), black sage, California buckwheat (*Eriogonum fasciculatum*), and Ramona-lilac (*Ceanothus tomentosus*). 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 (*Artemisia californica*), California buckwheat, and sages (*Salvia* spp.), with scattered evergreen shrubs, including lemonadeberry and laurel sumac. This vegetation community typically develops on xeric slopes. Diegan coastal sage scrub is widespread in coastal Southern California from Los Angeles to Baja California, Mexico (Holland 1986).

There is a total of 2.07 acres of Diegan coastal sage scrub on the study area. This community occurs immediately south of Harmony Grove Road in the northern portion of Cielo Azul and in the southeastern portion of Pascoe, primarily along the east- and west-facing slopes below the central north-south ridgeline on site. Species such as California buckwheat, black sage, and laurel sumac are relatively common throughout the coastal sage scrub areas on site.

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%–80% of its historical coverage throughout Southern California. It is the focus of the current State of California Natural Communities Conservation Planning (NCCP) Program.

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 (*Bromus* spp.), mustard (*Brassica* spp.), and filaree. Wildflowers are also often associated with non-native grassland. It may occur where disturbance by maintenance (e.g., mowing, scraping, discing, spraying), grazing, repetitive fire,

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agriculture, or other mechanical disruption has 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 1.23 acres in the study area and is located in the northeastern portion of the Pascoe parcel and along the southern boundary of the Cielo Azul parcel. In both areas, foxtail chess (*Bromus madritensis*) is dominant with lesser cover of deerweed and California filago. Non-native grassland is a MSCP Tier III vegetation community.

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 with 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 1.32 acres of southern coast live oak riparian forest that occur in the northern portion of Cielo Azul. Southern coast live oak riparian forest on site is dominated by coast live oak (*Quercus agrifolia*) and western sycamore (*Platanus racemosa*) and occurs within the main flow channel of Escondido Creek (i.e., below ordinary high water).

As a riparian forest, 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 in the study area 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 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 western sycamore. Most stands are too

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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 is approximately 0.33 acre of southern willow scrub in the northern portion of Cielo Azul. This community is characterized by a dense stand of willows located within the main flow channel of Escondido Creek.

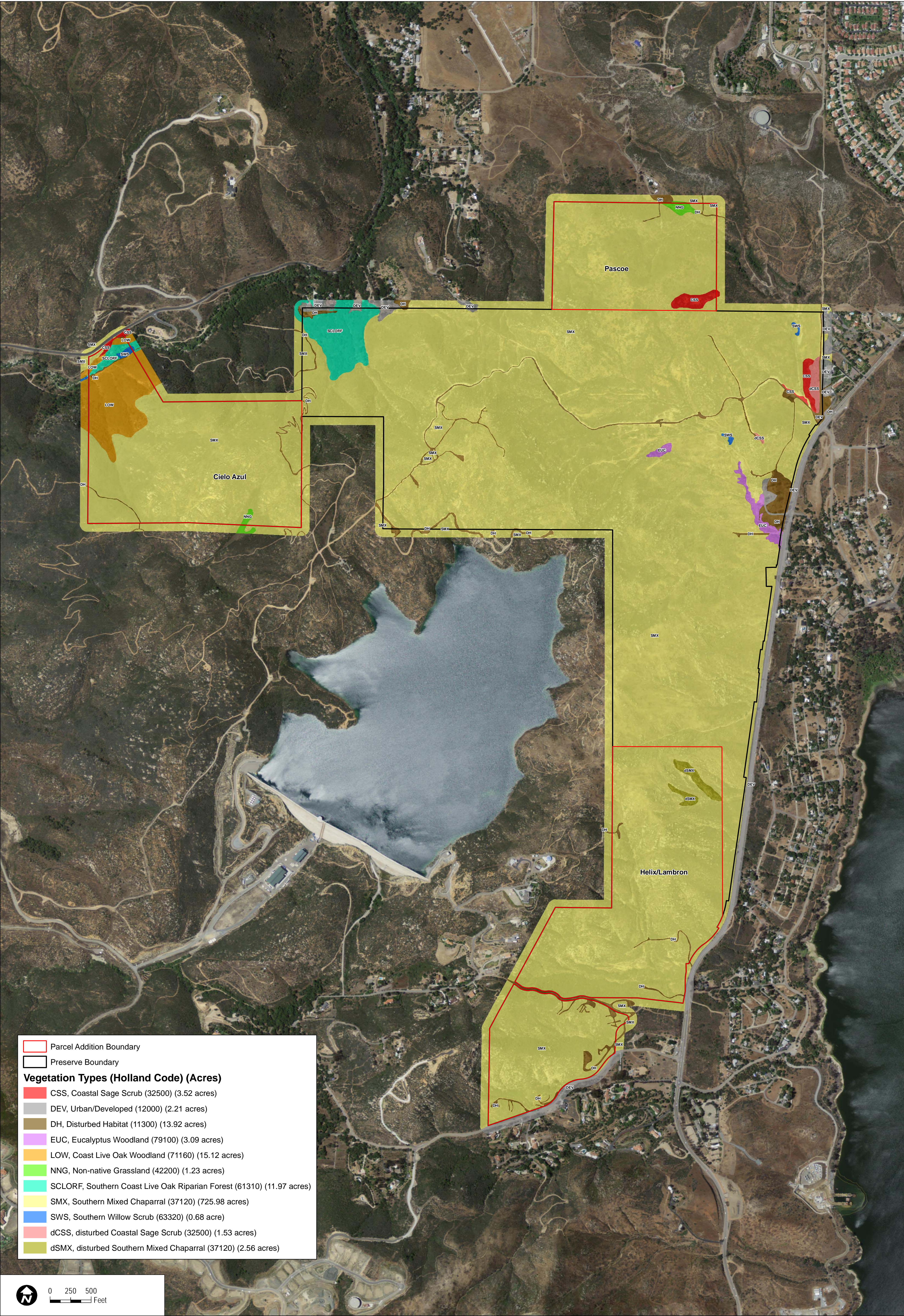
Southern willow scrub is a MSCP Tier I vegetation community. In addition, some or all of the southern willow scrub may be regulated by CDFG pursuant to Section 1600 of the California Fish and Game Code, RWQCB pursuant to Section 401 of the federal CWA and the Porter-Cologne Act, and ACOE pursuant to Section 404 of the federal CWA.

Coast Live Oak Woodland (Holland Code 71160)

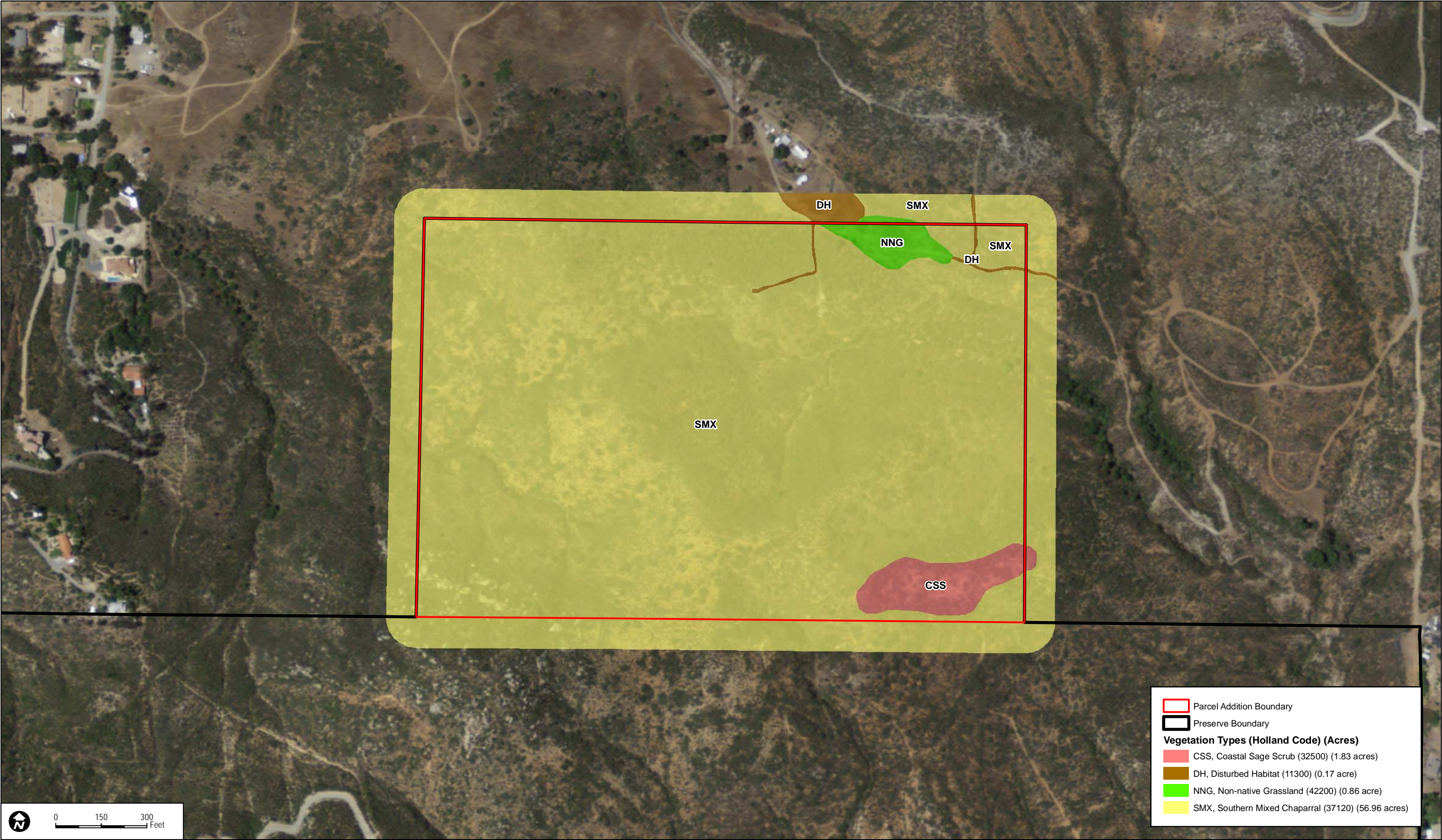
According to Holland (1986), coast live oak woodland is dominated by a single evergreen species, coast live oak. Canopy height reaches 10–25 meters (33–82 feet). This community typically occurs on north-facing slopes and ravines in San Diego County (Holland 1986). The shrub layer is poorly developed 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 15.12 acres of coast live oak woodland in the northwestern portion of Cielo Azul. This area is dominated by coast live oak with laurel sumac and toyon present and an understory of western poison oak (*Toxicodendron diversilobum*), bromes (*Bromus* spp.), and common eucrypta (*Eucrypta chrysanthemifolia*).

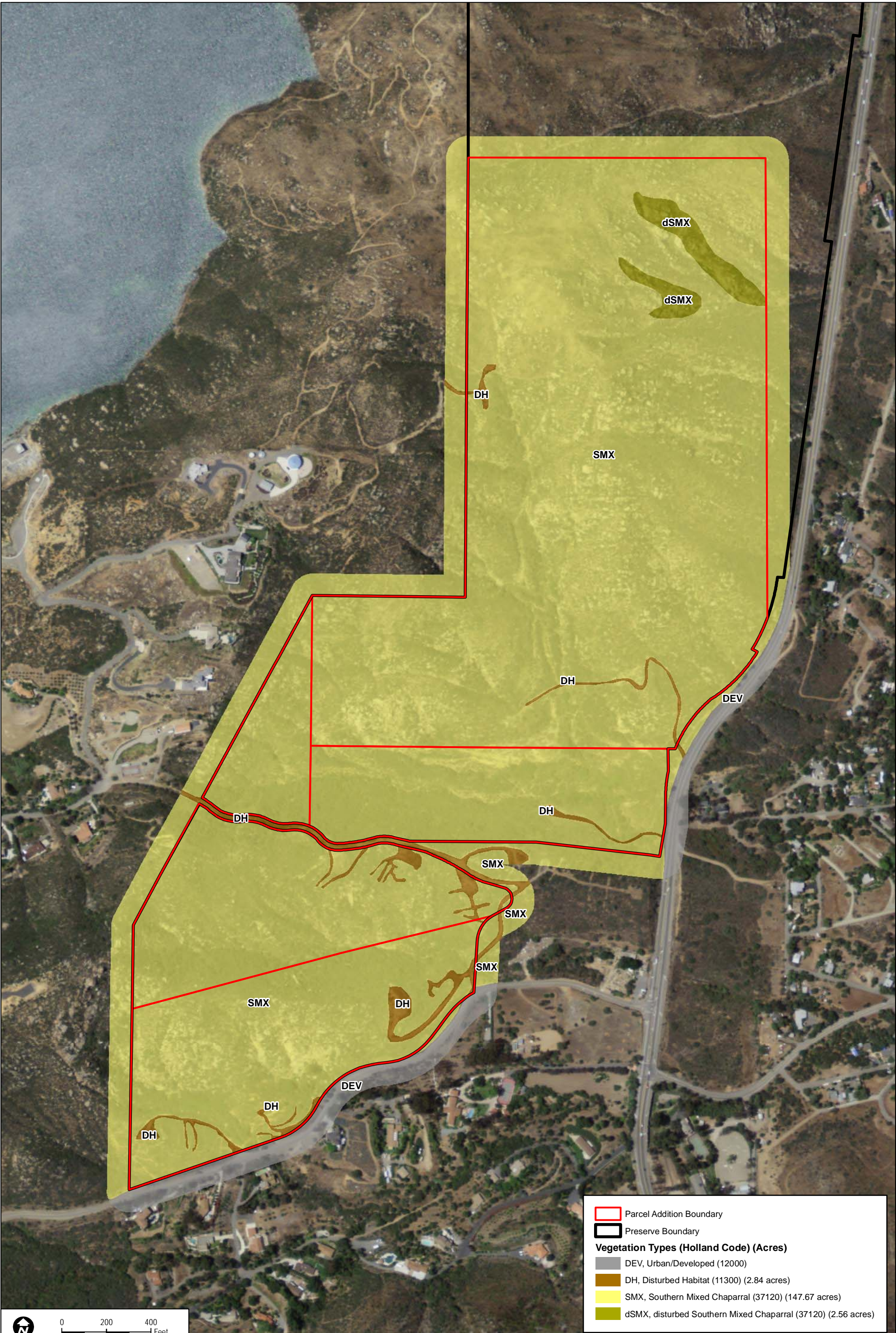
Although adjacent to Escondido Creek, this vegetation community extends up a north-facing slope, and only the portion directly adjacent to the Escondido Creek would be considered part of the riparian corridor, which typically influences the extent of regulation by CDFG pursuant to Section 1600 of the California Fish and Game Code. None of the coast live oak woodland supports wetlands as defined under the federal CWA. Coast live oak woodland is a MSCP Tier I vegetation community and is protected under the California Oak Woodland Conservation Act.



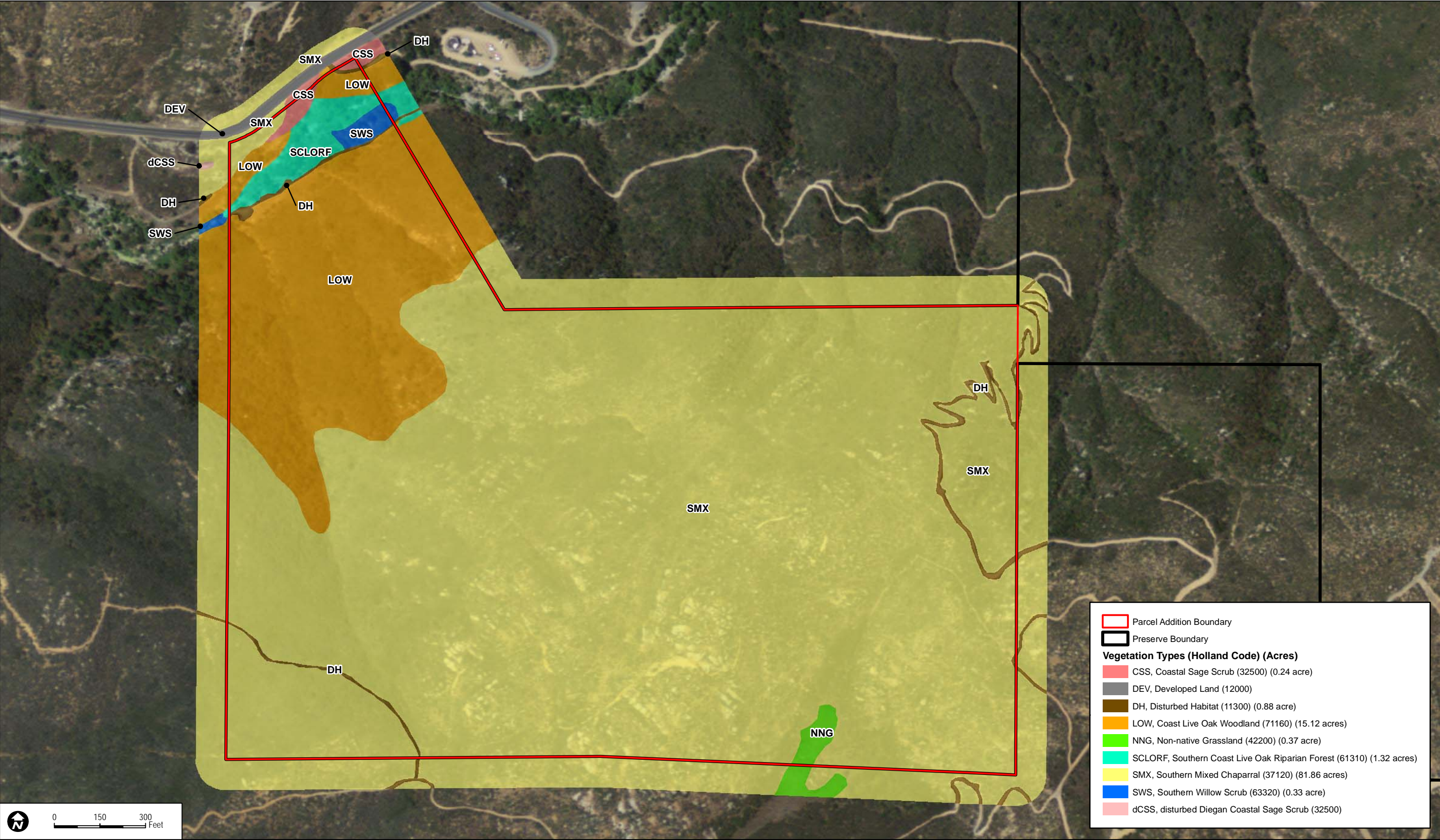
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Disturbed Habitat (Holland Code 11300)

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). Disturbed habitat is a MSCP Tier IV vegetation community, indicating that it has limited habitat value. There are 3.89 acres of disturbed habitat on site, which consists primarily of dirt roads occurring on each parcel.

4.2 Plants

A total of 136 vascular plant species, including four special-status plant species were observed on the study area, two of which are covered under the MSCP. Appendix A lists all of the plant species observed on site.

4.2.1 Special-Status Plant Species Observed

Four special-status plant species were identified on the study area (Figures 9a–c), two of which are MSCP covered species: wart-stemmed ceanothus and Encinitas baccharis.

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 2011). 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 (50–3,000 feet) in elevation (CNPS 2011). 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

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present beneath coast live oak (*Quercus agrifolia*) canopy, but in decidedly mesic circumstances (Reiser 1994).

A single individual of this species was observed in the southwestern portion of Cielo Azul. Approximately 1,500 individuals were observed in the eastern portion of Helix-Lambron.

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 2011). Encinitas baccharis is endemic to San Diego County, and occurs from 60 to 720 meters (197–2,362 feet) AMSL (CNPS 2011). This species occurs in maritime chaparral and cismontane woodland (CNPS 2011). This species is threatened by development and recreation (CNPS 2011).

Encinitas baccharis was observed near an existing CNDDB location along Mt. Israel Place on the Helix-Lambron parcel on a north-facing slope in the understory of nearly 100% cover of ceanothus and chamise. Approximately 300 individuals of Encinitas baccharis occur on the north-facing slope north of Mt. Israel Road on the Helix-Lambron parcel occupying an area of approximately 3 acres. Approximately 10 individuals occur on another small north-facing slope within the drainage north of the main occurrence. Individuals at both locations are scattered throughout the mapped occupied area.

Wart-stemmed Ceanothus (*Ceanothus verrucosus*)

CNPS List 2.2, County List B, 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 2010) in December to May (CNPS 2011). Wart-stemmed ceanothus occurs in San Diego and Riverside Counties and Baja California, Mexico (CNPS 2011). This species occurs in chaparral below 380 meters (1,247 feet) AMSL (CNPS 2011). 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 in all three survey parcels as a common component of southern mixed chaparral. Figures 9a–c show the location of wart-stemmed ceanothus on site as

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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 274 acres were mapped as occupied by wart-stemmed ceanothus; 147 acres at a low density, 94 acres at a medium density, and 33 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 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 Pascoe and Helix-Lambron as well, there would be approximately 101,430 wart-stemmed ceanothus plants at Pascoe and 204,820 wart-stemmed ceanothus plants at Helix-Lambron. Therefore, there are approximately 452,250 wart-stemmed ceanothus plants within the study area. 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.

Ashy Spike-moss (*Selaginella cinerascens*)

CNPS List 4.1, County List B

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 2011). 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 2011). Although ashy

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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 throughout the Cielo Azul and Helix-Lambron parcels.

4.2.2 Special-Status Plant Species with High Potential to Occur

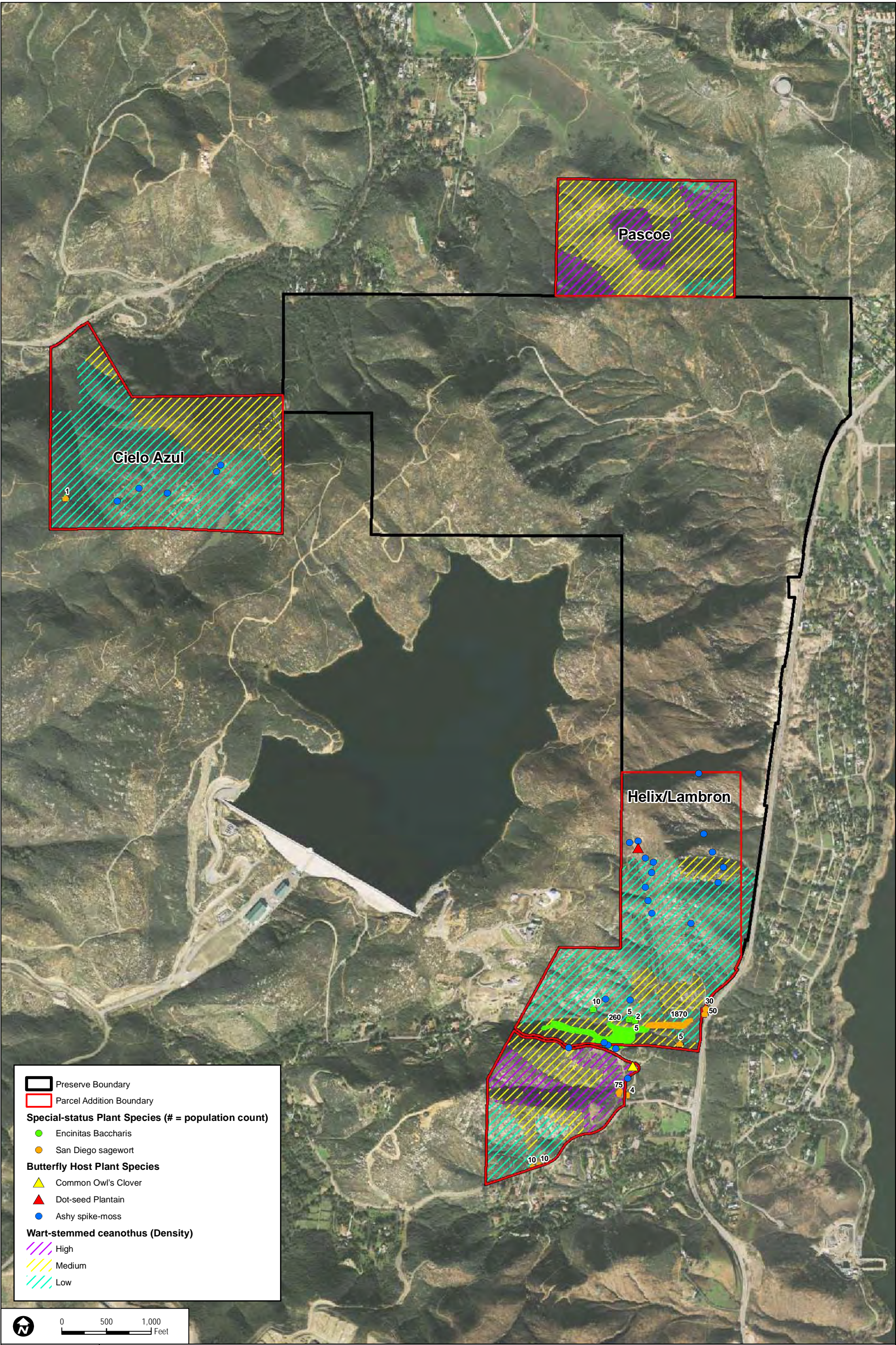
Based on an analysis of the elevation, soils, vegetation communities, and level of disturbance of the site in conjunction with the known distribution of special-status species in the vicinity of the study area and the results of rare plant surveys, four plant species have a high potential to occur in the study area including: felt-leaved monardella (*Monardella hypoleuca* ssp. *lanata*), Brewer's calandrinia (*Calandrinia breweri*), Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*), and summer-holly (*Comarostaphylis diversifolia* ssp. *diversifolia*).

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

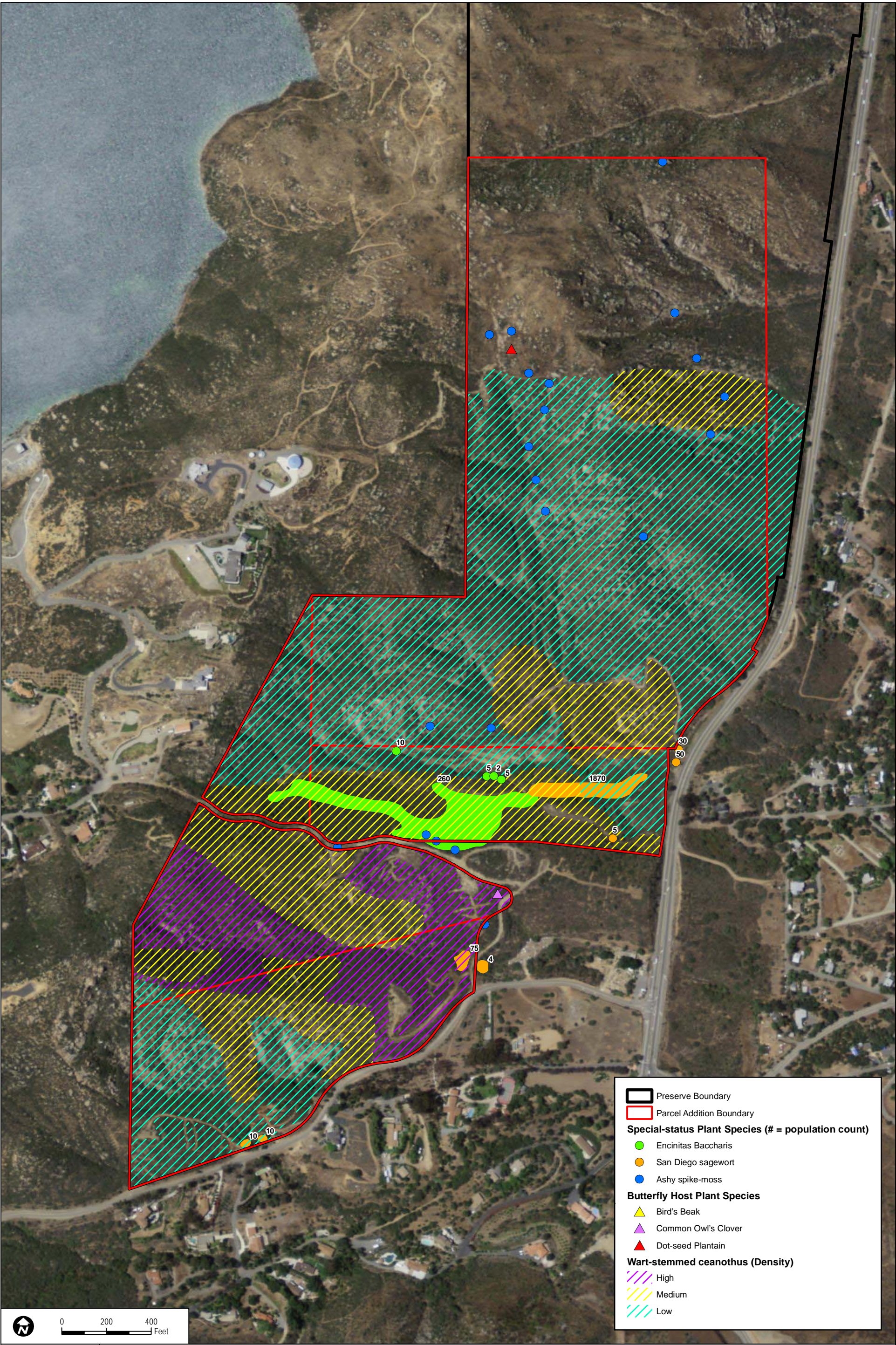
CNPS List 1B.2, County List A, MSCP Covered Species

Felt-leaved monardella 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 2011). This species is found in chaparral and cismontane woodland between 300 and 1,575 meters (984–5,167 feet) in elevation (CNPS 2011). 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).

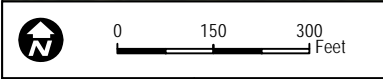
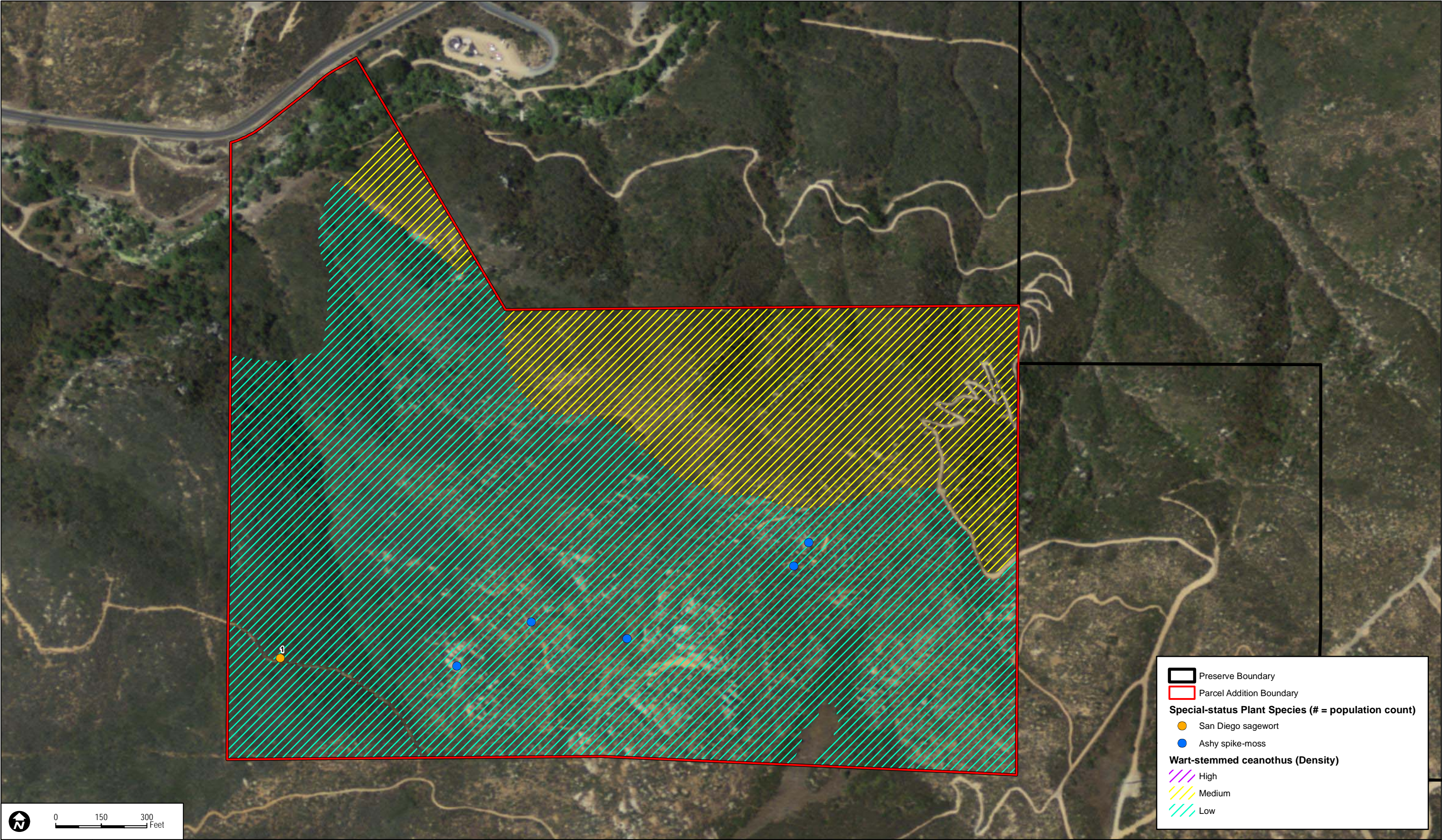
This species has been recorded within one mile of the study area and has potential to occur within the southern mixed chaparral and coast live oak woodland habitats on site. Timing of surveys in February/March 2011 was not optimal for detection of felt-leaved monardella.



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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 2011). 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 Preserve parcels (TAIC 2008) and may occur in the southern mixed chaparral and coastal sage scrub on site.

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 2011). 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 Preserve parcels (TAIC 2008) and may occur in the southern mixed chaparral and coastal sage scrub on site.

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 2011). 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).

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

4.2.3 Non-native and/or Invasive Plants

Twelve invasive non-native plant species have been identified in the study area, including both perennial and annual species. The perennial non-native species within the study area include: hottentot fig (*Carpobrotus edulis*), pampas grass (*Cortaderia selloana*), fountaingrass (*Pennisetum setaceum*), 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 10a–c.

Table 5
Non-native Perennial Plant Species at the Del Dios Highlands Preserve

Scientific Name	Common Name	Cal-IPC Rating*
<i>Carpobrotus edulis</i>	hottentot fig, iceplant	High
<i>Cortaderia selloana</i>	pampas grass	High
<i>Eucalyptus</i> spp.	Eucalyptus	Limited/Moderate
<i>Pennisetum setaceum</i>	fountain grass	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.

Hottentot Fig (*Carpobrotus edulis*)

Hottentot fig, or iceplant, is a succulent shrub found throughout coastal California and the Channel Islands. Hottentot fig was introduced as an ornamental plant and now inhabits coastal scrub, grasslands, chaparral, bluffs, dunes and beaches. This species forms dense mats that increase organic matter in the soil, thereby facilitating the invasion of new non-native species. Hottentot fig propagates by seed and vegetatively. Even small stem fragments can regenerate into a new plant, making control difficult (Cal-IPC 2010). Approximately 10 individuals of hottentot fig were observed along the southeastern boundary of the Helix-Lambron parcel.

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

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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). Five pampas grass individuals were observed in the southeastern portion of the Helix-Lambron parcel.

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). There are approximately 2,600 individuals of fountaingrass throughout the Helix-Lambron parcel.

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). Three eucalyptus trees occur in the northwestern portion of Cielo Azul and there are 12 along the eastern boundary of Helix-Lambron.

Ubiquitous non-native annuals are also present throughout the study area, 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*), 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.

Table 6
Non-Native Annual Plant Species at the Del Dios Highlands Preserve

Scientific Name	Common Name
<i>Avena barbata</i> ; <i>A. fatua</i>	wild oat
<i>Brassica nigra</i>	black mustard
<i>Bromus diandrus</i>	ripgut brome
<i>Bromus hordeaceus</i>	soft brome
<i>Bromus madritensis</i> ssp. <i>rubens</i>	foxtail chess
<i>Centaurea melitensis</i>	star thistle

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Table 6
Non-Native Annual Plant Species at the Del Dios Highlands Preserve

Scientific Name	Common Name
<i>Erodium cicutarium</i>	redstem filaree
<i>Hirschfeldia incana</i>	shortpod mustard

Invasive non-native plant species removal and control is discussed in Section 5.4.1.

4.3 Wildlife

A total of 147 wildlife species were observed or detected within the study area during the 2010-11 surveys including: 13 reptiles, 4 amphibians, 73 birds, 35 mammals, and 22 butterflies. A total of 28 special-status species were observed or detected including 13 MSCP covered species. Appendix B lists all of the wildlife species observed or detected within the study area.

4.3.1 Invertebrates

No large invertebrates were captured within pitfall trap arrays other than millipedes (*Diplopoda*), centipedes (*Chilopoda*), crickets (*Gryllidae*), and smaller spiders (*Araneae*). Smaller invertebrates observed during surveys included bees (*Apoidae*), wasps (*Vespidae*), harvester ant colonies (*Pygomyrmex* 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

Twenty-two butterfly species were observed during surveys conducted on the study area, including: funereal duskywing (*Erynnis funeralis*), checkered white (*Pontia protodice*), and acmon blue (*Icaria acmon acmon*) among others.

No Quino checkerspot butterfly (*Euphydryas editha*), Hermes copper butterfly (*Hermelycaena [Lycaena] hermes*) or any other special-status butterfly species were observed on the study area. However, in accordance with the USFWS survey protocol (USFWS 2002) and based on the site assessment conducted on site, much of the open habitat within the study area 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 and only a few Quino checkerspot butterfly larval host plants were observed. Common owl's clover (*Castilleja exserta* ssp. *exserta*) were observed within the western section of the Helix-Lambron parcel and a patch of dot-seed plantain

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(*Plantago erecta*) was observed in the northern portion of Helix-Lambron (Figures 9a and b). It is expected that more may occur within moister and open soils within the preserve. With the exception of riparian areas along the eastern study area boundary that would be excluded from focused surveys, the remaining portions of the study area 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 Cielo Azul parcel of Del Dios Highlands Preserve and the adjacent Escondido Creek Preserve (Table 7).

Table 7
Aquatic Survey Results

Species			February 23, 2011			March 23, 2011			Total
Common Name	Scientific Name	Status ¹	Number	Sex	Age	Number	Sex	Age	
Amphibians									
Northern Pacific treefrog	<i>Pseudacris regilla</i>	None	100's	---	Adult	100's	---	Adult	100's
Western spadefoot	<i>Spea hammondi</i>	CSC, Group 2, NCMSCP	1	Male	Adult	---	---	---	1
Western toad	<i>Anaxyrus boreas</i>	None	4	Male/ Female	Adult	---	---	---	4
Reptiles									
Two-striped garter snake	<i>Thamnophis hammondi</i>	CSC, Group 1, NCMSCP	1	Male	Adult	---	---	---	1
San Diego ringneck snake	<i>Diadophis punctatus similis</i>	Group 2	1	Female	Adult	---	---	---	1
Western fence lizard	<i>Sceloporus occidentalis</i>	None	2	Male	Sub Adult	---	---	---	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.

One additional amphibian species, a garden slender salamander (*Batrachoseps major*), was observed at coverboard location HC16 (Table 8, Figure 7) on February 25, 2011.

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4.3.2.2 Reptiles

Four reptile species were observed in the Preserve during herpetological surveys (pitfall trap, coverboard, and aquatic). Nine additional reptile species were observed during other surveys. Southern alligator lizard (*Elgaria multicarinata*) was the most common reptile species observed.

Although no special-status reptile species were observed in the pitfall traps or under the coverboards, special-status species, including rosy boa (*Lichanura trivirgata*), coast horned lizard (*Phrynosoma blainvillii*), coastal western whiptail (*Aspidoscelis tigris stejnegeri*), and northern red-diamond rattlesnake (*Crotalus ruber ruber*) were observed on site during other survey efforts, and two-striped garter snake (*Thamnophis hammondi*) and San Diego ringneck snake (*Diadophis punctatus similis*) were observed during the aquatic surveys. Coast horned lizard and two-striped garter snake are covered under the MSCP.

Table 8, Pitfall Trap and Coverboard Results, provides a summary of the species observed during pitfall trap and coverboard herpetological surveys. Note that no wildlife species were captured during December 2010 pitfall trap surveys and January 2011 coverboard surveys. Survey locations are shown on Figure 7.

Table 8
Pitfall Trap and Coverboard Results

Species			February 2011			March 2011	Total
Common Name	Scientific Name	Status	HC 15	HC 16	HA 2	HA 2	
Garden slender salamander	<i>Batrachoseps major</i>	None	—	1	—	—	1
Southern alligator lizard	<i>Elgaria multicarinata</i>	None	—	1	—	2	3
Western fence lizard	<i>Sceloporus occidentalis</i>	None	1	—	—	—	1
Ornate shrew	<i>Sorex ornatus</i>	None	—	—	2	2	4
Total			1	2	2	2	4

4.3.3 Birds

Thirty bird species were observed at the study area during avian point count surveys. The most common species observed in terms of numbers of individuals recorded were bushtit (*Psaltirparus minimus*), wrentit (*Chamaea fasciata*), common raven (*Corvus corax*), California quail (*Callipepla californica*), western scrub-jay (*Aphelocoma californica*), 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-three additional bird species were observed during other surveys conducted on site for a total of 73 bird species detected within the study area (Appendix B).

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Three special-status bird species were observed during avian point count surveys: Cooper's hawk (*Accipiter cooperii*), coastal California gnatcatcher (*Polioptila californica californica*), and barn owl. Eight additional special-status bird species were observed during other survey efforts including gadwall (*Anas strepera*), turkey vulture (*Cathartes aura*), northern harrier (*Circus cyaneus*), red-shouldered hawk (*Buteo lineatus*), western bluebird (*Siala mexicana*), Bell's sage sparrow (*Amphispiza belli belli*), great blue heron (*Ardea herodias*), and yellow warbler (*Dendroica petechia*). Because most of these special-status species were observed during the breeding season, it could be presumed that they all nest within the area or on site; however, none of them were confirmed to be nesting in the study area.

Table 9, Avian Point Count Survey Results, provides a summary of the results of the avian point counts 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 including any flyovers. Survey locations are shown on Figure 7.

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	
A6	6 (12)	0	8 (16)	0	10 (25)	0	16 (53)
A7	7 (19)	1 (1)	8 (21)	0	8 (19)	0	18 (60)
A8	5 (8)	1	9 (25)	1	9 (34)	0	16 (69)
A9	4 (17)	0	7 (11)	1	9 (26)	0	13 (55)
A10	5 (17)	0	7 (21)	0	8 (27)	1	13 (66)
A11	7 (16)	2 (3)	9 (28)	1	9 (28)	2 (5)	16 (81)
Total	15 (89)	3 (5)	23 (122)	3	21 (159)	2 (6)	30 (384)

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

¹Survey point locations are shown on Figure 7. Point A6 is located in the adjacent Escondido Creek Preserve.

Survey point A7, which was located on Pascoe in southern mixed chaparral, had the greatest species richness. Survey points A9 and A10, which were located on Helix-Lambron within or adjacent to southern mixed chaparral, had the lowest bird species diversity.

4.3.4 Mammals

4.3.4.1 Small Mammals

Seven small mammals, all rodents, were trapped on the study area during the small mammal surveys, including the special-status species San Diego pocket mouse (*Chaetodipus fallax fallax*). The most common species trapped was deer mouse (*Peromyscus maniculatus*). Table 10,

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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		Session 2		Total
Common Name	Scientific Name	Status ¹	Cielo Azul	Helix-Lambron	Cielo Azul	Helix-Lambron	
Northwestern San Diego pocket mouse	<i>Chaetodipus fallax fallax</i>	CSC/ Group 2	6 (9)	6 (11)	6 (10)	6 (10)	24 (40)
Dulzura Kangaroo Rat	<i>Dipodomys simulans</i>	None	2 (5)	–	2 (4)	–	4 (9)
Woodrat	<i>Neotoma fuscipens</i>	None	4 (10)	5 (9)	2 (4)	6 (11)	17 (34)
Brush deermouse	<i>Peromyscus boylii</i>	None	–	4 (5)	()	4 (5)	8 (10)
California deermouse	<i>Peromyscus californicus</i>	None	5 (7)	5 (5)	6 (9)	3 (5)	19 (26)
Cactus deermouse	<i>Peromyscus eremicus</i>	None	3 (5)	–	2 (4)	–	5 (9)
North American deermouse	<i>Peromyscus maniculatis</i>	None	15 (28)	15 (25)	22 (35)	24 (35)	76 (123)
Total			35 (64)	35 (55)	40 (66)	43 (66)	153 (251)

¹ CSC: California Special Concern Species (CDFG); Group 2: Animals declining, but not in immediate threat of extinction or extirpation (County)

Note: The first number is the number of new individuals captured and the second number in parentheses is the total number captured, including recaptured individuals. Also, individuals caught during the first trapping session may have been recaptured during the second trapping period, but would have been recorded as new individuals.

One mammal species was also detected during herpetological surveys: ornate shrew (*Sorex ornatus*).

4.3.4.2 Medium and Large Mammals

Three large mammal species were detected by the camera stations located on the study area and the adjacent Escondido Creek Preserve (Figure 7): coyote (*Canis latrans*), bobcat (*Lynx rufous*), and mule deer (*Odocoileus hemionus*). Medium-sized mammals detected include raccoon (*Procyon lotor*), brush rabbit (*Silvilagus bachmani*), and California ground squirrel. Greater roadrunner (*Geococcyx californianus*) was also observed. A summary of the camera study results are provided in Table 11. Tracks and scat of a variety of species, including coyote, bobcat, mule deer, Virginia opossum (*Didelphis virginiana*), and mountain lion (*Felis concolor*) were identified during the course of other survey efforts. 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

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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 Results¹

Observation	M2 - Escondido Creek			M3 - Del Dios Hwy.			M4 - Mt. Israel Rd.			Total
	January 8-17	February 10-28	March 2-18	January 8-20	February 10-28	March 1-26	January 6-14	February 10-27	March 1-19	
Coyote	7	11	8	16	22	13	1	1	–	79
Mule deer	–	–	–	–	–	6	–	–	–	6
Bobcat	–	–	4	–	3	6	–	3	1	17
Raccoon	8	4	5	4	–	1	–	–	–	22
Brush rabbit	–	–	–	4	–	–	–	5	3	12
Hiker	–	1	1	1	–	4	1	1	6	15
Vehicle	–	–	–	–	–	–	–	–	3	3
California ground squirrel	–	–	–	1		–	–	–	1	2
Greater roadrunner					1					1
Total	15	16	18	26	26	30	2	10	14	157

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

Ten bat species were identified within the study area 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*), western yellow bat (*Lasiurus xanthinus*), Yuma myotis (*Myotis yumanensis*), Townsend's big-eared bat (*Corynorhinus townsendii*), pocketed free-tailed bat (*Nyctinomops femorosaccus*), and big free-tailed bat (*Nyctinomops macrotis*). The big free-tailed bat is rarely encountered in California.

Table 12, Bat Survey Results by Survey Pass, shows the number of minutes of bat activity during each survey passive pass and number of detections for the active survey. Table 13, Bat Survey Results by Location, shows the number of minutes (passive survey) or detections (active) of bat activity for each bat survey location. Number of minutes of bat activity is more useful than exact

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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 and number of detections for active surveys)

Species			First Pass ² 12/23/10– 1/31/11	Second Pass 2/11/11–3/8/11	Total	Active Pass 4/3/2011
Common Name	Scientific Name	Status ¹				
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	CSC, Group 2, NCMSCP	1	0	1	0
Big brown bat	<i>Eptesicus fuscus</i>	None	4	1	5	0
Western red bat	<i>Lasiurus blossevillei</i>	CSC, Group 2	102	127	229	0
Hoary bat	<i>Lasiurus cinereus</i>	None	9	14	23	0
Western yellow bat	<i>Lasiurus xanthinus</i>	CSC	1	2	3	0
Yuma myotis	<i>Myotis yumanensis</i>	Group 2	13	498	511	43 ³
Pocketed free-tailed bat	<i>Nyctinomops femorosaccus</i>	CSC, Group 2	62	104	166	1
Big free-tailed bat	<i>Nyctinomops macrotis</i>	CSC, Group 2	2	0	2	0
Canyon bat	<i>Parastrellus hesperus</i>	None	30	64	94	4
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>	None	96	287	383	4
Total			320	1,097	1,417⁴	52³

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 Note that 42 of these detections appear to be of the same individual. It is likely that there were really 2 individuals detected.

⁴ This total does not reflect the active survey results

Table 13
Bat Survey Results by Location (In minutes of detection for passive and number of detections for active surveys¹)

Species			Location ³				
Common Name	Scientific Name	Status ²	B3	B4	B5	B6	Total ⁴
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	CSC, Group 2, NCMSCP	0	0	1	0	1
Big brown bat	<i>Eptesicus fuscus</i>	None	1	4	0	0	5
Western red bat	<i>Lasiurus blossevillei</i>	CSC, Group 2	216	7	6	0	229
Hoary bat	<i>Lasiurus cinereus</i>	None	22	1	0	0	23
Western yellow bat	<i>Lasiurus xanthinus</i>	CSC	0	1	0	2	3

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Table 13
Bat Survey Results by Location (In minutes of detection for passive and number of detections for active surveys¹)

Species			Location ³				
Common Name	Scientific Name	Status ²	B3	B4	B5	B6	Total ⁴
Yuma myotis	<i>Myotis yumanensis</i>	Group 2	498 (1)	7	3 (42 ⁵)	3	511
Pocketed free-tailed bat	<i>Nyctinomops femorosaccus</i>	CSC, Group 2	8	106	16 (1)	36	166
Big free-tailed bat	<i>Nyctinomops macrotis</i>	CSC, Group 2	0	1	1	0	2
Canyon bat	<i>Parastrellus hesperus</i>	None	46	8 (3)	29 (1)	11	94
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>	None	67	239 (3)	7	70 (1)	383
Total			858	374	63	122	1,417

¹ Active survey number of detections in parenthesis. ² 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).

³ Survey locations are shown on Figure 7.

⁴ Total only includes passive survey results in minutes of detection..

⁵ Note that all 42 of these detections appeared to be of the same individual foraging over the area..

4.3.5 Special-Status Wildlife Observed

Twenty-eight special-status wildlife species were observed or detected within the study area during the 2010–11 surveys (Figures 11a–d), 13 of which are MSCP covered species. Observed special-status species are discussed below.

Herpetofauna

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–August (CaliforniaHerps 2009).

Individuals were observed along Escondido Creek and in the middle of the Pascoe parcel. It is highly likely that this species could occur throughout the Del Dios Preserve.

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Rosy Boa (*Charina trivirgata roseofusca*)

County Group 2

The preferred habitat of rosy boa consists of moderate vegetation and rocky cover found in desert, coastal sage and chaparral habitats (Zeiner et al. 1988). Rosy boa is found widely throughout southern California in canyons, washes and mountains ranging in elevation from sea level to about 4,000 feet (Lemm 2006). Rosy boa feeds on small rodents, birds and maybe lizards (Lemm 2006). Breeding occurs in the spring and live young are born from August to October with approximately 6–10 in a brood (Lemm 2006).

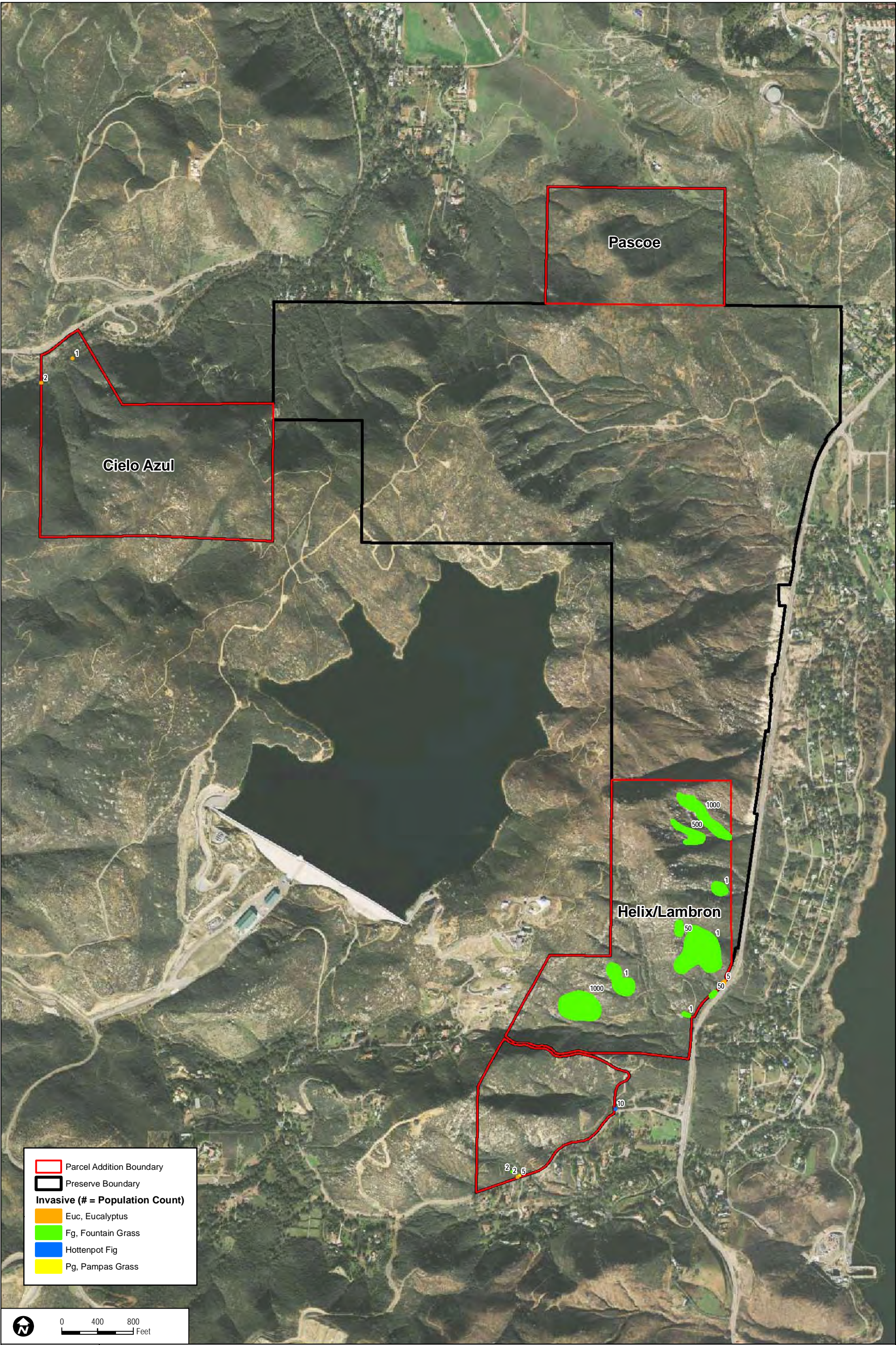
Although not observed in a pitfall trap, one rosy boa was observed during this survey effort on March 15, 2011. It was observed on the trail leading to the pitfall trap array on Helix-Lambron, approximately three-quarters of the way into the parcel from the gate.

Western Spadefoot (*Spea hammondi*)

State Species of Special Concern, County Group 2, 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).

A single male western spadefoot was detected February 23, 2011 during amphibian surveys conducted along Escondido Creek.



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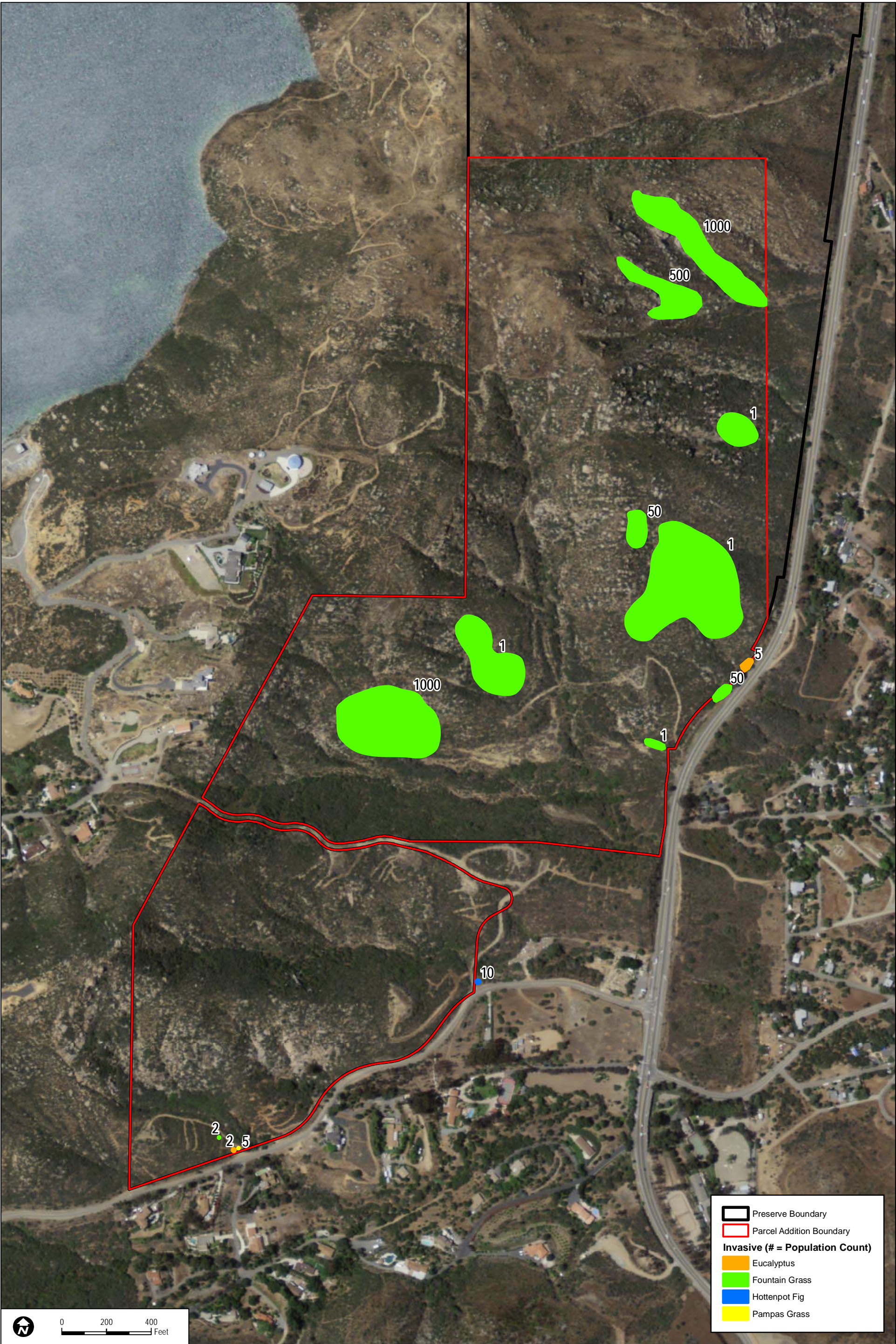
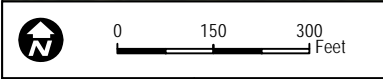


FIGURE 10b
Invasive Plant Species

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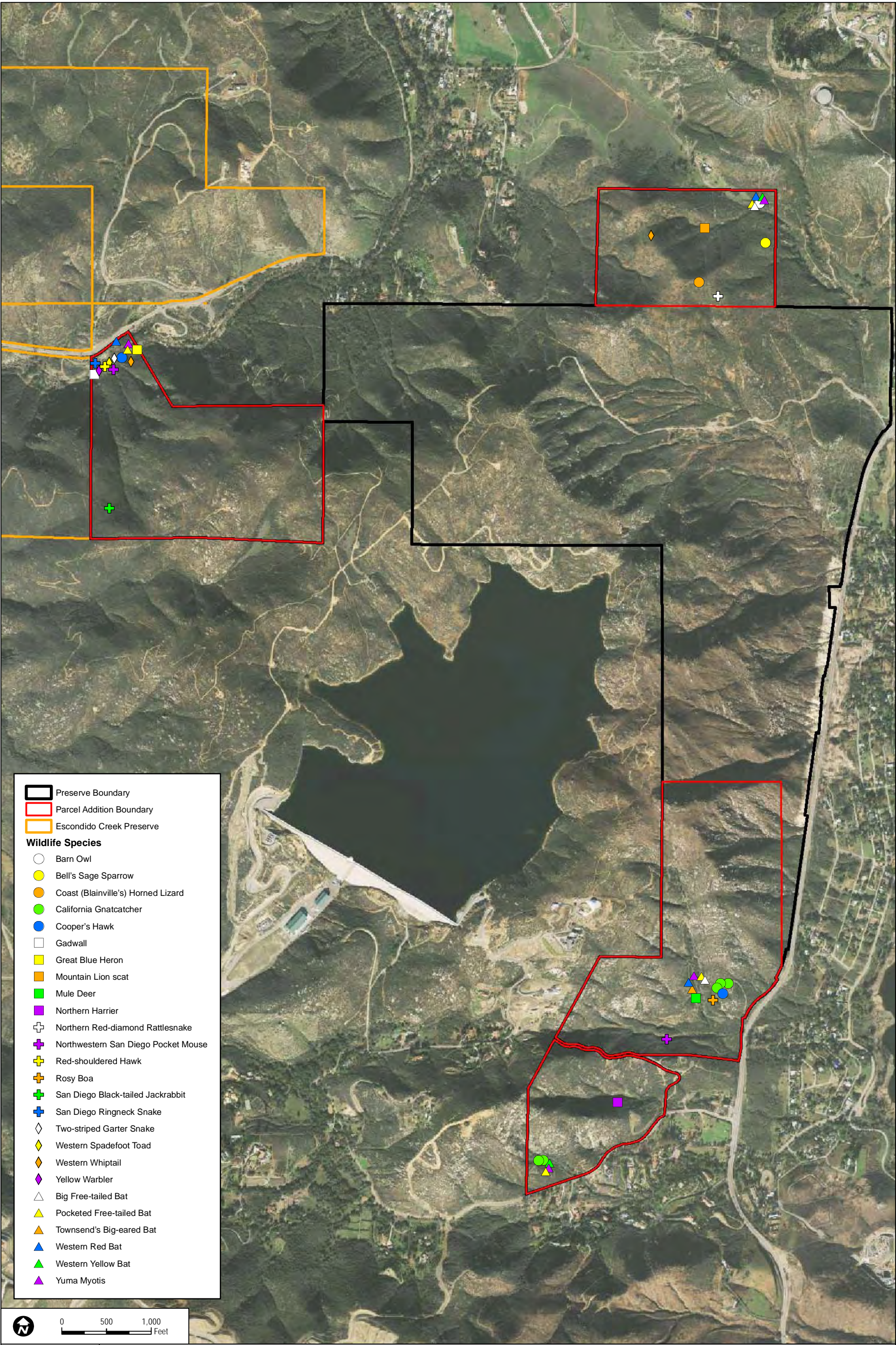
Parcel Addition Boundary

Preserve Boundary

Invasive (# = Population Count)

Eucalyptus

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Preserve Boundary

Parcel Addition Boundary

Escondido Creek Preserve

Wildlife Species

Barn Owl

Bell's Sage Sparrow

Coast (Blainville's) Horned Lizard

California Gnatcatcher

Cooper's Hawk

Gadwall

Great Blue Heron

Mountain Lion scat

Mule Deer

Northern Harrier

Northern Red-diamond Rattlesnake

Northwestern San Diego Pocket Mouse

Red-shouldered Hawk

Rosy Boa

San Diego Black-tailed Jackrabbit

San Diego Ringneck Snake

Two-striped Garter Snake

Western Spadefoot Toad

Western Whiptail

Yellow Warbler

Big Free-tailed Bat

Pocketed Free-tailed Bat

Townsend's Big-eared Bat

Western Red Bat

Western Yellow Bat

Yuma Myotis

N

0

500

1,000

Feet

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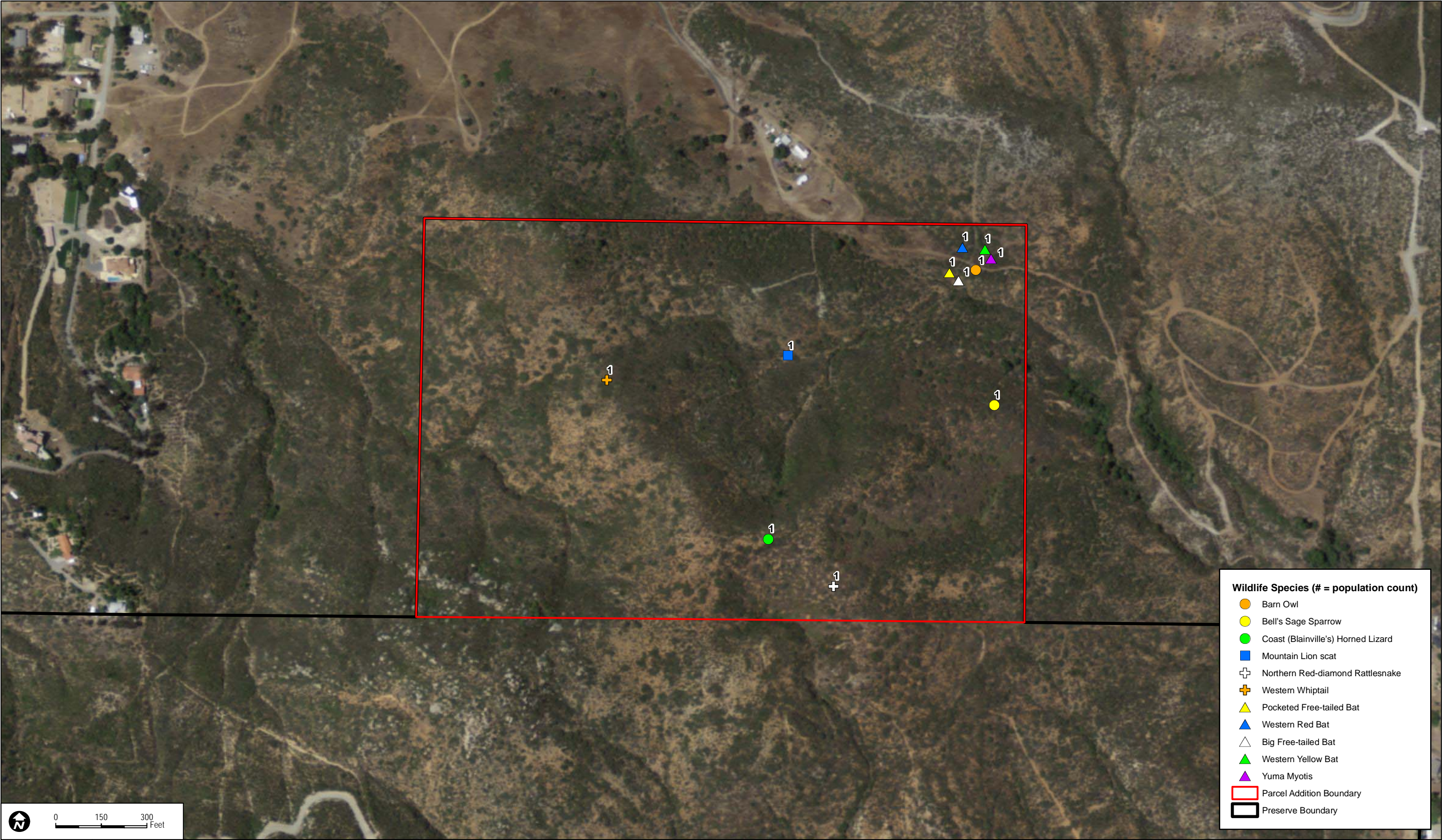


FIGURE 11b
Special Status Wildlife Species

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0 200 400 Feet

DUDEK

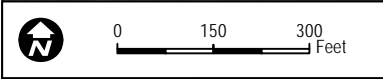
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SOURCE: NAIP 2009

Pascoe, Helix-Lambron and Cielo Azul Parcel Additions to the Del Dios Highlands Preserve - Baseline Biodiversity Survey

FIGURE 11c
Special Status Wildlife Species

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Baseline Biodiversity Survey for the Pascoe, Helix-Lambron and Cielo Azul Parcel Additions to the Del Dios Highlands Preserve

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

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

Northern red-diamond rattlesnake occurs in San Diego, Riverside, and San Bernardino counties in arid sage scrub, chaparral, woodlands, and desert habitats that have rocky outcrops or dense vegetation (Zeiner et al. 1988). The elevation range for the red-diamond rattlesnake is between sea level and 3,000 feet (Zeiner et al. 1988). The red-diamond rattlesnake is an ambush hunter and will feed on birds, rabbits, rodents, squirrels and the young will even eat lizards (Lemm 2006). Mating occurs from March to May with egg development lasting approximately 4 months. Between 5–13 young are born in late summer, early fall (Zeiner et al. 1988).

A single juvenile northern red-diamond rattlesnake was observed on the Pascoe parcel on March 3, 2011.

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.

Two-striped Garter Snake (*Thamnophis hammondi*)

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

Two-striped garter snake occurs along the coast of California from Monterey 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 elevations ranging from 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).

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One male two-striped garter snake was observed during aquatic surveys conducted in February along Escondido Creek.

Coast Horned Lizard (*Phrynosoma blainvillei*)

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

Coast horned lizard inhabits valley-foothill hardwood, conifer, pine-cypress, juniper, annual grassland, and riparian habitats (Zeiner et al. 1988). 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–June; the mean clutch size is 13 eggs (Zeiner et al. 1988).

One coast horned lizard was observed on the Pascoe parcel during botanical surveys in March 2011.

Birds

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 8–12 eggs per clutch (Zeiner et al. 1990a).

Gadwall was observed adjacent to Escondido Creek during aquatic surveys.

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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.

Yellow Warbler (*Dendroica petechial 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).

A single male yellow warbler was detected along Escondido Creek during the late March surveys.

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

Federal Bird of Conservation Concern, State Watch List, County Group 1, 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

Baseline Biodiversity Survey for the Pascoe, Helix-Lambron and Cielo Azul Parcel Additions to the Del Dios Highlands Preserve

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).

A single Bell's sage sparrow was observed within the Pascoe parcel during March surveys.

Cooper's Hawk (*Accipiter cooperii*)

State Watch List, County Group 1, MSCP Covered Species

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).

One Cooper's hawk was observed during avian bird count surveys on February 14, 2011 on the Helix-Lambron parcel at point count station A8. No nests were observed.

Red-Shouldered Hawk (*Buteo lineatus*)

County Group 1

Red-shouldered hawk inhabits low-elevation (below 5,000 feet) riparian woodlands, particularly in areas with interspersed swamps and emergent wetlands. Red-shouldered hawks forage primarily along wet meadow, swamp, and emergent wetland edges for a variety of prey including mammals, snakes, lizards, amphibians, small or young birds, and large insects. They nest in dense riparian habitats near permanent water (Zeiner et al. 1990a). Red-shouldered hawks are diurnally active and yearlong residents. Breeding occurs from February through July (Zeiner et al. 1990a).

Red-shouldered hawk was observed within the Escondido Creek portion of Cielo Azul during the 2010-11 surveys. This species has a low potential to occur elsewhere on the parcel additions.

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Northern Harrier (*Circus cyaneus*)

State Species of Special Concern, County Group 1, 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.

A pair of northern harriers was observed foraging along the Helix-Lambron parcel in early March.

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.

Coastal California Gnatcatcher (*Poliophtila californica californica*)

Federally Threatened, State Species of Special Concern, County Group 1, 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 occurs in low numbers in the San Gabriel and San Bernardino Mountains of Los Angeles and San Bernardino counties (Zeiner et al. 1990a). California gnatcatcher is considered an obligate resident of coastal scrub habitat in arid washes, on mesas, and on slopes of coastal hills, of which California buckwheat, coastal sagebrush, and prickly pear patches are

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especially preferred (Zeiner et al. 1990a). California gnatcatcher is an insectivorous species that forages by gleaning.

California gnatcatcher was observed in January, February, and March during the avian bird count surveys on the Helix-Lambron parcel. At point count station A8, two individuals were detected in January, one individual in February, and two individuals in March. At A11, there was one individual detected in January and February.

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).

One barn owl was detected during nighttime avian bird count surveys on January 6, 2011, on the Pascoe parcel.

Western Bluebird (*Siala mexicana*)

County Group 2, MSCP Covered Species

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 within Pascoe and adjacent to the Cielo Azul parcel during the winter and spring surveys. Western bluebirds have not been recorded as

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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.

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 coarse 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).

A total of 24 new (40 recaptured) northwestern San Diego pocket mice were captured during small mammal trapping in the study area. This species was detected during both trapping sessions at the trapping locations on Cielo Azul and Helix-Lambron.

Townsend's big-eared bat (*Corynorhinus townsendii*)

State Species of Special Concern, County Group 2, 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 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 the first pass of bat surveys at the station along Del Dios Highway.

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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. 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 Del Dios Highway, and within the Pascoe parcel.

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 both passes of bat surveys off Mt. Israel Road and at Pascoe.

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

State Species of Special Concern, County Group 2, 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). The San Diego black-tailed jackrabbit is herbivorous and grazes on grasses and forbs, and uses 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 to 4 offspring is produced 4 times throughout the year depending environmental conditions (Zeiner et al. 1990b).

Black-tailed jackrabbit was observed within the Cielo Azul parcel.

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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 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 at every survey location.

Big Free-tailed Bat (*Nyctinomops macrotis*)

California 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 1990).

Big free-tailed bat was detected during the first pass of bat surveys on Pascoe and along Del Dios Highway.

Mountain Lion (*Puma concolor*)

County Group 2, 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 on the Pascoe parcel during the February butterfly surveys.

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Mule Deer (*Odocoileus hemionus*)

County Group 2, MSCP Covered Species

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 2011). 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. Breeding typically peaks late November to mid-December (NatureServe 2011).

Wildlife cameras on site detected six individual mule deer. However, it is likely several individuals commonly traverse the study area as pellets were routinely discovered across all sites.

Pocketed Free-tailed Bat (*Nyctinomops femorosaccus*)

State Species of Special Concern, County Group 2

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 bat occurs in San Diego, Riverside, and Imperial counties and is more common in Mexico. 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 survey location within the study area.

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 site in conjunction with the known distribution of special-status species in the vicinity of study area and the results of focused wildlife surveys, seven wildlife species have a high potential to occur on the study area. The high potential to occur species include two reptile, two bird, and three mammal species.

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Orange-throated Whiptail (*Aspidoscelis hyperythra*)

State Species of Special Concern, County Group 2, 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 Preserve parcels (TAIC 2008) and may occur in the southern mixed chaparral and coastal sage scrub on site.

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

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 Preserve parcels (TAIC 2008) and may occur in the southern mixed chaparral and coastal sage scrub on site.

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

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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).

Southern California rufous-crowned sparrow was previously detected on the adjacent Preserve parcels (TAIC 2008). It has a high potential to occur in the study area within suitable scrub and open chaparral habitat.

Peregrine Falcon (*Falco peregrines anatum*)

State Fully Protected, County Group 1, MSCP Covered Species

Peregrine falcons are known to breed along the coast north of Santa Barbara, in the Sierra Nevada, and in other mountains of northern California. In winter, peregrine falcons occur inland throughout the Central Valley, and occasionally on the Channel Islands. In spring and fall, peregrine falcons migrate along the coast, and in the western Sierra Nevada (Zeiner et al. 1990a). This species uses riparian areas and coastal and inland wetlands habitats yearlong, especially in nonbreeding seasons. Breeding habitats include woodland, forest, and coastal areas. Peregrine falcons mainly prey on birds but may take mammals, insects, and fish as well (Zeiner et al. 1990a).

Peregrine falcon was previously observed on the adjacent Preserve parcels (TAIC 2008) and may forage in the riparian areas along Escondido Creek.

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). 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 Preserve parcels (TAIC 2008) and has a high potential to occur within the study area given the presence of suitable habitat.

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Western Mastiff Bat (*Eumops perotis californicus*)

State Species of Special Concern, County Group 2

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). 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).

This species was previously detected on the adjacent Preserve parcels (TAIC 2008) and has a high potential to occur within the study area.

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. 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).

Desert woodrat was previously detected on the adjacent Preserve parcels (TAIC 2008) and has a high potential to occur in rockier portions of the study area.

4.3.7 Invasive Species

Two brown-headed cowbird individuals were detected along Escondido Creek during the butterfly survey conducted on March 3, 2011 and three were observed within the coastal sage scrub in the northern portion of the Pascoe parcel on April 4, 2011. Brown-headed cowbird is a brood parasite, which adversely affects native songbird populations. Although only five brown-headed cowbirds were observed, the data may understate the level of cowbird use on site since cowbirds breed primarily between April and May and most work was conducted outside that window. The entire site would provide suitable breeding resources for cowbirds. In addition to the cowbird, Virginia

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opossum was detected along Escondido Creek and European starling (*Sturnus vulgaris*) was observed throughout the study area. Opossum are omnivorous and occur through the west, while starlings are cavity nesters, which outcompete native bird species for nest resources. While not considered to be “invasive species,” pet dogs were frequently observed off-leash on trails in association with their hiking, jogging or biking owners. These pets were not often observed to run through native habitat, but there is always a risk. Dogs do not kill nearly as many native species as pet cats do, however they do stress native species and have the potential to kill.

4.4 Wildlife Movement

The study area extends the existing Del Dios Highlands Preserve to the north, west, and south. This area 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 the San Dieguito River and Escondido Creek. Closer to the coast these drainages are separated, but they are bridged by the Preserve. This corridor is somewhat fragmented given the development of this region. Specifically, urban development borders both drainages in some areas, which constricts wildlife movement. Along the coast, the open space is more extensive; San Elijo and Del Mar lagoons are surrounded by significant conserved natural areas. Because both of these drainages contain 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, 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 study area 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 study area 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. 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. In general, the entire area currently functions as a block of habitat and is not constrained for wildlife use to specific locations. While riparian corridors typically support increased wildlife movement, that was not shown to be the case along Escondido Creek within the Del Dios Highlands Preserve.

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5.0 CONCLUSIONS AND MANAGEMENT RECOMMENDATIONS

Surveys conducted in 2010–2011 documented eight vegetation communities or land cover types and 136 plant and 147 wildlife species within the study area. The surveys detected 4 amphibians, 13 reptiles, 73 birds, 35 mammals, and 22 butterflies. This list includes 32 special-status species (4 plants and 28 wildlife), of which 15 are MSCP covered species.

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 South County MSCP and the Draft North County MSCP Plan.

The South County MSCP Subarea Plan and Framework Management Plan (FMP) include policies and directives regarding monitoring and management of preserved lands for each of the three South County segments and designated core areas within those segments. The Helix-Lambron parcel is located within the Hodges Reservoir/San Pasqual Valley Core Area of the North Metro-Lakeside-Jamul Segment. In addition, Table 3-5 of the Final MSCP Plan for South County provides species-specific management and/or monitoring measures for MSCP covered species.

The North County MSCP Framework Management Plan (FRMP) includes: plan-wide stewardship and management guidelines; habitat- and species-specific management guidelines; monitoring guidelines; as well as specific conservation goals for each of the 23 planning segments identified in the North County MSCP. The Pascoe and Cielo Azul parcels are a part of the Harmony Grove Core Area planning segment. 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/Habitats

The study area consists of eight vegetation communities and land cover types (including disturbed forms) consisting of riparian habitats, coastal sage scrub, chaparral, grasslands and oak woodlands. South County MSCP habitat goals for the North Metro-Lakeside-Jamul Segment include protection of oak riparian, coastal sage scrub and other upland habitats from disturbance, which requires periodic monitoring to ensure no disturbance is occurring. Therefore, it is recommended that DPR 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. On-going monitoring will identify any adverse changes in

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vegetation community distribution and habitat quality, and indicate if protective measures or modifications to current management actions are needed.

North County MSCP conservation goals for the Harmony Grove Core Area include the protection of the Escondido Creek floodplain. Areas along Escondido Creek in the northwestern portion of Cielo Azul consist of riparian habitat including southern coast live oak riparian forest 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 remainder of the study area consists primarily of coastal sage scrub, chaparral, and grassland habitats with a small area of oak woodland in the northwest portion of Cielo Azul. 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.

5.2 Plants

The 2010-11 survey effort documented four special-status plant species within the study area: Encinitas baccharis, wart-stemmed ceanothus, San Diego sagewort, and ashy spike-moss. Periodic botanical surveys are recommended in order to monitor these and other special-status plant species. Surveys should be scheduled during the appropriate time of year to maximize detection. The 2010-11 surveys were conducted during the early spring and additional surveys through mid to late spring (late March to May) are recommended to complete the list of plant species present within the study area which may have been missed due to timing constraints. Monitoring should be conducted to the protocols outlined in the MSCP Rare Plant Monitoring Review and Revision (McEachern et al. 2007) developed for the South County Subarea or any new methods recommended by the North County MSCP FRMP, once they are developed.

Encinitas baccharis and wart-stemmed ceanothus are covered under both the South County and North County MSCP, and MSCP recommended measures for species-specific management of these species are addressed below.

Encinitas baccharis

Table 3-5 conditions for coverage for Encinitas baccharis include site-specific monitoring and development of management directives that include specific management measures to address the autecology and natural history of the species, measures to reduce the risk of catastrophic fire, and appropriate male/female plant ratios. This species is identified in the FRMP as a primary

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species that will benefit from the recommended resource management actions for chaparral habitats and is covered under the Narrow Endemic Policy. One of the conservation goals for the Harmony Grove Core Area includes the protection of *Encinitas baccharis*, including different genders to ensure reproductive capability.

The primary threats to this species include trampling, invasive plants that may compete with this vulnerable species, and fire control measures. Although the population is adjacent to a dirt road, there is no public access to this area and therefore no appreciable risk of trampling or other related disturbance. Specific recommendations regarding non-native species are addressed in Section 5.3; however, there were no non-native invasive species observed within the *Encinitas baccharis* population.

Encinitas baccharis is likely a fire-adapted species that is enhanced by fire; however, the exact fire-response mechanism is not known (Reiser 1994). Effective conservation of this species should include a fire management plan that considers the natural history of the species in order to provide the appropriate fire cycle for reproduction. This may involve insuring that prescribed fires are provided with appropriate time intervals or consideration to insure that conserved populations are protected from fires that are too frequent. The area where this population occurs burned most recently in 1990. Following any future fire events, the distribution of the population should be further evaluated. Evaluating its response to fires in the natural habitats will involve long-term assessment and more than one fire cycle. Additional recommendations regarding fire management are addressed in Section 5.6.

Wart-stemmed ceanothus

Table 3-5 conditions for coverage for wart-stemmed ceanothus include habitat-based monitoring and development of management directives that include specific management measures to increase populations, address the autecology and natural history of the species, and to reduce the risk of catastrophic fire. Prescribed fire may be used to accomplish this objective (County of San Diego 1998). This species is identified in the North County FRMP as a primary species that will benefit from the recommended resource management actions for chaparral habitats. One of the conservation goals for the Harmony Grove Core Area includes the protection of wart-stemmed ceanothus, especially dense stands (County of San Diego 2009). Development is the primary threat to this species considering populations of this species have been markedly reduced due to urban sprawl (CNPS 2011; Reiser 1994).

Given the lack of potential development within the on-site lands, threats to the species are limited to declines associated with fire. Currently, the population appears to be thriving. Thus,

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implementation of fire management recommendations in Section 5.6, coupled with periodic population monitoring, would ensure ongoing preservation of this species.

5.3 Wildlife

The current survey effort documented 28 special-status wildlife species, including 13 South County and/or North County MSCP-covered wildlife species. Species-specific management and/or monitoring measures for those species covered under the South County MSCP are provided in Table 3-5; however, species-specific measures for species covered under the North County MSCP are currently under development. Table 3-5 measures should be followed until new measures are developed. For those species not included in Table 3-5, the management recommendations provided in the FRMP for specific habitat types are intended to be adequate for the conservation of all covered species. Monitoring protocols for North County MSCP-covered species should follow any recommendations identified by the final FRMP. MSCP recommended measures for monitoring and management of these species are addressed in more detail below.

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 and is proposed for coverage under the South 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

Four North County MSCP-covered reptile species were detected within the study area: western spadefoot, northern red-diamond rattlesnake, two-striped garter snake, and coast horned lizard, which is also covered under the South County MSCP. Table 3-5 conditions for coverage of coast horned lizard indicate ASMDs must include specific measures to discourage the Argentine ant, which can displace native ants, an important food source for this species. Recommended measures to protect against Argentine ant are addressed in Section 5.4.2.

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5.3.3 Birds

Five North County and/or South County MSCP-covered bird species were detected in the study area: Cooper's hawk, northern harrier, coastal California gnatcatcher, western bluebird, and Bell's sage sparrow, which is only covered under the North County MSCP. Table 3-5 recommends habitat based monitoring for these species and provides specific conditions for coverage of Cooper's hawk, Northern harrier, and California gnatcatcher. ASMDs for Cooper's hawk must include 300-foot impact avoidance around active nests and minimization of disturbance in oak woodlands and riparian forests. ASMDs for Northern harrier must include 900-foot impact avoidance around active nests and include measures to maintain winter foraging habitat. ASMDs for California gnatcatcher must include measures to reduce edge effects and minimize disturbance during the nesting period, protect from unplanned fire, and to maintain or improve habitat quality. No clearing of occupied gnatcatcher habitat should occur between March 1 and August 15.

The FRMP indicates that Cooper's hawk, Bell's sage sparrow and California gnatcatcher are primary species that will benefit from recommended management actions for riparian habitat, and coastal sage scrub, respectively, as discussed in Section 5.1. In addition, Bell's sage sparrow and California gnatcatcher 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

Four North County and/or South County MSCP-covered mammal species were detected in the study area: Townsend's big-eared bat, San Diego black-tailed jackrabbit, mountain lion, and mule deer. Table 3-5 recommends habitat based and corridor monitoring for mountain lion and mule deer. The FRMP indicates that black-tailed jackrabbit and mountain lion are primary species that will benefit from recommended management actions for coastal sage scrub, chaparral and grasslands, and oak woodland habitat as discussed in Section 5.1.

5.4 Non-Native Invasive Species Removal and Control

5.4.1 Plants

Four of the 12 invasive non-native plant species observed within the Preserve have been identified as target species in need of removal and control. 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

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are under control; and species ranked as low priority are recommended for control after high and moderate priority species are under control.

Table 14
Removal Priority of Target Invasive Non-Native Species

Scientific Name	Common Name	Removal Priority
<i>Eucalyptus</i> spp.	eucalyptus	High
<i>Cortaderia selloana</i>	Pampas grass	Moderate
<i>Pennisetum setaceum</i>	fountain grass	Moderate
<i>Carpobrotus edulis</i>	hottentot fig, iceplant	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 *Del Dios Highlands Preserve Vegetation Management Plan* (Dudek 2011b) provides more information.

5.4.2 Wildlife

Brown-headed cowbirds were detected in the riparian areas along Escondido Creek and on the Pascoe parcel during various surveys. This species is known to parasitize the nests of native songbirds, including coastal California gnatcatcher and Bell's sage sparrow (County of San Diego 2009b; Zeiner et al 1990a). Although only five 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 that if management of cowbird populations within the study area is determined to be necessary, possible control methods include trapping adults or removing eggs from host nests (County of San Diego 2009b). 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, such as coastal California gnatcatcher, 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.

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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 masse 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 about measures they can take to reduce the risk and extent of invasion (County of San Diego 2009b). 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 study area and especially within Cielo Azul near the riparian area.

5.5 Restoration Opportunities

The Preserve is generally composed of high-quality native vegetation communities, and habitat restoration opportunities are limited within the Preserve. Disturbed habitat areas proposed for restoration primarily include old dirt road spurs and graded turnarounds. These are located in the southeastern portion of the site, among southern mixed chaparral. These are areas that were graded at various times in the past, and are no longer necessary for through-traffic, turn-outs, equipment storage, or access to specific locations. Some of these graded dirt road spurs are located on steep terrain and have shown signs of erosion, due in part to a lack of vegetation cover.

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. *The Del Dios Highlands Preserve Vegetation Management Plan* (Dudek 2011b) identifies specific restoration areas and details restoration methods.

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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 2009b).

A Vegetation Management Plan is being developed for the Preserve 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, coast live oak woodlands, and southern mixed chaparral 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. Most animals seek cover when moving across the landscape and, therefore, often seek out riparian areas as their preferred movement corridors. Escondido Creek supports some wildlife movement through the northwest corner of the Preserve; however, it did not appear that movement was focused in this area. The entire Preserve is surrounded by open space or low-density development. Development to the northeast is more concentrated and may prohibit movement; however, wildlife can easily travel to the Elfin Forest Recreational Reserve and Escondido Creek Preserve areas to the west.

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

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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 general, current management of the Del Dios Highlands Preserve is appropriate if applied to the newly added parcels and would maintain the ecological functions and manage potential threats to the biological resources on site. In some cases, additional management has been recommended to protect the biological resources on site.

5.8.1 Public Access

The Cielo Azul parcel is accessible via the Elfin Forest Recreational Reserve trail system operated by OMWD and along the City of Escondido sewer easement along Escondido Creek. The Way Up Trail on the Cielo Azul property is currently maintained by OWMD, and no modifications to the management of this facility are recommended. The existing sewer easement should be regularly monitored to ensure that any informal trail use is not adversely affecting the adjacent riparian habitat and Escondido Creek.

The Pascoe and Helix-Lambron parcels are not currently accessible to the public. While there are some existing dirt roads through these parcels, the roads are either privately-owned or are currently fenced, and do not provide trail connectivity. If, in the future, DPR decides to open these areas 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

There are no existing gates within the study area; however, the Helix-Lambron property adjacent to Mt. Israel Place is currently fenced (County of San Diego 2009a). This fencing functions to control unauthorized public access through the parcel and should be regularly inspected and

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maintained consistent with the current standards identified in the existing Del Dios Highlands Preserve RMP (County of San Diego 2009a).

5.8.3 Trails and Access Roads

With the exception of the designated Way Up Trail, Dudek has not observed public use of existing unofficial trails/dirt roads in the study area. The existing Preserve RMP includes measures to properly maintain public access roads, staging areas, and trails for user safety, to protect natural and cultural resources, and to provide high-quality user experiences, including monitoring, maintenance, and trail closure procedures, as well as restoration of degraded habitats and reduction of detrimental edge effects through maintenance and stabilization of trails and strategic revegetation (County of San Diego 2009a). It is expected that OMWD maintenance of the Elfin Forest Recreational Reserve trails on the Cielo Azul property will adhere to these standards. The existing dirt roads on the Pascoe and Helix-Lambron properties are not recommended as formal trails, and therefore, maintenance is not needed unless these areas are connected to the existing Del Dios Highlands Preserve east-west trail or OMWD trails through construction of a trail linkage.

5.8.4 Hydrological Management

Per the South County MSCP, one of the major issues that requires consideration for management in the Metro-Lakeside-Jamul Segment is water quality. Similarly, the North County MSCP Plan FRMP indicates some of the biggest challenges to riparian habitats, such as those within the study area associated with 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 study area, maintenance of riparian cover along creek banks is the surest method of minimizing erosion and maximizing potential for nutrient transformation and pollutant removal.

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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. 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.

5.8.5 Emergency and Safety Issues

Currently, the existing Preserve receives periodic patrolling by DPR staff. This patrolling activity, in conjunction with the fencing of the Preserve, including the additional parcels included as the study area, is anticipated to be adequate to address emergency and safety issues.

If it appears that rattlesnakes are increasing in population size, it is recommended to add appropriate signage to the site. Signage is recommended to alert the public of presence of rattlesnakes and how to avoid encounters as well as what to do if bitten.

Finally, existing utility roads and trails in the study area are recommended to be maintained in their current condition so that fire response vehicles are able to access the Preserve if needed.

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Baseline Biodiversity Survey for the Pascoe, Helix-Lambron and Cielo Azul Parcel Additions to the Del Dios Highlands Preserve

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APPENDIX A

*Pascoe, Helix-Lambron and Cielo Azul Parcel
Additions to the Del Dios Highlands Preserve
Plant Species List*

APPENDIX A
Pascoe, Helix-Lambron and Cielo Azul Parcel Additions to the Del
Dios Highlands Preserve Plant Species List

VASCULAR PLANT SPECIES

LYCOPODS

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

Selaginella bigelovii – Bigelow's spike-moss

Selaginella cinerascens – ashy spike-moss

FERNS

***PTERIDACEAE* – BRAKE FAMILY**

Adiantum capillus-veneris – southern maiden-hair

Pellaea andromedifolia – coffee fern

Pentagramma triangularis ssp. *viscosa* – silverback fern

CONIFERS

***PINACEAE* – PINE FAMILY**

* *Pinus* sp. – pine

ANGIOSPERMS (DICOTS)

***ANACARDIACEAE* – SUMAC FAMILY**

Malosma laurina – laurel sumac

Rhus integrifolia – lemonadeberry

Rhus ovata – sugar bush

* *Schinus molle* – Peruvian peppertree

Toxicodendron diversilobum – western poison oak

***AIZOACEAE* – FIG-MARIGOLD FAMILY**

* *Carpobrotus edulis* – Hottentot-fig

***APIACEAE* – CARROT FAMILY**

* *Apium graveolens* – celery

* *Conium maculatum* – poison-hemlock

* *Foeniculum vulgare* – fennel

Tauschia arguta – southern tauschia

***APOCYNACEAE* – DOGBANE FAMILY**

* *Vinca major* – big periwinkle

APPENDIX A (Continued)

ASTERACEAE – SUNFLOWER FAMILY

- Artemisia californica* – California sagebrush
- Artemisia douglasiana* – mugwort
- Artemisia palmeri* – San Diego sagewort
- Baccharis pilularis* – chaparral broom, coyote brush
- Baccharis salicifolia* – mule fat, seep-willow, water-wally
- Baccharis vanessae* – Encinitas baccharis
- Brickellia californica* – California brickellbush
- * *Carduus pycnocephalus* – Italian thistle
- * *Centaurea melitensis* – tocalote
- * *Cirsium vulgare* – bull thistle
- Eriophyllum confertiflorum* var. *confertiflorum* – long-stem golden yarrow
- Filago californica* – California filago
- * *Filago gallica* – narrow-leaf filago
- Gnaphalium bicolor* – bicolor cudweed
- Gnaphalium californicum* – California everlasting
- Gnaphalium canescens* – white everlasting
- Gnaphalium stramineum* – cotton-batting plant
- Hazardia squarrosa* – saw-toothed goldenbush
- Helianthus annuus* – common sunflower
- Helianthus gracilentus* – slender sunflower
- Heterotheca grandiflora* – telegraph weed
- Layia platyglossa* – common tidy tips
- Micropus californicus* – slender cottonseed
- Microseris douglasii* ssp. *platycarpa* – small-flower microseris
- Pluchea odorata* – salt marsh fleabane
- Porophyllum gracile* – odora
- Rafinesquia californica* – California chicory
- Senecio californicus* – California butterweed
- * *Senecio vulgaris* – common groundsel
- * *Sonchus* sp. – sow thistle

BORAGINACEAE – BORAGE FAMILY

- Cryptantha* sp. – cryptantha

BRASSICACEAE – MUSTARD FAMILY

- * *Brassica nigra* – black mustard
- Cardamine californica* – milkmaids, toothwort
- * *Hirschfeldia incana* – shortpod mustard

APPENDIX A (Continued)

Lepidium nitidum – shining pepper-grass

Thysanocarpus laciniatus – lacepod, fringedpod

CAPRIFOLIACEAE – HONEYSUCKLE FAMILY

Sambucus nigra – blue elderberry

CARYOPHYLLACEAE – PINK FAMILY

Silene laciniata ssp. *laciniata* – southern pink

CISTACEAE – ROCK-ROSE FAMILY

Helianthemum scoparium – peak rush-rose

CONVOLVULACEAE – MORNING-GLORY FAMILY

Calystegia macrostegia – morning-glory

* *Convolvulus arvensis* – field bindweed

Cressa truxillensis – alkali weed

CRASSULACEAE – STONECROP FAMILY

Crassula connata – pygmy-weed

Dudleya pulverulenta – chalky live-forever

CUCURBITACEAE – GOURD FAMILY

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

ERICACEAE – HEATH FAMILY

Arctostaphylos glandulosa ssp. *glandulosa* – Eastwood's manzanita

Xylococcus bicolor – mission manzanita

EUPHORBIACEAE – SPURGE FAMILY

Chamaesyce albomarginata – rattlesnake weed

FABACEAE - LEGUME FAMILY

* *Acacia* sp. – acacia

Lotus scoparius – deerweed

Lotus strigosus – strigose deerweed

Lupinus hirsutissimus – stinging lupine

Lupinus truncatus – collar lupine

FAGACEAE – OAK FAMILY

Quercus agrifolia – coast live oak

APPENDIX A (Continued)

GERANIACEAE – GERANIUM FAMILY

- * *Erodium botrys* – broadleaf filaree
- * *Erodium cicutarium* – redstem filaree

GROSSULARIACEAE – CURRANT FAMILY

Ribes indecorum – white flowering currant

HYDROPHYLLACEAE – WATERLEAF FAMILY

Eucrypta chrysanthemifolia – common eucrypta
Phacelia cicutaria – caterpillar phacelia
Phacelia minor – wild canterbury-bell

LAMIACEAE – MINT FAMILY

Salvia mellifera – black sage

MALVACEAE – MALLOW FAMILY

Malacothamnus fasciculatus – chaparral bushmallow
Sidalcea sp. – 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 exserta ssp. *exserta* – common owl's-clover

PAPAVERACEAE – POPPY FAMILY

Eschscholzia californica – California poppy

PHRYMACEAE – HOPSEED FAMILY

Mimulus aurantiacus – coast monkey flower, bush monkey flower

APPENDIX A (Continued)

PLANTAGINACEAE - PLANTAIN FAMILY

Plantago erecta – dot-seed plantain

* *Plantago lanceolata* – English plantain

PLATANACEAE – SYCAMORE FAMILY

Platanus racemosa – California sycamore

POLEMONIACEAE – PHLOX FAMILY

Navarretia sp. – skunkweed

Gilia sp. – gilia

POLYGONACEAE – BUCKWHEAT FAMILY

Chorizanthe staticoides – Turkish rugging

Eriogonum fasciculatum – California buckwheat

Pterostegia drymarioides – granny's hairnet

* *Rumex crispus* – curly dock

PORTULACACEAE – PURSLANE FAMILY

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

RANUNCULACEAE – CROWFOOT FAMILY

Delphinium sp. – larkspur

RHAMNACEAE - BUCKTHORN FAMILY

Ceanothus tomentosus – Ramona-lilac

Ceanothus verrucosus – wart-stemmed ceanothus

Rhamnus ilicifolia – holly-leaf redberry

Rhamnus pilosa – hairy-leaf redberry

RUTACEAE – RUE FAMILY

Cneoridium dumosum – bushrue

SCROPHULARIACEAE – FIGWORT FAMILY

Scrophularia californica var. *floribunda* – California figwort

SOLANACEAE – NIGHTSHADE FAMILY

* *Nicotiana glauca* – tree tobacco

Solanum parishii – Parish's nightshade

Solanum xanti – chaparral nightshade

APPENDIX A (Continued)

ROSACEAE – ROSE FAMILY

Adenostoma fasciculatum – chamise

Heteromeles arbutifolia – toyon

Prunus ilicifolia – hollyleaf cherry

RUBIACEAE – MADDER FAMILY

* *Galium aparine* – goose grass

Galium nuttallii ssp. *nuttallii* – San Diego bedstraw

RUTACEAE – RUE FAMILY

Cneoridium dumosum – bushrue

SALICACEAE – WILLOW FAMILY

Salix lasiolepis – arroyo willow

SAXIFRAGACEAE – SAXIFRAGE FAMILY

Lithophragma affine – woodland star

TAMARICACEAE – TAMARISK FAMILY

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

URTICACEAE – NETTLE FAMILY

Urtica dioica ssp. *holosericea* – hoary nettle

VIOLACEAE – VIOLET FAMILY

Viola pedunculata – Johnny-jump-up

ANGIOSPERMS (MONOCOTS)

ARECACEAE – PALM FAMILY

* *Washingtonia robusta* – Mexican fan palm

JUNCACEAE – RUSH FAMILY

Juncus balticus – wire rush

LILIACEAE – LILY FAMILY

Chlorogalum parviflorum – small-flowered soap plant

Dichelostemma capitatum ssp. *capitatum* – blue dicks

Yucca whipplei – our lord's candle

APPENDIX A (Continued)

POACEAE - GRASS FAMILY

- Achnatherum coronatum* – giant stipa
 - * *Agrostis viridis* – water bent
 - * *Avena barbata* – slender wild oat
 - * *Avena fatua* – wild oat
 - * *Bromus diandrus* – ripgut brome
 - * *Bromus hordeaceus* – soft brome
 - * *Bromus madritensis* ssp. *rubens* – foxtail chess
 - * *Cortaderia selloana* – pampas grass
 - * *Gastridium ventricosum* – nit grass
 - * *Lamarckia aurea* – golden-top
 - Melica imperfecta* – coast range melic
 - Nassella pulchra* – purple needlegrass
 - * *Pennisetum setaceum* – crimson fountaingrass
-
- * signifies introduced (non-native) species

APPENDIX A (Continued)

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APPENDIX B

*Pascoe, Helix–Lambron and Cielo Azul Parcel
Additions to the Del Dios Highlands Preserve
Wildlife Species List*

APPENDIX B
Pascoe, Helix–Lambron and Cielo Azul Parcel Additions to the Del
Dios Highlands Preserve Wildlife Species List

WILDLIFE SPECIES – VERTEBRATES

AMPHIBIANS

***PLETHODONTIDAE* – LUNGLESS SALAMANDERS**

Batrachoseps major – garden slender salamander

***PELOBATIDAE* – SPADEFOOT TOADS**

Spea hammondi – western spadefoot

***BUFONIDAE* – TRUE TOADS**

Anaxyrus boreas – western toad

***HYLIDAE* – TREEFROGS**

Pseudacris regilla – Northern Pacific treefrog

REPTILES

***IGUANIDAE* – IGUANID LIZARDS**

Phrynosoma blainvillii – Blainville's horned lizard

Sceloporus occidentalis – western fence lizard

Uta stansburiana – common side–blotched lizard

***SCINCIDAE* – SKINKS**

Plestiodon skiltonianus – western skink

***TEIIDAE* – WHIPTAIL LIZARDS**

Aspidoscelis tigris stejnegeri – coastal western whiptail

***ANGUIDAE* – ALLIGATOR LIZARDS**

Elgaria multicarinata – southern alligator lizard

***BOIDAE* – BOAS**

Lichanura trivirgata – rosy boa

***COLUBRIDAE* – COLUBRID SNAKES**

Diadophis punctatus similis – San Diego ringneck snake

Lampropeltis getula – common kingsnake

Pituophis cantifer – gophersnake

Thamnophis hammondi – two–striped garter snake

APPENDIX B (Continued)

VIPERIDAE – VIPERS

Crotalus ruber ruber – northern red diamond rattlesnake

Crotalus oreganus – western rattlesnake

BIRDS

ARDEIDAE – HERONS, BITTERNS, AND ALLIES

Ardea herodias – great blue heron

Bubulcus ibis – cattle egret

Ardea alba – great egret

Egretta thula – snowy egret

ANATIDAE – DUCKS, GEESE, AND SWANS

Anas clypeata – northern shoveler

Anas platyrhynchos – mallard

Anas strepera – gadwall

Aythya affinis – lesser scaup

CATHARTIDAE – NEW WORLD VULTURES

Cathartes aura – turkey vulture

ACCIPITRIDAE – HAWKS, KITES, EAGLES, AND ALLIES

Accipiter cooperii – Cooper's hawk

Buteo jamaicensis – red-tailed hawk

Buteo lineatus – red-shouldered hawk

Circus cyaneus – northern harrier

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

COLUMBIDAE – PIGEONS AND DOVES

Zenaida macroura – mourning dove

APPENDIX B (Continued)

CUCULIDAE – CUCKOOS, ROADRUNNERS, AND ANIS

Geococcyx californianus – greater roadrunner

TYTONIDAE – BARN OWLS

Tyto alba – barn owl

STRIGIDAE – TYPICAL OWLS

Bubo virginianus – great horned owl

Megascops kennicottii – western screech-owl

CAPRIMULGIDAE – GOATSUCKERS

Phalaenoptilus nuttallii – common poorwill

APODIDAE – SWIFTS

Aeronautes saxatalis – white-throated swift

TROCHILIDAE – HUMMINGBIRDS

Archilochus alexandri – black-chinned hummingbird

Calypte anna – Anna'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

Tyrannus vociferans – Cassin's kingbird

HIRUNDINIDAE – SWALLOWS

Petrochelidon pyrrhonota – cliff swallow

Stelgidopteryx serripennis – northern rough-winged swallow

CORVIDAE – CROWS AND JAYS

Apelocoma californica – western scrub-jay

Corvus brachyrhynchos – American crow

Corvus corax – common raven

APPENDIX B (Continued)

PARIDAE – CHICKADEES AND TITMICE

Baeolophus inornatus – oak titmouse

AEGITHALIDAE – LONG-TAILED TITS AND BUSHTITS

Psaltiriparus 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

Poliophtila caerulea – blue-gray gnatcatcher

Poliophtila californica – California gnatcatcher

TURDIDAE – THRUSHES

Sialia currucoides – mountain bluebird

Sialia mexicana – western bluebird

Turdus migratorius – American robin

SYLVIIDAE – SYLVIID WARBLERS

Chamaea fasciata – wren

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

APPENDIX B (Continued)

Wilsonia pusilla – Wilson's warbler

EMBERIZIDAE – EMBERIZIDS

Amphispiza belli belli – Bell's sage sparrow

Chondestes grammacus – lark sparrow

Melospiza melodia – song sparrow

Passerculus sandwichensis – Savannah sparrow

Melospiza crissalis – California towhee

Pipilo maculatus – spotted towhee

Zonotrichia leucophrys – white-crowned sparrow

ICTERIDAE – BLACKBIRDS

Agelaius phoeniceus – red-winged blackbird

Euphagus cyanocephalus – Brewer's blackbird

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

Lasiurus xanthinus – western yellow bat

Myotis yumanensis – Yuma myotis

Parastrellus hesperus – canyon bat

Corynorhinus townsendii – Townsend's big-eared bat

MOLOSSIDAE – FREE-TAILED BATS

Nyctinomops femorosaccus – pocketed free-tailed bat

APPENDIX B (Continued)

Nyctinomops macrotis – big free-tailed bat
Tadarida brasiliensis – Brazilian free-tailed bat

LEPORIDAE – HARES & RABBITS

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

SCIURIDAE – SQUIRRELS

Spermophilus beecheyi – California ground squirrel

GEOMYIDAE – POCKET GOPHERS

Thomomys bottae – Botta's pocket gopher

HETEROMYIDAE – POCKET MICE AND KANGAROO RATS

Chaetodipus fallax fallax – northwestern San Diego pocket mouse
Dipodomys agilis – agile kangaroo rat
Dipodomys simulans – Dulzura kangaroo rat

MURIDAE – RATS AND MICE

Microtus californicus – California vole
Neotoma fuscipes – dusky-footed woodrat
Peromyscus boylii – brush deer mouse
Peromyscus californicus – California deer mouse
Peromyscus eremicus – cactus deer mouse
Peromyscus maniculatus – North American deer mouse

CANIDAE – WOLVES AND FOXES

* *Canis lupus familiaris* – domestic dog
Canis latrans – coyote
Urocyon cinereoargenteus – gray fox

PROCYONIDAE – RACCOONS AND RELATIVES

Procyon lotor – common raccoon

MUSTELIDAE – WEASELS, SKUNKS, AND OTTERS

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

APPENDIX B (Continued)

FELIDAE – CATS

- Felis catus* – domestic cat
- Puma concolor* – mountain lion
- 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
- Pieris rapae* – cabbage white
- Pontia protodice* – checkered white
- Colias eurytheme* – orange sulphur

RIODINIDAE – METALMARKS

- Apodemia mormo virgulti* – Behr's metalmark

LYCAENIDAE – BLUES, HAIRSTREAKS, AND COPPERS

- Atlides halesus* – great purple hairstreak
- Callophrys dumetorum* – bramble hairstreak
- Everes amyntula* – western tailed blue
- Plebejus acmon* – acmon blue
- Incisalia augustinus iriodes* – western elfin
- Leptotes marina* – marine blue
- Strymon melinus pudica* – common hairstreak

NYMPHALIDAE – BRUSH-FOOTED BUTTERFLIES

- Coenonympha californica californica* – California ringlet
- Danaus gilippus* – queen
- Danaus plexippus* – monarch

APPENDIX B (Continued)

Junonia coenia – common buckeye

Nymphalis antiopa – mourning cloak

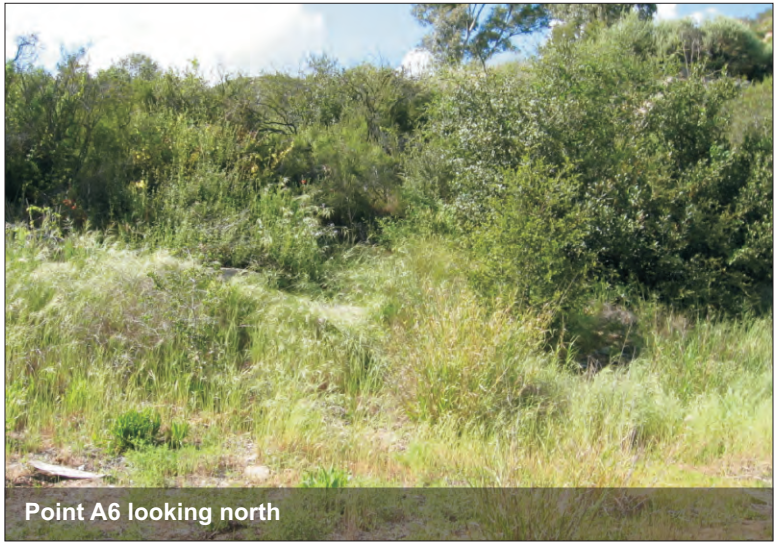
Vanessa annabella – west coast lady

Vanessa cardui – painted lady

* signifies introduced (non–native) species

APPENDIX C

Avian Point Location Photographs



Point A6 looking north



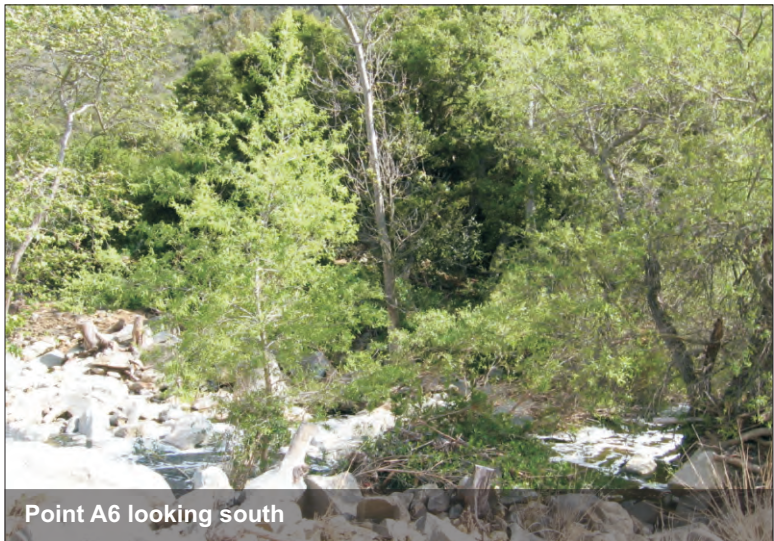
Point A6 looking west



Point A6



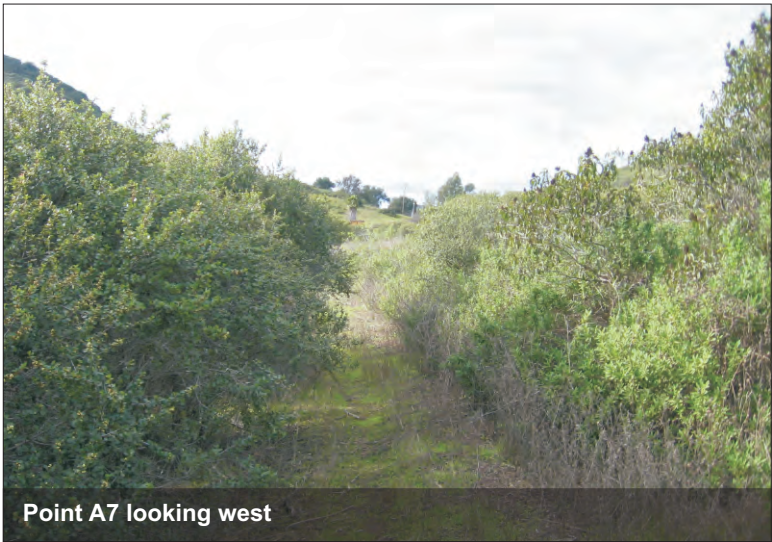
Point A6 looking east



Point A6 looking south



Point A7 looking north



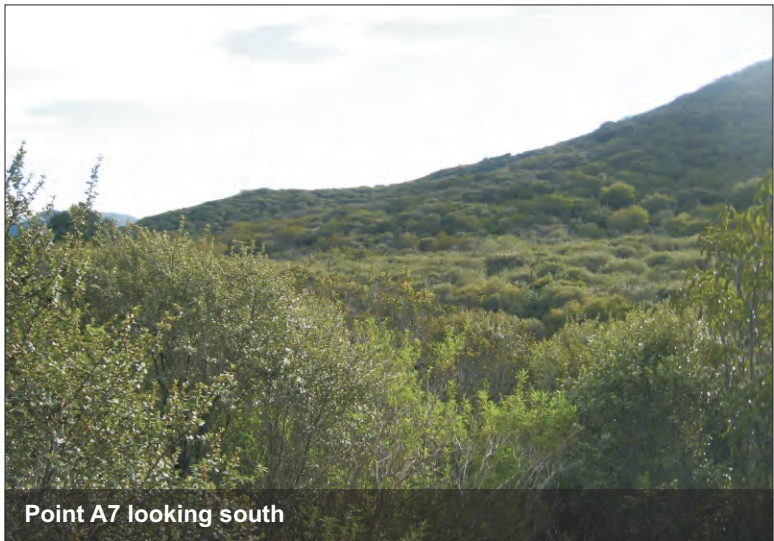
Point A7 looking west



Point A7



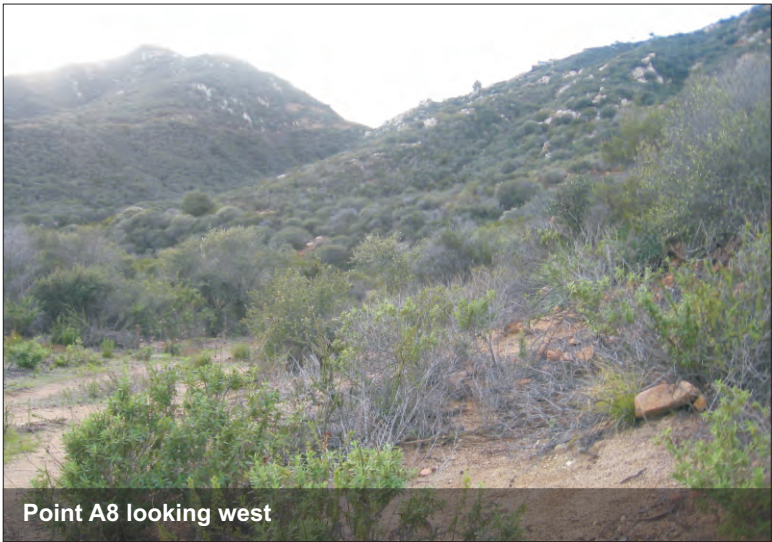
Point A7 looking east



Point A7 looking south



Point A8 looking north



Point A8 looking west



Point A8



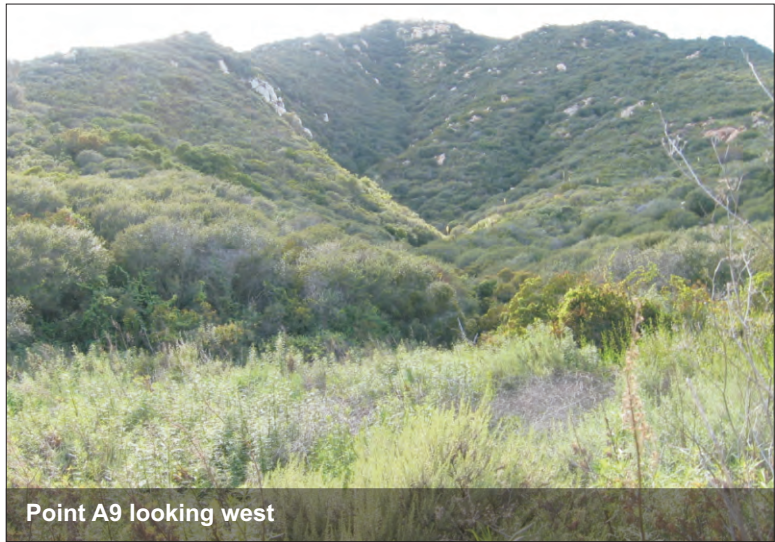
Point A8 looking east



Point A8 looking south



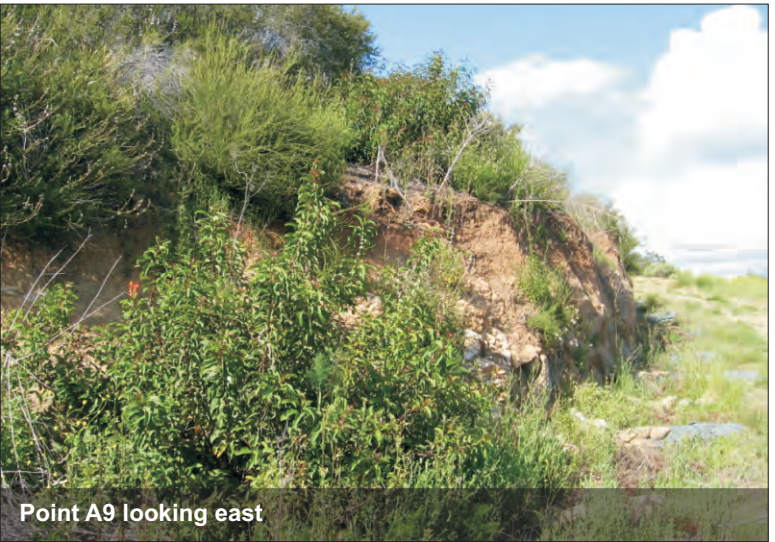
Point A9 looking north



Point A9 looking west



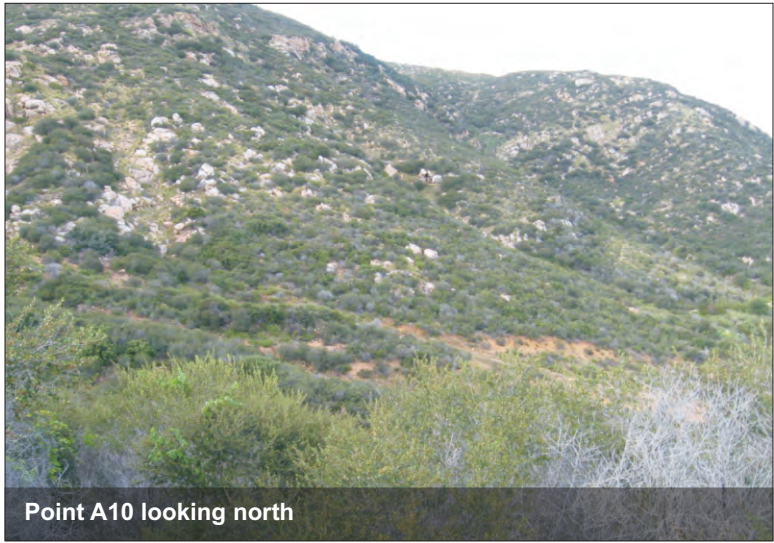
Point A9



Point A9 looking east



Point A9 looking south



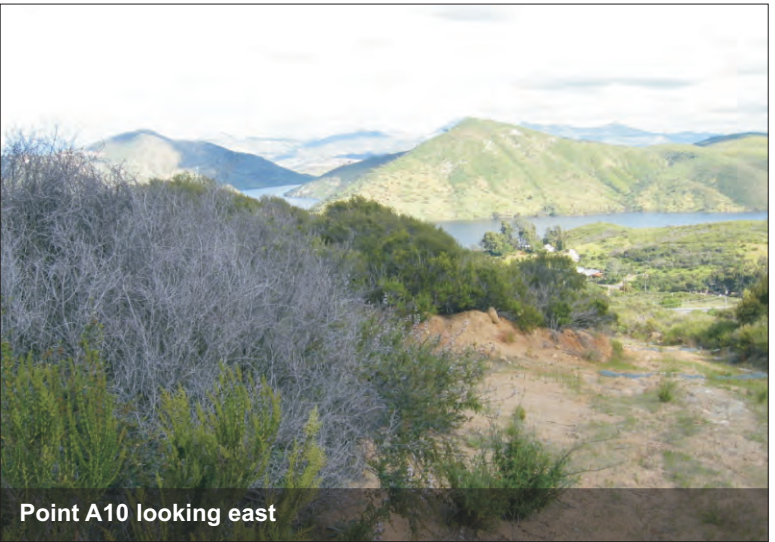
Point A10 looking north



Point A10 looking west



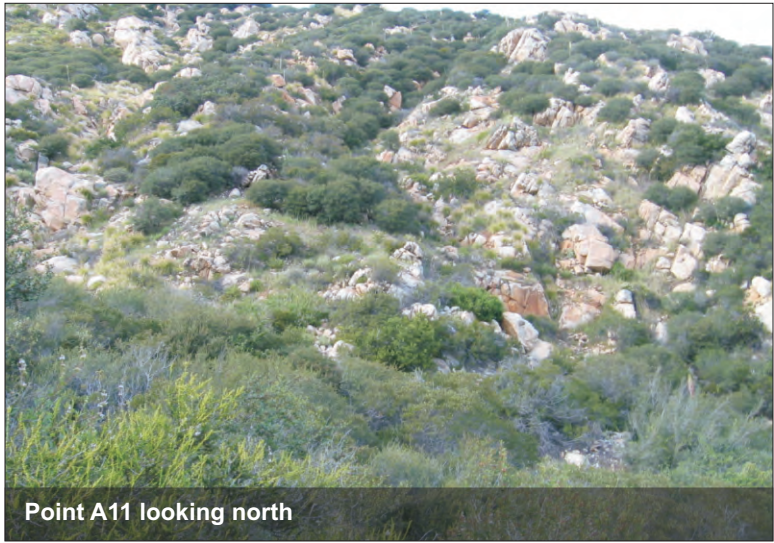
Point A10



Point A10 looking east



Point A10 looking south



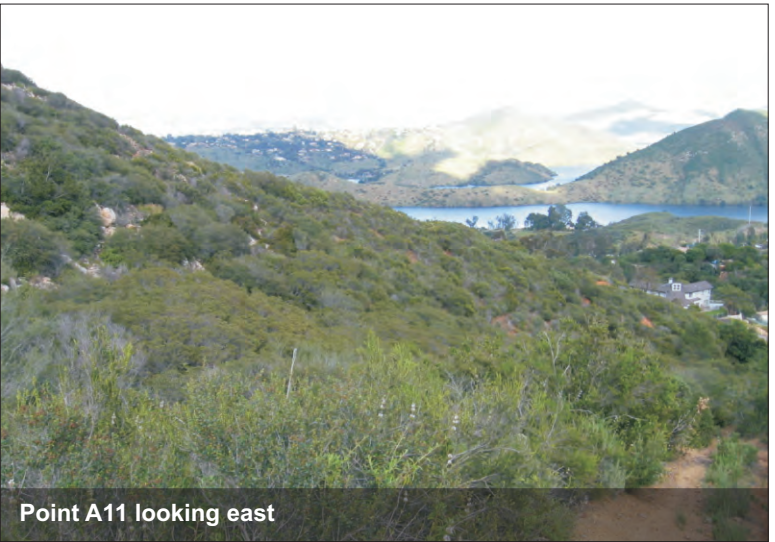
Point A11 looking north



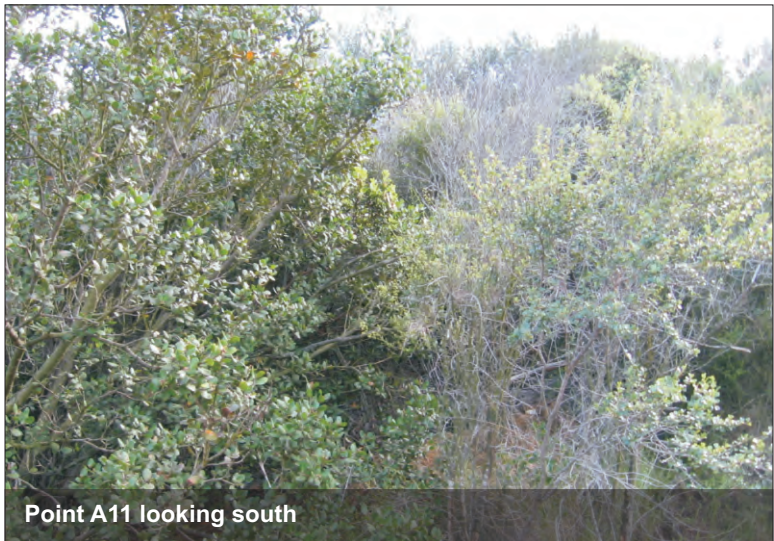
Point A11 looking west



Point A11



Point A11 looking east



Point A11 looking south

APPENDIX D

***Special-Status Plant Species Detected or
Potentially Occurring at the Pascoe, Helix-
Lamborn and Cielo Azul Parcel Additions to the
Del Dios Highlands Preserve
Site Elevation 480–1,240 Feet***

APPENDIX D
Special-Status Plant Species Detected or Potentially Occurring at the Pascoe, Helix-Lambron and
Cielo Azul Parcel Additions to the Del Dios Highlands Preserve
Site Elevation 480–1,240 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
<i>Acanthomintha ilicifolia</i>	San Diego thornmint	FT/SE/1B.1/List A, NCMSCP, SCMSCP	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; annual herb/ April–June/ 30–3,150 feet.	Within 5 miles.	Present	Low potential to occur. Limited suitable clay soils on site.
<i>Adolphia californica</i>	Spineshrub	None/None/1B.1/List B, NCMSCP	Chaparral, coastal scrub, valley and foothill grassland/ perennial deciduous shrub/ December–May/ 145–2,430 feet.	Within 5 miles.	Present	Moderate potential to occur. Suitable habitat present, within species' known elevation range, and recorded within 5 miles of the study area.
<i>Agave shawii</i>	Shaw's agave	None/None/2.1/	Coastal bluff scrub, coastal scrub/ leaf succulent/ September–May/ 30–250 ft.	Within surrounding quads.	Not present.	Not likely to occur. Sites are above elevation range of species.
<i>Ambrosia pumila</i>	San Diego ambrosia	FE/None/1B.1/List A, NCMSCP, SCMSCP	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 present, within species' known elevation range, and recorded within 5 miles of the study area.
<i>Aphanisma blitoides</i>	Aphanisma	None/None/1B.2/List A, SCMSCP	Coastal bluff scrub, coastal dunes, coastal scrub; sandy/ annual herb/ March –June/ <1000 ft.	Within surrounding quads.	Marginal	Low potential to occur. Limited suitable sandy coastal scrub on site.
<i>Arctostaphylos glandulosa</i> ssp. <i>crassifolia</i>	Del Mar Manzanita	FE/None/1B.1/List A, NCMSCP, SCMSCP	Chaparral/perennial evergreen shrub/ December–June/ 0–1,200 feet.	Within 5 miles.	Present	Moderate potential to occur. Suitable habitat present, within species' known elevation range, and recorded within 5 miles of the study area.

APPENDIX D (Continued)

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
<i>Arctostaphylos rainbowensis</i>	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, within species' known elevation range, and recorded within the surrounding quads.
<i>Artemisia palmeri</i>	San Diego (Palmer's) 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. Observed on the Cielo Azul and Helix-Lambron parcels.
<i>Astragalus deanei</i>	Dean's milk-vetch	None/None/1B.1/List A, SCMSCP	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.
<i>Astragalus insularis</i> var. <i>harwoodii</i>	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 present and no known occurrences in the area.
<i>Astragalus oocarpus</i>	Descanso milk-vetch	None/None/2.2/List A	Chaparral, cismontane woodland/ perennial herb/ May–August/ 1,000–5,000 feet.	Within surrounding quads.	Present	Low potential to occur. Limited suitable elevation - western portion of Helix-Lambron is above 1,000 feet, but only small areas of other two parcels reach this elevation.
<i>Astragalus tener</i> var. <i>titi</i>	Coastal dunes milk-vetch	FE/SE/1B.1/List A, SCMSCP	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. Sites are above elevation range of species.
<i>Atriplex coulteri</i>	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	Low potential to occur. Limited suitable coastal scrub and grassland habitat on site.

APPENDIX D (Continued)

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
<i>Atriplex pacifica</i>	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.	Not present	Not likely to occur. Limited suitable coastal scrub habitat present and site is above 700 feet in elevation.
<i>Atriplex parishii</i>	Parish brittlescale	None/None/1B.1/List A, NCMSCP	Chenopod scrub, playas, vernal pools/ annual herb/ June-October/ 75-6,000 feet.	Within surrounding quads.	Not present	Not likely to occur. No suitable habitat present.
<i>Atriplex serenana</i> var. <i>davidsonii</i>	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 on site and limited coastal scrub vegetation present.
<i>Baccharis vanessae</i>	Encinitas baccharis	FT/SE/1B.1/List A, NCMSCP, SCMSCP	Chaparral, cismontane woodland/ perennial deciduous shrub/ August-November/ 180-2,500 feet.	Within 1 mile.	Present	Present. Observed on the Helix-Lambron parcel.
<i>Berberis nevinii</i>	Nevin's barberry	FE/SE/1B.1/List A, NCMSCP, SCMSCP	Chaparral, cismontane woodland, coastal scrub/perennial evergreen shrub/ March-June/ 900-2,700 feet.	Within surrounding quads.	Present	Moderate potential to occur. Suitable habitat present, within species' known elevation range, and recorded in the vicinity.
<i>Bergerocactus emoryi</i>	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	Moderate potential to occur. Suitable habitat present, within species' known elevation range, and recorded in the vicinity.
<i>Brodiaea filifolia</i>	Thread-leaf brodiaea	FT/SE/1B.1/List A, NCMSCP, SCMSCP	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, within species' known elevation range, and recorded within 5 miles of the study area. Species' typical blooming period may allow detection during focused surveys conducted in February/March 2011, but presence/absence cannot be determined.

APPENDIX D (Continued)

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
<i>Brodiaea orcutti</i>	Orcutt's brodiaea	None/None/1B.1/List A, NCMSCP, SCMSCP	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 5 miles.	Present	Moderate potential to occur. Suitable habitat present, within species' known elevation range, and recorded within 5 miles of the study area. Species' typical blooming period may allow detection during focused surveys conducted in February/March 2011, but presence/absence cannot be determined.
<i>Calandrinia breweri</i>	Brewer's calandrinia	None/None/4.2/List D	Chaparral, coastal scrub/ annual herb/ March–June/ 33–4,003 feet	Within surrounding quads.	Present	High potential to occur. Previously observed on adjacent Preserve parcels (TAIC 2008)
<i>California macrophylla</i>	Round-leaved filaree	None/None/1B.1/None	Cismontane woodland, valley and foothill grassland/ annual herb/ March–May/ <3,000 feet.	Within surrounding quads.	Present	Moderate potential to occur. Suitable habitat present, within species' known elevation range, and recorded in the vicinity. Timing of surveys in February/March not optimal for detection of this species; therefore, presence/absence cannot be determined.
<i>Calochortus dunnii</i>	Dunn's mariposa lilly	None/SR/1B.2/List A, SCMSCP	Closed-cone coniferous forest, chaparral, valley and foothill grassland/ Perennial bulbiferous herb/ April–June/ 1,200–6,000 feet.	None within area.	Present	Not likely to occur. No known occurrences in the area.
<i>Camissonia lewisii</i>	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. Limited habitat present in the northwestern portion of Cielo Azul where the coast live oak woodland is less than 700 feet in elevation. Timing of surveys in February/March not optimal for detection of this species; therefore, presence/absence cannot be determined.

APPENDIX D (Continued)

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
<i>Ceanothus cyaneus</i>	Lakeside ceanothus	None/None/1B.2/List A, SCMSCP	Closed-cone coniferous forest, chaparral/ Perennial evergreen shrub/ March–May/ 750–2,500 feet.	Within surrounding quads.	Present	Moderate potential to occur. Suitable habitat present, within species' known elevation range, and recorded in the vicinity.
<i>Ceanothus verrucosus</i>	Wart-stemmed ceanothus	None/None/2.2/List B, NCMSCP, SCMSCP	Chaparral/ perennial evergreen shrub/ December–May/ <1,250 feet.	Within 1 mile.	Present	Present. Common on the Cielo Azul, Pascoe, and Helix-Lambron parcels.
<i>Centromadia</i> (=Hemizonia) <i>parryi</i> spp. <i>australis</i>	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.
<i>Centromadia</i> (=Hemizonia) <i>pungens</i> ssp. <i>laevis</i>	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 5 miles.	Not present	Not likely to occur. No suitable alkaline soils on site and limited suitable grassland riparian woodland habitat present.
<i>Chaenactis glabriuscula</i> var. <i>orcuttiana</i>	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. Sites are above elevation range of species.
<i>Chorizanthe orcuttiana</i>	Orcutt's spineflower	FE/SE/1B.1/List A, NCMSCP, SCMSCP	Closed-cone coniferous forest, chaparral, coastal scrub/annual herb/ March–May/ 0–410 feet.	Within 5 miles.	Not present	Not likely to occur. Sites are above elevation range of species.
<i>Chorizanthe polygonoides</i> var. <i>longispina</i>	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 on site. Timing of surveys in February/March not optimal for detection of this species; therefore, presence/absence cannot be determined.

APPENDIX D (Continued)

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
<i>Clarkia delicata</i>	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, within species' known elevation range, and recorded in the vicinity. Timing of surveys in February/March not optimal for detection of this species; therefore, presence/absence cannot be determined.
<i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i>	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. Previously observed on adjacent Preserve parcels (TAIC 2008). Suitable chaparral and cismontane woodland present and species observed within one mile of the Preserve.
<i>Corethrogyne filaginifolia</i> var. <i>incana</i>	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.	Not present	Not likely to occur. Sites are above elevation range of species.
<i>Corethrogyne filaginifolia</i> var. <i>linifolia</i>	Del Mar Mesa sand aster	None/None/1B.1/List A, SCMSCP	Coastal bluff scrub, maritime chaparral (openings), coastal scrub; sandy/ perennial herb/ May–September/ 10–380 feet.	Within 5 miles.	Not present	Not likely to occur. Sites are above elevation range of species.
<i>Dudleya blochmaniae</i> spp. <i>blochmaniae</i>	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 present on site. Timing of surveys in February/March not optimal for detection of this species; therefore, presence/absence cannot be determined.

APPENDIX D (Continued)

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
<i>Dudleya brevifolia</i>	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, within species' known elevation range, and recorded in the vicinity. Timing of surveys in February/March not optimal for detection of this species; therefore, presence/absence cannot be determined.
<i>Dudleya variegata</i>	Variegated dudleya	None/None/1B.2/List A, SCMSCP	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools/ perennial herb/ April–June/ <1,900 feet.	Within 5 miles.	Present	Moderate potential to occur. Suitable habitat present, within species' known elevation range, and recorded within 5 miles of the study area. Timing of surveys in February/March not optimal for detection of this species; therefore, presence/absence cannot be determined.
<i>Dudleya viscida</i>	Sticky dudleya	None/None/1B.2/List A, NCMSCP, SCMSCP	Coastal bluff scrub, chaparral, cismontane woodland, coastal scrub/ perennial herb/May–June/ 30–1,800 feet.	Within 5 miles.	Present	Moderate potential to occur. Suitable habitat present, within species' known elevation range, and recorded within 5 miles of the study area. Timing of surveys in February/March not optimal for detection of this species; therefore, presence/absence cannot be determined.
<i>Ericameria palmeri</i> var. <i>palmeri</i>	Palmer's ericameria	None/None/2.2/List B, SCMSCP	Chaparral, coastal scrub/ perennial evergreen shrub/ September–November/ 90–1,300 feet.	Within surrounding quads.	Present	Moderate potential to occur. Suitable habitat present, within species' known elevation range, and recorded within the surrounding quads.
<i>Eryngium aristulatum</i> var. <i>hooveri</i>	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. Sites are above elevation range of species; no vernal pools on site.

APPENDIX D (Continued)

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
<i>Eryngium aristulatum</i> var. <i>parishii</i>	San Diego button-celery	FE/SE/1B.1/List A, NCMSCP, SCMSCP	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. Limited coastal scrub and grassland habitat on site.
<i>Erysimum ammophilum</i>	Sand-loving wallflower	None/None/1B.2/SCMSCP	Maritime chaparral, coastal dunes, coastal scrub; sandy, openings/ perennial herb/ February–June/ <200 feet.	Within surrounding quads.	Not present	Not likely to occur. Sites are above elevation range of species.
<i>Euphorbia misera</i>	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. Limited rocky coastal scrub present on site.
<i>Ferocactus viridescens</i>	San Diego barrel cactus	None/None/2.1/List B, NCMSCP, SCMSCP	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, within species' known elevation range, and recorded within 5 miles of the study area.
<i>Geothaollus tuberosa</i>	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.
<i>Githopsis diffusa</i> ssp. <i>filicaulis</i>	Mission Canyon bluecup	None/None/3.1/List C, SCMSCP	Chaparral/ annual herb/ April–June/ 1,400–2,300 feet.	Within surrounding quads.	Not present	Not likely to occur. Sites are below elevation range of species.
<i>Grindelia hirsutula</i> var. <i>hallii</i>	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, within species' known elevation range, and recorded within the surrounding quads.
<i>Harpagonella palmeri</i>	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 present on site.

APPENDIX D (Continued)

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
<i>Hazardia orcuttii</i>	Orcutt's hazardia	None/ST/1B.1/List A	Maritime chaparral, coastal scrub; often clay/ evergreen shrub/ August-October/ 250-280 ft.	Within surrounding quads.	Not present	Not likely to occur. Sites are above elevation range of species
<i>Hesperocyparis stephensonii</i>	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. Sites are below elevation range of species
<i>Heterotheca sessiliflora</i> ssp. <i>sessiliflora</i>	False goldenaster	None/None/1B.1/None	Chaparral, coastal dunes, coastal scrub/ perennial herb/ March–December/ <4,000 feet.	Within surrounding quads.	Present	Moderate potential to occur. Suitable habitat present, within species' known elevation range, and recorded within the surrounding quads.
<i>Horkelia truncata</i>	Ramona horkelia	None/None/1B.3/List A	Chaparral, cismontane woodland/ perennial herb/ May–June/ 1,200–4,000 feet.	Within surrounding quads.	Present	Low potential to occur. Only a small area along the western boundary of Helix-Lambron and within Cielo Azul is above 1,200 feet.
<i>Isocoma menziesii</i> var. <i>decumbens</i>	Decumbent goldenbush	None/None/1B.2/List A	Chaparral, coastal scrub/ perennial shrub/ April–November/ <450 feet.	Within surrounding quads.	Not present	Not likely to occur. Elevation of sites slightly above range of species.
<i>Iva hayesiana</i>	San Diego marsh-elder	None/ None/ 2.2/List B	Marshes and swamps, playas/ perennial herb/ April–November/ 30-1,650 feet.	Within 5 miles.	Present	Low potential to occur. Within species' known elevation range, and recorded on the adjacent Escondido Creek Preserve, but limited suitable habitat along Escondido Creek.
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	Coulter's goldfields	None/ None/1B.1/List A	Saltwater marsh and swamps, playas, vernal pools/ annual herb/ February-June/ <4000 feet.	Within surrounding quads.	Not present	Not likely to occur. No suitable habitat present on site.
<i>Lepechinia cardiophylla</i>	Heart-leaved pitchersage	None/None/1B.2/List A, SCMSCP	Chaparral, coastal scrub/ perennial shrub/ April–July/ 1,700–4,500 feet.	Within surrounding quads.	Not present	Not likely to occur. Sites are below elevation range of species.

APPENDIX D (Continued)

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
<i>Lepidium virginicum</i> var. <i>robinsonii</i>	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. Previously observed on adjacent Preserve parcels (TAIC 2008)..
<i>Leptosyne</i> (= <i>Coreopsis</i>) <i>maritima</i>	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. Limited suitable coastal scrub habitat on site.
<i>Lessingia glandulifera</i> var. <i>tomentosa</i>	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. Sites are below elevation range of species.
<i>Limnanthes gracilis</i> ssp. <i>parishii</i>	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. Sites are below elevation range of species.
<i>Linanthus orcutti</i>	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. Sites are below elevation range of species.
<i>Lotus nuttallianus</i>	Nuttall's lotus	None/ None/1B.1/List A, SCMCSP	Coastal dunes, coastal scrub; sandy/ annual herb/ March–June/ < 35 feet.	Within surrounding quads.	Not present	Not likely to occur. Sites are above elevation range of species.
<i>Monardella hypoleuca</i> ssp. <i>lanata</i>	Felt-leaved monardella	None/None/1B.2/List A, NCMSCP, SCMSCP	Chaparral, cismontane woodland/ perennial rhizomatous herb/ June–August/ 900–5,200 feet.	Within 1 mile.	Present	High potential to occur. Suitable chaparral and cismontane woodland habitat present on site, and species recorded within 1 mile of the Preserve.
<i>Monardella viminea</i>	Willowy monardella	FE/SE/1B.1/List A, SCMSCP	Chaparral, coastal scrub, riparian forest, woodland, and scrub; alluvial ephemeral washes/ perennial herb/ June–August/ 160–750 feet	Within surrounding quads.	Present	Moderate potential to occur. Suitable habitat present, within species' known elevation range, and recorded within the surrounding quads.

APPENDIX D (Continued)

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
<i>Muilla clevelandii</i>	San Diego goldenstar	None/None/1B.1/List A, NCMSCP, SCMSCP	Chaparral, coastal scrub, valley and foothill grasslands, vernal pools/ perennial bulbiferous herb/ April–May/ 150–1,550 feet.	Within 5 miles.	Present	Moderate potential to occur. Suitable habitat present, within species' known elevation range, and recorded within 5 miles of the study area. Timing of surveys in February/March not optimal for detection of this species; therefore, presence/absence cannot be determined.
<i>Myosurus minimus</i> ssp. <i>apus</i>	Little mousetail	None/None/3.1/List C, NCMSCP, SCMSCP	Valley and foothill grassland, vernal pools/ annual herb/ March–June/ 60–2,100 feet.	Within surrounding quads.	Not present	Not likely to occur. No suitable habitat or vernal pools present.
<i>Nama stenocarpum</i>	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.	Not present	Not likely to occur. No suitable habitat present.
<i>Navarretia fossalis</i>	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 present.
<i>Nemacaulis denudata</i> var. <i>denudata</i>	Coast woolly-heads	None/None/1B.2/List A	Coastal dunes/ annual herb/ April-September/ < 330 feet.	Within surrounding quads.	Not present	Not likely to occur. Sites are above elevation range of species; no suitable habitat present.
<i>Nemacaulis denudata</i> var. <i>gracilis</i>	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 present.
<i>Nolina cismontana</i>	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.

APPENDIX D (Continued)

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
<i>Opuntia californica</i> var. <i>californica</i>	Snake cholla	None/None/1B.1/List A, SCMSCP	Chaparral, coastal scrub/ stem succulent/ April-May/ 100-500 feet.	Within surrounding quads.	Present	Moderate potential to occur. Suitable habitat present, within species' known elevation range, and recorded in the vicinity.
<i>Orcuttia californica</i>	California Orcutt grass	FE/SE/1B.1/List A, SCMSCP	Vernal pools/ annual herb/ April-August/ 50-2,200 feet.	Within surrounding quads.	Not present	Not likely to occur. No vernal pools on site.
<i>Orobanche parishii</i> ssp. <i>brachyloba</i>	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 surrounding quads.	Present	Low potential to occur. Limited suitable coastal scrub with sandy soils present on site.
<i>Packera ganderi</i>	Gander's ragwort	None/SR/1B.2/List A, NCMSCP	Chaparral (burns)/ perennial herb/ April–June/ 1,200–4,000 feet.	Within surrounding quads.	Present	Low potential to occur. Limited recently burned areas present on site; only the northern portion of the Helix-Lamborn parcel has burned within the past 10 years, in the 2007 Witch Fire. Only a small area of the northeastern portion of this parcel is above 1,200 feet.
<i>Pinus torreyana</i> spp. <i>torreyana</i>	Torrey pine	None/None/1B.2/List A, SCMSCP	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.
<i>Pogogyne abramsii</i>	San Diego mesa mint	FE/SE/1B.1/List A, SCMSCP	Vernal pools/ annual herb/ May-July/ 300-650 ft.	Within surrounding quads.	Not present	Not likely to occur. No vernal pools on site.
<i>Pogogyne nudiuscula</i>	Otay Mesa mint	FE/SE/1B.1/List A, SCMSCP	Vernal pools/ annual herb/ May-July/ 300-620 ft.	Within surrounding quads.	Not present	Not likely to occur. No vernal pools on site.
<i>Quercus dumosa</i>	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	Moderate potential to occur. Suitable habitat present, within species' known elevation range, and recorded within 5 miles of the study area.

APPENDIX D (Continued)

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
<i>Quercus engelmannii</i>	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.	None within area.	Present	Low potential to occur. Suitable habitat present and within species' known elevation range, but no known occurrences within the area.
<i>Ribes canthariforme</i>	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.
<i>Satureja chandleri</i>	San Miguel savory	None/None/1B.2/List A, NCMSCP, SCMSCP	Chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland; rocky, gabbroic or metavolcanic/ shrub/ March–July/ 400–3,550 feet	Within surrounding quads.	Present	Moderate potential to occur. Suitable habitat present, within species' known elevation range, and recorded in the vicinity.
<i>Scutellaria bolanderi</i> ssp. <i>austromontana</i>	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.
<i>Selaginella cinerascens</i>	Ashy spike-moss	None/None/4.1/List D	Chaparral, coastal scrub/ perennial rhizomatous herb/ 66–2,100 feet	Within study area.	Present	Present. Observed on the Cielo Azul and Helix-Lambron parcels.
<i>Senecio aphanactis</i>	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 there are no alkaline soils recorded on the site.
<i>Sphaerocarpus drewei</i>	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, within species' known elevation range, and recorded in the vicinity.

APPENDIX D (Continued)

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
<i>Stemodia durantifolia</i>	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 present on site.
<i>Suaeda esteroa</i>	Estuary seablite	None/None/1B.2/List A	Coastal salt marshes and swamps/ perennial herb/ May–October (Jan)/ < 20 feet.	Within surrounding quads.	Not present	Not likely to occur. Sites are above elevation range of species.
<i>Tetracoccus dioicus</i>	Parry's tetracoccus	None/None/1B.2/List A, NCMSCP, SCMSCP	Chaparral, coastal scrub/ perennial deciduous shrub/ April–May/ 500–3,500 feet.	Within 5 miles.	Present	Moderate potential to occur. Suitable habitat present, within species' known elevation range, and recorded within 5 miles of the study area.
<i>Thermopsis californica</i> var. <i>semota</i>	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. Sites are below elevation range of species.
<i>Triquitella californica</i>	California triquetrella moss	None/None/1B.2/None	Coastal bluff scrub, coastal scrub/ moss/ 30–350 feet.	Within surrounding quads.	Not present	Not likely to occur. Sites are above 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)

SCMSCP: Covered under the South County MSCP

APPENDIX E

*Special-status Wildlife Species Detected or
Potentially Occurring at Pascoe, Helix-Lambron
and Cielo Azul Parcel Additions to the
Del Dios Preserve
Site Elevation 480–1,240 Feet*

APPENDIX E

Special-status Wildlife Species Detected or Potentially Occurring at Del Dios Preserve Site Elevation 480–1,240 Feet

Scientific Name/ Common Name	Status (Federal/State/ County) ¹	Habitat Preferences/Requirements	Status On Site or Potential to Occur
<i>Amphibians</i>			
<i>Anaxyrus</i> (= <i>Bufo</i> <i>microscaphus</i>) <i>californicus</i> Arroyo toad	FE/CSC/Group 1, NCMSCP, SCMSCP	Stream channels for breeding (typically 3rd order); adjacent stream terraces and uplands for foraging and wintering	Not expected to occur. No suitable habitat present.
<i>Ensatina eschscholtzii</i> <i>klauberi</i> 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.
<i>Rana aurora draytoni</i> California red-legged frog	FT/CSC/Group 1, SCMSCP	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.
<i>Rana muscosa</i> 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.
<i>Spea</i> [= <i>Scaphiopus</i>] <i>hammondi</i> Western spadefoot	None/CSC/Group 2, NCMSCP	Most common in grasslands, coastal sage scrub near rain pools or vernal pools; riparian habitat	Present. Detected along Escondido Creek during amphibian surveys in 2010-11.
<i>Taricha torosa torosa</i> 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.
<i>Fish</i>			
<i>Eucyclogobius newberryi</i> Tidewater goby	FE/ CSC/Group 1	Low-salinity waters in coastal wetlands	Not expected to occur. No suitable habitat present.
<i>Gila orcuttii</i> Arroyo Chub	None/CSC/Group 1	Warm, fluctuating streams with slow-moving or backwater sections of warm to cool streams at depths > 40 centimeters; substrates of sand or mud	Not expected to occur. No suitable habitat present.
<i>Reptiles</i>			
<i>Anniella pulchra pulchra</i> 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 occurrence is over 10 miles from the site.

APPENDIX E (Continued)

Scientific Name/ Common Name	Status (Federal/State/ County) ¹	Habitat Preferences/Requirements	Status On Site or Potential to Occur
<i>Aspidoscelis hyperythra beldingi</i> Orange-throated whiptail	None/CSC/Group 2, NCMSCP, SCMSCP	Coastal sage scrub, chaparral, grassland, juniper and oak woodland; sandy soils, washes	High potential to occur. Previously detected on the adjacent Preserve parcels (TAIC 2008).
<i>Aspidoscelis tigris stejnegeri</i> Coastal western whiptail	None/None/Group 2	Coastal sage scrub, chaparral; sandy areas, gravelly arroyos, or washes	Present. Observed during the 2010-11 surveys.
<i>Charina trivirgata roseofusca</i> Rosy boa	None/None/Group 2	Rocky chaparral, coastal sage scrub, oak woodlands, desert and semi-desert scrub	Present. Observed during the 2010-11 surveys on the Helix-Lambron parcel.
<i>Coleonyx switaki</i> 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.
<i>Coleonyx variegatus abbotti</i> 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.
<i>Crotalus ruber ruber</i> Northern red-diamond rattlesnake	None/CSC/Group 2, NCMSCP	Variety of shrub habitats where there is heavy brush, large rocks, or boulders	Present. Detected on the Pascoe parcel in 2010-11 surveys.
<i>Diadophis punctatus similis</i> San Diego ringneck snake	None/None/Group 2	Open, rocky areas in moist habitats near intermittent streams: marsh, riparian woodland, sage scrub	Present. Detected along Escondido Creek during amphibian surveys in 2010-11.
<i>Actinemys marmorata pallida</i> Western pond turtle	None/CSC/Group 1, NCMSCP, SCMSCP	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.
<i>Eumeces skiltonianus interparietalis</i> Coronado skink	None/CSC/Group 2	Grassland, riparian and oak woodland; found in litter, rotting logs, under flat stones	Moderate potential to occur. Limited suitable habitat present onsite based on the debris present along Escondido Creek and other moist areas on the Preserve.
<i>Lampropeltis zonata</i> (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.

APPENDIX E (Continued)

Scientific Name/ Common Name	Status (Federal/State/ County) ¹	Habitat Preferences/Requirements	Status On Site or Potential to Occur
<i>Phrynosoma blainvillei</i> Coast (San Diego) horned lizard	None/CSC/Group 2, NCMSCP, SCMSCP	Coastal sage scrub, annual grassland, chaparral, oak and riparian woodland, coniferous forest, sandy areas, washes, flood plains	Present. Observed on the Pascoe parcel during 2010-11 surveys.
<i>Salvadora hexalepis virgultea</i> Coast patch-nosed snake	None/CSC/Group 2	Chaparral, washes, sandy flats, rocky areas	High potential to occur. Previously detected on the adjacent Preserve parcels (TAIC 2008).
<i>Sceloporus graciosus vanderburgianus</i> 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.
<i>Thamnophis hammondi</i> Two-striped garter snake	None/CSC/Group 1, NCMSCP	Marshes, meadows, sloughs, ponds, slow-moving water courses	Present. Detected along Escondido Creek during amphibian surveys in 2010-11.
<i>Thamnophis sirtalis</i> 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.
<i>Birds</i>			
<i>Accipiter cooperii</i> Cooper's hawk (nesting)	None/WL/Group 1, SCMSCP	Riparian and oak woodlands, montane canyons	Present. Observed during avian bird point surveys at Helix-Lambron (A8) and south of Harmony Grove Road (A6) on the adjacent Escondido Creek Preserve.
<i>Accipiter striatus</i> (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 Preserve parcels (TAIC 2008); however, this species does not nest along the coastal slope of southern California and would only be expected as a winter migrant.
<i>Agelaius tricolor</i> Tricolored blackbird	BCC/CSC/Group 1, NCMSCP, SCMSCP	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.
<i>Aimophila ruficeps canescens</i> Southern California rufous-crowned sparrow	None/WL/Group 1, NCMSCP, SCMSCP	Grass-covered hillsides, coastal sage scrub, chaparral with boulders and outcrops	High potential to occur. Previously detected on the adjacent Preserve parcels (TAIC 2008) and suitable scrub and open chaparral habitat present on site.

APPENDIX E (Continued)

Scientific Name/ Common Name	Status (Federal/State/ County) ¹	Habitat Preferences/Requirements	Status On Site or Potential to Occur
<i>Anser caerulescens</i> 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.
<i>Anas strepera</i> 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.
<i>Amphispiza belli belli</i> Bell's sage sparrow	BCC/WL/Group 1, NCMSCP	Coastal sage scrub and dry chaparral along coastal lowlands and inland valleys	Present. Detected in the survey area during 2010-11 surveys.
<i>Ammodramus savannarum</i> Grasshopper sparrow	None/CSC/Group 1, NCMSCP	Restricted to native grassland.	Low potential to occur. Poor suitable habitat on site.
<i>Aquila chrysaetos</i> Golden eagle (nesting and wintering)	BCC/WL,FP/Group 1, NCMSCP, SCMSCP	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).
<i>Ardea herodias</i> Great blue heron	None/None/Group 2	Variety of habitats, but primarily wetlands; lakes, rivers, marshes, mudflats, estuaries, saltmarsh, riparian habitats	Present. Observed along Escondido Creek in 2010-11 surveys. Moderate potential to occur elsewhere for foraging purposes only.
<i>Asio flammeus</i> 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.
<i>Asio otus</i> 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.
<i>Athene cunicularia</i> Burrowing owl	BCC/CSC/Group 1, NCMSCP, SCMSCP	Grassland, lowland scrub, agriculture, coastal dunes and other artificial open areas	Moderate potential to occur. Suitable habitat on site. Not detected during surveys. Has not been recorded as using the area by Unitt (2004)
<i>Aythya Americana</i> 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.
<i>Branta Canadensis</i> Canada goose	None/None/Group 2, SCMSCP	Lakes, fresh emergent wetlands, moist grasslands, croplands, pastures, and meadows.	Not expected to occur. No suitable habitat.

APPENDIX E (Continued)

Scientific Name/ Common Name	Status (Federal/State/ County) ¹	Habitat Preferences/Requirements	Status On Site or Potential to Occur
<i>Buteo lineatus</i> Red-shouldered hawk	None/None/Group 1	Riparian and woodland habitats, eucalyptus	Present. Observed within the Escondido Creek portion of Cielo Azul during 2010-11 surveys. Low potential to occur elsewhere.
<i>Buteo regalis</i> Ferruginous hawk	BCC/WL/Group 1, SCMSCP	Open, dry country, grasslands, open fields, agriculture	Low potential to occur. Previously detected on the adjacent Preserve parcels (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.
<i>Buteo swainsoni</i> Swainson's hawk	BCC/ST/Group 1, SCMSCP	Open grassland, shrublands, croplands	Moderate to high potential to occur during migration only. Suitable foraging habitat on site is marginal.
<i>Butorides virescens</i> Green heron	None/None/Group 2	Lakes, marshes, streams	Not expected to occur. No suitable habitat on site.
<i>Campylorhynchus brunneicapillus sandiegensis</i> Coastal (San Diego) cactus wren	BCC/CSC/Group 1, NCMSCP, SCMSCP	Southern cactus scrub, maritime succulent scrub, cactus thickets in coastal sage scrub	Not expected to occur. No suitable habitat on site.
<i>Cathartes aura</i> Turkey vulture	None/None/Group 1	Rangeland, agriculture, grassland; uses cliffs and large trees for roosting, nesting and resting	Present. Observed foraging on site. Suitable nesting habitat on site is limited.
<i>Chaetura vauxi</i> 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 Preserve parcels (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.
<i>Charadrius alexandrinus nivosus</i> Western snowy plover	FT, BCC/CSC/Group 1, SCMSCP	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.
<i>Charadrius montanus</i> Mountain plover	PT/CSC/Group 2, SCMSCP	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.

APPENDIX E (Continued)

Scientific Name/ Common Name	Status (Federal/State/ County) ¹	Habitat Preferences/Requirements	Status On Site or Potential to Occur
<i>Circus cyaneus</i> Northern harrier	None/CSC/Group 1, NCMSCP, SCMSCP	Open wetlands (nesting), pasture, old fields, dry uplands, grasslands, rangelands, coastal sage scrub	Present. Observed foraging during 2010-11 surveys. No nesting habitat is present so will only use the site for foraging purposes.
<i>Coccyzus americanus occidentalis</i> 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.
<i>Contopus cooperi [borealis]</i> Olive-sided flycatcher	BCC/None/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.
<i>Cypseloides niger</i> 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.
<i>Dendrocygne bicolor</i> 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.
<i>Dendroica petechia brewsteri</i> 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 within the study area during 2010-11 surveys.
<i>Elanus leucurus (caeruleus)</i> White-tailed kite	None/FP/Group 1	Open grasslands, savanna-like habitats, agriculture, wetlands, oak woodlands, riparian	Moderate potential to occur. Suitable foraging habitat present on site. Nesting opportunities are limited.
<i>Empidonax traillii extimus</i> Southwestern willow flycatcher	FE/SE/Group 1, NCMSCP, SCMSCP	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.
<i>Eremophila alpestris actia</i> 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.
<i>Falco columbarius</i> 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.
<i>Falco mexicanus</i> 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.

APPENDIX E (Continued)

Scientific Name/ Common Name	Status (Federal/State/ County) ¹	Habitat Preferences/Requirements	Status On Site or Potential to Occur
<i>Falco peregrinus anatum</i> American peregrine falcon	BCC, (FD)/(SD), FP/ Group 1, SCMSCP	Nests on cliffs, buildings, bridges; forages in wetlands, riparian, meadows, croplands, especially where waterfowl are present	High potential to occur. Previously detected on the adjacent Preserve parcels (TAIC 2008).
<i>Gavia immer</i> Common loon	None/CSC/None	Estuarine and subtidal marine habitats along entire coast (Sept-May). Uncommon on large, deep lakes in valleys and foothills; common migrant along coast, including offshore, in November and May.	Low potential to occur. Detected on the adjacent existing Del Dios Highlands Preserve (TAIC 2008); however, observation was likely an individual flying toward one of the nearby lakes. They are exceedingly rare in San Diego and is a winter migrant only. There is no suitable loafing habitat onsite.
<i>Grus canadensis</i> Sandhill crane	FS/ ST, 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.
<i>Haliaeetus leucocephalus</i> Bald eagle	(FD)/SE, FP/Group 1, SCMSCP	Seacoasts, rivers, swamps, large lakes; winters at large bodies of water in lowlands and mountains	Not expected to occur. No suitable habitat on site.
<i>Icteria virens</i> 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 Preserve parcels (TAIC 2008); however, only marginal habitat present onsite.
<i>Ixobrychus exilis</i> 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.
<i>Laterallus jamaicensis coturniculus</i> California black rail	BCC/ST, FP/Group 2	Saline, brackish, and fresh emergent wetlands	Not expected to occur. No suitable habitat on site.
<i>Lanius ludovicianus</i> 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. This habitat is generally too closed.
<i>Melanerpes lewis</i> Lewis' woodpecker	BCC/None/Group 1	Open oak savannahs, broken deciduous and coniferous habitats.	Not expected to occur. No suitable habitat on site.
<i>Mycteria americana</i> 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.

APPENDIX E (Continued)

Scientific Name/ Common Name	Status (Federal/State/ County) ¹	Habitat Preferences/Requirements	Status On Site or Potential to Occur
<i>Numenius americanus</i> Long-billed curlew	BCC/WL/Group 2, SCMSCP	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.
<i>Oreotyx pictus eremophila</i> 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.
<i>Pandion haliaetus</i> 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.
<i>Passerculus sandwichensis beldingi</i> Belding's savannah sparrow	None/ SE/Group 1, SCMSCP	Saltmarsh, pickleweed	Not expected to occur. No suitable habitat on site.
<i>Phalacrocorax auritus</i> (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 Preserve parcels (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.
<i>Piranga rubra</i> (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.
<i>Plegadis chihi</i> White-faced ibis (rookery site)	None/WL/Group 1, NCMSCP, SCMSCP	Nests in marsh; winter foraging in shallow lacustrine waters, muddy ground of wet meadows, marshes, ponds, lakes, rivers, flooded fields and estuaries	Low potential to occur. Previously detected on the adjacent Preserve parcels (TAIC 2008); however, no suitable nesting, foraging, or roosting habitat present on site. May have been observed flying over the site.
<i>Polioptila californica californica</i> Coastal California gnatcatcher	FT/CSC/Group 1, NCMSCP, SCMSCP	Coastal sage scrub, coastal sage scrub-chaparral mix, coastal sage scrub-grassland ecotone, riparian in late summer	Present. Observed during avian point county surveys on the Helix-Lambron parcel (stations A8 and A11).
<i>Progne subis</i> (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.
<i>Pyrocephalus rubinus</i> 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.

APPENDIX E (Continued)

Scientific Name/ Common Name	Status (Federal/State/ County) ¹	Habitat Preferences/Requirements	Status On Site or Potential to Occur
<i>Rallus longirostris levipes</i> Light-footed clapper rail	FE/ SE, FP/Group 1, NCMSCP, SCMSCP	Coastal saltmarsh	Not expected to occur. No suitable habitat on site.
<i>Riparia riparia</i> 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.
<i>Siala mexicana</i> Western bluebird	None/None/Group 2, SCMSCP	Open forests of deciduous, coniferous or mixed trees, savanna, edges of riparian woodland	Present. Observed in the survey area during 2010-11 surveys.
<i>Sternula antillarum browni</i> California least tern	FE/ SE, FP/Group 1, SCMSCP	Coastal waters, estuaries, large bays and harbors, mudflats; nests on sandy beaches	Not expected to occur. No suitable habitat on site.
<i>Strix occidentalis occidentalis</i> 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.
<i>Tyto alba</i> Barn owl	None/None/Group 2	Open habitats including grassland, chaparral, riparian, and other wetlands.	Present. Observed on the Pascoe parcel during avian bird county suveys. Likely breeds and forages on site.
<i>Vireo bellii pusillus</i> Least Bell's vireo (nesting)	FE/SE/Group 1, NCMSCP, SCMSCP	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.
<i>Vireo vicinior</i> 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.
<i>Mammals</i>			
<i>Antrozous pallidus</i> 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. Not detected during surveys.
<i>Bassariscus astulus</i> Ringtail	None/None/Group 2	Mixed forests and shrublands near rocky areas or riparian habitats.	Low potential to occur due to poor riparian habitat.
<i>Chaetodipus californicus femoralis</i> Dulzura (California) pocket mouse	None/CSC/Group 2	Coastal sage scrub, chaparral, riparian-scrub ecotone; more mesic areas	High potential to occur. Previously detected on the adjacent Preserve parcels (TAIC 2008) and suitable habitat present on site.

APPENDIX E (Continued)

Scientific Name/ Common Name	Status (Federal/State/ County) ¹	Habitat Preferences/Requirements	Status On Site or Potential to Occur
<i>Chaetodipus fallax fallax</i> 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. Detected during small mammal trapping in 2011.
<i>Chaetodipus fallax pallidus</i> 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.
<i>Choeronycteris mexicana</i> 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.
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	None/CSC/Group 2, NCMSCP	Mesic habitats, gleans from brush or trees or feeds along habitat edges	Present. Detected within the study area during bat surveys conducted in 2010-11.
<i>Dipodomys stephensi</i> 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.
<i>Euderma maculatum</i> 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.
<i>Eumops perotis californicus</i> 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 Preserve parcels (TAIC 2008).
<i>Lasiurus blossevillii</i> 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 within the study area during bat surveys conducted in 2010-11.
<i>Lasiurus xanthinus</i> Western yellow bat	None/CSC/None	Desert and montane riparian, desert succulent scrub, desert scrub, and pinyon-juniper woodland.	Present. Detected within the study area during bat surveys conducted in 2010-11.
<i>Lepus californicus bennettii</i> San Diego black-tailed jackrabbit	None/CSC/Group 2, NCMSCP	Arid habitats with open ground; grasslands, coastal sage scrub, agriculture, disturbed areas, rangelands	Present. Detected within the study area during surveys conducted in 2010-11.
<i>Macrotus californicus</i> California leaf-nosed bat	None/CSC/Group 2	Desert riparian, desert wash, desert scrub, desert succulent shrub, alkali desert scrub, and palm oasis.	Not Expected To Occur. No suitable habitat on site..
<i>Myotis ciliolabrum</i> Small-footed myotis	None/None/Group 2	Caves, old mines, abandoned buildings	Not expected to occur. No suitable habitat on site.

APPENDIX E (Continued)

Scientific Name/ Common Name	Status (Federal/State/ County) ¹	Habitat Preferences/Requirements	Status On Site or Potential to Occur
<i>Myotis evotis</i> 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.
<i>Myotis thysanodes</i> 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.
<i>Myotis volans</i> 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.
<i>Myotis yumanensis</i> Yuma myotis	None/None/Group 2	Closely tied to open water which is used for foraging; open forests and woodlands are optimal habitat	Present. Detected within the study area during bat surveys conducted in 2010-11.
<i>Neotoma lepida intermedia</i> San Diego desert woodrat	None/CSC/Group 2	Coastal sage scrub, chaparral, pinyon-juniper woodland with rock outcrops, cactus thickets, dense undergrowth	High potential to occur. Previously detected on the adjacent Preserve parcels (TAIC 2008) and suitable rocky habitat present within the study area.
<i>Nyctinomops femorosaccus</i> Pocketed free-tailed bat	None/CSC/Group 2	Rocky desert areas with high cliffs or rock outcrops	Present. Detected within the study area during bat surveys conducted in 2010-11.
<i>Nyctinomops macrotis</i> Big free-tailed bat	None/CSC/Group 2	Rugged, rocky canyons	Present. Detected within the study area during bat surveys conducted in 2010-11
<i>Odocoileus hemionus</i> Mule deer	None/None/Group 2, SCMSCP	Coastal sage scrub, chaparral, riparian, woodlands, forest; often browses in open areas adjacent to cover	Present. Detected on site during 2010-11 surveys.
<i>Onychomys torridus</i> <i>Ramona</i> 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.
<i>Ovis Canadensis nelsoni</i> 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.
<i>Perognathus longimenmbria pacificus</i> 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.

APPENDIX E (Continued)

Scientific Name/ Common Name	Status (Federal/State/ County) ¹	Habitat Preferences/Requirements	Status On Site or Potential to Occur
<i>Puma</i> [= <i>Felis</i>] <i>concolor</i> Mountain lion	None/None/Group 2, NCMSCP, SCMSCP	Coastal sage scrub, chaparral, riparian, woodlands, forest; rests in rocky areas, and on cliffs and ledges that provide cover	Present. Detected within the study area during 2010-11 surveys.
<i>Taxidea taxus</i> American badger	None/CSC/Group 2, NCMSCP, SCMSCP	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.
<i>Invertebrates</i>			
<i>Branchinecta sandiagonensis</i> San Diego fairy shrimp	FE/None/Group 1, NCMSCP, SCMSCP	Small, shallow vernal pools, occasionally ditches and road ruts	Not expected to occur. No suitable habitat on site.
<i>Callophrys</i> (= <i>Mitoura</i>) <i>thornei</i> Thorne's hairstreak butterfly	None/None/Group 1, SCMSCP	Tecate cypress	Not expected to occur. No suitable habitat on site.
<i>Cicindela hirticollis grvida</i> 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.
<i>Cicindela senilis frosti</i> Senile tiger beetle	None/None/Group 2	Salt marshes.	Not expected to occur. No suitable habitat on site.
<i>Coelus globosus</i> Globose dune beetle	None/None/Group 1	Coastal dunes.	Not expected to occur. No suitable habitat on site.
<i>Danaus plexippus</i> Monarch butterfly (wintering sites)	None/None/Group 2	Overwinters in eucalyptus groves	Moderate potential to occur during migrations. No suitable roost habitat present.
<i>Euphydryas editha quino</i> Quino checkerspot butterfly	FE/None/Group 1, NCMSCP	Sparsely vegetated hilltops, ridgelines, occasionally rocky outcrops; host plant <i>Plantago erecta</i> 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.
<i>Euphyes vestris harbisoni</i> Harbison's dun skipper	None/None/Group 1, NCMSCP	Restricted to wetland, riparian, oak woodlands, and chaparral habitats supporting host plant <i>Carex spissa</i>	Not expected to occur. Host plant not observed on site.
<i>Linderiella occidentalis</i> 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.

APPENDIX E (Continued)

Scientific Name/ Common Name	Status (Federal/State/ County) ¹	Habitat Preferences/Requirements	Status On Site or Potential to Occur
<i>Lycaena hermes</i> Hermes copper butterfly	None/None/Group 1, NCMSCP	Coastal sage scrub, southern mixed chaparral supporting at least 5% cover of host plant <i>Rhamnus crocea</i>	Not expected to occur. Host plant not observed on site.
<i>Papilio multicaudata</i> Two-tailed swallowtail	None/None/Group 1	Foothill slopes and canyons, moist valleys, streamsides, woodlands, parks, roadsides, suburbs, and cities	Low potential to occur. Limited suitable habitat on site.
<i>Streptocephalus woottonii</i> Riverside fairy shrimp	FE/None/Group 1, NCMSCP, SCMSCP	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.
<i>Tryonia imitator</i> 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)
 SCMSCP Covered under the South County MSCP

APPENDIX E (Continued)

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APPENDIX F

Site Photographs

APPENDIX F

Site Photographs



Photograph of brush rabbit (*Sylvilagus bachmani*) taken with wildlife camera.



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

APPENDIX F (Continued)



Photograph of mule deer (*Odocoileus hemionus*) taken with wildlife camera.



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

APPENDIX F (Continued)



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



Photograph of western fence lizard (*Sceloporus occidentalis*) found under coverboard.

APPENDIX F (Continued)



Photograph of southern alligator lizard (*Elgaria multicarinata*) found under coverboard.



Photograph of Blainville's (coast) horned lizard (*Phrynosoma blainvillii*).

APPENDIX F (Continued)



Photograph of bat survey station B5.

APPENDIX F (Continued)



Photograph of bat survey station B6.

APPENDIX F (Continued)



Small mammal trap on Helix-Lambron.



Small mammal trap on Helix-Lambron.

APPENDIX F (Continued)

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