Baseline Biodiversity Survey for the

Simon Preserve

MARCH 2010

PREPARED FOR:

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

PREPARED BY:

DUDEK
605 Third Street
Encinitas, CA 92024

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Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024
Contact: Anita Hayworth

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EXECUTIVE SUMMARY

The Simon Preserve (Preserve) consists of approximately 617 acres[1] in unincorporated San Diego County. Dudek biologists performed the following baseline biological surveys from spring through fall 2009: vegetation mapping, focused botanical surveys, exotic species mapping, general butterfly surveys, herpetological pitfall trap surveys, avian point count surveys, bat surveys, small mammal trapping, and large and medium mammal surveys. This report documents the methods and results of these surveys, and provides various management recommendations to preserve and enhance the function of the Preserve as biological open space in the context of the regional conservation goals of the draft North County Multiple Species Conservation Plan (North County MSCP). The County of San Diego Department of Parks and Recreation (DPR) proposes to manage the Preserve in accordance with a Resource Management Plan (RMP) including Area-Specific Management Directives (ASMDs) that will be prepared based upon the baseline biological survey information established in this report.

Based on species composition and general physiognomy, a total of 15 native or naturalized plant communities, including disturbed forms and mixed vegetation types, were identified on site: Diegan coastal sage scrub, disturbed Diegan coastal sage scrub, chamise chaparral, coastal sage scrub-southern mixed chaparral, disturbed coastal sage scrub-southern mixed chaparral, southern mixed chaparral, non-native grassland, southern coast live oak riparian woodland, southern cottonwood-willow riparian forest, southern riparian woodland, southern willow scrub, arrowweed scrub, coast live oak woodland, open Engelmann oak woodland, and eucalyptus woodland. In addition, disturbed habitat, developed land, and orchard land covers were identified.

A total of 203 vascular plant species were recorded on the Preserve during surveys. Four special-status plant species were observed, of which three are covered under the North County MSCP, and one, San Diego thorn-mint (*Acanthomintha ilicifolia*), is federally and state listed. A total of 93 wildlife species were observed or detected on the Preserve during surveys, including 8 reptiles, 52 birds, 16 mammals, and 17 invertebrates. Seventeen special-status wildlife species were observed or detected on the Preserve, including five species covered under the North County MSCP.

[1] The assessor's parcel data reports the Preserve to be 630 acres; however, calculations generated from the geographic information system (GIS) data provided by the County of San Diego as shapefiles on July 20, 2009, show the Preserve as 617 acres. Therefore, this report references the Preserve as 617 acres.

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1.0 INTRODUCTION

1.1 Purpose of the Report

This report describes the existing conditions of biological resources within the Simon Preserve (Preserve) in terms of vegetation, flora, wildlife, and wildlife habitats. The data presented in this report are intended to provide the baseline information necessary to manage, protect, and enhance the sensitive biological resources present on site. The County of San Diego Department of Parks and Recreation (DPR) proposes to manage the Preserve in accordance with a Resource Management Plan (RMP) including Area-Specific Management Directives (ASMDs). This plan will include the survey information presented in this report.

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

1.2 North County MSCP Context

DPR acquired the Preserve in 1995. The Preserve is included in the North County Multiple Species Conservation Plan (North County MSCP) area. The Preserve, located within a Pre-Approved Mitigation Area (PAMA) and designated as a preserve area in the North County MSCP, is part of the Eastern Ramona Core, which includes 18,996 acres east of downtown Ramona, south of Lake Sutherland, including lands east of the Barona Reservation. The Preserve generally forms the western boundary of the central portion of the Eastern Ramona Core, connecting future preserve lands in PAMAs to the north and south. The Preserve also forms an important natural linkage to Barnett Ranch Preserve, and ultimately to preserve lands around San Vicente Reservoir, in the South County MSCP Subarea.

The North County MSCP provides habitat evaluation models for three key species within the MSCP area: coastal California gnatcatcher (*Polioptila californica californica*), Stephens' kangaroo rat (*Dipodomys stephensi*), and arroyo toad (*Anaxyrus californicus*). The North County MSCP habitat evaluation model for coastal California gnatcatcher, which considered factors such as scrub patch size and shape, slope, and climate, indicates that most of the Preserve area provides moderate nesting habitat value for this species. The model for Stephens' kangaroo rat, which prefers sparsely vegetated habitats having a high proportion of bare ground on deep, well-drained loamy soils that facilitate burrowing, shows that the southeastern portion of the Preserve provides low habitat value for this species and the northeastern portion of the Preserve supports

moderate habitat value for this species. The model created for arroyo toad is based on U.S. Fish and Wildlife Service (USFWS) data that identifies stream reaches that are suitable as arroyo toad habitat. This model indicates that there is no suitable habitat for this species on the Preserve.

2.0 STUDY AREA

2.1 Project Location

The Preserve consists of approximately 617 acres[2] within an unincorporated portion of the County of San Diego, California (see Figure 1, Regional Map). The Preserve is mapped on the U.S. Geological Survey (USGS) 7.5-minute Ramona quadrangle, Township 13 South, Ranges 1 and 2 East, located approximately 5.5 miles southeast of the City of San Diego and 6 miles northeast of the City of Poway (see Figure 2, Vicinity Map).

2.2 Geographical Setting

The topography of the Preserve is determined primarily by the intersection of two ridgelines in the central portion of the property. Both ridgelines generally trend north–south and bisect the property. On-site elevations range from 1,440 feet above mean sea level (amsl) in the southeast corner of the property to a maximum of 2,120 feet amsl at the intersection of both ridgelines. East-facing slopes characterize the eastern portion of the Preserve while west and northwest facing slopes characterize the western portion of the Preserve. Slope gradients in both areas reach up to 35%. The sloped regions on both the east and west sides of the Preserve are also characterized by a series of smaller sub-drainages, gullies, and draws that flow downward away from the prominent ridgelines.

2.3 Geology and Soils

The Preserve is situated atop three distinct geologic categories: Cretaceous plutonic, Eocene marine and nonmarine, and quaternary alluvium. The Cretaceous plutonic occurs along the western boundary of the Preserve and through the center of the site east of the mapped Eocene marine and nonmarine, which corresponds with the flatter area on site and occurs in a general northeast–southwest direction. The quaternary alluvium occurs on the eastern portion of the site and a small area occurs in the northwest corner.

[2] The assessor's parcel data reports the Preserve to be 630 acres; however, calculations generated from the GIS data provided by the County of San Diego as shapefiles on July 20, 2009, show the Preserve as 617 acres. Therefore, this report references the Preserve as 617 acres.

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FIGURE 1

Regional Map

Baseline Biodiversity Survey for Simon Preserve

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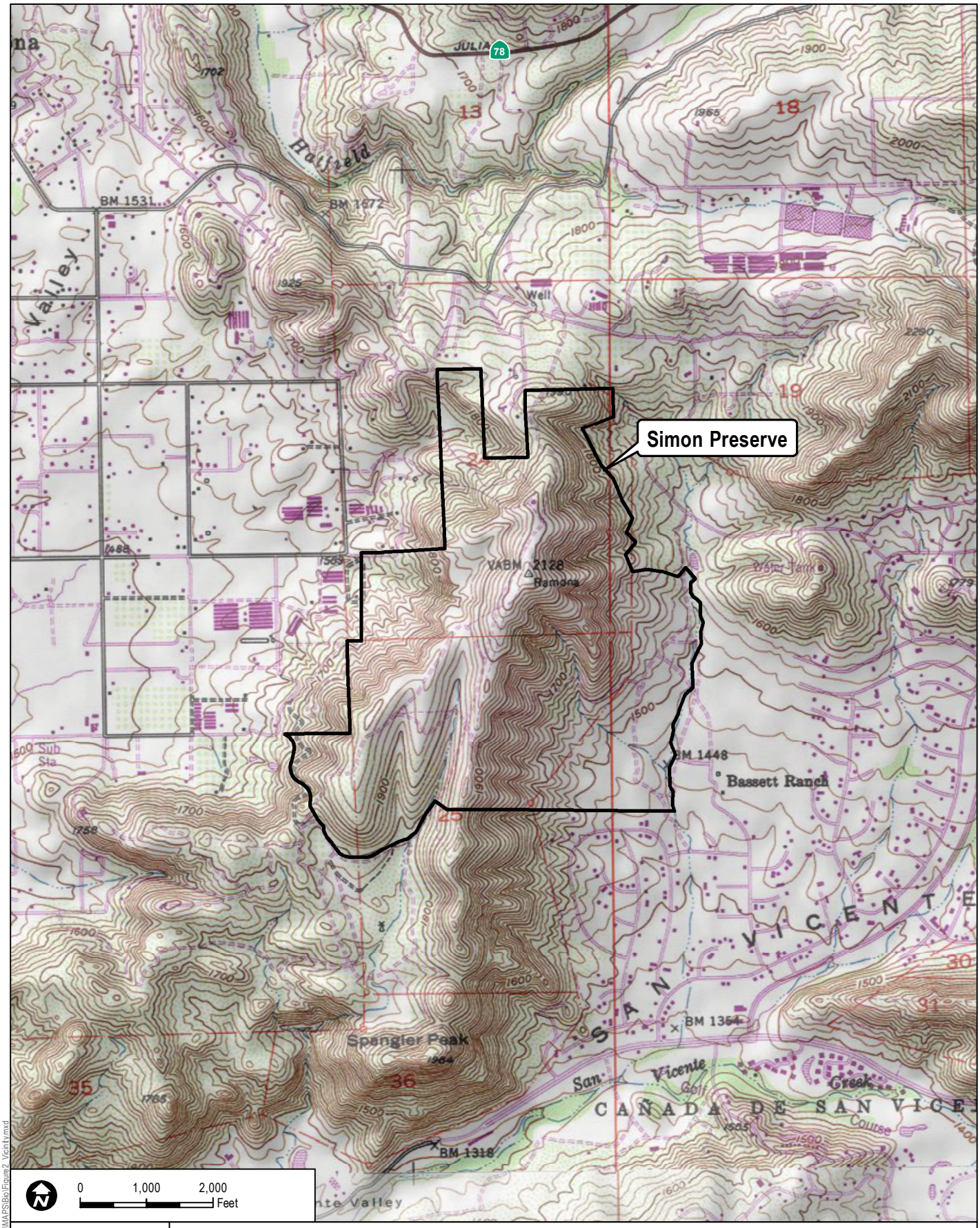

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SOURCE: Preserve Boundary, County of San Diego;
USGS 7.5 Minute Series El Cajon Mountain and Ramona Quadrangles.

FIGURE 2
Vicinity Map

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Baseline Biodiversity Survey for Simon Preserve

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Several general soil associations are represented within the Preserve: Anderson very gravelly sandy loam, Cieneba rocky coarse sandy loam, Clayey alluvial land, Fallbrook sandy loam, Las Posas stony fine sandy loam, Olivenhain cobbly loam, Placentia sandy loam, and Vista rocky coarse sandy loam (see Figure 3, Soils Map) (Bowman 1973).

Anderson series soils occur in the southwest corner of the Preserve. Anderson series soils form from stony, cobbly, and gravelly granitic and schist alluvium. The topsoil layer is brown to dark brown very gravelly sandy loam and about 25 inches deep over subsoil that extends to a depth of about 60 inches. Anderson very gravelly sandy loam, 9% to 45% slopes, is mapped on site (Bowman 1973).

Cieneba series soils occur in the northern and southern portions of the site. Cieneba soils are 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 rocky coarse sandy loam, 9% to 30% slopes, is mapped on site (Bowman 1973).

Clayey alluvial land soils occur along the eastern boundary of the Preserve. Clayey alluvial land soils are moderately well drained, very deep, and very dark brown to black clay loam or clay. The subsoil is often stratified with lenses of clay to fine sandy loam and the soil material can be calcareous (Bowman 1973).

Fallbrook series soils cover a small area along the western boundary of the Preserve. 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, 5% to 9% slopes, eroded is mapped on site (Bowman 1973).

Las Posas series soils occur in the northern portion of the site. 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. Las Posas stony fine sandy loam, 30% to 65% slopes, is mapped on site (Bowman 1973).

Olivenhain series soils cover a large area in the center of the site. Olivenhain series soils form from gravelly and cobbly alluvium on dissected marine terraces. The topsoil layer is brown to reddish-brown and about 10 inches deep over subsoil that extends to about 60 inches in depth. Small areas of Huerhuero, Diablo, and Linne soils may be included in areas mapped as Olivenhain soils. Olivenhain cobbly loam, 9% to 30% slopes, and Olivenhain cobbly loam, 30%

to 50% slopes, are mapped on site (Bowman 1973). Olivenhain soils are substrates associated with special-status plant species (Vanderwier 2002).

A small area of ***Placentia series*** soils occur along the eastern boundary of the Preserve. Placentia series soils are moderately well-drained sandy loams formed in granitic alluvium. The surface layer is brown sandy loam about 13 inches deep with a sandy clay and sandy clay loam subsoil. Placentia sandy loam, 2% to 9% slopes, is mapped on site (Bowman 1973).

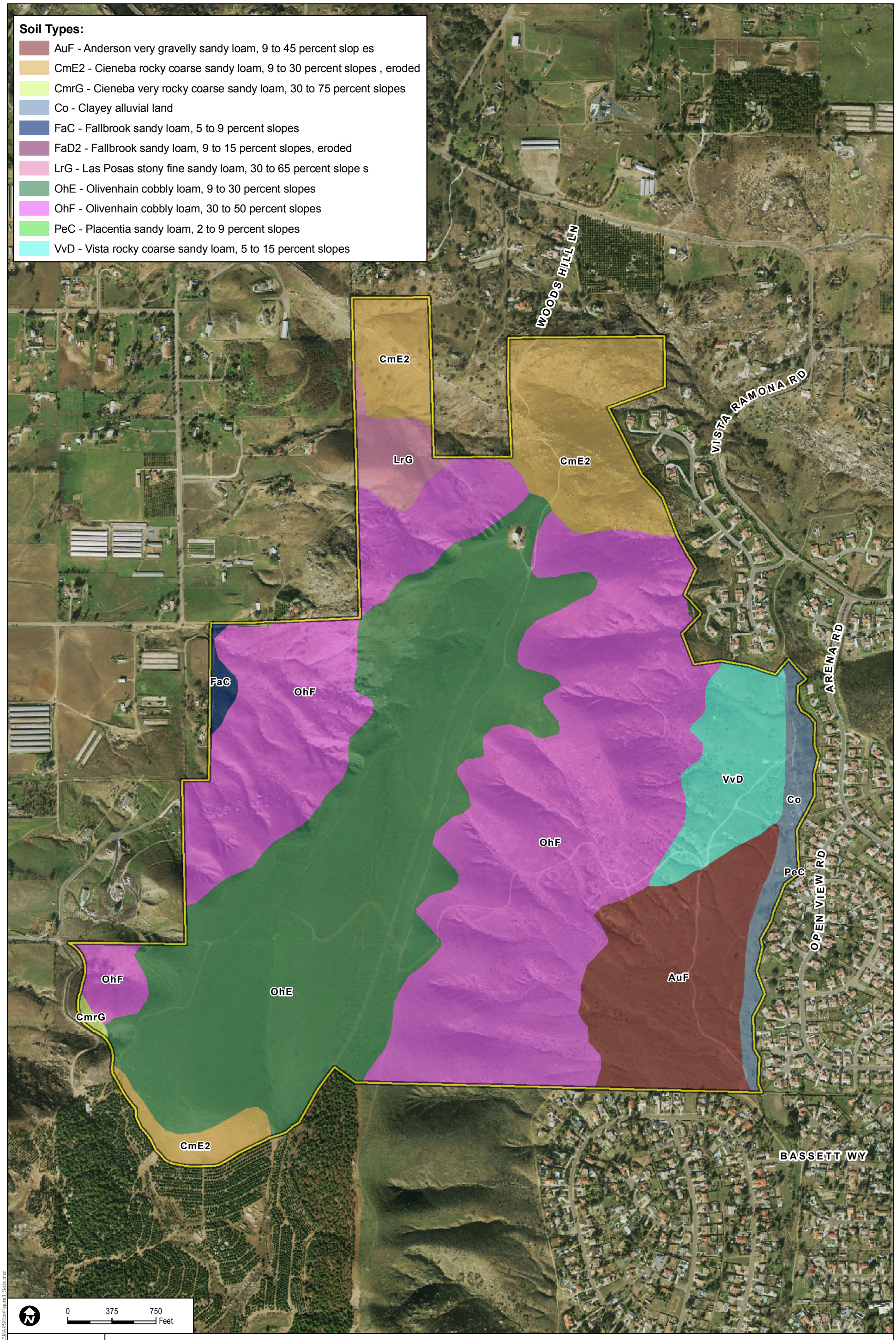
Vista series soils occur in the eastern portion of the Preserve. Vista series soils are well-drained, moderately deep, and deep coarse sandy loams formed from granodiorite or quartz diorite. The surface layer is dark grayish-brown and dark brown with a sandy loam subsoil formed over weathered granitic rock. Vista rocky coarse sandy loam, 5% to 15% slopes, is mapped on site (Bowman 1973).

The soil profiles of ***Las Posas stony fine sandy loam*** and ***Olivenhain cobbly loam*** include clays that are generally associated with special-status plant taxa. Small inclusions of Las Posas soils may occur within the Cieneba and Fallbrook soil units on site. Huerhuero and Diablo soils, also associated with special-status plant taxa, may occur as minor inclusions in the Olivenhain soil units on site (Vanderwier 2002).

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 over the past 9 years for this area is approximately 87.7º Fahrenheit (F), with higher temperatures in summer and early fall (July through October) reaching up to 112°F (Goose Valley Remote Automated Weather Station [RAWS], Western Regional Climate Center 2009). The mean precipitation for the area is 11.7 inches per year, with the majority of rainfall concentrated in the months of December (1.86 inches), January (2.35 inches), February (3.19 inches), and March (1.76 inches) (Western Regional Climate Center 2009).



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SOURCE: Preserve Boundary, County of San Diego; Soils, (SanGIS 2008); DigitalGlobe, 2008

FIGURE 3

Soils Map

Baseline Biodiversity Survey for Simon Preserve

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2.5 Hydrology

The western portion of the Preserve is within the San Dieguito Watershed and the remaining area is within the San Diego River Watershed (Figure 4, Hydrology Map). The western portion of the Preserve generally drains to the northwest via small sub-drainages, gullies, and draws towards adjacent rural residential areas within the eastern portion of the community of Ramona. Santa Maria Creek is the nearest named receiving water body and is located approximately 2.5 miles to the northwest of the Preserve. Santa Maria Creek is a tributary to the San Pasqual River, located approximately 10 miles to the northwest of the Preserve. The eastern portion of the Preserve generally drains to the southeast into a natural stream channel on site that flows from north to south along the eastern boundary of the Preserve. The drainage is an unnamed tributary to San Vicente Creek, located approximately 0.8 mile to the south of the Preserve along the south side of San Vicente Road. San Vicente Creek drains into the San Vicente Reservoir before continuing in a generally southwest direction towards its confluence with the San Diego River near the community of Lakeside. Designated beneficial uses for the Santa Maria Creek in the San Dieguito Watershed include municipal and domestic supply; agricultural supply; industrial service supply; industrial process supply; contact and non-contact water recreation; warm freshwater habitat; and wildlife habitat. Designated beneficial uses for the San Diego River and its tributaries consist of all of these uses as well as cold freshwater habitat and rare, threatened, or endangered species habitat (California Regional Water Quality Control Board 1994).

2.6 Fire History

Based on historical fire perimeter data (FRAP 2009)[3], the entire Preserve has burned at least once during the recorded data period, with the vast majority of the site having burned over three times between 1928 and 2007. The average interval between wildfires on the Preserve was calculated to be 15.8 years with intervals ranging between 3 and 25 years. However, this average includes two short intervals of 3 and 4 years, so an evaluation of the median interval between fires is calculated at 23 years. Based on this analysis, it is expected that the Preserve would be subject to wildfire occurrence every 23 years, with the realistic possibility of short interval occurrences. Table 1, Simon Preserve Fire Interval, presents the fire interval data for the Preserve.

[3] Based on polygon GIS data from Cal Fire's Fire and Resource Assessment Program (FRAP), which includes data from Cal Fire, USDA Forest Service Region 5, BLM, 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.

Table 1
Simon Preserve Fire Interval

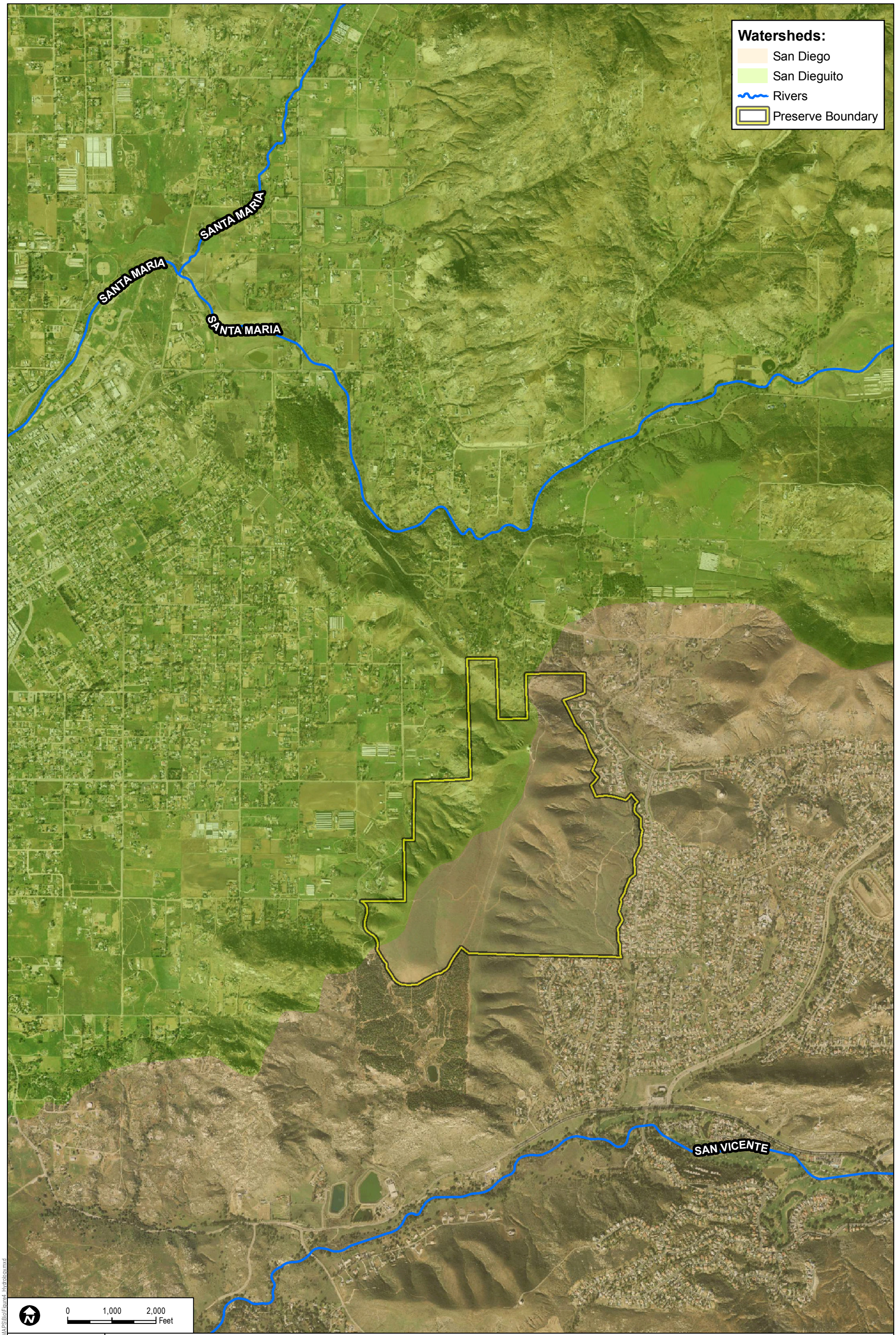
Fire Year*	Fire Name	Interval (years)	Acreage Burned on Simon Preserve	Percent of Simon Preserve Burned**
1928	Unnamed	n/a	608.3	98.6
1953	Vicente Fire	25	9.3	1.5
1956	Outside Origin #42	3	11.5	1.9
1979	Hanson Fire	23	554.9	89.9
2003	Cedar Fire	24	568.7	92.1
2007	Witch Fire	4	388.3	62.9

*FRAP 2009
**Based on total Preserve acreage of 617.2.

Fire history is a useful data set from which to determine vegetation age classes for the Preserve. Based on an analysis of the fire history, the entire site has burned within the past 6 years, either in the 2003 Cedar Fire or the 2007 Witch Fire. Accordingly, vegetation age on site is either approximately 2 years old (388.3 acres [62.9%]), resulting from the 2007 Witch Fire, or approximately 6 years old (228.7 acres [37.1%]`), resulting from the 2003 Cedar Fire. Based on these ages, the vegetation is considered young and less susceptible to fire than older vegetation, but still capable of igniting and carrying fire.

2.7 Trails

There are approximately 6.5 miles of trails and utility maintenance roads on the Preserve. The utility maintenance roads are accessible via gates at Woods Hill Lane and Calle Andrea, and are associated with transmission lines that traverse the southern portion of the Preserve generally from east to west, and with the water reservoir located in the northern portion of the Preserve. All 3.2 miles of utility maintenance roads within the Preserve are unpaved except for approximately 2,270 feet extending from the Woods Hill Lane access gate to the water reservoir on site. The remaining 3.3 miles of trails in the Preserve are maintained by DPR (County of San Diego 2009c). The trails mainly traverse annual grassland, coastal sage scrub, chamise chaparral, and southern mixed chaparral (see Figure 5, Trails Map). The trails are used by hikers, mountain bikers, and equestrians. Two gates provide access to the Preserve. One gate is located in the northern portion of the Preserve at the terminus of Woods Hill Lane. A second gate is located in the southern portion of the Preserve and off Bassett Road. There is also trail access from the northeast of the Preserve from Calle Andrea.



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SOURCE: Preserve Boundary, County of San Diego; Watersheds (SanGIS 2008); DigitalGlobe, 2008

FIGURE 4
Hydrology Map

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Baseline Biodiversity Survey for Simon Preserve

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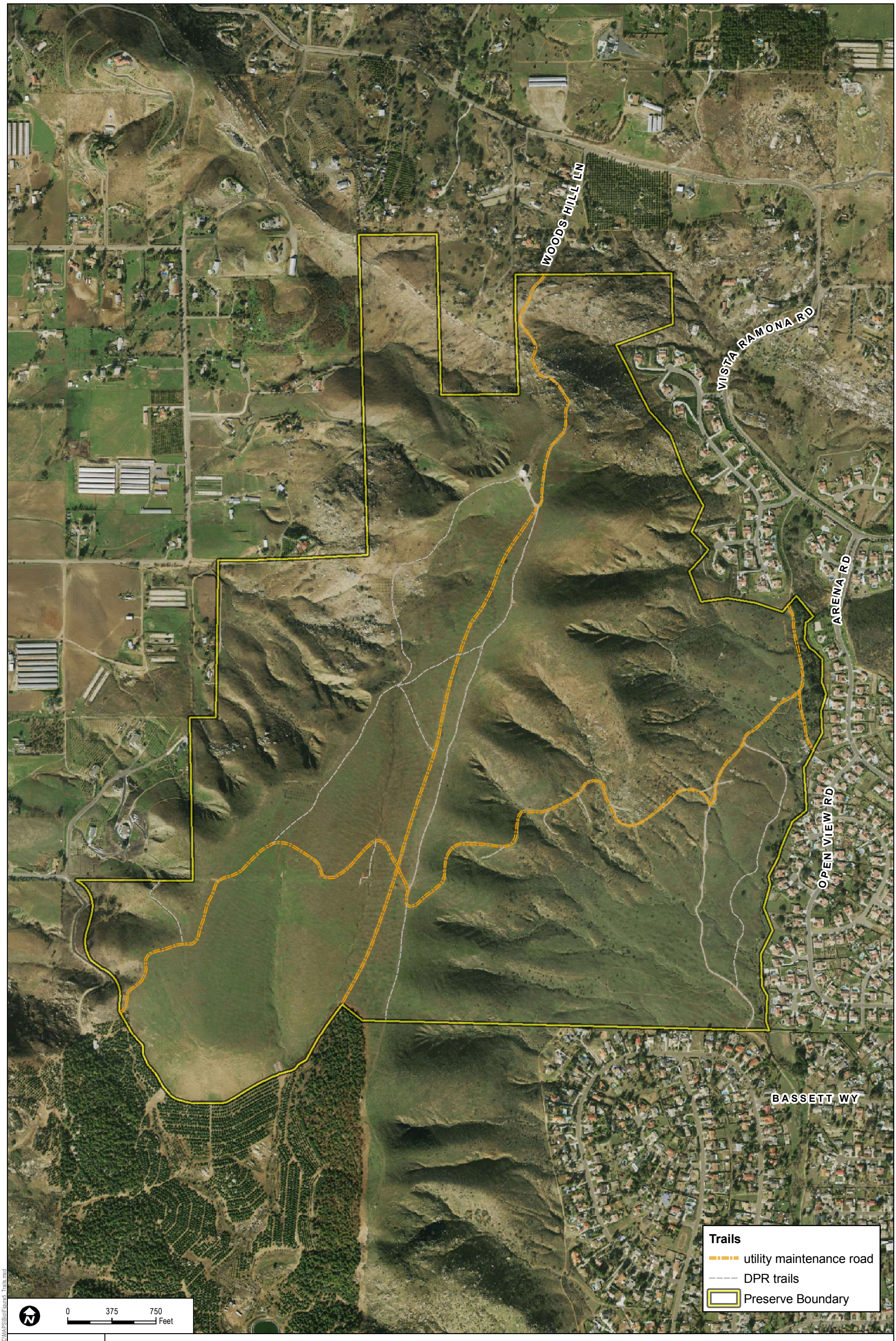

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SOURCE: Preserve Boundary, County of San Diego; DigitalGlobe, 2008

FIGURE 5

Trails Map

Baseline Biodiversity Survey for Simon Preserve

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3.0 BIOLOGICAL SURVEY METHODS

Dudek biologists conducted biological surveys from May through October 2009, as shown in Table 2, Schedule of Surveys. Surveys included vegetation mapping and surveys for rare and special-status plant species and invasive non-native plant species, butterfly surveys, herpetological surveys using pitfall arrays, 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	Focus	Conditions
5/8/2009	0800–1730	ACT, MSE	Vegetation mapping, Rare plant survey	NR
5/12/2009	0830–1715	BAS, KCD, KJM, MSE	Vegetation mapping, Rare plant survey	Clear sky; wind 0–4 miles per hour (mph); 60–80 °F
5/13/2009	0830–1750	ACT, BAS, KCD, KJM, MSE, VRJ	Vegetation mapping, Rare plant survey	Clear sky; wind 1–3 mph; 70°F
5/14/2009	0830–1715	ACT, BAS, KCD, VRJ	Vegetation mapping Rare plant survey	Clear sky; wind 1-3 mph; 70°F
6/16/2009	0845–1745	KJM	Vegetation mapping	NR
7/20/2009	1020–1120	KS	Herpetological surveys	Clear skies; wind 0–5 mph; 104–105°F
7/21/2009	0900–0945	KS, AMH	Herpetological surveys	Clear skies; wind 0–3 mph; 99–100°F
7/22/2009	0900–0945	KS, PCS	Herpetological surveys	20–50% cloud cover (cc); wind 0–5 mph; 95–106°F
7/23/2009	0911–1013	KS, KCD	Herpetological surveys	Clear skies; wind 0–2 mph; 96–100°F
7/23/2009	0730–0925	PML	Diurnal avian bird count survey	Scattered clouds (10–50% cc); 72°F; wind 1–3 mph
7/23/2009	2018–2203	PML	Nocturnal avian bird count survey	Scattered clouds (10–50% cc); 70–84°F; wind 0–5 mph
8/18/2009	1030–NR	KS	Herpetological surveys	Clear skies; wind 2–5 mph; 91°F
8/19/2009	1505–1640	PML	Herpetological surveys	Clear skies; wind 2–6 mph; 85–87°F
8/20/2009	1450–1630	PML	Herpetological surveys	5% cc; wind 3–7 mph; 88–90°F
8/21/2009	0750–0900	KS	Herpetological surveys	75–95% cc; wind 0–2 mph; 82–84°F
8/25/2009	NR	PV	Small mammal traps set-up	NR
8/26/2009	NR	PV	Small mammal surveys	Clear skies; wind 0–3 mph; 74°F
8/27/2009	NR	PV	Small mammal surveys	Clear skies; wind 0–3 mph; 71°F
8/28/2009	NR	PV	Small mammal surveys	Clear skies; no wind; 73°F
8/28/2009	0635–0840	AMH	Diurnal avian bird count survey	Clear skies (0–10% cc); 71–76°F; wind 0–3 mph
8/28/2009	2015–2220	AMH	Nocturnal avian bird count survey	Clear skies (0–10% cc); 74–75°F; wind 0–3 mph
9/13/2009	1040–1150	KS	Herpetological surveys	Hazy to clear skies; wind 1–5 mph; 85–86°F
9/14/2009	1620–1740	PML	Herpetological surveys	10–50% cc; wind 1–4 mph; 71–73°F
9/15/2009	1800–1915	PML	Herpetological surveys	5–10% cc; wind 1–4 mph; 73–74°F
9/15/2009	1930–2115	PML	Bat surveys	0% cc; wind 3–6 mph; 63–65°F
9/16/2009	1800–1915	PML	Herpetological surveys	Clear skies; wind 0–3 mph; 70°F

Table 2 (Continued)

Date	Time	Personnel	Focus	Conditions
9/16/2009	1930–2106	PML	Bat surveys	0% cc; wind 1–2 mph; 65–70°F
9/28/2009	0605–0905	AMH	Diurnal avian bird count survey	Broken–overcast (50–>90% cc); wind 5–10 mph; 56–58°F
9/28/2009	2105–2300	AMH	Nocturnal avian bird count survey	Overcast (>90% cc); wind 5–10 mph; 51°F
10/22/2009	1810–2130	JDP	Bat surveys	Clear skies; 0–1 mph wind; 55–59°F
10/27/2009	NR	PV	Small mammal traps set-up	NR
10/28/2009	NR	PV	Small mammal surveys	Clear skies; no wind; 61°F
10/29/2009	NR	PV	Small mammal surveys	Clear skies; no wind; 58°F
10/30/2009	NR	PV	Small mammal surveys	Clear skies; 0–5 mph wind; 60°F
10/31/2009	0635–0834	BAO	Diurnal avian bird count survey	Clear skies; no wind; 47–70 °F
10/31/2009	2030–2140	BAO	Nocturnal avian bird count survey	Clear skies; no wind; 64 °F

Personnel Key: ACT: Andy Thomson, AMH: Anita Hayworth, BAO: Brock Ortega; BAS: Britney Strittmater, JDP: Jeff Priest, KCD: Katie Dayton, KJM: Kamarul Muri, KS: Kevin Shaw, MSE: Megan Enright, PCS: Patricia Schuyler, PML: Paul Lemons, PV: Philippe Vergne, VRJ: Vipul Joshi.
NR = Not recorded
Cc = Cloud cover

3.1 Literature Review

A review of existing biological resource information for the Preserve, as well as available state and federal databases, was conducted to provide baseline information regarding sensitive biological resources potentially occurring on the Preserve and in the surrounding area. The following sources were reviewed for pertinent information prior to conducting the baseline biological diversity surveys: California Natural Diversity Database (CNDDB) information provided by the California Department of Fish and Game (CDFG) (2009a, 2009b, 2009c, 2009d, 2009e), and California Native Plant Society's (CNPS's) *Inventory of Rare and Endangered Vascular Plants* (CNPS 2009).

3.2 Vegetation Communities

Vegetation communities and land covers were mapped in the field directly onto 200-scale (1 inch = 200 feet) base maps of the project area using 2-foot resolution color aerial imagery from January 2008 (DigitalGlobe) overlaid with 40-foot topographic contours (SanGIS 2008). Vegetation surveys were conducted throughout the site on foot and vehicles were used to traverse the site where access was available. Following the completion of fieldwork, vegetation polygons were transferred to acetate, scanned and digitized using ArcGIS, and geographic information system (GIS) coverage was created. Acreage calculations of vegetation communities and land covers were determined using ArcGIS. Vegetation community classifications used in this report follow Holland (1986), as revised by Oberbauer et al. (2008).

Vegetation mapping was conducted in May 2009 by Dudek biologists Andy Thomson, Britney Strittmater, Kamarul Muri, Katie Dayton, Megan Enright, and Vipul Joshi (see Table 2). Mr. Muri verified previously mapped vegetation data in the field on June 16, 2009. Surveys for special-status plant species were conducted concurrently with vegetation mapping surveys.

3.2 Plants

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

3.2.1 Floristic Surveys

Sensitive biological resources present or potentially present in the Preserve were identified through a literature search using the following sources: CNDDB (CDFG2009a, 2009b, 2009c, 2009d, 2009e) and the *Inventory of Rare and Endangered Vascular Plants* (CNPS 2009). Special-status plant species considered in this report are those that are: (a) listed by federal and/or state agencies, proposed for listing as threatened or endangered, or are candidate species; (b) considered rare by CNPS; (c) listed on the County of San Diego rare species list (County of San Diego 2009a); or (d) listed on the North County MSCP Covered Species list (County of San Diego 2008).

Surveys were conducted by walking meandering transects to detect special-status species. Special-status plant observations were mapped in the field directly onto 200-scale base maps of the project area. In some areas, a Global Positioning System (GPS) receiver with sub-meter accuracy was used to record the location of special-status plant populations. The special-status plant observations were downloaded and/or digitized by Dudek GIS technician Andrew Greis using ArcGIS software.

The focused survey was conducted in the spring to maximize the detection of the majority of potentially occurring special-status plant species. While the survey timing was appropriate for the detection of spring-blooming species that comprise the majority of potentially occurring species, species with summer or fall blooming periods would have been less conspicuous at this time of the year and may not have been detected. Rare plant mapping data forms were used to record data for each rare plant population observed. The following information was recorded on the forms: species, surveyor, date, population estimate, phenology (e.g., seedling, flowering), associated disturbance (e.g., trail, road), associated species and their percent cover and strata, and any other additional notes or comments pertaining to the observation.

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

3.2.2 Invasive Non-Native Plant Species

In conjunction with the rare plant surveys, perennial invasive exotic plant species, such as Peruvian pepper tree (*Schinus molle*) and tamarisk (*Tamarix ramosissima*), were also mapped in the field directly onto the 200-scale base maps of the project area. The date, surveyor, and population size was noted for each invasive non-native plant species location mapped.

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 2009 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.

3.3.1 Invertebrates

Dudek performed a general butterfly survey in summer 2009 when a number of butterfly species were likely to be active. These surveys were conducted simultaneously with other wildlife surveys and included anecdotal observations during any visits to the Preserve.

The Preserve is located in the USFWS Quino Checkerspot Survey Area 2, within which, USFWS protocol-level focused surveys are recommended for all sites containing suitable habitat. To determine if suitable habitat was present in the Preserve and if focused surveys would be recommended, Dudek conducted a site assessment for the federally listed endangered quino checkerspot butterfly (*Euphydryas editha quino*), in accordance with the USFWS survey protocol (USFWS 2002).

Site assessments are typically conducted before the first butterfly survey to identify which portions of a site should be surveyed for quino checkerspot butterfly. However, as the baseline surveys in 2009 did not start until after the end of the adult flight season, the site assessment was conducted to determine if focused surveys should be recommended as part of future survey efforts within the Preserve. The assessment involves conducting a general field survey of the site and broadly mapping excluded areas and butterfly survey areas. As described in the USFWS survey protocol (USFWS 2002), the following areas are not recommended for butterfly surveys:

- Orchards, developed areas, or small in-fill parcels (plots smaller than an acre completely surrounded by urban development) largely dominated by non-native vegetation

- Active/in-use agricultural fields without natural or remnant inclusions of native vegetation (i.e., fields completely without any fallow sections, unplowed areas, and/or rocky outcrops)

- Closed-canopy forests or riparian areas, dense chaparral, and small openings (less than an acre) completely enclosed within dense chaparral

- "Closed-canopy" describes vegetation in which the upper portions of the trees converge (are touching) to the point that the open space between two or more plants is not significantly different than the open space within a single plant. Dense chaparral is defined here as vegetation so thick that it is inaccessible to humans except by destruction of woody vegetation for at least 100 meters.

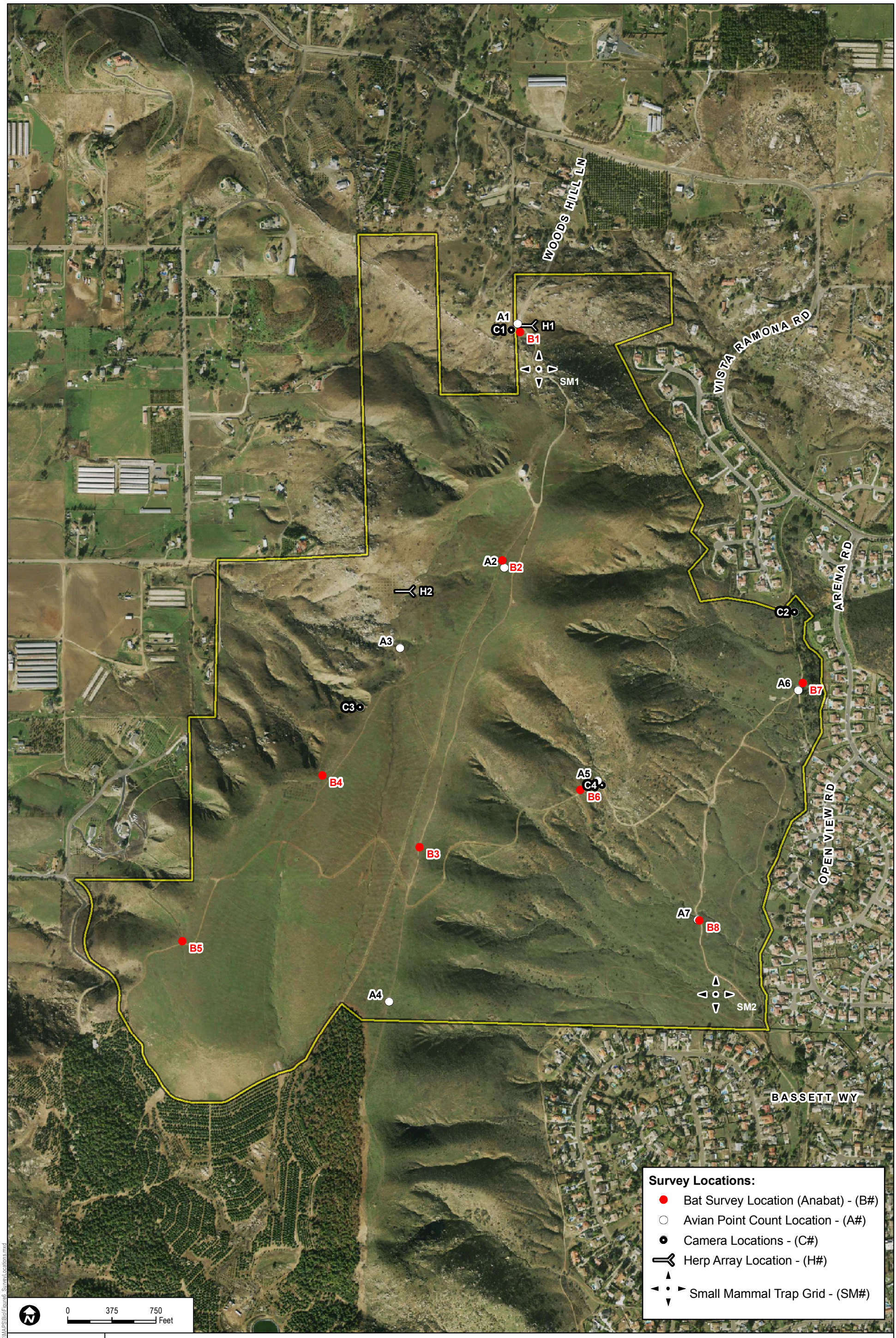
All areas not excluded should be surveyed for butterflies, regardless of quino checkerspot host plant presence, absence, and/or density. The quino checkerspot is generally associated with sage scrub, open chaparral, grasslands, and vernal pools. Within these communities, they are usually observed in open or sparsely vegetated areas (including trails and dirt roads) and on hilltops and ridgelines.

3.3.2 Herpetofauna

Two pitfall arrays were distributed on the Preserve to survey disjunct areas, different elevations, and differing habitat types (e.g., coastal sage scrub, grassland, rocky land) (see Figure 6, Wildlife Survey Locations).

Arrays were constructed in accordance with the USGS document *Herpetological Monitoring Using a Pitfall Trapping Design in Southern California* (Fisher et al. 2008) with a modification to include snake traps at the end of each arm of the array. Specifically, each array consisted of three 15-meter (49-foot) arms of drift fence. Each arm radiates from a central pitfall bucket at approximate 120-degree increments. Additional pitfall buckets were placed at the midpoint and

terminal end of the array arm. In addition, snake traps (i.e., wire mesh rectangular traps with one-way doors) were installed between the middle and terminal pitfall buckets on the right side of the arm. These have been shown to be effective at catching snakes, lizards, and rodents (Dudek 2009a). Drift fencing was keyed into the ground so that reptiles and snakes could not crawl under. In addition, an effort was made to minimize the number of creases that provide reptile refuge between buckets. Typical 5-gallon buckets (purchased from a hardware store) were used as pitfall traps. The edges of the buckets were flush with, or slightly below, the ground surface. Bucket lids were fitted with angled wood blocks on their top surface to provide an approximate 2-inch gap between the ground surface and the lid so reptiles would be encouraged to crawl under. The lids fit the bucket securely so that when not in use, the buckets could be sealed off from captures.



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SOURCE: Preserve Boundary, County of San Diego; DigitalGlobe, 2008

FIGURE 6

Wildlife Survey Locations

Baseline Biodiversity Survey for Simon Preserve

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Traps were opened on day one and checked for the next four days; traps were closed after the fourth trap-check. All captures were identified and sexed. Data was collected regarding the weight, snout-vent length, and age class of the individual. Finally, the individual was marked with permanent marker near the tail to allow the identification of recaptured individuals in following sessions. 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 being counted 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) was counted and identified as feasible. Trap arrays were sampled for 3 months beginning in July 2009 (Table 2).

Most amphibian species with the potential to occur on the Preserve are associated with riparian habitat or require otherwise moist or aquatic habitat, which are limited on the Preserve (see Appendix E). The only amphibian species with a moderate to high potential to occur on the Preserve is the western spadefoot toad (*Spea hammondi*). Western spadefoot toad is most common in grasslands, coastal sage scrub near rain pools or vernal pools, and in riparian habitat but requires aquatic habitat for reproduction (CaliforniaHerps 2009). Focused surveys for this species generally target the detection of eggs, larvae, or breeding adults in association with temporary shallow rain pools. Focused surveys for western spadefoot toad were not performed as the timing of surveys would not have been adequate for detection of this species. Shallow rain pools or other suitable aquatic habitat were not present at the time surveys were conducted on the Preserve from May through October 2009.

3.3.3 Birds

Using point counts to track species presence over time is a standard practice and has been implemented over the long term by diverse entities, including the Audubon Christmas Bird Count, National Park Service, CDFG, DPR, USGS, USFWS, and others.

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

Seven point locations were established on the Preserve (Figure 6). All survey point locations were located on existing dirt roads so that all points could be surveyed within one 24-hour period. The distribution of points was based on the habitats present in the Preserve with an effort

made to place the points at locations that cover as many different habitat types as possible given the road network constraints. The center point for each station was permanently established in the field by mapping the GPS coordinates. The center point was temporarily marked to facilitate relocation using orange flagging tape tied to a bush nearest the survey point or to a wooden stake placed in the ground. Photographs were taken at each point showing the point location itself and the habitat north, east, south, and west of the point location (Appendix C).

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

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

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

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

All point-count stations were surveyed during the same 24-hour period. Diurnal surveys occurred between 0500 and 1200 hours and nocturnal surveys occurred between 2030 and 1230 hours only. Surveys began in July 2009 and occurred monthly through October 2009 (Table 2).

3.3.4 Mammals

Small Mammals

Two small mammal trapping arrays were established on the Preserve to determine presence or absence of special-status small mammal species. Trapping took place over two rounds with the first round occurring in August and the second occurring in October (Table 2). Trapping locations included the grasslands near the Bassett Road gate (southeastern corner), and an area near the Woods Hill Road gate to sample both grassland and sage scrub/chaparral habitats (Figure 6).

Trapping involved setting the traps for three consecutive nights at each location. The trapping effort was conducted when the weather had been relatively dry for at least 5 days prior to trapping. Each grid included a 5-foot by 5-foot grid of traps, with each trap set 7 meters (23 feet) apart. The location of each trap was recorded using a GPS receiver and marked in the field using whisker nails. All trapped individuals were marked with a permanent marker, sexed, identified to species, and released at the capture location.

Medium to Large Mammals

No obvious wildlife corridors or high-use areas were present on the Preserve to focus surveys. Therefore, Dudek installed four baited motion-sensing cameras where they were accessible and protected from the public, but near potential high-use movement areas (e.g., dirt roads leading to important resources, such as to canyons or creeks) (Figure 6). Each camera was baited with the scent lure Gusto. Each camera was set so that the bait station and travel path were covered. Cameras were set in place and run for 4 months from July through October. Photos were downloaded, the bait was refreshed, and the batteries checked at approximate 2-week intervals.

Following the camera study, all photographs were reviewed by at least two biologists to determine species present.

Bats

Surveys to determine foraging and roosting bats consisted of using both Anabat and Sonobat technologies. The primary potential roosting component within the Preserve included rock outcrops with potential for crevice roosting bats. Sonobat and Anabat bio-acoustic survey systems were used to identify bat occurrences and determine their relative activity. Both systems

have similar technology for recording bat ultrasonic vocalizations; Sonobat allows a higher computational resolution of call signatures that enables rapid initial species identification while Anabat uses less digital memory per call and can therefore be more effectively used to passively survey areas for longer periods. Analysis of the Anabat data is facilitated by knowing what species are present, as determined by the Sonobat analysis.

There are two main acoustical monitoring systems available for detecting the ultrasonic outputs of bats: the Anabat and Pettersson/Sonobat systems, both of which were utilized in this study. An Anabat SD1 ultrasonic detector (Titley Electronics, Ballina, Australia) was utilized in these surveys. This device utilizes the bat detector and the ZCAIM (Zero-Crossings Analysis Interface Module) hardware, which interfaces the audio-frequency signal from the bat detector to an attached personal digital assistant (PDA) device. The attached PDA device is loaded with the AnaPocket program, allowing instantaneous sonograms of the bat calls to be produced. Analysis and identification of the bat calls was conducted using AnaLook software. AnaLook produces a sonogram of the ultrasonic activity and bat calls are identified by comparison of the sonograms with those of known bats available in the literature.

The Pettersson/Sonobat system uses a Pettersson 240 DX ultrasonic detector (Pettersson, Uppsala, Sweden) with the SonoBat software (SonoBat, Arcata, California) for bat call analysis. This system uses time expansion technologies that allows the original high-frequency call to be recorded and played back at a slower speed, allowing digital outputs to capture the entire signal, retaining important information about original signal strength (amplitude) and spectral components (e.g., harmonics). This system provides high-resolution sonograms that contain all diagnostic characteristics of the call.

Dudek biologists reviewed the site for potential roosting and foraging locations. This review was confined to areas accessible by vehicle. Potential roosting sites assessed included rock outcrops, mines, caves, trees, and abandoned structures. Potential high foraging areas included major drainages, standing or flowing water features, and riparian zones.

All areas identified with high potential for bat roosting and foraging that had vehicular access were surveyed using both the Petterson/Sonobat and Anabat systems. Survey stations were distributed across the Preserve and different habitats were sampled as feasible. Eight survey stations were set approximately 2,000 feet from each other (Figure 6). The vehicle-accessible survey stations were surveyed twice using both ultrasonic detectors simultaneously to record bat vocalizations. Surveys were conducted between approximately sunset and 9:30 p.m.. A first pass was conducted on September 15 and 16, and a second pass was conducted October 22, 2009 (Table 2). Fifteen to twenty minutes were spent at each station. When conducting the survey, biologists noted the species detected (if possible), the recording identifier, location, and other important information. After returning from the field, the data was saved to a hard drive and

backed up on CD. The data was then analyzed using the software and reference materials and a list of species detected at each location was cataloged.

4.0 BIOLOGICAL SURVEY RESULTS

4.1 Vegetation Communities

Eighteen vegetation communities and land covers (including disturbed forms) were mapped on the Preserve based on general physiognomy and species composition, including fifteen native or naturalized vegetation types and three non-native land covers (see Table 3, Vegetation Communities and Land Covers). Native or naturalized vegetation communities on site include Diegan coastal sage scrub, disturbed Diegan coastal sage scrub, chamise chaparral, coastal sage scrub-southern mixed chaparral, disturbed coastal sage scrub-southern mixed chaparral, southern mixed chaparral, non-native grassland, southern coast live oak riparian forest, southern cottonwood-willow riparian forest, southern riparian woodland, southern willow scrub, arrowweed scrub, coast live oak woodland, Engelmann oak woodland, and eucalyptus woodland. Non-native land covers include disturbed habitat, developed land, and orchard. Vegetation communities considered sensitive by the County of San Diego's Resource Protection Ordinance (RPO) include those listed as Tier I through Tier III in the North County MSCP. Figure 7, Vegetation Communities, shows the distribution of vegetation communities and land covers on the Preserve. Photographs of the site and observed plant and wildlife species are provided in Appendix F.

Table 3
Vegetation Communities and Land Covers

Vegetation Community/Land Cover	North County MSCP Habitat Tier	Acres On Site
Developed Land	Tier IV	0.7
Disturbed Habitat	Tier IV	15.7
Eucalyptus Woodland	Tier IV	1.4
Orchard	Tier IV	2.1
Diegan Coastal Sage Scrub	Tier II	162.6
Disturbed Diegan Coastal Sage Scrub	Tier II	73.6
Chamise Chaparral	Tier III	20.4
Coastal Sage Scrub – Southern Mixed Chaparral	Tier II	53.5
Disturbed Coastal Sage Scrub – Southern Mixed Chaparral	Tier II	10.5
Southern Mixed Chaparral	Tier III	24.5
Non-Native Grassland	Tier III	236.7
Southern Coast Live Oak Riparian Forest	Tier I	4.2
Southern Cottonwood – Willow Riparian Forest	Tier I	0.2
Southern Riparian Woodland	Tier I	0.4
Southern Willow Scrub	Tier I	0.2

Table 3 (Continued)

Vegetation Community/Land Cover	North County MSCP Habitat Tier	Acres On Site
Arrowweed Scrub	Tier I	0.2
Coast Live Oak Woodland	Tier I	7.2
Engelmann Oak Woodland	Tier I	3.2
	Total	617.3

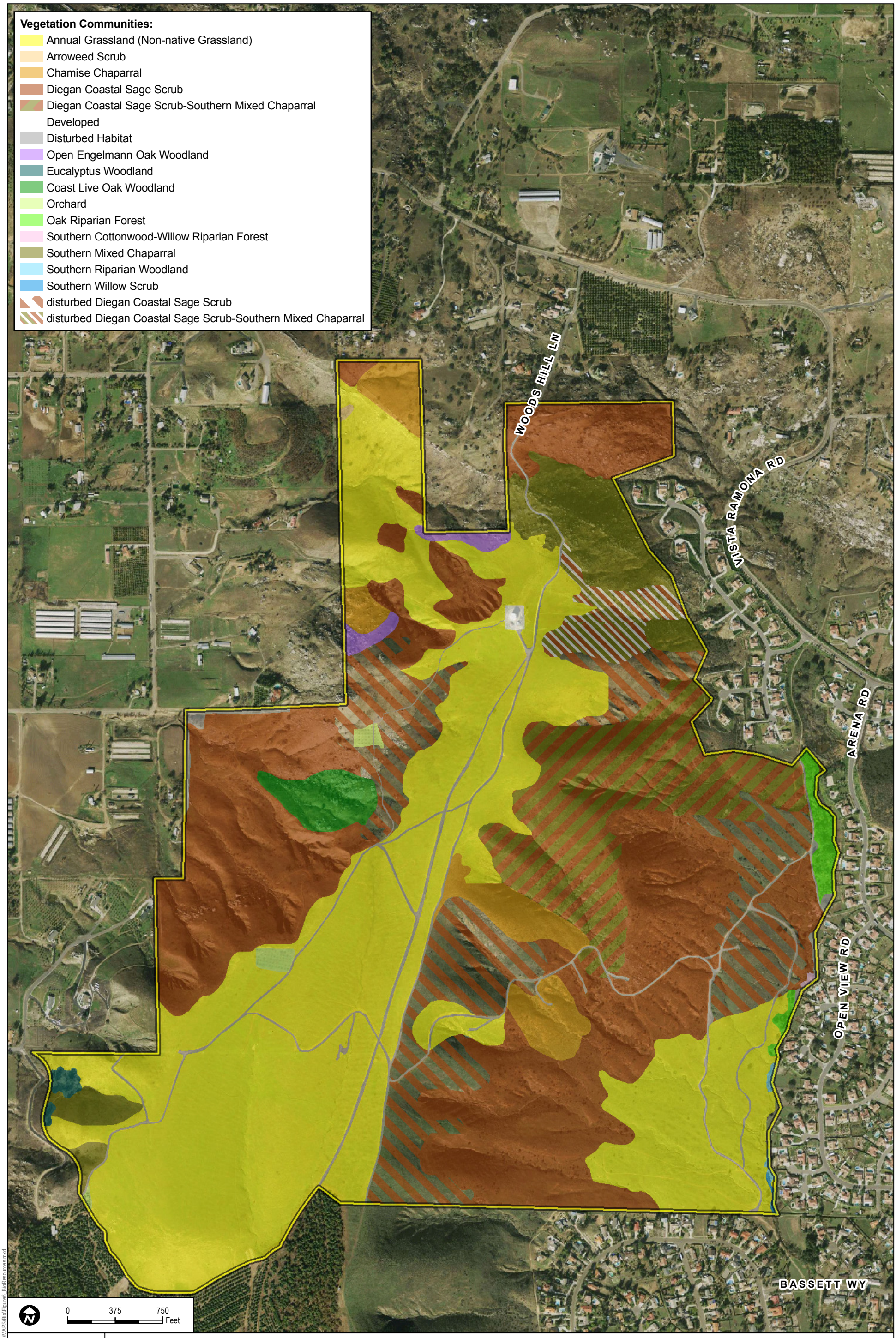
4.1.1 Disturbed or Developed Habitats

Disturbed Habitat (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 Tier IV vegetation community in the North County MSCP, indicating that it has limited habitat value. There are 15.7 acres of disturbed habitat on site, which consists primarily of dirt roads occuring throughout the site.

Developed (12000)

There is 0.7 acre of developed land in the northern portion of the Preserve. A water reservoir occupies this area. Developed land is a Tier IV vegetation community in the North County MSCP, indicating that it has limited habitat value.



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SOURCE: Preserve Boundary, County of San Diego; Vegetation (SanGIS 2008); DigitalGlobe, 2008

FIGURE 7

Vegetation Communities

Baseline Biodiversity Survey for Simon Preserve

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Orchards (18100)

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

There are 2.1 acres of orchards in three areas in the western portion of the site. Olives and oranges were formerly grown in these areas but are no longer actively maintained. As agricultural land, orchards are a Tier IV vegetation community in the North County MSCP, indicating that they have limited habitat value.

4.1.2 Scrub and Chaparral Communities

Coastal Sage Scrub (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 (*Eriogonum fasciculatum*), and sages (*Salvia* spp.), with scattered evergreen shrubs, including lemonadeberry (*Rhus integrifolia*) and laurel sumac (*Malosma laurina*). This vegetation community typically develops on xeric slopes. Diegan coastal sage scrub is widespread in coastal Southern California from Los Angeles into Baja California, Mexico (Holland 1986).

There is a total of 236.2 acres of coastal sage scrub on site, including Diegan coastal sage scrub and disturbed Diegan coastal sage scrub. This community generally occurs in the northwestern and southeastern portions of the site, primarily along the east- and west-facing slopes below the central north–south ridgeline on site. Species such as California sagebrush, California buckwheat, deerweed (*Lotus scoparius*), and laurel sumac are relatively common throughout the coastal sage scrub areas on site. Other species present include California everlasting (*Gnaphalium californicum*), goldenbush (*Isocoma menziesii*), coast monkey flower (*Mimulus aurantiacus*), wishbone bush (*Mirabilis laevis* var. *crassifolia*), white sage (*Salvia apiana*), and black mustard (*Brassica nigra*).

Approximately 73.6 acres (31%) of the coastal sage scrub on site were mapped as disturbed due to the prevalence of non-native grasses and forbs. Within disturbed coastal sage scrub areas, the dominant non-native species included wild oats (*Avena* spp.), short-pod mustard (*Hirschfeldia incana*), and filaree (*Erodium* spp.).

Coastal sage scrub is a Tier II vegetation community in the North County MSCP. Coastal sage scrub is recognized as a sensitive plant community by local, state, and federal resource agencies. It supports a rich diversity of special-status plants and animals, and it is estimated that it has been

reduced by 75% to 80% of its historical coverage throughout Southern California. It is the focus of the current State of California Natural Communities Conservation Planning (NCCP) Program.

Southern Mixed Chaparral (37120)

This vegetation community is a drought- and fire-adapted community of woody shrubs, 1.5 to 3 meters (5 to 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, and black sage (*Salvia mellifera*). This community extends from the coastal foothills of San Diego County to northern Baja California, Mexico, generally below 3,000 feet amsl.

There are 24.5 acres of southern mixed chaparral on site, generally on north- and northeast-facing slopes. Southern mixed chaparral mainly occurs in the southwestern and northeastern portions of the site. Another small area is mapped along the eastern boundary of the Preserve west of Arena Way.

The following species are associated with the southern mixed chaparral in the Preserve: chamise, California buckwheat, California everlasting, goldenbush, deerweed, laurel sumac, and cheeseweed (*Malva parviflora*). As a chaparral community, southern mixed chaparral is a Tier III vegetation community in the North County MSCP.

Chamise Chaparral (37200)

Chamise chaparral, a widespread and abundant vegetation community in California, is dominated by chamise. Vegetation typically ranges from 1 to 3 meters (3 to 10 feet) tall with little herbaceous understory in mature stands. Chamise chaparral often occurs on xeric slopes and ridges. This vegetation community is adapted to repeated fires and responds via stump resprouting to reestablish after such disturbance (Holland 1986). Some species commonly associated with chamise chaparral include manzanita (*Arctostaphylos* spp.), ceanothus, birchleaf mountain-mahogany (*Cercocarpus betuloides*), bush poppy (*Dendromecon rigida*), and California buckwheat (Holland 1986). Chamise chaparral is the predominant chaparral type in Ventura, Los Angeles, San Bernardino, Riverside, and San Diego counties (Holland 1986).

There are 20.4 acres of chamise chaparral on the Preserve. This community is located in the northern portion of the Preserve, and along the slopes to the east of the north–south road that traverses through the center of the Preserve.

The chamise chaparral on site is clearly dominated by chamise, with species typically associated with adjacent coastal sage scrub or southern mixed chaparral communities comprising only a small portion of the overall vegetation cover. As a chaparral community, chamise chaparral is a Tier III vegetation community in the North County MSCP.

Coastal Sage Scrub – Southern Mixed Chaparral (37G00)

Coastal sage scrub–southern mixed chaparral is a post-fire successional community that serves as an intermediate between coastal scrubs and chaparrals (Holland 1986). This community is co-dominated by coastal sage scrub and southern mixed chaparral habitats with at least 50% of the overall habitat indicative of coastal sage scrub (County of San Diego 2006). Coastal sage scrub–southern mixed chaparral generally consists of a mix of sclerophyllous (characterized by thick and hard foliage), woody chaparral species, and drought-deciduous malacophyllous (characterized by fleshy foliage) sage scrub species. Common associated species include chamise, California sagebrush, ceanothus, black sage, and western poison oak (*Toxicodendron diversilobum*) (Holland 1986).

Coastal sage scrub–southern mixed chaparral comprises 64.0 acres of the Preserve, including coastal sage scrub–southern mixed chaparral and disturbed coastal sage scrub–southern mixed chaparral. This community predominantly occurs in the northeastern portion of the site. Approximately 10.5 acres (16%) of this community type is disturbed and occurs in the northeastern portion of the site, north of the area mapped as undisturbed coastal sage scrub–southern mixed chaparral.

Chamise, laurel sumac, California sagebrush, and California buckwheat were relatively common in the coastal sage scrub–southern mixed chaparral mapped on site. Other associated species include but are not limited to mission manzanita, saw-toothed goldenbush (*Hazardia squarrosa*), peak rush-rose (*Helianthemum scoparium*), scrub oak, white sage, and sacapellote (*Acourtia microcephala*). Non-native species common in the disturbed areas include short-pod mustard, red-stemmed filaree (*Erodium cicutarium*), and wild oat (*Avena fatua*).

As a coastal sage/chaparral scrub, coastal sage scrub–southern mixed chaparral is a Tier II vegetation community in the North County MSCP.

4.1.3 Grasslands, Vernal Pools, Meadows, and other Herb Communities

Non-Native Grassland (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, agriculture, or other mechanical disruption have altered soils and removed native seed sources from areas formerly supporting native vegetation. Non-native grassland typically occurs adjacent to roads or other developed areas where there has been some historic disturbance. Non-native grassland may support special-status plant and animal species and provide valuable foraging habitat for raptors (birds of prey).

Non-native grassland is the most common community on the Preserve and occupies 236.7 acres. Non-native grassland is the dominant vegetation community along the slopes and ridgelines through the central portion of the site from the northeast to southwest corner of the preserve. Non-native grassland also occupies the southeastern corner of the Preserve.

Non-native grassland on site is largely composed of slender wild oat, bromes, and short-pod mustard, but also includes tocalote (*Centaurea melitensis*), sand-aster (*Corethrogyne filaginifolia*), laurel sumac, and wishbone bush. One special-status plant species, Orcutt's brodiaea (*Brodiaea orcuttii*), a CNPS List 1B species and proposed for coverage under the North County MSCP, occurs within non-native grasslands along two drainages in the southwestern portion of the Preserve, and along a drainage in the southeastern portion of the Preserve. Non-native grassland is a Tier III vegetation community in the North County MSCP.

4.1.4 Riparian and Bottomland Habitat

Southern Coast Live Oak Riparian Forest (61310)

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

There are 4.2 acres of southern coast live oak riparian forest that occur along the eastern boundary of the Preserve. Southern coast live oak riparian forest on site has a moderately dense to open canopy dominated by coast live oak with scattered western sycamore (*Platanus racemosa*), Fremont's cottonwood (*Populus fremontii*), and willows (*Salix* spp.).

As a riparian forest, southern coast live oak riparian forest is a Tier I vegetation community in the North County MSCP. In addition, some or all of the southern coast live oak riparian forest on

the Preserve may be regulated by CDFG pursuant to Section 1600 of the California Fish and Game Code, the Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the federal Clean Water Act (CWA) and the Porter-Cologne Act, and the U.S. Army Corps of Engineers (ACOE) pursuant to Section 404 of the federal CWA.

Southern Riparian Woodland (62500)

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

There is 0.4 acre of southern riparian woodland associated with the southern portion of the drainage along the eastern boundary of the site. Southern riparian woodland on site is characterized by a relatively open canopy primarily comprised of western sycamore and Fremont's cottonwood. Mexican fan palm (*Washingtonia robusta*) and Engelmann's oak (*Quercus engelmannii*) are also present, with red willow (*Salix laevigata*) and mulefat (*Baccharis salicifolia*) occurring in the sub-canopy.

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

Southern Cottonwood–Willow Riparian Forest (61330)

Southern cottonwood–willow riparian forest is described by Holland (1986) as a tall, open, broad-leafed, winter-deciduous riparian forest dominated by cottonwood (*Populus trichocarpa*) and several tree willow species. The understory is generally composed of shrubby willows. Species associated with this community include mugwort, mulefat, wild cucumber (*Marah macrocarpus*), western sycamore, and hoary nettle (*Urtica dioica* ssp. *holosericea*). This community occurs on sub-irrigated and frequently overflowed lands along rivers and streams of the Transverse and Peninsular Ranges from Santa Barbara County south into Baja California Norte, Mexico, and east to the edge of the deserts (Holland 1986).

There is 0.2 acre of southern cottonwood–willow riparian forest on site. This community is associated with the drainage along the eastern boundary of the site near the Nightsky Road cul-

de-sac. Southern cottonwood-willow riparian forest on site is dominated by Fremont's cottonwood and red willow, with scattered mulefat in the understory.

As a riparian forest, southern cottonwood–willow riparian forest is a Tier I vegetation community in the North County MSCP. In addition, some or all of the southern cottonwood–willow riparian forest may be regulated by the 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 the ACOE pursuant to Section 404 of the federal CWA.

Southern Willow Scrub (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 and western sycamore. Most stands are too dense to allow much understory development. This habitat is considered seral due to repeated disturbance/flooding and is therefore unable to develop into the taller southern cottonwood–willow riparian forest.

There are approximately 0.2 acre of southern willow scrub in the southeastern corner of the Preserve. This community consists of red willow and mulefat.

As a riparian scrub, southern willow scrub is a Tier I vegetation community in the North County MSCP. 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.

Arrowweed Scrub (63820)

Arrowweed scrub is a moderate to dense community dominated by arrowweed (*Pluchea sericea*). Arrowweed scrub forms thickets along streams, ditches, and washes. Soils are generally gravelly or sandy. Species associated with arrowweed scrub include cattails (*Typha* spp.), bulrush (*Scirpus* spp.), rushes (*Juncus* spp.), and saltgrass (*Distichlis spicata*). This community occurs throughout San Diego County and elsewhere (Oberbauer et al. 2008). Arrowweed scrub is widespread in the drier southern parts of California from the Cuyamaca Valley and Santa Ynez River in Santa Barbara County east to the Amargosa River in Death Valley, Antelope Valley, the Mojave River at least to Barstow, around the Salton Sea, and along the lower Colorado River. Maintained by disturbance, arrowweed scrub appears to be replacing the willow, cottonwood, and cottonwood–sycamore riparian forest types because of grazing and groundwater pumping (Oberbauer et al. 2008).

There is 0.2 acre of arrowweed scrub located along the western boundary of the Preserve in the northern portion of the site. This area is a nearly monotypic stand of arrowweed.

As a riparian scrub, arrowweed scrub is a Tier I vegetation community in the North County MSCP. In addition, some or all of the arrowweed 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.

4.1.5 Cismontane Woodland

Coast Live Oak Woodland (71160)

According to Holland (1986), coast live oak woodland is dominated by a single evergreen species, coast live oak. Canopy height reaches 10 to 25 meters (33 to 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 Mexican 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 7.2 acres of coast live oak woodland within the Preserve. This community is limited to a single location in the west–central portion of the site on generally northwest-facing slopes.

Coast live oak woodland on site has a moderately open canopy of coast live oak trees in various stages of post-fire recovery. The following species are associated with the coast live oak woodland on site: California sagebrush, slender wild oat, splendid mariposa lily (*Calochortus splendens*), sand-aster, toyon, goldenbush, laurel sumac, coast monkeyflower, and white sage. As an oak woodland, coast live oak woodland is a Tier I vegetation community in the North County MSCP.

Engelmann Oak Woodland (71180)

According to Holland (1986), Engelmann oak woodland is dominated by Engelmann oak. The understory is generally composed of grasses. This community is generally found on gentle slopes and valley bottoms with fine-textured soils. This community often intergrades with coastal sage scrub, and commonly surrounds grassland potreros. Species associated with this community include black oak (*Juglans californica*), coast live oak, sugar bush (*Rhus ovata*), and skunkbrush (*Rhus trilobata*). Engelmann oak woodland is found primarily in the Santa Ana Mountains of San Diego and Riverside counties, below 4,000 feet amsl (Holland 1986).

There are 3.2 acres of Engelmann oak woodland in two areas of the Preserve located in the northern portion of the site. The Engelmann oak woodland on site contains a high cover of non-native grasses, such as bromes and wild oat. Other associated species include coast live oak, western poison oak, scrub oak, sacapellote, southern pink (*Silene laciniata*), and goldenbush. Engelmann oak woodlands are a Tier I vegetation community in the North County MSCP.

Eucalyptus Woodland (79100)

Eucalyptus woodland typically consists of monotypic stands of introduced Australian eucalyptus trees (*Eucalyptus* spp.). The understory is either depauperate or absent owing to shade and the possible allelopathic (toxic) properties of the eucalyptus leaf litter. Although eucalyptus woodlands are of limited value to most native plants and animals, they frequently provide nesting and perching sites for several raptor species.

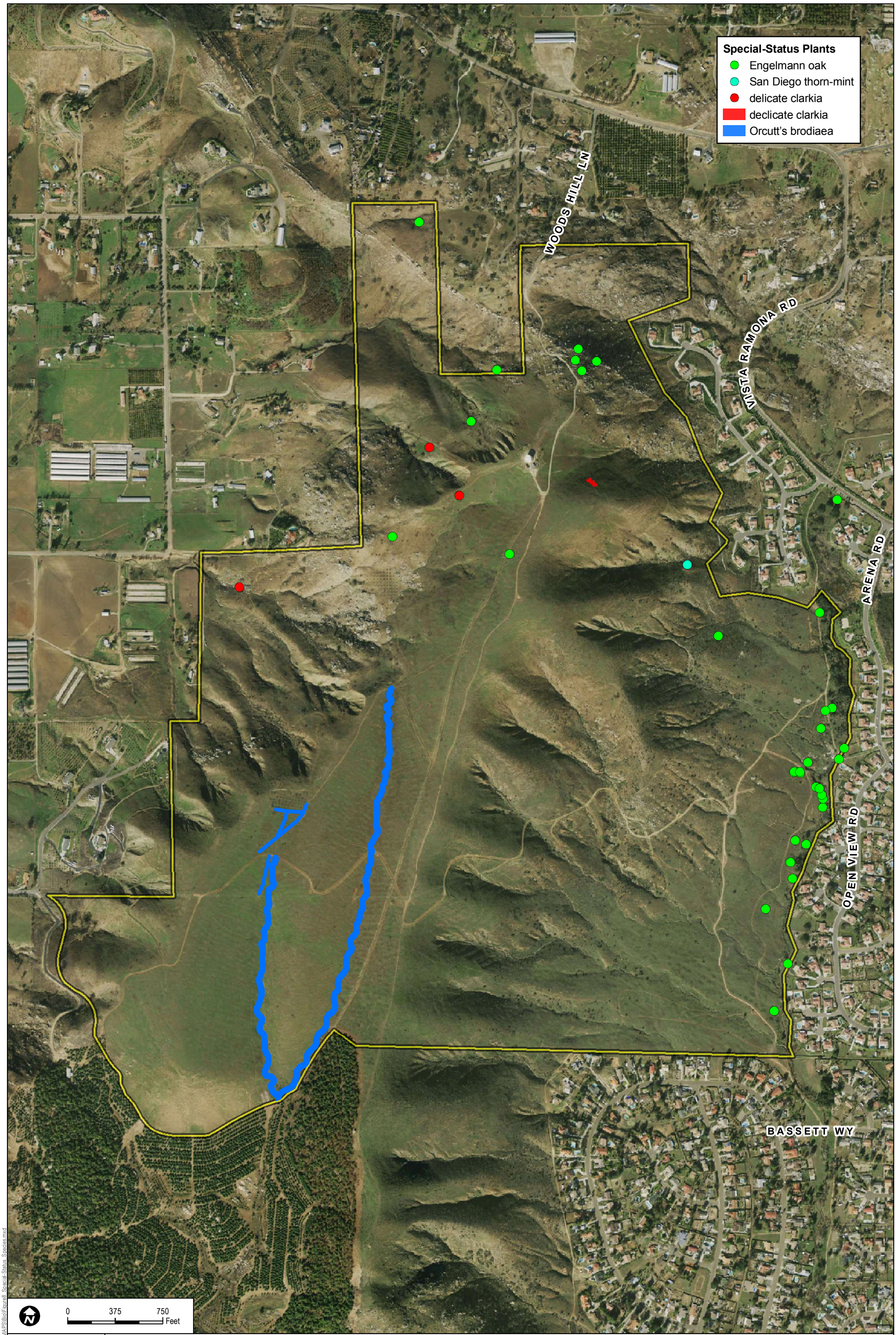
There are 1.4 acres of eucalyptus woodland mapped in the southwestern corner of the site. Eucalyptus woodland is a Tier IV vegetation community in the North County MSCP.

4.2 Flora

Appendix A lists all of the plant species observed on the Preserve. A total of 203 vascular plant species, including 150 native species (74%) and 53 non-native species (26%) were recorded on the Preserve. Four special-status plant species were observed on the Preserve, including three species covered under the North County MSCP.

4.2.1 Rare and Special-Status Plant Species

Four special-status plant species were identified on the Preserve, including three species that are proposed for coverage under the North County MSCP: San Diego thorn-mint, Orcutt's brodiaea, Engelmann oak, and Delicate clarkia (*Clarkia delicata*). Figure 8, Special-Status Plant Species, shows the distribution of the special-status plant species on the Preserve observed during surveys in spring 2009.



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SOURCE: Preserve Boundary, County of San Diego; Vegetation (SanGIS 2008); DigitalGlobe, 2008

FIGURE 8

Special-Status Plant Species

Baseline Biodiversity Survey for Simon Preserve

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San Diego thorn-mint (*Acanthomintha ilicifolia*)

Federally Threatened, State Endangered, CNPS List 1B, San Diego County List A, North County MSCP Covered Species

San Diego thorn-mint is an annual herb in the mint family (Lamiaceae) that grows up to 15 centimeters tall, with rounded serrated leaves. It bears white, sometimes rose-tinged flowers with a lower lip larger than the upper lip (Jepson Flora Project 2009) in April to June (CNPS 2009). San Diego thorn-mint is endemic to San Diego County and Baja California, Mexico (CNPS 2009). This species occurs in chaparral, coastal scrub, valley and foothill grassland, and in vernal pools with clay soil between 10 and 960 meters (32 and 3,150 feet) amsl (CNPS 2009). San Diego thorn-mint is threatened by urban pressures (Reiser 1994). Establishment of new populations is restricted to suitable friable clay microhabitats, which are quite uncommon (Reiser 1994).

A large population (approximately 5,000 to 10,000 individuals) of San Diego thorn-mint occurs along the eastern boundary of the Preserve southwest of Nuevo Mundo Street (Figure 8,). The population was observed in an opening of burned chaparral dominated by mission manzanita. Species associated with the population include fascicled tarweed (*Deinandra* [=*Hemizonia*] *fasciculata*), foxtail chess (*Bromus madritensis* ssp. *rubens*), and tocalote. Approximately 25% of the population was in flower at the time of observation.

Orcutt's brodiaea (*Brodiaea orcuttii*)

CNPS List 1B, San Diego County List A, North County MSCP Covered Species

Orcutt's brodiaea is a perennial in the lily family (Liliaceae), with cylindric leaves. It bears six violet lobes in two petal-like whorls (Jepson Flora Project 2009) in May to July (CNPS 2009). Orcutt's brodiaea occurs in Riverside and San Diego counties, as well as Baja California, Mexico, between 30 and 1,692 meters (98 and 5,551 feet) amsl (CNPS 2009). This species occurs in a variety of habitats, including closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and mesic vernal pools with clay or serpentinite soils (CNPS 2009). Since this species is only detected during or just after its blooming period and given its relatively wide range of potential sites in vernally moist montane and coastal locales, areas with Orcutt's brodiaea may unknowingly be developed (Reiser 1994).

Orcutt's brodiaea was mapped in annual grassland in the southwestern portion of the Preserve. Two populations occur along the margins of the two drainages that flow south and off site, and two populations occur within disturbed areas along existing or abandoned roads and trails. One population along the eastern drainage is estimated to include thousands of individuals, while a second population along the western drainage is estimated to include hundreds of individuals.

Another large population of thousands of individuals was mapped along old roads adjacent to an old orchard stand, while a smaller population estimated to include hundreds of individuals was mapped along an old trail along the western drainage (Figure 8). Species associated with these Orcutt's brodiaea populations are primarily non-native and include slender wild oat, bromes, short-pod mustard, tocalote, and red-stemmed filaree.

Delicate clarkia (*Clarkia delicata*)

CNPS List 1B, San Diego County List A

Delicate clarkia is an annual herb in the evening-primrose family (Onagraceae). It has four rose-lavender to pale pink petals; the outer anthers are orange-red while the inner anthers are smaller and paler (Jepson Flora Project 2009). It blooms in April to June (CNPS 2009). Delicate clarkia occurs in San Diego County, as well as Baja California, Mexico, between 235 and 1,000 meters (771 and 3,281 feet) amsl (CNPS 2009). Suitable habitat for this species includes chaparral and cismontane woodland with soils that are often gabbroic (CNPS 2009). Delicate clarkia is threatened by development, non-native plants, road improvement and maintenance activities, and possibly by frequent wildfires (CNPS 2009).

Delicate clarkia was mapped in the northwestern portion of the Preserve. A large population consisting of hundreds of individuals, largely not in flower, occurs in the burned annual grassland mapped in the northwestern portion of the Preserve. Another population of approximately 100 to 200 individuals, most not flowering at the time of observation, occurs along the drainage in the annual grassland near the western boundary of the site. A smaller population of up to 100 individuals was mapped in a more mesic area of Engelmann oak woodland near the northwestern portion of the site. A large population containing hundreds of individuals occurs on the slope of annual grassland also in the northwestern portion of the site (Figure 8). Some species recorded as associates with the delicate clarkia on site include bromes, oats, tocalote, short-pod mustard, common goldenstar (*Bloomeria crocea*), and four-spot (*Clarkia purpurea*).

Engelmann Oak (*Quercus engelmannii*)

CNPS List 4, San Diego County List D, North County MSCP Covered Species

Engelmann oak is a deciduous tree in the oak family (Fagaceae) (CNPS 2009). It has scaly, grayish bark and the young twigs are finely hairy. The leaves are generally entire, but sometimes toothed with a dull, bluish green upper surface and lower surface that is soft-hairy when young but smooth and pale blue-green when mature (Jepson Flora Project 2009). Engelmann oak can be found in Los Angeles, Orange, Riverside, and San Diego counties, as well as Santa Catalina Island and Baja California, Mexico, between 50 and 1,300 meters (164 and 4,265 feet) amsl

(CNPS 2009). Suitable habitat for this species includes chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland (CNPS 2009). Development and grazing pose threats to Engelmann oak (CNPS 2009).

Several locations of Engelmann oak were mapped on site. The majority of Engelmann oak on site occurs on the outer margins of the drainage along the eastern boundary of the site and includes a number of planted specimens. This species also occurs in the northern portion of the site, including two polygons of mapped Engelmann oak woodland (Figure 8). Some areas were burned and in some cases, this species was associated with drainages. A variety of associated species were recorded including, but not limited to, bromes, California everlasting, goldenbush, laurel sumac, chamise, short-pod mustard, slender wild oat, California sagebrush, and western poison oak.

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 Preserve and the results of rare plant surveys, 10 plant species have a moderate potential to occur and 2 plant species have a high potential to occur on the Preserve.

The two species that have a high potential to occur on the Preserve are San Diego gumplant (*Grindelia hirsutula* var. *hallii*) and southern mountains skullcap (*Scutellaria bolanderi* ssp. *austromontana*), both of which are CNPS List 1B.2 and San Diego County List A species. Since rare plant surveys were conducted in May, while San Diego gumplant blooms from July to October, the timing of surveys was not ideal for detection of this species. In addition, suitable chaparral vegetation occurs on the Preserve and there are known occurrences of this species within 5 miles of the Preserve. Similarly, southern mountains skullcap blooms after the rare surveys were conducted (June to August) so timing of surveys was not ideal for detection of this species. Also, suitable chaparral vegetation occurs on the Preserve and there are known occurrences of this species within 5 miles of the Preserve.

4.2.3 Invasive Non-Native Plant Species

Invasive non-native plant species, as identified in the California Invasive Plant Council (Cal-IPC) Inventory (Cal-IPC 2007), were observed within the Preserve and include eucalyptus (*Eucalyptus* sp.), Canary Island date palm (*Phoenix canariensis*), Peruvian pepper tree (*Schinus molle*), saltcedar/tamarisk (*Tamarix ramosissima*), and Mexican fan palm. The Cal-IPC rates each species in their inventory based on its negative ecological impact in California (Cal-IPC 2007). The ratings assigned to the species observed on the Preserve range from limited to high.

Several eucalyptus, which is rated by the Cal-IPC as either limited or moderate depending on species (*E. camaldulensis* is limited and *E. globulus* is moderate) occur in the southeast corner of the Preserve. Three Canary Island date palms, with a limited Cal-IPC rating, occur along the eastern boundary of the Preserve. A single Peruvian pepper tree, which also has a limited Cal-IPC rating, occurs in the northwestern portion of the site. Approximately five salt cedar/tamarisk individuals were observed in the riparian vegetation along the eastern boundary of the Preserve. Saltcedar/tamarisk has a high Cal-IPC rating because it is can cause detrimental changes in geomorphology, groundwater availability, soil chemistry, fire frequency, plant community composition, and native wildlife diversity (Cal-IPC 2010). A single Mexican fan palm was noted along the eastern boundary of the Preserve. This species has a moderate Cal-IPC rating as it can create monospecific stands in riparian areas and its dead fronds may be a fire hazard (Cal-IPC 2010). Two individuals of Bailey acacia (*Acacia baileyana*), which was nominated for inclusion in the Cal-IPC inventory (Cal-IPC 2007) but not reviewed, were observed in the southeastern portion of the site. According to the Cal-IPC inventory, Bailey acacia is not known to be widespread in wildlands with no information available on impacts.

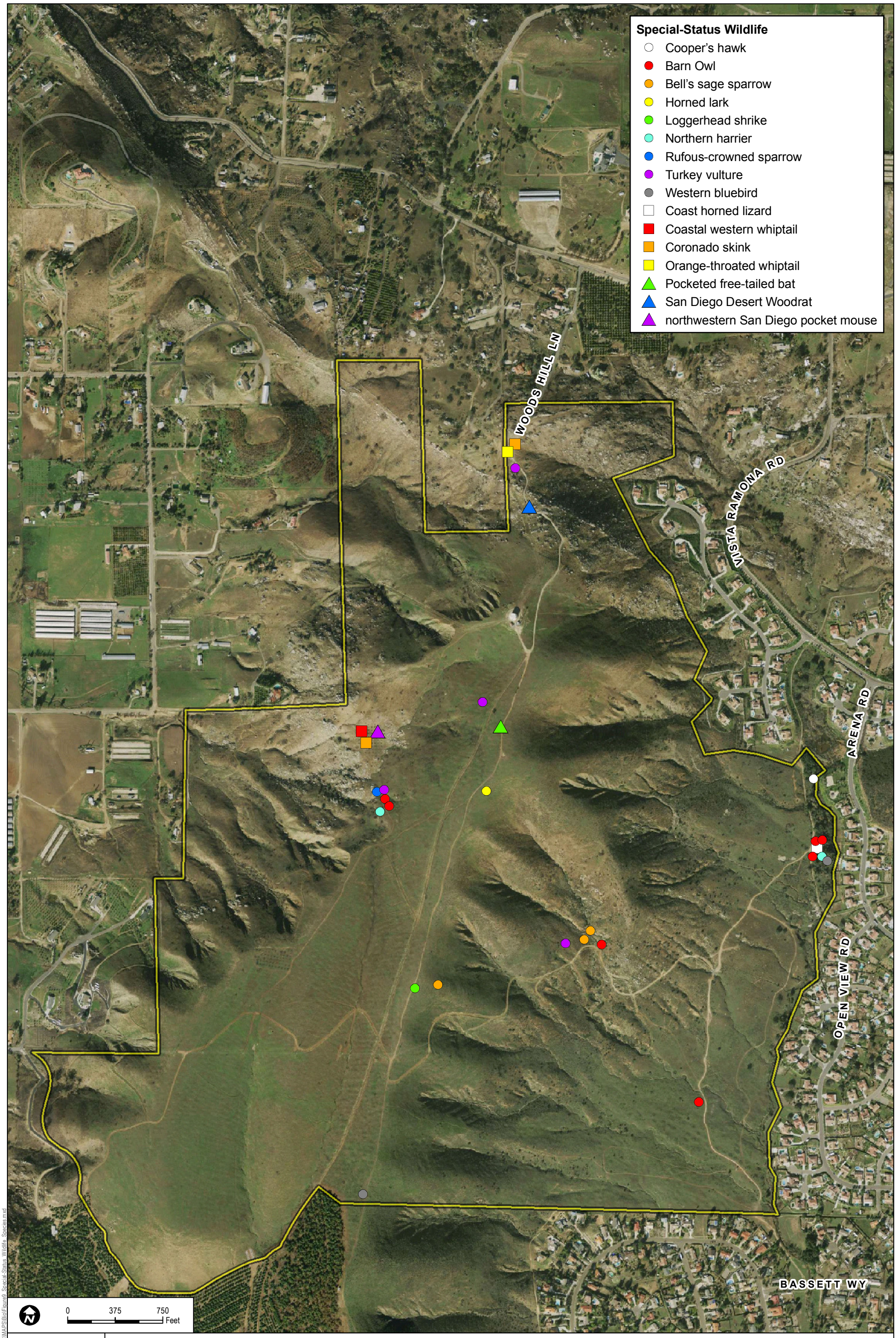
The locations of these invasive non-native plant species are depicted on Figure 9, Invasive Plant Locations. Given the limited abundance of the invasive plant species observed on site, no negative impacts (i.e., displacement of native species) were evident during surveys. However, if abundance increases, these species can potentially displace native vegetation, particularly the salt cedar/tamarisk and eucalyptus.

Preserve-wide, the annual non-native grassland on site is dominated by non-native invasive grasses, such as slender wild oat and bromes. Non-native forbs including filaree and mustards were also a consistent component of the non-native grassland (Figure 9).

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

4.3 Wildlife

Appendix B lists all of the wildlife species observed or detected on the Preserve. The list includes 8 reptiles, 52 birds, 16 mammals, and 6 butterflies and 11 other invertebrates. Seventeen special-status species were observed or detected on the Preserve including five species covered under the North County MSCP.



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SOURCE: Preserve Boundary, County of San Diego; Vegetation (SanGIS 2008); DigitalGlobe, 2008

FIGURE 9

Special-Status Wildlife Species

Baseline Biodiversity Survey for Simon Preserve

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4.3.1 Invertebrates

Butterflies

Six butterfly species were observed during surveys conducted on the Preserve: funereal duskywing (*Erynnis funeralis*), cloudless sulfur (*Phoebis sennae*), checkered white (*Pontia protodice*), California white (*Pontia sisymbrii beringiensis*), Edward's blue (*Hemiargus ceraunus*), and acmon blue (*Icaria acmon acmon*).

No Quino or any other special-status butterfly species were observed on the Preserve. However, in accordance with the USFWS survey protocol (USFWS 2002) and based on the site assessment conducted on site, the majority of the habitat on the Preserve is considered suitable and focused surveys would be recommended. With the exception of riparian areas along the eastern Preserve boundary that would be excluded from focused surveys, the remaining portions of the Preserve include suitable sage scrub, open chaparral, and grassland habitats, as well as the presence of hilltop and ridgeline topography. In addition, during the 2009 flight season, Quino were observed approximately 3.5 miles southwest of the Preserve on the Rancho Cañada Preserve (formerly Monte Vista Ranch) south of the intersection of San Vicente Road and Wildcat Canyon Road (USFWS 2009).

No quino host plants, including dwarf plantain (*Plantago erecta*), desert plantain or sometimes called woolly plantain (*P. patagonica*), thread-leaved bird's beak (*Cordylanthus rigidus*), white snapdragon (*Antirrhinum coulterianum*), owl's clover (*Castilleja exserta*) and Chinese houses (*Collinsia* spp.) were observed on site over the course of botanical surveys conducted throughout the Preserve in May 2009[4]. However, 2009 was a relatively poor year for spring annuals and many sites did not develop robust populations of either host or nectar plant populations for the Quino checkerspot butterfly. In addition, the start of the baseline surveys was relatively late in the year when the majority of spring ephemeral plants had already completed their life cycle. As a result, if present on the Preserve, host plants are more likely to be detected during spring surveys conducted in a year with average or above-average rainfall. Therefore, despite the lack of host plant observations in 2009, Quino is considered to have a moderate to high potential to occur on the Preserve based on the proximity to recently documented Quino and the presence of suitable habitat (grasslands, sage scrub and open chaparral) and topography (hilltops and ridgelines).

[4] Although woolly plantain (*Plantago ovata*) was observed on site (see Appendix A) and is related to dwarf plantain and desert plantain (also sometimes called woolly plantain) which are two primary host plants for quino, woolly plantain is not a known host plant species (USFWS 2002, 2009). According to Hickman (1993), woolly plantain may be a long-naturalized exotic species from the Mediterranean region.

Other Invertebrates

A variety of invertebrates were observed, including tarantula (*Aphonopelmus eutylenum*), burrowing scorpion (*Anuroctonus phaiodactylus*), and iron-clad beetle (*Phloedes pustulosis*) as indicated in Appendix B.

4.3.2 Herpetofauna

Seven reptile species were observed in the Preserve during herpetological surveys. Side-blotched lizard (*Uta stansburiana*) was the most common reptile species observed. For total individuals captured, side-blotched lizard and western fence lizard (*Sceloporous occidentalis*) had 46 and 13 individuals captured respectively, while no more than 5 individuals were captured for all other species. No amphibians were observed during surveys and few species are expected due to the lack of aquatic resources.

Reptiles

Three special-status reptile species Coronado skink (*Eumeces skiltonianus interparietalis*), coastal western whiptail (*Aspidoscelis tigris stejnegeri*) and orange-throated whiptail (*Aspidoscelis hyperythra*), were observed during herpetological surveys. Sensitive coast horned lizard (*Phrynosoma coronatum*) was also observed on site during other survey efforts. Orange-throated whiptail and coast horned lizard are both covered under the North County MSCP. All species detected during herpetological surveys and other wildlife surveys are included in Appendix B.

Table 4, Herpetological Survey Results, provides a summary of the results of the herpetological surveys for each array. The numbers in each cell represent the number of new individuals of each species captured during that trapping session. The number in parentheses that follows is the total number of individuals captured and includes recaptured individuals.

Table 4
Herpetological Survey Results

Species			July 20-23, 2009		August 18-21, 2009		September 13-16, 2009		
Common Name	Scientific Name	Status[1]	Array H1	Array H2	Array H1	Array H2	Array H1	Array H2	Total
Coastal western whiptail	*Aspidoscelis tigris stejnegeri*	Group 2	—	1	—	—	1	—	2
Orange-throated whiptail	*Aspidoscelis hyperythra*	CSC/ Group 2, NCMSCP	2	—	3	—	—	—	5

Table 4 (Continued)

Species			July 20-23, 2009		August 18-21, 2009		September 13-16, 2009		
Common Name	Scientific Name	Status[1]	Array H1	Array H2	Array H1	Array H2	Array H1	Array H2	Total
Western diamondback rattlesnake	*Crotalus atrox*	None	1	—	—	—	—	—	1
Side-blotched lizard	*Uta stansburiana*	None	11 (12)	14 (18)	7 (10)	4 (5)	3 (4)	7 (8)	46 (57)
Coronado skink	*Eumeces skiltonianus interparietalis*	CSC/ Group 2	1	—	—	1	—	—	2
Western fence lizard	*Sceloporus occidentalis*	None	5	1	2	2 (3)	1	2	13 (14)
Granite spiny lizard	*Sceloporus orcutti*	None	—	—	—	1	—	—	1
		Total	20 (21)	16 (20)	12 (15)	7 (9)	5 (6)	9 (10)	70 (82)

NOTE: Numbers in cells are the total of number of new individuals of that species captured during that session. Numbers in parentheses include recaptured individuals. The table does not include the four small mammal species observed in pit-fall arrays.
[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 North County MSCP.

4.3.3 Birds

Fifty-one bird species were observed at the Preserve during avian point count surveys (Appendix B). The most common species observed in terms of numbers of individuals recorded were common raven (*Corvus corax*), California towhee (*Pipilo crissalis*), lesser goldfinch (*Carduelis psaltria*), mourning dove (*Zenaida macroura*), yellow-rumped warbler (*Dendroica coronata*), and house finch (*Carpodacus mexicanus*). The following birds were observed during the nocturnal surveys: barn owl (*Tyto alba*), common poorwill (*Phalaenoptilus nuttallii*), common raven, great horned owl (*Bubo virginianus*), lesser nighthawk (*Chordeiles acutipennis*), red-tailed hawk (*Buteo jamaicensis*), and western kingbird (*Tyrannus verticalis*). Three brown-headed cowbirds (*Molothrus ater*) were observed at survey point location A1 on October 31, 2009. All species detected during avian point count surveys and other wildlife surveys are included in Appendix B.

Eight special-status bird species were observed during avian point count stations: Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), Bell's sage sparrow (*Amphispiza belli belli*), turkey vulture (*Cathartes aura*), northern harrier (*Circus cyaneus*), California horned lark (*Eremophila alpestris actia*), loggerhead shrike (*Lanius ludovicianus*), western bluebird (*Siala mexicana*), and barn owl (*Tyto alba*). In addition, Cooper's hawk (*Accipiter cooperii*) was observed during other surveys conducted on site. Northern harrier, southern California rufous-crowned sparrow, and Bell's sage sparrow are North County MSCP

covered species. Because most of these special-status species were observed during the breeding season, it could be presumed that they all nested within the area or on site; however, none of them were confirmed to be nesting on the Preserve. The Cooper's hawk was likely nesting nearby or on site because it acted very territorial towards the biologists conducting the botanical surveys. The northern harrier was observed late in the season (October) and thus may have nested elsewhere and was using the site for migratory stopover or wintering.

Table 5, Avian Point County Survey Results, provides a summary of the results of the avian point count survey for each survey point. The numbers in each cell represent the number of unique species counts on that particular day. The number in parentheses that follows is the total number of birds observed and includes flyover species if any were observed.

Table 5
Avian Point Count Survey Results

Survey Point	July 23, 2009		August 28, 2009		September 28, 2009		October 31, 2009		Total
	AM	PM	AM	PM	AM	PM	AM	PM	
A1	3 (8)	1 (2)	7 (10)	0	3 (10)	0	11 (36)	1(1)	17 (67)
A2	5 (8)	0	6 (7)	0	4 (10)	0	2 (5)	0	14 (30)
A3	6 (11)	0	9 (20)	0	6 (36)	1(1)	10 (41)	2(2)	22 (111)
A4	4 (5)	1(1)	3 (6)	0	3 (6)	0	11 (47)	0	16 (65)
A5	3 (5)	0	7 (19)	1(1)	8 (30)	2(2)	7 (44)	0	18 (101)
A6	8 (27)	1(1)	17 (53)	1(1)	6 (11)	1(1)	20 (123)	2(2)	32 (219)
A7	6 (18)	0	4 (7)	0	5 (14)	1(1)	5 (16)	0	14 (56)
Total	16 (82)	3 (4)	28 (122)	1 (2)	23 (117)	3 (5)	29 (312)	3 (5)	51 (649)

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

Survey point A6 had the greatest species richness. The survey point is located along the eastern edge of the Preserve adjacent to the oak riparian habitat (Table 6, Habitats Included in Avian Point Count Location). This point is expected to include greater diversity of bird use due to the presence of the trees and a water source both of which are in limited supply within the Preserve. Survey points A2 and A7 had the lowest bird species diversity. These points are located within the grassland habitats and thus contain lower plant species and structural diversity as well. The point locations also do not contain an ecotonal condition that would also have provided an increase in expectation of bird species diversity. Survey Points A1, A3, A4, and A5 include combinations of at least two habitat types including coastal sage scrub and either grassland or chaparral and, in some cases, rocky land. These points have an ecotone condition and thus have a slightly higher bird species diversity.

Table 6
Habitats Included in Avian Point Count Location

	Vegetation Type/Land Cover					
Avian Point Number	Coastal Sage Scrub	Chaparral	Grassland	Riparian	Rocky land	Rural Developed land
A1	X	—	X	—	X	X
A2	—	—	X	—	—	—
A3	X	—	X	—	—	—
A4	X	X	—	—	—	—
A5	X	X	—	—	X	—
A6	X	—	X	X	—	—
A7	X	—	X	—	—	—

Mammals

Small Mammals

Eight small mammals, all rodents, were trapped on the Preserve during the small mammal surveys, including the special-status species San Diego pocket mouse (*Chaetodipus fallax fallax*) and San Diego desert woodrat (*Neotoma lepida intermedia*). The most common species trapped was deer mouse (*Peromyscus maniculatus*). Dulzura kangaroo rat (*Dipodomys simulans*) and northwestern San Diego pocket mouse were also relatively common on site. The remaining species had fewer than seven individuals caught throughout the survey. Table 7, Small Mammal Survey Results, provides a summary of total number of individuals captured in each trapline during the trapping sessions.

Table 7
Small Mammal Survey Results

Species			August 26–28, 2009		October 27–29, 2009		
Common Name	Scientific Name	Status[1]	Trapline SM1	Trapline SM2	Trapline SM1	Trapline SM2	Total
Brush Mouse	*Peromyscys boylii*	None	1	—	—	—	1
Cactus Mouse	*Peromyscus eremicus*	None	—	1	—	1	2
California mouse	*Peromyscus californicus*	None	1	—	2	—	3
Deer Mouse	*Peromyscus maniculatus*	None	10	8	14	9	41
Dulzura kangaroo rat	*Dipodomys simulans*	None	3	3	2	5	13
Northwestern San Diego Pocket Mouse	*Chaetodipus fallax fallax*	CSC/ Group 2	5	4	4	3	16

Table 7 (Continued)

Species			August 26–28, 2009		October 27–29, 2009		
Common Name	Scientific Name	Status[1]	Trapline SM1	Trapline SM2	Trapline SM1	Trapline SM2	Total
San Diego desert woodrat	*Neotoma lepida intermedia*	CSC/ Group 2	1	—	—	—	1
Western harvest mouse	*Reithrodontomys megalotis*	None	2	1	—	3	6
		Total	23	17	22	21	83

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

Four mammal species were also detected during herpetological surveys: desert shrew (*Notiosorex crawfordi*), Dulzura kangaroo rat, deer mouse (*Peromyscus maniculatus*), and the special-status species northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*).

Medium and Large Mammals

Two large mammal species were detected using the wildlife cameras operated during the medium and large mammal surveys: coyote (*Canis latrans*) and mule deer (*Odocoileus hemionus*). Mule deer is a special-status species. The Preserve is generally open to wildlife movement with no specific routes that could be identified.

Bats

Four species calls were identified from Anabat and Sonobat survey systems located in the Preserve (Figure 6): pocketed free-tailed bat (*Nyctinomops femorosaccus*), canyon bat (*Parastrellus hesperus*), and a 40kHz and a 50 kHz unidentified myotis (*Myotis* sp. 1 and *Myotis* sp. 2, respectively). The calls of the 40kHz and 50 kHz myotis bats did not contain any diagnostic feature so they could not be identified to species. The pocketed free-tailed bat is a special-status species. Table 8, Bat Survey Results by Survey Pass, shows the number of bat detections during each survey pass. Table 9, Bat Survey Results by Location, shows the bat species observations for each bat survey location.

Table 8
Bat Survey Results by Survey Pass

Species			First Pass September 15 and 16, 2009	Second Pass October 22, 2009	Total
Common Name	Scientific Name	Status[1]			
Pocketed free-tailed bat	*Nyctinomops femorosaccus*	CSC/ Group 2	2	—	1
Canyon bat	*Parastrellus hesperus*	None	1	—	1
Myotis bat	*Myotis* sp. 1	None	2	—	1
Myotis bat	*Myotis* sp. 2	None	1	——	1
Unidentified	Unidentified	–	–	1	6
		Total	6	1	7

Table 9
Bat Survey Results by Location

Species			Survey Location								Total
Common Name	Scientific Name	Status[1]	B1	B2	B3	B4	B5	B6	B7	B8	
Pocketed free-tailed bat	*Nyctinomops femorosaccus*	CSC/ Group 2	–	2	–	–	–	–	–	–	2
Canyon bat	*Parastrellus hesperus*	None	1	–	–	–	–	–	–	–	1
Myotis bat	*Myotis* sp. 1	None	–	–	–	–	–	–	2	–	2
Myotis bat	*Myotis* sp. 2	None	–	–	–	–	–	–	–	1	1
Unidentified	Unidentified	–	–	–	–	–	–	–	1	–	1
		Total	1	2	–	–	–	–	3	1	7

Representative sonogram examples are attached as Appendix G.

4.3.5 Special-Status Wildlife Observed

Overall, 17 special-status wildlife were observed or detected on site during surveys. Five of these are covered species under the North County MSCP. Of the 17 special-status wildlife species observed or detected on site, there are four reptile species, nine bird species, and four mammal species, including two small mammal species, one medium to large mammal species, and one bat species.

Invertebrates

No special-status butterfly species or other invertebrate species were detected during any surveys.

Herpetofauna

Coast Horned Lizard (*Phrynosoma coronatum blainvillei population*)

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

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

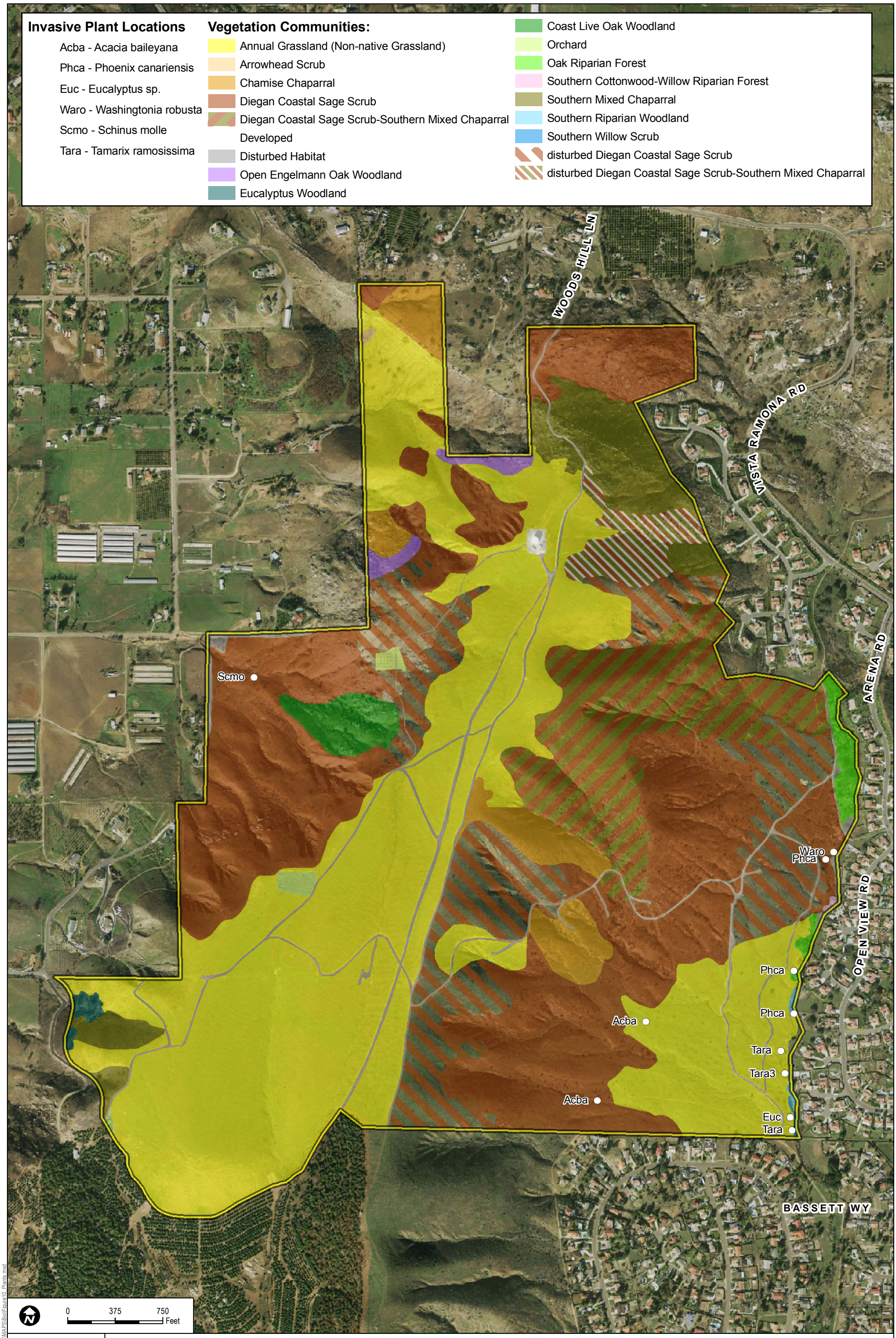
Two coast horned lizards were observed near the road along the eastern boundary of the Preserve in July 2009 (Figure 10, Special Status Wildlife Species).

Orange-Throated Whiptail (*Aspidoscelis hyperythra*)

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

Orange-throated whiptail occurs in low-elevation coastal scrub, chamise-redshank chaparral, mixed chaparral, and valley-foothill hardwood habitats (Zeiner et al. 1988). The 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).

During pitfall trap surveys a total of five orange-throated whiptail individuals were captured at Array H1 in the northern portion of the Preserve in July and August 2009 (see Table 5 and Figure 10).



DUDEK

6373-01

MARCH 2010

SOURCE: Preserve Boundary, County of San Diego; Vegetation (SanGIS 2008); DigitalGlobe, 2008

FIGURE 10

Invasive Plant Locations

Baseline Biodiversity Survey for Simon Preserve

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Coastal Western Whiptail (*Aspidoscelis tigris stejnegeri*)

San Diego County Group 2

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

During pitfall trap surveys, two coastal western whiptail individuals were captured. One was captured at Array H1 in the northern portion of the site in July 2009 and the other was captured at Array H2 in the center of the site in September 2009 (Table 5 and Figure 10).

Corondo Skink *(Eumeces skiltonianus interparietalis)*

State Species of Special Concern, San Diego County Group 2

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

During the pitfall trap surveys, two Coronado skink individuals were captured. One was captured at Array H1 in July 2009 and the other was captured at Array H2 in August 2009 (Table 5 and Figure 10).

Birds

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

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

Bell's sage sparrow inhabits chaparral dominated by chamise, and coastal scrub dominated by sage in cismontane California (Zeiner et al. 1990a) Sage sparrows nest in a cup of dry twigs and stems on the ground beneath a shrub or in a shrub usually near the ground, but up to 39 inches

above the ground. This species feeds on insects, spiders, and seeds while breeding, and eats mainly seed in winter (Zeiner et al. 1990a).

Bell's sage sparrow are residents from Marin County along the coast to Trinity County inland south through coastal California to Baja California. This subspecies also occurs on the western slope of central Sierra Nevada from El Dorado County south to Mariposa County (Martin and Carlson 1998). Sage sparrows breed from late March to mid-August, with peak activity in May and June (Zeiner et al. 1990a).

In August, one Bell's sage sparrow individual was observed near avian bird count survey point A2, east of the road in the center of the site, and another was observed southeast of that point near avian bird count survey point A5. In September, two individuals were detected in this same area, near avian bird count survey point A5 (Figure 10). This species occurs on site in relatively low numbers and would be expected to breed on site as well

California Horned Lark (*Eremophila alpestris actia*)

State Watch List Species, San Diego County Group 2

California horned lark inhabits grasslands and other open habitats with low, sparse vegetation, such as open desert scrub and alpine dwarf-shrub habitat. This species is occasionally found in coniferous or chaparral habitats. Horned larks nest in depressions on the ground and feed on insects, snails, and spiders during breeding season, adding grass and forb seeds in other seasons (Zeiner et al. 1990a).

Horned larks are yearlong residents in lowland areas throughout California, except the northern coastal area. The eastern Sierras also provide habitat in summer, with most birds in these montane habitats moving down slope in the winter. Winter migrants from out of state may join flocks in the southeastern deserts. Horned larks breed from March through July, with peak activity in May (Zeiner et al. 1990a).

One California horned lark individual was observed in August near avian bird count survey point A2, east of the road in the center of the site (Figure 10). This species was also observed during bat surveys on October 22. Although observations were limited, it is likely that numerous individuals use the site. It would be expected that the California horned lark would breed on site as well as use the site for wintering.

Cooper's Hawk (*Accipiter cooperii*)

State Watch List Species, San Diego County Group 2

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 of conifers. Cooper's hawks use patchy woodlands and edges with snags for perching, hunting small birds, small mammals, reptiles and amphibians broken woodland and habitat edges (Zeiner et al. 1990a).

Cooper's hawks are diurnally active and are yearlong residents. Breeding occurs from March through August, with peak activity in May through July. Males defend an area about 330 feet around potential nest sites (Zeiner et al. 1990a).

Cooper's hawk was observed during botanical surveys in May 2009. Although no nests were detected on site, one individual was observed displaying territorial behavior in the oak riparian forest along the eastern boundary of the Preserve (Figure 10). Given the behavior of the individual and the timing of the observation, it is likely that this species nests within the oak riparian forest on site; however, a nest was not observed.

Loggerhead Shrike (*Lanius ludovicianus*)

Federal Birds of Conservation Concern, State Species of Special Concern, San Diego County Group 1

Loggerhead shrike inhabits open areas, such as open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. Loggerhead shrike is found most often where several perches, such as scattered shrubs, trees, posts, fences, and utility lines, are available. Loggerhead shrikes typically nest in a densely foliaged shrub or tree and feed primarily on large insects, but also take small birds, mammals, amphibians, reptiles, fish, carrion, and various other invertebrates (Zeiner et al. 1990a).

Loggerhead shrikes are a common resident and winter visitor in lowlands and foothills throughout California. Loggerhead shrikes lay eggs from March to May in California (Zeiner et al. 1990a).

In August 2009, one loggerhead shrike individual was observed near avian bird count survey point A2, east of the road in the center of the site (Figure 10). Loggerhead shrikes require plants

than can protect and conceal a nest and plenty of open ground to forage (Unitt 2004). Therefore, based on the habitat available on site, it is likely that this species uses the site for both foraging and breeding. According to the *San Diego County Bird Atlas*, loggerhead shrike breeding has been confirmed in the grid occupying the western portion of the Preserve and is considered probable in the adjacent grid covering the eastern portion of the Preserve (Unitt 2004).

Northern Harrier (*Circus cyaneus*)

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

Northern harrier inhabits meadows, grasslands, open rangelands, desert sinks, and fresh and saltwater emergent wetlands; this species is rarely found in wooded areas. Northern harriers nest in shrubby vegetation on the ground usually at the edge of a marsh and feed on voles and other small mammals, birds, frogs, small reptiles, crustaceans, insects; northern harriers rarely feed on fish (Zeiner et al. 1990a).

Northern harrier is a permanent resident in the northeastern plateau and coastal areas of California and a less common resident of the Central Valley. This species is a widespread winter resident and migrant in suitable habitat. Northern harriers breed up to 5,700 feet amsl in the Central Valley and Sierra Nevada and up to 3,600 feet amsl in northeastern California from April to September, with peak activity from June to July (Zeiner et al. 1990a).

In October, northern harrier was observed near avian bird count survey point location A3, near the base of the slopes near the center of the site and near avian bird count survey point location A6 along the eastern boundary of the Preserve (Figure 10). This species is not known for breeding in San Diego County and there is little suitable marshy areas on site for nesting. It is likely that this species breeds elsewhere and forages on site. It has not been recorded as breeding within this area (Unitt 2004). The northern harrier also could use the site for foraging during the winter.

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

Federal Species of Concern, State Watch List Species, San Diego County Group 1, North County 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 is diurnally active, eating mostly insects and spiders during the breeding season, and seeds, grass and forb shoots throughout the year. It breeds from mid-March to mid-June with a peak in May. In Southern California coastal sage scrub, the average sized territory is about two acres (Zeiner et al. 1990a).

One Southern California rufous-crowned sparrow was observed in the southeastern portion of the site during botanical surveys in May 2009. In September 2009, one individual was observed near avian bird count survey point location A3, near the base of the slopes near the center of the site (Figure 10). It is likely that this species breeds on site since it was observed during the breeding season and suitable habitat is present on site. Southern California rufous-crowned sparrow is well documented as a San Diego County breeding bird (Unitt 2004).

Turkey Vulture (*Cathartes aura*)

San Diego 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 vulture was noted during avian bird count surveys conducted in July and September near avian bird count survey point locations A1, A2, A3, and A5 (Figure 10). The species was often observed foraging over the site; however, there is no habitat that is suitable for nesting.

Barn Owl (*Tyto alba*)

San Diego County Group 2

Barn owl inhabits a variety of open habitats. Barn owls nest in cavities, both natural and manmade, 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. This species is fairly common in the lower Colorado River Valley. Where the climate permits, barn owls can breed year-round (Marti et al. 2005).

From July to October, Dudek biologists recorded barn owl eight times throughout the site, specifically near avian bird count survey point locations A3, A5, A6, and A7 (Figure 10). Although there is no nesting habitat suitable on site for this species, it likely uses the Preserve regularly for foraging.

Western Bluebird (*Siala mexicana*)

San Diego County Group 2

Western bluebird inhabits open coniferous and deciduous woodlands, riparian woodlands, grasslands, coastal chaparral, desert habitats, and farmlands. Western bluebirds nest in rotted or previously excavated cavities in trees and snags, or between the trunk and bark of a tree. Western bluebirds feed on insects, small fruits, and seeds (Guinan et al. 2008).

In California, western bluebird breeds from the Oregon border south to the area of Mono, Kern, and Santa Barbara counties, and from Ventura, Los Angeles, and San Bernardino counties south through the Transverse and Peninsular ranges of southwestern California to southern San Diego county. Western bluebird winters in all areas west of the Klamath, Salmon, Trinity, and Panamint mountains (Guinan et al. 2008).

In October, Dudek biologists recorded two western bluebirds near avian bird count survey point location A4 at the southern end of the site and five western bluebirds near avian bird count survey point location A6 along the eastern edge of the site (Figure 10). Western bluebirds had not previously been recorded as breeding regularly in San Diego County until recently. Although this species could breed on site, based on the late season observation, it may be wintering on site and likely did not breed on site.

Mammals

Northwestern San Diego pocket mouse *(Chaetodipus fallax fallax)*

State Species of Special Concern, San Diego County Group 2

San Diego pocket mouse inhabits coastal scrub, chamise-redshank chaparral, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon-juniper, and annual grassland, usually in sandy herbaceous areas with rocks or course gravel (Zeiner et al. 1990a). San Diego pocket mouse feed mostly on seeds of forbs, grasses, and shrubs, but also eat 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 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. The elevational range extends from sea level to 6,000 feet amsl. San Diego pocket mouse generally breeds from March to May with an average of four young per litter (Zeiner et al. 1990b).

Northwestern San Diego pocket mouse was observed twice during pitfall trapping for herpetological surveys, once at array H1 in the northern portion of the site in July 2009 and once at array H2 located more centrally on the site in September 2009. Northwestern San Diego pocket mouse was captured several times during small mammal trapping and was observed along each trapline in both August and October 2009 (Figure 10; Table 7).

San Diego Desert Woodrat (*Neotoma lepida intermedia*)

State Species of Special Concern, San Diego County Group 2

San Diego desert woodrat inhabits desert habitats including Joshua tree, pinyon-juniper, mixed and chamise-redshank chaparral, sagebrush, and most desert habitats. It is abundant in rocky areas (Zeiner et al. 1990b). The woodrat constructs houses or middens of twigs, sticks, cactus parts, and rocks. The middens are used for nesting, food caching, and predator escape. The San Diego desert woodrat eats buds, fruits, seeds, bark, leaves, and young shoots of a variety of plants (Zeiner et al. 1990b).

The San Diego desert woodrat occurs throughout San Diego County. Marginal records for the species in the United States include San Luis Obispo, San Fernando, San Bernardino Mountains, Redlands, and Julian (Hall 1981). The species has been recorded at elevations from sea level to 8,500 feet amsl. The San Diego desert woodrat generally breeds from October to May. They nest solitarily and the average litter size ranges from one to five offspring (Zeiner et al. 1990b).

San Diego desert woodrat was captured once during the small mammal trapping at the trapline SM1 in the northern portion of the site in August 2009 (Figure 10; Table 7).

Southern Mule deer (*Odocoileus hemionus fuliginatus*)

San Diego County Group 2

Southern mule deer inhabit a broad range of habitats including agricultural and suburban areas, desert, woodlands and forests, grassland and herbaceous vegetation communities, savanna,

shrubland, and chaparral. Mule deer are herbivorous and browse on a variety of woody plants, grasses, and forbs (NatureServe 2009).

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 lat November to mid-December (NatureServe 2009).

Wildlife cameras on site detected one mule deer. However, it is likely several individuals commonly traverse the Preserve.

Pocketed free-tailed bat (*Nyctinomops femorosaccus*)

State Species of Special Concern, San Diego 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 occur in San Diego, Riverside, and Imperial counties and are 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).

Anabat equipment used during bat surveys on September 16, 2009 recorded two pocketed free-tailed bat calls near bat station location B2, along the road in the center of the Preserve (Figure 10).

4.3.4 Special-Status Wildlife 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 Preserve and the results of focused wildlife surveys, eight wildlife species have a high potential to occur on the Preserve. The high potential to occur species include one invertebrate, one amphibian, three reptile, two bird, and one mammal species.

Quino Checkerspot Butterfly (*Euphydryas editha quino)*

Federal Endangered, County Group 1, North County MSCP Covered Species

Quino checkerspot butterfly generally occurs in San Diego and Riverside Counties and several locations within Mexico. The suitable habitat for the quino checkerspot is typically sage scrub, open chaparral, grasslands, and vernal pools. Within these communities they are usually

observed in open or sparsely vegetated areas (including trails and dirt roads), and on hilltops and ridgelines (USFWS 2002). The adult butterfly emergence from pupae varies according to environmental factors, so the butterfly flight season varies regionally and annually. Quino checkerspot adults usually begin flying in February or early March. Currently, observations of the species indicate that females may deposit eggs on dwarf plantain, desert plantain, thread-leaved bird's beak, white snapdragon, owl's clover and Chinese houses.

Quino checkerspot butterfly has a high potential to occur within the Preserve. The Preserve contains suitable habitat and topographic features including sparse shrub habitat and grassland and ridgelines and hilltops. This species is located within the historic range of the species and has been observed within 3.5 miles of the site. In addition, there are other known recent locations of quino checkerspot including one on the north side of San Vicente Reservoir, one on the south side of the Reservoir, and one located in the Sycamore Canyon County Open Space Preserve. Hence, there appears to be a low population of the species within the region since the observation is generally of a single individual. During the botanical surveys conducted during 2009, no host plant species were detected; however, 2009 was a relatively poor year for the development of the host plant populations. Regardless, at other locations within the County, host plant was recorded, however it was recorded in low numbers. The Preserve may function more as an area of dispersal than as a breeding location since the host plant was not observed.

Western Spadefoot (*Spea hammondi*)

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

The 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 normally is 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).

The western spadefoot has a high potential to occur on the Preserve. Suitable habitat includes the southern area of the site, dominated by grasslands, which appear to have the potential to pool during the rainy season. This species was not detected during surveys because the field work started too late in the season. In addition, 2009 was a poor rain year and there may have been no ponding. The western spadefoot has been recorded as occurring within the Ramona area (CDFG 2009a)

Rosy Boa (*Charina trivirgata*)

San Diego County Group 2

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

Rosy boa has a high potential to occur on site. Suitable areas on site include scrub and chaparral habitats, and rocky areas. Rosy boa was historically observed in the Ramona area, while the species has more recently been observed approximately 6.5 miles to the northwest of the Preserve (CDFG 2009a).

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

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

The northern red diamond rattlesnake is distributed along coastal San Diego County to the eastern slopes of the mountains and north through western Riverside County into southernmost San Bernardino County. It occurs from sea level to 900 meters (3000 feet) in chaparral, woodland, and arid desert habitats in rocky areas and dense vegetation (Zeiner et al. 1988). Northern red-diamond rattlesnake eats small mammals, including ground squirrels, wood rats, and rabbits, lizards, and birds (CaliforniaHerps 2009). Northern red-diamond rattlesnake is primarily nocturnal and crepuscular during periods of excessive daytime heat (CaliforniaHerps 2009). Northern red-diamond rattlesnake young are live- born from July to September (CaliforniaHerps 2009).

Northern red-diamond rattlesnake has a high potential to occur on site. Suitable areas on the Preserve include scrub, chaparral and woodland habitats and rocky outcrops. Northern red-diamond rattlesnake is known to occur in the area, with the nearest recorded occurrence located at Montecito Ranch (CDFG 2009a) approximately 5 miles to the northwest of the Preserve.

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

State Species of Special Concern, San Diego 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 has a high potential to occur on site. Suitable areas on the Preserve include grassland, scrub, and chaparral habitats. Coast patch-nosed snake is known from the area, with nearby recorded occurrences located 6 miles to the northwest and 5 miles to the southwest (CDFG 2009a).

Coastal California Gnatcatcher (*Polioptila californica californica*)

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

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

The coastal California gnatcatcher has a high potential to occur on site. The species was historically observed on site prior to recent wildfires through the Preserve (North county MSCP Framework Resource Management Plan [FRMP] County 2009b) and was recorded for the site in CNDDB (CDFG 2009a). In addition, there is suitable coastal sage scrub habitat on site; however, it is currently relatively sparse and low in stature due to the recent wildfires. The existing habitat may not be sufficiently recovered to support the species. The species was not detected during surveys; however, focused surveys were not conducted.

Grasshopper Sparrow (*Ammodramus savannarum*)

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

The grasshopper sparrow is distributed within the foothills and lowlands west of the Cascade-Sierra Nevada Ranges from Mendocino and Trinity counties south to San Diego County. The species occurs in dry, dense grasslands especially habitat with a variety of grasses and tall forbs that function as singing perches (Zeiner et al. 1990a). It is well documented to especially occur in native grasslands; however, it has been observed in non-native grasslands. The grasshopper sparrow is migratory and it arrives to breed in March to May. The species feeds primarily on insects but also has been documented to forage on grass and forb seeds (Zeiner et al. 1990a).

The grasshopper sparrow has a high potential to occur on site. Suitable areas on the Preserve include grassland habitat. The presence of the grasshopper sparrow within the vicinity was determined by the San Diego County Bird Atlas and it was considered to be a probable breeding bird (Unitt 2004). Although especially known for native grasslands, it has also been documented within non-native grassland areas, a habitat that is present on site. Although the species was not detected during the surveys of the Preserve, it could be present. It tends to vocalize less during the later portions of the breeding season, which is when the surveys of the Preserve were conducted (Unitt 2004).

Western Red Bat (*Lasiurus blossevillii*)

San Diego County Group 2

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

There is a high potential for the occurrence of the western red bat on the Preserve due to the presence of the riparian area composed of large oak trees along the eastern edge, which could serve as a roosting area. This area of trees is adjacent to open areas, which could provide foraging for the species. Although not recorded by CNDDB for the region, few bat species are reported due to the lack of surveys conducted for bat species.

4.3.7 Invasive Species

Three brown-headed cowbird individuals were detected in the coastal sage scrub in the northern portion of the Preserve during a single avian point count survey on October 31. Although only three 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 avian point count surveys were conducted from July through October.

4.4 Wildlife Movement

The Preserve generally forms the western boundary of the central portion of the Eastern Ramona Core, connecting future preserve lands in PAMA to the north and south. The Preserve also forms an important natural linkage to Barnett Ranch Preserve, and ultimately to preserve lands around San Vicente Reservoir, in the South County MSCP Subarea.

The general area may function to convey large and small mammals within and through the Preserve because evidence is provided by the wildlife cameras of the presence of mule deer and coyote. Observation of mammal tracks and scat were documented anecdotally throughout the Preserve within no specific areas of concentrated activity. Deer and coyote may use the path of least resistance, which can include drainages, ridgelines, and the numerous dirt roads that are on site depending on time of day. 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.

5.0 CONCLUSIONS AND MANAGEMENT CONSIDERATIONS

Surveys conducted in 2009 documented 18 vegetation communities or land cover types and 282 species within Preserve. The surveys detected 203 plant species, 8 reptiles, 52 birds, 16 mammals, 11 invertebrate species, 6 butterflies and 11 other invertebrates. This list includes 21 special-status species, of which 8 are covered species under the North County MSCP (5 wildlife and 3 plants).

This section provides resource-specific conclusions and management recommendations for each taxonomic group based on the results of the baseline biological diversity surveys and the management guidelines and conservation goals described in the FRMP for the North County MSCP (County of San Diego 2009b). The FRMP includes plan-wide stewardship and management guidelines, and habitat-specific guidelines, as well as specific descriptions and conservation goals for each of the 23 planning segments identified in the North County MSCP. The Preserve is a part of the Eastern Ramona Core planning segment, and described as an important natural linkage to Barnett Ranch Preserve and preserved areas around San Vicente

Reservoir in the South County MSCP Subarea. Two of the five conservation goals identified for the Eastern Ramona Core are applicable to the Preserve:

1. Protection of oak woodlands, San Diego thorn-mint, and Orcutt's brodiaea
2. Minimization of impacts to sensitive habitats, including upland habitat on mafic soils supporting sensitive plant species such as Parry's tetracoccus; grasslands, including those that are loamy or with clay soil; and California gnatcatcher habitat.

It should be noted that currently the North County MSCP FRMP does not detail the exact methods that should be implemented when conducting species distribution surveys (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. The South County MSCP monitoring methods include utilizing the USFWS Animal Monitoring Protocol and the USGS Plant Monitoring Protocol. The Animal Monitoring Protocol covers the following species: coastal California gnatcatcher, coastal cactus wren, light-footed clapper rail, tricolored blackbird, southwestern willow flycatcher, burrowing owl, California least tern, Thorne's hairstreak, wandering skipper, and San Diego and Riverside fairy shrimp. The revised Plant Monitoring Protocol covers all of the South County MSCP-covered plant species.

5.1 Vegetation Communities/Habitats

5.1.1 Management

Vegetation communities should be managed for two primary reasons: (1) some are sensitive natural communities or riparian habitats and require management to ensure their long-term presence within the region and the state; and (2) many vegetation communities on the Preserve provide habitat for special-status wildlife or special-status plant species, and management of the habitat will benefit those special-status species.

Areas along the drainage in the eastern portion of the Preserve consist of riparian habitat including southern coast live oak riparian forest, southern cottonwood–willow riparian forest, southern riparian woodland, and southern willow scrub. Engelmann oak, including a number of planted specimens, also occur within the adjacent uplands along the outer margins of the drainage along the eastern boundary of the Preserve. However, the threats to this habitat identified in the FRMP regarding hydrology and invasive species would not be a priority for management on site given the limited hydrology of the area and the lack of observed sensitive species reliant upon this minimal habitat on site.

The majority of the Preserve consists of coastal sage scrub, chaparral, and grassland habitats. The challenges noted in the FRMP that these habitats face are primarily associated with fire and

invasive species. Fire is discussed in Section 5.6 and invasive species are discussed in Section 5.4. The prevalence of non-native grasses on site is also discussed in Section 5.4 since fire has precipitated the conversion of chaparral and scrub habitats to grassland on the Preserve.

A portion of the Preserve consists of oak woodlands, including coast live oak woodland and Engelmann oak woodland. The challenges noted in the FRMP that these habitats face are primarily associated with fire and invasive species. Fire is discussed in Section 5.6 and invasive species are discussed in Section 5.4.

It is recommended that the County maintain, at a minimum, the baseline acreage of each native vegetation community as determine by the baseline inventory. Maintaining a vegetation map that is updated can be used as a tool for adaptive management within the Preserve. Ongoing mapping efforts will aid in identifying changes in vegetation communities and will document the recovery of the vegetation from the recent wildfires. The FRMP recommends that habitat monitoring be repeated at least once every 5 years.

5.2 Plants

5.2.1 Management

The current survey effort documented three North County MSCP covered plant species including San Diego thorn-mint, Orcutt's brodiaea, and Engelmann oak. The North County MSCP recommends periodic botanical surveys in order to monitor covered plant species. The FRMP discusses the methods that will be used to determine the species that will be monitored for trends in population change. The criteria that will be used to determine the species that will be monitored include: the ability to county all individuals or sample populations; an indication that the species is sensitive to anthropogenic threats; natural history traits that allow the species to respond to threats to the species. If deemed appropriate for monitoring, the small population of the listed species San Diego thorn-mint observed on site should be monitored periodically to determine any changes occurring to this population and identify any potential threats that may need to be addressed to maintain the population. The other plant species that also may be appropriate to monitor for population size changes include Orcutt's brodiaea, and Engelmann oak. If appropriate, monitoring of these species proposed to be covered by the North County MSCP will be designed to identify the status or trends of the populations of the species. Monitoring is recommended to follow the methods developed within the FRMP.

Preserve and species specific management guidelines have not yet been developed in the FRMP. Management the proposed covered species for the North County MSCP may include the following based on the threats identified for each species. The primary threats to sensitive plant species include trampling, erosion, vehicle access, pesticide use, and invasive plant species that

may compete with these vulnerable species. Pesticide use around the perimeter of the orchard to the south of the Preserve appears to be limiting vegetation growth on site. In addition to limiting the use of pesticides on site to prevent impacts to native species, Orcutt's brodiaea populations are located in the vicinity and could be directly or indirectly adversely affected. Coordination with the adjacent property owner may be sufficient to address pesticide use along the Preserve boundary. The County may also consider fencing the area where the population of San Diego thorn-mint occurs to restrict access to and limit disturbance of this population. As noted above, erosion is not prevalent and appears to be a naturally occurring condition related to the soils and geology of the region. Vehicle access is adequately controlled as a result of the fencing and locked gates. Trampling can be addressed via restriction of access and establishment of signage, both of which are already adequately addressed within the Preserve. Trampling may also be addressed by establishing suitable buffers around populations of sensitive plants that are near trails or roads. Additional signage may also be helpful for sensitive plant populations that are located near trails and road. Non-native species are addressed in Section 5.3.

5.3 Wildlife

5.3.1 Management

The current survey effort documented five North County MSCP covered wildlife species including: coast horned lizard, orange-throated whiptail, Bell's sage sparrow, northern harrier, and southern California rufous-crowned sparrow. Similar to the discussion of monitoring for plants, the FRMP discusses the methods that will be used to determine which species will receive detailed monitoring. The methods will involve diverse observation techniques that provide a relatively high level of detection probability. Specific measures for management of sensitive species are currently under development in the FRMP. Once these are developed, the County will include recommendations for management of covered species on site.

Invertebrates

Although not observed on site, North County MSCP covered quino checkerspot butterfly has a high potential to occur on site due to presence of suitable habitat and proximity of other observations. It is recommended that a focused survey or modified survey effort be made to determine the presence of this species during a year with suitable conditions. If Quino checkerspot butterfly is found on the Preserve, monitoring should follow the recommendations identified by the final North County MSCP FRMP.

Amphibians

Although not observed on site, North County MSCP covered western spadefoot has a high potential to occur on site but would have already been undetectable at the time that the surveys

started. It is also likely that the 2009 survey season would have been a poor year to detect this species due to lack of rainfall. If western spadefoot is found on the Preserve future monitoring should follow the recommendations identified by the final North County MSCP FRMP. Western spadefoot would be expected to occur in the lower grassland areas that have the appearance that they could hold water during winter rains. If these areas pond, it is recommended that these areas be provided protection by providing signage to inform the public of the sensitivity of the area and to prevent unauthorized collection.

Reptiles

Two North County MSCP covered species were observed on site, including orange-throated whiptail and coast horned lizard. Monitoring protocols, including survey methods and frequencies, for these two species will follow those recommended by the final North County MSCP FRMP.

Many reptiles, including especially the coast horned lizard and orange-throated whiptail, are the focus of the public for unauthorized collection. Signage should be in place to inform the public of the impact of collection on these species and that there are penalties for unauthorized collection.

In addition, all of the reptile species tend to use or be observed while crossing or basking on trails or roads. It is recommended that signage be posted to notify the public to stay on designated roads and trails and to avoid wildlife species when encountered.

Management of the food source for the coast horned lizard and orange-throated whiptail is discussed below in Section 5.4.2.

Birds

Proposed covered bird species of the North County MSCP that were observed include Bell's sage sparrow, Southern California rufous-crowned sparrow, and northern harrier. Monitoring protocols, including survey methods and frequencies, for these five species will follow those recommended by the final North County MSCP FRMP.

Although not observed during the 2009 surveys, coastal California gnatcatchers have historically been recorded on the Preserve (FRMP 2009). The most likely reason for their disappearance from the Preserve would be the 2007 fires that resulted in loss of their preferred habitat temporarily. It is estimated that the vegetation recovery should take place within six years and the coastal California gnatcatcher could be expected to re-occupy the Preserve as the vegetation recovers. However, fire may also result in permanent conversion of the coastal sage scrub habitat into grassland and may degrade the remaining suitable habitat for this species. The coastal sage

scrub should be monitored, as discussed in section 5.1.1, to determine if invasive species such as mustard and non-native grasses dominate areas that were originally coastal sage scrub. In addition, it is recommended that presence/absence of the coastal California gnatcatcher be monitored as well. It may be useful to monitor for the gnatcatcher on an annual basis in order to determine the post-fire re-colonization rate for this species. Habitat enhancement to facilitate recovery of suitable coastal sage scrub habitat would likely benefit this species and prompt their return if the habitat does not recover on its own within a reasonable time period.

5.4 Invasive Non-Native Species Removal and Control

5.4.1 Plants

Table 10, Invasive Non-Native Plant Species Observed on the Preserve, lists the non-native invasive species ranked by Cal-IPC observed on the Preserve.

Table 10
Invasive Non-Native Plant Species Observed on the Preserve

Species	Cal-IPC rating
Eucalyptus (*Eucalyptus* sp.)	red gum (Eucalyptus camaldulensis) is limited and Tasmanian blue gum (E. globulus) is moderate
Canary Island date palm (*Phoenix canariensis*)	limited
Peruvian pepper tree (*Schinus molle*)	limited
Saltcedar/tamarisk (*Tamarix ramosissima*)	high
Mexican fan palm (*Washingtonia robusta*)	moderate

Priority of the removal of invasive non-native plant species should be placed on areas with sensitive species or sensitive habitat such as the drainages and riparian communities.

Based on the baseline inventory conducted in 2009, five invasive plant species were observed. These were generally observed in low numbers and are not anticipated to result in reduction of habitat quality. However, these species were noted as follows:

- Eucalyptus trees are present as several individuals
- Canary Island date palm occurs as three individuals
- Peruvian pepper tree occurs as one individual
- Tamarisk, which can be a very invasive species, occurs as five individuals
- Mexican fan palm occurs as one individual.

Tamarisk presents the greatest risk of reducing habitat quality. Although some riparian birds will use tamarisk for foraging, in general, special-status riparian birds do not include tamarisk as a preferred habitat component. This species would be a priority for removal. Because tamarisk is a sizable plant, it can be well controlled by mechanical methods. Limited chemical methods may be required after the initial mechanical removal. As noted in the FRMP, removed invasive plants should be properly disposed of to off-site facilities. The area where tamarisk would be removed from is potentially appropriate for replanting with other riparian plant species.

Significant cover of non-native grasses and forbs can inhibit the ability of raptors to forage and degrade the habitat for rodents. Reductions in rodent populations can reduce the prey availability for raptors and other predators. An overabundance of non-native grasses can also compete with native plants, including sensitive species and host plants for insects, which may be considered special status (e.g., Quino checkerspot butterfly) or may be important pollinators. Possible measures to control non-native weeds, including annual grasses and forbs, include cutting, herbicides, grazing, prescribed fire, and revegetation, and would ideally include a combination of these measures (County of San Diego 2009b). On the Preserve, non-native grass and forb removal should be focused in areas of native plant species especially the sensitive plants such as Orcutt's brodiaea and areas with clay soils (within the southeastern corner of the site along the drainage) where the non-native grasses may compete with the native species, threatening this unique microhabitat.

Preventing the long-term conversion of vegetation communities to annual grassland may require managing fire return interval to allow sufficient time for habitat succession from annual grasslands to native shrub-dominated communities. Frequent burns at short intervals can drive the permanent conversion of shrub-dominated communities to grass-dominated communities. Analysis of historical fire return interval and recommendations for mimicking the natural fire regime are provided in the draft Simon Preserve Vegetation Management Plan (Dudek 2009b).

5.4.2 Wildlife

Brown-headed cowbirds were detected in coastal sage scrub in the northern portion of the Preserve during a single avian point count survey on October 31. This species is known to parasitize the nests of native songbirds, including coastal California gnatcatcher (County of San Diego 2009b; Zeiner et al 1990a). Although only three 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 avian point count surveys were conducted from July through October. Fire-related habitat loss and degradation is the most likely reason coastal California gnatcatcher remains absent from the Preserve at this time, but the prevalence of brown-headed cowbirds could prove to be an important factor if coastal California gnatcatchers fail to re-colonize the Preserve once habitat on site has sufficiently recovered. The FRMP states if management of

cowbird populations within the Preserve is determined to be necessary, possible control methods include trapping adults or removing eggs from host nests (County of San Diego 2009b). Additional information regarding the distribution and abundance of brown-headed cowbirds on-site during the breeding season is recommended to understand the extent of breeding activity and the extent to which native species may be impacted.

Non-native Argentine ants often displace native ants, an important food source for the coast horned lizard and orange-throated whiptail, both of which occur on site. The FRMP suggests restriction of litter and food waste, inspection of planting stock, and education of nearby residents on measures they can take to reduce the risk and extent of invasion (County of San Diego 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 Preserve and especially along the eastern edge near the riparian area where there is an interface with human residences that likely irrigate landscaped areas adjacent to the Preserve.

5.5 Restoration Opportunities

As stated in the FRMP, the goal of habitat restoration is to reestablish or enhance the biological functions and values of habitat that have been degraded from either human or natural causes. Restoration methods range from active revegetation, which re-creates habitat to passive management. For preserve lands, restoration is typically not required; however, in some cases, if resources are available, restoration may assist the recovery of an area that has been disturbed and is showing difficulty in recovering.

The Preserve is generally composed of high quality habitat and even the non-native grassland areas serve important functions for foraging for raptors. However, due to the recent wildfires, some of the sage and chaparral habitat areas appear to be slow with recovery. This may especially be due to the low rainfall years.

Restoration opportunities for the Preserve include restoration of areas that would provide habitat for sensitive species that inhabit the Preserve, such as sage scrub, as well as restoring disturbed oak woodlands (especially Engelmann oak woodlands) if they appear to decline based on the monitoring studies conducted in accordance with the FRMP.

Habitat enhancement to facilitate recovery of suitable coastal sage scrub habitat would likely benefit the California gnatcatcher and prompt their return if the habitat does not recover on its own within a reasonable time period. This is also discussed in Section 5.3.1 with respect to the management of the California gnatcatcher.

5.6 Vegetation Management

The North County FRMP identified 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 (Dudek 2009b) 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 2009b). Fuel management recommendations include prescriptions specific to the high value vegetation resources present on site (i.e., annual grasslands, coastal sage scrub, and coastal sage scrub/southern mixed chaparral areas), based on a combination of prevention practices including grazing, mowing, prescribed fire, thinning and fuel breaks. Preserve management recommendations that would complement fuel reduction practices are also identified, including gate and access road signage, illegal access, public education, ignition reduction, and fire suppression. Prescribed fire is identified as a potentially feasible management option in four of the five fire management units (FMUs) identified on site, notwithstanding the careful consideration of the benefits, risks and constraints associated with this management technique.

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. The drainage along the eastern boundary of the Preserve supports some wildlife movement along this riparian corridor. South of the Preserve is a band of open space between agricultural land to the west and residential development to the east, that likely supports wildlife movement into and out of the Preserve that ultimately connects to preserve lands within the South County MSCP. Wildlife can probably also access off-site areas south of the Preserve using an access route on the opposite side of the agricultural area from the southwestern corner of the Preserve. The entire eastern side of the Preserve is occupied by relatively open grasslands, which likely promote movement into and out of the Preserve from other areas. Wildlife are also likely able to cross Arena Way east of the Preserve, travel through the open space on the other side of this road and cross Vista Ramona Rd. to enter into the larger open space provided by Mount Gower Preserve. They can probably also connect to Mount Gower Preserve area via the north of the Preserve.

Target species for corridor use include California gnatcatchers, mountain lion, and southern mule deer. The movement and occurrence of California gnatcatcher will be conducted as part of the species monitoring (Section 5.3.1). Use of the Preserve by mammals is discussed below.

The mountain lion, a proposed covered species by the North County MSCP, was not observed by wildlife cameras or incidentally by observation of tracks. However, reports in 2007 of a mountain lion in the San Diego Country Estates area suggest that the Preserve could receive some use by the species for movement but this species would not be expected to reside within the Preserve due to lack of suitable habitat. It is considered to have a moderate to high potential to occur on site. Periodic focused surveys using motion-sensing cameras to detect the species are recommended as part of the Preserve corridor usage monitoring as discussed below.

The North County MSCP will follow a similar program to monitor corridor usage by mammals that was developed for the San Diego MSCP. To monitor corridor use, stations will be established at corridor pinch points (narrow segments along corridors frequently located at road underpasses). At these stations, track identification, scat identification, and video observation methods will be utilized to determine use by target mammal species. Wildlife corridor monitoring will occur every five 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). Where corridors are not being utilized, various management actions are available including the following:

- Provide vegetative cover where needed to encourage passage through pinch points
- Monitor and control the deposition of sediment and debris in culverts and under low bridges, which may decrease the height of the culvert/bridge relative to ground surface in the corridor
- Control the density of vegetation under bridges to maintain passable areas for wildlife
- Install wing fencing to guide wildlife to road underpasses.

The Preserve forms the entire width of the PAMA in the Eastern Ramona Core portion of the North County MSCP. Of these management actions, the only actions appropriate for the Preserve include monitoring potential pinch points and potentially providing additional shrub cover if the natural regeneration post-fire does not occur. Potential pinch points that could be monitored for movement include the northern boundary at the gate and the southern boundary on the ridgeline in the central portion of the southern boundary. Wildlife cameras were placed at the northern location and no medium or large mammals were detected. There are no culverts of underpasses associated with the Preserve that would be appropriate for management actions.

5.8 Additional Management Recommendations

In general, current management of the Preserve is appropriate to maintain the ecological functions and to 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

Public access to the Preserve is well maintained with the two locked gates at either end of the site to prevent access by unauthorized vehicles. The public can access the Preserve for passive use from the south and from the north. Public uses on the Preserve observed by the consultant included jogging, horseback riding and picnicking.

5.8.2 Fencing and Gates

Access to the Preserve by unauthorized vehicles is already well maintained with the two locked gates at either end of the site. Fencing surrounds the entire Preserve.

5.8.3 Trails and Access Roads

Dudek always observed patrons of the Preserve using existing trails, which have been maintained in good condition. Access roads appear to be well maintained as well, and include erosion control features that should remain in place to protect adjacent habitat.

5.8.4 Signage and Education

Existing signage appears to be appropriate for maintenance/management of the Preserve. Additional signage may be appropriate near locations of sensitive plant species such as the San Diego thorn-mint and Orcutt's brodiaea. Signs can also be installed to emphasize that native species should not be collected and that dogs and cats may function as significant predators on native wildlife species. Rattlesnakes often occur within rocky outcrops and brushpiles. It is recommended that signage be provided to alert the public of their presence and how to avoid encounters as well as what to do if bitten.

5.8.5 Litter/Trash Removal

Dudek observed golf balls on the Preserve littering the area near the residential lots during surveys. These and other trash/debris should be removed to improve habitat conditions on the Preserve.

5.8.6 Illegal Off-Road Activity

No evidence of illegal off-road activity was observed on the Preserve during surveys. There is evidence of past off-road activity in the form of dirt bike pathways in the southern portion of the Preserve near the Bassett Way access gate, and in the western portion of the Preserve where unauthorized trails appear to enter the Preserve from Hanson Lane. However, these pathways did not appear to be receiving use at all or very frequently. The two locked gates appear to be providing appropriate access control to substantially reduce the threat of illegal off-road activity, but periodic monitoring of the Preserve in areas where signs of past off-road activity are evident should be conducted to determine if additional management measures are necessary. Potential management measures could include targeted Preserve monitoring when off-road activity is most likely to occur, increased signage prohibiting off-road activities and identifying appropriate uses within the Preserve, and periodic inspections and maintenance of boundary fencing to prevent unauthorized access.

5.8.7 Hydrological Management

Existing erosion control measures along adjacent county maintained roads and via culverts adequately address potential problems arising from erosion. Management of potential agricultural run-off from adjacent orchards may be necessary to protect Orcutt's brodiaea associated with the drainages in the southern portion of the Preserve.

5.8.8 Emergency and Safety Issues

Currently the Preserve receives periodic patrolling by DPR staff. This patrolling activity, in conjunction with the fencing of the Preserve 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 on the Preserve are recommended to be maintained in the condition they are currently in so that fire response vehicles are able to access the Preserve if needed.

6.0 REFERENCES

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