FINAL

BASELINE BIODIVERSITY SURVEY REPORT FOR MOUNTAIN MEADOW PRESERVE

PREPARED FOR:

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Acronyms and Abbreviations

°F	degrees Fahrenheit
APN	Assessor's Parcel Number
Cal-IPC	California Invasive Plant Council
CIMIS	California Irrigation Management Information System
Conservancy	Escondido Creek Conservancy
CRPR	California Rare Plant Rank
DPR	County of San Diego Department of Parks and Recreation
FMP	Framework Management Plan
ft	feet
GPS	global positioning systems
I-	Interstate
m	meters
mph	miles per hour
MSCP	Multiple Species Conservation Program
PAMA	pre-approved mitigation area
Preserve	Mountain Meadow Preserve
QCB	Quino checkerspot butterfly
RMP	Resource Management Plan
SANDAG	San Diego Association of Governments
SD	secure digital
SDG&E	San Diego Gas & Electric
SDMMP	San Diego Mitigation and Monitoring Program
SSC	Species of Special Concern
USFWS	U.S. Fish and Wildlife Service
VCM	Vegetation Classification Manual for Western San Diego County
VMP	Vegetation Management Plan
WMA	watershed management area

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Summary

In 2018, the County of San Diego Department of Parks and Recreation acquired the 690-acre Mountain Meadow Preserve (referred to as the Preserve within this report). This was a three-way transaction including the U.S. Department of the Navy, County of San Diego Department of Parks and Recreation (DPR), and the Escondido Creek Conservancy (Conservancy). The Preserve is located within the planning boundaries of the Draft North County Multiple Species Conservation Program (MSCP) Preserve system.

ICF conducted a baseline biological inventory study in 2019 at the Preserve that included the following: (1) vegetation surveys with habitat community, rare plant, and invasive nonnative plant species mapping components; (2) butterfly surveys and habitat assessments; (3) herpetofauna surveys, including funnel traps and nocturnal pedestrian surveys; (4) ornithological surveys, including diurnal and nocturnal surveys; and (5) mammal surveys, including small mammal trapping, camera stations for medium to large mammals, and active and passive bat surveys.

This report summarizes all survey methodologies and data collected during the 2019 survey period. It also provides recommendations for management of the Draft North County MSCP proposed covered plant and animal species.

The Preserve includes the following 13 vegetation communities/land cover types: Diegan coastal sage scrub (as well as an area with a disturbed distinction), granitic southern mixed chaparral (as well as an area with a disturbed distinction), southern riparian forest, southern coast live oak riparian forest, southern arroyo willow riparian forest, coast live oak woodland (as well as an area with a disturbed distinction), open coast live oak woodland, open Engelmann oak woodland, nonnative woodland, eucalyptus woodland, disturbed habitat, developed lands, and freshwater.

The current survey effort documented 13 vegetation associations/alliances, and 241 species within the Preserve. Specifically, the surveys detected 116 plant species, 42 butterfly species, and 83 wildlife species. Of these species, three plant species are considered special status, and one is proposed for coverage under the Draft North County MSCP: Engelmann oak (*Quercus engelmannii*). Sixteen special-status wildlife species were detected.

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Chapter 1
Introduction

1.1 Purpose of the Report

Baseline biological resources surveys were conducted within the 690-acre Mountain Meadow Preserve (Preserve) (Figures 1-1 and 1-2), acquired in September 2018 through a three-way transaction including the U.S. Department of the Navy, County of San Diego Department of Parks and Recreation (DPR), and The Escondido Creek Conservancy (Conservancy). The purpose of these surveys was to identify and map existing biological resources within the Preserve. This information is being used in the development of a Resource Management Plan (RMP). The management directives will provide the management framework for monitoring and managing the Preserve's resources.

1.2 MSCP Context

The Preserve, currently closed to the public, is located within the planning boundaries of the Draft North County Multiple Species Conservation Program (MSCP). Although not yet finalized, the Draft North County MSCP will encompass the northwestern unincorporated areas of San Diego County and includes 29 proposed covered species—20 wildlife species and 9 plant species. The North County MSCP study area encompasses 311,800 acres in and around the unincorporated communities of Bonsall, De Luz, Fallbrook, Harmony Grove, Rancho Santa Fe, Lilac, Pala, Pauma Valley, Rainbow, Ramona, Rincon Springs, Twin Oaks Valley, and Valley Center.

The Draft North County MSCP (County of San Diego 2009) underwent a public review in 2009. In addition, the County convened public outreach meetings for the North County MSCP in spring 2017 and County staff received input from a variety of stakeholders. Comments received during these public review periods were used to revise the North County MSCP to prepare a second public review draft in 2017 (County of San Diego 2017). The 2017 Preliminary Draft of the North County MSCP reflects major changes from the 2009 draft, most notably the reduction in the number of species covered in the Plan from 63 species to 29 species.

The Draft North County MSCP has designated pre-approved mitigation areas (PAMAs). These are areas with high biological value in which conservation will be encouraged by providing mitigation ratios that favor developing outside of the PAMA and mitigating inside the PAMA. The vast majority of the Preserve is located within lands designated as PAMA under the North County MSCP (Figure 1-3). The Preserve has high-value habitat and includes designated critical habitat for coastal California gnatcatcher (*Polioptila californica californica*) within the Preserve and surrounding it (Figure 4-6). The Preserve is not connected to any other conserved lands and will provide an important piece of intact habitat (Figure 1-4).

The County has also initiated work on the environmental documents that will accompany the North County MSCP, including the administrative draft of the Framework Management Plan (FMP; DPR 2018). This draft FMP provides management and monitoring guidelines that will be used to develop specific Resource Management Plans (RMPs) for conserved lands in the Plan Area and guide interim

management of conserved lands until RMPs are developed. RMPs include management directives to guide conservation of biological resources in specific conserved lands, including the Preserve. These management directives are further detailed in Chapter 4, *Results and Discussion*, and Chapter 5, *Conclusions and Management Recommendations*, of this report.

Figure 1-1
Preserve Location
Mountain Meadow County Preserve

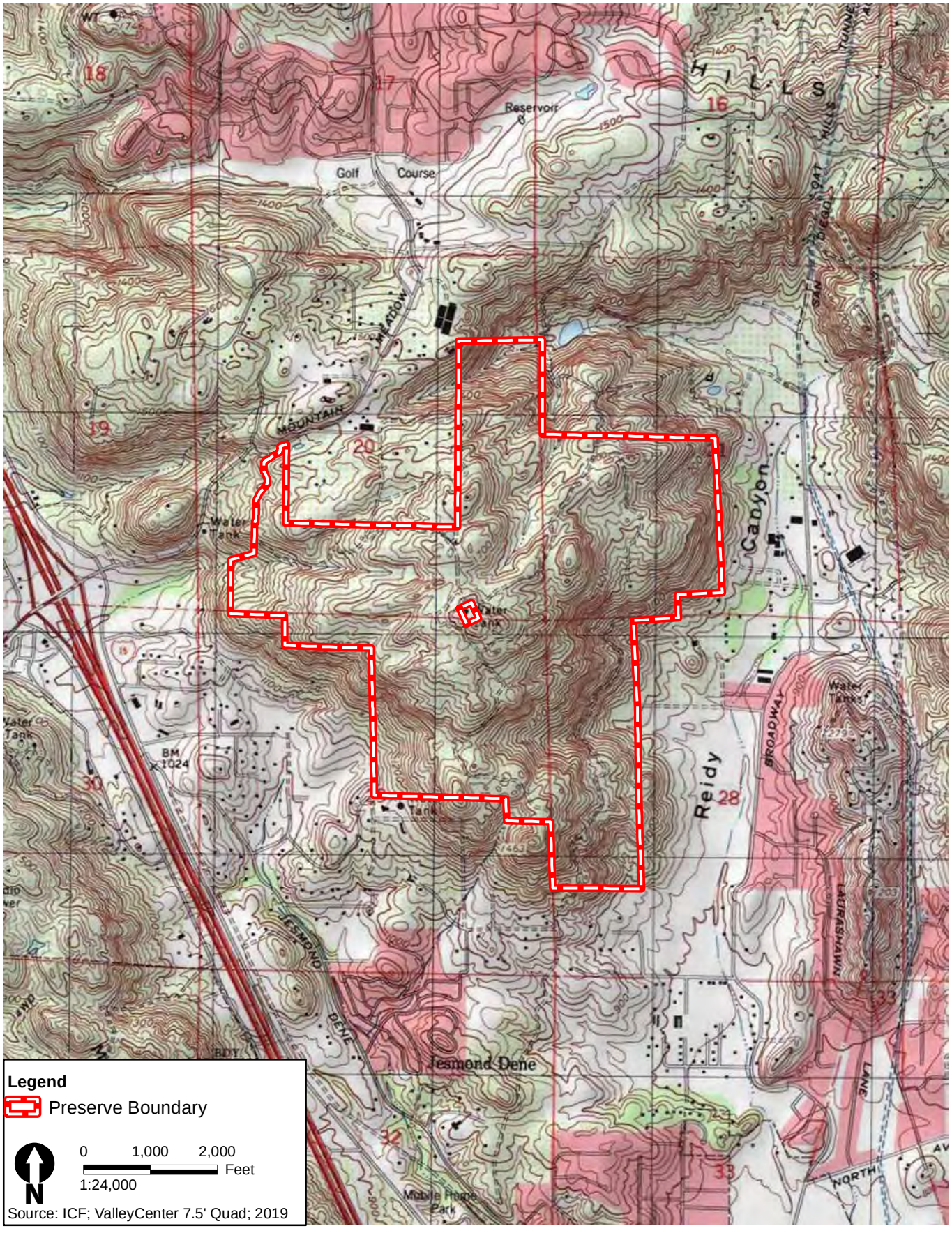
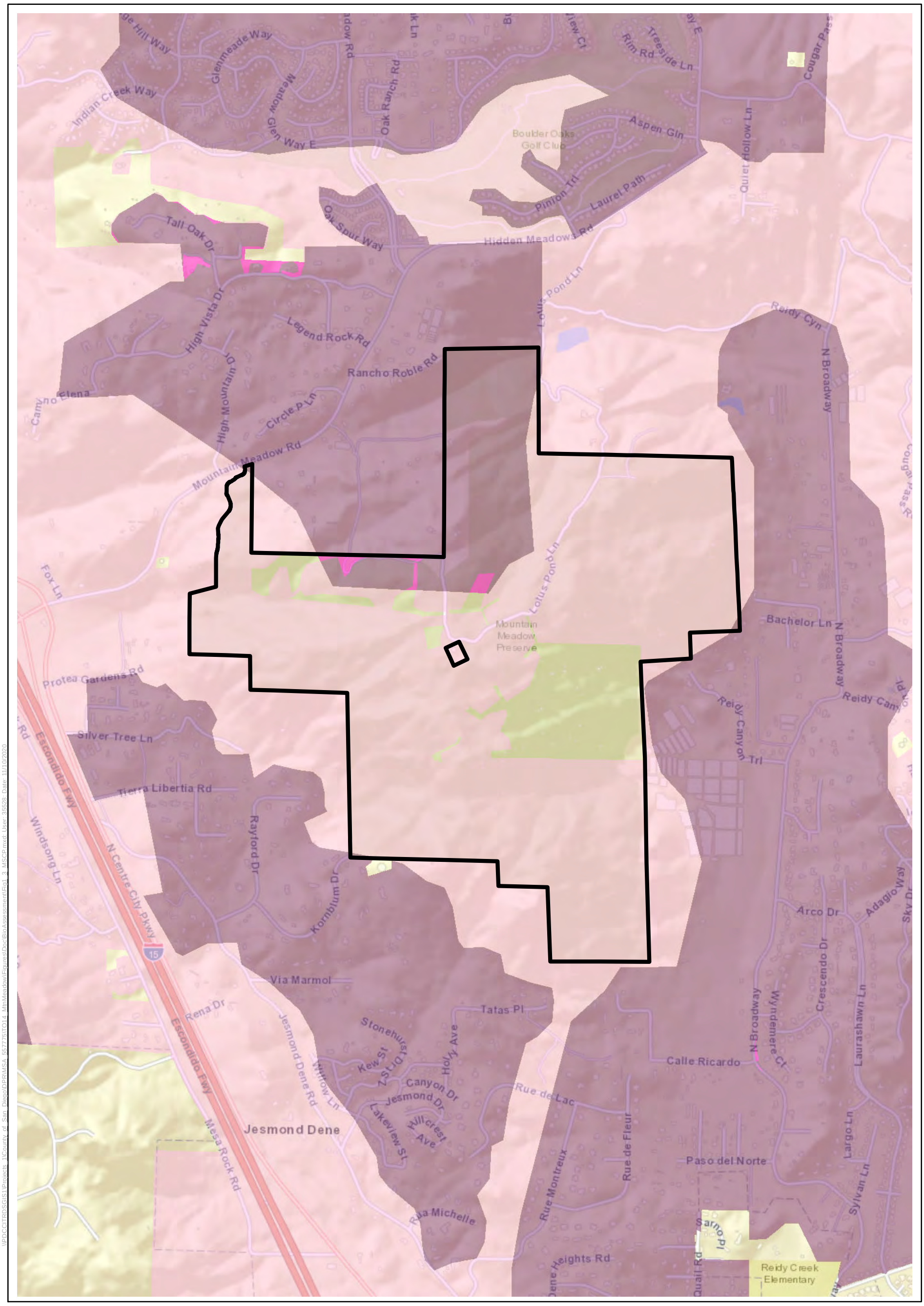


Figure 1-2
Preserve Vicinity
Mountain Meadow County Preserve



Preserve Boundary

Draft North County MSCP

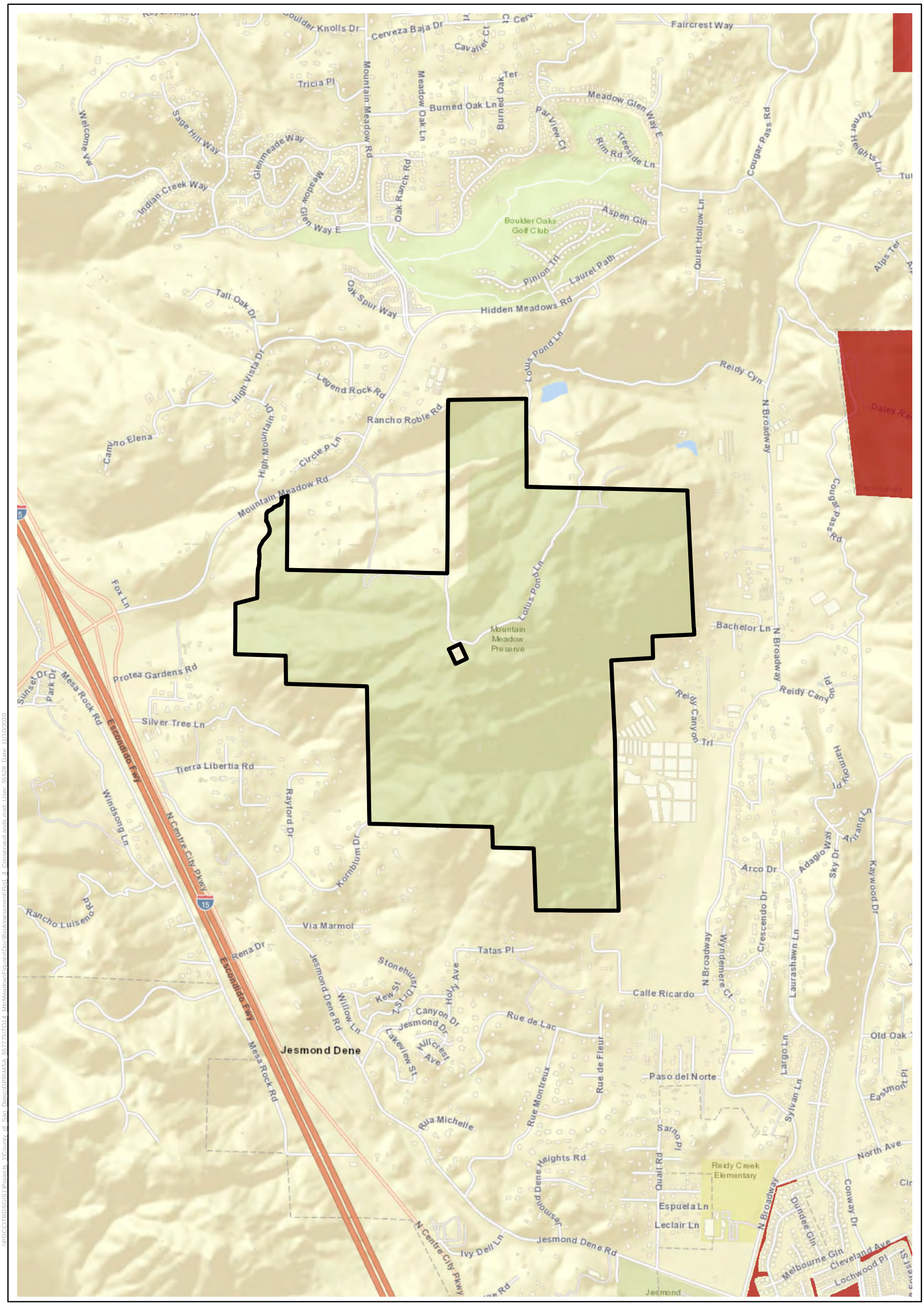
- Open Space Easement outside PAMA
- Outside Pre-Approved Mitigation Area (PAMA)
- Pre-Approved Mitigation Area (PAMA)

Source: ICF; SANDAG; ESRI (2019)

0 750 1,500 Feet

N

Figure 1-3
MSCP Designation
Mountain Meadow County Preserve



Preserve Boundary

Conserved Lands

Private

Source: ICF; SANDAG; ESRI (2019)

0 750 1,500 Feet

N

Figure 1-4
Conserved Lands
Mountain Meadow County Preserve

Chapter 2
Study Area Description

2.1 Project Location

The Preserve is in the northern area of the City of Escondido, east of Interstate (I-) 15 and south of Mountain Meadow Road (Figures 1-1 and 1-2). The Preserve is approximately 4 miles north of downtown Escondido and can be accessed from Stickley Ranch Road, Escondido, CA 92026. The Preserve consists of Assessor's Parcel Numbers (APN) as follows: 186-100-06 (portion), 186-100-15 (portion), 186-100-86 (portion), 186-100-87, 186-101-20, -21, -22, 186-110-26, 186-641-18 and -19, 187-041-57 (portion), 187-041-58 and -59, 187-042-04, and 187-341-06.

2.2 Geographical Setting

The Preserve is in the Peninsular Range province, a group of mountain ranges extending south for 930 miles, from southern California to the southern tip of Baja California Peninsula. This range runs east to west, and is located south of the Transverse Ranges. In San Diego County, it includes Palomar Mountain. This region also includes the coastal plain mesas, foothills, interior mountain, and valleys of San Diego County. The Preserve is located in the foothills of the Peninsular Range, at the top of a small mountain with elevations ranging from 860 to 1750 feet (ft). The Preserve slopes to the north and east to the floor of Reidy Canyon, to the south toward Jesmond Dene, and to the west to I-15 (Mountain Gate Specific Plan 2001).

2.3 Geology and Soils

The Peninsular Ranges geomorphic province consists of granitic rocks derived from southern California batholith intruded into the older metamorphic rocks. Several soil types are represented within the Preserve: acid igneous rock land, Cieneba, Fallbrook, and Vista (Figure 2-1). Most of the parcels consist of acid igneous rock and Cieneba series soils. Descriptions from the San Diego County Soil Survey (USDA 1973) are presented below:

Acid igneous rock land is a fast-draining formation that occurs on low hills and in areas of steep topography. Large boulders and rock outcrops cover 50 to 90 percent of the surface and are composed of a variety of materials, including gabbro, basalt, or gabbro diorite. The soil layer is typically shallow and infertile and occurs over decomposed granite or basic igneous rock. Pockets of deeper soil can occur between the rocks. Runoff is rapid to very rapid, and the erosion potential is considered moderate to very high. Acid igneous rock is the most prominent soil type in the Preserve, totaling 429.70 acres (Table 2-1).

The **Cieneba** soil series consists of excessively drained, very shallow to shallow coarse sandy loams with slopes of 5 to 75 percent. These soils are weathered in place from granite outcrops found in the adjacent uplands. The elevation ranges from 500 to 3,000 ft, with typical vegetation composed of buckwheat (*Eriogonum* spp.), chamise (*Adenostoma fasciculatum*), California sagebrush (*Artemisia californica*), and annual grasses and forbs. The soil profile is brown, medium-acid coarse sandy loam about 10 inches thick.

These soils are mapped throughout the Preserve, with the rocky coarse sandy (**CmE2**) being the dominant of the three series with 101.16 acres mapped. Coarse sandy loam (**CIE2**) and very rocky coarse sandy (**CmrG**) are only found in the southern portion of the Preserve (Figure 2-1). The **CnE2** (Cieneba-Fallbrook rocky sandy loams, 9 to 30 percent slopes, eroded) is found in three isolated areas, totaling 6.93 acres (Table 2-1). This complex is about 55 percent Cieneba coarse sandy loam and 40 percent Fallbrook sandy loam, runoff is medium to rapid, and the erosion hazard is moderate to high. The **CnG2** (Cieneba-Fallbrook rocky sandy loams, 30 to 65 percent slopes, eroded) is more predominant and found in 74.38 acres at the northern and northeastern boundaries of the Preserve (Figure 2-1). This complex is about 55 percent Cieneba coarse sandy loam and 40 percent Fallbrook sandy loam, runoff is rapid to very rapid, and the erosion hazard is high to very high.

The **Fallbrook** soil series is characterized by well-drained, acidic, deep sandy loams formed in material weathered in place from granodiorite. Elevations range from 200 to 2,500 ft. A representative profile has a surface layer of sandy loam to 6 inches. The subsoil is reddish-brown sandy clay loam to about 41 inches, with decomposed granodiorite below. Both series (**FaC2** and **FaD2**) are found at the Eastern portion of the Preserve (Figure 2-1). These soils are on uplands and have slopes of 5 to 15 percent, with typical vegetation composed of annual grasses, oak trees (*Quercus* spp.), and broadleaf chaparral with chamise patches. Both types have moderate erosion hazard and medium runoff.

The **Vista** soil series consists of well-drained, moderately deep to deep, coarse, sandy loams derived from granodiorite or quartz diorite. These slopes are on uplands and have slopes from 5 to 65 percent, with elevation ranging from 300 to 2,500 ft. The surface layer is dark grayish-brown and dark brown, neutral, and slightly acid sandy loam about 19 inches thick. The subsoil is dark-brown and yellowish-brown, slightly acid coarse sandy loam about 16 inches thick. The typical vegetation consists of chamise, soft chess (*Bromus hordeaceus*), rip-gut brome (*Bromus diandrus*), wild oats (*Avena* spp.), buckwheat, mustard (*Brassica* spp.), laurel sumac (*Malosma laurina*), and annual forbs, with oak trees scattered on the north slopes and drainages. **VsC, VsD, VsE, VvD,** and **VvE** were mapped along the northwestern boundaries of the Preserve, with respective acreage presented on the table below.

Table 2-1. Soil Type Acreages

Soil Type	Acres
AcG – Acid Igneous Rock Land	429.70
ClE2 – Cieneba Coarse Sandy Loam	9.67
CmE2 – Cieneba Rocky Coarse Sandy Loam	101.16
CmrG – Cieneba Very Rocky Coarse Sandy Loam	53.19
CnE2 – Cieneba-Fallbrook Rocky Sandy Loams	6.93
CnG2 – Cieneba-Fallbrook Rocky Sandy Loams	74.35
FaC2 – Fallbrook Sandy Loam	0.09
FaD2 – Fallbrook Sandy Loam	0.74
VsC – Vista Coarse Sandy Loam	4.00
VsD – Vista Coarse Sandy Loam	1.13
VsE – Vista Coarse Sandy Loam	1.04
VvD – Vista Rocky Coarse Sandy Loam	8.57
VvE – Vista Rocky Coarse Sandy Loam	2.46
Total	**693.01**

2.4 Climate

A semi-permanent high-pressure cell over the Pacific Ocean dominates San Diego County's climate. This cell drives onshore circulation, maintaining clear skies for much of the year. The Preserve experiences a Mediterranean climate with summers that are typically warm and dry, while winters are mild with occasional rain (USDA 1973). In the coastal slope of San Diego County, precipitation averages 10.7 inches and falls mostly in the winter and spring (RSSWeather.com 2019). A predominant feature of the local climate is the sea-breeze/land-breeze cycle. During the daytime, particularly in the summer, onshore winds move inland with speeds of approximately 7 to 10 miles per hour (mph). Easterly land breezes of approximately 2 to 4 mph often occur at night. The surrounding rugged terrain, which induces turbulence in the airflow, modifies the influence of this cycle. This cycle is periodically affected by land airflows that dominate weather patterns. The most widely recognized of these are the Santa Ana winds, during which strong, hot, dry easterly winds prevail for 2 to 3 days, and bring risk of catastrophic wind-driven fires. In the past 10 years, the State of California, including San Diego County, has been under some level of drought starting on December 27, 2011 and ending on March 5th, 2019 (NIDIS 2020). The most severe drought year was the 2013–2014 rain year, in which Escondido (city closest to the Preserve) recorded its driest all-time record of rainfall with 5.75 inches of rain (38 percent of normal) (KPBS 2014).

The weather in the area of the Preserve is influenced by the higher elevations of the Peninsular Ranges. Table 2-2 presents 10-year averages by month for total precipitation, air temperature and wind speed based on data collected at California Irrigation Management Information System (CIMIS) station Escondido SPV #153. Monthly precipitation over the 10-year average at the Preserve ranges from 0.01 inch to 1.56 inches, with March being the wettest month, while August is the driest. The monthly air temperature average over the last 10 years ranges from the lowest of 37.6 degrees Fahrenheit (°F) in March to the highest of 88.4 °F in July. Full dataset is available at https://cimis.water.ca.gov/.

Table 2-2. Annual Weather Averages near the Preserve

Month	Total Precipitation (in)	Avg Max Air Temp (°F)	Avg Min Air Temp (°F)	Avg Air Temp (°F)	Avg Wind Speed (mph)
October	0.73	83.16	50.22	64.68	3.58
November	1.13	75.82	41.83	57.31	3.49
December	1.33	68.78	38.09	51.64	3.30
January	0.92	71.34	37.60	52.96	3.43
February	1.41	70.17	39.38	53.66	3.77
March	1.56	72.62	43.62	57.16	3.70
April	0.81	76.95	46.85	60.81	3.93
May	0.39	77.35	51.58	63.52	4.05
June	0.02	83.86	55.38	68.22	4.34
July	0.04	88.44	59.86	72.85	4.09
August	0.01	91.19	60.12	73.97	3.78
September	0.12	89.37	57.29	71.65	3.46

Source: CIMIS station Escondido SPV #153. Latitude: 33.081050, Longitude: -116.9757

2.5 Hydrology

The Preserve is situated within the Carlsbad Watershed Management Area (WMA), which is comprised of six distinct hydrologic areas—Loma Alta, Buena Vista Creek, Agua Hedionda, Canyon de las Encinas, San Marcos, and Escondido Creek, covering a land area of 211 square miles. The Carlsbad WMA extends from the headwaters above Lake Wohlford in the east to the Pacific Ocean in the west, and borders San Luis Rey and San Dieguito Watersheds to the north and south, respectively (Figure 2-2).

Currently, about 32 percent of the Carlsbad WMA remains undeveloped, with major land uses represented by residential lands (29 percent), agricultural lands (12 percent), freeways and roads (12 percent), commercial and industrial lands (6 percent), and miscellaneous uses (9 percent). Carlsbad WMA is estimated to be home to approximately 565,000 residents. Despite being one of the most populated watersheds in San Diego, Carlsbad WMA's diverse ecosystems are critical habitat for a number of endangered species, including the coastal California gnatcatcher, least Bell's vireo (*Vireo bellii pusillus*), and Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*) (Project Clean Water 2020).

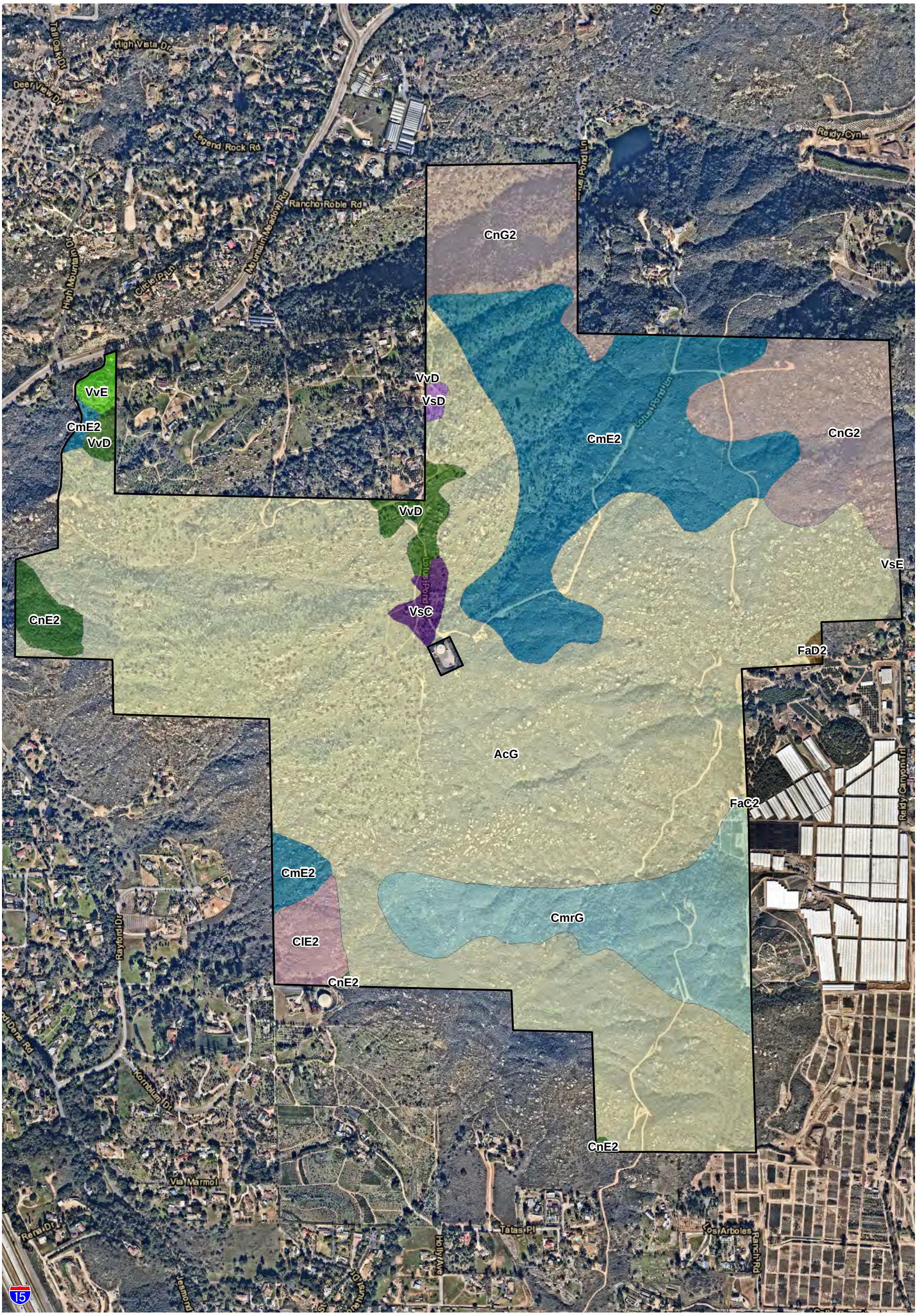
Within the Preserve, there are two blue-line streams. A quarter mile (0.25 mile) of Reidy Canyon, found in the northernmost portion of the Preserve, flows east off the Preserve, and then south and eventually drains into Escondido Creek. Escondido Creek drains into San Elijo Lagoon, which opens to the Pacific Ocean. Approximately 0.45 mile of an unnamed blue-line stream found in the western portion of the Preserve flows west and eventually drains into San Marcos Creek, which fills Lake San Marcos (Figure 2-2).

2.6 Fire History

The Preserve is dominated by chaparral vegetation, which is naturally maintained by infrequent fires. If the natural fire cycle is suppressed, chaparral can become senescent, declining in both health and diversity. If the fire frequency is increased, vegetation could shift toward disturbed grassland habitats or disturbed shrub communities. The fire cycles within the area are affected by actions within and adjacent to the Preserve. Anthropogenic fires have altered the fire cycles throughout San Diego County. There are no historical records of fire greater than 10 acres within the Preserve's parcels (SanGIS 2018; Figure 2-3) in the data, which extends to 1878. The parcels are in the jurisdiction of the California Department of Forestry and Fire Protection.

2.7 Access Roads

The preserve is currently closed to the public. A gated road gives access to the Preserve via Stickley Ranch Road. Within the Preserve, the dirt access road travels northeast toward Reidy Canyon and south toward Jesmond Dene park. No current approved hiking or equestrian trails exist within the Preserve. Approximately 1.3 miles of energy utility road are found within the Preserve's parcels (Figure 2-4).



Legend

- Study Area

Soils

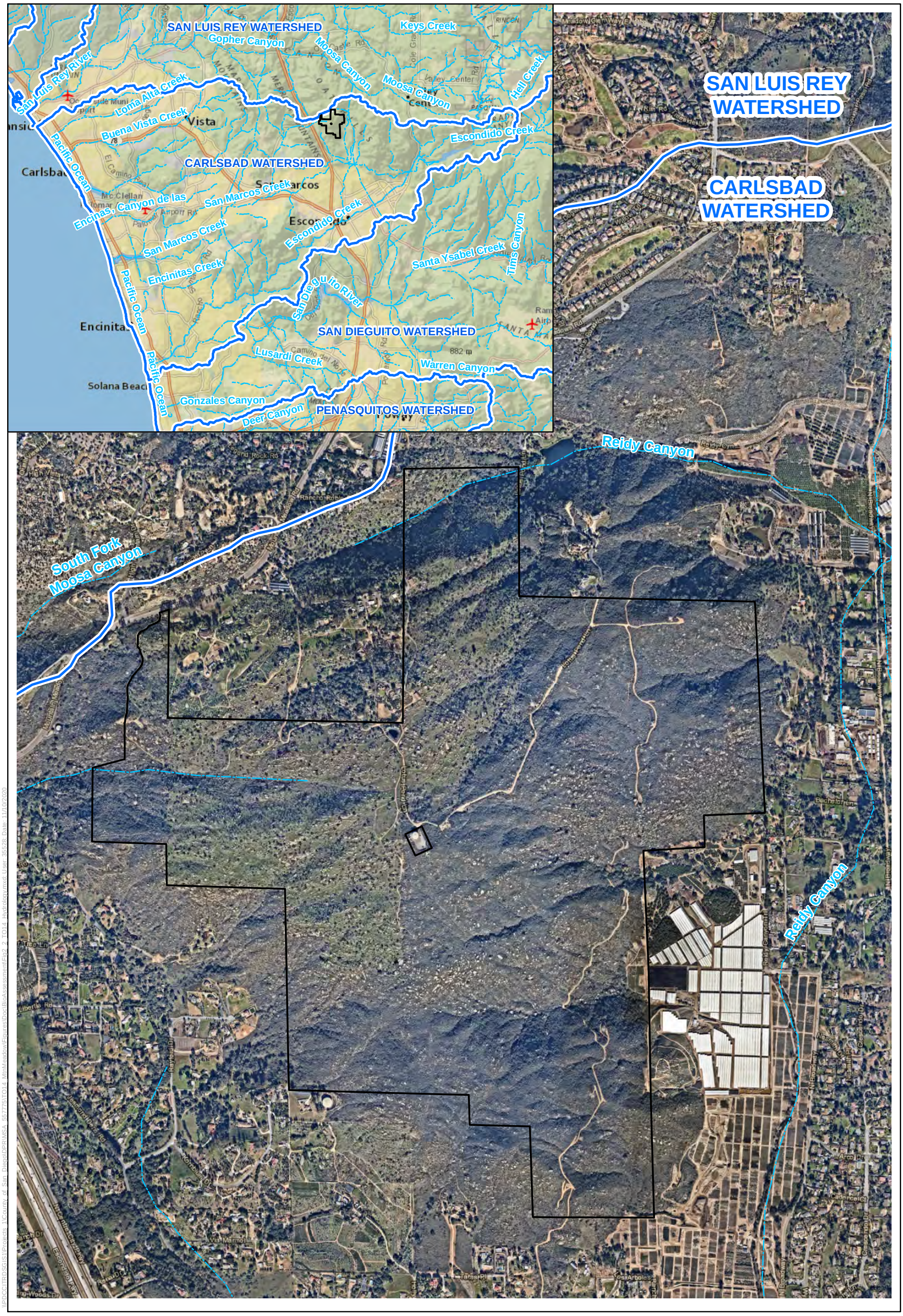
- AcG - Acid igneous rock land
- ClE2 - Cieneba coarse sandy loam
- CmE2 - Cieneba rocky coarse sandy loam
- CmrG - Cieneba very rocky coarse sandy loam
- CnE2 - Cieneba-Fallbrook rocky sandy loams
- CnG2 - Cieneba-Fallbrook rocky sandy loams
- FaC2 - Fallbrook sandy loam
- FaD2 - Fallbrook sandy loam
- VsC - Vista coarse sandy loam
- VsD - Vista coarse sandy loam
- VsE - Vista coarse sandy loam
- VvD - Vista rocky coarse sandy loam
- VvE - Vista rocky coarse sandy loam

Source: ICF; SANDAG; ESRI (2019)

0 500 1,000 Feet

N

Figure 2-1
Soils
Mountain Meadow County Preserve



Legend

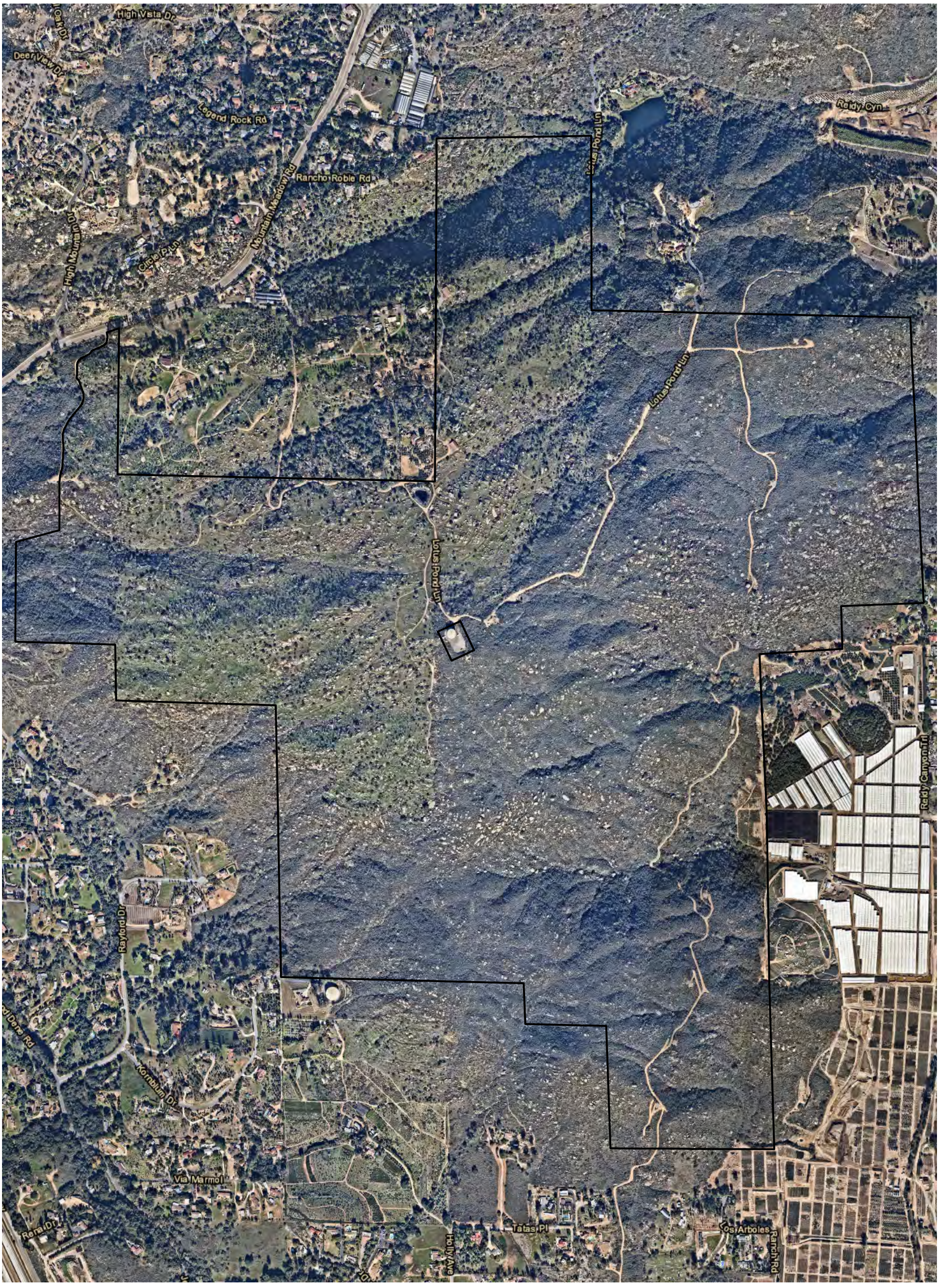
- Study Area
- Stream/River
- Watersheds

Source: ICF; SANDAG; ESRI (2019)

0 1,000 2,000 Feet

N

Figure 2-2
Hydrology
Mountain Meadow County Preserve



Mountain Meadow Preserve

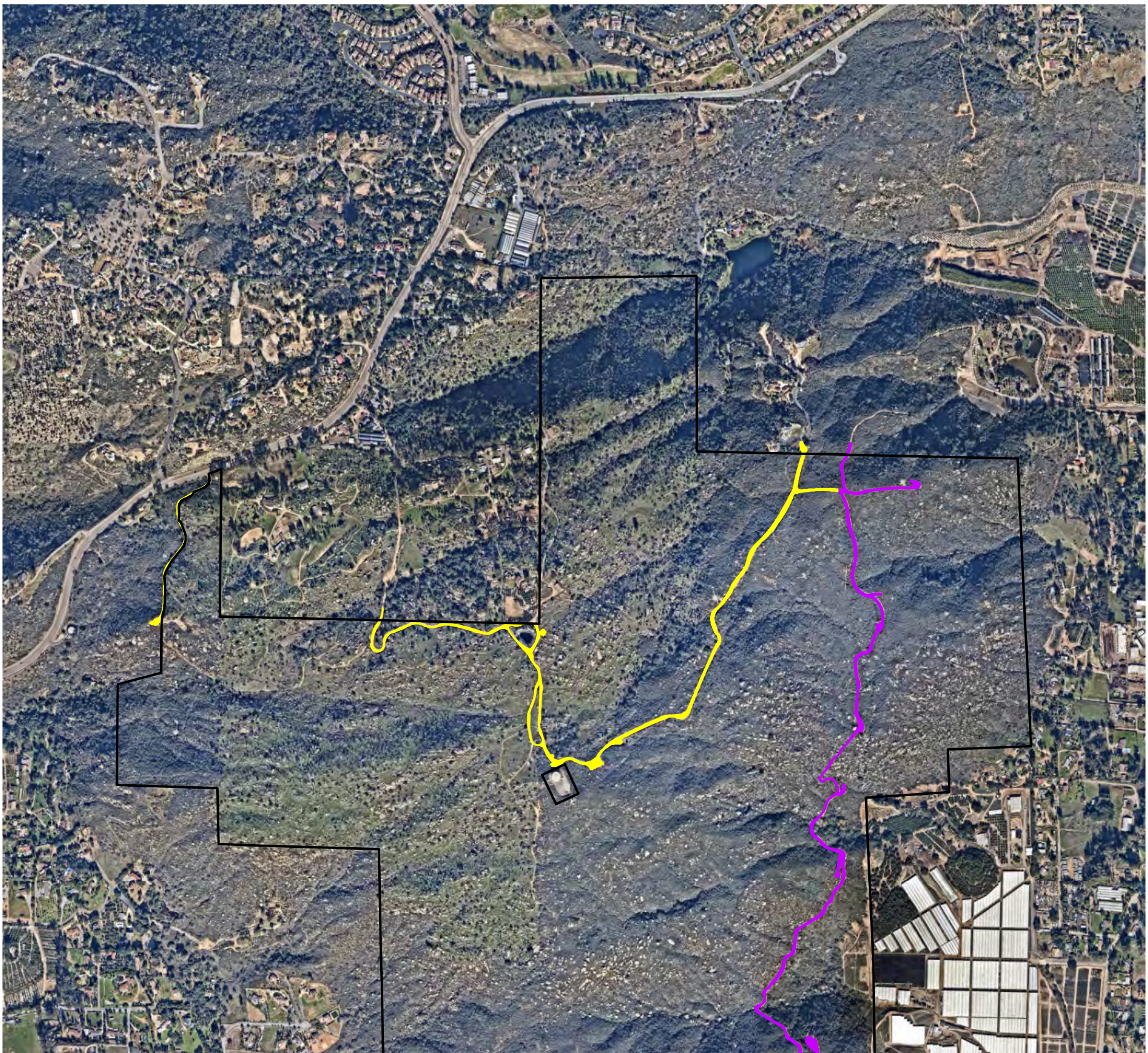
No Burn History Recorded

Source: ICF; SANDAG; ESRI (2019)

0 500 1,000 Feet

N

Figure 2-3
Fire History
Mountain Meadow County Preserve



Study Area
Access Road
SDG&E Authorized Access Road

Source: ICF; SANDAG; ESRI (2019)

0 500 1,000 Feet

N

Figure 2-4
Access Roads
Mountain Meadow County Preserve

Chapter 3
Methods

3.1 Vegetation Communities/Habitat

Vegetation mapping within the Preserve was conducted on March 21 and 22, 2019, by walking meandering transects from selected vantage points that allowed an expansive view of the Preserve (Table 3-1). Vegetation communities were mapped within the Preserve and a 100-foot buffer pursuant to County of San Diego guidelines. Vegetation communities were classified based upon dominant and characteristic plant species, in accordance with the Holland classification system (1986), as modified by Oberbauer et al. (2008). Additionally, vegetation communities were crosswalked to the San Diego Association of Governments (SANDAG) *Vegetation Classification Manual for Western San Diego County* (VCM) (AECOM et al. 2011).

All plants observed within the study area were identified to the species level (including subspecies or variety, as applicable) using *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin et al. 2012) and recorded in a species compendium. Plant common names followed the *Checklist of the Vascular Plants of San Diego County, Fifth Edition* (Rebman and Simpson 2014) if the common names were not provided in Baldwin et al. (2012).

Concurrently with vegetation mapping, biologists conducted a habitat assessment to determine the potential for special-status species to occur onsite and assessed the need for any additional protocol wildlife surveys to be conducted.

Table 3-1. Vegetation Mapping Survey Dates

Survey Date	Survey Type	Surveyor(s)
3/21/2019	Vegetation Mapping Survey	SJ, KD
3/22/2019	Vegetation Mapping Survey	SJ, KD

SJ=Shawn Johnston, KD=Kelsey Dix

3.2 Plants

3.2.1 Sensitive-Status Plant Species

Rare plant surveys were conducted within the Preserve during April and May (Table 3-2). Rare plant survey priority areas included unique features or vegetation communities within the Preserve that have a high potential to support rare plant species. Botanists traversed the open grassland areas, as well as coastal sage scrub, via meandering transects in an effort to identify the locations of special-status species. In areas of dense southern mixed chaparral, access roads were walked and binoculars used to pinpoint potential special-status species that were then ground-truthed. Surveys were conducted in accordance with the *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants* (USFWS 2000), *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018), and *CNPS Botanical Survey Guidelines* (CNPS 2001).

All plant species observed were noted, and plants that could not be identified in the field were identified later using taxonomic keys, including Baldwin et al. (2012). A discussion of sensitive-status plant species with potential to occur is presented in Section 4.2.2, *Special-Status Plant Species with High Potential to Occur*.

Table 3-2. Rare Plant and Invasive Plant Survey Dates

Survey Date	Survey Type	Surveyor(s)
4/9/2019	Rare Plant/Invasive Plant Survey	SJ, KD, CE
4/10/2019	Rare Plant/Invasive Plant Survey	SJ, KD, CE
4/11/2019	Rare Plant/Invasive Plant Survey	SJ, KD, CE, DR
5/23/2019	Rare Plant/Invasive Plant Survey	SJ, KD, CE
5/24/2019	Rare Plant/Invasive Plant Survey	SJ, KD, CE

SJ=Shawn Johnston, KD=Kelsey Dix, CE=Camilla Estes, DR=Dale Ritenour

3.2.2 Invasive Plant Species Mapping

Invasive plant species mapping was conducted concurrently with vegetation mapping and rare plant surveys. Focus was given to the 29 species identified as priorities for near-term management and monitoring by the San Diego Mitigation and Monitoring Program (SDMMP) Working Group in their *Management Priorities for Invasive Nonnative Plants* (Conservation Biology Institute 2012) and those rated by the California Invasive Plant Council (Cal-IPC) (Cal-IPC 2016), listed on the Federal Introduced, Invasive, and Noxious Plant List (USDA Natural Resources Conservation Service 2014), or occurring on the California Noxious Weeds list (California Department of Food and Agriculture 2016). When observed, these species were mapped using global positioning systems (GPS) as polygons or as points for a single or small occurrence. Landscape-level invasive species, such as brome grasses (*Bromus* spp.) or wild oats, were mapped as vegetation communities if larger than 1 acre. If these species were less than 1 acre, but greater than approximately 100 square ft, they were mapped as standalone invasive plant polygons.

3.3 Wildlife

The following sections detail the methods for various wildlife surveys conducted at the Preserve, including surveys for invertebrates, herpetofauna, birds, bats, small mammals, and medium to large mammals.

3.3.1 Invertebrates (Butterflies)

Butterfly surveys were conducted using the Checklist Method (Royer et al. 1998) and consisted of slowly walking meandering transects during the warmest and sunniest periods of the day (late morning to mid-afternoon), when butterfly activity is at its peak (Table 3-3). Areas with potential butterfly nectar sources and host plants were a focus of the surveys. Binoculars were used to aid in butterfly identification. Habitat assessments for sensitive butterfly species were also conducted.

An additional butterfly survey will be conducted in peak QCB flight season (late March or early April) at the Preserve in 2021. Populations of dot-seed plantain will also be mapped during the 2021 butterfly survey.

Table 3-3. Butterfly Survey Dates, Time, Surveyor(s), and Weather Conditions

		Start				End			
Date	Surveyors	Time	Temp (ºF)	Cloud Cover (%)	Wind Speed (MPH)	Time	Temp (ºF)	Cloud Cover (%)	Wind Speed (MPH)
04/18/2019	JD, MD	9:50	74	10	0–1	16:45	77	0	1–7
04/25/2019	JD, MD	9:30	67	0	0–3	16:30	80	0	0–4
05/29/2019	JD, MD	9:45	67	0	1–4	16:45	74	5	0–2
06/04/2019	JD, MD	10:00	65	100	0	17:00	72	10	0–3

JD=John Dicus, MD=Melanie Dicus

3.3.2 Herpetofauna

Surveys for herpetofauna (amphibians and reptiles) within the Preserve were conducted from July 1 to July 5, 2019. The surveys were conducted at five herpetofauna arrays placed throughout the Preserve. Array 1 was placed in the southern central portion of the Preserve in granitic southern mixed-chaparral vegetation community; Array 2 was placed in the north central portion of the Preserve in nonnative woodland vegetation community (former avocado grove) and adjacent to boulders; Array 3 was placed in the west central portion of the Preserve in Diegan coastal sage scrub vegetation community; Array 4 was placed in the northern portion of the Preserve in nonnative woodland vegetation community (former avocado grove) adjacent to an abandoned building; and Array 5 was placed in the northwestern portion of the Preserve in an interface for granitic southern mixed chaparral and Diegan coastal sage scrub vegetation communities. The locations were chosen to sample the range of vegetation communities located within the Preserve, while allowing for access for array silt drift fence installation and removal (Table 3-3; Figure 3-1).The selection of array locations was based upon sampling the various vegetation communities, soils, topography, and access, and avoidance of known special-status resources (including cultural resources).

Each array included approximately 75–100 ft of silt drift fence arranged in a T shape. D&D Wildlife Habitat Restoration installed the silt fence. A funnel box trap was placed at each end of the fence line, for a total of three traps at each array. No pitfall traps were used. Each trap was covered with a lid to shade the interior and a piece of 2-inch plastic pipe with synthetic cotton batting was placed in each trap to shelter incidentally trapped small mammals. Herp array traps were placed on July 1, 2019. Arrays were sampled on four consecutive days, through July 5, 2019. The traps were placed and opened on Monday, sampled Tuesday through Friday, and removed on Friday.

Array traps were checked twice a day, once in the morning and once in the afternoon, to ensure that animals were not in the traps for an extended period of time, thus reducing the potential for mortality. All animals were identified to species, photographed, and released at the point of capture. Biologists did not handle animals. Because the trapping effort's purpose was to generate an inventory of species present within the Preserve and not to assess population sizes or dynamics, individuals were not marked, weighed, or otherwise measured. Data recorded included trap number, time of day, and species (Table 3-4).

All areas immediately surrounding the arrays were actively searched for herpetofauna during monitoring of each array. Searches included noting reptiles while walking to and from the arrays, looking under shrubs, and on adjacent boulders. Furthermore, herpetofauna were noted during other wildlife surveys at the Preserve. All herpetofauna observed during active searches and other wildlife surveys were identified to species and recorded.

Table 3-4. Herpetofauna Array Description

Trap Array Number	Location	Vegetation Community (VCM/Holland)
1	Southern central portion of Preserve	Granitic Southern Mixed Chaparral
2	North-central portion of Preserve near boulders	Nonnative Woodland (former avocado grove)
3	West-central portion of Preserve	Diegan Coastal Sage Scrub
4	Northern portion of Preserve adjacent to abandoned building	Nonnative Woodland (former avocado grove)
5	Northwest portion of Preserve	Granitic Southern Mixed Chaparral/ Diegan Coastal Sage Scrub

Table 3-5. Herpetofauna Trapping Dates, Time, Personnel, and Weather Conditions

Date	Time	Surveyor(s)	Conditions
7/1/2019	1700–1725	WK	84–86°F, Wind 0–5, Clear
7/2/2019	0855–0920	WK, RL	72–73°F, Wind 0–2, Clear
7/2/2019	1700–1725	WK, RL	78–79°F, Wind 0–5, Clear
7/3/2019	0950–1025	WK, RL	72–73°F, Calm, Clear
7/3/2019	1655–1730	WK	78–79°F, Wind 0–3, Clear
7/4/2019	0955–1025	WK	71–74°F, Wind 0–3, Clear
7/4/2019	1705–1730	WK	78–79°F, Wind 2–3, Clear
7/5/2019	0755–0820	WK	64–65°F, Calm, 100% cloud cover
7/5/2019	1625–1700	WK	77–79°F, Calm, Clear

WK=Will Kohn, RL=Ryan Layden

3.3.3 Birds

Birds were surveyed using point counts, both diurnal and nocturnal. Additional details for each survey type are provided below.

3.3.3.1 Diurnal Point Counts

Diurnal bird surveys were conducted through the use of six point-count stations. Stations were placed systematically to maximize exposure within the Preserve and minimize coverage of outside areas and include the following vegetation communities: nonnative woodland, granitic southern mixed chaparral, Diegan coastal sage scrub, and southern riparian forest (Table 3-5; Figure 3-2). Each point count station was monitored once per month during April, June, September, and November for 10 minutes, and all bird species observed or detected were documented (Table 3-6). Adverse weather was avoided for all surveys (e.g., dense fog, mornings with heavy or extended rain, winds more than 10 mph). Prior to the first counts, all stations were mapped in the field, located using GPS, marked for later identification, and photographed. The view from each point was photographed in the four cardinal compass directions.

Incidental encounters of special-status diurnal birds observed during plant surveys, small mammal trapping, herpetofauna trapping, and wildlife camera checks were also recorded.

3.3.3.2 Nocturnal Point Counts

One nocturnal point count survey was conducted at the six point count locations on June 24, 2019, utilizing the same methods for the nocturnal point counts as those for diurnal point counts. Headlamps and moderately powerful flashlights were used to aid identifications. Electronic playback of owl calls was used intermittently in an attempt to elicit responses from birds.

Incidental encounters of special-status nocturnal birds observed during active bat surveys or small mammal trapping were also recorded.

Table 3-6. Avian Point Count Station Description

Point Count Station Number	Location	Vegetation Community (VCM/Holland)
1	West central portion of Preserve	Nonnative Woodland (former avocado grove)
2	South central portion of Preserve	Granitic Southern Mixed Chaparral
3	Northeast-central portion of Preserve	Granitic Southern Mixed Chaparral
4	East central portion of Preserve	Granitic Southern Mixed Chaparral/ Diegan Coastal Sage Scrub
5	North-central portion of Preserve adjacent to human-made pond	Nonnative Woodland (former avocado grove)
6	East portion of Preserve	Southern Riparian Forest

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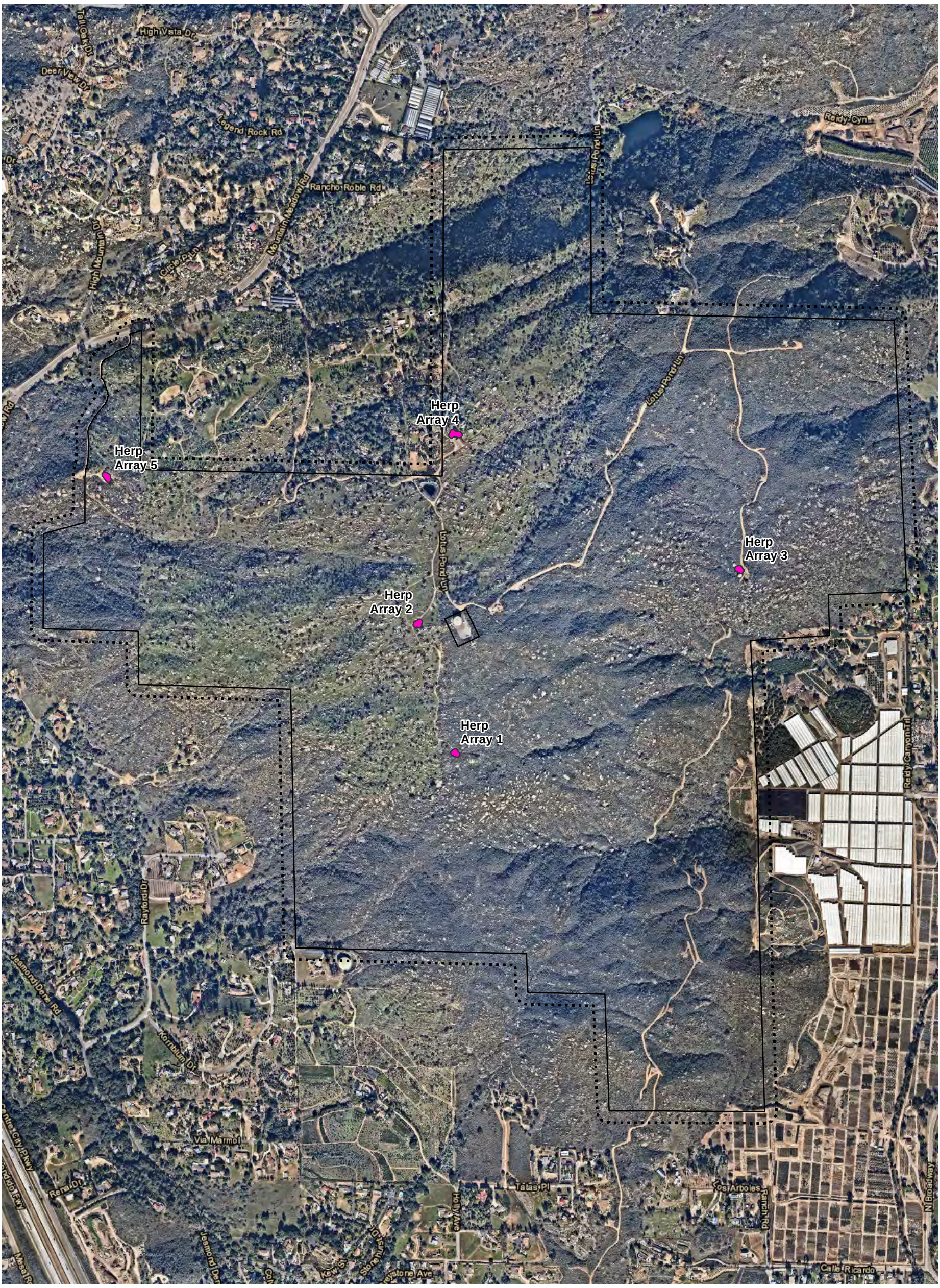

Study Area
Survey Buffer (100 feet)
Herp Arrays

Source: ICF; SANDAG; ESRI (2019)

0 500 1,000 Feet

N

Figure 3-1
Locations of Herpetofauna Arrays
Mountain Meadow County Preserve

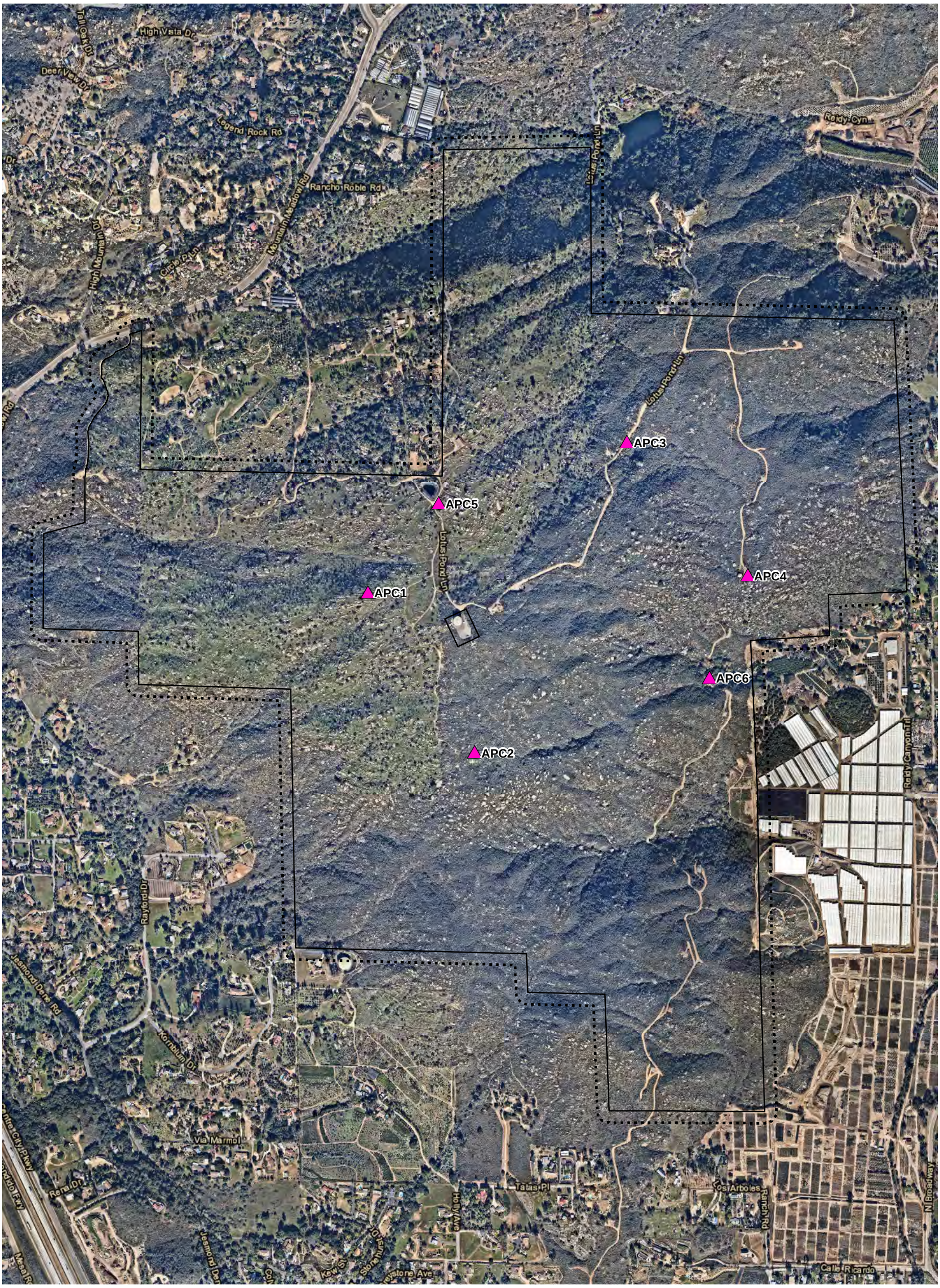

Figure 3-2
Avian Point Count Stations
Mountain Meadow County Preserve

Table 3-7. Avian Point Count Dates and Conditions

Survey Date	Survey Type/Number	Time	Surveyor(s)	Weather Conditions
4/26/2019	Diurnal Point Count #1	0624–0920	RL, CC	51–55°F; 0–100% Cloud Cover; wind 0–3 mph
6/19/2019	Diurnal Point County #2	0620–0851	RL, PR	60–64°F; 100–75% Cloud Cover; wind 0–3 mph
6/24/2019	Nocturnal Point Count #1	2015–2208	RL, CC	64°F; 0% Cloud Cover; wind 0–3 mph
9/11/2019	Diurnal Point Count #3	0766–0912	RL, MG	59–67°F; 0% Cloud Cover; wind 0–3 mph
11/14/2019	Diurnal Point Count #4	0730–0939	RL	53–57°F; 5–100% Cloud Cover; wind 0–3 mph

RL=Ryan Layden, PR=Phil Richards, CC=Courtney Casey, MG=Marcus Goncalves

3.3.4 Mammals

The goal of the mammal surveys was to document which species are currently present within the Preserve or using the Preserve for passage to other areas of the county. Mammal species were documented through general surveys, small mammal trapping, wildlife camera stations, and bat sampling. The goal of small mammal trapping was to document the small mammal species that use the different habitats on the Preserve. The camera stations documented the medium to large mammal species that use the Preserve, and active and passive bat sampling documented use of the Preserve by bat species.

3.3.4.1 Small Mammals

Four nights of trapping were conducted to sample the diversity of small mammals occurring on the Preserve. For the purposes of this effort, "small mammals" include species in the shrew, squirrel, pocket gopher, heteromyid, mouse, rat, and vole families.

Small mammal trapping on the Preserve consisted of 12 trap lines totaling 185 traps. Trap lines were distributed throughout most of the Preserve and ranged from 15 to 20 traps per trap line (Table 3-7; Figure 3-3). Each trap line was set for 4 nights for a total of 740 trap nights. All 12 trap lines were initially set and baited during the afternoon of August 5, 2019. Traps were systematically checked in the early morning between 0555 and 1020 on August 6 through August 9, 2019 (Table 3-8).

Trap line locations were selected based upon three criteria: 1) sampling of different vegetative communities; 2) geographic distribution across the Preserve; 3) and sampling of unique features (e.g., drainage features, rock outcrops, slopes, ridges, etc.). Sequentially numbered 12-inch Sherman live traps were set at dusk, approximately 5 to 10 meters (m) (16 to 33 ft) apart. Traps were set and placed where potential small rodent captures were judged to be most probable. Where rodent sign was not apparent, traps were placed near the base of shrubs. The location of each trap was recorded using a recreational grade GPS receiver (Garmin brand, Wide Area Augmentation System–enabled). Mixed birdseed was used as bait, and a few seeds were trailed out from the mouth of the trap, usually toward a game trail, burrow, or open area. All traps were checked and closed at dawn.

When animals were captured, each animal was transferred from the trap into a cloth bag. The animals were then removed from the bag by their napes and briefly handled to identify to species.

The sex and reproductive condition of each animal was recorded (i.e., testes scrotal, not scrotal; vagina perforate, not perforate). Any mites, ticks, or other parasites were noted. Digital photos were taken of some specimens. Once the data were recorded onto data sheets, each animal was released where captured. This process took a few minutes for each capture. The released animals were observed until they moved to the safety of a burrow or clump of vegetation.

Table 3-8. Small Mammal Trap Line Description

Trap Line	Trap Nights	Number of Traps	Physical Description	Vegetative Community
1	4	15	Located on generally west-facing slope along ecotone between chaparral and the former avocado grove.	Disturbed Coast Live Oak Woodland; Southern Coast Live Oak Forest; Nonnative Woodland (former avocado grove)
2	4	15	Located on generally west-facing slope along ecotone between chaparral and the former avocado grove. Considerable bare ground due to disturbance and natural compacted soils.	Diegan Coastal Sage Scrub; Disturbed Diegan Coastal Sage Scrub; Granitic Southern Mixed Chaparral; Disturbed
3	4	15	Located along drainage feature in generally west-facing valley. Ecotone between riparian woodland and the former avocado grove.	Southern Coast Live Oak Riparian Forest; Nonnative Woodland (former avocado grove); Southern Arroyo Willow Riparian Forest
4	4	15	Located on generally northwest-facing slope within the former avocado grove with scattered coast live oak trees and dense, dry nonnative grassland.	Nonnative Woodland (former avocado grove), Open Coast Live Oak Woodland; Disturbed
5	4	15	Located on upper ridge near the center of the parcel within the former avocado grove with dense, dry nonnative herbaceous cover.	Nonnative Woodland (former avocado grove)
6	4	15	Located on generally southwest-facing slope in ecotone between the former avocado grove and dense chaparral.	Granitic Southern Mixed Chaparral, Nonnative Woodland (former avocado grove)
7	4	15	Located on generally north-facing slope within the former avocado grove and coast live oak woodland with considerable dense, dry nonnative herbaceous cover.	Nonnative Woodland (former avocado grove); Open Coast Live Oak Woodland
8	4	15	Located in generally northeast-facing valley within the former avocado grove with considerable dense, dry nonnative herbaceous cover.	Nonnative Woodland (former avocado grove)
9	4	15	Located in generally northeast-facing valley within ecotone between the former avocado grove and coast live oak woodland.	Granitic Southern Mixed Chaparral; Southern Coast Live Oak Riparian Forest; Nonnative Woodland

Trap Line	Trap Nights	Number of Traps	Physical Description	Vegetative Community
10	4	20	Located on upper ridge near the northeastern corner of the parcel within dense chaparral.	Granitic Southern Mixed Chaparral
11	4	15	Located on generally southeast-facing slope within dense chaparral.	Granitic Southern Mixed Chaparral
12	4	15	Located on generally southeast-facing slope within dense chaparral and Engelmann oak woodland.	Granitic Southern Mixed Chaparral; Open Engelmann Oak Woodland

Table 3-9. Small Mammal Trapping Dates, Time, Personnel, and Weather Conditions

Date	Time	Surveyor(s)	Conditions
08/06/2019	0620–1000	PR, ML	70–88°F, wind 0–1 mph, cloudy to clear
08/07/2019	0555–1020	PR, ML	62–78°F, wind 0–1 mph, cloudy to partly cloudy
08/08/2019	0600–1010	PR, ML	60–86°F, wind 0–1 mph, cloudy to clear
08/09/2019	0600–1015	PR, ML	60–78°F, wind 0–1 mph, cloudy to clear

PR=Phil Richards, ML=Marty Lewis

3.3.4.2 Medium to Large Mammal Camera Tracking

For the purposes of this project, medium and large mammals include all mammals in the didelphid, lagomorph, procyonid, mustelid, felid, canid, and cervid families.

Remote camera stations were used to help document the presence of medium and large mammals within the Preserve. These stations allowed for the detection of species that are rarely encountered because of their nocturnal or crepuscular activity patterns. Within the Preserve, four camera tracking stations were set up at locations that represented various vegetation communities on the Preserve and were judged to have high potential for the movement of medium and large mammals (e.g., along game trails, existing trails, existing roads) (Figure 3-4; Table 3-9).

Each camera station consisted of one Bigfoot 3G infrared digital game camera. The cameras were programmed to record a series of three images every time the motion sensor was triggered. Each image included an information tag that recorded the date, time, temperature, camera ID, and moon phase. Cameras were installed on April 23, 2019 and were checked every couple of months: the secure digital (SD) memory card was downloaded and batteries replaced, if necessary. Cameras were removed on December 3, 2019. Images from the SD cards were downloaded and reviewed. All animals were identified to the species level.

Table 3-10. Camera Sampling Location Description

Camera Station Number	Physical Description	Vegetation Community (VCM/Holland)
1	Near human-made pond in north-central portion of Preserve	Nonnative Grassland/Disturbed
2	Along trail in center of Preserve	Nonnative Grassland/Granitic Southern Mixed Chaparral

Camera Station Number	Physical Description	Vegetation Community (VCM/Holland)
3	Along access road in northeastern portion of Preserve	Granitic Southern Mixed Chaparral
4	Large drainage on eastern side of Preserve	Diegan Coastal Sage Scrub/Southern Coast Live Oak Riparian Forest

3.3.4.3 Bats

A combination of passive and active acoustic surveys were conducted in an effort to detect as many bat species as possible on the Preserve. The Preserve was evaluated for potential roost sites, but no appropriate geological formations, such as rocky outcroppings or caves, were present. Several larger oak and sycamore trees could provide suitable roosting habitat for vegetation-roosting species, and a couple of abandoned buildings could provide roosting habitat for colonial-roosting bat species.

Passive Surveys

Six Anabat Express passive bat detectors were deployed at suitable and representative habitat locations within the Preserve (Table 3-10; Figure 3-5). The detectors were placed to maximize detections of the entire community of bat species expected in the area and were run in the late spring/early summer (May 28–30, 2019) in an attempt to document both resident and migratory bats in the Preserve within a single sampling period. The detectors ran for 3 consecutive nights, automatically turning on 30 minutes before sunset and turning off 30 minutes after sunrise. During each nightly monitoring period, bat calls were automatically recorded to an SD card. The calls were then downloaded and analyzed in the laboratory after the field surveys and identified to the species level in as many cases as possible, by making comparisons to known bat calls.

Table 3-11. Mountain Meadow Preserve Anabat Locations

Passive Anabat Station	Latitude/Longitude (WGS84)	Physical Description	Survey Dates	No. of Calls
Passive Station 1	33.20116/–117.10553	Nonnative Woodland (former avocado grove) adjacent to abandoned building	May 28–30, 2019	201
Passive Station 2	33.20787/–117.10257	Nonnative Woodland (former avocado grove)	May 28–30, 2019	215
Passive Station 3	33.19756/–117.09833	Granitic Southern Mixed Chaparral/Diegan Coastal Sage Scrub	May 28–30, 2019	91
Passive Station 4	33.19452/–117.10683	Nonnative Woodland (former avocado grove)/Granitic Southern Mixed Chaparral–	May 28–30, 2019	2
Passive Station 5	33.19986/–117.10654	Man-made pond in Nonnative Woodland (former avocado grove)/	May 28–30, 2019	600
Passive Station 6	33.20029/–117.11125	Open Coast Live Oak Woodland	May 28–30, 2019	40

Active Surveys

To supplement the passive Anabat surveys, active Anabat surveys were carried out using a Titley Electronics Anabat Walkabout bat detector, allowing for real-time bat-call observation and identification (Table 3-11). The batcalls were recorded and manually identified in the laboratory after the field surveys were conducted. Visual techniques, including use of the unaided eyes and a handheld spotlight, were also used during the active surveys. Unaided ears were used to listen for audible bat echolocation calls, such as those produced by the western mastiff bat (*Eumops perotis*). All the active surveys were conducted for 2 hours, beginning at approximately sunset. One active survey was conducted on July 15, 2019, by starting at a point in the Preserve near the ranch house site. The first hour was spent looking for any bats that might exit the ranch house structure, in the process using the Anabat to record any bats. The second hour was spent near the human-made pond site, where bats were observed with a handheld spotlight and recorded with the Anabat. The second active survey was conducted on July 17, 2019, at a fixed-point location at the end of the San Diego Gas & Electric (SDG&E) powerline road, located on the east side of the Preserve. The third active survey was conducted on August 14, 2019, at a fixed point near the old grove house site near the southern end of the Preserve, where an attempt was made to see if any bats were exiting the old grove house structures.

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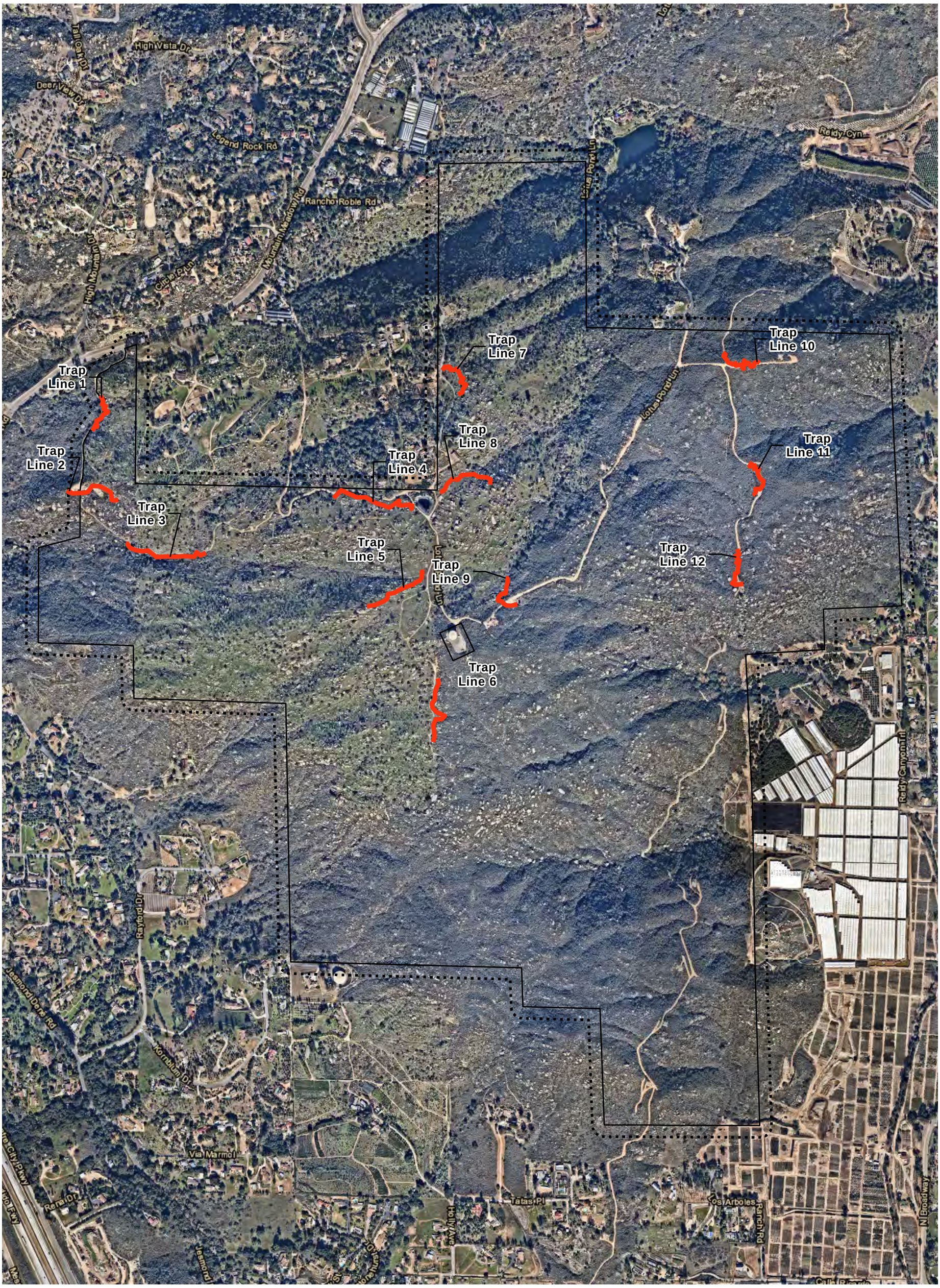


Study Area

Survey Buffer (100 feet)

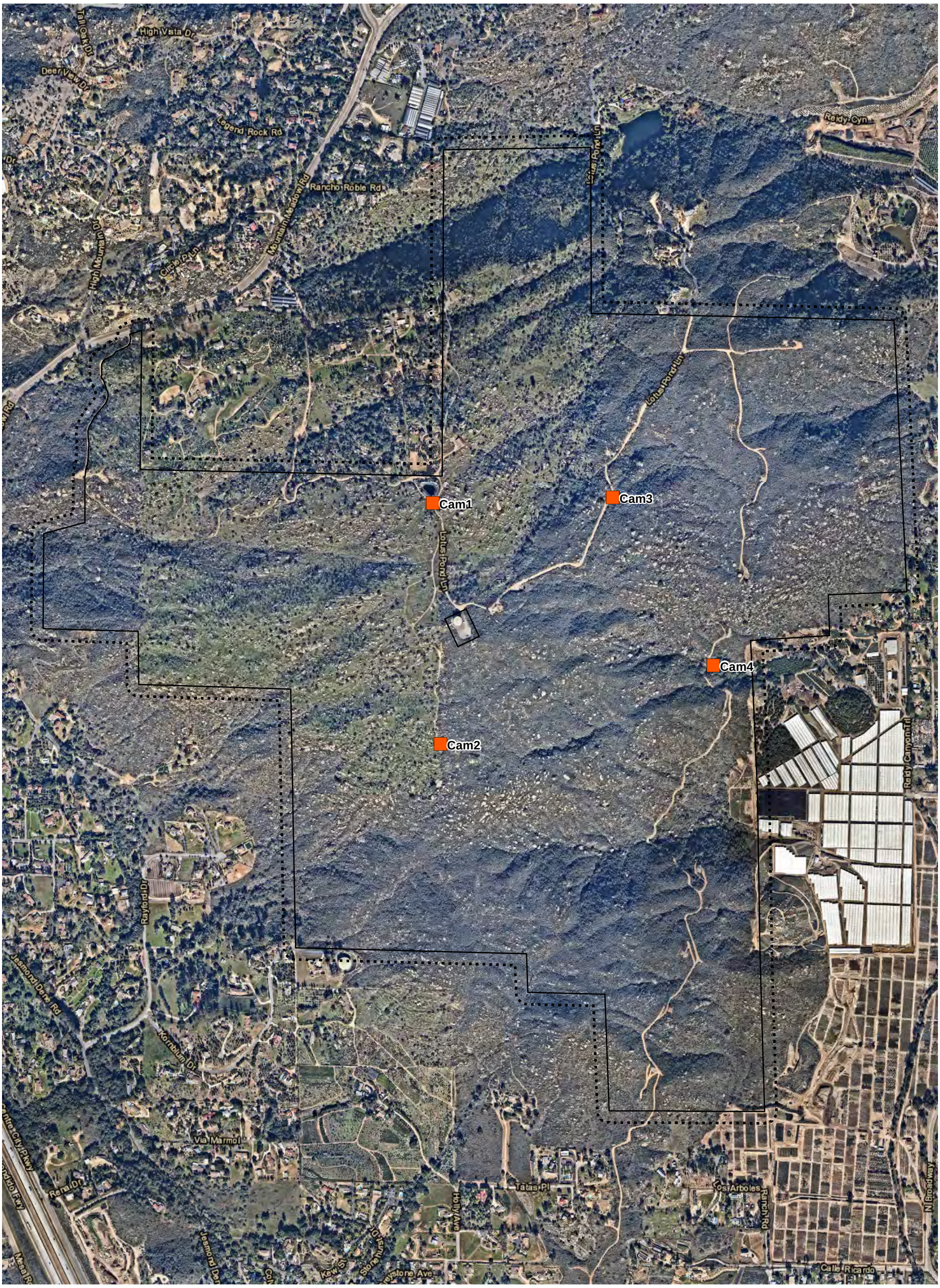
Trap Line Location

Source: ICF; SANDAG; ESRI (2019)

0 500 1,000 Feet

N

Figure 3-3
Small Mammal Trap Line Locations
Mountain Meadow Preserve



Study Area
Survey Buffer (100 feet)
Wildlife Camera

Source: ICF; SANDAG; ESRI (2019)

0 500 1,000 Feet

N

Figure 3-4
Wildlife Camera Tracking Stations
Mountain Meadow County Preserve

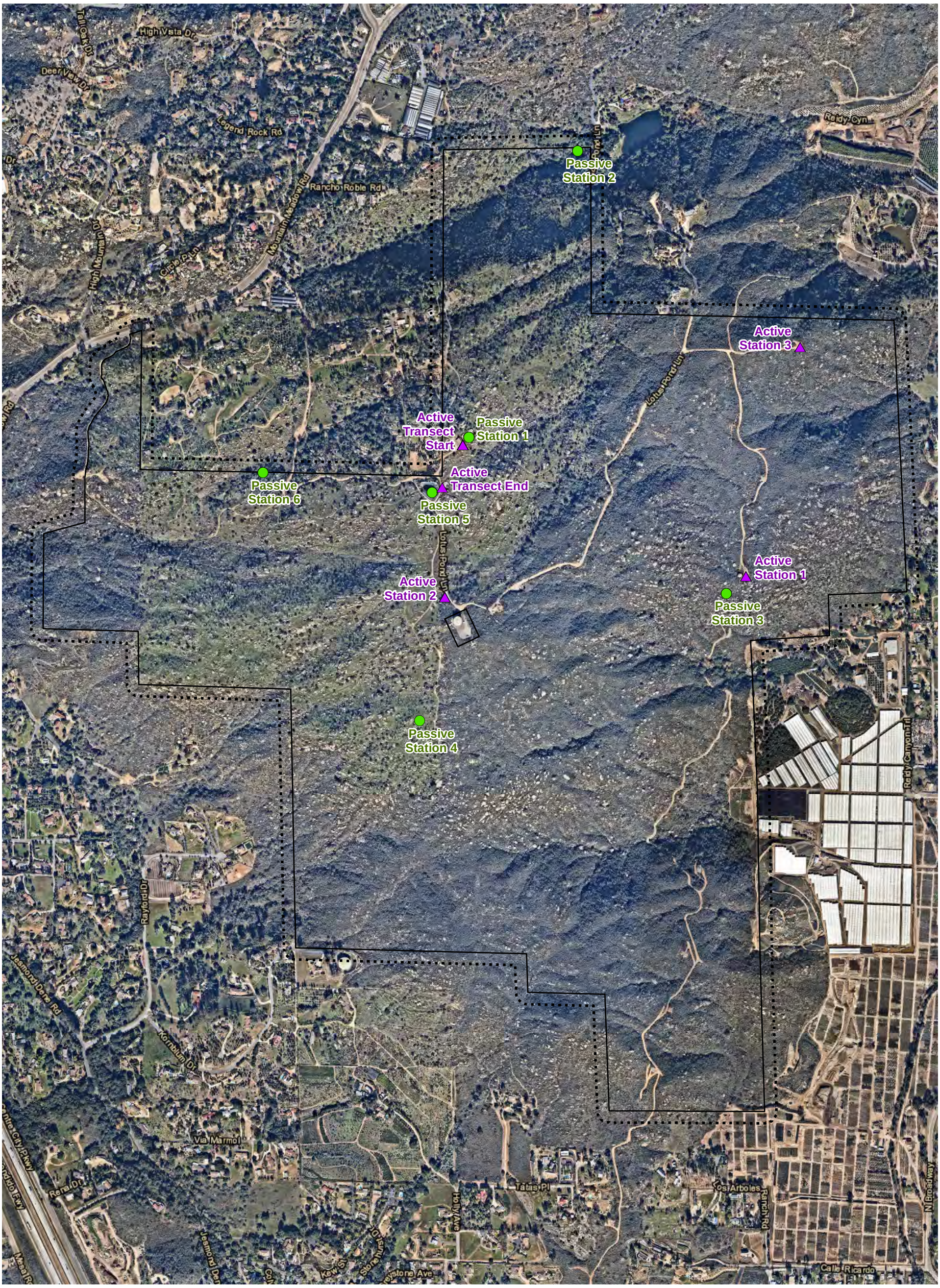


Figure 3-5
Passive and Active Anabat Detector Locations
Mountain Meadow County Preserve

The house structures were inspected approximately 1.5 hours after sunset to see if any bats were night-roosting inside. A fourth active survey was conducted on September 17, 2019, at the east end of the dirt SDG&E-maintained powerline road in the northeastern portion of the Preserve.

Table 3-12. Active Bat Survey Locations

Active Anabat Station	Latitude/Longitude (WGS84)	Physical Description	Survey Dates	No. of Calls
Active Transect Start Actice Transect End	33.20098/-117.10570 33.19986/-117.10654	Nonnative Woodland (former avocado grove) adjacent to abandoned building and man-made pond	July 15, 2019	66
Active Station 1	33.19797/-117.09779	Granitic Southern Mixed Chaparral/Diegan Coastal Sage Scrub	July 17, 2019	6
Active Station 2	33.19742/-117.10616	Nonnative Woodland (former avocado grove)/Granitic Southern Mixed Chaparral–	August 14, 2019	38
Active Station 3	33.20334/-117.09634	Granitic Southern Mixed Chaparral	September 17, 2019	3

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Chapter 4
Results and Discussion

4.1 Vegetation Communities/Habitat

The Preserve supports 13 vegetation communities/land cover types (additionally three communities had areas with a "disturbed" qualifier) (Table 4-1). Vegetation communities were described and assigned numerical codes according to the *Terrestrial Natural Communities of California* (Holland 1986), as modified by Oberbauer et al. (2008). The habitat types/vegetation communities and land cover types observed within the Preserve included Diegan coastal sage scrub (as well as an area with a disturbed distinction), granitic southern mixed chaparral (as well as an area with a disturbed distinction), southern riparian forest, southern coast live oak riparian forest, southern arroyo willow riparian forest, coast live oak woodland (as well as an area with a disturbed distinction), open coast live oak woodland, open Engelmann oak woodland, nonnative woodland, eucalyptus woodland, disturbed habitat, developed lands, and freshwater (Figure 4-1). Southern mixed chaparral was the most common vegetation community on the Preserve, comprising approximately 49 percent of the Preserve lands; the next most common vegetation community was nonnative woodland, comprising approximately 28 percent of the Preserve lands.

Vegetation communities also were crosswalked to SANDAG's VCM (AECOM et al. 2011); those descriptions are included under the Oberbauer descriptions below and shown in Figure 4-2.

Table 4-1. Vegetation Communities Mapped on the Preserve

Holland/ Oberbauer	Vegetation Classification Manual for Western San Diego County		Preserve (acreage)	100-foot Buffer (acreage)
	Alliance Level	Association Level		
Scrub				
32500 Diegan Coastal Sage Scrub	4.6 *Artemisia californica* Alliance	*Artemisia californica*–*Malosma laurina* Association	47.31	3.19
32500 Diegan Coastal Sage Scrub - Disturbed	4.8.1 *Artemisia californica-Salvia mellifera* Alliance	*Artemisia californica-Saliva mellifera* Association	0.13	--
37121 Granitic Southern Mixed Chaparral	4.1.2 *Adenostoma fasciculatum* – *Xylococcus bicolor* Alliance	*Adenostoma fasciculatum*-*Xylococcus bicolor* Association	316.80	23.57
	4.35 *Malosma laurina* Alliance	*Malosma laurina*–*Xylococcus bicolor* Association*	23.21	--
37G00 Coastal Sage/Chaparral Transition	4.1 *Adenostoma fasciculatum* Alliance	*Adenostoma fasciculatum*-(*Eriogonum fasciculatum, Artemisia californica, Salvia mellifera*) Association	53.20	16.30
Woodland				
61300 Southern Riparian Forest	3.4 *Platanus racemosa* Alliance	*Platanus racemosa-Quercus agrifolia* Association	3.82	0.38

Holland/ Oberbauer	Vegetation Classification Manual for Western San Diego County		Preserve (acreage)	100-foot Buffer (acreage)
	Alliance Level	Association Level		
61310 Southern Coast Live Oak Riparian Forest	3.6 *Quercus agrifolia* Alliance	*Quercus agrifolia/Salix lasiolepis* Association	6.39	2.40
	3.4 *Platanus racemosa* Alliance	*Platanus racemosa-Quercus agrifolia* Association	4.68	--
	3.6 *Quercus agrifolia* Alliance	--	--	0.25
61320 Southern Arroyo Willow Riparian Forest	3.10 *Salix lasiolepis* Alliance	*Salix lasiolepis* Association	0.34	--
71160 Coast Live Oak Woodland	*3.6 Quercus agrifolia* Alliance	*Quercus agrifolia/Quercus* (*berberidifolia, xacutidens*) Association	0.39	--
71160 Coast Live Oak Woodland - Disturbed	*3.6 Quercus agrifolia* Alliance	--	3.18	0.46
71161 Open Coast Live Oak Woodland	3.6 *Quercus agrifolia* Alliance	--	20.31	1.75
	3.6 *Quercus agrifolia* Alliance	*Quercus agrifolia–Malosma laurina* Association*	1.93	1.15
71182 Open Engelmann Oak Woodland	3.7 *Quercus engelmannii* Alliance	--	0.77	0.15
79000 Nonnative Woodland	*Persea americana* Alliance*	--	192.68	12.62
79100 Eucalyptus Woodland	3.2 *Eucalyptus* (*globulus, camaldulensis*) Semi-Natural Stands	--	0.22	0.55
Other				
11300 Disturbed	Disturbed Habitat**	--	6.68	9.88
	Bare Ground**	--	8.99	0.66
12000 Developed	Developed**	--	1.96	2.39
64140 Freshwater	Freshwater**	--	0.02	--
Total			**693.01**	**75.70**

* Alliances or associations not defined by the VCM of Western San Diego County, but deemed most accurate for the vegetation surveyed

**VCM does not contain categories for non-vegetated land cover types

4.6 *Artemisia californica* Alliance (*Artemisia californica – Malosma laurina* Association); 32500 Diegan Coastal Sage Scrub

Artemisia californica Alliance is described as a coastal sage scrub group dominated by California sagebrush. This community corresponds to Diegan coastal sage scrub**,** a scrub community consisting of low, soft-leaved woody subshrubs, with few over 1 m high (Holland 1986). This community

occurs throughout the southern portion of the Preserve. Within the Preserve, these areas are co-dominated by laurel sumac (*Malosma laurina*). Other species that occur within this community are chaparral yucca (*Hesperoyucca whipplei*), bush monkeyflower (*Mimulus aurantiacus*), and lemonade berry (*Rhus integrifolia*).

4.8.1 *Artemisia californica – Salvia mellifera* Association; 32500 Diegan Coastal Sage Scrub - Disturbed

Artemisia californica – Salvia mellifera Association is defined as areas with codominance of California sagebrush and black sage. This corresponds to Diegan coastal sage scrub. This community occurs in an area within the Diegan coastal sage scrub that is more disturbed with nonnative grasses, such as fountain grass (*Pennisetum setaceum*), and tree tobacco (*Nicotiana glauca*). This vegetation community is dominated by California sagebrush and black sage, which is classified by VCM as *Artemisia californica* Alliance and *Artemisia californica – Salvia mellifera* Association. It occurs in one small pocket between coastal sage scrub and nonnative woodland habitats in the western portion of the Preserve.

4.2.1 *Adenostoma fasciculatum – Xylococcus bicolor* Association; 37121 Granitic Southern Mixed Chaparral

Adenostoma fasciculatum – Xylococcus bicolor Association is dominated by chamise and mission manzanita. This corresponds to granitic southern mixed chaparral, a community which typically consists of broad-leaved sclerophyllous shrubs approximately 1.5 to 3 m tall. Within the Preserve, this community is mainly dominated by chamise and mission manzanita. Other species observed in this community include woollyleaf ceanothus (*Ceanothus tomentosus*), sawtooth goldenbush (*Hazardia squarrosa*), bush monkeyflower, and wild cucumber (*Marah macrocarpa*). This is the dominant vegetation community, occurring throughout the entire Preserve.

4.35 *Malosma laurina* Alliance *(Xylococcus bicolor – Malosma laurina* Association); 37121 Granitic Southern Mixed Chaparral

Malosma laurina Alliance is defined as a community dominated or co-dominated by laurel sumac. One section of granitic southern mixed chaparral in the middle of the Preserve was dominated by mission manzanita and laurel sumac, which does not correspond directly to a VCM community. Therefore, this community was descried as Malosma laurina Alliance (*Xylococcus bicolor – Malosma laurina* Association). The understory is poorly developed with very few sawtooth goldenbush and wild cucumber individuals interspersed. This community occurs near the center of the Preserve.

4.1.2 *Adenostoma fasciculatum* – (*Eriogonum fasciculatum, Artemisia californica, Salvia mellifera*) Association; 37G00 Coastal Sage/Chaparral Transition

Adenostoma fasciculatum – (Eriogonum fasciculatum, Artemisia californica, Salvia mellifera) Association is defined as areas dominated by chamise with other shrubs occurring as subdominants, with these species forming a continuous canopy cover. This community corresponds to coastal sage/chaparral transition (also known as coastal sage/chaparral scrub), which is a community with a mix of sclerophyllous, woody chaparral species and drought-deciduous sage scrub species. Near the southern boundary of the Preserve, the dominant species in this community are chamise, California sagebrush, and black sage (*Salvia mellifera*).

3.4.3 *Platanus racemosa – Quercus agrifolia* Assocation; 61300 Southern Riparian Forest

Platanus racemosa – Quercus agrifolia Association is defined as an area dominated by western sycamore (*Platanus racemosa*). This corresponds to southern riparian forest, which Oberbauer et al (2008) describes as dense riparian forests along streams that do not have distinctive species to further distinguish the classification. Within the Preserve, this vegetation community is dominated by western sycamore and Southern California black walnut (*Juglans californica* var*. californica*). Other species observed in this community include coast live oak (*Quercus agrifolia*) blue elderberry (*Sambucus nigra* ssp. *caerulea*), toyon (*Heteromeles arbutifolia*), poison oak (*Toxicodendron diversilobum*), and lemonade berry. Southern riparian forest occurs along two drainages near the eastern boundary in the southern part of the Preserve.

3.6.3 *Quercus agrifolia/Salix lasiolepis* Association; 61310 Southern Coast Live Oak Riparian Forest

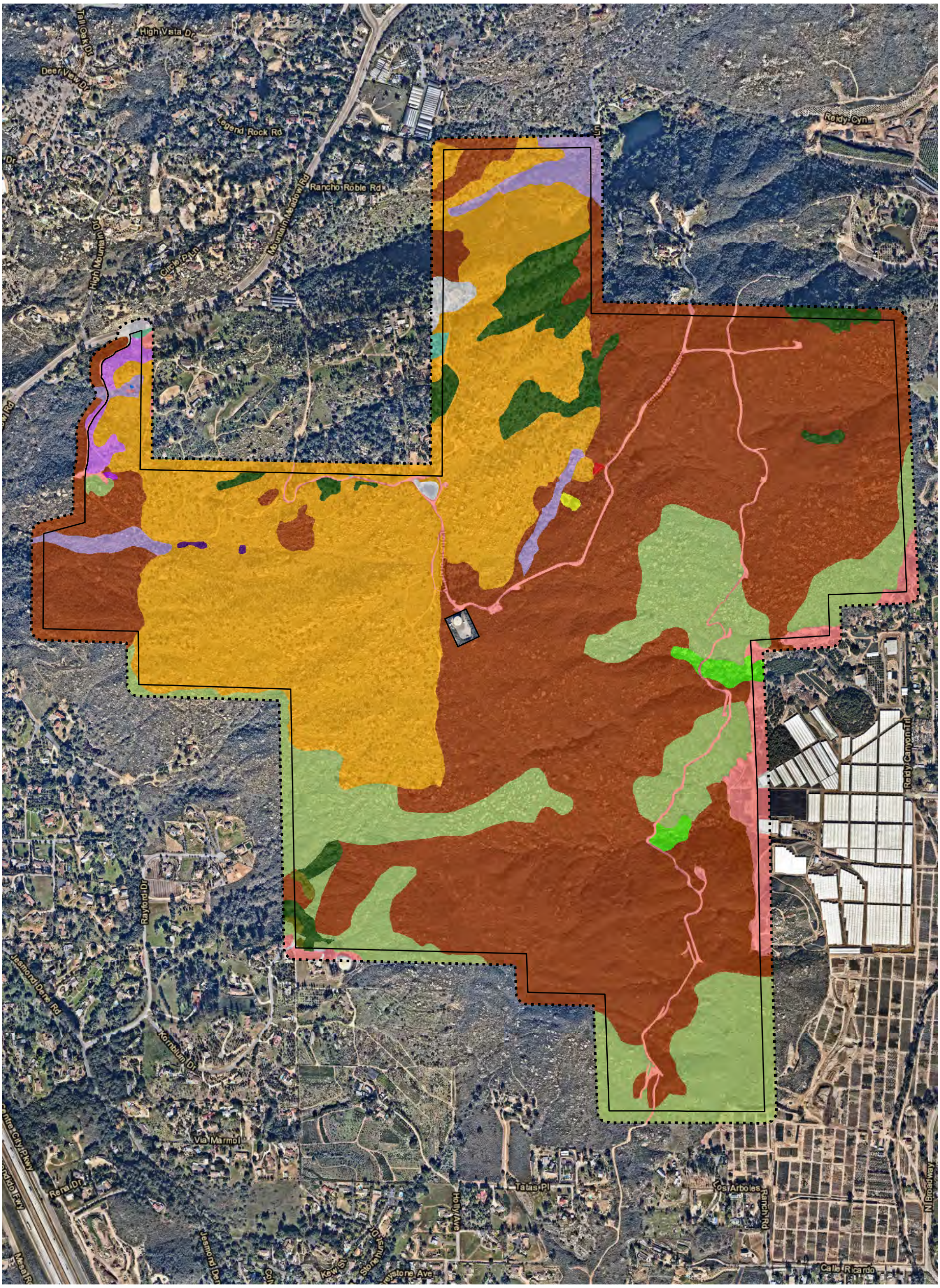
Quercus agrifolia/Salix lasiolepis Association is defined as an area with open to closed tree canopy of coast live oak, with arroyo willow dominating the shrub canopy. This corresponds to **s**outhern coast live oak riparian forest, a dense, closed canopy riparian forest dominated by evergreen trees in bottomlands and outer floodplains along larger streams on fine-grained, rich alluvium soils. Other species that were observed in this habitat include mule fat (*Baccharis salicifolia*), poison oak, toyon, and coyote bush (*Baccharis pilularis*). This community is present in three drainages on the Preserve.

3.4.3 *Platanus racemosa – Quercus agrifolia* Association; 61310 Southern Coast Live Oak Riparian Forest

Platanus racemosa – Quercus agrifolia Association includes areas dominated by western sycamore and coast list oak. This corresponds to southern coast live oak riparian forest. Within the Preserve, this community includes areas where coast live oak is codominant with western sycamore. This community occurs in one area near the northern boundary.

3.6 *Quercus agrifolia Alliance;* 61310 Southern Coast Live Oak Riparian Forest

This community includes a riparian area dominated by coast live oak. This corresponds to southern coast live oak riparian forest.



Study Area
Survey Buffer (100 feet)

Vegetation (March 2019)

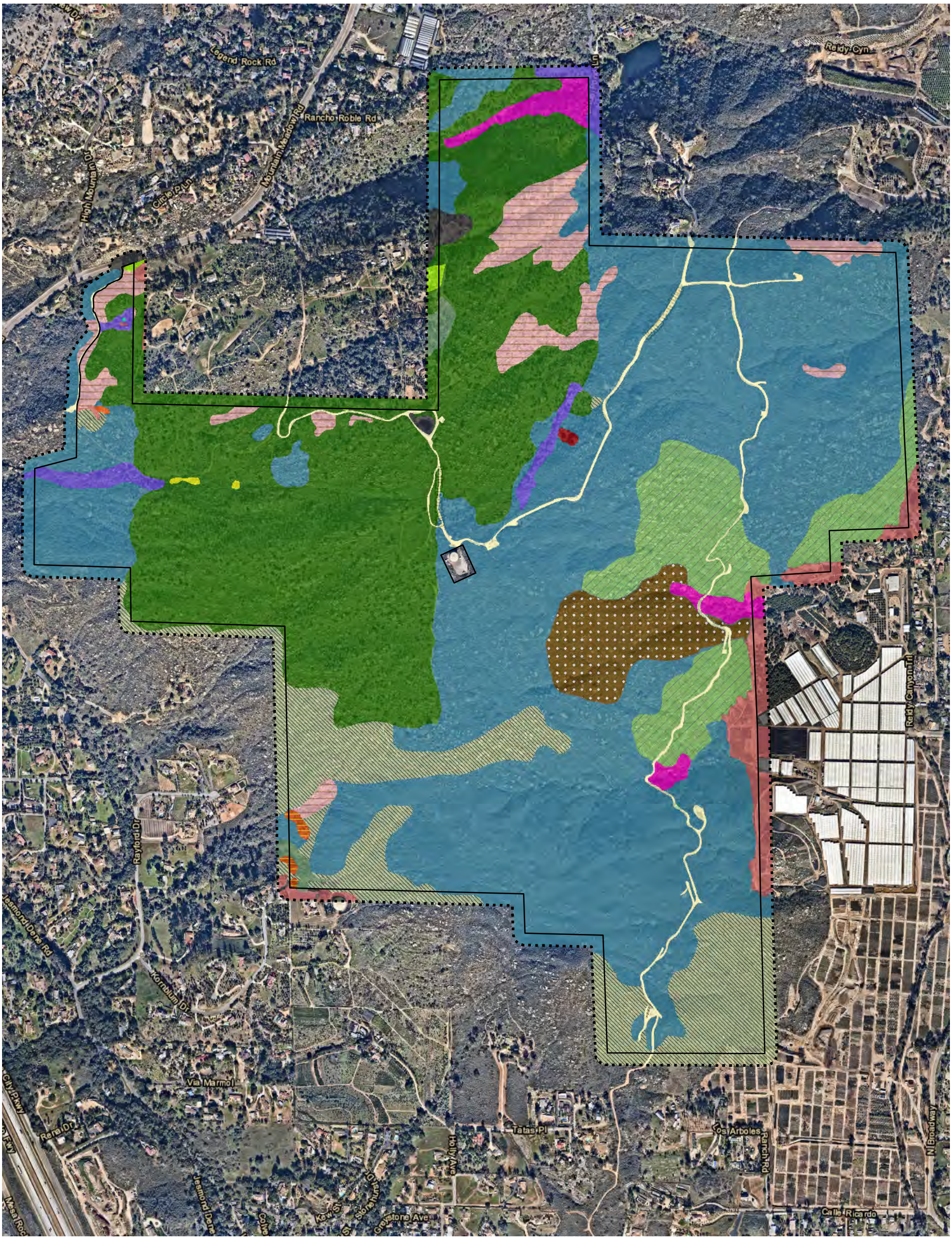
- Coast Live Oak Woodland (71160)
- Disturbed Coast Live Oak Woodland (71160)
- Developed (12000)
- Diegan Coastal Sage Scrub (32500)
- Disturbed Diegan Coastal Sage Scrub (32500)
- Disturbed (11300)
- Eucalyptus Woodland (79100)
- Freshwater (64140)
- Granitic Southern Mixed Chaparral (37121)
- Disturbed Granitic Southern Mixed Chaparral (37121)
- Non-Native Woodland (79000)
- Open Coast Live Oak Woodland (71161)
- Open Engelmann Oak Woodland (71182)
- Southern Arroyo Willow Riparian Forest (61320)
- Southern Coast Live Oak Riparian Forest (61310)
- Southern Riparian Forest (61300)

Source: ICF; SANDAG; ESRI (2019)

0 500 1,000 Feet

N

Figure 4-1
Holland Vegetation Mapping
Mountain Meadow County Preserve



Study Area

Survey Buffer (100 feet)

Vegetation (March 2019)

- Adenostoma fasciculatum-(Eriogonum fasciculatum, Artemisia californica, Salvia mellifera) Association
- Adenostoma fasciculatum-Xylococcus bicolor Association
- Artemisia californica Alliance (Artemisia californica - Malosma laurina Association)
- Artemisia californica-Salvia mellifera Association
- Bare Ground
- Developed
- Disturbed Habitat
- Eucalyptus (globulus, camaldulensis) Semi-Natural Stands
- Freshwater
- Persea Americana Semi-Natural Stand Type
- Platanus racemosa-Quercus agrifolia Association
- Quercus agrifolia - Quercus (berberidifolia, xacutidens) Association
- Quercus agrifolia - Salix lasiolepis Association
- Quercus agrifolia Alliance
- Quercus agrifolia Alliance (Quercus agrifolia - Malosma laurina Association)
- Quercus engelmannii Alliance
- Salix lasiolepis Association
- Xylococcus bicolor Alliance (Xylococcus bicolor - Malosma laurina Association)

Source: ICF; SANDAG; ESRI (2019)

0 500 1,000 Feet

N

Figure 4-2
VCM Vegetation Mapping
Mountain Meadow County Preserve

3.10.1 *Salix lasiolepis* Association; 61320 Southern Arroyo Willow Riparian Forest

Salix lasiolepis Association includes areas with arroyo willow as the dominant species the shrub layer. This community may also include presence of other riparian shrubs and few emergent riparian trees. This corresponds to southern arroyo willow riparian forest, a closed-canopy, winter-deciduous riparian forest dominated by moderately tall broadleafed trees and dominated by arroyo willows in frequently overflowed lands along rivers and streams. On the Preserve, vegetation community was dominated by arroyo willow Southern arroyo willow riparian forest occurs in a few pockets along the drainage in the middle of the nonnative woodland habitat in the western portion of the Preserve.

3.6.2 *Quercus agrifolia/Quercus* (*berberidifolia, xacutidens*) Association; 71160 Coast Live Oak Woodland

Quercus agrifolia/Quercus (*berberidifolia, xacutidens*) Association includes areas with coast live oak as a dominant with scrub oaks (*Quercus* spp.) present in the shrub canopy. This community generally occurs on lower, mesic slopes adjacent to chaparral stands. This corresponds to coast live oak woodland, a woodland dominated by coast live oak, an evergreen oak that reaches 10–25 m in height that typically occurs on north-facing slopes and shaded ravines. Coast live oak woodland typically has a poorly developed shrub layer and may include toyon and laurel sumac or be dominated by blue elderberry, and the herbaceous layer is continuous and dominated by nonnative grasses, including bromes (*Bromus* spp.). Coast live oak woodland on the Preserve was dominated by coast live oak with scattered scrub oak individuals (*Quercus berberidifolia*). It occurs in the middle of the Preserve, near a drainage of southern coast live oak riparian forest.

3.6 *Quercus agrifolia* Alliance; 71160 Coast Live Oak Woodland - Disturbed

This disturbed community was mapped in an area within the coast live oak woodland that is slightly more disturbed, with open spaces between oaks and nonnative pepper trees (*Schinus molle*), tobacco tree, fountain grass, and fan palm (*Washingtonia robusta*). Coast live oak woodland – disturbed occurs along the western boundary, near Mountain Meadow Road.

3.6 *Quercus agrifolia* Alliance, *Quercus agrifolia – Malosma laurina* Association; 71161 Open Coast Live Oak Woodland

Quercus agrifolia/Malosma laurina Association typically occurs in drier, upland settings adjacent to stands of coastal sage scrub. This corresponds to open coast live oak woodland, which is similar to coast live oak woodland (71160) but has a canopy cover of less than 50 percent. Coast live oak occurs in a limited extent and is often a codominant with other riparian, chaparral, or woodland species. This habitat typically occurs on the margins of denser woodlands along drainages at the desert margin of north-facing slopes or mixed with Engelmann oaks (*Quercus engelmannii*) (Oberbauer et al. 2008). Open coast live oak woodland occurs near the southwestern corner and throughout the northern portion of the Preserve. This vegetation community is dominated by coast live oak, and in one area near the southeast corner, laurel sumac was a co-dominant. Other understory species include nonnative grasses such as rip-gut brome and smilo grass (*Stipa miliacea*).

3.7 *Quercus engelmannii* Alliance; 71182 Open Engelmann Oak Woodland

Quercus engelmannii Alliance is defined as areas dominated by Engelmann oak; with other trees possibly present as associates. This corresponds to open Engelmann oak woodland, which is evergreen woodland dominated by Engelmann oaks, typically with an understory of annual grasses. The community is found on fine-textured soils in valley bottoms and areas with gentle slopes. It surrounds grassland meadows and often occupies the ecotone between the grassland and the surrounding shrublands. Engelmann oak, a California Rare Plant Rank (CRPR) List 4.2 and County Group D species, is the dominant plant species... Open Engelmann oak woodland occurs near the southwestern corner of the Preserve, near Kornblum Drive.

Persea americana Alliance; 79000 Nonnative Woodland

Nonnative woodland is composed of exotic trees, which are typically planted intentionally, but not maintained or artificially irrigated. In this case, the former avocado grove, dominated by avocado (*Persea americana*), is classified as nonnative woodland as it is not actively being used as agriculture. Although this distinction does not exist in the VCM, it is the most accurate description of the habitat dominance and was labeled as *Persea americana* Alliance. Nonnative woodland occurs on the northwestern quarter of the Preserve.

3.2 *Eucalyptus* (*globulus, camaldulensis*) Semi-Natural Stands; 79100 Eucalyptus Woodland

Eucalyptus (*globulus, camaldulensis*) semi-natural stands is defined as areas dominated by *Eucalyptus* species. This corresponds to eucalyptus woodland, a nonnative woodland habitat that can consist of single trees with little to no shrubby understory to scattered trees with well-developed shrubby understory. Due to large amounts of leaf and bark litter produced by eucalyptus species, it can hinder the ability of other species growing. Within the Preserve, this community was mapped in areas dominated by eucalyptus trees (*Eucalyptus* spp.) It occurs in a small area on the northern part of the Preserve and along Mountain Meadow Road.

11300 Disturbed Habitat, Bare Ground

Disturbed habitat supports either no vegetation or a cover of nonnative weedy species adapted to a regime of frequent human disturbance. Many of the characteristic species of this habitat are also indicator species of annual grasslands, although disturbed areas tend to be dominated more by forbs than grasses. Characteristic species may include tumbleweed (*Salsola tragus*), tocalote (*Centaurea melitensis*), Italian thistle (*Carduus pycnocephalus*), and bristly ox-tongue (*Helminthotheca echioides*). This vegetation community occurs along the eastern boundary of the Preserve, due to unapproved grading by the neighboring nursery and habitat conversion from proximity to residential development along the eastern and southern Preserve boundaries. All unpaved roads are considered disturbed habitat.

12000 Developed/Urban Lands

Developed/urban lands includes areas that have been constructed upon or physically altered to an extent that native vegetation is no longer supported. Developed land may include permanent or semi-permanent structures, pavement or hardscape, and landscaped areas that may require irrigation. This vegetation community occurs in the northern part of the Preserve and includes the human-made agricultural pond and residential development.

64140 Freshwater

Freshwater is considered a year-round body of fresh water (e.g., lake, stream, pond, or river). The area is usually covered by water and has less than 10 percent vegetation cover. Freshwater is found in the northwest portion of the Preserve, where natural ponding was observed within the drainage near Mountain Meadow Road.

4.2 Plants

The following sections detail the results of the special-status plant and invasive plant species surveys. A full list of all plants observed can be found in Appendix A, *Observed Species List—Plants*.

4.2.1 Special-Status Plant Species Observed

No federally listed endangered or threatened plant species were observed within the survey area. However, three special-status plant species were observed within the Preserve: summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*), Southern California black walnut, and Engelmann oak (Figure 4-3).

4.2.1.1 Summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*) - CRPR 1B.2; County List A

Summer holly is a perennial evergreen shrub found in chaparral and cismontane woodland habitats between 30 and 790 m in elevation. This shrub can grow to about 5 m and has a cascading raceme inflorescence. Four individuals were observed within the southern mixed chaparral habitat in the center of the Preserve. Two individual plants were mapped at one location along the Lotus Pond Lane.

4.2.1.2 Southern California black walnut (*Juglans californica* var. *californica*) - CRPR 4.2; County List D

Southern California black walnut is a perennial deciduous tree associated with chaparral, cismontane woodland, coastal scrub, and riparian woodland at elevations ranging from 50 to 900 m. It is restricted to California south of the peninsular range. The tree is distinct, having 11–21 leaflets, rounded to acute leaflet tips, and glabrous abaxial leaf surfaces. One individual was found along the drainage in the northeastern section of the Preserve, near Mountain Meadow Road.

4.2.1.3 Engelmann oak (*Quercus engelmannii*) - CRPR 4.2; County List D; Proposed Covered Species under Draft North County MSCP

Engelmann oak is commonly found in the foothills between 50 and 1,300 m in elevation. Growing to 12 m tall, this tree has flat, waxy, blue-green leaves and tolerates drier conditions better than coast live oak. Larger individuals are sometimes found growing in savannah grasslands, but the species may also occur as a shrubby element within the chaparral. Engelmann oak is found in the southwestern corner of the Preserve, near Kornblum Drive. Sixty-one individual plants were mapped at this location.

4.2.2 Special-Status Plant Species with High Potential to Occur

No special-status plants from the database search have high potential to occur within the Preserve. A full list of special-status plants and their potential to occur at the Preserve can be found in Appendix B, *Potential Sensitive Species Table—Plants*.

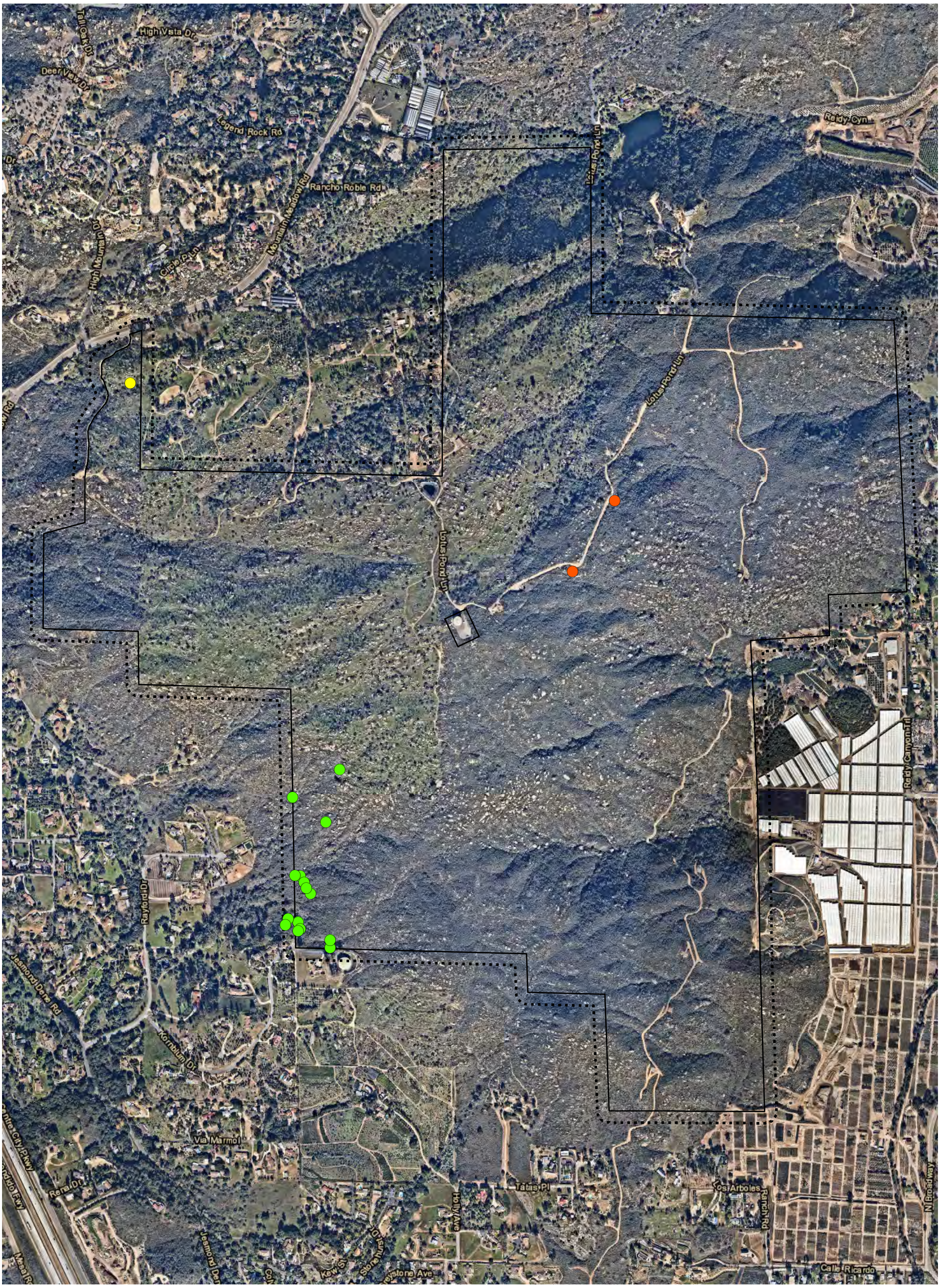


Figure 4-3
Special-Status Plant Species Observed
Mountain Meadow County Preserve

4.2.3 Invasive Plants

A total of 41 nonnative plant species were observed at the Preserve, 21 rated as invasive by Cal-IPC. Fourteen plant species rated as invasive by Cal-IPC were mapped within the Preserve during invasive plant focused surveys. The invasive species are concentrated within the nonnative woodland - a former avocado orchard. The understory of this fallow orchard has turned into a nonnative grassland dominated by rip-gut brome, red brome (*Bromus madritensis* ssp*. rubens*), and smilo grass. Other invasive species in this habitat include tree tobacco, castor bean (*Ricinus communis*), eucalyptus, Mexican fan palms, and edible fig (*Ficus carica*). Pepper tree occurs in planted areas. Tamarisk (*Tamarix ramosissima*) individuals were scattered throughout the Preserve along drainages, as well as poison hemlock (*Conium maculatum*) and pampas grass (*Cortaderia selloana*). Crimson fountain grass and black mustard (*Brassica nigra*) occur along sides of trails and roads (Figure 4-4). Ten of the 14 mapped plant species received a Cal-IPC rating of moderate or high, and pampas grass is also a target invasive plant species prioritized by the SDMMP (Level 3) in its *Management Priorities for Invasive Non-native Plants*, as described in the sections below.

During vegetation mapping surveys, ICF surveyors incidentally detected an additional seven invasive plant species: Cal-IPC rated limited; blessed milkthistle (*Silybum marianum*), wild radish (*Raphanus sativus*), horehound (*Marrubium vulgare*), Mediterranean schismus (*Schismus barbatus*) and Andean needle grass (*Stipa manicata*), and Cal-IPC rated moderate; grass poly (*Lythrum hyssopifolium*) and shortpod mustard (*Hirschfeldia incana*). Recommended treatment methods for species rated as high or moderate by Cal-IPC as well as blessed milkthistle which is a management priority Level 4 for SDMMP is provided in Section 5.4, *Nonnative Invasive Species Removal and Control*.

4.2.3.1 Pampas Grass (*Cortaderia selloana*) – Cal-IPC Rating: High, SDMMP: Management Level 3

Pampas grass is a large perennial grass (family Poaceae) found along the coast of California, and in the Coast Ranges, Central Valley, Western Transverse Ranges, and Mojave Desert. Pampas grass favors dunes, bluffs, coastal shrublands and marshes, inland riparian areas, and disturbed areas. It was introduced as an ornamental plant and for erosion control. Each plume produces up to 100,000 seeds that are widely dispersed by wind and develop without fertilization. Pampas grass quickly colonizes bare ground, but establishment is generally poor where the seedlings must compete with other grasses or sedges. Low-density populations of pampas grass were mapped in two different locations (Figure 4-4).

4.2.3.2 Red Brome (*Bromus madritensis* ssp. *rubens*) – Cal-IPC Rating: High

Red brome is a cool-season annual grass (family Poaceae) found throughout California, especially in the southern part of the state. Red brome invades disturbed areas, roadsides, agricultural fields, rangelands, and forestry sites, in addition to native communities. Red brome is spreading rapidly in desert shrublands, pinyon pine-juniper communities, three-needle pine woodlands, and coastal scrub, where it increases fire frequency and converts habitat to annual grassland. Brome grasses (red and rip-gut) populations were mapped totaling approximately 205 acres (Figure 4-4).

4.2.3.3 Tamarisk (*Tamarix ramosissima*) – Cal-IPC Rating: High

Tamarisk, also commonly known as saltcedar, is a shrub or a tree (family Tamaricaceae) which can be found along streams and lake shores, throughout California. Tamarisk is associated with dramatic changes in geomorphology, groundwater availability, soil chemistry, fire frequency, plant community composition, and native wildlife diversity. It may hybridize with other tamarisk species (e.g., *Tamarix gallica* or *Tamarix chinensis*). Three tamarisk trees were mapped in three distinct locations within the Preserve boundary (Figure 4-4).

4.2.3.4 Black Mustard (*Brassica nigra*) – Cal-IPC Rating: Moderate

Black mustard is a winter annual herb/forb (family Brassicaceae). Like other mustards, black mustard grows profusely and produces allelopathic chemicals that prevent germination of native plants. The spread of black mustard can increase the frequency of fires in chaparral and coastal sage scrub, changing these habitats to annual grassland. Black mustard was mapped totaling approximately 0.53 acre (Figure 4-4).

4.2.3.5 Crimson Fountain Grass (*Pennisetum setaceum*) – Cal-IPC Rating: Moderate

Crimson fountain grass is a coarse tufted perennial grass (family Poaceae). It primarily grows along the southern California coast. Crimson fountain grass is well adapted to fire, and plants can recover to pre-burn density, even increase in density, following a burn. Crimson fountain grass was observed throughout the northwestern portion of the Preserve and scattered along the access road in the eastern portion. Mapped populations total approximately 1.65 acres (Figure 4-4).

4.2.3.6 Edible Fig (*Ficus carica*) – Cal-IPC Rating: Moderate

Edible fig is a shrub to tree (family Moraceae). Research is underway to determine which cultivars of fig become invasive. Fourteen fig trees were mapped in six locations on the Preserve (Figure 4-4).

4.2.3.7 Grass Poly (*Lythrum hyssopifolium*) – Cal-IPC Rating: Moderate

Grass poly is a perennial forb/herb (family Lythraceae) that invades wetlands. It occurs in seasonal wetlands, ditches, and cultivated fields, especially rice fields. It often grows on exposed mud, tolerates some salinity, but is sensitive to heavy frost. This species was observed incidentally during vegetation mapping and exact locations were not recorded.

4.2.3.8 Mexican Fan Palm (*Washingtonia robusta*) – Cal-IPC Rating: Moderate

Mexican fan palm is a single-trunked palm tree (family Arecaceae) found in the San Francisco Bay Area, southern Sacramento Valley and on California's south coast. Mexican fan palm is a common landscape ornamental that has become invasive in riparian areas, orchards, and landscaped areas. This palm is known to create monospecific stands in riparian areas, and dead fronds of the tree can create a fire hazard. The species can be controlled by removing the seedlings, and drill-and-kill herbicide treatments of the mature trees. Mexican fan palm was mapped throughout the northwestern portion of the Preserve, totaling 357 trees (Figure 4-4).

4.2.3.9 Poison Hemlock (*Conium maculatum*) – Cal-IPC Rating: Moderate

Poison hemlock is a biennial forb (family Apiaceae) that has spread throughout California in areas below 5,000 ft (1,500 m) elevation, excluding the Great Basin and Desert provinces and is commonly found in dense patches along roadsides and fields. It also thrives in meadows and pastures and is occasionally found in riparian forests and floodplains but prefers disturbed areas. All parts of poison hemlock are toxic to humans and animals when ingested; handling plants can cause contact dermatitis in some people. Poison hemlock can spread quickly after the rainy season in areas that have been cleared or disturbed. Once established, it is highly competitive and prevents establishment of native plants by over-shading. Three populations of poison hemlock were mapped, totaling approximately 2.78 acres. An additional eight individuals were mapped in various locations (Figure 4-4).

4.2.3.10 Rip-gut Brome (*Bromus diandrus*) – Cal-IPC Rating: Moderate

Rip-gut brome is an annual grass (family Poaceae) found throughout California and other western states. Rip-gut brome is one of several European annual grasses that have displaced much of the native grass throughout California. Rip-gut brome becomes very dry and flammable during the dry season, increasing wildfire frequency. Increased wildfire frequency leads to conversion of shrubland and woodland to grassland. Rip-gut brome is reported to hybridize with two other invasive grasses: cheatgrass (*Bromus tectorum*) and red brome. Brome seeds may spread great distances via water and soil movement and by clinging to animals and people. Brome grasses (red and rip-gut) populations were mapped totaling approximately 205 acres (Figure 4-4).

4.2.3.11 Short pod mustard (*Hirschfeldia incana*) – Cal-IPC Rating: Moderate

Shortpod mustard is a biennial or short-lived perennial forb (family Brassicaceae) that is becoming an increasing problem in wildlands of southern California. It occurs in coastal scrub and grasslands. This species was observed incidentally during vegetation mapping and exact locations were not recorded.

4.2.3.12 Tree Tobacco (*Nicotiana glauca*) – Cal-IPC Rating: Moderate

Tree tobacco is a perennial tree/shrub (family Solanaceae), which stands 10–20 ft tall. Tree tobacco was introduced to California about 100 years ago and is found growing up to 5,000 ft in disturbed soils, vacant lots, along roadsides, streamsides, and other riparian areas. Various infestations of tree tobacco were mapped, totaling approximately 39 acres. Additionally, 166 tree tobacco individuals were also mapped throughout the Preserve (Figure 4-4).

4.2.3.13 Blessed Milk Thistle (*Silybum marianum*) – Cal-IPC Rating: Limited, SDMMP: Management Level 4

Blessed milk thistle is a winter annual or biennial plant with prickly leaves (family Asteraceae). It is widely spread throughout California in overgrazed pastures and along fencelines and other disturbed areas. Blessed milk thistle produces tall, dense stands that outcompete native species. This species was observed incidentally during vegetation mapping and exact locations were not recorded.

4.2.3.14 Castor Bean (*Ricinus communis*) – Cal-IPC Rating: Limited

Castorbean is an herbaceous plant or semi-woody large shrub or small tree (family Euphorbiaceae). It grows quickly in mild climates and has escaped cultivation to become a noxious weed in southern and central California. One plant was mapped within the Preserve (Figure 4-4).

4.2.3.15 Eucalyptus (*Eucalyptus camaldulensis* and *Eucalyptus globolus*) – Cal-IPC Rating: Limited

Red gum (*E.* camaldulensis) and blue gum (*E. globous*) are trees (family Myrtaceae) found throughout California, which have escaped cultivation becoming invasive in Southern California. Both plant species increase fire danger and over-crowd native plants. Two populations totaling 0.22 acre and additional 3 individuals were mapped within the Preserve (Figure 4-4).

4.2.3.16 Horehound (*Marrubium vulgare*) – Cal-IPC Rating: Limited

Horehound is a perennial shrub/forb/herb (family Lamiaceae). This plant is commonly found in disturbed places throughout California, in grasslands scrub and riparian areas. It has minor impact on native plant species. This species was observed incidentally during vegetation mapping and exact locations were not recorded.

4.2.3.17 Mediterranean Grass (*Schismus barbatus*) – Cal-IPC Rating: Limited

Mediterranean grass is an annual grass (family Poaceae) found in disturbed areas and deserts. It contributes to the conversion of desert shrubland into annual grassland by carrying fire across open areas, where they ignite and kill native shrubs. This species was observed incidentally during vegetation mapping and exact locations were not recorded.

4.2.3.18 Peruvian Peppertree (*Schinus molle*) – Cal-IPC Rating: Limited

Peruvian peppertree is an is an aromatic, evergreen shrub or tree (family Anacardiaceae) found in central and southern California. Peruvian peppertree has escaped cultivation to become invasive in California. A total of 54 peppertrees were mapped throughout the Preserve, concentrated near the former avocado orchard (Figure 4-4).

4.2.3.19 Smilograss (*Stipa miliacea var. miliacea*) – Cal-IPC Rating: Limited

Smilograss is a tufted perennial grass (family Poaceae) that thrives in dry or moist sites in disturbed areas, along roadsides and ditches. It can be found scattered along California's coast and central valley and appears to be increasing in riparian areas and canyons, especially in southern California. Two populations were mapped within the Preserve totaling 0.73 acre (Figure 4-4).

4.2.3.20 Andean Tussockgrass (*Stipa manicata*) – Cal-IPC Rating: Limited

Andean tussockgrass is a perennial (family Poaceae) found in moist meadows and disturbed lands with elevation lower than 1300ft. This species was observed incidentally during vegetation mapping and exact locations were not recorded.

4.2.3.21 Wild Radish (*Raphanus sativus*) – Cal-IPC Rating: Limited

Wild radish (family Brassicaceae) is an annual or occasionally a perennial plant that invades grasslands and open/disturbed areas, including roadsides in California. Wild radish may also be found in wetland areas. Wild radishes can exclude native plant species. This species was observed incidentally during vegetation mapping and exact locations were not recorded.

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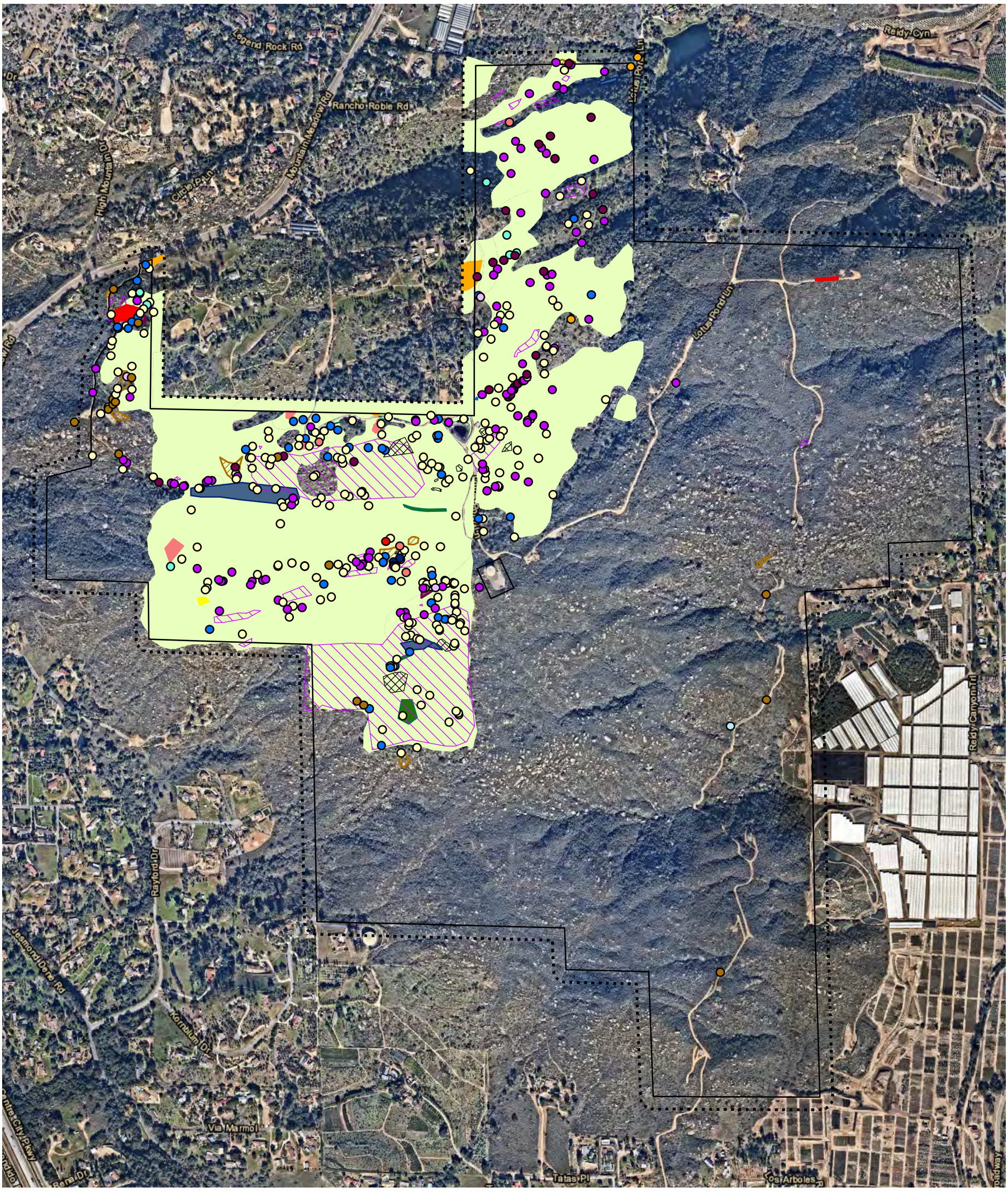

Figure 4-4
Invasive Plant Species Mapping
Mountain Meadow County Preserve

4.3 Wildlife

The following sections detail the results of the various wildlife surveys conducted. A full list of wildlife species detected can be found in Appendix C, *Observed Species List—Wildlife*.

4.3.1 Invertebrates (Butterflies)

Two butterfly inventory surveys were performed at the site. Species diversity for butterflies and skippers was 42 species detected during the two surveys on the Preserve (Table 4-2). The first survey occurred during the end of the Quino checkerspot butterfly (*Euphydryas editha quino*; QCB) flight season. QCB was not observed on the Preserve during these non-protocol surveys. The Preserve is outside of the Recommended Quino Survey Area (USFWS 2014), because of the current information regarding the known distribution of QCB. A large portion of the Preserve is closed-canopy woody vegetation, which would be excluded from consideration for surveys, if the Preserve was present within the Recommended Quino Survey Area. Dot-seed plantain (*Plantago erecta*), a primary larval host plant for QCB, was present on the Preserve in small patches in openings between shrubs. Dot-seed plantain is widespread in southern California and its presence does not denote any particular likelihood of occurrence of QCB. No other larval host plants for rare or sensitive butterflies or skippers were noted. Larval host plants of an additional 26 undetected, but commonly occurring, species of butterflies and skippers were found on the Preserve; therefore, additional common species are likely to occur on the Preserve.

Table 4-2. List of Butterfly Species Observed at Mountain Meadow Preserve

Common Name	Scientific Name	Special Status
Hesperiidae (Skippers)		
Funereal Duskywing	*Erynnis funeralis*	none
Propertius Duskywing	*Erynnis propertius*	none
Mournful Duskywing	*Erynnis tristis*	none
Northern White-Skipper	*Heliopetes ericetorum*	none
Rural Skipper	*Ochlodes agricola*	none
Woodland Skipper	*Ochlodes sylvanoides*	none
Umber Skipper	*Poanes melane*	none
White Checkered-Skipper	*Pyrgus albescens*	none
Lycaenidae (Hairstreaks, Coppers, Blues)		
Western Great Purple Hairstreak	*Atlides halesus corcoran*	none
Western Elfin	*Callophrys augustinus iroides*	none
Perplexing Green Hairstreak	*Callophrys perplexa*	none
Echo Blue	*Celastrina echo*	none
Reakirt's Blue	*Echinargus isola*	none
San Bernardino Blue	*Euphilotes bernardino bernardino*	none
Southern Silvery Blue	*Glaucopsyche lygdamus australis*	none
Edward's Blue	*Hemiargus ceraunus gyas*	none
Marine Blue	*Leptotes marina*	none
Acmon Blue	*Plebejus acmon*	none

Common Name	Scientific Name	Special Status
Lupine Blue	*Plebejus lupini monticola*	none
Common Gray Hairstreak	*Strymon melinus pudica*	none
Nymphalid (brush-footed butterflies)		
California Sister	*Adelpha californica*	none
Gulf Fritillary	*Agraulis vanillae incarnata*	none
Gabb's Checkerspot	*Chlosyne gabbii*	none
Striated Queen	*Danaus gilippus thersippus*	none
Gray Buckeye	*Junonia coenia grisea*	none
Powell's Admiral	*Limenitis lorquini powelli*	none
Mourning Cloak	*Nymphalis antiopa*	none
West Coast Lady	*Vanessa annabella*	none
American Red Admiral	*Vanessa atalanta rubria*	none
Painted Lady	*Vanessa cardui*	none
American Painted Lady	*Vanessa virginiensis*	none
Papilionidae (Swallowtails)		
Pale Swallowtail	*Papilio eurymedon*	none
Western Tiger Swallowtail	*Papilio rutulus*	none
Anise Swallowtail	*Papilio zelicaon*	none
Pieridae (Whites and Sulphurs)		
Pacific Sara Orangetip	*Anthocharis sara sara*	none
Orange Sulphur	*Colias eurytheme*	none
Dainty Sulphur	*Nathalis iole*	none
Cabbage White	*Pieris rapae rapae*	none
Becker's White	*Pontia beckerii*	none
Checkered White	*Pontia protodice*	none
California Dogface	*Zerene eurydice*	none
Riodinidae (Metalmarks)		
Behr's Metalmark	*Apodemia virgulti virgulti*	none

4.3.2 Herpetofauna

The following sections detail the results of the herpetofauna surveys.

4.3.2.1 Amphibians

During the 2019 sampling at the Preserve, two amphibian species were observed or heard: Baja California tree frog (*Pseudacris hypochondriaca*) and California toad (*Anaxyrus boreas halophilus*) (Table 4-3). All species were observed or heard in and near the human-made pond located within the Preserve and a pond located offsite just east of the northeast corner of the Preserve. Two California toads were captured in Array 4 in nonnative woodland and one was observed in a hole in the ground near the abandoned building (Figure 3-1). Both of these locations are within 500 ft of the human-made pond.

Table 4-3. Amphibian Species Observed in 2019

Common Name	Scientific Name	Special Status	Observations
California Toad	*Anaxyrus boreas halophilus*	none	2 captures at Array 4, adult and tadpoles observed in and near human-made pond on the Preserve, and one incidentally observed in a hole in the ground located near the abandoned building and human-made pond.
Baja California Tree Frog	*Pseudacris hypochondriaca*	none	Incidentally observed and heard at pond just east of the northeast corner of Preserve

4.3.2.2 Reptiles

During the 2019 herpetofauna surveys on the Preserve, 10 reptile species were captured or incidentally observed (Table 4-4), including seven lizard species (southern California legless lizard [*Anniella stebbinsi*], Belding's orange-throated whiptail, San Diegan tiger whiptail [*Aspidoscelis tigris stejnegeri*], San Diego alligator lizard [*Elgaria multicarinata webbii*], western fence lizard [*Sceloporus occidentalis*], granite spiny lizard [*Sceloporus orcutti*], and side-blotched lizard [*Uta stansburiana*]) and three snake species (southwestern speckled rattlesnake [*Crotalus mitchellii*], red-diamond rattlesnake [*Crotalus ruber*], and California kingsnake [*Lampropeltis californiae*]). Four of these reptiles are special-status species: southern California legless lizard, Belding's orange-throated whiptail, San Diegan tiger whiptail, and red-diamond rattlesnake. Occurrence of these species on the Preserve is discussed in more detail in Section 4.3.5, *Special-Status Wildlife Observed*.

Table 4-4. Reptile Species Observed or Captured in 2019

Common Name	Scientific Name	Special Status	Survey Type	Trap Number Where Captured	Total
Southern California Legless Lizard	*Anniella stebbinsi*	SSC, CSD Group II	IO		1 incidentally observed in nonnative woodland (former avocado grove)
Belding's Orange-Throated Whiptail	*Aspidoscelis hyperythra beldingi*	WL, CSD Group II	ARY 1, ARY 3, IO	1A and 3C	2 captures, several incidentally observed near traps and on access roads in granitic southern mixed chaparral and Diegan coastal sage scrub
San Diegan Tiger Whiptail	*Aspidoscelis tigris stejnegeri*	SSC, CSD Group II	ARY 1	1A, 1B	2 captures, also incidentally observed along roads in granitic southern mixed chaparral and Diegan coastal sage scrub

Common Name	Scientific Name	Special Status	Survey Type	Trap Number Where Captured	Total
Southwestern Speckled Rattlesnake	*Crotalus mitchellii*	none	IO		1 incidentally observed on access road and 1 incidentally observed in a hole in the ground near abandoned building
Red-diamond Rattlesnake	*Crotalus ruber*	SSC, CSD Group II	IO		2 incidentally observed on the main access road in northern portion of Preserve in granitic southern mixed chaparral
San Diego Alligator Lizard	*Elgaria multicarinata webbii*	none	ARY 5	5B	1 capture
California Kingsnake	*Lampropeltis californiae*	none	ARY 2	2A	1 capture
Western Fence Lizard	*Sceloporus occidentalis*	none	ARY 2, ARY 5	2A, 5A	2 captures, numerous incidentally observed near traps and along access roads throughout the Preserve
Granite Spiny Lizard	*Sceloporus orcutti*	none	ARY 2, IO	2B	1 capture and several incidentally observed on granite boulders on north end of Preserve
Western Side-blotched Lizard	*Uta stansburiana*	none	IO		No captures, observed on drift fence of Array 4 while checking arrays and numerous incidentally observed near traps and along access roads throughout the Preserve.

Special Status: SSC = CDFW Species of Special Concern, WL = CDFW Watch List, CSD = County of San Diego Sensitive Animal

Survey Type: ARY = Sampling Array, IO = Incidental Observations

Array 1 occurring in granitic southern mixed chaparral and Array 2 occurring in the former avocado grove had the greatest number of reptile captures (three lizards captured at each array), Array 5 occurring in granitic southern mixed chaparral/Diegan coastal sage scrub had two lizard captures, and Array 3 occurring in granitic southern mixed chaparral had one lizard capture. Array 4 occurring in the former avocado grove near the abandoned ranch house did not have any reptile captures.

4.3.3 Birds

In total, 46 bird species were detected during the 2019 surveys (Table 4-5). Forty-three species were detected during the point counts and three were detected during small mammal, herpetofauna,

or bat surveys. These included year-round residents, breeding species that migrate to the neotropics, and winter residents.

The Preserve supports a mixture of avifaunal species that are typically associated with habitat types located within the Preserve. These include woodland species, such as Nuttall's woodpecker (*Picoides nuttallii*), acorn woodpecker (*Melanerpes formicivorus*), house wren (*Troglodytes aedon*), oak titmouse (*Baeolophus inornatus*), phainopepla (*Phainopepla nitens*), and northern flicker (*Colaptes auratus*). Chaparral and scrub species include California quail (*Callipepla californica*), Anna's hummingbird (*Calypte* anna), ash-throated flycatcher (*Myiarchus cinerascens*), blue-gray gnatcatcher (*Polioptila caerulea*), Cassin's kingbird (*Tyrannus vociferans*), Bewick's wren (*Thryomanes bewickii*), wrentit (*Chamaea fasciata*), spotted towhee (*Pipilo maculatus*), California towhee (*Melozone crissalis*), Lazuli bunting (*Passerina amoena*), song sparrow (*Melospiza melodia*), house finch (*Haemorhous mexicanus*), lesser goldfinch (*Carduelis psaltria*), and others.

The Preserve also provides ample foraging and breeding/nesting habitat for a variety of raptor species. Five raptor species were detected within the Preserve: Cooper's hawk (*Accipiter cooperii*), red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), turkey vulture (*Cathartes aura*), and barn owl (*Tyto alba*).

No federal or state-listed bird species were detected during the 2019 surveys. The Preserve is located within designated critical habitat for coastal California gnatcatcher; however, this species was not detected during the 2019 surveys. Three San Diego County Group 1 species were observed: Cooper's hawk, red-shouldered hawk, and turkey vulture (Figure 4-5). Barn owl, a San Diego Group 2 species, was also detected within the Preserve during the bat surveys. Further discussion of the use of the Preserve by special-status avian species is found in Section 4.3.6, *Special-Status Wildlife with High Potential to Occur*. House sparrow (*Passer domesticus*) was the only nonnative bird species detected during the surveys in 2019.

4.3.3.1 Nocturnal Birds

The nocturnal point counts resulted in one additional bird species being detected, common poorwill (*Phalaenoptilus nuttallii*). No other owls or other nocturnal bird species were detected during the surveys.

Table 4-5. Avian Species Detected

Common Name	Scientific Name	Special Status	Diurnal Point Counts	Nocturnal Point Counts
Cooper's Hawk	*Accipiter cooperii*	WL, CSD Group 1	X	--
Mallard	*Anas platyrhynchos*	None	X	--
California Scrub-Jay	*Aphelocoma californica*	None	X	X
Oak Titmouse	*Baeolophus inornatus*	None	X	--
Red-tailed Hawk	*Buteo jamaicensis*	None	X	--
Red-shouldered Hawk	*Buteo lineatus*	CSD Group 1	X	--
California Quail	*Callipepla californica*	None	X	--
Anna's Hummingbird	*Calypte anna*	None	X	--
Turkey Vulture	*Cathartes aura*	CSD Group 1	*	--

Common Name	Scientific Name	Special Status	Diurnal Point Counts	Nocturnal Point Counts
Canyon Wren	*Catherpes mexicanus*	None	X	X
Lesser Goldfinch	*Carduelis psaltria*	None	X	--
Wrentit	*Chamaea fasciata*	None	X	X
Northern Flicker	*Colaptes auratus*	None	X	--
American Crow	*Corvus americanus*	None	X	--
Common Raven	*Corvus corax*	None	X	--
House Finch	*Haemorhous mexicanus*	None	X	--
Hooded Oriole	*Icterus cucullatus*	None	X	--
Acorn Woodpecker	*Melanerpes formicivorus*	None	X	--
Song Sparrow	*Melospiza melodia*	None	X	--
California Towhee	*Melozone crissalis*	None	X	X
Northern Mockingbird	*Mimus polyglottos*	None	X	--
Ash-throated Flycatcher	*Myiarchus cinerascens*	None	X	--
Orange-crowned Warbler	*Oreothypis celata*	None	X	X
House Sparrow	*Passer domesticus*	None	X	--
Lazuli Bunting	*Passerina amoena*	None	X	--
Blue Grosbeak	*Passerina caerulea*	None	X	--
Cliff Swallow	*Petrochelidon pyrrhonota*	None	X	--
Phainopepla	*Phainopepla nitens*	None	X	--
Common Poorwill	*Phalaenoptilus nuttallii*	None		X
Black-headed Grosbeak	*Pheucticus melanocephalus*	None	X	--
Nuttall's Woodpecker	*Picoides nuttallii*	None	X	--
Spotted Towhee	*Pipilo maculatus*	None	X	X
Blue-gray Gnatcatcher	*Polioptila caerulea*	None	X	--
Bushtit	*Psaltriparus minimus*	None	X	--
Black Phoebe	*Sayornis nigricans*	None	X	--
Say's Phoebe	*Sayornis saya*	None	X	--
Allen's Hummingbird	*Selasphorus sasin*	None	X	--
Yellow-rumped Warbler	*Setophaga coronate*	None	X	--
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	None	X	--
Bewick's Wren	*Thryomanes bewickii*	None	X	--
California Thrasher	*Toxostoma redivivum*	None	X	X
House Wren	*Troglodytes aedon*	None	X	--
Cassin's Kingbird	*Tyrannus vociferans*	None	X	--
Barn Owl	*Tyto alba*	CSD Group 2		**
Mourning Dove	*Zenaida macroura*	None	X	--

Special Status: SSC = CDFW Species of Special Concern, WL = CDFW Watch List, CSD = County of San Diego Sensitive Animal

* Detected during herpetofauna surveys.

** Detected during bat surveys.

Table 4-6 provides the monthly count for avian species detected at each station during the 2019 point-counts. Stations 1 and 5, located within the former avocado grove and nonnative woodland, show the highest diversity. Station 5 is located near the human-made pond within an open area that may allow for greater visibility. Station 6 is the only station within or adjacent to riparian vegetation (southern riparian forest). Station 4 is located at an interface of granitic southern mixed chaparral and Diegan coastal sage scrub. Stations 2 and 3 had the fewest number of species. These stations are within dense granitic southern mixed chaparral and do not have a wide variety of vegetation diversity in the nearby vicinity.

April and June had the highest avian diversity as this is when both species diversity and detectability are high due to the breeding season.

Table 4-6. Number of Bird Species Observed or Detected During the Avian Point Counts

	Point Count Stations						Total # of Species
Month	**1**	**2**	**3**	**4**	**5**	**6**	
April	13	12	8	9	15	7	28
June	12	8	10	20	13	14	33
July	10	10	8	7	11	8	19
August	11	7	10	6	10	10	18
Total # of Species	**25**	**20**	**19**	**24**	**26**	**22**	**43**

4.3.4 Mammals

The following sections detail the results of the small-mammal trapping, wildlife-camera tracking, and bat surveys.

4.3.4.1 Small Mammals

In total, eight species of small mammals were recorded at the Preserve during small-mammal trapping (Table 4-7). The results indicate that the Preserve has a relatively moderate abundance and moderate species diversity of small mammals. With 740 trap nights, 266 animals composed of eight different species were captured. Of the 266 animals captured, 41 of these animals were recaptured at least once during the trapping effort.

Dulzura pocket mouse (*Chaetodipus californicus femoralis*), a California Species of Special Concern (SSC) and County of San Diego Group 2 sensitive species, was captured at eight of the 12 trap lines. Further discussion of the use of the Preserve by special-status small mammal species is found in Section 4.3.5.

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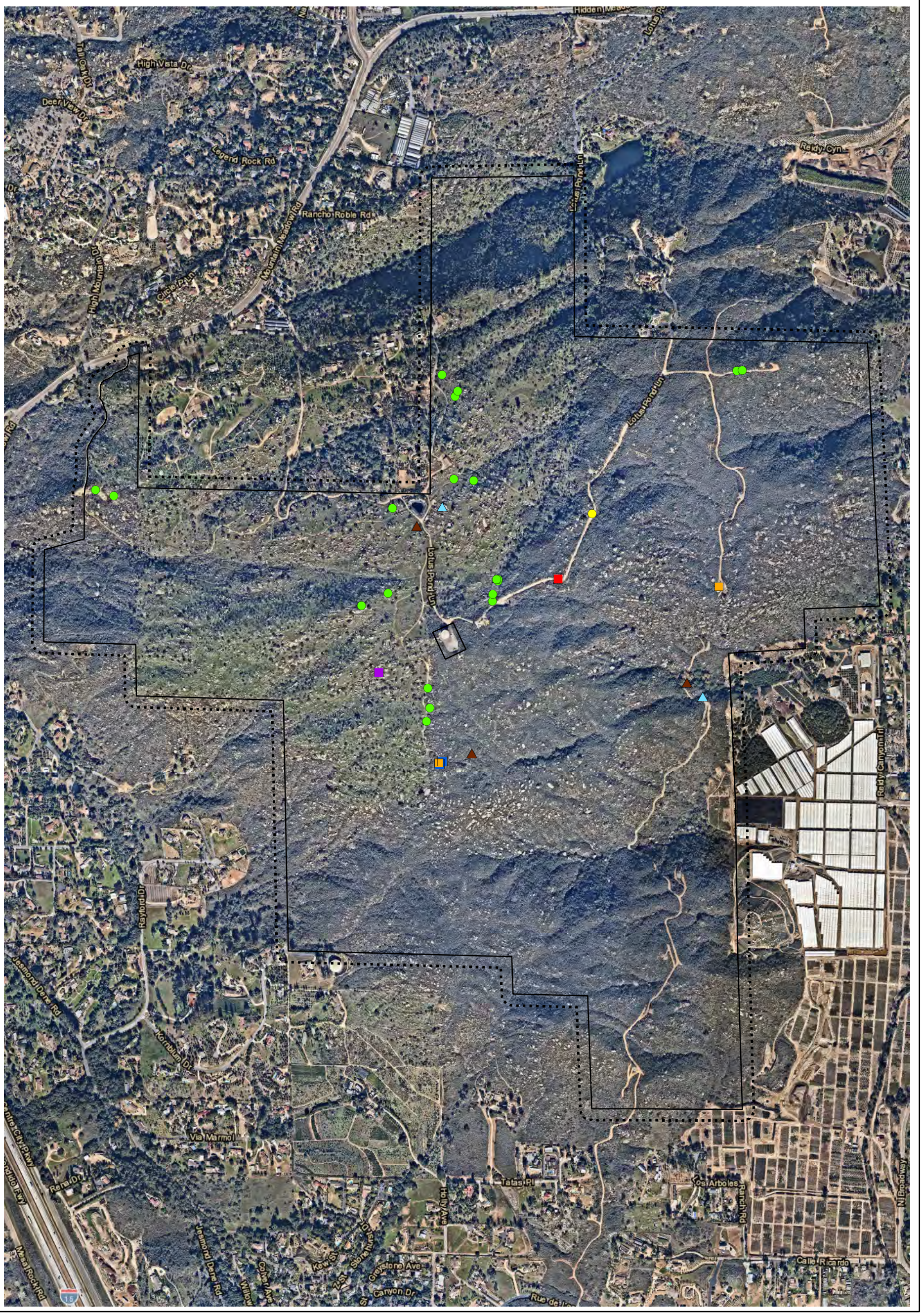


Figure 4-5
Special-Status Wildlife Species Observed
Mountain Meadow County Preserve

Table 4-7. Small Mammal Capture Summary

Common Name	*Species Scientific	Special Status	Trap Line ID												
			A	B	C	D	E	F	G	H	I	J	K	L	Total
Dulzura Pocket Mouse	*Chaetodipus californicus femoralis*	SSC and CSD Group 2		2		3(1)	6(2)	5	5	2	7	3(2)			33(3)
California Vole	*Microtus californicus*	none				1									1
Big-eared Woodrat (=Dusky-footed Woodrat)	*Neotoma macrotis (=Neotoma fuscipes)*	none		6				7	3(1)		3(2)	8(3)		2(1)	29(5)
Brush Mouse	*Peromyscus boylii rowleyi*	none										10(5)	3		13(5)
California Mouse	*Peromyscus californicus insignis*	none	5(2)	4(1)	4(2)			2	2		1	4	1	3(1)	26(5)
Cactus Mouse (= Northern Baja Mouse)	*Peromyscus eremicus fraterculus (= P. fraterculus)*	none	11(1)	32(9)	8(1)	15(2)	1	19(3)	10(1)	3	5	6(2)	19(2)	11(2)	140(23)
North American Deer Mouse	*Peromyscus maniculatus gambelii*	none	3			7		4	5	4					23
Western Harvest Mouse	*Reithrodontomys megalotis*	none			1										1
	Total		**19(3)**	**44(10)**	**13(3)**	**26(3)**	**7(2)**	**37(3)**	**25(2)**	**9**	**16(2)**	**31(12)**	**23(2)**	**16(4)**	**266(41)**

Special Status: SSC = CDFW Species of Special Concern, CSD = County of San Diego Sensitive Animal

(#) = recaptured animals

* = subspecies determined by known geographic distribution

4.3.4.2 Medium and Large Mammals

Each camera station was set from April 23 to December 3, 2019. The evaluation of all images captured at the four camera stations resulted in the identification of six medium to large mammal species using the Preserve: desert cottontail (*Sylvilagus audubonii*), California ground squirrel (*Otospermophilus beecheyi*), raccoon (*Procyon lotor*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), and mountain lion (*Puma concolor*) (Table 4-8). Mountain lion is a San Diego County Group 2 species. Further discussion of the use of the Preserve by special-status medium and large mammal species is found in Section 4.3.5.

Table 4-8. Medium and Large Mammals Detected

Common Name	Scientific Name	Special Status	Camera Stations
Desert Cottontail	*Sylvilagus audubonii*	None	1, 2, and 3
California Ground Squirrel	*Otospermophilus beecheyi*	None	1, 2, and 3
Coyote	*Canis latrans*	None	1, 2, 3, and 4
Bobcat	*Lynx rufus*	None	1, 2, 3, and 4
Mountain Lion	*Puma concolor*	CSD Group 2	3; scat incidentally observed
Northern Raccoon	*Procyon lotor*	None	4

Special Status: CSD = County of San Diego Sensitive Animal

4.3.4.3 Bats

A total of 11 bat species were detected on the Preserve using acoustic survey techniques (Table 4-9).

Passive Acoustic Surveys

Eleven bat species of the 22 known from San Diego County were detected using the Anabat Swift passive detector (Table 4-9). This included three species listed as California SSC and County of San Diego Sensitive Species Group 2, the western red bat (*Lasiurus blossevillii*), western mastiff bat, and pocketed free-tailed bat (*Nyctinomops femorosaccus*), as well as three species listed solely as County Group 2 species, western long-eared myotis (*Myotis evotis*), western small-footed myotis (*Myotis ciliolabrum*), and Yuma myotis (*Myotis yumanensis*). Further discussion of the use of the Preserve by bat species is found in Section 4.3.5. One migratory bat was detected during the passive Anabat monitoring period, the hoary bat (*Lasiurus cinereus*).

The Yuma myotis was the most active species recorded with passive detectors, accounting for over 53 percent of recorded batcalls. Most of the Yuma myotis calls were recorded at the human-made pond Anabat station. The Mexican free-tailed bat (*Tadarida brasiliensis*) was also quite active, accounting for nearly 23 percent of the recorded batcalls.

The most active Anabat station was at the man-made pond site (600 batcalls), where there were numerous recordings of the Yuma myotis mentioned above (446 Yuma myotis calls). The ranch house and north creek Anabat stations were also quite productive for bat activity (201 and 215 batcalls, respectively). Only two batcalls were recorded at the south boulders site, which is unusually low and perhaps attributed to the lack of native vegetation in this area of the Preserve.

Active Acoustic Surveys

Active acoustic surveys resulted in detections of seven of the 11 bat species found on the Preserve. During the active surveys, visual attention was focused on human-made structures (ranch house in the northern portion of the Preserve: July 15; old grove house in the center of the Preserve: August 14) and rocky outcrops scattered throughout the northern portions of the Preserve (Figure 3-5) that might serve as roost sites around the Preserve, but no bats were observed exiting any of the structures or outcrops such that a roost was obvious. In addition, the old grove house was checked for night roosting bats approximately 1.5 hours after sunset, but no bats were found. A number of canyon bats (*Parastrellus hesperus*), a species that is mostly known to roost solitarily in crevices and fractures of rocky outcrops and that comes out to forage earlier than most bats, were observed flying around early in the evenings during the active surveys.

Most notable during the active surveys on the second active survey night (July 17) were multiple western mastiff bats heard flying early in the survey period from north of the survey location (end of SDG&E powerline road) and seen heading to the south, indicating there is a roost somewhere north of this location. The western mastiff bat produces an audible echolocation call that is readily heard by experienced biologists. Because western mastiff bats typically fly high and beyond the range of bat detectors, they are often grossly underrepresented by passive bat detector surveys. In addition, because mastiff bats can be heard, the direction they are flying to and from can be determined, which can be helpful for estimating where roosts are located. Western mastiff bats typically roost in colonies, but sometimes as single individuals, usually in rock fractures in steep cliffs, but also in fractures in large obelisk style boulders, of which there are plenty on the Preserve. The fourth active survey (conducted at the east end of the SDG&E powerline road on September 17) resulted in more audible detections of western mastiff bats, but during this survey, it could be determined that they were coming from the northwest and not from the Preserve itself.

Also notable during active surveys were the number of Yuma myotis observed foraging at the human-made pond site on July 15, 2019. These bats were observed using a handheld spotlight while being recorded with the Anabat. Yuma myotis foraging activity was nearly continuous during the second hour of the active survey spent at that site.

Table 4-9. Bat Species Detected

Common Name	Scientific Name	Special-Status	Passive Survey Recordings	Relative Activity (%)	Active Survey*
Yuma Myotis	*Myotis yumanensis*	County CSD Group 2	619	53.9	35
Mexican Free-tailed Bat	*Tadarida brasiliensis*	None	263	22.9	7
Canyon Bat	*Parastrellus hesperus*	None	121	10.5	64
Big Brown Bat	*Eptesicus fuscus*	None	65	5.7	1
Pocketed Free-tailed Bat	*Nyctinomops femorosaccus*	SSC, CSD Group 2	30	2.6	1

Common Name	Scientific Name	Special-Status	Passive Survey Recordings	Relative Activity (%)	Active Survey*
California Myotis	*Myotis californicus*	None	26	2.3	--
Hoary Bat	*Lasiurus cinereus*	None	10	0.9	--
Western Small-footed Myotis	*Myotis ciliolabrum*	CSD Group 2	10	0.9	1
Western Long-eared Myotis	*Myotis evotis*	CSD Group 2	3	0.3	--
Western Mastiff Bat	*Eumops perotis*	SSC, CSD Group 2	1	0.1	3
Western Red Bat	*Lasiurus blossevillii*	SSC, CSD Group 2	1	0.1	--
	Total		**1,149**		**112**

Special Status: SSC = CDFW Species of Special Concern, CSD = County of San Diego Sensitive Animal * = Number of bat passes recorded during the 2-hour active survey periods combined

The Preserve supports a fair amount of bat diversity, with half of the species known from San Diego County present. There is an abundance of rocky boulder habitat, which is suitable roosting substrate for a variety of crevice-roosting species, such as the canyon bat, a variety of myotis species, and, more notably, the rock-crevice/cliff-dwelling western mastiff bat and pocketed free-tailed bat. Based upon audible detections of multiple western mastiff bats early in the night, heard flying from a northerly direction during the two active surveys conducted on the SDG&E powerline road (July 17, September 17), it is suspected that these bats were not roosting on the property, but were most likely coming from a large previously documented roost located in Moosa Canyon (specifically, the Granite Rocks Preserve managed by the Center for Natural Lands Management) approximately 4 miles northwest of the Mountain Meadows Preserve (Tremor et al. 2017). Even though they were not confirmed as roosting on the Preserve itself, the long- ranging bats were certainly foraging on the Preserve, as evidenced by their detections.

Although boulder habitat mixed with scrubby and grassland vegetation dominates the Preserve, pockets of oak woodland and riparian habitat are present, mostly at the northern end and eastern side of the Preserve, which is probably high-quality foraging habitat for bats. The central portion of the Preserve is generally lacking native woodlands, but could be restored or enhanced with oak woodland that would benefit bats.

Two human-made structures are on the Preserve, the ranch house building near the entrance and the old grove house toward the south, that could provide habitat for both day- and night-roosting bats, but no obvious evidence was found that a significant number of bats are using these structures yet. A few small pellets of bat guano were found on the upper story of the ranch house during initial scouting surveys, indicating that perhaps a single myotis or other small bat species had used it to roost at one time. However, since these structures have the potential to serve as bat roosts, care should be taken if/when these structures are demolished, and a pre-demolition bat survey should be considered. In addition, the construction of an artificial bat house on the premises could enhance the Preserve for bats.

The presence of an open water source, the human-made pond, definitely benefits bats, and a high amount of bat foraging activity was observed there, mostly the Yuma myotis. However, the human-made pond would be attractive to most, if not all, bats on the Preserve. Although the human-made

pond has artificial substrate and would probably be more ideal if left natural, its current composition is better than the absence of water altogether: a year-round water source of this size undoubtedly benefits bats and other wildlife.

4.3.5 Special-Status Wildlife Observed

Thirteen special-status wildlife species were detected during the 2019 surveys. See Figure 4-5 for locations of special-status species detected during 2019 surveys. Figure 4-6 includes a depiction of U.S. Fish and Wildlife Service (USFWS)-designated critical habitat in the vicinity of the Preserve.

4.3.5.1 Herpetofauna

Four special-status reptile species were detected in 2019: California legless lizard, Belding's orange-throated whiptail, San Diegan tiger whiptail, and red-diamond rattlesnake (Figure 4-5). Below is a description of each species.

Belding's Orange-Throated Whiptail (*Aspidoscelis hyperythra beldingi*) – CDFW Watch List, San Diego County Group 2

Belding's orange-throated whiptail is a medium-sized lizard that ranges from southern California (specifically Corona del Mar in Orange County and Colton in San Bernardino County) southward to the tip of Baja California, Mexico (Jennings and Hayes 1994). Historically, most populations of the orange-throated whiptail were found on floodplains or terraces along streams in brushy areas with loose soil and rocks (Jennings and Hayes 1994). The habitat types they are known to use include chaparral, nonnative grassland, coastal sage scrub, juniper woodland, and oak woodland. California buckwheat and black sage are important indicators of appropriate habitat for Belding's orange-throated whiptail (Jennings and Hayes 1994). Orange-throated whiptails appear to be dietary specialists, with most (greater than 85 percent) of their prey being termites (Jennings and Hayes 1994). This species was caught in the central and eastern portion of the Preserve during herpetofauna surveys conducted in 2019 (Figure 4-5). This species is presumed to occur throughout the coastal sage scrub and chaparral habitats within the Preserve.

San Diegan Tiger Whiptail (*Aspidoscelis tigris stejnegeri*) – SSC; San Diego County Group 2

San Diegan tiger whiptail is a slender, medium-sized lizard found in arid and semiarid desert regions to open woodlands, where vegetation is sparse, making running easy (Stebbins 2003). Its range includes coastal southern California and western Baja California. The decline of coastal tiger whiptails is most likely due to the loss of habitat to agriculture and urban development. The San Diegan tiger whiptail was caught in the central portion of the Preserve during herpetofauna surveys conducted in 2019 (Figure 4-5). This species is presumed to occur throughout the coastal sage scrub and chaparral habitats within the Preserve.

Red-Diamond Rattlesnake (*Crotalus ruber*) – SSC; San Diego County Group 2

The red-diamond rattlesnake is a heavy-bodied rattlesnake with a tan, brick-red, or reddish dorsal color with a tail that is marked with broad, evenly spaced distinct black rings. Its range extends from near Morongo Valley (San Bernardino County) south along the coast and desert sides of the Peninsular Range to Loreto, Baja California, Mexico. It is found in a variety of habitats, although

generally associated with habitats containing thick brush with large rocks or boulders. Typical habitats include chamise and common redshank, as well as coastal sage scrub and desert slope scrub. Its elevation range extends from sea level to around 5,000 ft above mean sea level. Mating occurs in the early spring, and they bear live young between late July and September (Jennings and Hayes 1994). No red-diamond rattlesnakes were captured during 2019 surveys, though two individuals were incidentally observed on the main access road in the northern part of the Preserve and one at the northernmost point near Passive Bat Station 2 in disturbed coast live oak woodland (Figure 4-5). This species is presumed to occur throughout the scrub and chaparral habitats within the Preserve.

Southern California Legless Lizard (*Anniella stebbinsi*) – SSC, San Diego County Group 2

California legless lizards occur primarily in areas with sandy or loose loamy soils. Habitat types include beaches, grassland, coastal sage scrub, pine-oak woodland, and riparian woodlands. Soil moisture is essential for conserving energy at high temperatures and allowing shedding to occur. The lack of soil moisture may limit the species' geographic range. Additionally, the species is not found in gravelly substrates and where the clay content is greater than 10 percent as legless lizards are unable to penetrate clay or adobe soils (Jennings and Hayes 1994). One Southern California legless lizard was incidentally observed in nonnative woodland (former avocado grove) in the northern center portion of the Preserve (Figure 4-5). This species is presumed to occur throughout the former avocado grove and coastal sage scrub habitats within the Preserve.

4.3.5.2 Birds

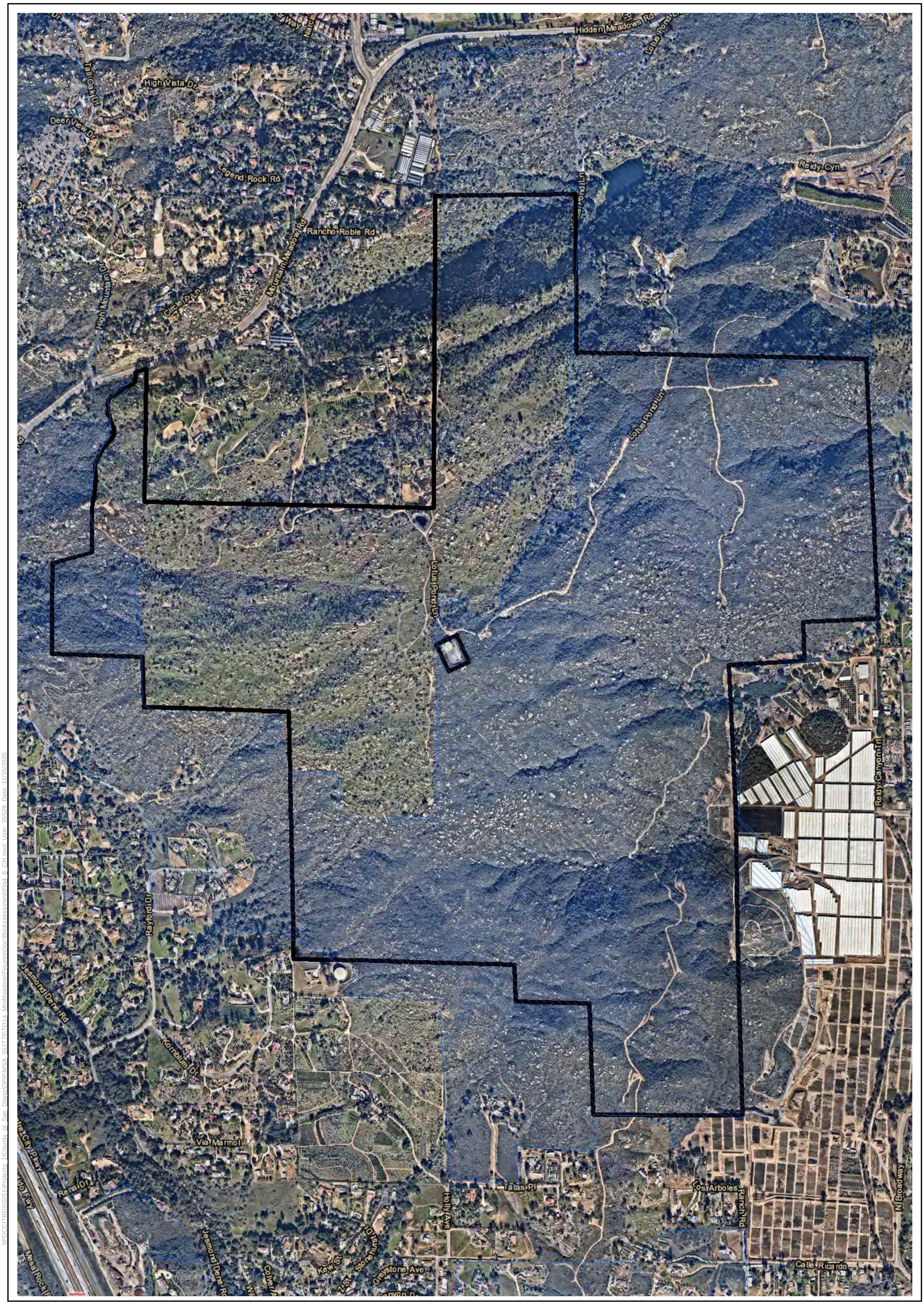
Four special-status bird species were detected in 2019: Cooper's hawk, red-shouldered hawk, turkey vulture, and barn owl (Figure 4-5). A description of these species is provided below.

Cooper's Hawk (*Accipiter cooperii*) – CDFW Watch List; San Diego County Group 1

Cooper's hawk is a resident of riparian deciduous habitats and oak woodlands, but in recent times, it has become adapted to urban park environments (Unitt 2004). Cooper's hawk hunts its primary source of food, passerines, in broken woodlands and forest margins; it is also known to take fish and mammals. The Cooper's hawk population declined because of hunting and the loss of habitat; however, this species is making a comeback through its adaptation to the urban environment (Unitt 2004). Cooper's hawk was detected during the diurnal point counts in 2019 (Figure 4-5). Cooper's hawk will nest in mature trees and has potential to nest throughout the riparian and woodland areas within the Preserve.

Red-Shouldered Hawk (*Buteo lineatus*) – San Diego County Group 1

The red-shouldered hawk was once an uncommon breeder in lowland riparian woodlands but has been thriving recently in urban environments with large trees, such as eucalyptus (Unitt 2004). On the west coast, this species is found in California and northern Baja California; it is common throughout San Diego County. Red-shouldered hawk was detected during the 2019 diurnal point counts (Figure 4-5). Red-shouldered hawk nest in mature trees and has potential to nest throughout oak woodland and riparian forests within the Preserve.



Preserve Boundary

USFWS Critical Habitat

Coastal California gnatcatcher

Source: ICF; SANDAG; ESRI (2019)

N

0 500 1,000 Feet

Figure 4-6
Critical Habitat
Mountain Meadow County Preserve

Turkey Vulture (*Cathartes aura*) – San Diego County Group 1

Turkey vulture is often seen foraging over woodlands and nearby open country (Unitt 2004). They prefer dry, open country and ranch lands and often occur along roadsides where carrion is common; they nest in crevices among granite boulders (Unitt 2004). Turkey vulture range has been retracting from the coast because of human disturbance, the loss of foraging habitat, and pesticide contamination (Unitt 2004). This species is still common in the undeveloped areas of east San Diego County. Approximately 30 turkey vultures were observed flying north over the central portion of the Preserve during the herpetofauna surveys. No roosts are known from the site, and no nesting habitat is present in the Preserve.

Barn Owl (*Tyto alba*) – San Diego County Group 2

Barn owl is an uncommon permanent resident throughout much of San Diego County, frequently nesting in the skirts of palm trees and on buildings. It is widespread throughout the coastal slope, in riparian and oak woodlands, as well as suburban areas. Nesting occurs most frequently in April through June, but eggs may be laid as early as late December (Unitt 2004). This species was observed in 2019 during the bat surveys and may nest throughout the oak and nonnative woodlands within the Preserve.

4.3.5.3 Mammals

Eight special-status mammal species were detected in 2019: Dulzura pocket mouse, mountain lion, pocketed free-tailed bat, western long-eared myotis, western mastiff bat, western small-footed myotis, western red bat, and Yuma myotis (Figure 4-5). Below is a description of each of these species.

Dulzura Pocket Mouse (*Chaetodipus californicus femoralis*) – SSC, San Diego County Group 2

The Dulzura pocket mouse occurs only in southern California and Baja California. Dulzura pocket mouse is primarily granivorous, preferring the seeds of grasses. This species is nocturnal and active year-round, although it can become torpid in cold weather and during periods of drought. Breeding can occur between January and September, peaking between May and July (Tremor et al. 2017). Dulzura pocket mice were captured at eight of the 12 trap lines, covering most of the vegetation communities located within the Preserve, during surveys conducted in 2019 (Figure 4-5).

Mountain Lion (*Puma concolor*) – San Diego County Group 2

Mountain lion prefers extensive areas of riparian vegetation and brushy habitat, with interspersion of irregular terrain, rocky outcrops, and thickets (Tremor et al. 2017). Riparian areas provide protective habitat connections for movement between fragmented habitats. This species is widespread in North and South America and occupies a broad variety of habitats from the northern limit of the Canadian forests to Patagonia in South America. Habitat fragmentation, loss of large areas of undeveloped land, road kills, indiscriminate shootings, animal-control measures, and loss of natural prey base have led to the decline of this species. Remote camera 3 captured a mountain lion walking down the access road and mountain lion scat was incidentally observed on the SDG&E access road in the southeast portion of the Preserve (Figure 4-5).

Pocketed Free-Tailed Bat – (*Nyctinomops femorosacus*) – SSC, San Diego County Group 2

Pocketed free-tailed bat is typically found in desert and arid grasslands with rocky outcrops, canyons, or cliffs (BCI 2018). The pocketed free-tailed bat was detected in 2019 during passive and active surveys of the Preserve (Figure 4-5).

Western Long-Eared Myotis (*Myotis evotis*) – San Diego County Group 2

Long-eared myotis is found in western North America, from British Columbia south through California to Baja Mexico (BCI 2018). This species prefers coniferous forests in higher altitudes and will roost in caves, rock crevices, under tree bark, or in buildings (BCI 2018). All of the vegetation communities occurring within the Preserve provide suitable foraging habitat. Long-eared myotis was detected in 2019 during passive surveys of the Preserve (Figure 4-5).

Western Mastiff Bat (*Eumops perotis*) – SSC, San Diego County Group 2

Western mastiff bat is the largest native bat in the United States. This subspecies occurs from the western foothills of the Sierra Nevada and the Coastal Ranges (south of San Francisco Bay), southward into Mexico (BCI 2018). In southern California, they are found throughout the coastal lowlands, up to the drier mid-elevation mountains, but avoid the Mojave and Colorado deserts (Tremor et al. 2017). Habitat includes dry woodlands, shrublands, grasslands, and occasionally even developed areas. This big bat forages in flight; most prey species are relatively small, low to the ground, and weak flying. For roosting, western mastiff bat appears to favor rocky, rugged areas in lowlands, where abundant suitable crevices are available for day roosts (BCI 2018). Roost sites may be in natural rock, tall buildings, or large trees. The western mastiff bat was detected in 2019 during passive and active surveys of the Preserve (Figure 4-5).

Western Red Bat (*Lasiurus blossevillii*) – SSC, San Diego County Group 2

Western red bat is a solitary bat that roosts in tree foliage and is closely associated with cottonwoods in riparian areas below 6,500 ft (BCI 2018). This bat typically forages along forest edges and in small clearings; it appears to have declined due to a loss of lowland riparian forest. Western red bat was detected in 2019 during passive surveys of the Preserve (Figure 4-5).

Western Small-Footed Myotis (*Myotis ciliolabrum*) – San Diego County Group 2

Small-footed myotis rears its young in cliff-face crevices, erosion cavities, and beneath rocks (BCI 2018). They may hibernate in caves and mines. All of the vegetation communities occurring within the Preserve provide suitable foraging habitat. Small-footed myotis were detected in 2019 during passive surveys on both Northern and Southern Parcels and during active surveys of the Preserve (Figure 4-5).

Myotis (*Myotis yumanensis*) – San Diego County Group 2

The Yuma myotis is found throughout much of the western United States and into Canada (BCI 2018). The species is always found near lakes, creeks, and ponds because the species forages over water. Typically, individuals skim low over the water and snatch up flying insects, but they can forage in other mesic areas. The species roosts by day, usually in buildings or bridges, but has been documented using mines or caves (BCI 2018). Yuma myotis is threatened by a loss of riparian

habitat and the decline in permanent water sources in the southwest. Yuma myotis was detected in 2019 during passive and active surveys of the Preserve (Figure 4-5).

4.3.6 Special-Status Wildlife with High Potential to Occur

Below are the special-status wildlife species with a high potential to occur at the Preserve. Appendix D, *Potential Sensitive Species Table—Wildlife*, contains a full list of special-status wildlife species with their potential to occur.

4.3.6.1 Herpetofauna

Five sensitive reptile species not observed during surveys were determined to have high potential to occur on the Preserve: coast horned lizard (*Phrynosoma blainvillii*), coast patch-nosed snake (*Salvadora hexalepis)*, coastal rosy boa (*Lichanura orcutti;* formerly *Charina trivirgata roseofusca)*, Coronado skink (*Plestiodon skiltonianus interparietalis*), and San Diego ringneck snake (*Diadophis punctatus similis)*. Below is a description of each of these species.

Coast Horned Lizard (*Phrynosoma blainvillii*) – SSC, San Diego County Group 1, Proposed Covered Species in Draft North County MSCP

The coast horned lizard is a stout lizard that was historically found from Kern, Los Angeles, Santa Barbara, and Ventura counties, southward to Baja California, Mexico. Horned lizard inhabits a variety of vegetation communities, including coastal sage, annual grassland, chaparral, oak woodland, riparian woodland and coniferous forest (Stebbins 2003). Loose, fine soils with a high sand content and an abundance of prey, as well as open areas with limited overstory, typify suitable habitat for this species (Jennings and Hayes 1994). The coast horned lizard's insectivorous diet consists mostly of native harvester ants (*Pogonomyrmex* sp.), which comprise more than 90 percent of its prey; however, coast horned lizard is an opportunistic feeder that will take other insects, including termites, beetles, flies, wasps, and grasshoppers (Stebbins 2003; Jennings and Hayes 1994). Although this species was not observed during the 2019 surveys, suitable habitat occurs through the Preserve and therefore this species has high potential to occur in all the natural habitats occurring within the Preserve.

Coast Patch-Nosed Snake (*Salvadora hexalepis virgutea*) – SSC, San Diego County Group 2

The coast patch-nosed snake is a slender, medium-sized snake that is a habitat generalist: it makes use of whatever vegetative cover is available and thrives in most environments. It is also a generalist in its diet, opportunistically feeding on anything it can overpower, including small mammals, lizards, and the eggs of lizards and snakes. The species ranges from Creston in San Luis Obispo County, southward into Baja California (Stebbins 2003). The decline of this species is most likely due to the conversion of habitat to development, agriculture, or nonnative plant species. Although this species was not observed during the 2019 surveys, suitable habitat occurs through the Preserve; therefore this species has high potential to occur in all the natural habitats occurring within the Preserve.

Coastal Rosy Boa (*Lichanura orcutti*) (formerly *Charina trivirgata rosefusca*) – San Diego County Group 2

Coastal rosy boa is a heavy-bodied snake that inhabits arid scrublands, semi-arid and rocky shrublands, rocky deserts, canyons, and other rocky areas (Stebbins 2003). This species eats

rodents, small birds, lizards, small snakes, and amphibians and kills its prey by constriction. Coastal rosy boa occurs in southwestern California, from the coastal slopes of the San Gabriel and San Bernardino mountains to the Peninsular Ranges and the desert in San Diego County (Stebbins 2003). This species is often associated with the margins of riparian areas and rocky areas. Although this species was not observed during the 2019 surveys, suitable habitat occurs through the Preserve in rocky areas; therefore this species has high potential to occur within the Preserve.

Coronado Skink (*Plestiodon skiltonianus interparietalis*) – SSC; San Diego County Group 2

The Coronado skink is a medium-sized, secretive lizard that is typically found in the moister areas of coastal sage, chaparral, oak woodlands, pinyon-juniper, riparian woodlands, and pine forests (Jennings and Hayes 1994). Its prey includes small invertebrates in leaf litter or dense vegetation at the edges of rocks and logs. The Coronado skink is found along the coastal plain and Peninsular Ranges west of the deserts, from approximately San Gorgonio Pass in Riverside County south to San Quentin, Mexico (Jennings and Hayes 1994). Although this species was not observed during the 2019 surveys, suitable habitat occurs in riparian areas and nonnative woodland on the Properties and therefore this species has high potential to occur.

San Diego Ringneck Snake (*Diadophis punctatus similis*) – San Diego County Group 2

The San Diego ringneck snake is a small, thin snake that prefers moist habitats, including wet meadows, rocky hillsides, gardens, farmland, grassland, chaparral, mixed coniferous forest, and woodlands (Stebbins 2003). It is secretive in its behavior, usually found under the cover of rocks, wood, bark, boards, and other surface debris. Ringneck snake eats small salamanders, tadpoles, small frogs, small snakes, lizards, worms, slugs, and insects. This species' range includes San Diego County along the coast and into the Peninsular Range, southwestern San Bernardino County, and just south into northern Baja California (Stebbins 2003). Threats to this species include habitat degradation and fragmentation from urban development. Although this species was not observed during the 2019 surveys, suitable habitat occurs through the Preserve; therefore this species has high potential to occur in all the natural habitats occurring within the Preserve.

4.3.6.2 Birds

Four special-status bird species not observed during the 2019 surveys were determined to have a high potential to occur within the Preserve: Bell's sparrow (*Artemisiospiza belli)*, California horned lark (*Eremophila alpestris actia)*, coastal California gnatcatcher, and southern California rufous-crowned sparrow (*Aimophila ruficeps canescens)*. Below is a description of each of these species.

Bell's Sparrow (*Artemisiospiza belli*) – San Diego County Group 1

Bell's sparrow is a resident species usually found in open chaparral and coastal sage scrub, from southern California to Baja California. This mostly ground-dwelling species prefers open chaparral and sage scrub and is one of the first species to inhabit recently burned habitat (Unitt 2004). This species occurs along coastal lowlands, inland valleys, and the lower foothills of the local mountains, from southern California to Baja California. The decline in this species can be attributed to fire suppression, invasion by exotic plant species, loss of habitat to agriculture and urban development,

and population isolation due to habitat fragmentation (Unitt 2004). Bell's sparrow is documented as breeding in the vicinity (Unitt 2004) and has high potential to occur in the Preserve.

California Horned Lark (*Eremopila alpestris actia*) – San Diego County Group 2

California horned lark is a resident of a variety of open habitats, usually where trees and large shrubs are absent (Zeiner et al. 1990). This subspecies breeds primarily in open fields and grasslands and is found along the coastal slope of San Diego County, east to Jacumba (Unitt 2004). Continuing threats to this species include habitat destruction and fragmentation. This species has been documented in the general vicinity (Unitt 2004) and has high potential to forage on the Preserve within the disturbed and more open areas.

Coastal California Gnatcatcher (*Polioptila californica californica*) – Federally Threatened: SSC; San Diego County Group 1; Proposed Covered Species in Draft North County MSCP

Coastal California gnatcatcher is a small insectivorous resident species whose occurrence is strongly associated with the sage scrub habitats found from southern California to northern Baja California, Mexico. Although coastal California gnatcatcher has a close association with sage scrub, this species has also been documented using coastal sage-chaparral scrub, chamise chaparral, and other habitat types (Campbell et al. 1998; Bontrager 1991). The USFWS listed this species as threatened in 1993. Critical habitat was designated for this species in 2000 and revised in 2007 (USFWS 2000, USFWS 2007).

Critical habitat for coastal California gnatcatcher is present within the Preserve (Figure 4-6). This species was not detected during the 2019 surveys, but it has a high potential to nest and forage within the Diegan coastal sage scrub within the Preserve.

Southern California Rufous-Crowned Sparrow (*Aimophila ruficeps canescens*) – San Diego County Group 1

The Southern California rufous-crowned sparrow is a resident species closely associated with coastal sage scrub, steep rocky hillsides, burned chaparral, and openings in mature chaparral (Unitt 2004). Preferring open habitat with approximately 50 percent shrub cover, this species seeks cover in shrubs, rocks, grass, and forb patches (Unitt 2004). The southern California subspecies is restricted to semi-arid coastal sage scrub and sparse chaparral from Santa Barbara south to the northwestern corner of Baja California, Mexico. Southern California rufous-crowned sparrow is declining because of the loss of appropriate habitat and its sensitivity to habitat fragmentation (Unitt 2004). This species was not observed on the Preserve in 2019 but has a high potential to occur onsite within Diegan coastal sage scrub.

4.3.6.3 Mammals

Four sensitive mammal species were determined to have high potential to occur on the Preserve; Bryant's woodrat (*Neotoma bryanti)*, pallid bat (*Antrozous pallidus)*, northwestern San Diego pocket mouse (*Chaetodipus fallax fallax)*, and southern mule deer (*Odocoileus hemionus fuliginata)*. Below is a description of each of these species.

Bryant's Woodrat (*Neotoma bryanti*) – SSC, San Diego County Group 2

Bryant's (San Diego desert) woodrat occurs throughout lower elevations of San Diego County, from sea level to approximately 1,500 m (4,920 ft). This species occurs in a variety of natural habitats, including coastal sage scrub and chaparral, and prefers areas with rocky outcrops and plentiful succulents. It usually makes a stick house under one of these food plants, or it may den among rocks. Materials used to build middens include cacti, sticks, bones, and a variety of debris. Middens provide insulation against excessive heat, as well as protection from predators. This species is herbivorous on a variety of plants, although fleshy plants, such as yucca species and prickly pear cactus (*Opuntia* sp.), are an important source of water. This species breeds in winter or spring, depending largely on when the rainy season begins and ends (Tremor et al. 2017). Although this species was not captured in 2019 during small-mammal trapping conducted on the Preserve, suitable habitat for Bryant's woodrat occurs throughout the Preserve.

Pallid Bat (*Antrozous pallidus*) – SSC, San Diego County Group 2, Proposed Covered Species in Draft North County MSCP

Pallid bat is known for its unique habit of feeding almost entirely from the ground. Unlike most other North American bats, this species captures little, if any, prey while in flight. After swooping down upon its prey, the pallid bat carries the insect to a convenient perch to consume its meal. Its most common prey includes crickets, beetles, grasshoppers, and scorpions. Pallid bats roost in rock crevices, buildings, bridges, and tree hollows. They are found from Mexico and the southwestern United States, north through Oregon, Washington, and western Canada (BCI 2018). Although pallid bat was not detected in 2019 during passive and active surveys on the Preserve, the Preserve provides suitable roosting and foraging habitat.

Northwestern San Diego Pocket Mouse (*Chaetodipus fallax fallax*) – SSC, San Diego County Group 2

Northwestern San Diego pocket mouse occurs along the coastal slope of San Diego County and northern Baja California in a variety of habitats but prefers rocky areas near shrubs. Primarily granivorous with leaves and stems supplementing its diet, this species is nocturnal and active throughout the year. This species can become torpid during periods of cold wet weather or during draught conditions. (Tremor et al. 2017). Although no northwestern San Diego pocket mice were captured during 2019 survey, suitable habitat occurs throughout the Preserve.

Southern Mule Deer (*Odocoileus hemionus fuliginata*) – San Diego County Group 2,

Southern mule deer is common across the western United States in a variety of habitats, from forest edges to mountains and foothills (Tremor et al. 2017). Southern mule deer prefer edge habitats, rarely travel or forage far from water, and are most active around dawn and dusk. Although southern mule deer were not observed during 2019 surveys, the Preserve provides suitable cover and foraging habitat.

4.3.7 Invasive Wildlife Species

No invasive wildlife species were detected or expected to occur at the Preserve.

4.4 Wildlife Movement

Wildlife movement corridors are areas that connect suitable wildlife habitat areas in a region that would otherwise be fragmented by rugged terrain, changes in vegetation, or human disturbance. Natural features, such as canyon drainages, ridgelines, or areas with vegetative cover, provide corridors for wildlife movement. Wildlife movement corridors are important because they provide access to food and water; allow the dispersal of individuals away from high population density areas; and facilitate the exchange of genetic traits between populations.

With respect to regional wildlife movement corridors, the Preserve is not part of a designated primary linkage of the Draft North County MSCP and there are no regionally significant corridors located within the Preserve. The Preserve is bounded by development to the north, west, and south and agricultural areas to the east. Fencing between the Preserve and adjacent private properties likely act as barriers to the movement of medium and large mammals. Additionally, the I-15 corridor west of the Preserve limits movement of medium to large mammals between the Preserve and open areas to the west. However, the Preserve is adjacent to open space to the northeast. The Preserve is 693 acres and contains diverse vegetation communities that provide habitat for many species and there are no barriers to movement of wildlife within the Preserve. A mountain lion was recorded using the main access road in the northern portion of the Preserve in 2019. It is assumed that the Preserve provides movement opportunities between the Preserve and open space areas to the northeast and east for medium and large mammals.

Bird and bat species could utilize the Preserve during daily and seasonal movements. Because of the Preserve's large size and diverse habitat assemblage, many bird and bat species could utilize the Preserve for foraging and resting while migrating during the spring and fall. Additionally, birds and bats nesting or roosting offsite could fly to the Preserve to forage.

The Preserve was acquired to protect habitat for coastal California gnatcatcher. Though no California gnatcatchers were detected during surveys conducted in 2019, suitable Diegan coastal sage scrub habitat is present and there are no barriers to prevent gnatcatchers from moving into the Preserve and establishing territories, especially dispersing individuals.

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Chapter 5
Conclusions and Management Recommendations

The Preserve is within the Draft North County MSCP. As such, no approved FMP has been created that would affect this area. However, the Draft FMP (DPR 2018) was consulted for general concepts of what would be appropriate for management of specific habitats in San Diego County. The Draft North County MSCP includes general biological monitoring to evaluate whether the Preserve system is meeting conservation targets for covered plant and animal species and their habitats, identify threats to covered species and their habitats, and help identify management needs.

As detailed previously, the current survey effort documented 13 vegetation associations/alliances, and 241 species within the Preserve. Specifically, the surveys detected 116 plant species, 42 butterfly species, and 83 wildlife species. Of these species, three plants are considered special status, and 16 wildlife are considered special status.

5.1 Vegetation Communities/Habitat

As discussed in Section 4.1, *Vegetation Communities/Habitat*, the Preserve contains 13 vegetation communities/land cover types, including scrub, chaparral, and riparian communities.

In order to assess the overall biological integrity of the Preserve, it is recommended that the County maintain an updated vegetation community map which should be used as a tool for adaptive management within the Preserve. Updates should occur once every 8 to 10 years or within the first growing season following an unforeseen disturbance (i.e., fire, flood, human-made disturbance). The purpose of the ongoing mapping effort should be to document changes in the vegetation communities within the Preserve that could affect quality and usage by wildlife. Vegetation monitoring for habitat value should also focus on identifying adverse changes and their effects on vegetation over time. This includes dramatic changes, such as fire, as well as slower but equally important effects, such as invasions by invasive nonnative plant species or a slow decline in existing native plant species. An updated vegetation community map will also document positive changes ensuing from restoration.

5.2 Plants

One plant species, Engelmann oak, is proposed for coverage under the Draft North County MSCP. As the North County MSCP is currently in draft form, specific monitoring and management requirements have not been established for proposed covered plant species. The draft FMP (DPR 2018) for the North County MSCP was utilized for Engelmann oak.

5.2.1 Engelmann Oak (*Quercus engelmannii*)

5.2.1.1 Site Location

Engelmann oak is found within the drainages in the southwest corner of the Preserve, near Kornblum Drive.

5.2.1.2 Habitat

In the Preserve, Engelmann oak woodland represents suitable habitat.

5.2.1.3 Management and Monitoring

Management and monitoring should include:

1. Effectiveness monitoring every five years including rare plant surveys in appropriate habitat to determine the presence of rare plants including Engelmann oak.
2. Treatment of shot hole borer/Fusarium dieback if observed
3. Monitoring the known occurrences every other year following the most current Management Strategic Plan Rare Plant Protocol (SDMMP 2017)
1. If a fire occurs, conducting post-fire assessments to document the condition and persistence of this species.
2. Implement adaptive management strategies.

5.3 Wildlife

No Draft North County MSCP proposed covered wildlife species were detected during 2019 baseline surveys of the Preserve. Therefore, no specific management directives for wildlife species are provided.

5.4 Nonnative Invasive Species Removal and Control

5.4.1 Invasive Nonnative Plants

Section 4.2.3, *Invasive Plants*, detailed invasive nonnative plants observed at the Preserve in 2019. These plants all have the capacity to displace or are currently displacing native vegetation and alter the functions and services of native vegetation communities. The invasive nonnative plant species are presented in Figure 4-4. Nearly all the nonnative species are found in the northwestern portion of the Preserve in the nonnative woodland, where a former avocado grove was located. Methods of control for nonnative invasive plant species are presented below (Cal-IPC 2019), grouped by treatment priority.

Table 5-1. Invasive Plant Treatment Priority

Invasive Plant	Cal-IPC Rating	Infestation Description	Treatment Priority	Suggested Chemical Control
Pampas grass	High	Low-density populations in a few locations	1	Fluazifop, Glyphosate, Imazapyr: postemergence in late summer to fall, after flowering when translocation of herbicide to rhizomes is maximum.
Tamarisk	High	3 isolated individuals	1	Triclopyr: cut-stump or basal bark, best applied in summer and fall when

Invasive Plant	Cal-IPC Rating	Infestation Description	Treatment Priority	Suggested Chemical Control
				plants are still growing but not water stressed. Glyphosate: sprayed on seedlings in late summer to early fall, when plants are translocating carbohydrates to below-ground tissues.
Brome grasses	High/ Moderate	Scattered populations widely distributed throughout former avocado grove	2	Fluazifop: applied postemergence but before bolting. It is grass-selective and safe on broadleaf. To select for native perennial grasses, apply before they emerge. Glyphosate: postemergence in early spring to rapidly growing plants.
Crimson fountain grass	Moderate	Scattered populations widely distributed throughout former avocado grove	2	Fluazifop: postemergence to rapidly growing plants. Glyphosate: best kill of rhizomes during flowering stage, from mid-summer to early fall.
Poison hemlock	Moderate	Isolated patches in a few locations	2	Glyphosate, Triclopyr: postemergence to fully developed leaves but before flowering, from late February to early March.
Black mustard	Moderate	Isolated patches in a few locations	2	Glyphosate: sprayed postemergence when plants are small and rapidly growing, but before flowering.
Tree tobacco	Moderate	Scattered populations widely distributed throughout former avocado grove	2	Triclopyr: cut-stump or basal bark, applied anytime, except when soil is saturated or frozen. Glyphosate: sprayed on seedlings in late summer to early fall, when plants are translocating carbohydrates to below-ground tissues.
Grass Poly	Moderate	-	2	Glyphosate: sprayed postemergence when plants are small and rapidly growing, but before flowering.
Shortpod Mustard	Moderate	-	2	Glyphosate: sprayed postemergence when plants are small and rapidly growing, but before flowering.
Castor Bean	Limited	Isolated plant	2	Triclopyr: cut-stump or basal bark, applied in late summer to early fall, when plants are translocating carbohydrates to below-ground tissues. Glyphosate: foliar sprayed postemergence.
Blessed Milk Thistle	Limited	-	2	Foliar or spot application between October and January and a second treatment in May and June (Summers 2013). Best results have been

Invasive Plant	Cal-IPC Rating	Infestation Description	Treatment Priority	Suggested Chemical Control
				achieved using *Milestone* in early season postemergence from October to January, followed by Glyphosate or Garlon in late season postemergence from May to June.
Smilograss	Limited	Isolated patches in a few locations	2	Fluazifop: applied postemergence but before bolting. It is grass-selective and safe on broadleaf. To select for native perennial grasses, apply before they emerge. Glyphosate: postemergence in early spring to rapidly growing plants.
Edible Fig	Moderate	Isolated patches in a few locations	3	Triclopyr: cut-stump, basal bark, or stem injection. Best applied in late growing season before leaves fall. Glyphosate: sprayed in late summer to early fall before leaves fall.
Mexican fan palm	Moderate	357 individuals scattered throughout former avocado grove	3	Triclopyr: spot treatment postemergence into apical buds of smaller plants. Glyphosate: stem injections into drill holes or cut-stump right after cutting.
Peruvian Peppertree	Limited	54 individuals scattered throughout former avocado grove	3	Triclopyr: basal bark or stem injection into drill holes. Best applied in late summer and fall when plants are growing and translocating sugars to below-ground tissues. Glyphosate: foliar spray on smaller plants. Best applied in late summer and fall when plants are growing and translocating sugars to below-ground tissues.
Eucalyptus	Limited	Two isolated populations and a few scattered individuals	3	Triclopyr: foliar, basal bark or stem injection into drill holes. Foliar treatments best when leaves are fully extended. Stump and stem at any time, but best if not used when sap is rising. Glyphosate: foliar, basal bark or stem injection into drill holes. Best applied in late summer to early fall.

5.4.1.1 Priority Treatment Group 1

These species are recommended for treatment first as they are rated "high" by Cal-IPC and are currently isolated populations that can be eradicated quickly to prevent a larger infestation.

The two low-density populations of **pampas grass** should be removed using mechanical methods such as hand-pulling for seedlings and using shovels and mattocks to remove established clumps. To prevent resprouting, it is important to remove the entire crown and top sections of the roots and

apply an herbicide to any remaining biomass. Removed plants should be safely disposed or left out to dry. Detached plants left lying on wet soils may take root and reestablish. Postemergence herbicide is best when applied in late summer or fall, after flowering when translocation of herbicide to base of tillers and rhizomes is at peak.

Tamarisk removal methods includes mechanical control by mowing, disking, or chaining, but these methods usually only suppress tamarisk temporarily and will not eradicate infestations because it can resprout from the root crown. Tamarisk is better controlled with the application of herbicide after plant volume is reduced by cutting. Herbicide is most effective when applied in summer or fall when plants are still growing and not water stressed, as to promote herbicide translocation to below-ground tissues. Stems should be cut horizontally at or near ground level, and an herbicide solution should be applied to cover the cut stump immediately. Follow-up treatments with foliar spray are recommended to control resprouts.

5.4.1.2 Priority Treatment Group 2

These species are recommended for treatment after Group 1. They are more widespread and have moderate Cal-IPC ratings. Red brome has "high" Cal-IPC ratings, but it is mostly found intermixed with rip-gut brome throughout larger areas.

The large area of **brome grasses** should be trimmed or mowed in the spring season after flowering but before seed sets, following up with herbicide and dethatching efforts to remove seed. Plants mowed early will regrow. Seeding with native species and continued follow-up treatment of these grass species will allow for the area to convert back to a native community.

Black mustard and **shortpod mustard** should be spot-treated with herbicide postemergence when plants are small and rapidly growing in spring and fall, but before flowering. If this timing is missed, black mustard should be trimmed or mowed before it sets seed. Yearly removal before seeding can eventually deplete the seedbank.

Grass poly is best controlled with foliar herbicide application. Mechanical removal methods such as grubbing, digging, or hand-pulling perform poorly because roots tend to brake during removal and commonly resprout. Herbicide treatment can be applied as foliar spray postemergence, when plants are small and rapidly growing, but before flowering.

Blessed milk thistle infestation should identified in the next growing season and treated using herbicide. A two-treatment method is recommended—one foliar or spot application between October and January and a second treatment in May and June (Summers 2013). Best results have been achieved using *Milestone* in early season postemergence from October to January, followed by Glyphosate or Garlon in late season postemergence from May to June.

Crimson fountain grass should follow an herbicide-mechanical method strategy where herbicide is applied to actively growing plants, allow approximately 2 weeks for the herbicide to be absorbed into the roots and then mow or cut with a weed trimmer. Follow-up treatment may be needed. Control is fastest when weather is warm and plants are small. Crimson fountain grass can effectively be controlled by mechanical removal methods because of its bunchgrass nature. Removal by hand may have to be repeated, and inflorescences should be cut first and bagged when they are present.

Small infestations of **poison hemlock** can be removed by hand, but gloves and caution must be employed as this plant produces highly toxic alkaloids to humans. The entire taproot must be removed, taking care to minimize soil disturbance that can encourage further germination of seeds.

Large infestations can be controlled with application of foliar herbicide in spring and fall after emergence but before bolting. If this timing is missed, poison hemlock should be trimmed or mowed before it sets seed.

Mechanical removal methods such as cutting using mowers or weed-eaters are effective in controlling **smilograss** if employed before flower heads appear. Smilograss is easy to pull, so smaller patches can be treated by hand or grubbing with hand tools. Best recommended approach consists of mowing in the spring season after flowering but before seed sets, following up with herbicide and dethatching efforts to remove seed.

Tree tobacco can be treated through foliar spray with herbicide or through cutting and treating the stumps with herbicide. The method chosen would depend upon the size of the individual plant; smaller plants could be easily treated with foliar spray when plants are rapidly growing, while larger plants should be cut, and then stump treated. For both foliar and stem treatments, best results are achieved in late summer to early fall.

Individual **castor bean plants** can be removed by hand by digging and smaller plants can be hand-pulled. It is important to remove the bulk of the root crown to prevent regeneration. Because castor bean is toxic to humans, the use of gloves is a requirement when handling this plant. Herbicide can be used to control larger infestation. Foliar spray is best postemergence when plants are small, and cut-stump treatment is recommended for larger plants in late growing season when plants are translocating carbohydrates to below-ground tissues.

5.4.1.3 Priority Treatment Group 3

These species are recommended for treatment after Group 1 and Group 2 invasive nonnative species treatment. They are woody plants ranging from low to high numbers and are ranked as moderate by Cal-IPC.

Mexican fan palm, **edible fig**, **peppertrees** and **eucalyptus** should all be treated with the "drill and kill" method, which involves the use of a powerful cordless drill with a long bit to drill into the trunk and introduce herbicide into the vascular system of the tree. The trees are then left standing to provide habitat for bats and birds as snags. A California pest control advisor would need to be hired to choose and apply the appropriate herbicide type and concentration. Mechanical methods such as pulling are only effective for smaller plants when roots can be completely removed.

5.4.2 Invasive Wildlife

No invasive wildlife species were observed at the Preserve; therefore, no control efforts are needed at this time.

5.5 Restoration Opportunities

Excluding the nonnative woodland (former avocado grove), the Preserve is generally composed of high-quality habitat that provides essential habitat for special-status species. The majority of the invasive nonnative plants are found in the nonnative woodland, but a variety of target invasive nonnative plants are present at the Preserve, as described in Section 4.2.3. These plants have taken advantage of the now fallow avocado grove to become established at the Preserve and have the potential to alter and degrade the intact native habitats. If resources are available, active

invasive nonnative plant removal and restoration would improve the native plant cover and composition of the nonnative woodland (former avocado grove) and improve habitat values for a variety of native and sensitive animal species. Any proposed restoration activity should use current accepted techniques and avoid or minimize impacts on sensitive species or native habitats. In addition, revegetation activities should use only local native plant seed or container stock plants propagated from plant material from northern San Diego County.

Other scattered invasive nonnative species should be removed. Revegetation would not be needed to restore these areas; natural recruitment would be sufficient in these small areas.

5.6 Fire Management

No fire over 10 acres has been documented at the Preserve since 1878. Chaparral and coast sage scrub plant species are adapted to fire. However, too frequent a return interval can cause type conversion to nonnative grassland, and too infrequent a return interval can create a fire hazard.

For fire safety, fuel management zones at conserved land boundaries may be necessary to protect adjacent homes. Maintenance of vegetation within these zones is considered part of the necessary stewardship of conserved lands (DPR 2018). The Vegetation Management Plan (VMP) for the Preserve (in development) will describe fuel management actions that may be conducted within the Preserve for fire safety purposes. Fuel management for ecosystem and species' health will also be considered in the development of the VMP.

5.7 Wildlife Linkages and Corridors

The primary function of wildlife corridors is to provide migration routes between core biological areas. In some cases, wildlife corridors may also serve as habitat for various life-history requirements (e.g., foraging, reproduction, growth). Target species for corridor use include large mammals, such as mountain lion and southern mule deer. Corridor use by mammals should be monitored as described below.

The Preserve is not part of a designated primary linkage of the Draft North County MSCP; however, a mountain lion was observed utilizing the Preserve. Per the Draft North County MSCP, target species for corridor use include California gnatcatcher, mountain lion, and southern mule deer. Although not designated a primary linkage, monitoring stations should be established across the site, in areas previously used for wildlife camera tracking, to track the usage of the Preserve by large mammals, such as southern mule deer and mountain lion. At these stations, track identification, scat identification, and trail camera observation methods are recommended to be employed to determine use by target mammal species. Wildlife corridor monitoring should occur every 8 to 10 years in conjunction with habitat monitoring. Monitoring is done by conducting surveys using trail cameras at established locations; along roads and game trails. The main product of this monitoring should be a report documenting the results of the current assessment of habitat linkage function, including a list of focal species detected.

5.8 Additional Management Recommendations

5.8.1 Public Access

The Preserve is not currently open to public access. Trespassers, illegal campers, off-road vehicles, domestic grazing animals, etc. will be kept out of the Preserve until an RMP is prepared and approved. Then only those activities specified in the RMP will be conducted at the Preserve. Currently there are no illegal camps at the Preserve but if any are found to be established, the County will coordinate with law enforcement to remove the illegal camps from the Preserve (DPR 2018).

5.8.2 Fencing and Gates

Fencing plays an important role in the use of the landscape by humans, domestic animals, and wildlife. Fencing can control human access, particularly by off-highway vehicles. Fencing can also direct wildlife to road undercrossings and prevent road kills. However, improperly designed and installed fencing can have an impact on cultural resources, restrict normal wildlife movement, restrict access to food and water, and guide wildlife onto roads. Fencing should be added in areas where humans are conducting unauthorized uses of the Preserve by hiking or driving off-highway vehicles off trail and causing damage.

Gates can provide access through fencing for the necessary maintenance and management of the park by operations staff, as well as provide future access for any desired habitat enhancement or restoration activities. Access through gates will continue to be managed and secured with signage and locks.

5.8.3 Trails and Access Roads

The Preserve is currently closed and there are no authorized trails. If the Preserve is opened to the public in the future, passive recreational use of the Preserve is consistent with the protection and enhancement of biological resources. Passive recreational facilities, including roads, should be managed to promote the maintenance of habitat value surrounding these facilities and reduce impacts on the conserved resources.

5.8.4 Signage and Education

The Preserve is currently closed to the public; therefore, signs should be installed around its perimeter to educate people about the reason the areas is protected (DPR 2018). If the Preserve is opened to the public in the future, signage should be installed to educate, provide direction, and promote the sensitive use and enjoyment of natural areas; however, signage can also inadvertently invite vandalism and other destructive behaviors. Signs that explain the rules within the Preserve (e.g., firearms use, protection of archaeological resources) are most effective at trailheads. Educational signs along any multiuse trails should be posted at appropriate locations determined by DPR staff. DPR should provide and maintain sufficient signage to clearly identify public access to the Preserve and instruct the public about the rules and regulations for Park usage. Barriers, such as vegetation, rocks/boulders, or fencing, may be necessary to protect highly sensitive areas. The determination of the appropriate types of barriers to be used would be based upon location, setting, and use.

5.8.5 Litter/Trash Removal

Although the Preserve is closed to the public, illegal dumping incidents still occur. Whether closed or open to the public, the management of the Preserve should include implementation of a litter and trash removal program. The purpose of this program would be to ensure that contaminants do not negatively affect the conserved resources within the Preserve. While closed, additional monitoring and law enforcement may be needed if illegal dumping continues to occur. If open to the public, trash receptacles should be provided and maintained at main trail access areas and designed to be secure from intrusion by wildlife species. Preserve management staff should regularly collect any illegal dumping and empty trash receptacles (if present) at least once a week (more/less as deemed necessary).

5.8.6 Illegal Off-Road Activity

There were several incidences of unauthorized off-road activities at the Preserve during the monitoring period. Off-road activities can result in a significant detrimental effect on the conserved resources within the Preserve by reducing air quality, causing soil erosion and sedimentation in local waters, creating noise pollution, and causing habitat degradation. Disturbance from off-road vehicles can also disrupt breeding activities. For these reasons, off-road vehicle use is not compatible in preserved areas, and fences and gates within the Preserve should be maintained to prevent illegal access. Preserve management personnel will monitor trails for degradation, as well as off-trail access and use, and provide the necessary repair/maintenance.

5.8.7 Emergency and Safety Issues

Safety measures should be implemented within the Preserve as needed. These measures may include installing safety signs and identifying emergency evacuation procedures, such as vehicular access and helicopter landing areas. The Preserve is not currently open to the public and not open at night; therefore, safety lighting is not necessary.

Law enforcement officials should be invited to access the Preserve as necessary. If it becomes apparent that extensive enforcement activities are necessary, DPR should coordinate with the applicable agencies to inform field personnel regarding how to minimize damage to particularly sensitive resources. The Preserve's VMP will include details on coordination with the local fire district and include evacuation and other safety measures.

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Chapter 6
References

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Appendix A
Observed Species List – Plants

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Observed Species List - Plants

Scientific Name	Common Name	Special Status
FERNS		
Pteridaceae - Brake family		
Pentagramma triangularis	Goldback fern	
GYMNOSPERMS		
Pinaceae - Pine family		
Pinus sp.	Pine	
MAGNOLIIDS		
Lauraceae - Laurel family		
* *Persea americana*	Avocado	
EUDICOTS		
Adoxaceae - Muskroot family		
Sambucus nigra ssp. caerulea	Blue elderberry	
Anacardiaceae - Sumac Or Cashew family		
Malosma laurina	Laurel sumac	
Rhus integrifolia	Lemonade berry	
* *Schinus molle*	Peruvian pepper tree	
Toxicodendron diversilobum	Western poison oak	
Apiaceae - Carrot family		
* *Conium maculatum*	Poison hemlock	
Asteraceae - Sunflower family		
Artemisia californica	California sagebrush	
Baccharis pilularis ssp. pilularis	Coyote brush	
Baccharis salicifolia ssp. salicifolia	Mule fat	
Baccharis sarothroides	Broom baccharis	
Brickellia californica	California brickellbush	
* *Carduus pycnocephalus ssp. pycnocephalus*	Italian thistle	
Chaenactis glabriuscula	Yellow pincushion	
Deinandra fasciculata	Fascicled tarweed	
Eriophyllum confertiflorum	Golden yarrow	
* *Gazania linearis*	Treasureflower	
Hazardia squarrosa	Saw toothed goldenbush	
Helianthus gracilentus	Slender sunflower	
* *Logfia gallica*	French cottonrose	
Pseudognaphalium biolettii	Bi-color everlasting	

Scientific Name	Common Name	Special Status
Pseudognaphalium californicum	California everlasting	
Psilocarphus brevissimus var. brevissimus	Woolly-marbles	
* *Senecio vulgaris*	Common ragwort	
* *Silybum marianum*	Blessed milkthistle	
* *Sonchus oleraceus*	Common sow thistle	
Uropappus lindleyi	Silver puffs	
Boraginaceae - Borage family		
Cryptantha intermedia var. intermedia	Nievitas Cryptantha	
Cryptantha sp.	Cryptantha	
Eucrypta chrysanthemifolia	Spotted hideseed	
Nemophila menziesii	Menzie's baby blue eyes	
Phacelia cicutaria	Caterpillar phacelia	
Phacelia minor	Wild canterbury bells	
Pholistoma auritum var. auritum	Fiesta flower	
Brassicaceae - Mustard family		
* *Brassica nigra*	Black mustard	
Caulanthus heterophyllus	San Diego jewelflower	
* *Hirschfeldia incana*	Shortpod mustard	
* *Raphanus sativus*	Radish	
Cactaceae - Cactus family		
* *Opuntia ficus-indica*	Mission prickly pear	
Caprifoliaceae - Honeysuckle family		
Lonicera subspicata var. denudata	Johnston's honeysuckle	
Caryophyllaceae - Pink family		
* *Spergularia rubra*	Red sand-spurrey	
Cistaceae - Rock-rose family		
Crocanthemum scoparium	Peak rush-rose	
Convolvulaceae - Morning-glory family		
Calystegia macrostegia	Coast morning-glory	
Crassulaceae - Stonecrop family		
Crassula connata	Pygmyweed	
Cucurbitaceae - Gourd family		
Marah macrocarpa	Large fruit wild cucumber	
Ericaceae - Heath family		
Arctostaphylos glauca	Bigberry manzanita	

Scientific Name	Common Name	Special Status
Comarostaphylis diversifolia ssp. diversifolia	Summer holly	CRPR 1B.2
Xylococcus bicolor	Mission manzanita	
Euphorbiaceae - Spurge family		
* *Euphorbia lathyris*	Caper spurge	
* *Ricinus communis*	Castorbean	
Fabaceae - Legume family		
Acmispon glaber	Deerweed	
Lupinus bicolor	Miniature lupine	
Lupinus hirsutissimus	Stinging lupine	
Fagaceae - Oak family		
Quercus agrifolia var. agrifolia	Coast live oak	
Quercus berberidifolia	Scrub oak	
Quercus engelmannii	Engelmann oak	CRPR 4.2
Gentianaceae - Gentian family		
Zeltnera venusta	California centaury	
Geraniaceae - Geranium family		
* *Erodium cicutarium*	Redstem filaree	
Juglandaceae - Walnut family		
Juglans californica	Southern California black walnut	CRPR 4.2
Lamiaceae - Mint family		
* *Marrubium vulgare*	Horehound	
Salvia apiana	White sage	
Salvia mellifera	Black sage	
Lythraceae - Loosestrife family		
* *Lythrum hyssopifolia*	Grass Poly	
Montiaceae - Purslane family		
Claytonia parviflora	Small flowered miner's-lettuce	
Moraceae - Mulberry family		
* *Ficus carica*	Edible fig	
Myrtaceae - Myrtle family		
* *Eucalyptus camaldulensis*	Red gum	
* *Eucalyptus globulus*	Blue gum	
Nyctaginaceae - Four O'clock family		
Mirabilis laevis	Wishbone plant	
Onagraceae - Evening Primrose family		
Camissoniopsis bistorta	California sun cup	

Scientific Name	Common Name	Special Status
Chylismia brevipes	Golden suncup	
Oxalidaceae - Oxalis family		
* *Oxalis pes-caprae*	Bermuda buttercup	
Phrymaceae - Lopseed family		
Mimulus aurantiacus	Bush monkeyflower	
Plantaginaceae - Plantain family		
Nuttallanthus texanus	Blue toadflax	
Plantago erecta	Dot-seed plantain	
* *Plantago lanceolata*	English plantain	
Plantago ovata	Desert plantain	
Platanaceae - Plane Tree, Sycamore family		
Platanus racemosa	Western sycamore	
Polemoniaceae - Phlox family		
Navarretia hamata	Hooked navarretia	
Polygonaceae - Buckwheat family		
Eriogonum fasciculatum	California buckwheat	
Pterostegia drymarioides	Granny's hairnet	
Ranunculaceae - Buttercup family		
Clematis pauciflora	Few flowered virgin's bower	
Rhamnaceae - Buckthorn family		
Ceanothus tomentosus	Woollyleaf ceanothus	
Rosaceae - Rose family		
Adenostoma fasciculatum	Chamise	
Heteromeles arbutifolia	Toyon	
Prunus ilicifolia	Holly leaf cherry	
Rubiaceae - Madder family		
Galium aparine	Common bedstraw	
Salicaceae - Willow family		
Salix gooddingii	Goodding's black willow	
Salix laevigata	Red willow	
Salix lasiolepis	Arroyo willow	
Scrophulariaceae - Figwort family		
Scrophularia californica	California figwort	
Solanaceae - Nightshade family		
* *Nicotiana glauca*	Tree tobacco	
Solanum douglasii	Douglas' nightshade	

Scientific Name	Common Name	Special Status
Solanum parishii	Parish's nightshade	
Solanum xanti	Chaparral nightshade	
Tamaricaceae - Tamarisk family		
* *Tamarix ramosissima*	Hairy tamarix	
Urticaceae - Nettle family		
* *Urtica urens*	Dwarf nettle	
MONOCOTS		
Agavaceae - Century Plant family		
Hesperoyucca whipplei	Chaparral yucca	
Yucca sp.	Yucca	
Arecaceae - Palm family		
* *Phoenix dactylifera*	Date palm	
* *Washingtonia robusta*	Mexican fan palm	
Cyperaceae - Sedge family		
Carex triquetra	Trigonous sedge	
Poaceae - Grass family		
* *Avena fatua*	Wild oat	
* *Brachypodium distachyon*	Purple false brome	
* *Bromus diandrus*	Ripgut brome	
* *Bromus madritensis*	Compact brome	
* *Cortaderia selloana*	Pampas grass	
* *Festuca myuros*	Rattail fescue	
* *Hordeum murinum*	Wild barley	
* *Lamarckia aurea*	Goldentop grass	
* *Pennisetum setaceum*	African fountain grass	
* *Schismus barbatus*	Mediterranean schismus	
* *Stipa manicata*	Andean needle grass	
* *Stipa miliacea var. miliacea*	Smilo grass	
Themidaceae - Brodiaea family		
Dichelostemma capitatum	Blue dicks	

Scientific Name	Common Name	Special Status

Legend

*= Non-native or invasive species

Special Status:

Federal:
FE = Endangered
FT = Threatened

State:
SE = Endangered
ST =Threatened

CRPR – California Rare Plant Rank
1A. Presumed extinct in California and elsewhere
1B. Rare or Endangered in California and elsewhere
2A. Presumed extinct in California, more common elsewhere
2B. Rare or Endangered in California, more common elsewhere
3. Plants for which we need more information - Review list
4. Plants of limited distribution - Watch list

Threat Ranks
.1 - Seriously endangered in California
.2 – Fairly endangered in California
.3 – Not very endangered in California

Appendix B

Potential Sensitive Species Table – Plants

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Appendix B. Special-Status Plant Species Potential to Occur

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
PLANTS					
San Diego thorn-mint (*Acanthomintha ilicifolia*)	FT CE CRPR 1B.1 List A MSCP	Annual herb. Clay openings in chaparral, coastal scrub, valley foothill grassland and vernal pool habitats. Elevation range: 30-3150 ft. Blooming period: April – June.	No	Not expected	No suitable soils observed on the Preserve.
California adolphia (*Adolphia californica*)	CRPR 2B.1 List B	Perennial deciduous shrub. Clay soils in chaparral, coastal scrub, and valley and foothill grassland habitats. Elevation range: 30-2430 ft. Blooming period: December – May.	No	Not expected	No suitable soils observed on the Preserve.
San Diego ambrosia (*Ambrosia pumila*)	FE CRPR 1B.1 List A MSCP	Perennial rhizomatous herb. Sandy loam or clay soils that are sometimes alkaline and often in disturbed areas of chaparral, coastal scrub, valley and foothill grassland and vernal pool habitats. Elevation range: 65-1360 ft. Blooming period: April – October.	No	Not expected	No suitable soils observed on the Preserve.
Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*)	FE CRPR 1B.1 List A MSCP	Perennial evergreen shrub. Sandy and maritime chaparral habitats. Elevation range: 0-1200 ft. Blooming period: December – June.	No	Not expected	No suitable soils or habitats observed on the Preserve.
Rainbow manzanita (*Arctostaphylos rainbowensis*)	CRPR 1B.1 List A	Perennial evergreen shrub. Chaparral habitats. Elevation range: 670-2200 ft. Blooming period: December – March.	No	Not expected	Preserve is outside of known species geographical range.
San Diego sagewort (*Atremisia palmeri*)	CRPR 4.2 List D	Perennial deciduous shrub. Sandy and mesic soils in chaparral, coastal scrub, and riparian forests, scrub, and woodland habits. Elevation range: 45-3000 ft. Blooming period: sometimes February, May – September.	No	Not expected	No suitable soils observed on the Preserve.

Appendix B. Special-Status Plant Species Potential to Occur

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Western spleenwort (*Asplenium vespertinum*)	CRPR 4.2 List D	Perennial rhizomatous herb. Rocky soils in chaparral, cismontane woodland and coastal scrub habitats. Elevation range: 590-3280 ft. Blooming period: February – June.	No	Not expected	No suitable soils observed on the Preserve.
San Diego milk-vetch (*Astragalus oocarpus*)	CRPR 1B.2 List A	Perennial herb. Openings in chaparral and cismontane woodland habitats. Elevation range: 1000-5000 ft. Blooming period: May – August.	No	Not expected	Preserve is outside of known species range.
Coulter's saltbush (*Atriplex coulteri*)	CRPR 1B.2 List A	Perennial herb. Alkaline or clay soils in coastal bluff scrub, coastal dunes, coastal scrub and valley and foothill grassland habitats. Elevation range: 5-1510 ft. Blooming period: March – October.	No	Not expected	No suitable soils observed on the Preserve.
South Coast saltscale (*Atriplex pacifica*)	CRPR 1B.2 List A	Annual herb. Coastal bluff scrub, coastal dunes, coastal scrub and playa habitats. Elevation range: 0-460 ft. Blooming period: March – October.	No	Not expected	No suitable habitat observed on the Preserve.
Parish's brittlescale (*Atriplex parishii*)	CRPR 1B.1 List A	Annual herb. Alkaline soils in chenopod scrub, playa and vernal pool habitats. Elevation range: 80-6235 ft. Blooming period: June – October.	No	Not expected	No suitable soils or habitat observed on the Preserve.
Encinitas baccharis (*Baccharis vanessae*)	FT CE CRPR 1B.1 List A MSCP	Perennial deciduous shrub. Sandstone in maritime chaparral and cismontane woodland habitats. Elevation range: 195-2360 ft. Blooming period: August, October, and November.	No	Not expected	No suitable soils or habitat observed on the Preserve.

Appendix B. Special-Status Plant Species Potential to Occur

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Nevin's barberry (*Berberis nevinii*)	FE CE CRBR 1B.1 List A	Perennial evergreen shrub. Sandy or gravelly soils in chaparral, cismontane woodland, coastal scrub, and riparian scrub. Elevation range: 225-2705 ft. Blooming period: sometimes February, March – June.	No	Not expected	No suitable soils observed on the Preserve.
San Diego goldenstar (*Bloomeria clevelandii*)	CRBR 1B.1 List A	Perennial bulbiferous herb. Clay soils in chaparral, coastal scrub, valley and foothill grassland and vernal pool habitats. Elevation range: 160-1525 ft. Blooming period: April – May.	No	Not expected	No suitable soils observed on the Preserve.
Thread-leaved brodiaea (*Brodiaea filifolia*)	FT CE CRBR 1B.1 List A MSCP	Perennial bulbiferous herb. Often clay soils in openings of chaparral, cismontane woodland, coastal scrub, playa, valley and foothill grassland, and vernal pool habitats. Elevation range: 80-3675 ft. Blooming period: March – June.	No	Not expected	No suitable soils observed on the Preserve.
Orcutt's brodiaea (*Brodiaea orcuttii*)	CRBR 1B.1 List A	Perennial bulbiferous herb. Mesic and clay soils in closed-cone coniferous forest, chaparral, cismontane woodland, meadow and seep, valley and foothill grassland and vernal pool habitats. Elevation range: 95-5550 ft. Blooming period: May – July.	No	Not expected	No suitable soils observed on the Preserve.
Dunn's mariposa lily *(Calochortus dunnii*)	CR CRPR 1B.2 List A	Perennial bulbiferous herb. Gabbroic or metavolcanic and rocky soils in closed-cone coniferous forest, chaparral, valley and foothill grassland habitats. Elevation range: 605-6005 ft. Blooming period: sometimes February, April – June.	No	Not expected	No suitable soils observed on the Preserve.

Appendix B. Special-Status Plant Species Potential to Occur

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Lewis' evening-primrose (*Camissoniopsis lewisii*)	CRPR 3 List C	Annual herb. Sandy or clay soils in coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grassland habitats. Elevation range: 0-985 ft. Blooming period: March – May, sometimes June.	No	Not expected	No suitable soils observed on the Preserve.
Payson's jewelflower (*Caulanthus simulans*)	CRPR 4.2 List D	Annual herb. Sandy and granitic soils in chaparral and coastal scrub habitats. Elevation range: 295-7220 ft. Blooming period: sometimes February, March – May, sometimes June.	No	Not expected	Preserve is outside of known species geographical range.
Lakeside ceanothus (*Ceanothus cyaneus*)	CRPR 1B.2 List A	Perennial evergreen shrub. Closed-cone coniferous forest and chaparral habitats. Elevation range: 771-2477 ft. Blooming period: April – June.	No	Not expected	Preserve is outside of known species geographical range.
Wart-stemmed ceanothus (*Ceanothus verrucosus*)	CRPR 2B.2 List B	Perennial evergreen shrub. Chaparral habitats. Elevation range: 0-1245 ft. Blooming period: December – May.	No	Not expected	Preserve is outside of known species geographical range.
Southern tarplant (*Centromadia parryi* ssp. *australis*)	CRBR 1B.1 List A	Annual herb. Margins of marshes and swamps, vernally mesic valley and foothill grassland and vernal pool habitats. Elevation range: 0-1575 ft. Blooming period: May – November.	No	Not expected	No suitable soils or habitat observed on the Preserve.
Smooth tarplant (*Centromadia pungens* ssp. *laevis*)	CRBR 1B.1 List A	Annual herb. Alkaline soils in chenopod scrub, meadow and seep, playa, riparian woodland, and valley and foothill grassland habitats. Elevation range: 0-2100 ft. Blooming period: April – September.	No	Not expected	No suitable soils observed on the Preserve.

Appendix B. Special-Status Plant Species Potential to Occur

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Orcutt's pincushion (*Chaenactis glabriuscula* var. *orcuttiana*)	CRBR 1B.1 List A	Annual herb. Sandy coastal bluff scrub and coastal dune habitats. Elevation range: 0-328 ft. Blooming period: January – August.	No	Not expected	No suitable habitat observed on the Preserve.
Southern mountain misery (*Chamaebatia australis*)	CRPR 4.2 List D	Perennial evergreen shrub. Gabbroic or metavolcanic soils in chaparral habitats. Elevation range: 980-3345 ft. Blooming period: November – May.	No	Not expected	No suitable soils observed on the Preserve.
Peninsular spineflower (*Chorizanthe leptotheca*)	CRPR 4.2 List D	Annual herb. Alluvial fan and granitic soils in chaparral, coastal scrub, and lower montane coniferous forest habitats. Elevation range: 980-6235 ft. Blooming period: May – August.	No	Not expected	Preserve is outside of known species geographical range.
Orcutt's spineflower (*Chorizanthe orcuttiana*)	FE CE CRPR 1B.1 List A MSCP	Annual herb. Sandy openings in closed-cone coniferous forest, maritime chaparral, and coastal scrub habitats. Elevation range: 5-410 ft. Blooming period: March – May.	No	Not expected	No suitable soils observed on the Preserve.
Delicate clarkia (*Clarkia delicata*)	CRPR 1B.2 List A	Annual herb. Often gabbroic soils in chaparral and cismontane woodland habitats. Elevation range: 770-3280 ft. Blooming period: April – June.	No	Not expected	No suitable soils observed on the Preserve.
Summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*)	CRPR 1B.2 List A	Perennial evergreen shrub. Chaparral and cismontane woodland habitats. Elevation range: 95-2590 ft. Blooming period: April – June.	Yes	**Present**	Suitable habitat occurs on the Preserve. Species was captured within the Preserve during 2019 surveys.
Small-flowered morning-glory (*Convolvulus simulans*)	CRPR 4.2 List D	Annual herb. Clay and serpentinite seep soils in openings of chaparral, coastal scrub, and valley and foothill grassland habitats. Elevation range: 95-2430 ft. Blooming period: March – July.	No	Not expected	No suitable soils observed on the Preserve.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
San Diego sand aster (*Corethrogyne filangifolia* var. *incana*)	CRPR 1B.1 List A	Perennial herb. Coastal bluff scrub, chaparral, and coastal scrub habitats. Elevation range: 5-375 ft. Blooming period: June – September.	No	Not expected	Preserve is outside of known species elevation range.
Del Mar Mesa sand aster (*Corethrogyne filaginifolia* var. *linifolia*)	CRPR 1B.1 List A	Perennial herb. Sandy soils in coastal bluff scrub, maritime openings in chaparral, and coastal scrub habitats. Elevation range: 80-3085 ft. Blooming period: May, July, August, and September.	No	Not expected	No suitable soils observed on the Preserve.
Paniculate tarplant (*Deinandra paniculata*)	CRPR 4.2 List D	Annual herb. Usually vernally mesic and sometimes sandy soils in coastal scrub, valley and foothills grassland and vernal pool habitats. Elevation range: 80-3085 ft. Blooming period: sometimes March, April – November, sometimes December.	No	Not expected	No suitable soils observed on the Preserve.
Cuyamca larkspur (*Delphinium hesperium* ssp. *cuyamacae*)	CR CRPR 1B.2 List A	Perennial herb. Mesic soils in lower montane coniferous forest, meadow and seep, and vernal pool habitats. Elevation range: 4000-5350 ft. Blooming period: May – July.	No	Not expected	No suitable soils observed on the Preserve.
Western dichondra (*Dichondra occidentalis*)	CRPR 4.2 List D	Perennial rhizomatous herb. Chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland habitats. Elevation range: 160-1640 ft. Blooming period: sometimes January, March – July.	No	Not expected	Preserve is outside of known species geographical range.
Cleveland's bush monkeyflower (*Diplacus clevelandii*)	CRPR 4.2 List D	Perennial rhizomatous herb. Gabbroic or rocky soils, often in disturbed areas and openings of chaparral, and cismontane woodland habitats. Elevation range: 1475-6560 ft. Blooming period: April – July.	No	Not expected	Preserve is outside of known species geographical range.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Banner dudleya (*Dudleya alainae*)	CRPR 3.2	Perennial herb. Rocky soils in chaparral, lower montane coniferous forest, and Sonoran desert scrub habitats. Elevation range: 2425-3935 ft. Blooming period: April – July.	No	Not expected	Preserve is outside of known species elevation range.
Variegated dudleya (*Dudleya variegata*)	CRPR 1B.2 List A	Perennial herb. Clay soils in chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, and vernal pool habitats. Elevation range: 5-1905 ft. Blooming period: April – June.	No	Not expected	No suitable soils observed on the Preserve.
Sticky dudleya (*Dudleya viscida*)	CRPR 1B.2 List A	Perennial herb. Rocky soils in coastal bluff scrub, chaparral, cismontane woodland and coastal scrub habitats. Elevation range: 30-1805 ft. Blooming period: May – June.	No	Not expected	Preserve is outside of known species geographical range.
Palmer's goldenbush (*Ericameria palmeri* var. *palmeri*)	CRPR 1B.1 List B	Perennial evergreen shrub. Mesic soils in chaparral and coastal scrub habitats. Elevation range: 95-1970 ft. Blooming period: sometimes July, September – November.	No	Not expected	No suitable soils observed on the Preserve.
San Diego button-celery (*Eryngium aristulatum* var. *parishii*)	FE CE CRPR 1B.1 List A MSCP	Annual/perennial herb. Mesic soils in coastal scrub, valley and foothill grassland, and vernal pool habitats. Elevation range: 65-2035 ft. Blooming period: April – June.	No	Not expected	No suitable soils observed on the Preserve.
Palomar monkeyflower (*Erythranthe diffusa*)	CRPR 4.3	Annual herb. Sandy or gravelly soils in chaparral and lower montane coniferous forest habitats. Elevation range: 4000-6005 ft. Blooming period: April – June.	No	Not expected	No suitable soils observed on the Preserve.

Appendix B. Special-Status Plant Species Potential to Occur

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
San Diego barrel cactus (*Ferocactus viridescens*)	CRPR 2B.1 List B	Perennial stem succulent. Chaparral, coastal scrub, valley and foothill grassland and vernal pool habitats. Elevation range: 5-1475 ft. Blooming period: May – June.	No	Not expected	Preserve is outside of known species geographical range.
Palmer's grapplinghook (*Harpagonella palmeri*)	CRPR 4.2 List D	Annual herb. Clay soils and open grassy areas in chaparral, coastal scrub, and valley and foothill grassland habitats. Elevation range: 65-3135 ft. Blooming period: March – May.	No	Not expected	No suitable soils observed on the Preserve.
Orcutt's hazardia (*Hazardia orcuttii*)	CT CRPR 1B.1 List A	Perennial evergreen shrub. Often clay soils in maritime chaparral and coastal scrub habitats. Elevation range: 260-280 ft. Blooming period: August – October.	No	Not expected	No suitable soils observed on the Preserve.
Beach goldenaster (*Heterotheca sessiliflora* ssp. *sessiliflora*)	CRPR 1B.1	Perennial herb. Coastal chaparral, coastal dunes, and coastal scrub habitats. Elevation range: 0-4020 ft. Blooming period: March – December.	No	Not expected	Preserve is outside of known species geographical range.
Graceful tarplant (*Holocarpha virgate* ssp. *elongata*)	CRPR 4.2 List D	Annual herb. Chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland habitats. Elevation range: 195-3610 ft. Blooming period: May – November.	No	Not expected	Preserve is outside of known species geographical range.
Vernal barley (*Hordeum intercedens*)	CRPR 3.2 List C	Annual herb. Coastal dunes, coastal scrub, saline flats and depressions in valley and foothill grassland, and vernal pool habitats. Elevation range: 15-3280 ft. Blooming period: March – June.	No	Not expected	No suitable habitat observed on the Preserve.

Appendix B. Special-Status Plant Species Potential to Occur

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Mesa horkelia (*Horkelia cuneata* var. *puberula*)	CRPR 1B.1 List A	Perennial herb. Sandy or gravelly soils in maritime chaparral, cismontane woodland, and coastal scrub habitats. Elevation range: 225-2655 ft. Blooming period: February – July, sometimes September.	No	Not expected	Preserve is outside of known species geographical range.
Ramona horkelia (*Horkelia truncata*)	CRPR 1B.3 List A	Perennial herb. Clay or gabbroic soils in chaparral and cismontane woodland habitats. Elevation range: 1310-4265 ft. Blooming period: May – June.	No	Not expected	No suitable soils observed on the Preserve.
San Diego hulsea (*Hulsea californica)*	CRPR 1B.3 List A	Perennial herb. Opening or burned areas in chaparral, lower montane coniferous forest, and upper montane coniferous forest habitats. Elevation range: 3000-9565 ft. Blooming period: April – June.	No	Not expected	Preserve is outside of known species geographical range.
Decumbent goldenbush (*Isocoma menziesii* var. *decumbens*)	CRPR 1B.2 List A	Perennial herb. Often in disturbed areas of chaparral and sandy coastal scrub habitats. Elevation range: 30-445 ft. Blooming period: April – November.	No	Not expected	Preserve is outside of known species elevation range.
San Diego marsh-elder (*Iva hayesiana*)	CRPR 2B.2 List B	Perennial herb. Marshes, swamps, and playas. Elevation range: 30-1640 ft. Blooming period: April – October.	No	Not expected	No suitable habitat observed on the Preserve.
California walnut (*Juglans californica*)	CRPR 4.2 List D	Perennial deciduous tree. Alluvial soils in chaparral, cismontane woodland, coastal scrub and riparian woodland habitats. Elevation range: 164-2953 ft. Blooming period: March – August.	Yes	**Present**	Suitable habitat occurs on the Preserve. Species was captured within the Preserve during 2019 surveys.
Southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*)	CRPR 4.2 List D	Perennial rhizomatous herb. Mesic coastal dunes, meadows and alkaline seeps, and coastal salt marshes and swamps. Elevation range: 5-2955 ft. Blooming period: sometimes March, May – June.	No	Not expected	No suitable soils observed on the Preserve.

Appendix B. Special-Status Plant Species Potential to Occur

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*)	CRPR 1B.1 List A	Annual herb. Coastal salt marshes and swamps, playas and vernal pools. Elevation range: 0-4005 ft. Blooming period: February – June.	No	Not expected	No suitable habitat observed on the Preserve.
Heart-leaved pitcher sage (*Lepechinia cardiophylla*)	CRPR 1B.2 List A	Perennial herb. Closed-cone coniferous forest, chaparral and cismontane woodland habitats. Elevation range: 1705-4495 ft. Blooming period: April – July.	No	Not expected	Preserve is outside of known species elevation range.
Robinson's pepper-grass (*Lepidium virginicum var. robinsonii*)	CRPR 4.3 List A	Annual herb. Chaparral and coastal scrub habitats. Elevation range: 0-2905 ft. Blooming period: January – July.	No	Low	Suitable habitat occurs throughout the Preserve. Species was not observed on the Preserve 2019 surveys.
Sea dahlia (*Leptosyne maritima*)	CRPR 2B.2 List B	Perennial herb. Coastal bluff and coastal scrub habitats. Elevation range: 15-490 ft. Blooming period: March – May.	No	Not expected	Preserve is outside of known species elevation range.
Lemon lily (*Lilium parryi*)	CRPR 1B.2 List A	Perennial bulbiferous herb. Mesic soils in lower montane coniferous forest, meadow and seep, riparian forest, and upper montane coniferous forest habitats. Elevation range: 4000-9005 ft. Blooming period: July – August.	No	Not expected	No suitable soils observed on the Preserve.
Orcutt's linanthus (*Linanthus orcuttii*)	CRPR 1B.3 List A	Annual herb. Openings in chaparral, lower montane coniferous forest, pinyon and juniper woodland habitats. Elevation range: 3000-7035 ft. Blooming period: May – June.	No	Not expected	Preserve is outside of known species elevation range.
Small-flowered microseris (*Microseris douglasii* ssp. *platycarpha*)	CRPR 4.2 List D	Annual herb. Clay soils in cismontane woodland, coastal scrub, valley and foothill grassland and vernal pool habitats. Elevation range: 45-3510 ft. Blooming period: March – May.	No	Not expected	No suitable soils observed on the Preserve.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Intermediate monardella (*Monardella hypoleuca* ssp. *intermedia*)	CRPR 1B.3	Perennial rhizomatous herb. Usually in the understory of chaparral, cismontane woodland and sometimes lower montane coniferous forest habitats. Elevation range: 1310-4100 ft. Blooming period: April – September.	No	Not expected	Preserve is outside of known species geographical range.
Felt-leaved monardella (*Monardella hypoleuca* ssp. *lanata*)	CRPR 1B.2 List A	Perennial rhizomatous herb. Chaparral and cismontane woodland habitats. Elevation range: 980-5165 ft. Blooming period: June – August.	No	Low	Suitable habitat occurs throughout the Preserve. Species was not observed on the Preserve 2019 surveys.
Hall's monardella (*Monardella macrantha* ssp. *hallii*)	CRPR 1B.3 List A	Perennial rhizomatous herb. Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest and valley and foothill grassland habitats. Elevation range: 2395-7200 ft. Blooming period: June – October.	No	Not expected	Preserve is outside of known species elevation range.
San Felipe monardella (*Monardella nana* ssp. *leptosiphon*)	CRPR 1B.2 List A	Perennial rhizomatous herb. Chaparral and lower montane coniferous forest habitats. Elevation range: 3935-6085 ft. Blooming period: June – July.	No	Not expected	Preserve is outside of known species elevation range.
Little mousetail (*Myosurus minimus* ssp. *apus*)	CRPR 3.1 List C	Annual herb. Valley and foothill grassland, alkaline vernal pool habitats. Elevation range: 65-2100 ft. Blooming period: March – June.	No	Not expected	No suitable habitat observed on the Preserve.
Spreading navarretia (*Navarretia fossalis*)	FT CRPR 1B.1 List A MSCP	Annual herb. Chenopod scrub, assorted shallow freshwater marshes and swamps, playa and vernal pool habitats. Elevation range: 95-2150 ft. Blooming period: April – June.	No	Not expected	No suitable habitat observed on the Preserve.

Appendix B. Special-Status Plant Species Potential to Occur

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Chaparral nolina (*Nolina cismontana*)	CRPR 1B.2 List A	Perennial evergreen shrub. Sandstone or gabbro soils in chaparral and coastal scrub habitats. Elevation range: 455-4185 ft. Blooming period: sometimes March, May – July.	No	Not expected	No suitable soils observed on the Preserve.
California adder's-tongue (*Ophioglossum californicum*)	CRPR 4.2 List D	Perennial rhizomatous herb. Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland and valley and foothill grassland habitats. Elevation range: 195-1720 ft. Blooming period: sometimes December, January – June.	No	Not expected	Preserve is outside of known species geographical range.
Golden-rayed pentachaeta (*Pentachaeta aurea* ssp. *aurea*)	CRPR 4.2 List D	Annual herb. Chaparral, coastal dune, coastal scrub and marshes and seep habitats. Elevation range: 260-6070 ft. Blooming period: March – July.	No	Not expected	Preserve is outside of known species geographical range.
South coast branching phacelia (*Phacelia ramosissima* var. *austrolitoralis*)	CRPR 3.2	Perennial herb. Sandy, sometimes rocky soils in chaparral, coastal dunes, coastal scrub, and coastal salt marsh and swamp habitats. Elevation range: 15-985 ft. Blooming period: March – August.	No	Not expected	No suitable soils observed on the Preserve.
Torrey pine (*Pinus torreyana* ssp. *torreyana*)	CRPR 1B.2 List A	Perennial evergreen tree. Sandstone soils in closed-cone coniferous forest and chaparral habitats. Elevation range: 95-525 ft. Blooming period: unknown.	No	Not expected	No suitable soils observed on the Preserve.
San Diego mesa mint (*Pogogyne abramsii*)	FE CE CRPR 1B.1 List A	Annual herb. Vernal pool habitats. Elevation range: 295-655 ft. Blooming period: March – July.	No	Not expected	No suitable habitat observed on the Preserve.

Appendix B. Special-Status Plant Species Potential to Occur

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Fish's milkwort (*Polygala cornuta* var. *fishiae*)	CRPR 4.3 List D	Perennial deciduous shrub. Chaparral, cismontane woodland, and riparian woodland habitats. Elevation range: 325-3280 ft. Blooming period: May – August.	No	Low	Suitable habitat occurs throughout the Preserve. Species was not observed on the Preserve 2019 surveys.
Delta woolly-marbles (*Psilocarphus vrevissimus* var. *multiflorus*)	CRPR 4.2	Annual herb. Vernal pool habitats. Elevation range: 30-1640 ft. Blooming period: May – June.	No	Not expected	No suitable habitat observed on the Preserve.
Nuttall's scrub oak (*Quercus dumosa*)	CRPR 1B.1 List A	Perennial evergreen shrub. Sandy and clay loam soils in closed-cone coniferous forest, chaparral, and coastal scrub habitats. Elevation range: 45-1310 ft. Blooming period: February – April, sometimes May – August.	No	Not expected	No suitable soils observed on the Preserve.
Engelmann oak (*Quercus engelmannii*)	CRPR 4.2 List D MSCP	Perennial deciduous tree. Chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland habitats. Elevation range: 160-4265 ft. Blooming period: March – June.	Yes	**Present**	Suitable habitat occurs on the Preserve. Species was captured within the Preserve during 2019 surveys.
Caraway-leaved woodland-gilia (*Saltugilia caruifolia*)	CRPR 4.3 List D	Annual herb. Sandy openings in chaparral and lower montane coniferous forest habitats. Elevation range: 2755-7545 ft. Blooming period: May – August.	No	Not expected	No suitable soils observed on the Preserve.
Munz' sage (*Salvia munzii*)	CRPR 2B.2 List B	Perennial evergreen shrub. Chaparral and coastal scrub habitats. Elevation range: 375-3495 ft. Blooming period: February – April.	No	Not expected	Preserve is outside of known species geographical range.
Southern mountains skullcap (*Scutellaria bolanderi* ssp. *austromontana*)	CRPR 1B.2 List A	Perennial rhizomatous herb. Mesic soils in chaparral, cismontane woodland, and lower montane coniferous forest habitats. Elevation range: 1390-6560 ft. Blooming period: June – August.	No	Not expected	No suitable soils observed on the Preserve.

Appendix B. Special-Status Plant Species Potential to Occur

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Ashy spike-moss (*Selaginella cinerascens*)	CRPR 4.1 List D	Perennial rhizomatous herb. Chaparral and coastal scrub habitats. Elevation range: 65-2100 ft. Blooming period: unknown.	No	Not expected	Preserve is outside of known species geographical range.
Purple stemodia (*Stemodia durantifolia*)	CRPR 2B.1 List B	Perennial herb. Often mesic and sandy soils in Sonoran desert scrub habitat. Elevation range: 590-985 ft. Blooming period: sometimes January, April, June, August, September, October, and December.	No	Not expected	No suitable soils observed on the Preserve.
San Bernardino aster (*Symphyotrichum defoliatum*)	CRPR 1B.2	Perennial rhizomatous herb. Near ditches, streams and springs in cismontane woodland, coastal scrub, lower montane coniferous forest, meadow and seep, marsh and swamp, and vernally mesic valley and foothill grassland habitats. Elevation range: 5-6695 ft. Blooming period: July – November, sometimes December.	No	Not expected	No suitable soils observed on the Preserve.
Parry's tetracoccus (*Tetracoccus dioicus*)	CRPR 1B.2 List A	Perennial deciduous shrub. Chaparral and coastal scrub habitats. Elevation range: 540-3280 ft. Blooming period: April – May.	No	Low	Suitable habitat occurs throughout the Preserve. Species was not observed on the Preserve 2019 surveys.
San Diego County viguiera (*Viguiera laciniata*)	CRPR 4.3 List D	Perennial shrub. Chaparral and coastal scrub habitats. Elevation range: 195-2460 ft. Blooming period: February – June, sometimes August.	No	Low	Suitable habitat occurs throughout the Preserve. Species was not observed on the Preserve 2019 surveys.
Golden violet (*Viola purpurea* ssp. *aurea*)	CRPR 2B.2 List B	Perennial herb. Sandy soils in Great Basin scrub and pinyon and juniper woodland habitats. Elevation range: 3280-8200 ft. Blooming period: April –June.	No	Not expected	No suitable soils observed on the Preserve.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Rush-like bristleweed (*Xanthisma junceum*)	CRPR 4.3 List D	Perennial herb. Chaparral and coastal scrub habitats. Elevation range: 785-3280 ft. Blooming period: May – January.	No	**Low**	Suitable habitat occurs throughout the Preserve. Species was not observed on the Preserve 2019 surveys.

LEGEND:

STATUS:

Federal

FE - listed as endangered under the federal Endangered Species Act.

FT - listed as threatened under the federal Endangered Species Act.

California

CE - listed as endangered under the California Endangered Species Act.

CT - listed as threatened under the California Endangered Species Act.

CR - listed as rare under the California Endangered Species Act.

California Rare Plant Rank - Formerly known as CNPS List

1A. Presumed extirpated in California, and either rare or extinct elsewhere

1B. Rare, Threatened, or Endangered in California and elsewhere
2A. Presumed extirpated in California, more common elsewhere
2B. Rare, Threatened, or Endangered in California, more common elsewhere
3. Plants for which we more information is needed - Review list
4. Plants of limited distribution - Watch list
Threat Ranks
.1 - Seriously endangered in California
.2 – Fairly endangered in California
.3 – Not very endangered in California

San Diego County List
A – Rare, threatened or endangered in California and elsewhere
B – Rare, threatened or endangered in California but more common elsewhere
C – Maybe quite rare, but more information is needed to determine their status
D – Limited distribution and are uncommon but not presently rare or endangered
Draft North County Multiple Species Conservation Program (MSCP)
MSCP – Proposed Covered Species

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Appendix C

Observed Species List – Wildlife

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Table X. Wildlife Species Detected

Scientific Name	Common Name	Special Status
INVERTEBRATES		
Moths, Skippers and Butterflies		
Papilio zelicaon	Anise Swallowtail	
Papilio rutulus	Western Tiger Swallowtail	
Papilio eurymedon	Pale Swallowtail	
Pontia beckerii	Becker's White	
**Pieris rapae rapae*	Cabbage White	
Pontia protodice	Checkered White	
Anthocharis sara sara	Pacific Sara Orangetip	
Colias eurytheme	Orange Sulphur	
Zerene eurydice	California Dogface	
Nathalis iole	Dainty Sulphur	
Atlides halesus corcoran	Western Great Purple Hairstreak	
Callophrys perlexa	Perplexing Green Hairstreak	
Callophrys agustinus iroides	Western Elfin	
Strymon melinus pudica	Common Gray Hairstreak	
Leptotes marina	Marine Blue	
Hemiargus ceraunus gyas	Edward's Blue	
Hemiargus isola	Reakirt's Blue	
Euphilotes bernardino bernardino	San Bernardino Blue	
Glaucopsyche lygdamus australis	Southern Silvery Blue	
Icaricia acmon	Acmon Blue	
Plebejus lupini monticola	Lupine Blue	
Apodemia virgulti virgulti	Behr's Metalmark	
**Agraulis vanillae incarnata*	Gulf Fritillary	
Chlosyne gabbii	Gabb's Checkerspot	
Nymphalis antiopa	Mourning Cloak	
Vanessa atalanta	American Red Admiral	
Vanessa virginiensis	American Painted Lady	
Vanessa cardui	Painted Lady	
Vanessa annabella	West Coast Lady	
Junonia coenia grisea	Gray Buckeye	

Scientific Name	Common Name	Special Status	
Limenitis lorquini powelli	Powell's Admiral		
Adelpha californica	California Sister		
Danaus gilippus thersippus	Striated Queen		
Erynnis propertius	Propertius Duskywing		
Erynnis tristis	Mournful Duskywing		
Erynnis funeralis	Funereal Duskywing		
Pyrgus albescens	White Checkered-Skipper		
Heliopetes ericetorum	Northern White-Skipper		
Ochlodes sylvanoides	Woodland Skipper		
Ochlodes agricola	Rural Skipper		
Poanes melane	Umber Skipper		
VERTEBRATES			
Amphibians			
Anaxyrus boreas halophilus	Western Toad		
Pseudacris hypochondriaca	Baja California Tree Frog		
Reptiles			
Anniella stebbinsi	Southern California Legless Lizard	SSC	SDC Group II
Aspidoscelis hyperythra hyperythra	Belding's Orange-throated Whiptail	WL	SDC Group II
Aspidoscelis tigris stejnegeri	San Diegan Tiger Whiptail	SSC	SDC Group II
Elgaria multicarinata webbii	San Diego Alligator Lizard		
Sceloporus occidentalis	Western Fence Lizard		
Sceloporus orcutti	Granite Spiny Lizard		
Uta stansburiana elegans	Western Side-blotched Lizard		
Crotalus mitchellii	Southwestern Speckled Rattlesnake		
Crotalus ruber	Red Diamond Rattlesnake	SSC	SDC Group II
Lampropeltis californiae	California Kingsnake		
Birds			
Anas platyrhynchos	Mallard		
Callipepla californica	California Quail		
Cathartes aura	Turkey Vulture		SDC Group I
Accipiter cooperii	Cooper's Hawk	WL	SDC Group I
Buteo lineatus	Red-shouldered Hawk		SDC Group I
Buteo jamaicensis	Red-tailed Hawk		

Scientific Name	Common Name	Special Status
Zenaida macroura	Mourning Dove	
Tyto alba	Barn Owl	SDC Group II
Bubo virginianus	Great Horned Owl	
Phalaenoptilus nuttallii	Common Poorwill	
Calypte anna	Anna's Hummingbird	
Selasphorus sasin	Allen's Hummingbird	
Melanerpes formicivorus	Acorn Woodpecker	
Picoides nuttallii	Nuttall's Woodpecker	
Colaptes auratus	Northern Flicker	
Sayornis nigricans	Black Phoebe	
Sayornis saya	Say's Phoebe	
Myiarchus cinerascens	Ash-throated Flycatcher	
Tyrannus vociferans	Cassin's Kingbird	
Aphelocoma californica	Western Scrub-Jay	
Corvus brachyrhynchos	American Crow	
Corvus corax	Common Raven	
Stelgidopteryx serripennis	Northern Rough-winged Swallow	
Petrochelidon pyrrhonota	Cliff Swallow	
Baeolophus inornatus	Oak Titmouse	
Psaltriparus minimus	Bushtit	
Catherpes mexicanus	Canyon Wren	
Troglodytes aedon	House Wren	
Thryomanes bewickii	Bewick's Wren	
Polioptila caerulea	Blue-gray Gnatcatcher	
Chamaea fasciata	Wrentit	
Toxostoma redivivum	California Thrasher	
Mimus polyglottos	Northern Mockingbird	
Phainopepla nitens	Phainopepla	
Oreothypis celata	Orange-crowned Warbler	
Setophaga coronata	Yellow-rumped Warbler	
Pipilo maculatus	Spotted Towhee	
Melozone crissalis	California Towhee	
Melospiza melodia	Song Sparrow	

Scientific Name	Common Name	Special Status	
Pheucticus melanocephalus	Black-headed Grosbeak		
Passerina caerulea	Blue Grosbeak		
Passerina amoena	Lazuli Bunting		
Icterus cucullatus	Hooded Oriole		
Haemorhous mexicanus	House Finch		
Carduelis psaltria	Lesser Goldfinch		
**Passer domesticus*	House Sparrow		
Mammals			
Myotis californicus	California Myotis		
Myotis ciliolabrum	Small-footed Myotis		SDC Group II
Myotis evotis	Long-eared Myotis		SDC Group II
Myotis yumanensis	Yuma Myotis		SDC Group II
Lasiurus blossevillii	Western Red Bat	SSC	SDC Group II
Lasiurus cinereus	Hoary Bat		
Parastrellus hesperus	Canyon Bat		
Eptesicus fuscus	Big Brown Bat		
Tadarida brasiliensis	Mexican Free-tailed Bat		
Nyctinomops femorosaccus	Pocketed Free-tailed Bat	SSC	SDC Group II
Eumops perotis	Western Mastiff Bat	SSC	SDC Group II
Sylvilagus audubonii	Desert Cottontail		
Ostospermophilus beecheyi	California Ground Squirrel		
Chaetodipus californicus femoralis	Dulzura Pocket Mouse	SSC	SDC Group II
Reithrodontomys megalotis	Western Harvest Mouse		
Peromyscus boylii	Brush Mouse		
Peromyscus californicus	California Mouse		
Peromyscus eremicus	Cactus Mouse		
Peromyscus maniculatus	Deer Mouse		
Neotoma macrotis	Big-eared Woodrat		
Microtus californicus	California Vole		
Canis latrans	Coyote		
Procyon lotor	Northern Raccoon		
Puma concolor	Mountain Lion		SDC Group II
Lynx rufus	Bobcat		

Scientific Name	Common Name	Special Status

Legend

*= Non-native or invasive species

Special Status:

Federal:
FE = Endangered
FT = Threatened

State:
SE = Endangered
ST =Threatened
SSC = California Species of Special Concern
WL = CDFW Watch List

County:
SDC Group I = includes animal species that have a very high level of sensitivity, either because they are listed as threatened or endangered or because they have very specific natural history requirements that must be met.
SDC Group II - includes animal species that are becoming less common, but are not yet so rare that extirpation or extinction is imminent without immediate action. These species tend to be prolific within their suitable habitat types.

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Appendix D

Potential Sensitive Species Table – Wildlife

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Appendix D. Special-Status Animal Species Potential to Occur

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
INVERTEBRATES					
Quino Checkerspot Butterfly (*Euphydryas editha quino*)	FE CSD Group I MSCP	Species inhabits openings on clay soils within or in the vicinity of coastal sage scrub, chaparral, and grassland habitats. Closely tied to its larval host plant, dwarf plantain *(Plantago erecta)* or owl's clover (*Castilleja exserta* ssp. *exserta).*	No	Moderate	Outside of the USFWS recommended survey area. However, primary ovipositional larval host plant dot-seed plantain (*Plantago erecta*) was present on the Preserve. Species was not observed on the Preserve during 2019 surveys.
Riverside Fairy Shrimp (*Streptocephalus woottoni*)	FE CSD Group I MSCP	Vernal pools. It occurs from Los Angeles County to Baja California. In San Diego County, all populations are within 15 kilometers of the coast.	No	Not expected	No suitable habitat observed on the Preserve.
San Diego Fairy Shrimp (*Branchinecta sandiegoensis*)	FE CSD Group I MSCP	Vernal pools. All known localities are below 701m (2,300 ft) and are within 64km (40 miles) of the Pacific Ocean.	No	Not expected	No suitable habitat observed on the Preserve.
AMPHIBIANS					
Arroyo Toad (*Anaxyrus californicus*)	FE SSC CSD Group I MSCP	Exposed shallow pools with a sand or gravel base are used for breeding. Breeding pools must occur in the vicinity (ca. 10-100 m) of a braided sandy channel with shorelines or central bars made of stable, sandy terraces.	No	Not expected	Suitable breeding habitat not present within the Preserve.
Western Spadefoot (*Spea hammondii*)	SSC CSD Group II MSCP	Temporary rain-pools with water temperatures between 9°C and < 30°C that last at least 3 weeks.	No	Low	No suitable habitat observed on the Preserve. Species was not observed on the Preserve during 2019 surveys.
REPTILES					
Belding's Orange-throated Whiptail (*Aspidoscelis hyperythra beldingi*)	WL CSD Group II	The habitat characteristics are poorly understood, however historically it was found in floodplains or terraces along streams. Closely tied to coastal sage scrub plants and some chaparral plants.	Yes	Present	Suitable habitat observed throughout the Preserve and this species is relatively common in suitable habitat. Species was captured on the Preserve during 2019 surveys

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
California Glossy Snake (*Arizona elegans occidentalis*)	SSC	Prefers open areas in a variety of habitats, including light shrubby to barren desert scrub, grassland, chaparral, cismontane, and coastal sage scrub. The species is active mostly at night and remains underground during the day.	No	Moderate	Suitable habitat occurs throughout Preserve, though most areas may be too thickly vegetated. Species was not observed on the Preserve during 2019 surveys.
Coast (Blainville's/San Diego) Horned Lizard (*Phrynosoma blainvillii*)	SSC CSD Group II MSCP	Grasslands, brushlands, woodlands, and open coniferous forest with sandy or loose soil; requires abundant ant colonies for foraging.	No	High	Suitable habitat observed throughout the Preserve. Species was not observed on the Preserve during 2019 surveys.
Coast Patch-nosed Snake (*Salvadora hexalepis virgultea*)	SSC CSD Group II	Inhabits semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains.	No	High	Suitable habitat observed throughout the Preserve and this species is relatively common in suitable habitat. Species was not observed on the Preserve during 2019 surveys.
Coastal Rosy Boa (*Lichanura trivirgata*)	CSD Group II	Inhabits rocky areas in coastal sage scrub, chaparral, and desert environments.	No	High	Suitable habitat occurs throughout the Preserve. Species was not observed on the Preserve 2019 surveys.
Coronado Skink (*Plestiodon skiltonianus interparietalis*)	SSC CSD Group II	Forest, open woodland and grassy areas. Usually found under leaf litter, logs or rocks.	No	High	Suitable habitat on the Preserve includes riparian and non-native woodland. Species was not observed on the Preserve during 2019 surveys.
Red Diamond Rattlesnake (*Crotalus ruber*)	SSC CSD Group II	Occurs from sea level to 914m (3000ft) in chaparral, woodland, and arid desert habitats with rocky areas and dense vegetation.	Yes	Present	Suitable habitat observed throughout the Preserve and this species is relatively common in suitable habitat. Species was observed within the Preserve during 2019 surveys.
San DieganTiger Whiptail (*Aspidoscelis tigris stejnegeri*)	SSC CSD Group II	Found in open brushland in semiarid habitats.	Yes	Present	Suitable habitat observed throughout the Preserve and this species is relatively common in suitable habitat. Species was captured on the Preserve during 2019 surveys.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
San Diego Banded Gecko (*Coleonyx variegatus abbottii*)	CSD Group I	Found in open areas, often near rocks, and may seek shelter under them, or in crevices.	No	Moderate	Potentially suitable habitat occurs within the Preserve. Species was not observed on the Preserve during 2019 surveys.
San Diego Ringneck Snake (*Diadophis punctatus similis*)	CSD Group II	Prefers moist areas in suitable habitats, including meadows, rocky hillsides, grassland, chaparral, mixed coniferous forests and woodlands, and agricultural areas.	No	High	Suitable habitat observed throughout the Preserve.. Species was not observed during 2019 surveys.
Southern California Legless Lizard (*Anniella stebbinsi*)	SSC CSD Group II	Occurs in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Leaf litter under trees and bushes in sunny areas often indicate suitable habitat.	Yes	Present	Species was incidentally observed in non-native woodland by botanist during 2019 surveys.
Southwestern Pond Turtle *(Emys marmorata pallida*)	SSC CSD Group I MSCP	Requires slack- or slow-water aquatic habitat as well as aerial and aquatic basking sites. Also requires an upland oviposition site on an unshaded slope with clay soils, in the vicinity of the aquatic site.	No	Not expected	No suitable aquatic habitat present within the Preserve.
Two-striped Garter Snake (*Thamnophis hammondii*)	SSC CSD Group I	Inhabits perennial and intermittent streams with rocky beds and bordered by willow thickets or other dense vegetation.	No	Low	Suitable habitat is limited within the Preserve. Species was not observed during 2019 surveys.
BIRDS					
Least Bittern (*Ixobrychus exilis*)	SSC CSD Group II	Dense freshwater marshes with tules and cattails.	No	Nesting – Not expected Foraging – Not expected	No suitable aquatic habitat present within the Preserve.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Green Heron (*Butorides virescens*)	CSD Group II	Common in wetland thickets throughout much of North America. Generally a solitarily nester but are known to sometimes nest socially in loose colonies. Usually forages for fish by wading at water's edge or in very shallow water.	No	Nesting – Not expected Foraging – Low	Suitable nesting habitat is lacking within the Preserve. May forage in the artificial man-made pond when water is present. Was not observed on the reserve during 2019 surveys.
Great Blue Heron (*Areda herodias*)	CSD Group II	Forages in wetlands and occasionally grasslands. Communal nester on trees near water.	No	Nesting – Low Foraging – Low	Low potential to nest in eucalyptus trees on the Preserve. No nests observed. May forage in the man-made pond when water is present. Was not observed on the reserve during 2019 surveys.
White-faced Ibis (*Plegadis chihi*)	CSD Group I	Forages in marshes, swamps, ponds and rivers, mostly in freshwater habitats. Nests in emergent vegetation or low trees and shrubs over shallow water; sometimes on ground on small islands.	No	Nesting – Not expected Foraging – Low	Suitable nesting habitat is lacking within the Preserve. May forage in the artificial man-made pond when water is present. Was not observed on the reserve during 2019 surveys.
Turkey Vulture (*Cathartes aura*)	CSD Group I	Forage over woodland and nearby open country. Nest in crevices among granite boulders.	Yes	Nesting – Not expected Foraging – Present	No suitable nesting habitat present. Suitable foraging habitat present in the study area. Large congregation of about 30 turkey vultures observed flying over Preserve during 2019 surveys.
White-tailed Kite (*Elanus leucurus*)	FP (nesting) CSD Group I	Open grasslands, agricultural areas, wetlands, and oak woodlands. Their primary source of food is the California vole. It typically forages in open undisturbed habitats and nests in the top of a dense oak, willow or other large tree.	No	Nesting – Low Foraging – Low	Low potential to nest in eucalyptus trees on the Preserve. No nests observed. Suitable foraging habitat within the Preserve is limited. Was not observed on the reserve during 2019 surveys.
Northern Harrier (*Circus cyaneus*)	SSC (nesting) CSD Group I	Grasslands and marshes. Nests are on the ground and typically concealed within a marsh or other dense vegetation.	No	Nesting – Not expected Foraging – Low	Suitable nesting habitat is lacking within the Preserve. Low potential to forage within the Preserve.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Cooper's Hawk (*Accipiter cooperii*)	WL CSD Group I	Oak groves and mature stands of riparian woodland. This species has adapted well to development and is abundant in urban canyons with eucalyptus trees.	Yes	Nesting - High Foraging - Present	Suitable foraging and nesting habitat present in the study area. Widespread and common within suitable habitat. Species was observed on the Preserve during 2019 surveys.
Red-shouldered Hawk (*Buteo lineatus*)	CSD Group I	Lowland riparian woodland. This species has adapted well to development and is abundant in areas with eucalyptus trees.	Yes	Nesting - High Foraging - Present	Suitable foraging and nesting habitat present in the study area. Widespread and common within suitable habitat. Species was observed on the Preserve during 2019 surveys.
Golden Eagle (*Aquila chrysaetos*)	FPS CSD Group I MSCP	Nest on cliff ledges or trees on steep slopes. Forage in grasslands, sage scrub or broken chaparral.	No	Nesting – Not expected Foraging - Moderate	No suitable nesting habitat occurs within the Preserve. Suitable foraging habitat occurs within the Preserve. Was not observed on the reserve during 2019 surveys.
Peregrine Falcon (*Falco peregrinus*)	SE CSD Group I	Will forage over a variety of habitats however only breed near water, typically with the nest placed on a cliff ledge.	No	Nesting – Not expected Foraging Moderate	No suitable nesting habitat occurs within the Preserve. Suitable foraging habitat occurs within the Preserve. Was not observed on the reserve during 2019 surveys.
Prairie Falcon (*Falco mexicanus*)	CSD Group I	Nest on cliffs or bluffs and forage in open desert or grasslands. In San Diego County, nest at least 23 miles from the coast.	No	Nesting – Not expected Foraging - Moderate	No suitable nesting habitat occurs within the Preserve. Suitable foraging habitat occurs within the Preserve. Was not observed on the reserve during 2019 surveys.
Barn Owl (*Tyto alba*)	CSD Group II	Nest in buildings, nest boxes, at the base of the leaves in palm trees, and in cavities in native trees.	Yes	Nesting - Moderate Foraging - Present	Suitable foraging and nesting habitat present in the Preserve. Widespread and common within suitable habitat. Was observed on the reserve in 2019 during bat surveys

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Western Burrowing Owl (*Athene cunicularia hypugaea*)	SSC CSD Group I MSCP	Prairies, grasslands, lowland scrub, agricultural lands, coastal dunes, desert floors, and some artificial, open areas. They require large open expanses of sparsely vegetated areas on gently rolling or level terrain with an abundance of active small mammal burrows. They use rodent or other burrows for roosting and nesting cover and also known to use pipes, culverts, and nest boxes where burrows are scarce.	No	Nesting – Not expected Foraging - Not expected	The small grasslands on the Preserve do not support vegetation structure or ground squirrel colonies necessary for this species.
Long-eared Owl (*Asio otus*)	SSC CSD Group I	Rare residents of oak woodlands and broad riparian forests. Ideal nesting habitat has a closed canopy and open lands adjacent for foraging.	No	Nesting – Not expected Foraging - Not expected	Suitable foraging and nesting habitat is limited on the Preserve.
Southwestern Willow Flycatcher (*Empidonax trailii extimus*)	FE SE CSD Group I MSCP	Breeds in riparian woodlands along rivers, streams, or other wetlands. They usually nest within close proximity of water or very saturated soil.	No	Nesting – Not expected Foraging - Not expected	Extensive riparian habitat is lacking within the Preserve.
Loggerhead Shrike (*Lanius ludovicianus*)	SSC CSD Group I	Found near grassland, open sage scrub and chaparral, and desert scrub. They nest in dense vegetation adjacent to their open foraging habitats.	No	Nesting - Moderate Foraging - Moderate	Suitable foraging and nesting habitat present is present on the Preserve. Was not observed on the Preserve during 2019 surveys
Least Bell's Vireo (*Vireo bellii pusillus*)	FE SE CSD Group I MSCP	Riparian thickets either near water or in dry portions of river bottoms; nests along margins of bushes and forages low to the ground; may also be found using mesquite and arrow weed in desert canyons.	No	Nesting – Not expected Foraging - Not expected	Extensive riparian habitat is lacking within the Preserve.

Appendix D. Special-Status Animal Species Potential to Occur

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
California Horned Lark (*Eremophila alpestris actia*)	CSD Group II	Grasslands, recently disturbed habitat where seeds and insects are easy to find.	No	Nesting - Low Foraging - High	Grasslands on the Preserve are very small and not expected to support this species. Suitable foraging habitat is present in cleared areas. Was not observed on the Preserve during 2019 surveys.
San Diego Cactus Wren (*Campylorhynchus brunneicapillus sandiegensis*)	SSC CSD Group I MSCP	Cactus thickets.	No	Nesting – Not expected Foraging - Not expected	Suitable breeding habitat (cactus thickets) is lacking the Preserve.
Coastal California Gnatcatcher (*Polioptila californica californica*)	FT SSC CSD Group I MSCP	Prefer open scrubby habitats such as coastal sage scrub and some forms of chaparral.	No	Nesting - High Foraging - High	Suitable foraging and nesting habitat present in on the Preserve Was not observed or heard on the Preserve during 2019 surveys.
Western Bluebird (*Sialia mexicana*)	CSD Group II	Foothills and mountains in meadows near groves of oaks and pines. This species is a cavity nester.	No	Nesting – Low Foraging - Moderate	Suitable foraging and nesting habitat present is present on the Preserve. Was not observed on the Preserve during 2019 surveys
Yellow Warbler (*Dendroica petechia brewsteri*)	SSC CSD Group II	Mature riparian woodlands.	No	Nesting – Not expected Foraging - Not expected	Extensive riparian habitat is lacking within the Preserve.
Yellow-breasted Chat (*Ictera virens*)	SSC CSD Group I	Dense riparian woodland.	No	Nesting – Not expected Foraging - Not expected	Extensive riparian habitat is lacking within the Preserve.
Southern California Rufous-crowned Sparrow (*Aimophila ruficeps canescens*)	CSD Group I	Fairly common, widespread and generally fairly conspicuous resident of rocky grassland and patchy shrub habitats, often including areas with disturbance from fire, trash, soil compaction and non-native vegetation.	No	Nesting - High Foraging - High	Suitable foraging and nesting habitat on the Preserve. Common within suitable habitat. Was not observed on the Preserve during 2019 surveys.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Bell's Sparrow (*Artemisiospiza belli*)	CSD Group I	Year-round resident of chaparral and sage scrubs. Forages on litter-free openings on the ground, and is largely restricted to south-facing slopes, post-burn areas, and gabbro soils.	No	Nesting - High Foraging - High	Suitable foraging and nesting habitat on the Preserve. Common within suitable habitat. Was not observed on the Preserve during 2019 surveys.
Grasshopper Sparrow (*Ammodramus savannarum*)	SSC CSD Group I	Structurally diverse grassland usually with native grasses.	No	Nesting - Low Foraging - Low	Grasslands on the Preserve are very small and not expected to support this species.
Tricolored Blackbird (*Agelaius tricolor*)	FC- SSC (nesting colony) CSD Group I MSCP	Breeds near fresh water, preferably in emergent wetland with large, dense stands of cattails or tules, but also in thickets of willow, blackberry, wild rose, tall herbs. Feeds in grassland and cropland habitats.	No	Nesting – Not expected Foraging - Not expected	Suitable marsh habitat is lacking within the Preserve.
MAMMALS					
Mexican Long-tongued Bat (*Choeronycteris mexicana*)	SSC CSD Group II	Likes desert canyons, arid mountain ranges. Roosts by day in caves, mines or buildings. Records indicate only a summer resident in San Diego County. Feeds on nectar and pollen from agaves and cactus blossoms.	No	Not expected	Appropriate vegetation is not present on the Addition.
Western Small-footed Myotis (*Myotis ciliolabrum*)	CSD Group II	Not much information available, but has been spotted under rock slabs and in crevices, mine tunnels, under loose tree bark, and in buildings.	Yes	Present	Species was detected during 2019 passive and active bat surveys on the Preserve.
Western Long-eared Myotis (*Myotis evotis*)	CSD Group II	Brush, woodland and forest habitats from sea level to 9000 ft. Lives in coniferous forests in mountain areas, roosts in small colonies in caves, buildings and under tree bark.	Yes	Present	Species was detected during 2019 passive bat surveys on the Preserve.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Yuma Myotis (*Myotis yumanensis*)	CSD Group II	Always found near lakes, creeks or ponds. Roosts by day under building sidings or shingles. Nursery colonies choose caves, mines, buildings or under bridges.	Yes	Present	Species was detected during 2019 passive and active bat surveys on the Preserve.
Townsend's Big-eared Bat (*Corynorhinus townsendii)*	SSC CSD Group II	The species is found in a variety of habitats throughout California where appropriate roosting habitat exists. Primarily roosts in caves and cavern-like spaces; also include in abandoned buildings, mines, culverts, box-like spaces in bridges and other structures, and large hollows in trees. Very sensitive to human disturbances.	No	Moderate	Roosting habitat is limited on the Preserve. Species was not detected during 2019 passive and active bat surveys on the Preserve.
Western Red Bat (*Lasiurus blossevillii*)	SSC CSD Group II	Usually among dense foliage, in forests and wooded areas, making long migrations from the northern latitudes to warmer climes for winter, sometimes hibernates in tree hollows or woodpecker holes.	Yes	Present	Species was detected during 2019 passive bat surveys on the Preserve.
Western Yellow Bat (*Lasiurus xanthinus*)	SSC	Rare visitor to San Diego County. Found in wooded areas and desert scrub. Roosts in foliage, particularly in palm trees.	No	Moderate	Roosting habitat is limited on the Preserve. Species was not detected during 2019 passive or active bat surveys Preserve.
Pallid Bat (*Antrozous pallidus*)	SSC CSD Group II MSCP	Throughout So. Cal. from coast to mixed conifer forest; grasslands, shrublands, woodlands, & forest; most common in open, dry habitats w/ rocky areas for roosting; yearlong resident in most of range. Roosts in rock crevices, caves, mine shafts, under bridges, in buildings and tree hollows.	No	High	Suitable roosting habitat is present on the Preserve. Species was not detected during 2019 passive or active bat surveys Preserve.
Pocketed Free-tailed Bat (*Nyctinomops femorosaccus*)	SSC CSD Group II	Lives in deserts and sage scrub, roosts in rocky crevices.	Yes	Present	Species was detected during 2019 passive and active bat surveys on the Preserve.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Big Free-tailed Bat (*Nyctinomops macrotis*)	SSC CSD Group II	Inhabits arid, rocky areas; roosts in crevices in cliffs. Has been recorded in urban locations in San Diego County. All records are of individuals; there have been no observations of roosting colonies. Species is rare migrant in San Diego County.	No	Not expected	No roosting colonies are known to occur in San Diego County. Species was not detected during 2019 passive or active bat surveys Preserve.
Western Mastiff Bat (*Eumops perotis californicus*)	SSC CSD Group II	Primarily a cliff-dwelling species for breeding. Found foraging in a variety of habitats, from dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, montane meadows, and agricultural areas.	Yes	Present	Detected during 2019 passive and active bat surveys on the Preserve.
San Diego Black-tailed Jackrabbit (*Lepus californicus bennettii*)	SSC CSD Group II	Mostly found on the coastal side of our local mountains in open habitats, usually avoiding dense stands of chaparral or woodlands.	No	Moderate	Suitable habitat occurs in scattered location throughout the Preserve. The Preserve is isolated from other large grassland areas. This distinctive diurnal species was not observed during 2019 surveys.
Dulzura Pocket Mouse (*Chaetodipus californicus femoralis*)	SSC CSD Group II	Coastal and montane regions in grassland, sage scrub, and chaparral slopes.	Yes	Present	Suitable habitat occurs on the Preserve. Species was captured within the Preserve during 2019 surveys.
Northwestern San Diego Pocket Mouse (*Chaetodipus fallax fallax*)	SSC CSD Group II	Coastal sage scrub, sage scrub/grassland ecotones, and chaparral communities.	No	High	Suitable habitat occurs on the Preserve. Species was not captured within the Preserve during 2019 surveys.
Stephens' Kangaroo Rat (*Dipodomys stephensi*)	FE ST CSD Group I MSCP	Occurs in flat or gently rolling, often degraded, annual grassland.	No	Not expected	Species not known to occur in vicinity of Preserve. Habitat within the Preserve is not suitable for this species. Not observed during 2019 trapping surveys
Ramona Grasshopper Mouse (*Onychomys torridus ramona*)	SSC CSD Group II	Grasslands and sparse coastal sage scrub habitats.	No	Not expected	Species not known to occur in vicinity of Preserve. Habitat within the Preserve is not suitable for this species. Not observed during 2019 trapping surveys

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale
Bryant's (San Diego Desert) Woodrat (*Neotoma byrantii = N. lepida intermedia*)	SSC CSD Group II	Variety of shrub and desert habitats primarily associated with rock outcroppings, boulders, cacti, or areas of dense undergrowth.	No	High	Suitable habitat occurs on the Preserve. Species was not captured within the Preserve during 2019 surveys.
Ringtail (*Bassariscus astutus*)	FP CSD Group II	Usually not found more than 1 km (0.6 mi) from permanent water. Suitable habitat consists of a mixture of forest and shrubland in close association with rocky areas or riparian habitats. Forages on ground, among rocks, in trees; usually near water.	No	Low	Extensive riparian habitat is lacking within the Preserve.
American badger (*Taxidea taxus*)	SSC CSD Group II	Inhabit a diversity of habitats with principal requirements of sufficient food, friable soils, and relatively open, uncultivated ground. Grasslands, savannas, and mountain meadows near timberline are preferred.	No	Low	Marginal suitable habitat occurs on the Preserve. Isolated from other grasslands. No tracks or burrows were observed during the surveys.
Mountain Lion (*Puma (=Felis) concolor*)	CSD Group II	Rocky areas, cliffs, and ledges that provide cover within open woodlands and chaparral, as well as riparian areas.	Yes	Present	A mountain lion was image was captured on remote camera 3 and a second mountain lion scat was observed on SDG&E access road in southeast portion of Preserve. Suitable habitat occurs throughout the Preserve.
Southern Mule Deer (*Odocoileus hemionus fuliginata*)	CSD Group II	Oak woodlands, open scrub and young chaparral, low-elevation pine forests, riparian areas, and along the margins of meadows and grasslands.	No	High	Though no southern mule deer were observed during 2019 surveys, suitable habitat occurs throughout the Preserve.

Common Name (*Scientific Name*)	Sensitivity Code & Status	Habitat Preference/Requirements	Detected within the Study Area? (Historical and/or current observations)	Potential to Occur	Rationale

LEGEND:

STATUS:

Federal

FE - listed as endangered under the federal Endangered Species Act.

FT - listed as threatened under the federal Endangered Species Act.

FC- candidate species under the federal Endangered Species Act.

California

SE - listed as endangered under the California Endangered Species Act.

FP – fully protected species in California.

SSC - species of special concern in California.

County of San Diego Group (CSD Group)

I = includes animal species that have a very high level of sensitivity, either because they are listed as threatened or endangered or because they have very specific natural history requirements that must be met.

II = includes animal species that are becoming less common but are not yet so rare that extirpation or extinction is imminent without immediate action. These species tend to be prolific within their suitable habitat types.

Draft North County Multiple Species Conservation Program (MSCP)

MSCP – Proposed Covered Species

References

Special Status information from CDFW 2018. Nomenclature and invertebrate descriptions from Hogan 2005, and USFWS 1997. Nomenclature and vertebrate descriptions from AOS (Chesser *et al.* 2018) SSAR 2018, Stephenson and Calcarone 1999, Bradley *et al.* 2014, and Unitt 2004.

Appendix E
Photo Book

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Photo 1. Herp Array 1 facing northwest

Photo 2. Herp Array 2 facing east

Photo 3. Herp Array 3 facing south

Photo 4. Herp Array 4 facing east

Photo 5. Herp Array 5 facing southeast

Photo 6. California Toad in Trap

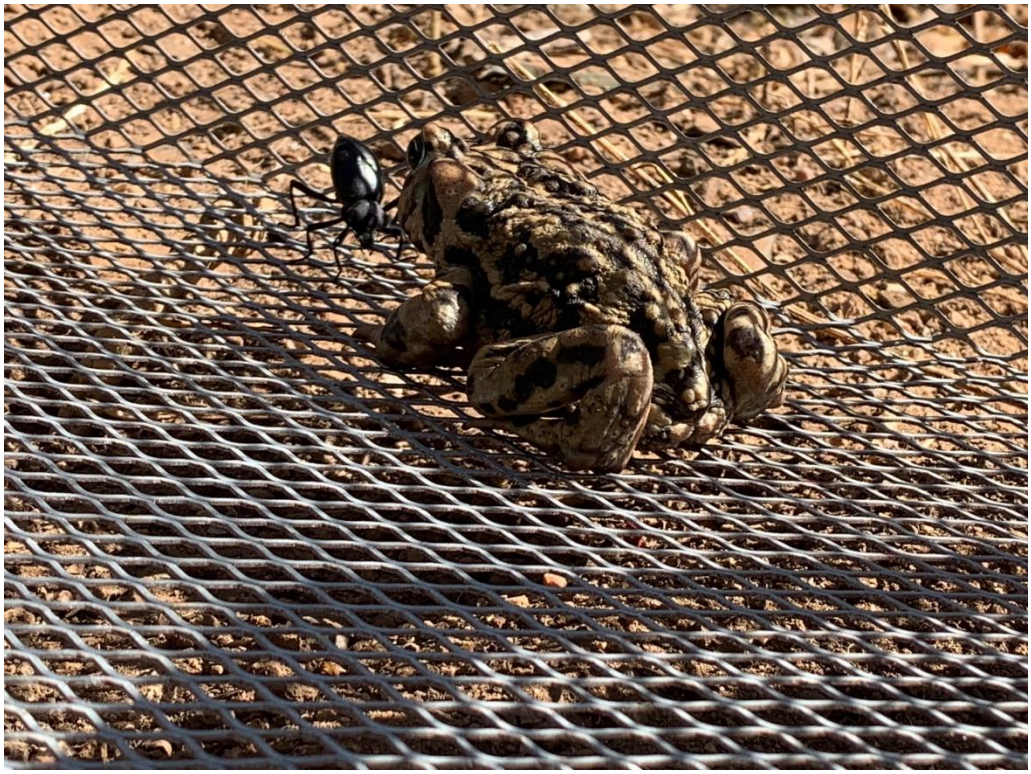

Photo 7. Southern Alligator Lizard

Photo 8. Coast Tiger Whiptail

Photo 9. Belding's Orange-throated Whiptail

Photo 10. Western Fence Lizard

Photo 11. Granite Spiny Lizard

Photo 12. California Kingsnake

Photo 13. Red Diamond Rattlesnake Incidental Sighting

Photo 14. Southwestern Speckled Rattlesnake and California Toad observed in well

Photo 15. Incidental sighting of a Southwestern Speckled Rattlesnake

Photo 16. Avian Point Count 1 facing South

Photo 17. Avian Point Count 2 facing North

Photo 18. Avian Point Count 3 facing south

Photo 19. Avian Point Count 4 facing west

Photo 20. Avian Point Count 5 facing north

Photo 21. Avian Point Count 6 facing west

Photo 22. Small Mammal Trap Line A facing south

Photo 23. Small Mammal Trap Line B facing east

Photo 24. Small Mammal Trap Line C facing west

Photo 25. Small Mammal Trap Line D facing southwest

Photo 26. Small Mammal Trap Line E facing southwest

Photo 27. Small Mammal Trap Line F facing southeast

Photo 28. Small Mammal Trap Line G facing north

Photo 29. Small Mammal Trap Line H facing east

Photo 30. Small Mammal Trap Line I facing north

Photo 31. Small Mammal Trap Line J facing east

Photo 32. Small Mammal Trap Line K facing south

Photo 33. Small Mammal Trap Line L facing south

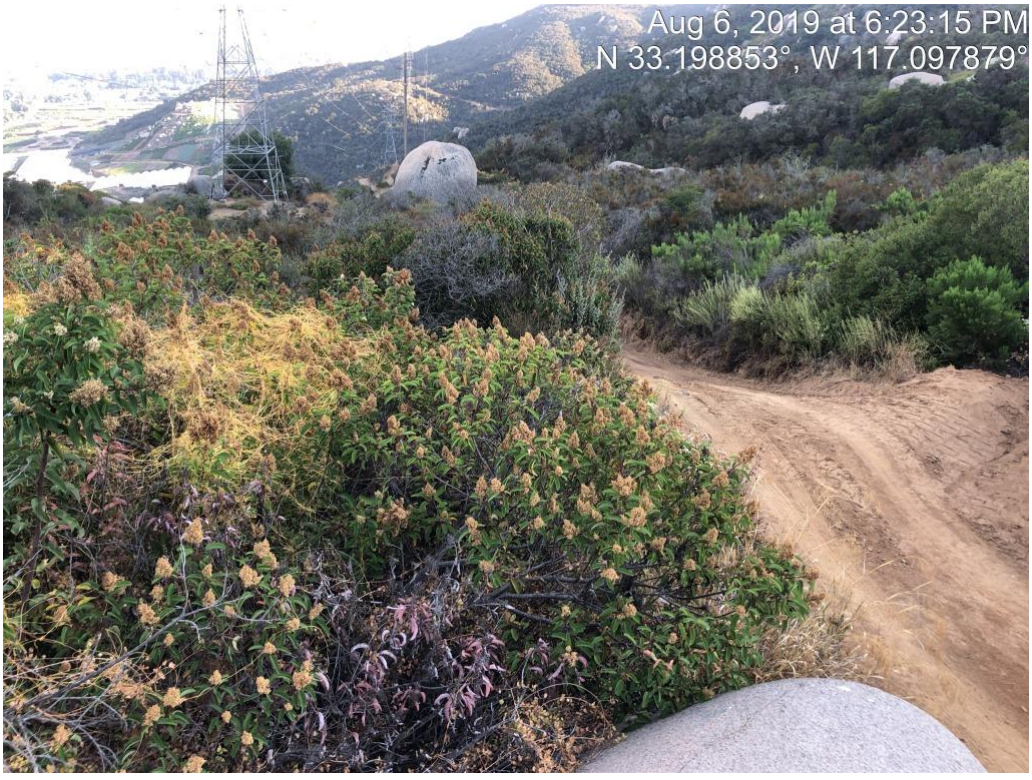

Photo 34. Desert Cottontail

Photo 35. California Ground Squirrel

Photo 36. Raccoon

Photo 37. Coyote

Photo 38. Bobcat

Photo 39. Mountain Lion