BASELINE BIODIVERSITY SURVEY REPORT
FOR THE
WU AND CIELO PROPERTIES
COUNTY OF SAN DIEGO
DEPARTMENT OF PARKS AND RECREATION

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

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EXECUTIVE SUMMARY

In 2015, the County of San Diego County Department of Parks and Recreation DPR acquired two adjacent Wu parcels and one Cielo parcel hereafter collectively referred to as the Properties) totaling approximately 139.2 acres to add to the existing 2,554-acre Sycamore Canyon/Goodan Ranch Preserve. The Properties are located within the Multiple Species Conservation Plan MSCP) preserve system and consist primarily of Diegan coastal sage scrub, southern mixed chaparral, coastal sage-chaparral transition, and non-native grassland. The majority of the habitat is considered high to very high quality, although some areas within the Properties have been impacted by human activities e.g., unauthorized trails . DPR proposes to manage the Properties in accordance with the existing Resource Management Plan for Sycamore Canyon and Goodan Ranch Preserve County of San Diego 2013), including Area-Specific Management Directives. The existing Resource Management Plan will be updated based on the survey information contained within this report.

AECOM biologists performed the following biological inventory surveys within the Properties from spring through fall 2016: habitat mapping survey, sensitive/rare plant surveys, invasive non-native plant surveys, butterfly surveys, herpetological surveys, avian surveys, bat surveys, small mammal surveys, and medium and large mammal surveys.

Vegetation community mapping used both Oberbauer-modified Holland Code Oberbauer et al. 2008) and the Vegetation Classification Manual Sproul et al. 2011). Based on the Vegetation Classification Manual, seven plant alliances, associations, or semi-natural stands were identified within the Properties: Mediterranean California naturalized annual and perennial grassland semi-natural stands, chamise-mission manzanita-Ramona ceanothus association, chamise-California buckwheat-California sage brush-black sage association, laurel sumac-deerweed association, California sagebrush-California buckwheat-laurel sumac association, coast live oak-poison oak-grass association, and developed land.

A total of 175 plant species were recorded within the Properties during field surveys, including 32 invasive non-native plant species and four special-status plant species. A total of 108 wildlife species were observed or detected within the Properties during surveys, including 15 invertebrates, 16 reptiles, 52 birds, and 25 mammals. Twenty-two special-status wildlife species were observed or detected within the Properties. Seven of the detected special-status wildlife species are also covered by the MSCP.

Based on the surveys conducted in 2016 and the presence of multiple special-status species within the Properties, management recommendations have been included to protect, preserve,

and sustain populations of special-status species within the Properties. General management recommendations to protect special-status plant and wildlife species include monitoring and removing invasive non-native plant species; maintaining fences or barriers to prevent unauthorized public access; surveying and monitoring for MSCP covered species, including federally listed butterfly and bird species; and maintenance of natural ecological processes, such as wildfires at an appropriate frequency , to allow for openings of chaparral and scrub communities with herbaceous understories. Additional measures to reduce human-caused edge effects such as introduction of invasive/exotic species and domestic pets; increase in trash/pollution; and/or habitat destruction, especially through human-induced fires , allow a natural fire regime to return, then seasonal trail closures to protect special-status species and sensitive habitats may be necessary.

1.0 INTRODUCTION

1.1 PURPOSE OF THE REPORT

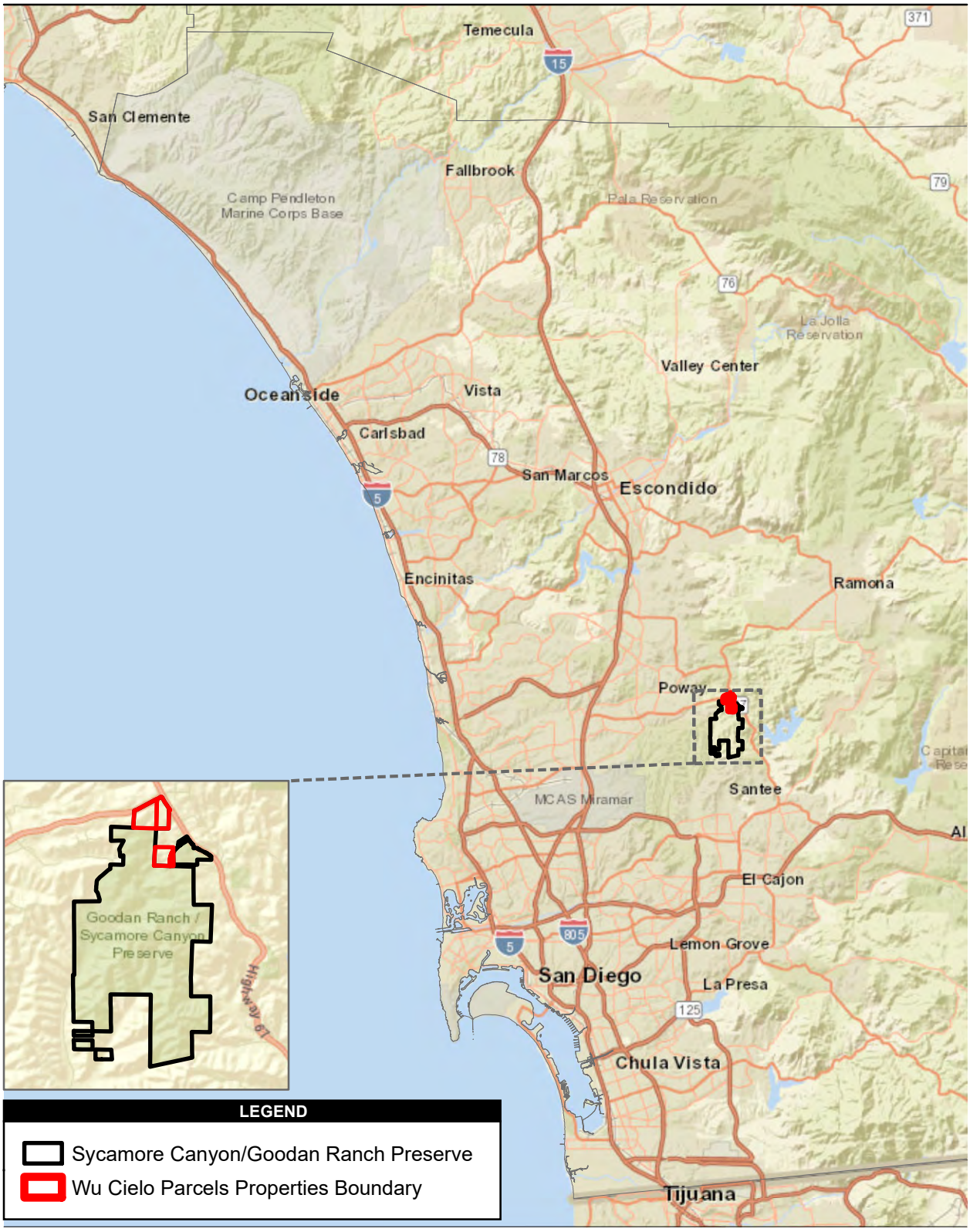
Baseline biological resources surveys were conducted from the spring to fall 2016 on two adjacent Wu parcels, 99.97 acres, and one Cielo parcel, 39.68 acres, hereafter collectively referred to as the Properties for the County of San Diego County Department of Parks and Recreation DPR Figures 1 and 2). These Properties were recently acquired to expand the adjacent Sycamore Canyon/Goodan Ranch Preserve Preserve). The purpose of these surveys was to identify and map biological resources that exist on the Properties. This information will be used to update the existing Resource Management Plan RMP; County of San Diego 2013). The RMP will be updated with additional area-specific management directives ASMDs that outline the requirements for managing and monitoring the resources on the Properties.

1.2 MULTIPLE SPECIES CONSERVATION PROGRAM CONTEXT

The Properties are located within the San Diego County Multiple Species Conservation Program MSCP; Figure 3). They are within the western extension of a large area of habitat considered "very high habitat value" under the County Habitat Evaluation Model. The MSCP County of San Diego Subarea Plan County of San Diego 1998 was approved by the San Diego County Board of Supervisors in 1997 and the County received the permits from the U.S. Fish and Wildlife Service (USFWS), and California Department of Fish and Wildlife CDFW in 1998. The Properties have been identified in the Plan as part of a Pre-Approved Mitigation Area PAMA) and have been preserved as a result of their high habitat value. PAMA land is designated as land with priority for conservation to assemble the County Preserve system. The Properties are connected to the portion of the MSCP Planning Area that extends to the east toward Ramona and the west into the City of Poway.

The Wu parcels are located to north of the Cielo parcel and are bounded by Scripps Poway Parkway to the north and State Route 67 to the east. Sycamore Canyon/Goodan Ranch is located to the south of the Wu parcels. Land on the north side of Scripps Poway Parkway, which forms the northern boundary of the Wu parcels and land to the west is owned by the City of Poway and is designated as conserved lands. Land to the east across State Route 67 is privately owned with a land use designation of Semi-Rural Residential SR-10) with a lot size of 10 or 20 acres though there are a number of lots around 5 acres in size (County of San Diego 2011).

The Cielo parcel is surrounded on three sides, west, south, and east, by the Preserve. Land to the north and east of the Cielo parcel is also privately owned. The private lands are zoned with agricultural zoning (A70) and a minimum lot size of 4 acres.



Source: ESRI, AECOM.

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Scale: 1 538,560; 1 inch 8.5 miles

Figure 1
Properties Vicinity Map

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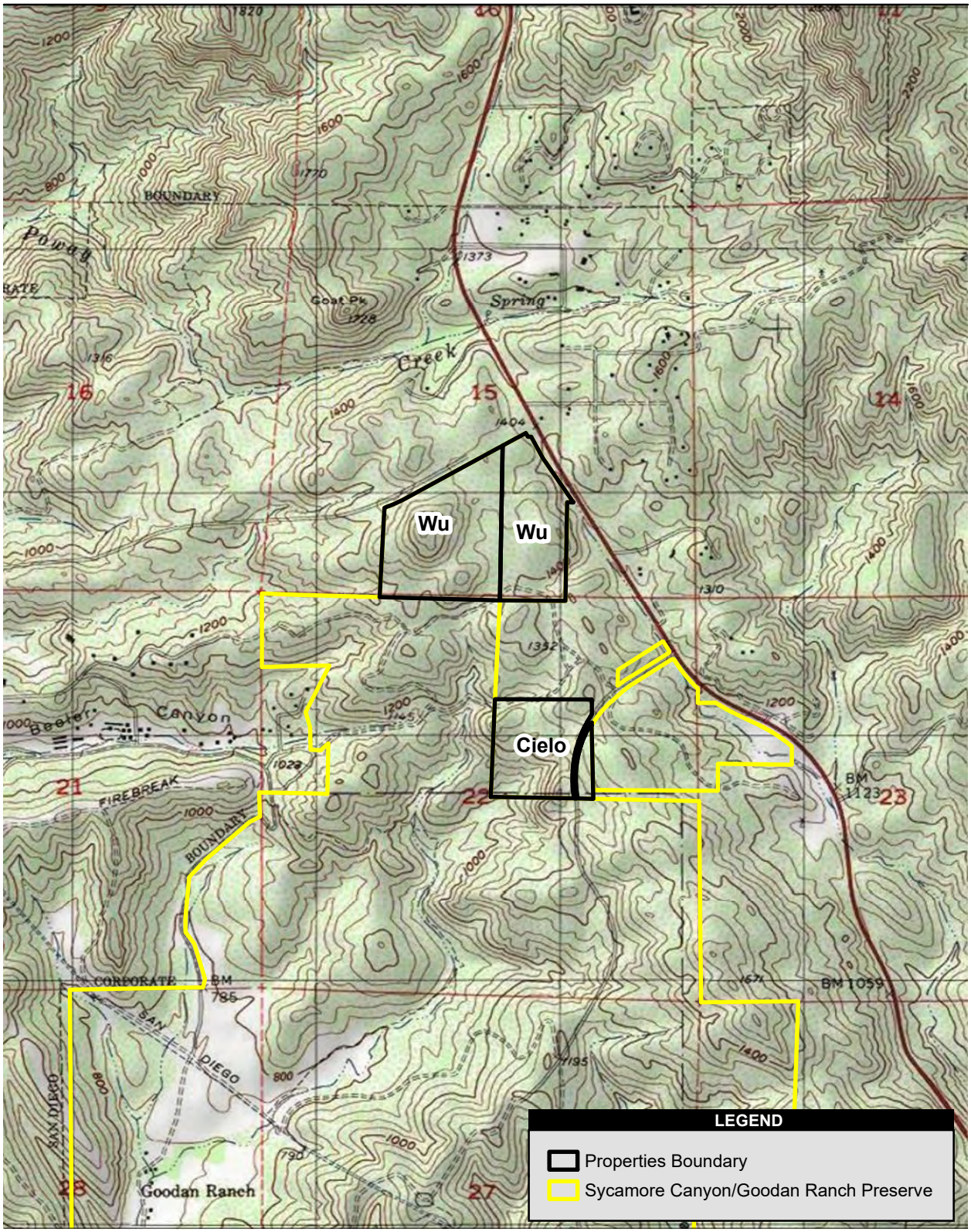

Source: USGS 7.5 Topographic Quadrangle San Vicente Reservoir CA 1973

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Figure 2
Location of Properties

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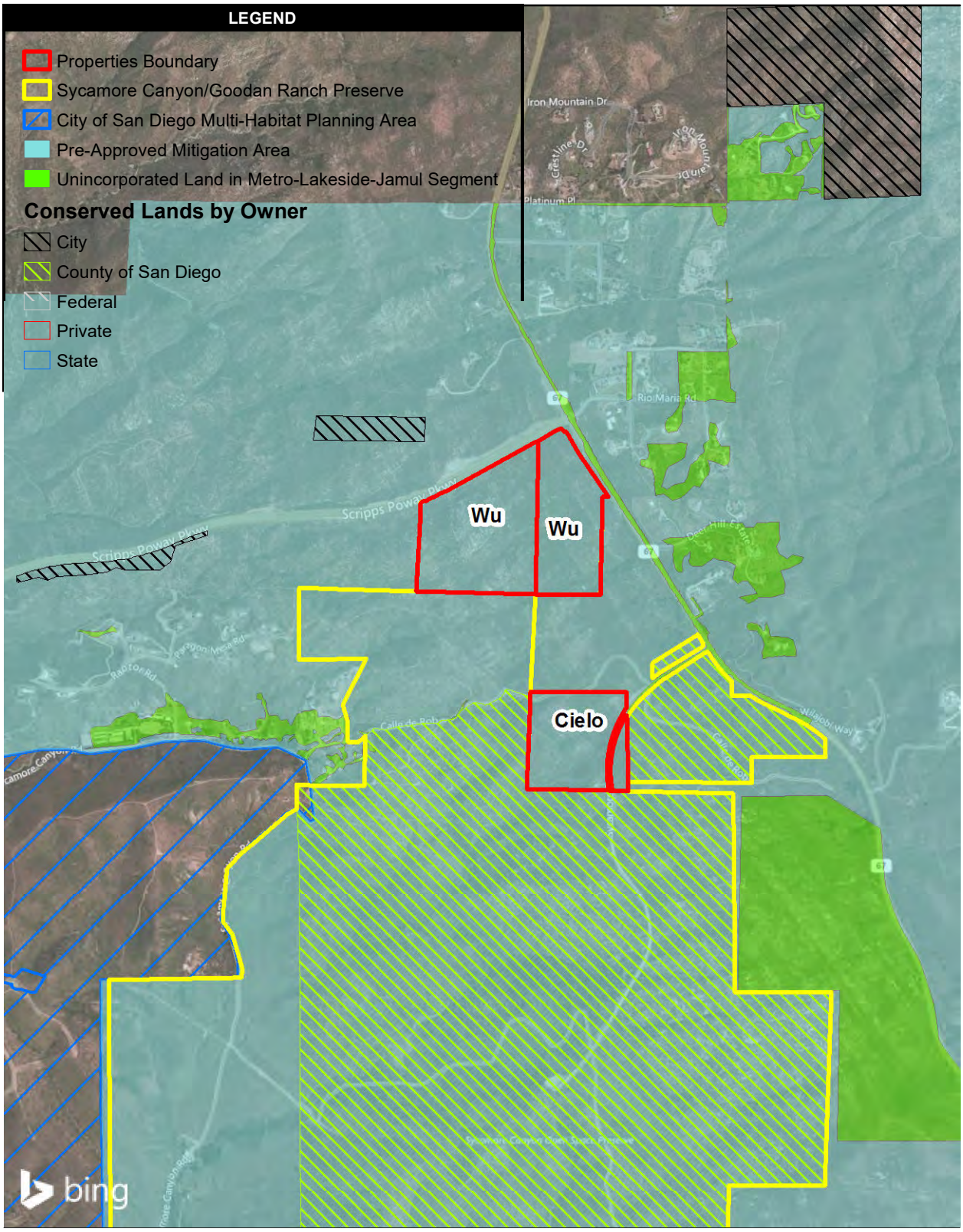

Source: SanGIS; AECOM.

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Figure 3
Multiple Species Conservation Program and Adjacent Conserved Lands

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2.0 STUDY AREA DESCRIPTION

2.1 PROJECT LOCATION

The Wu and Cielo parcels combined equal approximately 139.2 acres and are located in the west-central portion of the unincorporated area of San Diego County, approximately 8.3 miles east of Interstate 15 at the southwest quadrant of the intersection of Scripps Poway Parkway and State Route 67 Figure 1). The Properties are roughly 4 miles east of the center of Poway and approximately half a mile south of the southeast side of the City of Poway. The Properties are located in the San Vicente Reservoir Quadrangle and within Range 1 West and Township 14 South in the southeast quarter of Section 15 and northeast quarter of section 22. The Properties are a combination of three parcels that encompass the following Assessor's Parcel Numbers: 324-011-15 and 324-070-29 for the Wu parcels, and 324-040-07 for the Cielo parcel.

2.2 GEOGRAPHICAL SETTING

The Properties are located in the eastern portion of a large block of undeveloped land. It stretches from Marine Corps Air Station Miramar and extends eastward into the rugged open space and ranch lands north of San Vicente Reservoir, across Cleveland National Forest Lands, and extends all the way to the Cuyamaca Mountains and then east to the Salton Sea. This is one of the prime core areas that extends to the east in the region (County of San Diego 1998 .

The Properties consist of small shallow valleys and rocky hills in the form of a wide shelf on the broad west-facing slope of the foothills of the Peninsular Range Mountains. The western portion of the Wu parcels includes two steep rocky hills with a narrow gap between them. The highest point on the northern peak is 1,677 feet in elevation. The lowest points on the Wu parcels are the southwest corner at 1,380 feet and the eastern edge adjacent to State Route 67 with an elevation of 1,350 feet. The Cielo parcel ranges from 1,035 feet in elevation near the southwest corner to 1,035 feet to 1,392 feet in elevation in the northeast corner. The Properties have very little disturbance from past land use activities though the grassy valleys are generally dominated by non-native annuals indicating historical grazing activities. The vegetation has been affected by various fires in the past but it has recovered to a great extent. Overall, the Properties are in very good biological condition.

2.3 GEOLOGY AND SOILS

According to Bowman (1973), the Properties contain four soil types belonging to three soil series Escondido, Friant, and metamorphic rock land). These four soils mapped for the Properties are

all derived from metamorphosed sedimentary rock. Metamorphosed sedimentary rock, or metasedimentary rock, is known to support sensitive species of plants including several that might be expected on the Properties. Descriptions of each soil series and the attendant soil types follow Bowman 1973) and are shown in Figure 4.

2.3.1 Escondido Series

Escondido very fine sandy loam with 5 to 9 percent slopes EvC) soil type is moderately sloping non-eroded soil that is 24 to 40 inches deep over rock. The available water holding capacity is 4 to 5.5 inches. Runoff is slow to medium and erosion hazard is slight to moderate. The substrate is hard, fine-grained metasedimentary rock. This soil type makes up roughly 15 to 20 percent of the Wu parcels, lying in the lower elevation portions where it is the predominant base for the grasslands.

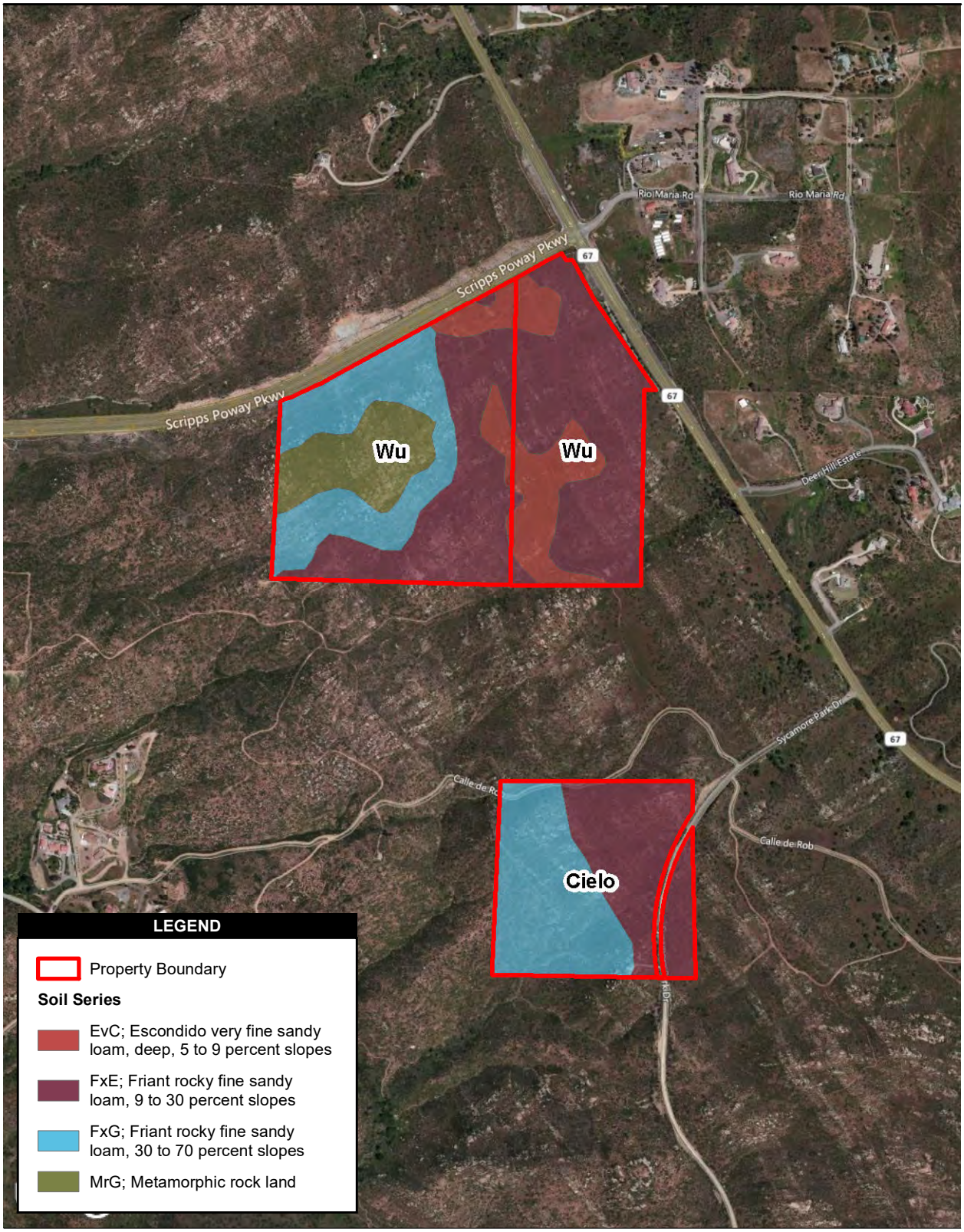
2.3.2 Friant Series

Friant rocky fine sandy loam with 9 to 30 percent slopes (FxE soil type occurs on rolling to hilly terrain, and is 3 to 12 inches deep over hard rock. The available water holding capacity is 0.5 to 1.5 inches with runoff medium to rapid and erosion hazard moderate to high. Rock outcrops cover up to 10 percent of the surface. The substrate for this soil is hard, gray metasedimentary rock. It covers roughly 45 to 50 percent of the Wu parcels and 50 percent of the Cielo parcel.

Friant rocky fine sandy loam with 30 to 70 percent slopes FxG soil type is steep to very steep and is 3 to 12 inches deep over hard rock. The available water holding capacity is 0.5 to 1.5 inches. Runoff is rapid to very rapid, and erosion hazard is high to very high. Rock outcrops cover 2 to 10 percent of the surface and covers roughly 20 percent of the Wu parcels and 50 percent of the Cielo parcel.

2.3.3 Metamorphic Rock Land

Metamorphic rock land MrG occurs as excessively drained and occurs in hilly to mountainous areas. Numerous areas are covered with rock outcrops and rock, with exposed rock covering 50 to 90 percent of the areas. The rock outcrops are metasedimentary in nature. The soil material is very fine sandy loam to silt loam in texture and is generally less than 10 inches over hard rock or deeper in some locations between boulders. Runoff is rapid to very rapid. The top of the hill on the western Wu parcel is composed of this soil type constituting roughly 15 percent of the Wu parcels.



Source: SSURGO; AECOM.

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Figure 4
Soils Map

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2.4 CLIMATE

The climate of the Properties is influenced by the Pacific High pressure system from the Pacific Ocean. The precipitation from this system typically occurs in winter through a series of sporadic storms that progress southward from the north. The yearly variation from this system is high, with numerous below-normal rainfall seasons. Summers are generally warm and dry, with some coastal low-cloud influence occurring in the early part of the day. The closest consistent weather station to the Properties is located in Poway Valley approximately 3.6 miles from the Properties Western Regional Climate Center 2016). Average annual precipitation at Poway Valley is 13.24 inches of rain. January is the wettest month, receiving on average 2.80 inches Table 1). July and August are the driest months, with only 0.04 inch of rain recorded in July and 0.07 recorded in August on average. The summer months, from June through September, are generally dry and receive less than 0.25 inch of rain. The Properties are located at a higher elevation than the rest of Poway, and potentially receive 1 or 2 inches more than the average rainfall in Poway. The average high temperature for August is 86.4 degrees Fahrenheit, but extreme temperatures associated with Santa Ana wind events can occur in September and October. Santa Ana wind events drop humidity to below 10 percent and increase wildfire frequency.

Table 1. Temperature and Precipitation Data for Poway Valley Weather Station (047111)

Period of Record: May 1, 1893 through May 21, 2016													
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual**
Average Maximum Temperature °F	66.6	66.0	67.4	72.1	74.2	80.9	85.6	86.4	84.4	79.2	71.7	67.3	**75.1**
Average Minimum Temperature °F	40.6	42.9	43.7	48.3	54.4	56.2	60.1	62.2	58.1	50.2	43.2	38.6	**49.9**
Average Total Precipitation (inches	2.80	2.70	2.30	0.95	0.37	0.08	0.04	0.07	0.19	0.52	1.36	1.87	**13.24**

Southern California has been experiencing an extended period of drought especially for the last 5 years. For most of Southern California and particularly the interior portions in the Peninsular Ranges, the drought has been extensive. During the rainfall seasons of 2014–2015 and 2015–2016, the rainfall was only 56 percent and 65 percent of normal for Cuyamaca Lake, east of Poway. During the season of 2013–2014, Poway only received 5.06 inches or 38 percent of normal precipitation. However, Poway has received an anomalous amount of precipitation in the past two seasons 2014-2015 and 2015-2016 due to an abnormal storm track with a higher percentage of normal rain than the interior regions and locations to its north and south. During the season of 2014–2015, Poway received 9.82 inches or 74 percent of normal, which is still very dry. However, in the El Niño season of 2015–2016, a series of storms were centered in central San Diego County in the Poway and Ramona area. In January of 2016, Poway received over 6 inches, which was much more than the stations to the north, south, or east, and localized flooding

occurred. The seasonal total for Poway for 2015–2016 was 14.36 inches, higher than normal. It was potentially the only location in Southern California that received greater than average rainfall during the 2015–2016 winter season. The long-term effects of drought are still exhibited in the vegetation but the growth of annuals and perennials on the Properties during the spring of 2016 would have been greater than other locations in San Diego County.

2.5 HYDROLOGY

The Properties are located within the greater San Diego Watershed. Within the greater San Diego Watershed are two subunits reflective of the presence of Los Penasquitos Creek and the San Diego River Figure 5). The Properties are just south of the dividing line between subunits of the watersheds, Penasquitos Creek and San Diego River. The Wu parcels lie within both the San Diego River Watershed subunit and the Penasquitos Watershed subunit. The watershed subunit boundary passes through the Properties with the portion east of the grassy meadows flowing into the San Diego River Watershed subunit and the western portions of the parcels flowing into a drainage that eventually enters Beeler Canyon and Los Penasquitos Creek. For the Cielo parcel, it appears that the majority flows into a drainage that eventually enters the Santee Lakes area and the San Diego River subunit, but just to the north and west, the drainage flows into the Beeler Canyon and Penasquitos Creek subunit. No permanent water source exists within the Properties and there is no riparian vegetation indicative of ephemeral water or extended water ponding.

Floods occur occasionally in this region; however, the location of the Properties at the upper boundaries of the watersheds limits the effects of floods on the Properties. The greatest flood on record for San Diego County occurred in January 1916, when many stations received more than their normal seasonal precipitation during a 2-week period McGlashan and Ebert 1918). Other floods occurred in 1927 and more recently in 1980. In January of 1916, Poway received half of its normal seasonal rainfall in a period of less than 3 days.

2.6 FIRE HISTORY

Based on historical fire data from the California Department of Forestry and Fire Protection and SanGIS, the Properties have been affected to varying degrees by six different wildfires Table 2 and Figure 6) according to records beginning in 1913 (SanGIS 2016 . The most recent fire to burn the Properties was the Cedar Fire of October 2003, which burned 100 percent of the Properties. The Properties are recovering from the Cedar Fire; however, the chaparral vegetation has not fully recovered to pre-fire conditions based on the length of burned branches, compared to the shorter regrowing branches.

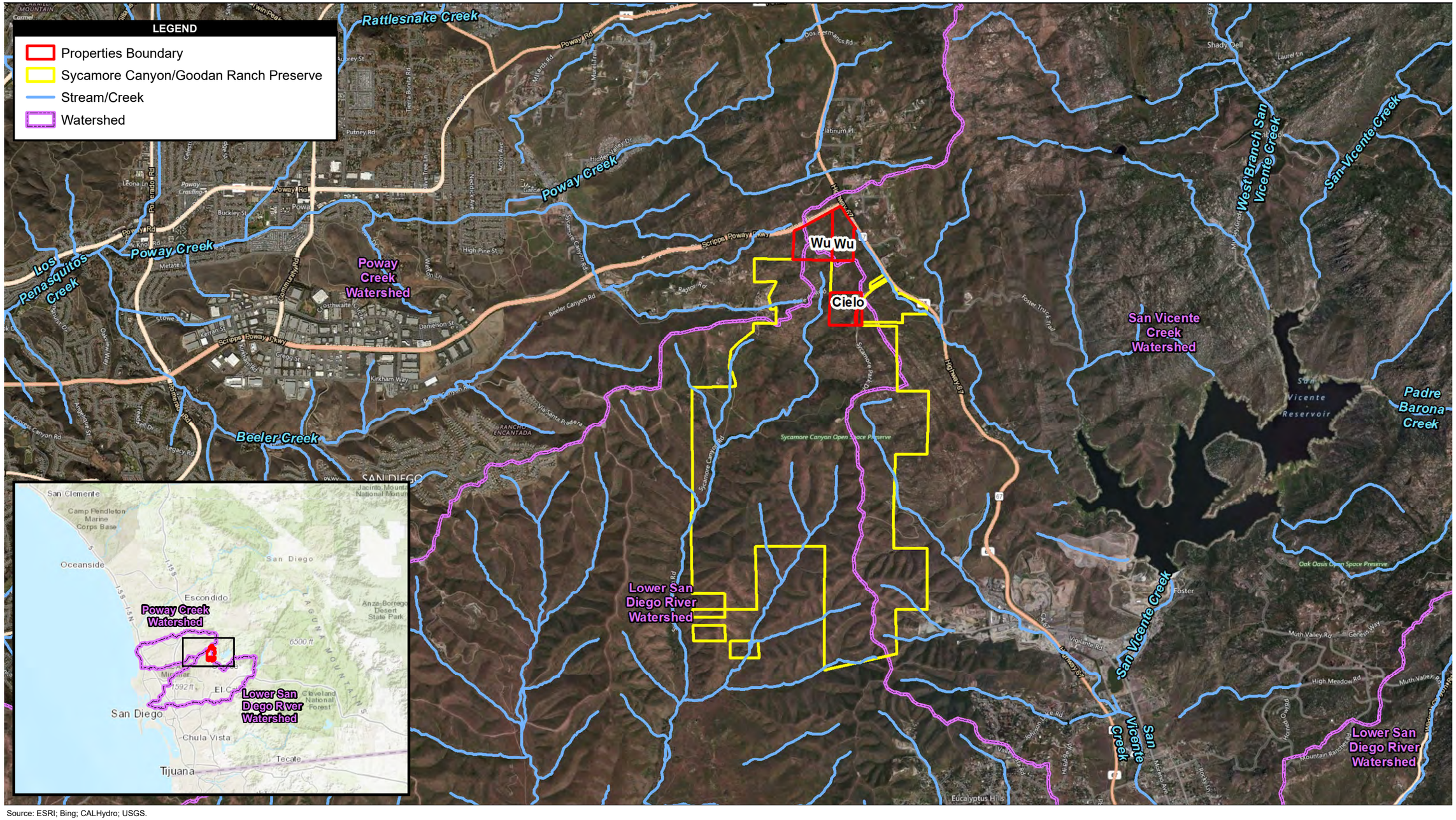
Table 2. Properties Fire Interval Data

Fire Year	Fire Name	Interval from previous fire years	Acreage Burned	Percent of Properties Burned
1913	–	Unknown	92.21	66
1938	–	25	32.47	23
1955	Goat Mountain	17	92.77	66
1971	Rabbit	16	31.65	23
1985	Sycamore	30	8.43	6
2003	Cedar	18	139.65	100

2.7 TRAILS

Several trails lead up to and meander through the Properties Figure 7). Sycamore Canyon Road passes beneath Scripps Poway Parkway and loops to the west and south of the Properties. However, as it loops to the south, a dirt track heads east toward the Properties. This dirt vehicle trail, called Calle de Rob, travels eastward and splits with the northern branch ending at the southern boundary of the Wu parcels. The southern branch continues, traversing the northern boundary of the Cielo parcel, and eventually connects with Sycamore Park Drive. While labeled Calle de Rob, much of its route is a narrow two-track pathway that may not be passable with a vehicle. Calle de Rob is the only trail that borders the northern edge of the Cielo parcel, and there are no other foot trails within the Cielo parcel.

The Wu parcels are also accessible from a trail that extends northwest to a pull-off area on Scripps Poway Parkway and a trail that connects with the end of Paragon Mesa Road. Within the Wu parcels, a north-south trail exists that loops internally but also connects at the south end of the parcels to the southern branch of Calle de Rob near where it connects with Sycamore Park Drive. Near the center of the Wu parcels is a large coast live oak *Quercus agrifolia*) tree at the edge of a grassy meadow that appears to be a major intersection point for several foot trails. The internal trails appear to be footpaths and mountain bike trails that have been maintained by use through the grassy meadows though at some time in the past the some of the trails were apparently used by four-wheel vehicles as evidenced by tire tracks. At its widest point, the trail is 5 to 6 feet wide though the majority is only as wide as two vehicle tracks. There is also evidence that a de facto dirt bike loop track existed previously on the northern part of the Wu parcels, although much of it has now been grown over with annual grasses.



Source: ESRI; Bing; CALHydro; USGS.

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Figure 5
Hydrology Map

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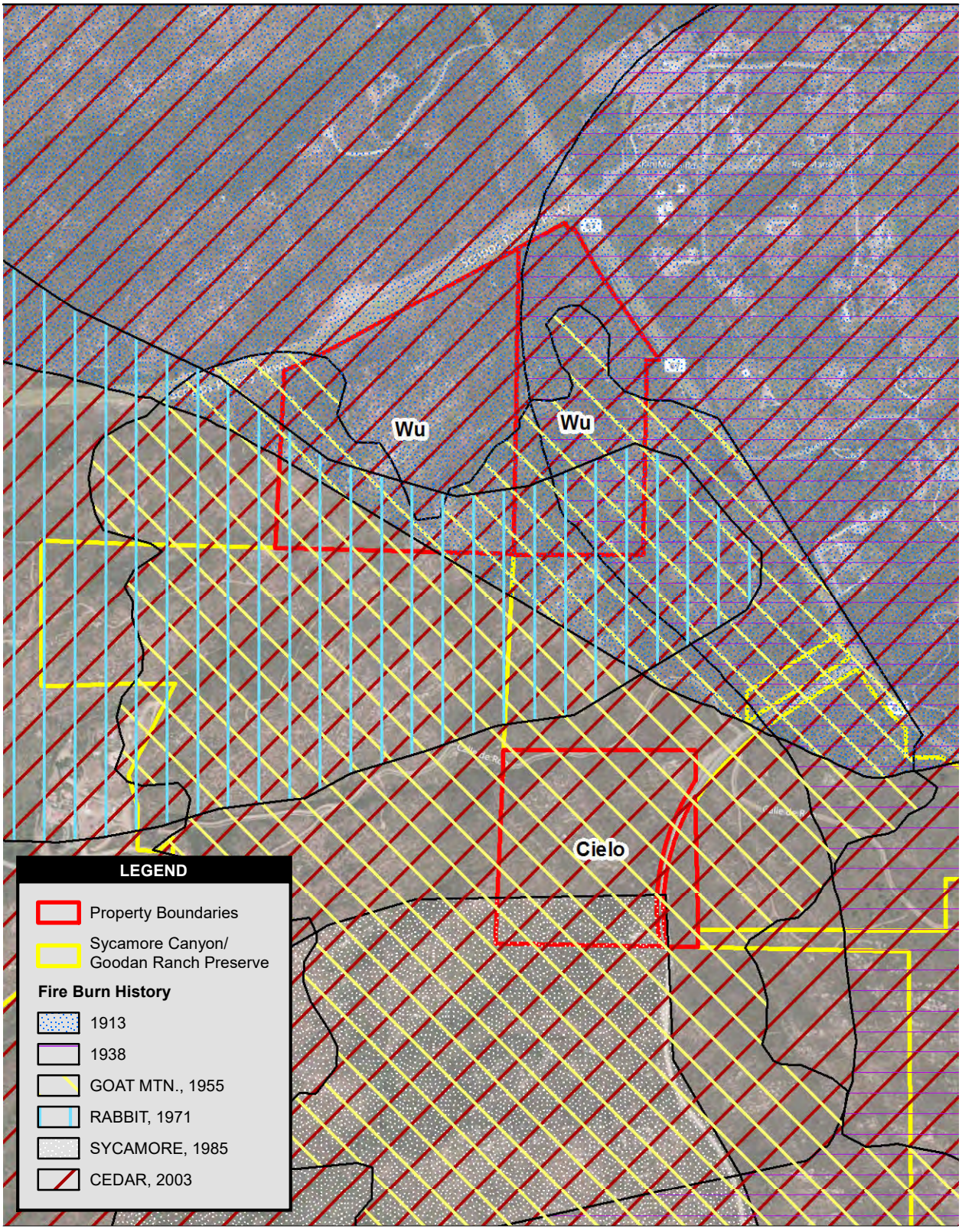

Source: SSURGO; AECOM.

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Figure 6
Fire History Map

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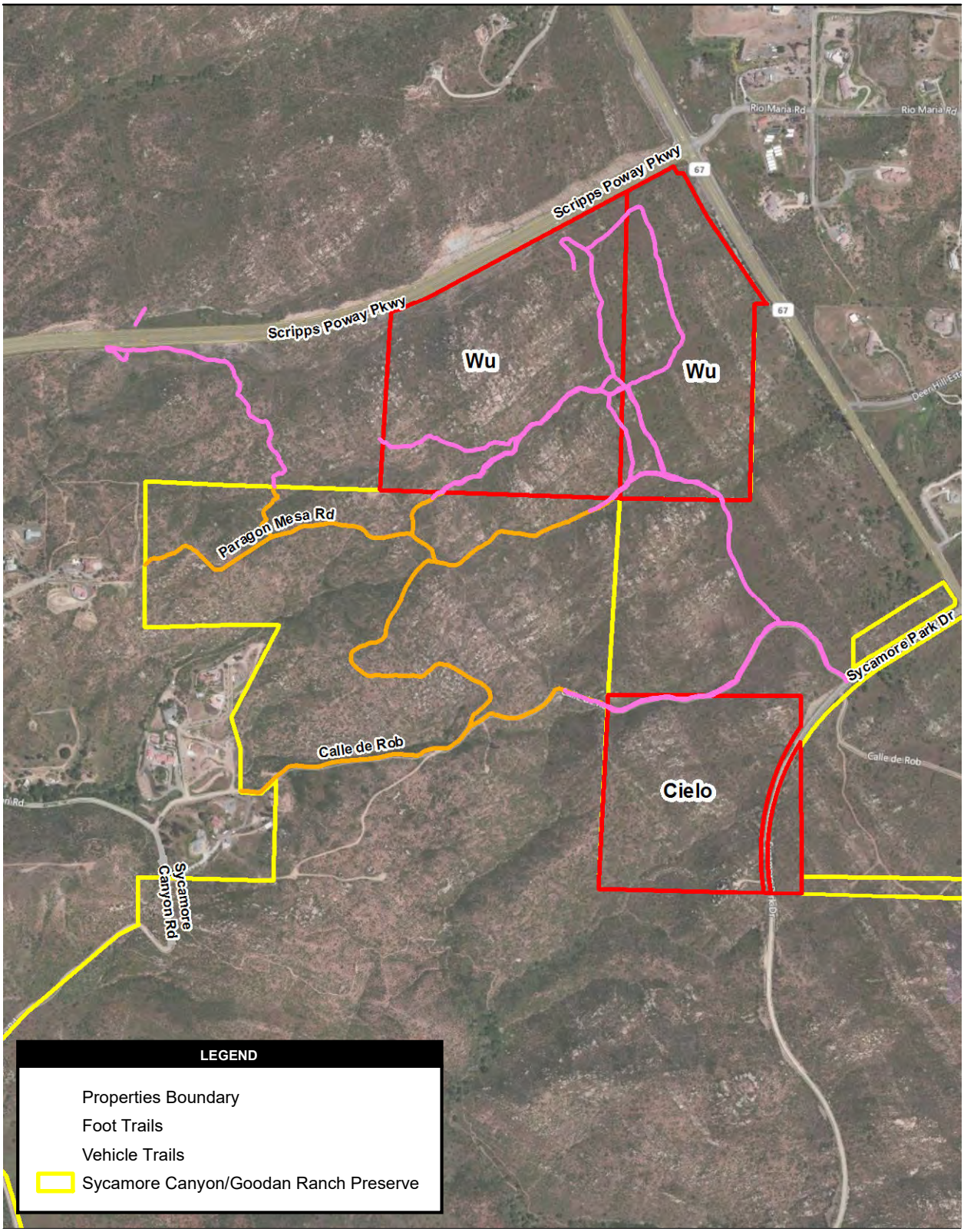

Source: SanGIS; AECOM.

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Figure 7
Existing Trails

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3.0 METHODS

Biological surveys were conducted on the Properties by AECOM biologists from March 2016 through October 2016. Table 3 lists the survey dates, personnel who conducted the surveys, and the type of survey conducted. Botanical surveys included vegetation mapping, rare plant surveys, and surveys for invasive plant species. Wildlife surveys included butterfly surveys, herpetological drift fence surveys, diurnal and nocturnal avian surveys, small mammal trapping, passive and active acoustical bat surveys, and medium and large mammal remote camera surveys.

Table 3. Survey Type, Dates, Number, Personnel, and Survey Conditions

Survey Date	Survey Number	Personnel	Conditions[1]
Reconnaissance Site Visit			
March 4, 2016	Initial Site Visit	Andrew Fisher, Michael Anguiano, Tom Oberbauer	Start: 68 F, wind 0 mph, 0% CC, Visibility, good End: 69 F, wind 3 mph, 0% CC, Visibility, good
Botanical Surveys			
April 12, 2016	1	Tom Oberbauer, Jenna Hartsook	Start: 68 F, wind 0 mph, 20% CC, Visibility, good End: 78 F, wind 12 mph, 0% CC Visibility, good
May 2, 2016	2	Tom Oberbauer, Jenna Hartsook	Start: 68 F, wind 0 mph, 0% CC, Visibility, good End: 83 F, wind 12 mph, 0% CC, Visibility, good
Butterfly Surveys			
March 23, 2016	1	Brennan Mulrooney	Start: 63°F, wind 0 mph, 0% CC, Visibility, good End: 73°F, wind: 3 mph 0% CC, Visibility, good
April 15, 2016	2	Brennan Mulrooney	Start: 65°F, wind 4 mph, 0% CC, Visibility, good End: 72°F, wind: 8 mph 5% CC, Visibility, good
May 25, 2016	3	Brennan Mulrooney	Start: 64°F, wind 3 mph, 60% CC, Visibility, good End: 69°F, wind: 5 mph 50% CC, Visibility, good
August 11, 2016	4	Brennan Mulrooney	Start: 75°F, wind 3 mph, 30% CC, Visibility, good End: 84°F, wind: 3 mph 0% CC, Visibility, good
Herpetofauna Array Surveys			
March 21, 2016	Install	Andrew Fisher	Start: 63°F, wind 0 mph, 0% CC, Visibility, good End: 77°F, wind: 3 mph 0% CC, Visibility, good
March 23 through March 26, 2016	1	Andrew Fisher, Michael Anguiano	NA
April 5 through April 8, 2016	2	Andrew Fisher, Emma Fraser	NA
May 3 through May 6, 2016	3	Dana McLaughlin	NA
June 2 through June 5, 2016	4	Andrew Fisher, Emma Fraser	NA
Avian Nocturnal and Diurnal Surveys			
March 23, 2016	1	Brennan Mulrooney	Start: 45°F, wind 0 mph, 0% CC, Visibility, good End: 73°F, wind: 3 mph 0% CC, Visibility, good
April 15, 2016	2	Brennan Mulrooney	Start: 50°F, wind 0 mph, 0% CC, Visibility, good End: 64°F, wind: 5 mph 0% CC, Visibility, good

Survey Date	Survey Number	Personnel	Conditions[1]
May 25, 2016	3	Brennan Mulrooney	Start: 54°F, wind 1 mph, 99% CC, Visibility, good End: 69°F, wind: 3 mph 60% CC, Visibility, good
August 11, 2016	4	Brennan Mulrooney	Start: 66°F, wind 3 mph, 100% CC, Visibility, good End: 75°F, wind: 3 mph 50% CC, Visibility, good
Small Mammal Trapping			
April 5 through April 7, 2016	1	Andrew Fisher, Emma Fraser	NA
Wildlife Cameras			
March 21, 2016	Install	Andrew Fisher	Start: 63°F, wind 0 mph, 0% CC, Visibility, good End: 77°F, wind: 3 mph 0% CC, Visibility, good
March 22 through April 22, 2016	1	Andrew Fisher, Emma Fraser	NA
June 1 through July 12, 2016	2	Emma Fraser	NA
September 12 through October 20, 2016	3	Emma Fraser	NA
Bats – Passive Surveys			
April 1 through April 5, 2016	1	Julie Stout	NA
July 15 through 17, 2016	2	Drew Stokes	NA
October 18 through October 20, 2016	3	Drew Stokes	NA
Bats – Active Survey			
July 27, 2016	1	Drew Stokes	Start: 81°F, wind 1.4 mph, 0% CC End: 71°F, wind: 0 mph 0% CC

[1]NA not applicable due to the survey spanning multiple days and multiple weather conditions

°F = degrees Fahrenheit; mph miles per hour; CC = cloud cover

A review of state and federal databases for existing biological resource information for the Properties was conducted to provide baseline information regarding special-status biological resources potentially occurring on the Properties and in the surrounding area. Sources reviewed and used included the California Natural Diversity Database CNDDB , California Native Plant Society's CNPS Inventory of Rare and Endangered Vascular Plants CDFW 2016a; CNPS 2016 , and the Species Predictive Model developed by the County of San Diego County of San Diego 2014). For the CNDDB, a search of a 1-mile radius around the Properties was conducted to determine if there were nearby or adjacent special-status species that might occur on the Properties CDFW 2016a . Additionally, the existing Sycamore Canyon/Goodan Ranch Preserve RMP was reviewed for special-status species occurrences (County of San Diego 2013 .

For purposes of this Baseline Biodiversity Report, species are considered "special-status species" if they meet at least one of the following criteria:

- Listed or proposed for listing including candidate species[1] under the Federal Endangered Species Act FESA or California Endangered Species Act CESA .
- CDFW Species of Special Concern (SSC CDFW 2016b).
- CDFW fully protected species FP CDFW 2016b).
- CDFW watch list species (WL) CDFW 2016b).
- Listed by CNPS as California Rare Plant Ranks CRPRs 1A presumed extinct in California and rare/extinct elsewhere), 1B rare, threatened, and endangered in California and elsewhere , 2A presumed extinct in California, but more common elsewhere , or 2B rare, threatened, or endangered in California, but more common elsewhere CNPS 2014). All plants constituting CRPR 1A, 1B, 2A, or 2B meet the definition of Sections 2062 and 2067 (CESA of the California Fish and Game Code (CFGC (CNPS 2014).
- Some, but not all, CRPR 3 and 4 species. Some plants constituting CRPR 3 and 4 meet the definitions of Sections 2062 and 2067 CESA of the CFGC CNPS 2014). CRPR 3 plants are those for which more information is needed a review list and CRPR 4 plants are those of limited distribution watch list) CNPS 2014 .
- Species considered sensitive by the County (County of San Diego 2010).
- Any species covered by the MSCP.

Survey Limitations

Prior to surveys during March through October 2016, seasonal rainfall amounts for Poway in 2014 and 2015 were far below normal following a series of seasons that were below normal. This low level of precipitation created a rainfall deficit that was reflected in the vegetation, the soil, and the groundwater. As mentioned above, January 2016 rainfall for Poway alone was considered above normal though the previous three rainfall seasons were well below, even as low as 38 percent of normal for 2014. The level of plant growth due to the rainfall deficit would have been affected. Shrub growth and rare or sensitive annuals and herbaceous perennials were likely to have been adversely affected by the extended period of low rainfall even though the 2016 season would have shown some recovery. Additionally, due to continued drought conditions, the level of plant growth of invasive weeds may have also been suppressed and, although rainfall in 2016 was locally greater in Poway, the invasive weed species mapping in

[1] Candidate species are those petitioned species that are actively being considered for listing under the Federal Endangered Species Act FESA , as well as those species for which the U.S. Fish and Wildlife Service has initiated a FESA status review, as announced in the *Federal Register*. Proposed species are those candidate species that were found to warrant listing and have been officially proposed for listing in the *Federal Register*. Under the California Endangered Species Act, candidate species are those species currently petitioned for state-listing status.

2016 may not fully represent the level, number, and complete distribution of invasive weed species within the Properties.

Also, low amounts of rainfall from previous years likely exacerbated the drought conditions and affected the abundance of several butterfly, reptile, and amphibian species. The lack of sufficient rainfall for several years may have driven the populations of some wildlife species to lower levels, decreasing their detection probability. There is also the potential that the drought affected small mammal populations, which can affect the populations of some raptor species.

3.1 VEGETATION COMMUNITIES/HABITAT

3.1.1 Vegetation Communities Mapping

Vegetation communities and land cover were delineated in the field in April and May 2016 using hard copy maps and reference points to enable accurate mapping on Google Earth high resolution aerial photographs. Mapping of the Properties was conducted by the same field staff who marked reference points and locations and was then delineated using ArcMap. Mapping of the Properties included a 100-foot buffer pursuant to County guidelines County of San Diego 2010). Surveys were conducted throughout the Properties, with all roads and trails walked, high points visited for panoramic views, and a cross-country traverse across the major parts of the Properties. Vegetation classification during field mapping was based on the Vegetation Classification Manual for Western San Diego County VCM; Sproul et al. 2011) and then cross-walked to the Holland 1986) classification system modified by Oberbauer Oberbauer et al. 2008). Acreage calculations were generated using ArcGIS. Vegetation classifications described in Section 4.1 of this report follow the VCM.

3.2 PLANTS

Floristic surveys, including rare plant and invasive plant surveys, were conducted concurrently with vegetation mapping. Rare plant surveys for spring blooming rare plants were conducted on April 12 and May 2, 2016.

3.2.1 Floristic Surveys

Special-Status/Rare Plant Surveys

AECOM botanists conducted comprehensive sensitive/rare plant surveys on the Properties. Rare plant surveys were conducted in accordance with the County Guidelines Report Format and Content Requirements for Biological Resources County of San Diego 2010); *Guidelines for Conducting and Reporting Botanical Inventories of Federally Listed, Proposed, and Candidate*

Plants USFWS 1996); *Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities* CDFG 2009); and *CNPS Botanical Survey Guidelines* (CNPS 2001).

All accessible areas with a potential to support rare plant species were surveyed on foot. Surveys were floristic in nature; therefore, all plant species detected were identified to subspecies or variety to determine sensitivity status and recorded to inventory plant species on the Properties. For each rare plant species detected, attributes of relative abundance, general distribution, and geographic information system GPS coordinates were recorded within the Properties. Latin and common names follow the Checklist of Vascular Plans of San Diego County Rebman and Simpson 2014). A list of plant species observed on the Properties is included in Appendix A.

The vegetation, elevation, soil types and rock formations, disturbance, status, and distribution within the vicinity of the Properties were considered when evaluating the Properties for potential for special-status plant species to occur. The Properties are located in an area of San Diego County known to support a number of sensitive species. Metasedimentary soils occur over the majority of the Properties, and these soils are known to support sensitive plants. A table of the special-status plant species with potential to occur on the Properties is included in Appendix B.

Due to the presence of metasedimentary soils, potential habitat for rare plants occurs in a wide variety of locations on the Properties. Special-status species considered with potential to occur on the Properties include Deane's milkvetch *Astragalus deanei* , Encinitas baccharis *Baccharis vanessae* , summer holly *Comarostaphylos diversifolia* ssp. *diversifolia* , heart-leaved pitcher sage, *Lepechinia cardiophylla* , felt-leaved rock mint *Monardella hypoleuca* ssp. *lanata* , San Diego goldenstar *Muilla clevelandii* , San Miguel savory *Clinopodium chandleri* , Palmer's sage *Artemisia palmeri* , southern mountain misery *Chamaebatia australis* , rush-like bristleweed *Xanthisma juncea* , and Engelmann oak *Quercus engelmannii* .

Invasive Non-native Plant Species Mapping

Spring 2016 invasive non-native plant surveys occurred concurrently with rare plant surveys. For non-native species generally considered as naturalized, attributes of relative abundance and general distribution throughout the Properties were recorded. Special attention was given to the 29 invasive plant species identified as priorities for near-term management and monitoring by the San Diego Management and Monitoring Program in their *Management Priorities for Invasive Non-native Plants* Conservation Biology Institute 2012). For these 29 species, global positioning system GPS locations, phenology, and estimates of population size were recorded. Species of greatest concern include those rated by the California Invasive Plant Council Cal-IPC (Cal-IPC Invasive Plant Inventory Database 2016), existing on the Federal 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).

Using GPS and geographic information system software, the extent of each population detected was mapped and acreages determined if appropriate. Species that were considered the most invasive or represented in a few locations were of greatest priority for mapping individual locations. No Level 1 or 2 species, as identified in the *Management Priorities for Invasive Non-native Plants* Conservation Biology Institute 2012), were detected on the Properties, which would have required AECOM to contact the County Project Manager within 7 days of detection, to allow the County to treat these species promptly.

3.3 WILDLIFE

General wildlife surveys occurred concurrently with focused surveys and assessments of the Properties. AECOM biologists identified wildlife species by sight, vocalizations, burrows, tracks, scat, nests, and other sign. All wildlife species detected during the field surveys of the Properties were identified to species when possible and recorded. A list of the wildlife species observed on the Properties is included in Appendix C.

The suitability of habitats for special-status wildlife species to occur on the Properties was evaluated during wildlife surveys. The potential for special-status wildlife species to occur on the Properties was based on habitat suitability for each species, including elevation, vegetation communities, level of disturbance, and status and distribution within the vicinity of the Properties. The current RMP for Sycamore Canyon/Goodan Ranch Preserve was reviewed for occurrences of special-status species based on historical surveys County of San Diego 2013 . Additionally, a CNDDB search of a 1-mile radius around the Properties was conducted. Any species that occurred within the 1-mile radius CNDDB search or were historically detected within the existing Preserve were considered for their potential to occur on the Properties.

If no suitable habitat for breeding, foraging, wintering, or migrating) for the species was present within the Properties, then the species was considered to have no potential to occur. If no suitable habitat for special-status wildlife species was present within the Properties, but there was a chance the species could migrate through the Properties en route to suitable habitat elsewhere , they were considered to have a low potential to occur. If marginal, slim, or a small portion of suitable habitat was present within the Properties, or adjacent suitable habitat, then the species were considered to have a moderate potential to occur. If there was a large portion of suitable habitat within the Properties and a reasonable likelihood of occurrence based on nearby known populations, then the species were considered to have a high potential to occur. A table of the

special-status wildlife species evaluated for potential to occur on the Properties is included in Appendix D.

3.3.1 Butterflies

General butterfly surveys were conducted concurrently with avian surveys March 23, April 15, May 25, and August 11, 2016) to document the diversity of butterfly species within the Properties. Surveys were conducted for the Properties using the Checklist Method Royer et al. 1998). Surveys were conducted by a biologist slowly walking meandering transects around the Properties to look for butterfly species. Surveys were generally conducted during the warmest and sunniest periods of the day, from late morning to mid-afternoon, when butterfly activity was at its peak. Areas with flowering plants or potential butterfly nectar sources were checked, and old roads were walked as they provided easy access through vegetation and butterflies often rest on bare ground. The biologist walked any open ridgelines, hilltops, or moist drainages as butterflies tend to concentrate in these areas. Binoculars were used to aid in butterfly identification. If suitable habitat for any sensitive species was detected, special effort to survey during those species flight seasons was made. Species were photographed if possible to confirm identification. Any incidental observations of butterflies that were made during other biological surveys were recorded. Survey dates, times, personnel, and weather are shown in Table 3. Although the survey dates fall within the flight season of a large number of butterflies, several species do not fly at that time, and so it is expected that there are species that occur within the Properties but were not detected during the surveys.

During the AECOM site visit on March 4, 2016, host plant species were present for Quino checkerspot butterfly *Euphydryas editha quino*; federally endangered and Hermes copper butterfly *Lycaena hermes*; federal candidate for listing . Therefore, one survey was conducted on March 23, 2016, to ensure a survey was conducted within the Quino checkerspot butterfly flight season and another survey was completed on May 25, 2016, to ensure a survey was conducted within the Hermes copper butterfly flight season. Representative photographs of invertebrate species were taken when possible (Appendix E .

3.3.2 Herpetofauna

General herpetological surveys were conducted to document the presence of amphibian and reptile species within the Properties. Herpetological surveys were conducted using drift fences with a box funnel trap at each end of the fence (hereafter referred to as drift fence surveys; Anguiano and Diffendorfer 2015). A biologist walked all accessible roads and trails within the Properties to determine suitable locations for drift fences. The biologist assessed the Properties for the various herpetofaunal species that might occur, and placed drift fences in a variety of

locations with various levels of cover, different types of surrounding vegetation, different soil types, varying topographic levels along ridges and in small valleys/canyons , and different levels of disturbance including fire history . The drift fences were strategically placed in representative areas that had potential to fully capture the diversity of the herpetofauna on the Properties. No pitfall buckets were used as box funnel traps capture rates have been higher than pitfall buckets during monitoring on other County preserves (County of San Diego 2015 .

Nine drift fences with box funnel traps were installed on the Properties on March 21, 2016 Figure 8). Each drift fence consisted of one 50-foot-long by 1-foot-tall drift fence composed of thick dark green shade cloth) trenched about 2 inches into the ground and staked in place with one box funnel trap 12 by 8 by 18 inches at each end. Each box funnel trap has two 28-inch-long drift fence "wings" protruding off the front of each trap to increase the size of the funnel. Each box funnel trap contained a piece of PVC pipe (generally 1 to 2 inches in diameter by 3 to 4 inches long) to provide shelter for captured animals. Since the box funnel traps capture any species that enter them, small mammals may be captured during the night. Therefore the PVC pipe contained pieces of cotton or synthetic batting material and a small amount of seed in case small mammals were captured in the box funnel traps. The cotton and seed in the PVC provided a food and shelter source for small mammal species that might get captured in the box funnel traps during cold nights. Each box funnel trap was covered with a 2-foot by 2-foot piece of plywood to protect animals captured during the day from the heat of the sun.

Drift fences were monitored for approximately 4 days per month for 4 months March through June 2016; see Table 3 for specific survey dates . Traps were opened on the first day and checked every morning for four consecutive mornings. When box funnel traps were "opened" on the first day of a trapping session, they were placed at the ends of the drift fence to capture any animals that encountered the fence and followed it into the box funnel traps. The traps were run 24 hours a day for 4 days straight, and then removed or "closed" on the fourth day. All species captured including small mammal species were identified to species if possible , age classed, and released unharmed. Representative photographs of species were taken. Any incidental observations of amphibians and reptiles that were made while walking between drift fences and during other biological surveys were also recorded. Drift fences and funnel traps were removed upon survey completion on June 5, 2016. Representative photographs of amphibian and reptile species were taken when possible Appendix E).

3.3.3 Birds

AECOM conducted nocturnal and diurnal avian surveys throughout the Properties to document avian species that nest, winter, or migrate through the Properties. The surveys were conducted by a biologist walking meandering transects through all habitat types on the Properties. AECOM

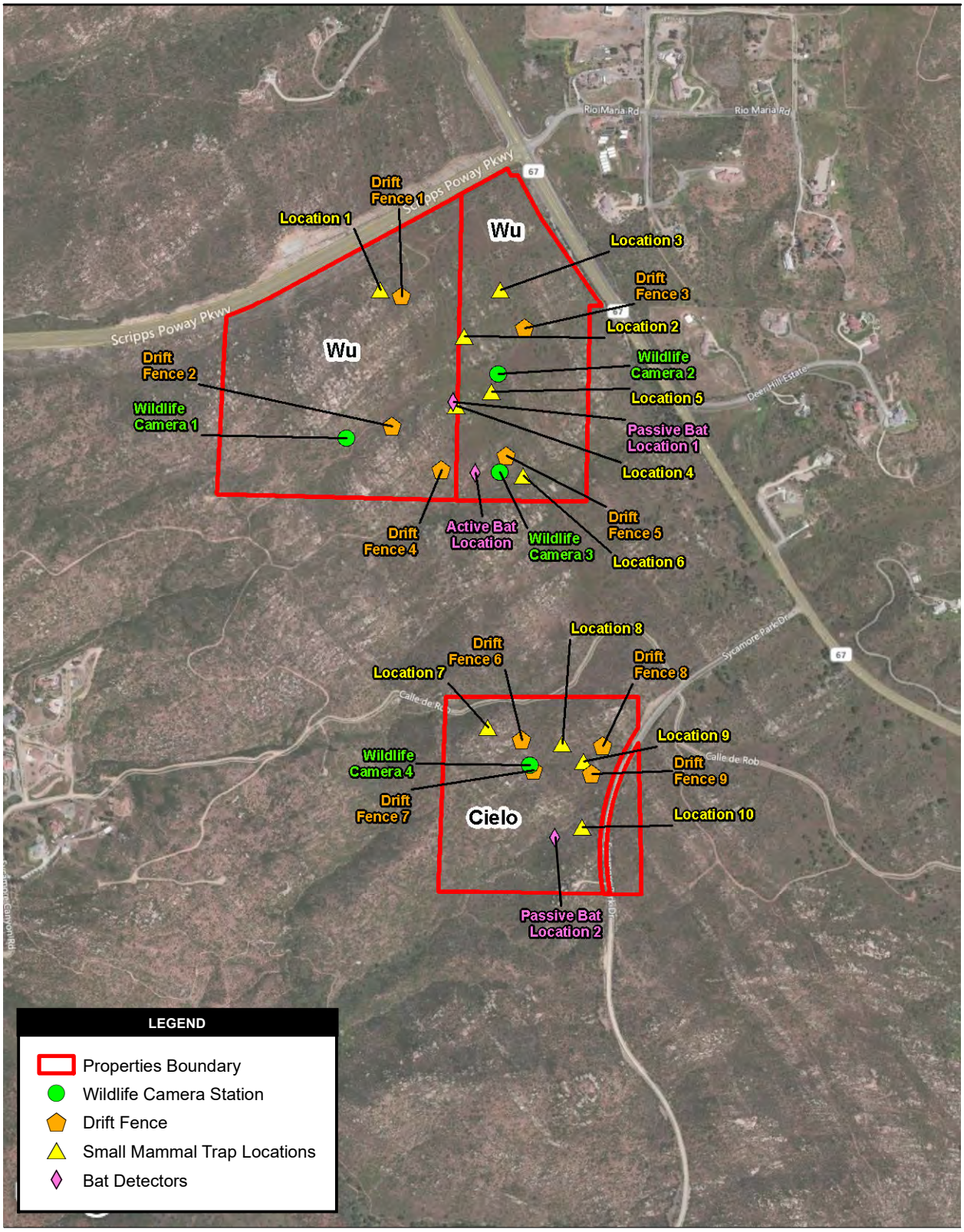

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Figure 8
Biological Inventory Locations

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conducted 1 (8 hours day of meandering transect surveys per month for 4 months. These four surveys were spaced throughout the year March, April, May, and August 2016) to capture data from each season, including spring and early fall migration periods Table 3 .

Nocturnal avian surveys consisted of calling and listening for nocturnal birds in the pre-dawn hours before starting the diurnal surveys. Therefore, nocturnal and diurnal surveys were conducted on the same day. The biologist arrived on the Properties 1 to 2 hours before sunrise and surveyed the Properties by walking dirt trails and listening and looking for various nocturnal species. The biologist periodically stopped and played the vocal recording via I-phone or similar playback device of nocturnal species with potential to occur, including common poorwill *Phalaenoptilus nuttallii* , great horned owl *Bubo virginianus* , western screech owl *Megascops kennicottii* , barn owl *Tyto alba* , and long-eared owl *Asio otus*). The recording was played at different locations throughout the Properties, where potentially suitable habitat existed for the various nocturnal species.

Once the sun rose, vocal playback for nocturnal species ceased and the biologist recorded diurnal avian species detected either visually or aurally. Diurnal surveys consisted of walking meandering transects along the dirt trails within the Properties and recording all avian species detected, without playing any vocal recordings. Additionally, the biologist surveyed any canyons, ridges, or areas with good vantage points.

For both nocturnal and diurnal avian surveys, the biologist recorded the avian species, number of individuals, and the GPS location for any special-status avian species detected. Weather conditions, such as temperature, wind, cloud cover, and visibility, were recorded during each survey. Incidental observations of avian species that were made during other biological surveys were also recorded. Representative photographs of avian species were taken when possible Appendix E .

3.3.4 Mammals

The following section details the survey methods used to inventory small mammals, medium to large mammals, and bats within the Properties.

Small Mammals

Small mammal trapping was conducted in April 2016 to document the diversity of small mammal species within the Properties. Prior to the start of trapping, biologists conducted a habitat assessment for small mammals by walking throughout the Properties. Biologists looked for burrow entrances, run-ways, litter mounds, dust-bathing sites, and vegetation that could support various small mammal species. The vegetation, soils, and specific micro-habitat areas

such as rocky outcrops were chosen based on the range of small mammal species that could occur and the types of habitats that different species prefer. The specific locations of trapping locations are depicted in Figure 8.

Traps were located in a range of vegetation types: non-native grassland, southern mixed chaparral, Diegan coastal sage scrub, coastal sage-chaparral transition, and coast live oak woodland to target specific small mammal species that occur in each habitat type. A combination of 9-inch and 12-inch Sherman live traps were used because different sized small mammals prefer traps that they can easily fit in. Smaller pocket mice *Chaetodipus* species will fit into any sized trap, but larger wood rat species *Neotoma* species tend to prefer the larger 12-inch traps. The traps were baited with a combination of bird seed that consisted of millet, sunflower seed, dried raisins, sorghum, and cracked corn. The bird seed mixture was baked in an oven at 350 degrees for 15 minutes to kill the seed and prevent the unwanted introduction of new plant species.

One trapping session was conducted and consisted of 3 consecutive trap nights from April 5 through April 7, 2016. Originally the trapping session was scheduled to last for 4 consecutive trap nights, but heavy rainfall began on the afternoon prior to the fourth trap night. For the safety of the small mammals, the traps were not opened during the rain. Based on a review of the small mammal species captured during the initial 3 nights of trapping, additional species captures during a fourth night of trapping was unlikely. Therefore, only 3 nights of trapping were conducted.

Ten trap lines were set up throughout the Properties. Each trap line consisted of 15 traps spaced out in a line meandering through the vegetation. The traps were spaced approximately 10 to 30 feet apart, depending on the terrain and vegetation. The 12-inch traps were placed in areas with a potential to capture woodrats such as adjacent to woodrat nests). A total of 150 traps were set to sample the small mammal species at the Properties. Each trap was marked with brightly colored flagging, and the ends of each trapping line were double flagged to indicate the end of the trap line. Each trapping line was recorded with a GPS unit and photographed.

Traps were opened and baited in the late afternoon hours, and were checked early the following morning before direct sunlight could cause temperatures to rise in the traps, possibly resulting in mortality. Traps were placed in locations to minimize exposure to direct sunlight, and in locations where small mammals might frequent such as along rock ledges, in front of woodrat nests, rock outcrops, runs, and burrow entrances . Biologists would lightly scrape the surface of the ground where the trap was placed to provide a level surface for the trap to rest on.

When a small mammal was captured in a trap, it was identified to species and then released. If possible, the age of the animal was also recorded. Small mammals were not marked. All traps were closed in the morning to prevent any wildlife from entering the traps during the heat of the day. If ants were detected within or adjacent to traps, the traps were moved to a slightly new location that was free of ants.

In addition to the above-mentioned trapping, small mammals were captured during drift fence surveys for herpetofauna species. Any small mammal species captured during drift fence surveys were identified to species and released unharmed. Representative photographs of small mammal species were taken when possible and included in Appendix E.

Bats

AECOM conducted surveys on the Properties for foraging, roosting, and migratory bats using a combination of techniques to maximize the detection probability. Surveys included a daytime roost searched and bat habitat assessment, active acoustic surveys using a Wildlife Acoustics Echo Meter Touch, and passive acoustic surveys using Titley Scientific AnaBat SD2 units and AnaBat express passive monitoring units, and exit count surveys if significant day roosts were present.

Data from active surveys is helpful for determining the direction bats are flying, and determining how the bats are using the site foraging, roosting, or flying through). Passive surveys are helpful in that bat calls are recorded and later reviewed using a computer with a library of known bat calls, aiding in identification of species when possible . The habitat assessment and active/passive survey methods are further described below.

Roost Searches and Habitat Assessment

Prior to conducting bat surveys, a daytime habitat assessment survey was conducted on April 1, 2016, to identify potential roost sites and to select the locations of passive monitoring that maximized the variety of habitats sampled and minimized potential sources of noise interference. During the habitat assessment, bat biologists walked throughout the Properties to look for potential bat corridors, roosting areas, and foraging areas. Potential bat flight corridors were assessed by examining the terrain, topography, vegetation communities, and nearby bat attractants. Any areas where the vegetation formed tunnels or where one vegetation community abutted an adjacent vegetation community to create an edge were examined. Potential roosting areas include oak trees and riparian vegetation for tree-dwelling bats, and rocky outcrops and caves or exfoliating rock for cave-dwelling species. If potential roost sites were identified during the habitat assessment survey, roost sites were visually inspected for guano, staining, and other

signs of bat presence. Foraging areas can often be found within and around oak woodlands, areas where the vegetation is open enough to allow bats to fly through as opposed to closed-canopy chaparral and around open sources of water (if present) where food sources are plentiful. Local landscapes with a high diversity of topographic, vegetative, and aquatic features in a contiguous area are often most supportive of a rich and active foraging bat community.

Active Surveys

One night of active bat surveys was conducted on July 27, 2016, to document potential resident bat species. Active bat surveys were conducted by a biologist using a handheld mobile Wildlife Acoustics Echo Meter Touch attached to an IPad pro EMT/iPad and walking to a single observation point within the Wu parcels Figure 8). This location was strategically chosen to allow the biologist to listen and look for bats flying around from dusk until late in the evening. All bat calls were either identified to species in the field while the bat was flying by, or were recorded for identification later.

Passive Surveys

Passive bat surveys were conducted April 1 through 5, 2016 to document migratory and year-round resident species , July 15 through 17, 2016 to document species during the summer/maternity season), and October 18 through 20, 2016 to document fall migratory and year-round resident species . These surveys were conducted by leaving two stationary AnaBat units in the field at two different locations Figure 8 . The detectors were stationed to sample representative habitat on the Properties, including chaparral and grassland habitat. The AnaBat SD2 detectors had standard microphones within BatHat microphone housing mounted approximately 10 to 12 feet above ground level. One AnaBat detector was placed within chaparral habitat near open grassland facing a large coast live oak tree within the center of the Wu parcels. The second AnaBat detector was placed within chaparral habitat facing a steep rocky canyon within the Cielo parcel Figure 8). Representative photographs were taken of both AnaBat detectors and are shown in Appendix E.

For the spring passive acoustic survey, the AnaBat SD2 detectors were programmed to turn on at 18:00 1 hour before sunset and turn off at 7:30 1 hour after sunrise . Summer and fall surveys consisted of passive surveys using two AnaBat Express passive bat detectors, placed in the same locations where the spring surveys were conducted Figure 8). The units were programmed to turn on at sunset and turn off at sunrise based on an internal GPS that automatically calculated sunset and sunrise based on location. Bat calls were automatically recorded by the units during the monitoring period and, at the end of each passive survey period, the bat detector equipment

was removed. The recorded bat calls were reviewed and were identified to species when possible using a computer with a library of known bat calls.

Medium to Large Mammals

Remote wildlife cameras were used to document the diversity of medium and large mammals that occur or move through the Properties. Four Reconyx HyperFire Semi-covert Infrared HC500 cameras were set in areas of high mammal activity based on animal tracks and scat , and along trails, roads, potential wildlife corridors, and high use areas or areas that may funnel or concentrate wildlife e.g., near water sources, drainages . Three cameras were placed along trails within the Wu parcels and one camera was placed within a shallow valley within the Cielo parcel (Figure 8).

The HC500 camera was used because the trigger speed is less than 1 second, which maximizes the number of potential photos that can be taken of an animal that is moving quickly in front of the camera. Cameras were continually scanning their field-of-view to detect movement. The cameras were set to have "high sensitivity" to movement; therefore, anything from a small bird, to large mule deer would likely trigger the cameras to start taking photographs as would branches, blades of grass, or other vegetative material that moved in the wind). Most medium- to large-sized objects that were moving within the field-of-view of the camera would trigger the camera to take photos. Once triggered, the wildlife cameras were set to take a series of three photographs. The cameras were set to continue to take a series of three photographs until movement in front of the camera was not detected as a result of the animal leaving the field-of-view (i.e., no time would elapse between triggers .

Each camera was baited with several drops of Carman's Pro Choice scent lure, which was placed on a large rock about 15 to 25 feet away from the camera in the approximate center of the camera's viewshed. The scent lure tends to attract a wide variety of wildlife and lures them into the center viewshed of the camera. The scent lure also keeps the animal in the viewshed of the camera as the animal investigates the scent lure so that several photos can be taken as the animal moves around sniffing, rubbing, or rolling onto the scent lure. A scent lure is particularly useful at night to lure wildlife to within the range of the semi-covert infrared flash. A camera with a semi-covert infrared flash was chosen because a white-light or LED flash can overexpose, or "white-out," a photograph, making the identification of the animal difficult. White-light or LED flashes can also scare wildlife away, but the infrared flash often attracts wildlife because it simply "glows."

All four wildlife cameras were turned on and run for three survey periods from March 22 through April 22, from June 1 through July 12, and from September 12 through October 20,

2016 Table 3 . To prevent vandalism and theft, each camera was placed inside a bear-proof box and locked. All four wildlife cameras were bolted to a 4-foot tall steel pole that had been cemented into the ground. The cameras were oriented away from the sun to the extent practical and were positioned to take photos of wildlife walking along a trail, either headed toward, or away from, the wildlife camera. Representative photographs were taken of all four wildlife cameras locations Appendix E .

At the end of each survey period, the cameras were removed and checked to confirm that each camera worked for the entire month. The photographs were then reviewed and categorized based on the species detected. All photographs displaying human activity were separated out and organized by camera number in order to make general assumptions regarding amount of human-traffic in certain areas of the Properties compared to others. All photographs of humans and or dogs were lumped together to understand the amount of human activity within the Properties.

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4.0 RESULTS AND DISCUSSION

This chapter details the vegetation communities within the Properties, including the acreages of the vegetation communities, and the results of the botanical and biological surveys.

4.1 VEGETATION COMMUNITIES/HABITAT

Vegetation community classification was based on two separate systems: the VCM Sproul et al. 2011) and the Holland 1986) as modified by Oberbauer et al. 2008) classification system. Field mapping was conducted in April 2016 according to the VCM and then cross-walked to the Holland/Oberbauer classification system. The predominant vegetation community within the Properties is the *Artemisia californica-Eriogonum fasciculatum-Malosma laurina* (California Sage Brush-California Buckwheat-Laurel Sumac Association . It composes nearly half of the combined acreages of the Properties with more than 63 acres. The *Malosma laurina-Acmispon glaber* Laurel Sumac-Deerweed Association is also a dominant vegetation community on the Wu parcels covering more than 24 acres.

Other vegetation communities include *Adenostoma fasciculatum-Xylococcus bicolor-Ceanothus tomentosus* Chamise-Mission Manzanita-Ramona Ceanothus Association , which occurs on both Properties and totals nearly 21 acres. The vegetation community consisting of the *Adenostoma fasciculatum-Eriogonum fasciculatum-Artemisia californica-Salvia mellifera* Chamise-California Buckwheat-California Sage Brush-Black Sage) Association covers nearly 18 acres of the Properties and Mediterranean California Naturalized Annual and Perennial Grassland Semi-natural Stands covers 12 acres of the Properties. The *Quercus agrifolia-Toxicodendron diversilobum*-Grass Association Coast Live Oak-Poison Oak-Grass Association exists on a tenth of an acre in the center of the Wu parcels.

Acreages of the vegetation communities on the Properties are listed in Table 4. While botanists conducted vegetation mapping for a 100-foot buffer around the Properties, that acreage is not included in Table 4. There is a small amount of restored habitat associated with revegetation of the road cuts for Scripps Poway Parkway. Vegetation communities according to the Holland/ Oberbauer and VCM classification system are included in Figures 9a and 9b, respectively.

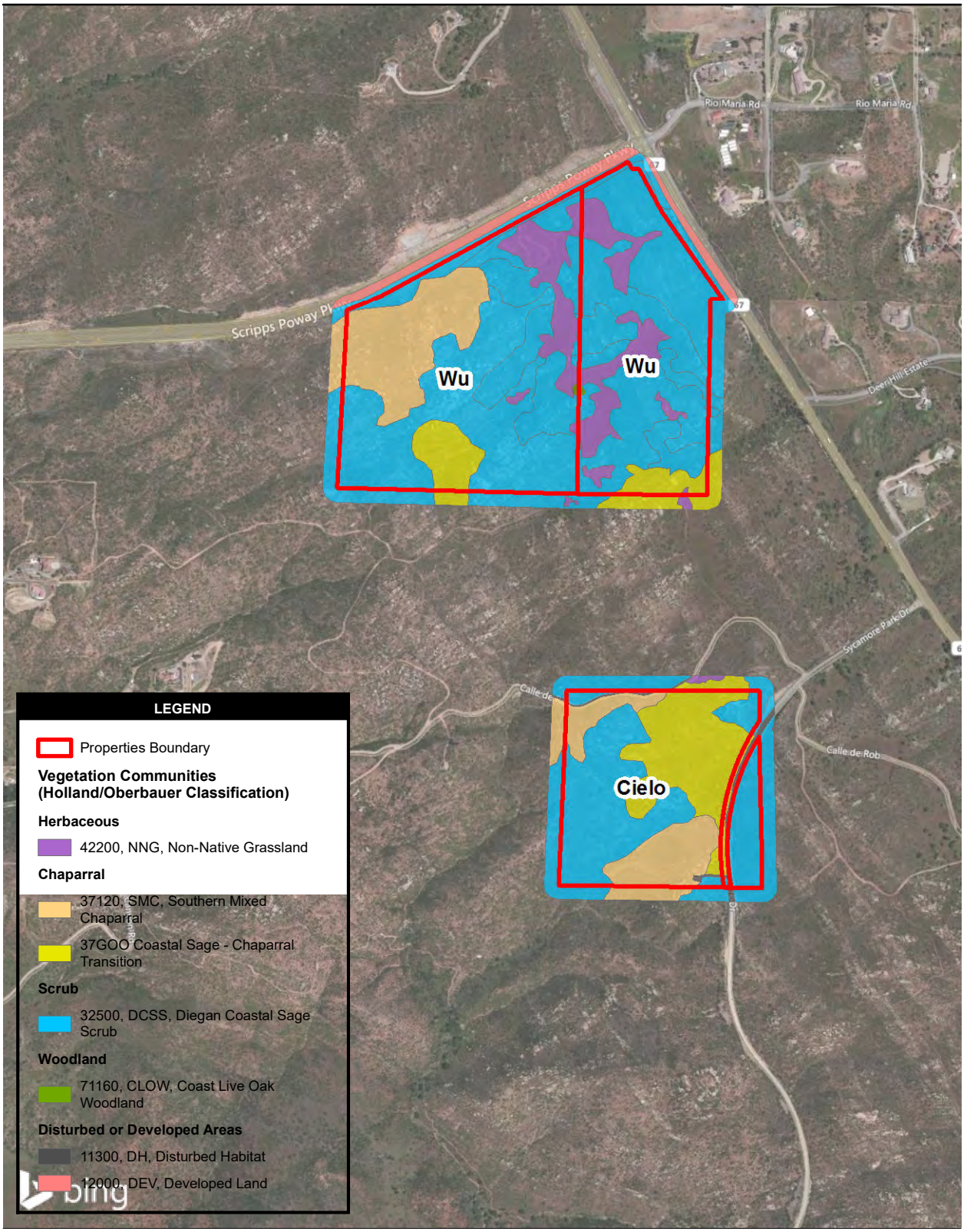

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Figure 9a
Vegetation Communities/Habitats
Holland/Oberbauer Classification

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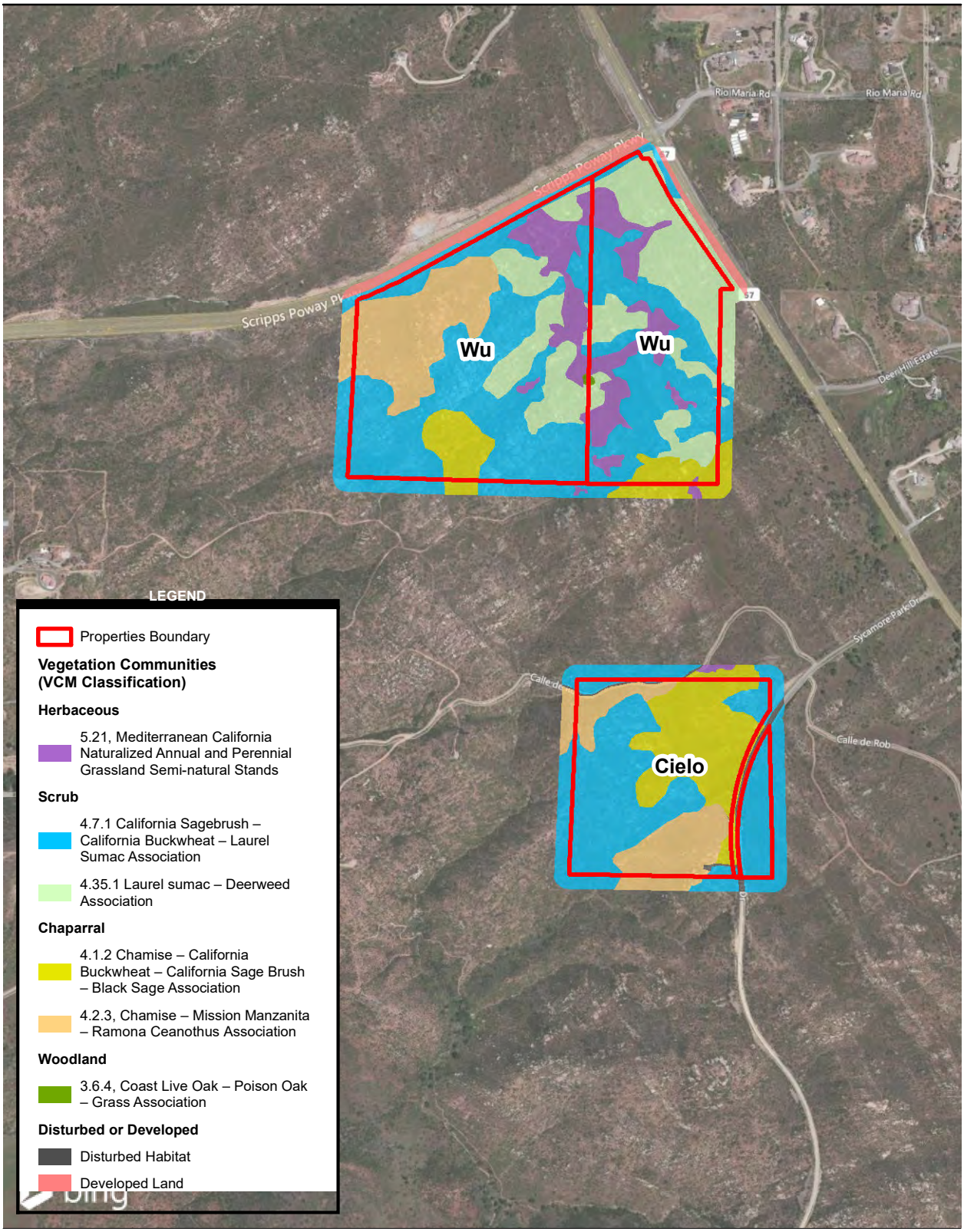

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Figure 9b
Vegetation Communities/Habitats
VCM Classification

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Table 4. Vegetation Communities and Land Cover Types

VCM Code	VCM Alliance/ Association	VCM Common Name	Holland Code	Holland Classification	Wu Parcels acres [1]	Cielo Parcel acres [1]	Total Acreage of Properties[1]
	Herbaceous			***Grassland***	***12.31***	***--***	***12.31***
5.21	Mediterranean California naturalized annual and perennial grassland semi-natural stands	Mediterranean California naturalized annual and perennial grassland semi-natural stands	42200	Non-native Grassland	12.31		12.31
	Chaparral			***Chaparral***	***18.65***	***20.04***	***38.69***
4.2.3	*Adenostoma fasciculatum/ Xylococcus bicolor/ Ceanothus tomentosus* Association	Chamise/Mission Manzanita/ Ramona Ceanothus Association	37120	Southern Mixed Chaparral	12.83	7.99	20.83
4.1.2	*Adenostoma fasciculatum/Eriogonum fasciculatum/Artemisia californica/Salvia mellifera*	Chamise / California Buck Wheat / California Sage Brush / Black Sage Association	37G00	Coastal Sage-Chaparral Transition	5.82	12.05	17.87
	Scrub			***Coastal Sage Scrub***	***68.88***	***19.21***	***88.09***
4.35.1	*Malosma laurina-Acmispon glaber* Association	Laurel Sumac-Deerweed Association	32500	Diegan Coastal Sage Scrub	24.48	--	24.48
4.7.1	*Artemisia californica/ Eriogonum fasciculatum/ Malosma laurina* Association	California Sagebrush/ California Buckwheat/ Laurel Sumac Association	32500	Diegan Coastal Sage Scrub	44.40	19.22	63.61
	Woodland			***Woodland***	***0.12***	***--***	***0.12***
3.6.4	*Quercus agrifolia/ Toxicodendron diversilobum* Association	Coast Live Oak/Poison Oak/Grass Association	71161	Open Coast Live Oak Woodland	0.12	--	0.12
	Other			***Other***	***-***	***0.42***	***-***
	Disturbed Habitat	Disturbed Habitat		Disturbed Habitat		0.42	
Total					**99.97**	**39.68**	**139.21**

VCM = Vegetation Classification Manual Sproul et al. 2011

[1] Vegetation acreage may not sum due to rounding.

The following vegetation communities and land cover type descriptions for the Properties follow those designated in the VCM.

4.1.1 Herbaceous

Mediterranean California naturalized annual and perennial grassland semi-natural stands 5.21)

This vegetation community type occurs on approximately 12.3 acres of the Wu parcels and is generally located in the bottoms of shallow valleys where narrow meadow-like features exist. These areas are dominated by weedy non-native species including wild oats *Avena fatua*), ripgut brome *Bromus diandrus* , and other brome species *B. hordeaceus* and *B. madritensis*). On the edges, it is dominated by red-stem filaree *Erodium cicutarium*).

4.1.2 Chaparral

Chamise/Mission Manzanita/ Ramona Ceanothus Association (4.2.3)

Chamise/Mission Manzanita/ Ramona Ceanothus association *Adenostoma fasciculatum/ Xylococcus bicolor/Ceanothus tomentosus* association is a widespread association in San Diego County. Chamise *Adenostoma fasciculatum* , mission manzanita *Xylococcus bicolor* , and woolly-leaved ceanothus *Ceanothus tomentosus*) form an open or continuous canopy, and occur as co-dominant shrubs. This vegetation community occurs on the western portion of the Wu parcels where it covers approximately 12.83 acres and on the southern and northwestern portions of the Cielo parcel where it covers approximately 7.99 acres. Herbaceous plants often occur in openings of this association, and spread throughout the vegetation following fire. This habitat is listed as Tier III in San Diego County MSCP Plan 1998).

Chamise/California Buckwheat/California Sage Brush/Black Sage Association (4.1.2)

Chamise/California Buck wheat/California Sage Brush/Black Sage Association *Adenostoma fasciculatum/Eriogonum fasciculatum/Artemisia californica/Salvia mellifera* association is a transition between chaparral and coastal sage scrub. It occurs on slopes that are more exposed than those with the Chamise/Mission Manzanita/Woolly-Leaved Ceanothus association. On the Wu parcels, it occurs on approximately 5.82 acres on the southwest and southeast portions. On the Cielo parcel, it consists of 12.05 acres and occurs primarily in the northeastern portion.

4.1.3 Scrub

Laurel Sumac-Deerweed Association (4.35.1)

The Laurel Sumac-Deerweed Association *Malosma laurina-Acmispon glaber* association is dominated by laurel sumac and the deerweed often only appears following a fire though it may persist in lower numbers between fires. On the Wu parcels, the northeastern portion is covered with nearly closed canopy of laurel sumac with California buckwheat growing among the laurel sumac. Laurel sumac is resilient following fires and is often the first plant to resprout within a few weeks. It is also frost sensitive so that its presence in high numbers indicates lower levels of frost. On the Wu parcels, it covers approximately 24.48 acres and does not occur on the Cielo parcel.

California Sagebrush/California Buckwheat/Laurel Sumac Association (4.7.1)

California sagebrush/California buckwheat/laurel sumac association *Artemisia californica/ Eriogonum fasciculatum/Malosma laurina* association is the classic form of vegetation common in coastal regions of Southern California. The three plant species occur as co-dominants but also in association with a number of other species, including sawtooth goldenbush *Hazardia squarrosa*), coyote bush *Baccharis pilularis* , and chaparral candle *Hesperoyucca whipplei*). This association occurs on approximately 63.61 acres on both of the Properties 44.40 acres on the Wu parcels and 19.22 acres on the Cielo parcel and is the overall dominant vegetation community. It is listed as part of the Tier II coastal sage scrub in the South County MSCP Plan County of San Diego 1998).

4.1.4 Woodland

Coast Live Oak/Poison Oak/Grass Association (3.6.4)

The Coast Live Oak/Poison Oak/Grass Association *Quercus agrifolia/Toxicodendron diversilobum* association is dominated by coast live oak in association with poison oak. Near the center of the Wu parcels, a single, large coast live oak tree grows with a canopy diameter of more than 70 feet. It is located adjacent to a large subterranean boulder and is surrounded on three sides by Mediterranean California naturalized annual and perennial grassland semi-natural stands. It is mapped as approximately 0.12 acre. There have been additional coast live oak trees planted by the County around the existing tree within the Mediterranean California naturalized annual and perennial grassland semi-natural stands; therefore, as these trees grow, the acreage of woodland will increase. There are also a few small coast live oak trees growing on the eastern

edge of the Wu parcels within the Highway 67 right-of–way. Due to their small size and location within the right-of-way, they were not mapped as a woodland.

4.1.5 Disturbed

Within the Cielo parcel, the gravel Sycamore Park Road crosses on the eastern side and has been mapped at approximately 0.42 acre of disturbed habitat.

4.2 PLANTS

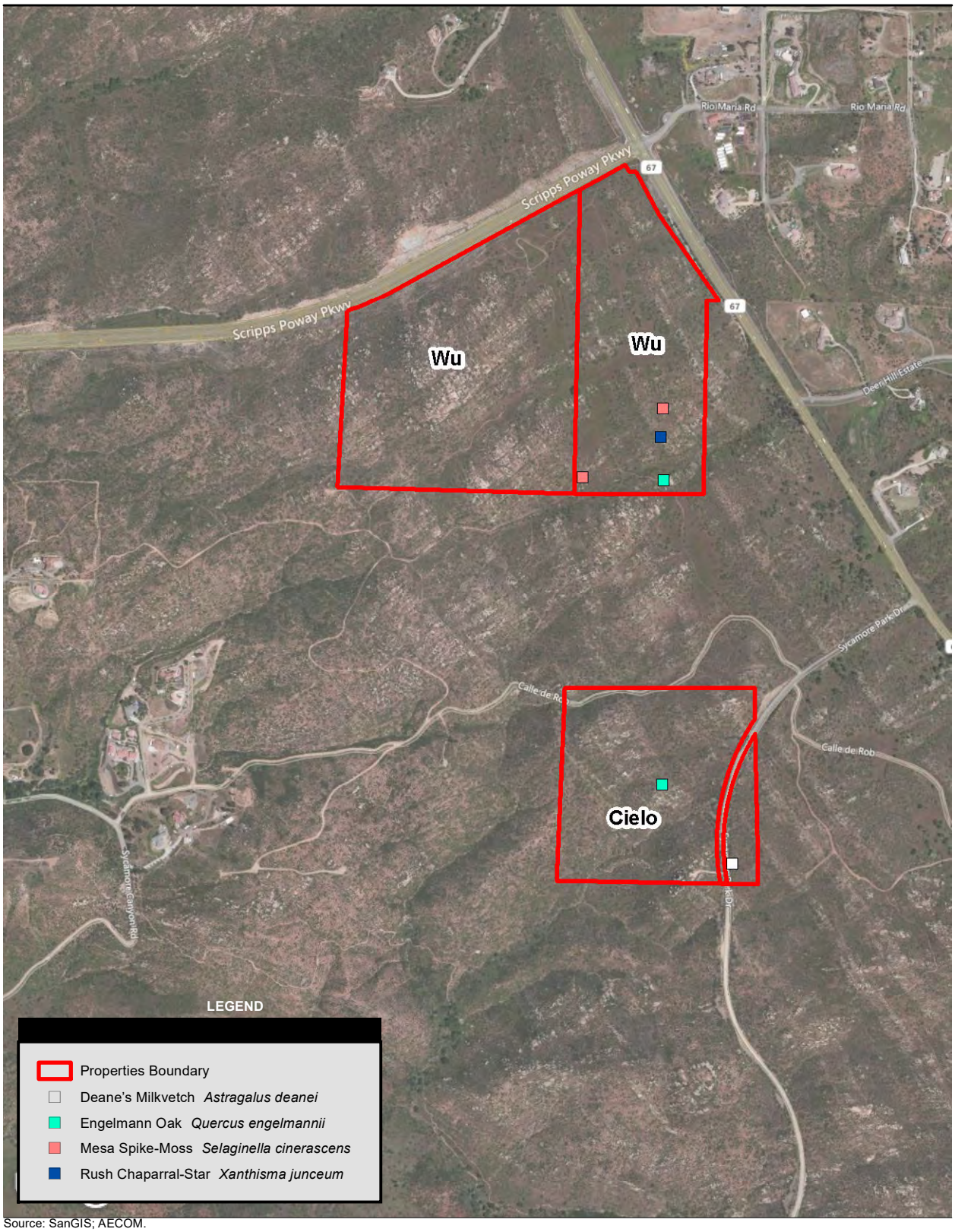
A total of 175 species of plants were observed on the Properties during the 2016 baseline surveys. Of these 175 species, 32 species are considered invasive non-native plant species. The Properties are located in the central portion of San Diego County in what is primarily coastal sage scrub habitat. The soils are derived from metasedimentary rock, which is often associated with uncommon species of plants. Four plants with special status, Deane's milkvetch *Astragalus deanei*), Engelmann oak *Quercus engelmannii*), mesa spike-moss *Selaginella cinerascens* , and rush chaparral-star *Xanthisma junceum* , were detected on the Properties and are discussed below and shown on Figure 10.

4.2.1 Special-Status Plant Species Observed

Deane's Milkvetch *Astragalus deanei*
CRPR 1B.1, County List A

Deane's milkvetch is a perennial herb with long compound leaves up to 7 inches in length and contains up to 29 small oval leaflets. It grows up to approximately 2 feet in height with spreading stems. The characteristics are the number of leaflets, the size of the cream-colored flowers, and the moderately inflated fruits that turn rust colored with age and with pointed tips. This species is endemic to San Diego County and it is generally confined to scattered locations in the southwestern portion of the county but has also more recently been found in the central part of the county. It grows in openings on slopes in coastal sage scrub and chaparral vegetation. It is often considered one of the rarest species in the county; however, it may be overlooked as it grows in the midst of visibility-obscuring shrubs and it does not typically grow in dense stands.

On the Properties, it was found in the southeastern corner of the Cielo parcel, east of Sycamore Park Road and across from the short dirt road to the San Diego Gas and Electric transmission tower Figure 10). It was found in small openings in the coastal sage scrub vegetation on semi-sandy soil.



Source: SanGIS; AECOM.

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Figure 10
Special-Status
Plant Species Locations

Path: P:\2013\60278233_DPR_2012\06GIS\6.3_Layout\TO_39\Report_Figures\Baseline_Biodiversity_Report\Plants.mxd, 11/30/2016, janssenn

Engelmann Oak ***Quercus engelmannii***
CRPR 4.2, County List D

Engelmann oak is a perennial deciduous tree that grows 16 to 26 feet high in oak woodlands or grassland habitats. Engelmann oak often occurs with coast live oak, in savannah-like habitats with annual grasses, or in areas where white sage *Salvia apiana* occurs. It is a drought-tolerant oak and will regrow new leaves following rain after going dormant. Engelmann oak is predominantly found in the foothills of San Diego County but also extends up into Los Angeles and southwestern San Bernardino Counties. In Baja California, it has only been collected in areas not far from the border with the United States. Reiser 1994) indicates that Engelmann oak is relatively stable in Southern California, but reproduction has been limited as a result of cattle grazing and herbivory by small mammals and deer. The introduction of feral pig *Sus scrofa*) in the county in the past few years and wild turkey *Meleagris gallopavo* in the early 1990s further causes problems with oak reproduction, since they both consume acorns. Engelmann oak is known to hybridize with scrub oak (*Quercus berberidifolia* (Baldwin et al. 2012).

Individual Engelmann oaks were found near the center of the Cielo parcel and in the southeast corner of the Wu parcels Figure 10). They were growing on the northern slope on the south side of small, broad canyons.

Mesa Spike-Moss ***Selaginella cinerascens***
CRPR 4.1, County List D

Mesa spike-moss is a perennial herb that grows in a thin mat on the surface of the soil. It appears dry and dead for much of the year, but following a rain, it will turn green and start growing within a very short period of time. It is found on soils that lack any sort of disturbance and is an indicator of how pristine a site may be. It is often found on the coastal mesas in areas that support vernal pools. It occurs from Orange County into northwestern Baja California and has suffered tremendous decline due to development and disturbance of the coastal mesas.

On the Properties, it was found on the southeastern portion of the Wu parcels Figure 10). It occurs in level areas with absence of disturbance where the soil has formed crusts from lichens and liverworts, and on the edge of rock slabs.

Rush Chaparral-Star ***Xanthisma junceum***
CRPR 4.3, County List D

Rush chaparral-star is a low-growing perennial shrub with spindly stems that generates bright yellow sunflower-shaped flowers during summer after most other plants have finished flowering

and appear to be drying. It grows from central San Diego County in the foothills south into northern Baja California. It occurs at edges and openings in chaparral and coastal sage scrub. The scientific name of the genus has changed three times in the relatively recent past from *Haplopappus* to *Machaeranthera* to *Xanthisma*. When it is not in flower, it is very difficult to find because it appears like many other plants in the area.

On the Properties, it was found in one location on the southeastern portion of the Wu parcels growing on the edge of scrub habitat on a west-facing slope Figure 10).

4.2.2 Special-Status Plant Species with High Potential to Occur

Based on the vegetation communities occurring on the Properties, elevation, soils, and distribution of species within the vicinity, several rare plants have high potential to occur within the Properties and were carefully searched for but not detected. Only one special-status plant species has a high potential to occur on the Properties: Encinitas baccharis. Encinitas baccharis *Baccharis vanessae*) has a high potential to occur on the Properties for several reasons. First, it often occurs on rocky ridges and slopes in habitat that is similar to that which occurs on these properties. Second, it also occurs on unusual soil types such as those derived from metasedimentary rock that exist on the site. Third, it is known from the top of Mount Woodson, only four miles to the north east. Encinitas baccharis has a spotty distribution where it occurs, but the conditions on site in the upper ridges appear to be suitable for it. It is sometimes enhanced when fires have occurred in the previous few years and may linger on in the absence of fires. However, while the plant may be quite cryptic, it was not found after careful examination of the potentially suitable habitats on the Properties. The other special-status plant species had a moderate or low potential to occur. Life history, habitat occurring on the Properties, rationale for potential to occur, and sensitivity status for this species are detailed in Appendix B.

4.2.3 Invasive Non-native Plants

A total of 32 invasive non-native plant species were detected on the Properties during botanical surveys in spring and summer 2016. Non-native plants are present throughout the Properties, but the greatest amounts are found along roads and trails and around grassy areas. The non-native annual species found on the Properties have been established in this region for many years. Except for one location of chinaberry tree *Melia azedarach* , an ornamental found on the west side of the Wu parcels, non-native shrubs and trees are absent from the Properties.

A number of the non-native species, although invasive, are not considered as high priority for mapping and removal. Removing non-natives on the Properties without controlling the source populations would only temporarily control their populations. Additionally, many of the species

have become "naturalized" in Southern California. Non-native species with high priority for removal were selected based on their invasive potential and ability for management California Invasive Plant Inventory Database 2016). Of the 32 non-native plants observed on the Properties in 2016, there are six species with high or moderate priority for removal from the Properties and are listed in Table 5 and discussed in the sections below. The non-native plants listed in Table 5 are mapped and displayed in Figure 11. A comprehensive list of all invasive non-native plants observed and their removal/management priority is found in Section 5.4 Invasive Non-native Species Removal and Control .

Table 5. Invasive Non-native Plant Species with High Priority for Removal on the Properties[1]

Common Name	Scientific Name	Cal-IPC Rating[2]
African Fountain Grass	*Cenchrus setaceus*	Moderate
Blue-Eye Cape-Marigold	*Dimorphotheca sinuata*	Watch List
Treasure Flower	*Gazania linearis*	Moderate
Chinaberry Tree	*Melia azedarach*	High
Natalgrass	*Melinis repens* ssp. *repens*	None
Dyer's Rocket	*Reseda luteola*	None

[1] Species are included in this table due to their potential for being invasive and the possibility that they could be removed from the Properties since they currently remain in low enough numbers for removal to be feasible.

[2] Source: Cal-IPC Invasive Plant Inventory Database, updated June 2012. Overall rating listed for southwest region, factoring impact, invasiveness, distribution, and documentation level.

Inventory Categories:

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

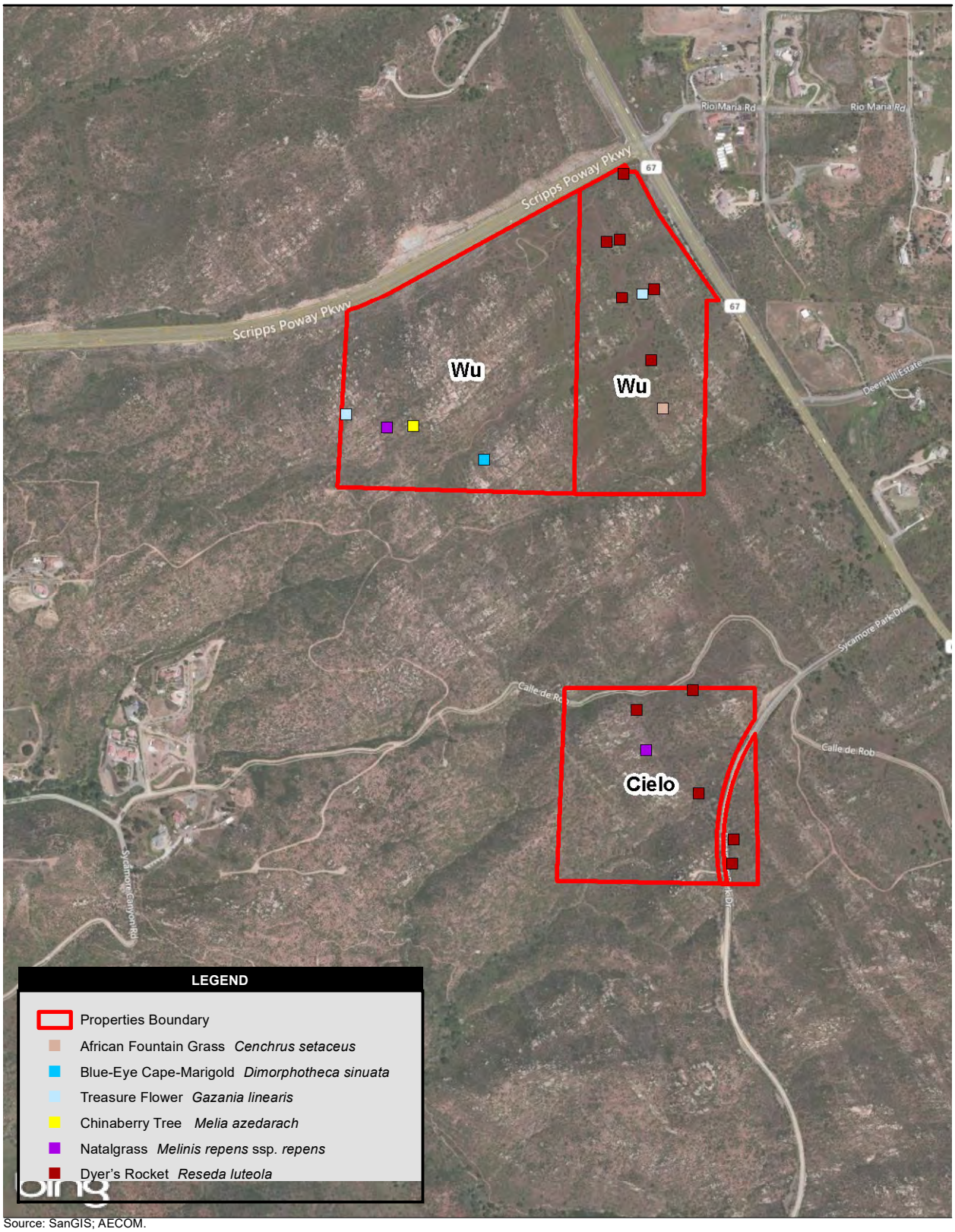
Moderate: Species have substantial and apparent, but generally not severe, ecological impacts; are conducive to moderate to high rates of dispersal, though establishment is generally dependent on ecological disturbance; and distribution may range from limited to widespread.

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

None: Species has not been listed by Cal-IPC.

African Fountain Grass (*Cenchrus setaceus*

African fountain grass is an invasive species that has spread due to plantings for erosion control and ornamental uses. It has a pinkish color and feathery inflorescences that grow a few feet tall. It will invade native habitats in the absence of disturbance. On the Properties, it occurs in a few scattered locations on the west side of the large hill in the Wu parcels and is absent from the Cielo parcel Figure 11). It will require spraying with Roundup and mechanical removal during winter months to remove it before it flowers and disperses seed.



Source: SanGIS; AECOM.

1,000 500 0 1,000 Feet

1:12,000 1 inch 1,000 feet

Figure 11
Invasive Plant Species Locations

Path: P:\2013\60278233_DPR_2012\06GIS\6.3_Layout\TO_39\Report_Figures\Baseline_Biodiversity_Report\InvasivePlants.mxd, 11/30/2016, janssenn

Blue-eyed Cape Marigold ***Dimorphotheca sinuata***

Blue-eyed Cape Marigold, also known as African daisy, is a widely planted ornamental annual. It generates high numbers of seeds and is frequently planted along highway margins and generates colored floral displays in spring. Occasionally it spreads into the undeveloped landscape but usually in relatively low numbers at least initially. With low numbers, it should be treated by hand pulling, which should be done before it finishes flowering to prevent spread of seeds. It is most visible when flowering and is difficult to find if not in flower. It was found on the southern part of the Wu parcels and is absent from the Cielo parcel (Figure 11). Removal will likely involve removal by hand since the numbers are relatively low with periodic checks for any reoccurrences.

Treasure Flower ***Gazania linearis***

Treasure flower is an herbaceous perennial native to South Africa. It is widely used in ornamental cultivation in Southern California. It occasionally escapes from cultivation in more coastal areas of Northern California and throughout Southern California. The Cal-IPC invasive species rating for treasure flower is moderate due to its reported ability to escape into grassland and creekside vegetation. On the Properties, this species was observed growing in a relatively undisturbed area within the Wu parcels and was not found on the Cielo parcel Figure 11). A relatively low number of plants are growing there and should be removed to reduce the potential to spread. Because of its relatively low numbers, removal can occur mechanically any time of the year with follow-up surveys to remove any potential resprouts from the root bases.

Chinaberry Tree ***Melia azedarach***

Chinaberry tree is a member of the mahogany family that grows 20 to 40 feet tall. The leaves are pinnately compound and deciduous. The flowers are small, fragrant, and purple in color. The fruits, which are generated in profusion, are larger than pea sized with a shiny yellowish coat over a sticky pulp and hard seed capsule. Fruits are poisonous to humans if eaten in large numbers; however, they are eaten by birds and their leaves may serve as insect repellant. It is native to the Australasia region and the trees have been planted in a variety of locations around the world for timber and ornamental use. They are invasive in some locations. One Chinaberry tree was observed on the west side of the Wu parcels and may have been purposely planted or the result of a seed dropped by a bird Figure 11). This species is not as likely to spread spontaneously in most locations in San Diego County due to a need for adequate rainfall for growth. However, since it is not native and growing in a natural preserve area, it is recommended for removal.

Natalgrass (*Melinis repens* ssp. *repens*

Natalgrass is a pink-colored grass that spreads by wind and is native to South Africa. This species is an invasive pest in a number of locations world-wide, including other parts of California, Australia, French Polynesia, Hawaii, and Florida. It has not been rated for the Cal-IPC list of invasive plants. This plant was found in scattered locations on the Properties within both the Wu and Cielo parcels Figure 11). It is a relatively recent invader to San Diego County. However, due to its ease at dispersing via wind) to the isolated portions of the Properties, if removed, it will need to be monitored to ensure it does not reinvade. It currently does not form dense stands in potential habitat areas. It can be controlled through physical removal and chemical treatment Sylvan Kaufman 2014) during the spring active growing season, particularly prior to seed set.

Dyer's Rocket *Reseda luteola*

This plant is native to Eurasia where it is used as a source for natural bright yellow dye. It grows in areas recovering from past grazing or other disturbance and grassy slopes. Its form is a towering stalk with a leafy base that grows up to 40 inches tall. On the Properties, it was found on the more gentle slopes especially on the east side of the Wu parcels and on the east side of the Cielo parcel, east of Sycamore Park Drive Figure 11). It can be removed mechanically but it should be done before seed is set. It is a biennial so it can persist for more than a year. At present, it does not form dense stands within the Properties. After removal, it would be necessary for additional follow-up surveys and removal of any new plants.

4.3 WILDLIFE

A total of 108 wildlife species were detected and/or observed during surveys conducted in spring and summer 2016: 15 invertebrates, 16 reptile species, 52 birds, and 25 mammals. A total of 22 special-status wildlife species were observed or detected, seven of which are covered under the MSCP. A comprehensive list of wildlife species observed or detected on the Properties is included in Appendix C.

4.3.1 Butterflies

Fifteen species of butterfly were detected during butterfly surveys on the Properties. Most of the butterfly species detected are relatively common throughout San Diego County and no special-status butterfly species were detected. Commonly detected butterflies included Sara orangetip *Anthocharis sara sara* , funereal duskywing *Erynnis funeralis*), Acmon blue *Icaricia acmon acmon*), checkered white *Pontia protodice* , marine blue *Leptotes marina* , Behr's metalmark

Apodemia virgulti , lady species *Vanessa* sp.), and swallowtail species *Papilio* sp.). The full list of all butterfly and moth species detected is located in Appendix C.

While no special-status butterfly species were detected within the Properties, there is a high potential for two special-status species, Quino checkerspot butterfly and Hermes copper, to occur due to historical records in the vicinity. These species are discussed in detail in Section 4.3.6.

4.3.2 Herpetofauna

Amphibians

No amphibian species were documented during herpetofauna surveys. There is a potential that relatively common, nonspecial-status species such as western toad *Bufo boreas* may occur within the Properties due to their prevalence within Diegan coastal sage scrub; however, none were found. Amphibians require a water source to lay their eggs and allow their larvae to develop before metamorphosis to adults. There are no permanent sources of water within the Properties, and no vernal pools, or temporarily ponded areas were documented within the Properties. Should western toad or other relatively common amphibian species be present on the Properties, the ongoing drought in addition to the lack of permanent water sources may have limited the amount of above-ground activity and reduced the potential for successful breeding.

Reptiles

A total of 15 reptile species were detected during drift fence surveys Table 6 . This includes six lizard species and nine snake species, which total 104 reptile captures Table 6). The locations of all special-status reptile species are shown in Figure 12. Special-status reptile species detected during surveys are discussed in detail in Section 4.3.5.

Lizard species accounted for approximately 60 percent of the drift fence captures. The most common lizard species captured within the Properties were Belding's orange-throated whiptail *Aspidoscelis hyperythra beldingi* and San Diegan tiger whiptail *Aspidoscelis tigris stejnegeri* Table 6 . These species were distributed throughout the Properties. Both species of whiptail were often seen darting around throughout the Properties Figure 12). Two of the six lizard species captured were special-status species Belding's orange-throated whiptail and San Diegan tiger whiptail and are discussed in further detail in Section 4.3.5.

Snake species accounted for approximately 40 percent of the drift fence captures. The three most commonly captured species include California striped racer *Coluber lateralis lateralis* , gopher snake *Pituophis catenifer* , and long-nosed snake *Rhinocheilus lecontei* Table 6). These species detected are present throughout the Properties and are some of the more common species

in San Diego County. Northern three-line boa *Lichanura orcutti* , coast patch-nosed snake *Salvadora hexalepis virgultea* , and red diamond rattlesnake *Crotalus ruber* were the special-status snake species detected, and are discussed in further detail in Section 4.3.5.

Table 6. Reptile Drift Fence Captures March – June 2016)

Common Name[1]	Scientific Name	Array Number of Captures									Total Number of Captures
		1	2	3	4	5	6	7	8	9	
Lizards											
Belding's Orange-throated Whiptail[1]	*Aspidoscelis hyperythra beldingi*	2	5		3	7	6	2	3	3	31
San Diegan Tiger Whiptail[1]	*Aspidoscelis tigris stejnegeri*	3	1		3		2	2	2		13
Southern Alligator Lizard	*Elgaria multicarinata*	3	1	1						1	6
Western Fence Lizard	*Sceloporus occidentalis*	3	1		1			2	1	1	9
Western Red-tailed Skink	*Plestiodon gilberti rubricaudatus*							1			1
Western Side-blotched Lizard	*Uta stansburiana elegans*							1		1	2
Snakes											
Northern three-lined boa formerly coastal rosy boa [1]	*Lichanura orcutti*				1						1
Long-nosed snake	*Rhinocheilus lecontei*				2				1	1	4
California Striped Racer	*Coluber lateralis lateralis*	1	3	3	3	4	3	5		2	24
Gopher Snake	*Pituophis catenifer*	1	2					2			5
California kingsnake	*Lampropeltis californiae*					1					1
Coast patch-nosed snake[1]	*Salvadora hexalepis virgultea*				1						1
Southwestern Speckled Rattlesnake	*Crotalus mitchellii pyrrhus*			1		1				1	3
Southern Pacific Rattlesnake	*Crotalus oreganus helleri*			1							1
Red Diamond Rattlesnake[1]	*Crotalus ruber*	2									2
Total Number of Captures		**15**	**13**	**6**	**14**	**13**	**11**	**15**	**7**	**10**	**104**

[1] Special-status species

Several species of lizards were incidentally detected during other biological surveys as biologists walked around the Properties. This included Belding's orange-throated whiptail, western fence lizard *Sceloporus occidentalis* , western side-blotched lizard *Uta stansburiana elegans*), and

three Blainville's horned lizards *Phrynosoma coronatum blainvillei*; a special-status species). Blainville's horned lizards were only incidentally observed, and not captured during drift fence surveys. Therefore a total of 16 reptile species were detected within the Properties. The locations of Belding's orange-throated whiptail and Blainville's horned lizards are included in Figure 12.

The extended drought may influence lizard and snake species abundance and movement patterns, and may cause lower species detection rates. Most herpetofauna species have low capture rates, and it may take 10 to 12 weeks of sampling per year for several years to detect all herpetofauna species on a given site Fisher et al. 2008). Low rainfall in previous years may have led to lower reproductive rates for some species and, hence, even lower detection rates.

4.3.3 Birds

During avian surveys of the Properties in March, April, May, and August 2016, a total of 52 bird species were detected Table 7). One of the more commonly detected species during diurnal surveys was southern California rufous-crowned sparrow *Aimophila ruficeps canescens* . This special-status species was spread throughout the Properties. In addition to southern rufous-crowned sparrow, there were many commonly detected resident breeding chaparral species including Bewick's wren *Thryomanes bewickii* , western scrub jay *Aphelocoma californica*), wrentit *Chamaea fasciata*), California thrasher *Toxostoma redivivum* , California towhee *Melozone crissalis*), California quail *Callipepla californica* , blue-gray gnatcatcher *Polioptila caerulea*), black-chinned sparrow *Spizella atrogularis*), lesser goldfinch *Spinus psaltria* , and house finch *Haemorhous mexicanus*). Many of the previously listed species were detected breeding or attempting to breed within the Properties based on avian behavior, calls, and other territorial interactions.

In addition to the resident breeding species, many winter resident species were present within the Properties. This includes species such as yellow-rumped warbler *Setophaga coronata*), fox sparrow *Passerella iliaca*), golden-crowned sparrow *Zonotrichia atricapilla*), and white-crowned sparrow *Zonotrichia leucophrys* Table 7 . These species are winter resident species in chaparral habitat within San Diego County and were detected only during the early spring time, before they migrated north. Overall, when comparing resident including both summer and winter resident species to nonresident migratory species, few nonresident migratory species were detected within the Properties. Occasional migratory species, such as warbling vireo *Vireo gilvus* , were detected as individual birds moving through the Properties, but no large pulses of migratory birds were detected. Generally, the habitat within the Properties appears to represent quality breeding and wintering habitat for species, with no major migratory corridors or areas of dense stands of vegetation there are no areas of riparian vegetation or wetland areas where migratory birds would rest or stop during migration.

Table 7. Avian Survey Results

Common Name by Family	Scientific Name	Winter March	Spring April)	Summer (May	Fall August
Accipitridae					
Bald Eagle[1]	*Haliaeetus leucocephalus*			X	
Red-tailed Hawk	*Buteo jamaicensis*	X	X	X	
Sharp-shinned Hawk[1]	*Accipiter striatus*	X			
Aegithalidae					
Bushtit	*Psaltriparus minimus*	X	X	X	X
Caprimulgidae					
Common Poorwill[2]	*Phalaenoptilus nuttallii*			X	
Cardinalidae					
Blue Grosbeak	*Passerina caerulea*			X	
Lazuli Bunting	*Passerina amoena*		X	X	
Cathartidae					
Turkey Vulture[1]	*Cathartes aura*	X		X	X
Columbidae					
Mourning Dove	*Zenaida macroura*	X	X	X	X
Corvidae					
Common Raven	*Corvus corax*	X	X	X	X
Western Scrub-Jay	*Aphelocoma californica*	X	X	X	X
Cuculidae					
Greater Roadrunner	*Geococcyx californianus*		X		
Emberizidae					
Black-chinned Sparrow	*Spizella atrogularis*	X	X	X	
California Towhee	*Melozone crissalis*	X	X	X	X
Chipping Sparrow	*Spizella passerina*	X			
Fox Sparrow	*Passerella iliaca*	X			
Golden-crowned Sparrow	*Zonotrichia atricapilla*	X	X		
Lincoln's Sparrow	*Melospiza lincolnii*	X	X		
Southern California Rufous-crowned Sparrow[1]	*Aimophila ruficeps canescens*	X	X	X	X
Spotted Towhee	*Pipilo maculatus*	X	X	X	
White-crowned Sparrow	*Zonotrichia leucophrys*	X	X		
Fringillidae					
House Finch	*Haemorhous mexicanus*	X	X	X	X
Lawrence's Goldfinch	*Spinus lawrencei*	X		X	
Lesser Goldfinch	*Spinus psaltria*	X	X	X	X
Hirundinidae					
Cliff Swallow	*Petrochelidon pyrrhonota*			X	
Icteridae					
Brown-headed Cowbird	*Molothrus ater*			X	
Bullock's Oriole	*Icterus bullockii*		X		
Great-tailed Grackle	*Quiscalus mexicanus*		X		
Mimidae					
California Thrasher	*Toxostoma redivivum*	X	X	X	X
Odontophoridae					
California Quail	*Callipepla californica*	X	X	X	X

Common Name by Family	Scientific Name	Winter March	Spring April)	Summer (May	Fall August
Parulidae					
Orange-crowned Warbler	*Oreothlypis celata*	X	X		
Yellow-rumped Warbler	*Setophaga coronata*	X			
Polioptilidae					
Blue-gray Gnatcatcher	*Polioptila caerulea*	X	X	X	X
Coastal California Gnatcatcher[1]	*Polioptila californica californica*			X	
Ptilogonatidae					
Phainopepla	*Phainopepla nitens*				
Strigidae					
Great Horned Owl	*Bubo virginianus*	X	X		
Sturnidae					
European Starling	*Sturnus vulgaris*	X			
Sylviidae					
Wrentit	*Chamaea fasciata*	X	X	X	X
Trochilidae					
Anna's Hummingbird	*Calypte anna*	X		X	X
Costa's Hummingbird	*Calypte costae*	X	X	X	
Rufous/Allen's Hummingbird	*Selasphorus rufus/sasin*			X	
Troglodytidae					
Bewick's Wren	*Thryomanes bewickii*	X	X	X	X
Canyon Wren	*Catherpes mexicanus*	X	X		
House Wren	*Troglodytes aedon*				X
Rock Wren	*Salpinctes obsoletus*	X	X	X	X
Turdidae					
Hermit Thrush	*Catharus guttatus*	X			
Western Bluebird[1]	*Sialia mexicana*	X	X	X	
Tyrannidae					
Ash-throated Flycatcher	*Myiarchus cinerascens*			X	
Cassin's Kingbird	*Tyrannus vociferans*	X	X	X	
Western Kingbird	*Tyrannus verticalis*	X			
Vireonidae					
Hutton's Vireo	*Vireo huttoni*				X
Warbling Vireo	*Vireo gilvus*			X	
Number of Species	**52**	**36**	**30**	**33**	**18**

[1] Special-status species
[2] Bird species detected during nocturnal surveys.

The common poorwill was the only species detected during nocturnal surveys conducted in the early morning hours prior to diurnal surveys.

Six special-status bird species were detected during 2016 surveys: bald eagle *Haliaeetus leucocephalus*), sharp-shinned hawk *Accipiter striatus* , turkey vulture *Cathartes aura*), southern California rufous-crowned sparrow, coastal California gnatcatcher *Polioptila californica californica* , and western bluebird *Sialia mexicana* Figure 12). The turkey vulture,

southern California rufous-crowned sparrow, coastal California gnatcatcher, and western bluebird are likely to breed within the Properties. One bald eagle was detected flying over the Wu parcels, and a sharp-shinned hawk was detected foraging during the winter within the Properties. An active turkey vulture nest containing two eggs was found in a large rock crevice at the top of the hill on the western side of the Wu parcels Figure 12). Turkey vultures are very sensitive to disturbance and very secretive when nesting; therefore, the area around the turkey vulture nest was not revisited on subsequent surveys to avoid disturbance to this sensitive species.

While not a special-status species, an active great horned owl nest with two young was located at the top of a large coast live oak tree within the center of the Wu parcels. There was also a barn owl box that had been placed within the same oak tree, but it was unoccupied because the box had been taken over by a colony of bees.

Table 7 lists the bird species found during avian surveys in 2016 for the Properties. Table 7 details the avian species detected during the four different survey periods defined as winter March , spring April , summer May , and fall August . The numbers in Table 7 indicate whether the species was detected during that survey, and not the number of individuals per species. Avian diversity was highest in the winter March), and lowest in the fall August . Additional incidental avian observations during other biological surveys did not add any additional bird species to those listed in Table 7.

4.3.4 Mammals

Small Mammals

Six small mammal species were captured during trapping from April 5 through April 7, 2016. A total of 150 traps were set and 27 captures occurred. Some of these small mammals were likely the same individual going into the traps on consecutive nights, but animals were not marked so it was not possible to determine if individuals were being recaptured. Table 8 summarizes the species of small mammals captured per small mammal trapping line. Cactus mouse *Peromyscus eremicus* was the most frequently captured species followed by Dulzura kangaroo rat *Dipodomys simulans*).

Table 8. Results of Small Mammal Trapping

Common Name[1]	Scientific Name	Trap Line										Total
		1	2	3	4	5	6	7	8	9	10	
Cactus mouse	*Peromyscus eremicus*	2			1			2	1	3	1	**10**
California mouse	*Peromyscus californicus*	1									1	**2**
California vole	*Microtus californicus*						1					**1**
Dulzura kangaroo rat	*Dipodomys simulans*			4		2			3			**9**
Dulzura pocket mouse[1]	*Chaetodipus californicus femoralis*	2										**2**
Northwestern San Diego pocket mouse[1]	*Chaetodipus fallax fallax*	2	1									**3**
Total		**7**	**1**	**4**	**1**	**2**	**1**	**2**	**4**	**3**	**2**	**27**

[1] Special-status species

For 3 consecutive nights of trapping, 150 traps were used for a total of 450 "trap nights"; defined as one trap set for one night. There were 27 small mammal captures across those 450 trap nights for an approximate 6 percent trap-night success rate. Overall, the trap-night success rate was very low compared to other trapping sessions in similar habitat, and multiple times occurred where there were no small mammals or only a few small mammals at each trap line. The trap line locations are shown in Figure 8, and the locations of the two special-status small mammal species captured, Dulzura pocket mouse *Chaetodipus californicus femoralis*) and northwestern San Diego pocket mouse *Chaetodipus fallax fallax* , are shown in Figure 12.

In addition to the small mammals captured in Sherman live traps, seven small mammal species were incidentally captured during drift fence surveys. Table 9 summarizes small mammals captured during drift fence surveys. Three of these species, Botta's pocket gopher *Thomomys bottae* , San Diego desert woodrat *Neotoma bryanti intermedia*; a special-status species , and deer mouse *Peromyscus eremicus* were not captured during small mammal trapping. Therefore, nine different small mammal species were detected within the Properties.

Table 9. Small Mammals Captured during Drift Fence Surveys

Common Name[1]	Scientific Name	Array Number of Captures									Total Number of Captures
		1	2	3	4	5	6	7	8	9	
Botta's pocket gopher	*Thomomys bottae*									1	**1**
Cactus mouse	*Peromyscus eremicus*		6	1			2				**9**
Deer mouse	*Peromyscus maniculatus*						1		1	1	**3**
Dulzura kangaroo rat	*Dipodomys simulans*			4			2		5		**11**
Dulzura pocket mouse[1]	*Chaetodipus californicus femoralis*	2			2	1		1	2	1	**9**
Northwestern San Diego pocket mouse[1]	*Chaetodipus fallax fallax*	1	3			3	1		2	1	**11**
San Diego desert woodrat[1]	*Neotoma bryanti intermedia*								2		**2**
Total Number of Captures		**3**	**9**	**5**	**2**	**4**	**6**	**1**	**12**	**4**	**46**

[1] Special-status species

Botta's pocket gopher and San Diego desert woodrat being captured during drift fence surveys but not using small mammal traps is likely a result of the drift fence surveys spanning a much greater length of time 1 week in March, April, May, and June than small mammal trapping 3 days in early April . In addition, Botta's pocket gophers do not readily enter small mammal traps since the traps are baited with seed, and gophers generally eat green vegetation. Similarly, woodrat species can be leery of entering small mammal traps; however, dispersing juvenile woodrats are sometimes captured during drift fence surveys. Therefore, the drift fence surveys augmented small mammal trapping, and allowed for an increased sampling timeframe and different method to capture small mammal species.

Medium and Large Mammals

Wildlife Cameras

All four wildlife cameras were run from March 22 through October 20, 2016. All cameras were removed on October 20, 2016, and the posts that had been cemented into the ground to secure the cameras were left in place per direction from the County. All cameras worked well during the surveys and there were minimal signs of vandalism. On two separate occasions, someone had placed vegetation over the lens of camera 1 causing the camera's sensor to trigger excessively (Figure 8 . On these occasions, the battery power for the camera was drained prior to the end of the survey because of the excessive number of photos recorded.

Several mammal and bird species were detected at the four wildlife camera locations. Species detected at the wildlife cameras in order based on the total number of photographs of each species were coyote *Canis latrans* , mule deer *Odocoileus hemionus*), Dulzura kangaroo rat, Audubon's cottontail *Sylvilagus audubonii* , bobcat *Lynx rufus*), and various bird species California quail [*Callipepla californica*], California towhee [*Melozone crissalis*], greater roadrunner [*Geococcyx californianus*], ash-throated flycatcher [*Myiarchus cinerascens*], and a hummingbird species [*Calypte* species] .

Table 10 details the number of photographs taken per wildlife camera per species. It is important to note that, while the number of photographs per species per camera is useful to show the locations where various wildlife species were detected, the number of photographs taken are not meant to provide an index or estimate of relative abundance. Photos are taken continuously until an individual leaves the field of view. For example, species such as the Audubon's cottontail are very active and if they are foraging in front of a wildlife camera, the camera will continue to take photos of the same individual cottontail, until the cottontail exits the camera's field-of-view. It is likely that, for most of the species, the cameras detected many of the same individuals moving around the Properties.

Mule deer was the only special-status wildlife species detected at the camera locations. Multiple mule deer including both does and bucks [i.e., female and males] were detected on all wildlife cameras Figure 12 . Based on the antler shape of several mule deer, it was obvious that the same bucks were detected on multiple wildlife cameras as they walked around the Properties. Also, the three wildlife cameras within the Wu parcels were located along different sections of the same trail, or connecting trails; therefore, some of the mule deer photographed on one camera were photographed on another camera a while later.

Other species were expected to occur on the Properties but were not detected on the wildlife cameras. These include gray fox *Urocyon cinereoargenteus* and any species of skunk, particularly striped skunk *Mephitis mephitis* . Spotted skunk *Spilogale gracilis* are known to occur in the area as well. These species are generally found along riparian corridors but can inhabit a wide variety of vegetation communities. Even though the Properties lack any riparian vegetation, these species may still occasionally move through the Properties. There is also a potential for mountain lions *Puma concolor* to occur within or move through the Properties as there is an abundant supply of their primary prey source, mule deer. Mountain lions are known to occur occasionally on the existing Preserve (County of San Diego 2013).

In addition to the wildlife species captured on wildlife cameras, multiple photographs of hikers, mountain bikers, and domestic dogs were on the wildlife cameras located within the Wu parcels. There were no photographs of humans or domestic dogs on the wildlife camera located on the Cielo parcel.

Table 10. Wildlife Species Photographs Taken at Wildlife Camera Stations

Wildlife Camera Station ID	Number of Photographs Taken	Average Number of Photographs Per Day[1]
Audubon's cottontail		
1	7	0.068
2	23	0.223
3	10	0.097
4	4	0.039
Total	**44**	**0.427**
Bird Species		
2	8	0.078
3	8	0.078
4	5	0.049
Total	**21**	**0.204**
Bobcat		
1	7	0.068
2	12	0.117
3	18	0.175
Total	**37**	**0.359**
Coyote		
1	75	0.728
2	220	2.136
3	434	4.214
4	87	0.845
Total	**816**	**7.922**
Dulzura kangaroo rat		
1	82	0.796
Total	**82**	**0.796**
Mule deer		
1	35	0.340
2	78	0.757
3	67	0.650
4	235	2.282
Total	**415**	**4.029**
Total Photos All Species	**1,415**	**13.738**

[1] Cameras in operation for 103 days

Bats

Habitat Assessment

A bat habitat assessment was conducted on April 1, 2016, and no significant bat roosting habitat was detected. No large communal roost sites or potential maternal roost locations were detected during the bat habitat assessment. Overall, limited roosting habitat for a few individual bats was present in a few rocky outcrops within the Properties. The rocky outcrops are suitable for day and night roosting of canyon bats *Parastrellus hesperus* , but the rock outcrops lack the

steepness and height preferred for day roosting by the larger crevice-roosting species such as the pocketed free-tailed bat *Nyctinomops femorosaccus* and Mexican free-tailed bat *Tadarida brasiliensis* . The chaparral and scrub habitat on the Properties does not provide the height and open understory preferred by tree-roosting bat species. The single large coast live oak tree on the Wu parcels did not contain cavities or loose bark and is unlikely to provide significant day-roosting habitat for any bat species. Suitable riparian woodland habitat for tree roosting bats is available nearby, but outside of the Properties.

Active Surveys

One night of active bat surveys was conducted on July 27, 2016 to target species that might go undetected by passive survey techniques. After walking to a fixed location Figure 8), the biologist monitored bats with the unaided ear and a handheld Echo Meter Touch attached to an IPad pro EMT/iPad . The location was chosen based on the expectation that western mastiff bats *Eumops perotis californicus*) might be passing by. The western mastiff bat is an audible species that often forages up above open habitats and ridgelines but is often missed by electronic passive bat detectors due to its low frequency call and high flying commuting and foraging strategy. Five species were detected during active bat surveys: Mexican free-tailed bat, canyon bat, pocketed free-tailed bat, big brown bat *Eptesicus fuscus*) and western small-footed myotis *Myotis ciliolabrum*). Despite field efforts during active bat surveys, the western mastiff bat was not detected.

Passive Surveys

Eleven bat species were detected during passive acoustic surveys in 2016: big brown bat, western red bat *Lasiurus blossevillii*), western yellow bat *Lasiurus xanthinus* , Townsend's big-eared bat *Corynorhinus townsendii*), hoary bat *Lasiurus cinereus*), California myotis *Myotis californicus* , western small-footed myotis, Yuma myotis *Myotis yumanensis* , pocketed free-tailed bat, canyon bat, and Mexican free-tailed bat Table 11). No additional species were detected during the passive surveys as compared to the active surveys. Of the 11 bats species detected, six were special-status bat species: western red bat, western yellow bat, Townsend's big-eared bat, western small-footed myotis, pocketed free-tailed bat, and Yuma myotis.

Table 11. Results of Spring 2016 Passive Acoustic Bat Surveys

Common Name[1]	Scientific Name	Number of Calls percent of total calls	
		Detector 1	Detector 2
Big brown bat	*Eptescus fuscus*	-	27 5%
Western red bat[1]	*Lasiurus blossevillii*	1 <1%	-
Hoary bat	*Lasiurus cinereus*	20 4%)	72 13%
California or Yuma myotis[1,2]	*Myotis cf. californicus/yumanensis*	3 1%	7 1%
Western small-footed myotis[1]	*Myotis ciliolabrum*	-	1 <1%
Yuma myotis[1]	*Myotis yumanensis*	4 1%	5 1%
Pocketed free-tailed bat[1]	*Nyctinomops femorosaccus*	1 <1%)	11 2%
Canyon bat	*Parastrellus hesperus*	12 2%	19 3%
Mexican free-tailed bat	*Tadarida brasiliensis*	28 5%	345 62%
Total		**69 12%**	**487 88%**

[1] Special-status species
[2] Calls within the repertoire of multiple species and could not be conclusively determined to species.

The most commonly detected species during the spring acoustic survey was the Mexican free-tailed bat, followed by the hoary bat and canyon bat. Table 11 details the species, number of calls, and percent of total calls during passive bat surveys from April 1 through 4, 2016. The Properties were mainly used by traveling/foraging Mexican free-tailed bats, traveling hoary bats and possibly some pocketed free-tailed bats as well , and foraging canyon bats. It can be hard to differentiate the calls between hoary bats and pocketed free-tail bats; therefore, both species were likely traveling through and possibly foraging within the Properties. The canyon bats detected on the Properties are likely year-round residents while the hoary and Mexican free-tailed bats detected could include residents and seasonal migrants. The closest large, permanent water source for foraging and drinking is San Vicente Reservoir, which is less than 2 miles southeast of the Properties and some of the bats detected may have been en route to that location.

The most commonly detected species during the summer acoustic survey was the Mexican free-tailed bat 35 percent of all calls , followed by canyon bat 23 percent of all calls , both of which were likely foraging within the Properties. Table 12 details the species, number of calls, and percent of total calls during passive bat surveys from July 15 through 17, 2016.

Table 12. Results of Summer 2016 Passive Acoustic Bat Surveys

Common Name[1]	Scientific Name	Number of Calls percent of total calls	
		Detector 1	Detector 2
Big brown bat	*Eptescus fuscus*	-	1 <1%
Western small-footed myotis[1]	*Myotis ciliolabrum*	2 1%	4 3%
Yuma myotis[1]	*Myotis yumanensis*	8 5%	11 7%
Pocketed free-tailed bat[1]	*Nyctinomops femorosaccus*	6 4%	10 7%
Canyon bat	*Parastrellus hesperus*	3 2%	34 23%
Mexican free-tailed bat	*Tadarida brasiliensis*	19 13%	52 35%
Total		**38 25%**	**112 75%**

[1] Special-status species

The most commonly detected species during the fall acoustic survey, when both detector locations are combined, was the Mexican free-tailed bat 30 percent of all calls , followed by canyon bat 27 percent of all calls and pocketed free-tailed bat 24 percent of all calls . Table 13 details the species, number of calls, and percent of total calls during passive bat surveys from October 18 through 20, 2016. Resident bat species such as the Yuma myotis, California myotis, and big brown bat begin to enter into a period of inactivity or significantly reduced activity during the month of October in San Diego County, which likely accounts for the variation in number of calls recorded for these species during the three surveys.

Across all three seasons of passive bat surveys, AnaBat detector location 2 had the highest numbers of bat calls. This location was overlooking a rocky canyon with coastal sage scrub-transition and Diegan coastal sage scrub vegetation. This location may have provided foraging habitat for bats, even though no water was present. Due to the lack of ponded water on the Properties, bats have no place to drink water within the Properties and therefore are likely to fly through the Properties en route to and from locations with riparian habitat, oak woodland, and water, such as the riparian and oak woodlands in the Preserve and San Vicente Reservoir to the southeast.

Table 13. Results of Fall 2016 Passive Acoustic Bat Surveys

Common Name	Scientific Name	Number of Calls percent of total calls	
		Detector 1	Detector 2
Big brown bat	*Eptescus fuscus*	-	1 1.3%
Western yellow bat[1]	*Lasiurus xanthinus*	1 1.3%	6 7.7%
Townsend's big-eared bat[1]	*Corynorhinus townsendii*	-	1 1.3%
Mexican free-tailed bat		10 12.8%	13 16.7%
Yuma myotis[1]	*Myotis yumanensis*	2 2.6%	3 3.8%
California myotis	*Myotis californicus*	-	1 1.3%
Pocketed free-tailed bat[1]	*Nyctinomops femorosaccus*	9 11.5%	10 12.8%
Canyon bat	*Parastrellus hesperus*	8 10.3%	13 16.7%
Total		**30** 38.5%	**48** 61.6%

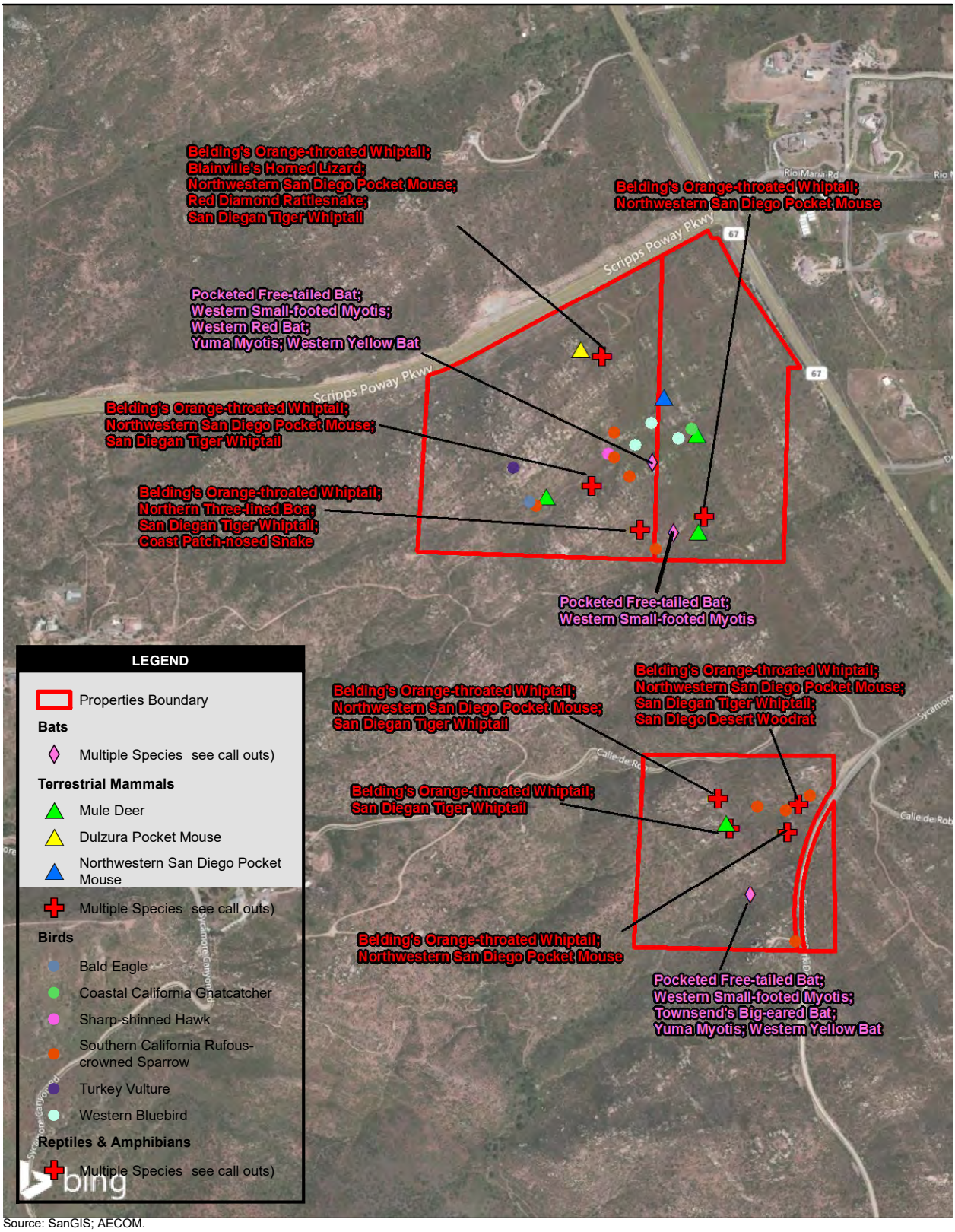
[1] Special-status species

When all three season spring, summer, and fall passive and active bat surveys were combined, the Mexican free-tailed bat was the most commonly detected species of the 11 detected, followed by the canyon bat and pocketed free-tailed bat. Less commonly detected species were the hoary bat, Yuma myotis, big brown bat, and western yellow bat. The western small-footed myotis, western red bat, California myotis, and Townsend's big-eared bat were rarely detected in the Properties.

While these Properties do not currently offer significant foraging or roosting opportunities for most bats, they provide potential roosting and foraging opportunities for smaller rock crevice dwelling species such as the canyon bat and the myotis species. The habitat on the Properties also provides a local linkage that can be used as foraging habitat while bats are traveling to nearby undeveloped habitat and water sources.

4.3.5 Special-Status Wildlife Observed

Twenty-two special-status wildlife species were observed or detected within the Properties during surveys in 2016 Figure 12 . Seven of the detected species are also covered under the MSCP. No special-status butterfly species were detected. Special-status wildlife species included six reptile species, six bird species, and 10 mammal species. Life history, range description, and occurrence of these species within the Properties are discussed in further detail in the following sections.



Source: SanGIS; AECOM.

1,000 500 0 1,000 Feet

1:12,000 1 inch 1,000 feet

Figure 12
Special-Status
Wildlife Species Locations

Path: P:\2013\60278233_DPR_2012\06GIS\6.3_Layout\TO_39\Report_Figures\Baseline_Biodiversity_Report\2018\Wildlife.mxd, 5/15/2018, augellop

4.3.5.1 Butterflies

No special-status butterfly species were observed during any surveys on the Properties.

4.3.5.2 Herpetofauna

Blainville's horned lizard ***Phrynosoma coronatum blainvillei***
CDFW Species of Special Concern, County Group 2, MSCP Covered Species

Blainville's horned lizard is endemic to extreme southwestern California, from Los Angeles County into Baja California Stebbins 2003). In San Diego County, it is relatively widespread and locally common from the coast to the western edge of the desert, but is more commonly detected in eastern San Diego County. Blainville's horned lizard is most often found on sandy or friable soil with a variety of habitats, from sage scrub and chaparral to coniferous and broadleaf woodlands Stebbins 2003). Habitat requirements include open areas for sunning, bushes for cover, and fine loose soil for rapid burrowing.

Three Blainville's horned lizards were detected incidentally in loose sandy soil along the dirt trails in the Wu parcels Figure 12 . This species likely inhabits most of the open chaparral and scrub habitats where they coincide with sandy or friable soils on the Properties.

San Diegan tiger whiptail ***Aspidoscelis tigris stejnegeri)***
CDFW Species of Special Concern, County Group 2

San Diegan tiger whiptail is found in a variety of open habitats in California, including scrub, chaparral, woodland, and riparian areas. This subspecies is found in coastal Southern California, mostly west of the Peninsular Ranges and south of the Transverse Ranges, and north into Ventura County.

San Diegan tiger whiptail was detected in the open chaparral and scrub habitat on-site during surveys in 2016. There were 32 captures of San Diegan tiger whiptail during drift fence surveys. It was detected at drift fence locations 1, 2, 4, 6, 7, and 8, and was the second most commonly captured lizard species Figure 12). Given the broad range of locations where this species was captured, it likely inhabits most of the open chaparral and scrub habitat throughout the Properties.

Belding's orange-throated whiptail *Aspidoscelis hyperythra beldingi*
CDFW Watch List, County Group 2, MSCP Covered Species

In California, Belding's orange-throated whiptail is found on the west side of the Peninsular Ranges between sea level and 3,000 feet in the southernmost counties CDFG 1988). Belding's orange-throated whiptail inhabits washes, streams, terraces, and other sandy areas associated with some perennial plants, open scrub, or coastal chaparral. The principal threat to this species is loss of open sage scrub. Development of floodplains and stream terraces has also greatly contributed to this species' decline, as well as habitat fragmentation.

Belding's orange-throated whiptail was detected in the open chaparral and scrub habitat on-site during surveys in 2016. This species was the most frequently trapped species on the Properties. It was captured at all of the drift fence locations except for drift fence location 3 Figure 12). This species likely inhabits most of the open chaparral and scrub habitat throughout the Properties.

Northern three-lined boa (*Lichanura orcutti*
County Group 2

The northern three-line boa formerly known as coastal rosy boa ranges from sea level to 5,000 feet above mean sea level and is found throughout Southern California from the coast to the desert. This species inhabits rocky shrubland, chaparral, coastal sage scrub, brushlands, rocky slopes, and is active from spring to early fall. It tends to occur in areas where moisture is available, as around springs, streams, and canyon floors, although it is not dependent on permanent water NatureServe 2015). It eats a variety of small mammals, reptiles, and birds that it captures and kills by constriction.

One adult northern three-line boa was captured once in drift fence location 4 Figure 12). Suitable habitat occurs throughout the Properties for this species.

Coast patch-nosed snake *Salvadora hexalepis virgultea*
CDFW Species of Special Concern, County Group 2

The coast patch-nosed snake occurs in California from the northern Carrizo Plains in San Luis Obispo County, south through the coastal zone, south and west of the deserts, and into coastal northern Baja California up to 7,000 feet in elevation Marlow 2005 . It occurs in semi-arid brushy areas within chaparral, desert scrub, washes, and sandy flats and rocky areas Marlow 2005). This species seems to require at least a low shrub structure of minimum density; it is not found in habitats lacking this habitat characteristic (Jennings and Hayes 1994).

Coast patch-nosed snake was detected in the open chaparral and scrub habitat during surveys. One adult coast patch-nosed snake was captured at drift fence location 4 Figure 12). This species likely inhabits most of the open chaparral and scrub habitats where they coincide with sandy or friable soils on the Properties.

Red diamond rattlesnake *Crotalus ruber*
CDFW Species of Special Concern, County Group 2

The red diamond rattlesnake is found in southwestern California from the Morongo Valley west to the coast and south along the peninsular ranges to mid Baja California, Mexico. This heavy bodied species inhabits coastal chaparral, oak and pine woodlands, grasslands, and arid scrub. It also ranges onto the desert slopes of the mountains east toward Anza Borrego Desert. Dense vegetation with rocky areas and an abundance of burrowing small mammals are important habitat factors for this species. In addition to small mammals, this species preys on lizards and birds. This species is generally inactive during cooler winter months.

Two red diamond rattlesnakes one adult and one juvenile were captured in drift fence location 1 Figure 12). Suitable habitat occurs throughout most of the Properties for this species, especially in rocky areas with thick vegetative cover.

4.3.5.3 Birds

Bald eagle (*Haliaeetus leucocephalus*
Delisted, State Endangered, CDFW Species of Special Concern, County Group 1, MSCP Covered Species

The bald eagle has made an astonishing comeback from the 1970s when pesticides and other factors led the species to be federally listed as endangered. Bald eagles breed across the United States and from Alaska to south Florida. This species breeds primarily in tall, mature trees in proximity to bodies of water. It consumes a wide variety of prey items from fish, waterbirds, carrion, to ground squirrels. The species is now a regular visitor to wetland areas within Southern California and multiple pairs breed within San Diego County. During the winter months, there is an additional influx of bald eagles into San Diego County.

One adult bald eagle was observed flying north over the Wu parcels on May 25, 2016 Figure 12). While no suitable breeding habitat is present within the Properties, San Vicente Reservoir is located a few miles to the southeast of the Properties and contains suitable foraging and nesting habitat, although currently bald eagles have been documented breeding at San Vicente Reservoir. Multiple bald eagles occur around San Vicente Reservoir during the winter months.

The observation of the bald eagle over the Wu parcels on May 25 occurred too late in the spring for it to represent a migrant bald eagle. It is possible that the bald eagle that was flying over the Wu parcels is a resident within San Diego County. In the last few years, the number of nesting bald eagles within San Diego County has increased from one pair to multiple pairs, including one nesting in the Ramona Grasslands Preserve approximately 15 miles north of the Properties.

Sharp-shinned hawk *Accipiter striatus*
CDFW Watch List, County Group 1

The Sharp-shinned hawk breeds from central and western Alaska and the greater portion of Canada south to central and south-central California, central Arizona, New Mexico, Texas, northern parts of the Gulf states, and into Mexico American Ornithologists' Union 1998). In California, sharp-shinned hawks breed throughout the state, including the mountains of Southern California, but the majority probably breed in the northern half of the state Small 1994). In California, this species typically nests in coniferous forests, often within riparian areas or on north-facing slopes USFS 2008). Nests are often near water and are typically in proximity to open areas Zeiner et al. 1990). The nest is a large, well-built structure of twigs, typically located in a tree crotch between 10 to 60 feet high Baicich and Harrison 1997). Breeding Bird Survey data over the last 20 years 1980–2000) indicate a significant decline in sharp-shinned hawk populations in California (Sauer et al. 2001).

Within Southern California, sharp-shinned hawks are regular winter residents feeding on songbird populations that winter in the same areas. Within the Properties, a single subadult sharp-shinned hawk was observed during diurnal avian surveys conducted in March 2016 (Figure 12).

Turkey vulture *Cathartes aura)*
County Group 1

The turkey vulture is a highly migratory species, but San Diego County lies within the overlap zone of the species' winter and summer ranges. Thus, the turkey vulture is present within San Diego County year-round. Turkey vultures are wide ranging birds that forage on the wing, searching for carrion in a variety of habitats. This species nests in secluded rocky outcroppings, away from human activity. Many areas of San Diego County have suitable rocky substrates for nesting, but these are not used for nesting due to frequent human disturbance.

This species was observed on multiple occasions flying over the Properties, and a pair of turkey vultures with an active nest with two eggs was found within the western part of the Wu parcels Figure 12 .

Southern California rufous-crowned sparrow ***Aimophila ruficeps canescens***
CDFW Watch List, County Group 1, MSCP Covered Species

The southern California rufous-crowned sparrow is a resident species in San Diego County. This species prefers steep grassy or rocky slopes with open scrub at elevations from sea level to approximately 2,000 feet. Most of the species' population occurs in coastal sage scrub, although it can occupy other coastal scrub habitats. This bird is secretive, and forages and nests on the ground, usually near vegetative cover. Southern California rufous-crowned sparrow is not migratory, but territory size may increase during the post-breeding season. Southern California rufous-crowned sparrow maintains year- round territories.

Southern California rufous-crowned sparrows were detected in multiple locations throughout the Properties Figure 12). This species was commonly heard within small canyon areas, along the slopes of steep hill-sides, and generally favored the rockier, more open chaparral and sage scrub habitats. The species likely breeds within the Properties based on observed avian behavior, calling, and other territorial observations.

Coastal California gnatcatcher ***Polioptila californica californica***
Federally Threatened, CDFW Species of Special Concern, County Group 1, MSCP Covered Species

The coastal California gnatcatcher is a local and uncommon year-round resident of Southern California. This species is found in the six southernmost California counties located within the coastal plain San Bernardino, Ventura, Los Angeles, Orange, San Diego, and Riverside . The coastal California gnatcatcher generally inhabits Diegan coastal sage scrub and Riversidian coastal sage scrub dominated by California sagebrush and flat-topped buckwheat, generally below 1,500 feet in elevation along the coastal slope. When nesting, this species typically avoids slopes greater than 25 percent and covered with dense, tall vegetation. Coastal California gnatcatcher pairs will attempt several nests each year average of four with each nest placed in a different location inside their breeding territory, but most nest attempts are unsuccessful due to depredation by a variety of species Grishaver et al. 1998; Atwood and Bontrager 2001). Clutch size ranges from one to five eggs, with three or four eggs most common. Coastal California gnatcatchers will remain paired through the nonbreeding season and will generally expand their home range when not breeding.

Within the Properties, a single coastal California gnatcatcher was heard calling on May 25, 2016. The bird was never seen; therefore, its sex was unknown Figure 12). There are scattered clumps of Diegan coastal sage scrub where this species could breed within the Properties, although the majority of the vegetation is more chaparral dominated and is less suitable for coastal California

gnatcatchers. The bird could have been an early dispersing individual or a breeding adult from a nearby population.

Western bluebird *Sialia mexicana*
County Group 2, MSCP Covered Species

The western bluebird occurs in open coniferous, deciduous, and riparian woodlands, and grasslands and agricultural areas with adjacent nesting cavities. It nests in cavities located in snags, the main tree trunk, within nest boxes, and within fence posts. It forages on insects, fruit, berries, and seeds; therefore both suitable nesting locations and prey base are necessary for successful nesting. This species breeds in the western half of the United States from Washington to Southern California and into Mexico. The resident breeding population in Southern California is augmented by additional wintering birds.

Western bluebirds were observed within the Properties from March through May 2016 Figure 12). No on-site nesting was observed; however, suitable nesting habitat only occurs within the large coast live oak tree in the center of the Wu parcels Figure 12 .

4.3.5.4 Mammals

Dulzura pocket mouse *Chaetodipus californicus femoralis*
CDFW Species of Special Concern, County Group 2

The Dulzura pocket mouse is found in a variety of vegetation communities within San Diego County, including coastal sage scrub, sagebrush, grassland, and various chaparral communities. It is found in a variety of habitats year-round, including coastal scrub, chamise-redshank and montane chaparral, sagebrush, annual grassland, valley foothill hardwood, valley foothill hardwood-conifer, and montane hardwood habitats at elevations from sea level to 7,900 feet Brylski 2005). The species occurs in brushy areas but probably is attracted to grass-chaparral edge (Brylski 2005).

Within the Properties, this species was detected primarily in scrub and chaparral type habitats Figure 12 . This species was captured twice in small mammal trapping location 1 and was captured in drift fence location 1, 4, 5, 7, 8, and 9 for a total of 11 captures, although this may represent the same individuals captured multiple times (Figure 12).

Northwestern San Diego pocket mouse *Chaetodipus fallax fallax*
CDFW Species of Special Concern, County Group 2

The northwestern San Diego pocket mouse occurs from the eastern San Gabriel Mountains in the interior to near San Onofre on the coast Lackey 1996), and south into Baja California. It is found in coastal scrub, chamise-redshank chaparral, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon-juniper, and annual grassland habitats Brylski 2005). The availability of shelter provided by rocky slopes or habitats may increase species abundance (Lackey 1996 . The northwestern San Diego pocket mouse generally exhibits a strong microhabitat affinity for moderately gravelly and rocky substrates Bleich 1973; Price and Waser 1984).

Within the Properties, this species was captured three times at small mammal trapping locations 1 and 2, and within drift fence locations 1, 2, 5, 6, 8, and 9 (Figure 12). Between small mammal trapping and drift fence surveys, there were 14 captures of northwestern San Diego pocket mouse. This species is present throughout both the Wu parcels and the Cielo parcel.

San Diego desert woodrat (*Neotoma bryanti intermedia*
CDFW Species of Special Concern, County Group 2

The San Diego desert woodrat occurs in coastal California from San Luis Obispo south through the Transverse and Peninsular Ranges into Baja California. This species commonly inhabits mixed chaparral, Joshua tree woodlands, pinyon-juniper woodlands, sagebrush, and desert habitats Zeiner et al. 1990). Nests are constructed with twigs, sticks, cactus parts, and rocks and are usually built against a rock crevice, at the base of creosote or cactus, or in the lower branches of trees (Brylski 2005).

Within the Properties, two juvenile woodrats were captured in drift fence location 8 within the Cielo parcel (Figure 12). Based on the similarity of and adjacency of habitat within the Cielo parcel, San Diego desert woodrats likely occur within the Wu parcels as well.

Townsend's Big-eared Bat *Corynorhinus townsendii*
State Candidate Threatened, CDFW Species of Special Concern, County Group 2

The Townsend's big-eared bat occurs primarily throughout the western portion of North America in a wide variety of habitats from coniferous forests, deserts, prairies, riparian communities, active agricultural areas, and coastal habitat types Piaggio 2005). Its distribution is strongly related to the availability of caves, cave-like roosting habitat, abandoned mines, buildings, bridges, and other structures. This species has summer maternity colonies and winter hibernating

colonies. Townsend's big-eared bat is a moth specialist and bats will travel large distances while foraging, including movements of over 90 miles during a single evening Piaggio 2005). The species generally has large foraging distances and large home ranges.

This species was detected during active acoustic bat surveys within the Wu parcels Figure 12). It was likely foraging and flying through the Properties, as there is no suitable roosting habitat for this species within the Properties.

Pocketed free-tailed bat ***Nyctinomops femorosaccus***
CDFW Species of Special Concern, County Group 2

The pocketed free-tailed bat is rare in California and found in Riverside, San Diego, and Imperial Counties Harris 2005 . Habitats frequently used by this species include pinyon-juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oasis Harris 2005). The pocketed free-tailed bat prefers rock crevices in cliffs as roosting sites Harris 2005 . The status of this species in California is poorly known, but it appears rare (Harris 2005).

The pocketed free-tailed bat was observed during spring and summer surveys at both Properties, but was more abundant at the Cielo parcel where AnaBat Detector 2 was located (Figure 12). The species is also known to occur within the adjacent Preserve (County of San Diego 2013 .

Western yellow bat ***Lasiurus xanthinus***
CDFW Species of Special Concern

The western yellow bat occurs year-round in Southern California and occurs mainly in valley foothill riparian, desert riparian, desert wash, and palm oasis habitat below 2,000 feet in elevation Zeiner et al. 1990). Western yellow bats roost and feed in and around palm oases and adjacent riparian habitats. The species gives birth in June and July to a single litter averaging two young Zeiner et al. 1990 .

This species was detected during October 2016 surveys primarily within the Cielo parcel Figure 12). Given the lack of suitable roosting habitat for this species within the Properties, this species was likely migrating through. The species is also known to occur within the adjacent Preserve County of San Diego 2013).

Western red bat *Lasiurus blossevillii*
CDFW Species of Special Concern, County Group 2

The western red bat occurs in western Canada, western United States, western Mexico, and Central and South America Harvey et al. 1999). There is little information on the distribution and relative abundance of this species in Southern California Stephenson and Calcarone 1999). This bat is associated with large deciduous trees in riparian habitat and often occurs in streamside habitats dominated by cottonwood, oaks, sycamore, and walnut Bolster 1998; Harvey et al. 1999 . This species is primarily a solitary species that roosts in the foliage of trees and shrubs in habitats bordering forests, rivers, cultivated fields, and urban areas Harvey et al. 1999). The western red bat forages over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands (Harris 2005).

Within the Wu parcels, the western red bat was observed once during the spring 2016 surveys (Figure 12). While there is minimal suitable roosting habitat within the Properties for this species, suitable riparian habitat is present outside the Properties where this species is more likely to roost and forage. Therefore, the single bat detected within the Wu parcels was likely a foraging bat or a bat in transit to adjacent habitat. Western red bats are known to occur within the Preserve adjacent, and to the south of, the Properties (County of San Diego 2013).

Western small-footed myotis (*Myotis ciliolabrum*
County Group 2

This bat species is found from coastal California south of Contra Costa County to the Mexican border and throughout the Central Valley, slopes of the Sierra Nevada, and desert habitats Zeiner et al. 1990). It prefers arid habitats with brushy uplands near water sources and inhabits caves, buildings, mines, bridges, and other crevices for roosting (Zeiner et al. 1990).

The western small-footed myotis was detected within the Properties, but very infrequently (Figure 12). Based on the number of calls, the species does not appear to frequent the Properties but likely forages or moves through the Properties. The western small-footed myotis was also observed within Sycamore Canyon/Goodan Ranch Preserve during 2008 and 2012 bat surveys County of San Diego 2013).

Yuma myotis *Myotis yumanensis)*
County Group 2

This species occurs throughout California in many habitat types, but it prefers open forests and woodlands with sources of water to forage over Zeiner et al. 1990). It ranges from sea level to

11,000 feet in elevation, but is generally found below 8,000 feet and will roost in groups of several thousand within suitable structures such as caves, buildings, mines, and under bridges Zeiner et al. 1990).

This species was detected on multiple occasions within the Properties on both of the AnaBat detectors Figure 12). Yuma myotis is also known to occur within the Preserve to the south County of San Diego 2013).

Mule deer *Odocoileus hemionus*
County Group 2, MSCP Covered Species

The mule deer is a fairly common species in large areas of native vegetation within San Diego County. Mule deer tend to be more numerous in the foothills and mountain ranges in the eastern part of San Diego County. They have large home ranges and require areas with dense vegetation for cover and fresh water.

Multiple male and female deer were detected walking along trails that traversed past all four wildlife cameras within the Properties Figure 12). Both does and bucks were detected on multiple wildlife cameras during daytime and nighttime hours. Due to the lack of permanent water within the Properties, mule deer likely forage, seek shelter, and move through the Properties en route to areas with fresh water, such as San Vicente Reservoir to the south.

4.3.6 Special-Status Wildlife with High Potential to Occur

In addition to the special-status wildlife species documented during the field surveys, 15 special-status wildlife species have a high potential to occur on the Properties. Due to the similarity of habitat and adjacency of the Wu and Cielo parcels, special-status species were considered high potential to occur on one or both of the Properties. The evaluation of their potential for occurrence was based on the elevation, soils, and vegetation communities present on the Properties; known occurrences within the adjacent Preserve; and the range and distribution of species within the vicinity of the Properties.

Special-status wildlife species that were not detected on the Properties during 2016 surveys but have a high potential to occur are presented below in Table 14. Additional species were considered for their potential to occur but did not have a high potential to occur within the Properties, and therefore are not listed in Table 14. A table of all special-status wildlife species evaluated for a potential to occur on the Properties is included in Appendix D.

Table 14. Special-Status Wildlife with High Potential to Occur within the Properties

Species	Status[1]	General Habitat	Potential for Occurrence
Invertebrates			
Quino checkerspot butterfly *Euphydryas editha quino*	USFWS: Endangered County: Group 1	Larvae feed on several host plants including dot-seed plantain *Plantago erecta* , woolly plantain *Plantago patagonica* , southern Chinese houses *Collinsia conclor* , purple owl's clover *Castilleja exserta* , and others. Adults nectar on a variety of flowering annuals including cryptantha species *Cryptantha* sp. , linanthus *Linanthus* sp. . Populations occur in semi-open Diegan coastal sage scrub, various chaparral types, and open ridgelines and hilltops.	Suitable habitat occurs within the Properties with multiple patches of host plants and nectar sources. This species was recorded in 2005 within the Sycamore Canyon/Goodan Ranch Preserve County of San Diego 2013).
Hermes copper *Hermelycaena* [*Lycaena*] *hermes*	USFWS: Candidate County: Group 1	Hermes copper butterfly larvae utilize redberry *Rhamnus crocea* as a foodplant and the distribution of the Hermes copper is closely tied to the distribution of redberry, typically occurring in chaparral or coastal sage scrub. Adults visit flowers, especially those of flat-top buckwheat *Eriogonum fasciculatum*).	There are historical records of this species from the Sycamore Canyon/Goodan Ranch Preserve before the 2003 Cedar Fire County of San Diego 2013 . The Properties contain suitable chaparral habitat with abundant nectar sources. Larval host plants are present within the Properties.
Reptiles and Amphibians			
San Diego banded gecko *Coleonyx variegatus abbottii*	County: Group 2	Occurs in arid areas including creosote flats, sagebrush desert, pinion-juniper woods, and chaparral. Prefers rocky areas but may occur in rock-free areas such as sand dunes.	The Properties contain suitable habitat for this species and it is known to occur around San Vicente Reservoir.
San Diego ringed-neck snake *Diadophis punctatus similis*	County: Group 2	Prefers moist habitats, including wet meadows, rocky hillsides, gardens, grassland, chaparral, mixed coniferous woods, and woodlands.	The Properties contain suitable habitat for this species.
Western spadefoot *Spea hammondii*	CDFW: SSC County: Group 2	Sandy or gravelly soil in grasslands, open chaparral and pine-oak woodlands, coastal sage scrub; vernal pools or freshwater marshes are essential for breeding.	There is suitable aestivation habitat for this species within the Properties, but no suitable breeding habitat or potentially ponded areas are present. The species is known to occur south in the Sycamore Canyon/Goodan Ranch Preserve.
Birds			
Cooper's hawk *Accipiter cooperi*	CDFW: WL Nesting County: Group 1 MSCP: Covered	Usually found nesting in oak woodlands, but occasionally in willow or eucalyptus woodlands.	There is suitable adjacent habitat for breeding and the Properties contain suitable foraging habitat for the species. The species is known to occur in the adjacent Sycamore Canyon/Goodan Ranch Preserve.

Species	Status[1]	General Habitat	Potential for Occurrence
Red shouldered hawk *Buteo lineatus*	County: Group 1	Occurs mainly in swamp, riverine, riparian, and forest habitats. They use the same nesting site from year to year, often placed in a large sycamore or oak tree.	There is suitable breeding habitat adjacent to the Properties, and suitable foraging habitat within the Properties. The species is known to occur within the adjacent Sycamore Canyon/Goodan Ranch Preserve.
Golden eagle *Aquila chrysaetos*	CDFW: FP, WL Nesting and Wintering MSCP: Covered	Nests on cliff ledges and trees on steep slopes. Hunts for prey in nearby grasslands, sage scrub, or broken chaparral. Requires very large territories.	The Properties contain suitable foraging habitat for this species and there are known nearby nesting locations San Vicente Reservoir is the closest known nesting location). The species has been detected within the adjacent Sycamore Canyon/Goodan Ranch Preserve.
Barn owl *Tyto alba*	County: Group 2	Inhabit grasslands, deserts, marshes, agricultural fields, narrow forest strips, brushy fields, and suburbs and cities. They nest in tree cavities, caves, and in buildings.	Suitable foraging habitat exists on the Properties and the species is known to occur within the adjacent Sycamore Canyon/Goodan Ranch Preserve.
Bell's sparrow *Amphispiza belli*	CDFW: WL County: Group 1	Coastal sage scrub and sparse chaparral, typically in large unfragmented blocks in inland locales.	The Properties contain suitable breeding habitat for this species and it is known to occur in the nearby Sycamore Canyon/Goodan Ranch Preserve.
Mammals			
Pallid bat *Antrozous pallidus*	CDFW: SSC County: Group 2	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect species from high temperatures.	The Properties contain suitable habitat for this species and the species was detected in the adjacent Sycamore Canyon/Goodan Ranch Preserve.
Western mastiff bat *Eumops perotis californicus*	CDFW: SSC County: Group 2	Chaparral; live oaks; and arid, rocky regions. Requires downward-opening crevices.	The Properties contain suitable habitat for this species and the species was detected in the adjacent Sycamore Canyon/Goodan Ranch Preserve.
Big free-tailed bat *Nyctinomops macrotis*	CDFW: SSC County: Group 2	Low-lying arid areas in Southern California.	The Properties contain suitable habitat for this species, and it has been detected in the adjacent Sycamore Canyon/Goodan Ranch Preserve.
San Diego black-tailed jackrabbit *Lepus californicus bennettii*	CDFW: SSC County: Group 2	Grasslands, open scrub habitats, disturbed areas, and agricultural fields.	The Properties contain suitable habitat for this species and the species was detected in the adjacent Sycamore Canyon/Goodan Ranch Preserve.

Species	Status[1]	General Habitat	Potential for Occurrence
Mountain lion *Puma concolor*	County: Group 2 MSCP: Covered	Rugged mountains, forests, deserts, and swamps with abundant prey particularly mule deer .	The Properties contain suitable habitat and abundant prey mule deer for this species and the species has been documented within the Sycamore Canyon and Goodan Ranch Preserve.

[1] Federal: U.S. Fish and Wildlife Service USFWS)
State: California Department of Fish and Wildlife CDFW
Species of Special Concern SSC
Fully Protected FP)
Watch List Species WL
Other County Designations:
Group 1= Animals of high sensitivity listed or specific natural history requirements
Group 2 Animals declining, but not in immediate threat of extinction or extirpation
MSCP Covered: The species is included on the Multiple Species Conservation Plan covered species list County of San Diego 1998

One federally listed species and one federal candidate species with a high potential to occur are discussed in more detail in the following sections because they have been detected nearby within the existing Preserve.

Quino Checkerspot Butterfly (*Euphydryas editha quino*
Federally Endangered, County Group 1

The Quino Checkerspot butterfly Quino has a high potential to occur within the Properties due to the presence of larval host plants, suitable adult nectar sources, and the presence of nearby known populations. Quino have been historically documented within the Preserve in 2005, where one adult was located along a ridge south of the Properties County of San Diego 2013). While the entire area within the Properties is potentially suitable habitat for Quino, there were a few areas with clustered Quino larval host plants. Several Quino larval host plants were detected within the Properties, including dot-seed plantain *Plantago erecta* and purple owl's clover *Castilleja exserta* , particularly in the western half of the Wu parcels and the western portion of the Cielo parcel. Specific areas that Quino tend to prefer include semi-open coastal sage scrub and chaparral and open hilltops and ridges.

Adult Quino nectar on a variety of flowering annuals, including cryptantha species *Cryptantha* sp.), linanthus *Linanthus* sp.), and other species, that were scattered throughout the Properties. Populations of Quino occur in semi-open Diegan coastal sage scrub, various chaparral types, and along open ridgelines and hilltops. There were several patches of suitable host plants within the western part of the Wu parcels along the hilltops and adjacent slopes. The vegetation is semi-open, post-fire recovering chaparral. Two of the butterfly surveys were conducted during the adult Quino flight season on March 23 and April 15, 2016; however, none were observed.

Quino is a species with metapopulation dynamics where there are patches of suitable habitat that are unoccupied during certain years, but in other years are occupied. The species undergoes drastic population fluctuations from year to year, which is highly dependent on rainfall. Therefore, Quino may be absent from suitable habitat patches in one year, but in subsequent years reoccupy habitat, provided suitable host plants are present. The drought conditions within San Diego County have been detrimental to populations of Quino around the county and may also a factor contributing to the lack of Quino detections within the Properties.

Hermes Copper *Lycaena hermes*
Federal Species of Special Concern, County Group 1

The Hermes copper butterfly has a high potential to occur within the Properties due to the presence of the larval host plant, suitable nectar sources, and historical populations within the existing Preserve County of San Diego 2013). The host plant of Hermes copper is spiny redberry *Rhamnus crocea* . Hermes copper is found in areas of mixed chaparral with spiny redberry growing in association with California buckwheat *Eriogonum fasciculatum* , which is a nectar source for adult butterflies. Spiny redberry occurs on north-facing slopes within the Wu parcels especially just south of Scripps Poway Parkway, and in the southern half of the Wu parcels, and in scattered locations within the Cielo parcel. The adult nectar source, California buckwheat, is spread abundantly throughout the Properties.

One of the butterfly surveys May 25, 2016 was conducted during the flight season of Hermes copper, and none were observed. Since Hermes copper require mature spiny redberry plants for reproduction, increased fire frequency is detrimental to the species and can lead to local extirpations.

4.3.7 Invasive Species

No invasive invertebrates, herpetofauna, or mammal wildlife species were detected on the Properties.

4.4 WILDLIFE MOVEMENT

In general, wildlife species are likely to use habitat in the Properties for local movements related to home range activities foraging for food or water, defending territories, searching for mates, breeding areas, or cover . As indicated by the presence of the species detected during surveys, the Properties are part of the home range of many species, which may use it at different times of the year depending on available resources. Large mammals such as mule deer, coyotes, bobcats, and other mammals were observed moving through the Properties. Mule deer and other large

mammals require fresh water and since this is lacking within the Properties, many large mammals may be transiting through the Properties and using it for temporary forage and cover. The nearby sources of water are located south within the existing Preserve and the adjacent San Vicente Reservoir. Some bat species may transition through the Properties while in transit to permanent sources of water to the north and south.

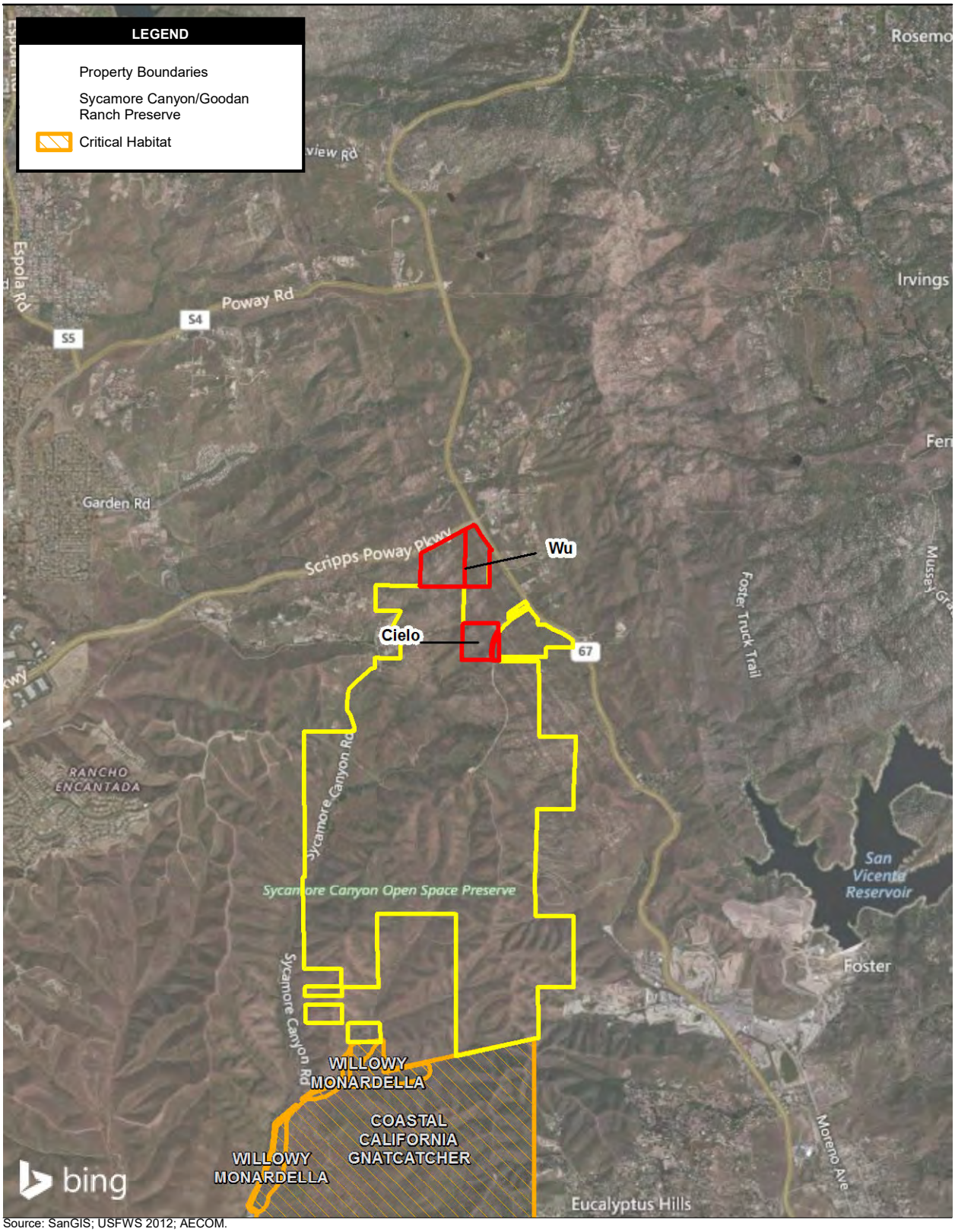
Regionally, the Properties are a part of a "core biological area" in the San Diego County MSCP Subregional Plan County of San Diego 1998). "Core biological areas" have high concentrations of sensitive biological resources in large, unfragmented areas of undeveloped habitat. This core biological area is an important block of natural habitat that connects inland portions of San Diego County with the Cleveland National Forest to the east and eventually the desert regions around the Salton Sea. While State Route 67 is located east of the Properties, and it lacks sufficient wildlife crossings to prevent mortality, terrestrial wildlife species are able to cross the road at grade, with the risk of being struck by vehicles, to pass from the Properties to San Vicente Reservoir to the south and east. Some terrestrial wildlife species are likely successful in their attempts to cross the road. The Properties are part of a regional wildlife corridor known as the Peñasquitos Linkage, which extends from Peñasquitos Canyon to the east, to the Cleveland National Forest and the desert regions of Eastern San Diego County Penrod et al. 2001).

The Properties are also a part of the broader Pacific Flyway, a major north-south migration route for birds that travel between North and South America. Various avian species pass through the Properties during migration and/or may use the Properties as migratory stopover habitat. While there is no riparian vegetation or topographical configurations within the Properties that would concentrate or funnel avian species during migration, they likely move through the habitat in small groups, or fly over it at night. Based on the avian surveys conducted during the spring of 2016, there were no major waves or pushes of avian species that were detected through the Properties; however, surveys were infrequent and may have missed large pulses of birds. Additionally, most songbird species migrate at night, and therefore would not have been detected if they migrated through the Properties during the night.

Large San Diego Gas and Electric transmission towers traverse the southern part of the Cielo parcel generally in an east to west direction. These transmission towers carry high voltage electrical lines and are located perpendicular to the main direction of avian movement, as birds fly north or south through the Cielo parcel. Therefore, birds migrating through the Properties have the potential to collide with the electrical lines.

4.5 CRITICAL HABITAT

No USFWS-designated critical habitat occurs on the Properties. There is USFWS-designated coastal California gnatcatcher critical habitat several miles south of the Properties Figure 13). One coastal California gnatcatcher was detected within the Wu parcels and may have been an early dispersing individual, or a resident from a nearby territory. Regardless, the open patches of sage scrub and chaparral habitat provide important habitat for coastal California gnatcatcher dispersing between various patches of high-quality habitat.



Source: SanGIS; USFWS 2012; AECOM.

1 0.5 0 1 Miles

1:63,360 1 inch 1 miles

Figure 13
Critical Habitat

Path: P:\2013\60278233_DPR_2012\06GIS\6.3_Layout\TO_39\Report_Figures\Baseline_Biodiversity_Report\2018\CriticalHabitat.mxd, 5/15/2018, augellop

5.0 CONCLUSIONS AND MANAGEMENT RECOMMENDATIONS

Surveys conducted in 2016 documented seven vegetation group level classifications, alliances, associations, or semi-natural stands as described in the VCM Sproul et al. 2011). Approximately 175 plant species and 108 wildlife species were observed or detected within the Properties during surveys, including 15 invertebrates, 16 reptiles, 52 birds, and 25 mammals. Four special-status plant species and 22 special-status species wildlife species, of which seven are covered under the MSCP, were detected or observed within the Properties.

This section provides resource-specific conclusions and management recommendations for the vegetation communities, plants, and wildlife species detected during the 2016 field surveys. These recommendations are based on the results of the baseline biological diversity surveys and management and monitoring guidelines associated with the MSCP.

5.1 VEGETATION COMMUNITIES/HABITAT

Vegetation on the Properties has been classified into seven different categories, including woodland, chaparral, scrub, and grassland habitats. The Properties are located within a block of habitat that was assessed in preparation of the South County MSCP Plan as a core biological area, due to its size importance for wildlife and connectivity to other locations to the east and across to preserve lands and natural habitats to the southwest. The Properties lie in an area that exists geographically as a bench-like terrain on the west side of the Iron Mountain block of the Peninsular Ranges. Land to the west includes some rural uses but is predominantly undeveloped particularly to the southwest. Land to the east across State Route 67 contains a patch of rural lands but south and east of that is undeveloped and remote, extending from San Vicente Reservoir to the Cuyamaca Mountains. The upland habitats on the Properties are relatively undisturbed, having recovered significantly from past ranching and grazing activities that likely took place there. Invasive species goldspotted oak borer [*Agrilus auroguttatus*], wild turkeys [*Meleagris gallopavo*], and feral pigs [*Sus scrofa*]) were not detected on the Properties, but would be a primary concern for management if they were to reach the Properties in the future. Fire has reoccurred on the Properties since 1913, but the Properties appear to be recovering well from the most recent Cedar Fire of 2003. Invasive species treatment recommendations are discussed in Section 5.4, and fire recommendations are discussed in Section 5.6.

Since the vegetation is still recovering from the fire that occurred in 2003, it would be beneficial to help prevent recurrence of fires for at least another decade. The oak woodlands may be the most sensitive to recurrence of fires at this time, and the trees should be monitored for infestation of goldspotted oak borer.

5.2 PLANTS

The surveys in 2016 identified four special-status species of plants, Deane's milkvetch, Engelmann oak, mesa spike-moss, and rush chaparral-star. Deane's milkvetch, mesa spike-moss, and rush chaparral-star are relatively resistant to fires and readily recolonize an area after a fire. Potential threats to their existence in a preserve would be caused by human activity in areas where these plants occur, which could easily be avoided by prohibiting people from those areas. The primary threat to the limited Engelmann oak occurrence would be unnatural fire frequency. Future fires occurring too frequently, coupled with further extended drought, may impact the species. A fire periodicity that mimics the frequency of the past 100 years, once every approximately 20 to 40 years on any particular portion of the Properties, would not pose a problem for the trees. If pigs and turkeys threaten the Properties in the future, they will pose a negative impact to oaks due to their consumption of acorns as a major food source.

General management recommendations should include the following:

- Monitoring and removing invasive non-native plant species;
- Designing future uses of the Properties to avoid locations of special-status plant populations;
- Barriers may be necessary to prevent unauthorized public access into sensitive areas; Monitoring of known MSCP covered plant populations, including rare plant surveys once every 5 years or after a major disturbance event, such as a fire; and
- Maintenance of natural ecological processes, such as wildfires at an appropriate frequency , to allow for openings of chaparral and scrub communities with herbaceous understories.

5.3 WILDLIFE

The surveys in 2016 identified 22 special-status wildlife species, seven of which are covered under the MSCP. Species-specific measures are outlined in the Sycamore Canyon/Goodan Ranch Preserve RMP County of San Diego 2013), which follow the ASMDs that are located within the MSCP Table 3-5; County of San Diego 1998). Based on these survey results, general management recommendations, in line with those in the MSCP, should be followed, and include the following:

- Management and reduction of human-caused edge effects such as introduction of invasive/exotic species and domestic pets, increase in trash/pollution, and/or habitat

destruction-especially through human-induced fires in the Wu parcels that are adjacent to Scripps Poway Parkway and Highway 67;

- Management of fire to allow a natural fire regime to return; and
- If trails are permitted, then signage, fencing, and seasonal trail closures to protect special-status species and sensitive habitats.

Specific management recommendations are provided below for invertebrates, herpetofauna, birds, and mammals.

Butterflies

No special-status butterfly species were detected within the Properties, but there is a high potential for both Quino and Hermes copper butterfly to occur. The larval host plants and multiple adult nectar sources for both Quino and Hermes copper were detected on the Properties. The following specific management recommendations are based on the general field observations during surveys in 2016. The following should be followed:

- Conduct presence/absence surveys for Quino and Hermes copper butterflies. If possible, conduct the Quino surveys during a high or above average rainfall year, as the species tends to have a stronger flight season during wet years and is easier to detect;
- Conduct Quino and Hermes copper larval host plant mapping to determine the most sensitive areas that should be monitored for invasive non-native plant species, and to understand how drought may be affecting the host plants; and
- In the event Quino is found present on-site, prohibit human activity in host plant patches for Quino, where the annuals and butterfly larvae) are sensitive to trampling and crushing.
- Consider planting or augmenting through weed removal, seeding, or planting of container plants appropriate host plant species in areas that have non-native vegetation removal or areas slated for restoration.

Herpetofauna

Six special-status herpetofauna species were detected within the Properties: Belding's orange-throated whiptail, San Diegan tiger whiptail, Blainville's horned lizard, northern three-lined boa, coast patch-nosed snake, and red diamond rattlesnake. Blainville's horned lizard and red diamond rattlesnake are also covered under the MSCP. Based on the presence of the six special-

status reptiles, and the potential for additional special-status species with high probability of occurring on the Properties, the following specific management recommendations should be followed:

- Control of invasive non-native plant species, particularly to remove dense thatch from *Erodium* species, tocalote *Centaurea melitensis*), that prohibit herpetofauna from dispersal;
- Maintenance of populations of native ant species for Blainville's horned lizard by surveying for populations of invasive Argentine ants *Linepithema humile*; this species was not detected within the Properties in 2016 and initiating a monitoring program should the species be detected; and

Birds

Six special-status bird species were detected within the Properties: sharp-shinned hawk, bald eagle, turkey vulture, southern California rufous-crowned sparrow, coastal California gnatcatcher, and western bluebird. Bald eagle, southern California rufous-crowned sparrow, coastal California gnatcatcher, and western bluebird are covered under the MSCP. Based on the presence of the six special-status bird species, and the potential for additional special-status species with high probability to occur on the Properties, the following specific management recommendations should be followed:

- Conduct surveys every 5 years for specific chaparral-dependent avian species Bell's sparrow, black-chinned sparrows, and southern California rufous-crowned sparrow whose populations fluctuate following fires. This may help to document species presence or absence within the Properties and to understand the distribution of species as the habitat recovers from the 2003 Cedar Fire.
- Conduct presence/absence surveys for coastal California gnatcatcher to determine if the species breeds within the Properties, and the extent of the areas where they might occur.
- Remove the colony of bees from the barn owl box, so that it can be used by barn owls and prevent re-occupancy by bees.
- The large coast live oak tree within the middle of the Wu parcels is currently occupied by a nesting great horned owl. While this species is not a special-status species, it is still protected by the federal Migratory Bird Treaty Act. Therefore, it should not be disturbed during the nesting season and park benches, tables, and trails should be placed at least 500 feet away to not disturb the great horned owls or cause them to abandon the nest.

Temporary closures around the nest may be necessary to protect the owls during the nesting season.

- Continue planting and irrigation as necessary additional coast live oak trees within the Wu parcels to provide additional habitat to avian species that use coast live oak woodland.

Mammals

Ten special-status mammal species were detected within the Properties: Dulzura pocket mouse, northwestern San Diego pocket mouse, San Diego desert woodrat, pocketed free-tailed bat, Townsend's big-eared bat, western red bat, western yellow bat, Yuma myotis, western small-footed myotis, and mule deer. Mule deer is the only mammal species currently covered by the MSCP. Based on the presence of the special-status mammal species, and the potential for additional species with high probability to occur on the Properties, the following specific management recommendations should be followed:

- Continue planting and irrigation as necessary additional coast live oak trees within the Wu parcels to provide additional habitat to tree-roosting bat species and other mammalian species that use coast live oak woodland.
- It is recommended to install bat boxes within the coast live oak woodland, especially for tree roosting species such as Townsend's big-eared bat, western red bat, and western yellow bat.

Critical Habitat

No management strategies are necessary for critical habitat since it is not present on the Properties. Critical habitat for the coastal California gnatcatcher and willowy monardella *Monardella viminea*) occurs several miles south of the Properties Figure 13). One coastal California gnatcatcher was detected during field surveys in 2016; however, it could not be confirmed if it was an early disperser, or a resident from a nearby off-site territory. Although willowy monardella occurs within the southern portion of the Preserve, no suitable habitat for willowy monardella is present within the Properties. Willowy monardella requires big canyon bottoms or broad canyon sides or deep canyons with rocky bottoms, which are lacking on the Properties.

5.4 INVASIVE NON-NATIVE SPECIES REMOVAL AND CONTROL

The removal of invasive non-native plant and wildlife species is recommended to enhance habitat quality for native plants and wildlife. Non-native wildlife species can outcompete native wildlife species for limited resources such as water, food, space, and, in some cases nesting cavities for birds. Invasive non-native plant species often have adaptations that allow them to germinate faster than native species, grow taller and faster, and thereby outcompete native species. Over time, this can lead to changes in the habitat quality for wildlife species such as a reduced native seed bank that small mammal species require, reduced nectar sources that are essential for special-status butterfly species, altered fire regime, and altered soil characteristics.

5.4.1 Plants

Thirty-two invasive non-native plant species were observed within the Properties. Of these 32, six species have been targeted with high or moderate priority for removal Table 15 . Species designated as high priority are recommended for immediate removal; moderate species should be removed after high-priority species are under control, and low-priority species should be removed after moderate species are under control. A Vegetation Management Plan has been prepared for the Properties and includes specific information regarding methods for removing each of the 32 targeted species.

Table 15. Priorities for Removal or Management of Invasive Non-native Plant Species

Common Name	Scientific Name	Wu Parcels	Cielo Parcel	Removal/Management Priority
African Fountain Grass	*Cenchrus staceus*	X		High
Blue-Eye Cape-Marigold	*Dimorphotheca sinuata*	X		High
Treasure Flower	*Gazania linearis*	X		High
Chinaberry Tree also known as Persian-Lilac and Umbrella Tree	*Melia azedarach*	X		High
Natal Grass	*Melinis repens*	X	X	Moderate
Dyer's Rocket	*Reseda luteola*	X	X	Moderate
Tocalote	*Centaurea melitensis*	X	X	Low
California Encelia	*Encelia californica*	X		Low
Flax-Leaf Fleabane	*Erigeron bonariensis*	X		Low
Prickly Russian-Thistle, Tumbleweed	*Salsola tragus*	X		Low
Scarlet Pimpernel, Poor Man's Weatherglass	*Anagallis arvensis*	X		None
Wild Oat	*Avena Fatua*	X	X	None
Slender Wild Oat	*Avena barbata*	X	X	None

Common Name	Scientific Name	Wu Parcels	Cielo Parcel	Removal/Management Priority
Black Mustard	*Brassica nigra*		X	None
Ripgut Grass	*Bromus diandrus*	X	X	None
Soft Chess	*Bromus hordeaceus*	X		None
Compact Brome	*Bromus madritensis*	X	X	None
Nettle-Leaf Goosefoot	*Chenopodium murale*	X		None
Long-Beak Filaree/Storksbill	*Erodium botrys*	X	X	None
Red-Stem Filaree/Storksbill	*Erodium cicutarium*	X	X	None
Rat-Tail Fescue	*Festuca myuros*	X	X	None
Perennial Rye Grass	*Festuca perennis*	X		None
Crete Hedypnois	*Hedypnois cretica*	X	X	None
Short-Pod Mustard	*Hirschfeldia incana*	X	X	None
Smooth Cat's Ear	*Hypochaeris glabra*	X	X	None
Golden-Top	*Lamarckia aurea*	X	X	None
Narrow-Leaf Cottonrose	*Logfia gallica*	X	X	None
Annual Beard Grass	*Polypogon monspeliensis*		X	None
Mediterranean Schismus	*Schismus barbatus*	X		None
Common Catchfly	*Silene gallica*	X	X	None
London Rocket	*Sisymbrium irio*	X		None
Prickly Sow-Thistle	*Sonchus asper* subsp. *asper*	X	X	None

The Vegetation Management Plan for the Properties details removal methods for invasive non-native plant species which include manual removal, mechanical removal, application of herbicides, and cutting with herbicide treatment. The appropriate removal method should be tailored to the individual species, and should be determined based on several variables. Such variables include seasonal timing of the removal, severity of species invasion, presence of sensitive and native species, and proximity to a water source.

Widespread and prevalent invasive non-native plant species that have become naturalized are not a priority for removal, as removal strategies may be ineffective and expensive. Invasive non-native plant species not targeted for removal, however, should continue to be monitored and controlled to prevent spreading from their current range. Prickly Russian thistle should be monitored. During some seasons, it may have explosive population growth. It would be important to reduce the vegetative growth prior to setting seed during seasons of expansive growth, though it would not be possible to eradicate it.

Oak trees in the region have been affected by the goldspotted oak borer and, although this species was not detected on the Properties, its potential presence in the future should be monitored. This species has caused extensive mortality to oaks in woodlands, favoring mature trees. It prefers coast live oak and California black oak *Q. kelloggii* , but has rarely been

documented on Engelmann oak. The oak tree on the Wu parcel should be continually checked for signs of gold spotted oak borer. The additional planting of coast live oak trees from goldspotted oak borer-free sources is essential to protect the existing coast live oak tree and expand the woodland.

5.4.2 Wildlife

Both brown-headed cowbirds *Molothrus ater*) and European starlings *Sturnus vulgaris*) were detected in small numbers on the Properties. Brown-headed cowbirds are nest parasites for multiple species, and have been shown to parasitize coastal California gnatcatcher nests. European starlings exclude tree nesting species, such as western bluebirds, from access to suitable nesting locations. Therefore, both species are detrimental to special-status species found within the Properties. It is recommended that both brown-headed cowbird and European starling activity around the nesting season be monitored to determine if they are negatively affecting native species within the Properties. During 2016 avian surveys, only one individual brown-headed cowbird and one European starling were detected, and therefore they may not represent a significant threat to native species; however, their populations should be monitored. If brown-headed cowbirds and European starlings become prolific on the Properties, then removal activities such as trapping may be necessary. European starlings nest in tree cavities that are also used by western bluebirds. Therefore, it may be necessary to remove European starlings to allow western bluebirds to nest successfully.

Human presence on the Properties including domestic dogs , along with non-native species that might follow human disturbance, should be monitored and controlled. Priority should be given to domestic animals that kill and/or stress native wildlife, such as dogs and cats.

5.5 RESTORATION OPPORTUNITIES

The Properties are primarily composed of high-quality native vegetation that is naturally recovering after the 2003 Cedar Fire. There are some areas of non-native grassland and disturbed habitat scattered around the Wu parcels. Disturbed habitat is mainly associated with the few trails that occur within the Properties. The main north-south trail may serve as a foot trail or emergency access road. However, it may be appropriate to eliminate several of the trails and either assist in the rehabilitation of habitat or allow the trails to become overgrown by adjacent vegetation. Restoration opportunities could include control of the invasive non-native plant species targeted for removal Table 15). The small area of non-native grassland could also benefit from habitat restoration, including control of non-native species and planting of native grasses. Additionally, enhancement of suitable Quino and Hermes copper habitat could be achieved through planting of additional larval host plants for these species in appropriate habitat.

The Vegetation Management Plan for the Properties details potential restoration locations and methods.

Currently DPR has planted and is irrigating as necessary multiple coast live oak trees around the existing single coast live oak tree within the Wu parcels. This activity will help encourage more coast live oak trees to fill in areas that are currently non-native grassland as the existing trees grow and mature. Additional areas should be identified for additional coast live oak tree planting. These trees will help increase the diversity of habitats to support species within the Properties.

5.6 FIRE MANAGEMENT

The Properties are dominated by upland chaparral-type vegetation communities. Upland areas are susceptible to burns, particularly as the vegetation ages and drought conditions continue. The primary concern for impacts is from increased presence of weed species. Currently, the shrub vegetation is becoming reestablished in areas that were burned and where weedy species have spread since the 2003 Cedar Fire. The situation is favorable for shrub recovery and reduction of weeds. There may be a need to carry out specific treatment of areas that were scraped or graded in the past, but the overall outlook for the vegetation is positive.

A Vegetation Management Plan has been prepared for the Properties and includes a short-term tactical fire-suppression plan and long-term strategic vegetation management plan. These proposals outline activities to assist in maintaining and improving the vegetation in the future, with consideration of the disturbing elements of fire and invasive weeds. Fuel management recommendations include prescriptions specific to high-value vegetation resources present on the Properties, including coastal sage scrub components. Because of the natural layout of the Properties, they are vulnerable to wildfire from external sources, which would be difficult to control due to the rolling topography of the terrain. Specific fire control measures, such as mowing, spot-burning, or vegetation thinning, might be considered for the perimeter to reduce the potential for fires moving through the area. Management recommendations that would complement fuel-reduction practices include delineating fuel modification areas, providing emergency fire access, providing fire agencies with information that is important for managing the landscape, preventing illegal access and trespass, increasing public education to reduce potential for ignition, and continuing to suppress wildfires.

5.7 WILDLIFE LINKAGES AND CORRIDORS

Regionally, the Properties are part of a large, unfragmented area of undeveloped habitat within the 2,554-acre Preserve that extends from San Vicente Reservoir to the east, to the City of Poway

to the west. This area is connected to other open space areas of Marine Corps Air Station Miramar and Mission Trails Regional Park to the south. Conservation of habitat within the Properties would allow wildlife to continue to use the Properties. Additionally, the recommendations in Sections 5.1 through 5.6 will also ensure that habitat on the Properties is viable for local and regional movement. The northeast corner of the Wu parcels is bounded by Scripps Poway Parkway to the north, and State Route 67 to the east. While there is a traffic light at this intersection, both roads are multilane and any wildlife attempting to cross to the north or east is at risk of mortality from a vehicle collision.

5.8 ADDITIONAL MANAGEMENT RECOMMENDATIONS

5.8.1 Public Access

Restricting public access would minimize human-associated risks such as increased litter on the Properties, potential wildfires, habitat destruction, and collection of native and/or sensitive plants or wildlife. DPR staff can enter the Properties for patrolling purposes through the locked gate off of Sycamore Canyon Drive from Highway 67. Additionally, public access should be restricted to areas such as the rocky outcrops within the Wu parcels where turkey vultures nest, and the large coast live oak tree where great horned owls nest. Public access constraints, opportunities, and recommendation will be further discussed in the Public Access Plan being prepared for the Sycamore Canyon/Goodan Ranch Preserve.

Trails and Access Roads

The Properties are currently not accessible by any public vehicles; however, there is a dirt road Calle de Rob) that heads north from Sycamore Park Drive off Highway 67 near the northeast corner of the Cielo parcel) that currently has a locked gate across it to prevent the public from trespassing. This gate should remain locked and signage should be placed along Sycamore Park Drive to notify the public that entry is prohibited.

Hikers and mountain bikers were observed throughout the Wu parcels during surveys, although an official trail system is not in place or currently proposed for the Properties. Along one trail, several native shrubs had been cut back to make access to a trail easier for mountain bikers. Additionally, soil modification along the same trail was noted with various ruts filled in with soil. This intentional habitat modification should be discouraged through signage and patrols. No hikers or mountain bikers were detected within the Cielo parcel. Unauthorized trails should be blocked off with natural elements, such as boulders or plantings, or fenced off with signage to prohibit foot traffic and to allow passive habitat restoration to take place.

Fencing and Gates

Barriers may be required within the Properties to limit access to sensitive habitats, rare plants, or known raptor nesting locations.

Signage and Education

The Properties are not currently open to the public for recreational use; therefore, no signage boundary signs, use regulations, or interpretive is installed. "No trespassing" signs should be placed in areas throughout the Properties where public access is unauthorized. Should the Properties be opened to the public, interpretive signs should be placed along authorized trails and there should be exclusion fences to prevent unauthorized trespass into sensitive biological areas such as turkey vultures nest locations in the rocky outcrops and around habitat for Quino). Additionally, signage should warn people of the risk of rattlesnakes and ticks, and prohibit people from collecting any native plant or wildlife species.

Illegal Off-Road Vehicle Activity

Off-road-vehicle activity was not observed on the Properties during surveys, though an area in the northern part of the Wu parcels was used in the past evidence of a dirt bike trail with jumps was observed). The current lack of observations may be due in large part to the locked gate at the entrance of the Sycamore Park Drive and the lack of trails and steep rocky terrain within the Properties where illegal off-road vehicles could travel. However, multiple mountain bikers were observed on the wildlife cameras within the Wu parcels. The mountain bikers had trimmed back vegetation growing along the trails, had filled in ruts within the trails, and had conducted other destructive activities that actually promote soil erosion and habitat degradation.

Litter/Trash Removal

When performing surveys, litter and trash were not prevalent on the Properties. No illegal dumping areas were located during surveys of the Properties. Scattered pieces of trash from previous landowner activities were observed in the northeast corner of the Wu parcels that should be removed. Regular monitoring and management of the Properties would detect increases of littering in the area, and then a strategy could be implemented to control the problem. Organized volunteer cleanup days could manage litter and trash issues on the Properties.

5.8.2 Hydrological Management

The Properties do not contain water features or riparian areas that meet the minimum mapping unit for the vegetation classification methods discussed in Section 3.1.1. Overall hydrology of the Properties should be managed at a watershed level.

5.8.3 Emergency and Safety Issues

The main emergency and safety issue concerning the Properties is threat of wildfires. Fire management was discussed in detail in Section 5.6. Should public access be proposed in the future for these Properties, an emergency response plan should be implemented, and emergency contact information should be placed on signs throughout authorized access trails.

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APPENDIX A

PLANTS SPECIES DETECTED ON THE PROPERTIES

Appendix A
Plant Species Detected on the Properties

Scientific name	Common name	Status (Federal/State/ County, MSCP Plan)	Wu Parcels	Cielo Parcel
Vascular Species – Dicots				
ADOXACEAE - Muskroot Family				
Sambucus nigra subsp. *caerulea*	Blue elderberry	None/None/None	X	
ANACARDIACEAE - Sumac or Cashew Family				
Malosma laurina	Laurel sumac	None/None/None	X	X
Rhus integrifolia	Lemonadeberry	None/None/None	X	
Rhus ovata	Sugar bush	None/None/None	X	
Toxicodendron diversilobum	Western poison oak	None/None/None	X	
APIACEAE - Carrot Family				
Apiastrum angustifolium	Mock-parsley	None/None/None	X	
Daucus pusillus	Rattlesnake weed	None/None/None	X	X
Sanicula bipinnatifida	Purple sanicle	None/None/None	X	
Tauschia arguta	Southern tauschia	None/None/None	X	X
APOCYNACEAE - Dogbane Family				
Asclepias fascicularis	Narrow-leaf milkweed	None/None/None	X	
ASTERACEAE - Sunflower Family				
Acourtia microcephala	Sacapellote	None/None/None	X	
Ambrosia psilostachya	Western ragweed	None/None/None	X	
Artemisia californica	California sagebrush	None/None/None	X	X
Brickellia californica	California brickellbush	None/None/None	X	
Chaenactis artemisiifolia	White pincushion	None/None/None	X	X
Chaenactis glabriuscula	Yellow pincushion	None/None/None	X	X
Centaurea melitensis	Tocalote	None/None/None	X	X
Cirsium occidentale var. *californicum*	California thistle	None/None/None	X	X
Corethrogyne filaginifolia var. *filaginifolia*	Common sandaster	None/None/None	X	X
Deinandra fasciculata	Fascicled tarweed	None/None/None	X	
**Dimorphotheca sinuata*	Blue-eye cape-marigold	None/None/None	X	
Encelia californica	California encelia	None/None/None	X	
**Erigeron bonariensis*	Flax-leaf fleabane	None/None/None	X	
Eriophyllum confertiflorum var. *confertiflorum*	Golden yarrow	None/None/None	X	X
**Gazania linearis*	Treasure flower	None/None/None	X	
Gutierrezia californica	California matchweed	None/None/None	X	X
Hazardia squarrosa var. *grindelioides*	Saw toothed goldenbush	None/None/None	X	X
Hedypnois cretica	Crete weed	None/None/None	X	X
Helianthus gracilentus	Slender sunflower	None/None/None	X	X
Heterotheca grandiflora	Telegraph weed	None/None/None	X	
**Hypochaeris glabra*	Smooth cat s ear	None/None/None	X	X
Isocoma menziesii var. *menziesii*	Spreading goldenbush	None/None/None	X	
Lasthenia coronaria	Southern goldfields	None/None/None	X	X
Layia platyglossa	Tidy tips	None/None/None	X	
Logfia arizonica	Arizona cottonrose	None/None/None	X	

Scientific name	Common name	Status (Federal/State/ County, MSCP Plan)	Wu Parcels	Cielo Parcel
Logfia gallica	Narrow-leaf cottonrose	None/None/None	X	X
Osmadenia tenella	Osmadenia	None/None/None		X
Porophyllum gracile	Odora	None/None/None	X	
Pseudognaphalium biolettii	Bicolor cudweed	None/None/None	X	X
Pseudognaphalium californicum	California everlasting	None/None/None	X	X
Senecio californicus	California butterweed	None/None/None	X	
**Sonchus asper* subsp. *asper*	Prickly sow thistle	None/None/None	X	X
Uropappus lindleyi	Silver puffs	None/None/None	X	X
Stephanomeria diegensis	San Diego wreath-plant	None/None/None	X	X
Stylocline gnaphaloides	Everlasting nest-straw	None/None/None	X	X
Symphyotrichum subulatum var. *parviflorum*	Southwestern annual saltmarsh aster	None/None/None	X	X
Xanthisma junceum	Rush chaparral-star	None/None/ None, County D	X	
BORAGINACEAE - Borage Family				
Cryptantha intermedia	Nievitas cryptantha	None/None/None		X
Cryptantha maritima	White-hair cryptantha	None/None/None	X	
Eremocarya micrantha	Small-flowered eremocarya	None/None/None	X	
Eucrypta chrysanthemifolia var. *chrysanthemifolia*	Common eucrypta	None/None/None	X	
Pectocarya linearis subsp. *ferocula*	Slender combseed	None/None/None		X
Phacelia cicutaria	Caterpillar phacelia	None/None/None	X	X
Phacelia parryi	Parry's phacelia	None/None/None	X	X
Pholistoma racemosa	San Diego fiesta flower	None/None/None	X	
BRASSICACEAE - Mustard Family				
**Brassica nigra*	Black mustard	None/None/None		X
Caulanthus heterophyllus	San Diego jewelflower	None/None/None	X	
**Hirschfeldia incana*	Short-pod mustard	None/None/None	X	X
Lepidium nitidum	Shining peppergrass	None/None/None	X	
Sisymbrium irio	London rocket	None/None/None	X	
Turritis glabra	Tower mustard	None/None/None	X	
CAPRIFOLIACEAE - Honeysuckle Family				
Lonicera subspicata var. *denudata*	Johnston's honeysuckle	None/None/None	X	X
CARYOPHYLLACEAE - Pink Family				
Silene gallica	Common catchflly	None/None/None	X	X
Silene laciniata subsp. *laciniata*	Southern pink	None/None/None	X	X
CHENOPODIACEAE - Goosefoot Family				
Chenopodium murale	Nettle-leaf goosefoot	None/None/None	X	
Salsola tragus	Prickly Russian-thistle, tumbleweed	None/None/None	X	
CISTACEAE - Rock-rose Family				
Crocanthemum scoparium var. scoparium	Peak rush-rose	None/None/None	X	X
CONVOLVULACEAE - Morning Glory Family				
Calystegia macrostegia subsp. *arida*	San Diego morning-glory	None/None/None	X	X

Scientific name	Common name	Status (Federal/State/ County, MSCP Plan)	Wu Parcels	Cielo Parcel
Cuscuta californica var. *californica*	Chaparral dodder	None/None/None	X	X
CRASSULACEAE - Stonecrop Family				
Crassula connata	Pygmyweed	None/None/None	X	
Dudleya lanceolata	Lance-leaf dudleya	None/None/None	X	
Dudleya pulverulenta	Chalk dudleya	None/None/None	X	X
CUCURBITACEAE - Gourd Family				
Marah macrocarpa	Wild-cucumber	None/None/None	X	X
ERICACEAE - Heath Family				
Arctostaphylos glandulosa subsp. *glandulosa*	Eastwood's manzanita	None/None/None	X	
Xylococcus bicolor	Mission manzanita	None/None/None	X	X
EUPHORBIACEAE - Spurge Family				
Acalypha californica	California copperleaf	None/None/None	X	X
Croton setiger	Doveweed	None/None/None	X	
Euphorbia polycarpa	Small seeded sandmat	None/None/None	X	X
FABACEAE - Legume Family				
Acmispon glaber var. *glaber*	Coastal deerweed	None/None/None	X	X
Acmispon strigosus	Strigose lotus	None/None/None	X	X
Astragalus deanei	Deane's milkvetch	None/None/County A		X
Lathyrus vestitus var. alefeldii	San Diego sweet pea	None/None/None	X	
Lupinus bicolor	Miniature lupine	None/None/None	X	X
Lupinus hirsutissima	Nettle lupine	None/None/None	X	X
Lupinus truncatus	Collar lupine	None/None/None	X	
Trifolium albopurpureum	Rancheria clover	None/None/None	X	
Trifolium gracilentum	Pin-point clover	None/None/None	X	
Vicia ludoviciana subsp. *ludoviciana*	Deer pea vetch	None/None/None	X	X
FAGACEAE - Oak Family				
Quercus ×acutidens	Torrey s scrub oak	None/None/None	X	X
Quercus agrifolia var. agrifolia	Coast live oak	None/None/None	X	
Quercus engelmannii	Engelmann oak	None/None/List D	X	X
GENTIANACEAE - Gentian Family				
Zeltnera venusta	Canchalagua	None/None/None	X	
GERANIACEAE - Cranesbill Family				
**Erodium botrys*	Long-beak filaree	None/None/None	X	X
**Erodium cicutarium*	Red-stem filaree	None/None/None	X	X
GROSSULARIACEAE - Gooseberry Family				
Ribes indecorum	White-flower currant	None/None/None	X	X
Ribes malvaceum	Chaparral currant	None/None/None	X	
Ribes speciosum	Fuschia-flower gooseberry	None/None/None	X	
LAMIACEAE - Mint Family				
Salvia apiana	White sage	None/None/None	X	X
Salvia columbariae	Chia	None/None/None	X	X
Salvia mellifera	Black sage	None/None/None	X	X
MALVACEAE - Mallow Family				
Malacothamnus fasciculatus var. *fasciculatus*	Chaparral bush mallow	None/None/None	X	X

Scientific name	Common name	Status (Federal/State/ County, MSCP Plan)	Wu Parcels	Cielo Parcel
Sidalcea sparsifolia	Checker-bloom	None/None/None	X	X
MELIACEAE- Mahogany Family				
Melia azedarach	Chinaberry Tree, Persian-lilac	None/None/None	X	
MYRSINACEAE - Myrsine Family				
Anagallis arvensis	Scarlet pimpernel	None/None/None	X	
NYCTAGINACEAE - Four O'clock Family				
Mirabilis laevis var. *crassifolia*	Coastal wishbone plant	None/None/None	X	X
ONAGRACEAE - Willowherb Family				
Camissoniopsis bistorta	California sun cup	None/None/None	X	X
Camossoniopsis micrantha	Miniature sun cup	None/None/None	X	X
Clarkia purpurea subsp. *quadrivulnera*	Four-spot clarkia	None/None/None	X	X
OROBANCHACEAE - Broom-rape Family				
Cordylanthus rigidus subsp. *setigerus*	Dark-tip bird's beak	None/None/None	X	X
Castilleja exserta	Purple owl's clover	None/None/None	X	X
PAEONIACEAE - Peony Family				
Paeonia californica	California peony	None/None/None	X	X
PAPAVERACEAE – Poppy Family				
Eschscholzia californica	California poppy	None/None/None	X	X
PHRYMACEAE - Lopseed Family				
Mimulus aurantiacus var. *aurantiacus*	Bush monkey flower	None/None/None	X	
Mimulus puniceus	Coast monkey flower	None/None/None		X
PLANTAGINACEAE - Plantain Family				
Antirrhinum nuttallianum subsp. *nuttallianum*	Nuttall s snapdragon	None/None/None	X	X
Keckiella antirrhinoides	Yellow bush penstemon	None/None/None	X	
Penstemon spectabilis var. *spectabilis*	Showy penstemon	None/None/None	X	X
Plantago erecta	Dot-seed plantain	None/None/None	X	X
POLEMONIACEAE - Phlox Family				
Eriastrum filifolium	Thread-leaf woolly-star	None/None/None	X	X
Gilia angelensis	Grassland gilia	None/None/None	X	X
Linanthus dianthiflorus	Farinose ground pink	None/None/None	X	X
Navarretia hamata subsp. *hamata*	Hooked skunkweed	None/None/None	X	X
POLYGONACEAE - Buckwheat Family				
Chorizanthe fimbriata var. *fimbriata*	Fringed spineflower	None/None/None	X	
Chorizanthe procumbens	Prostrate spineflower	None/None/None		X
Eriogonum fasciculatum var. *fasciculatum*	Coast California buckwheat	None/None/None	X	X
Pterostegia drymarioides	Granny's hairnet	None/None/None	X	X
RANUNCULACEAE - Buttercup Family				
Delphinium parryi	Parry s larkspur	None/None/None	X	
Thalictrum fendleri var. *polycarpum*	Smooth-leaf meadow rue	None/None/None	X	
RESEDACEAE- Mignonette Family				
Reseda luteola	Dyer's rocket	None/None/None	X	X
RHAMNACEAE - Buckthorn Family				

Scientific name	Common name	Status (Federal/State/ County, MSCP Plan)	Wu Parcels	Cielo Parcel
Ceanothus tomentosus	Ramona-lilac; woolly-leaved ceanothus	None/None/None		X
Rhamnus crocea	Spiny redberry	None/None/None	X	X
Rhamnus ilicifolia	Holly-leaf redberry	None/None/None	X	X
ROSACEAE - Rose Family				
Adenostoma fasciculatum var. *fasciculatum*	Chamise	None/None/None	X	X
RUBIACEAE - Madder Family				
Galium angustifolium	Narrowl-leaf bedstraw	None/None/None	X	
Galium nuttallii	San Diego bedstraw			X
SCROPHULARIACEAE – Figwort Family				
Scrophularia californica	California figwort	None/None/None	X	X
SOLANACEAE - Nightshade Family				
Physalis crassifolia	Greene's ground-cherry	None/None/None	X	
Solanum americanum	White nightshade	None/None/None	X	
URTICACEAE - Nettle Family				
Parietaria hespera	Western pellitory	None/None/None	X	X
Vascular Species - Ferns and Fern Allies				
SELAGINELLACEAE - Spike Moss Family				
Selaginella bigelovii	Bigelow's spike moss	None/None/None		X
Selaginella cinerascens	Mesa spike-moss	None/None/None, County D	X	
DRYOPTERIDACEAE - Wood Fern Family				
Dryopteris arguta	California wood fern	None/None/None		X
PTERIDACEAE - Maidenhair Fern Family				
Myriopteris clevelandii	Cleveland s lip fern	None/None/None	X	X
Pellaea andromedifolia	Coffee fern	None/None/None		X
Pellaea mucronata var. *mucronata*	Bird s foot fern	None/None/None	X	
Pentagramma triangularis subsp. *triangularis*	California goldback fern	None/None/None	X	X
Polypodium californicum	California polypody	None/None/None	X	
Vascular Species - Monocots				
AGAVACEAE - Agave Family				
Chlorogalum parviflorum	Small-flower soap-plant	None/None/None	X	X
Hesperoyucca whipplei	Chaparral candle	None/None/None	X	X
CYPERACEAE - Sedge Family				
Carex spissa	San Diego sedge	None/None/None	X	
IRIDACEAE - Iris Family				
Sisyrinchium bellum	Blue-eyed grass	None/None/None	X	
LILIACEAE – Lily Family				
Calochortus weedii	Weed s mariposa lily	None/None/None		X
POACEAE - Grass Family				
Agrostis pallens	Seashore bent grass	None/None/None	X	
Aristida adscensionis	Six weeks three-awn	None/None/None		X
**Avena fatua*	Wild oat	None/None/None	X	X
**Avena barbata*	Slender wild oat	None/None/None	X	

Scientific name	Common name	Status (Federal/State/ County, MSCP Plan)	Wu Parcels	Cielo Parcel
**Bromus diandrus*	Ripgut grass	None/None/None	X	X
**Bromus hordeaceus*	Soft chess	None/None/None	X	
Bromus madritensis	Compact brome	None/None/None	X	X
Cenchrus setaceus	African fountain grass	None/None/None	X	
Festuca myuros	Rat-tail fescue	None/None/None	X	X
Festuca octoflora	Tufted fescue	None/None/None		X
Festuca perennis	Perennial rye grass	None/None/None	X	
Lamarckia aurea	Golden-top	None/None/None	X	X
Melica imperfecta	Coast range melic	None/None/None		X
**Melinis repens* subsp. *repens*	Natal grass	None/None/None	X	X
Muhlenbergia microsperma	Little-seed muhly	None/None/None	X	X
**Polypogon monspeliensis*	Annual beard grass	None/None/None		X
**Schismus barbatus*	Mediterranean schismus	None/None/None	X	
Stipa cernua	Nodding needle grass	None/None/None	X	
Stipa coronata	Giant stipa	None/None/None	X	X
Stipa pulchra	Purple needle-grass	None/None/None	X	
THEMIDACEAE - Brodiaea Family				
Bloomeria crocea	Common goldenstar	None/None/None	X	
Dichelostemma capitatum	Blue dicks	None/None/None	X	X
Muilla maritima	Common muilla	None/None/None		X

* Signifies nonnative species

APPENDIX B

SPECIAL-STATUS PLANT SPECIES EVALUATED FOR POTENTIAL TO OCCUR ON THE PROPERTIES

Appendix B
Special-Status Plant Species Evaluated for Potential to Occur on the Properties

Common Name	Scientific Name	Status[1]	General Habitat Description	Microhabitat Description	Habitat Present/ Absent	Rationale
Plants						
Palmer's sage	*Artemisia palmeri*	CNPS 4.2, County List D	Coastal sage scrub in low areas and near streams	The species occurs in drainages in coastal sage scrub and chaparral.	Habitat for the species occurs on the Properties.	**Moderate potential to occur**. Properties may be too high in elevation.
Deane's milkvetch	*Astragalus deanei*	CRPR 1B.1, County List A	Openings in coastal sage scrub and chaparral Flowers March through May	The species occurs on slopes and low areas in openings in chaparral and coastal sage scrub. It occurs on soils derived from granitic and metasedimentary rock.	Habitat for the species occurs on the Properties.	**Present.** Found on southeast portion of Cielo property.
Encinitas baccharis	*Baccharis vanessae*	USFWS: Threatened CDFW: Endangered CRPR: List 1B.1 County List A MSCP narrow endemic	Sandstone, maritime chaparral, and cismontane woodland Elevation 60 to 720 meters Perennial deciduous shrub Blooms August through November	The species is found in low-growing chaparral, Corralitos loamy sand, and Cieneba rocky coarse sandy loam.	Habitat for the species exists on the Properties in rocky peak areas.	**High potential to occur**. It has been found on rocky peak areas in central San Diego County four miles away Calflora 2016).
southern mountain misery	*Chamaebatia australis*	CNPS 4.2 County List D	Chaparral hillsides on unusual soil types	The species occurs on soils derived from gabbro, metasedimentary, and metavolcanic rock.	Habitat for the species occurs on the Properties.	**Moderate potential to occur**. It has been found on similar habitat to the east. However, north slopes with enough moisture may be too small on the Properties for it.
delicate clarkia	*Clarkia delicata*	CRPR: List 1B.2 County List A	Gabbroic soils, chaparral, and cismontane woodland Elevation 235 to 1,000 meters Annual herb Blooms April through June	The species is found on the periphery of oak woodlands and cismontane chaparral. It is found in vernally mesic situations.	Habitat for the species occurs on the Properties in oak woodland and chaparral.	**Moderate potential to occur**. Suitable habitat exists within the Properties.

Common Name	Scientific Name	Status[1]	General Habitat Description	Microhabitat Description	Habitat Present/ Absent	Rationale
San Miguel savory	*Clinopodium chandleri*	CNPS 1B.2, MSCP covered species County List A	Coastal sage scrub and chaparral on north-facing slopes Small perennial shrub Elevation up to 1,000 meters Blooms March through July	The species grows on north slopes under other shrubs and is detectable by odor.	Suitable habitat exists on the north slopes of the hills on the Wu parcels.	**Moderate potential to occur**. Suitable habitat is present and species occurs less than 2 miles to the east (Calflora 2016).
summer holly	*Comarostaphylis diversifolia* ssp. *diversifolia*	CRPR: List 1B.2	Chaparral and cismontane woodland Elevation 30 to 790 meters Perennial evergreen shrub Blooms April through June	The species occurs in southern mixed chaparral, usually in mesic areas, north-facing slopes. This species is found primarily west of Interstate 15.	Suitable habitat exists on north-facing slopes on the hills of the Properties.	**Moderate potential to occur**. Suitable habitat occurs on the Properties and the species occurs in other locations that are similar to the Properties.
San Diego barrel cactus	*Ferocactus viridescens*	CRPR: List 2.1 MSCP covered species County List B	Chaparral, coastal scrub, valley and foothill grassland, and vernal pools Elevation 3 to 450 meters Perennial stem succulent Blooms May through June	The species occurs in Diegan sage scrub hillsides, often at the crest of slopes and growing in cobbles, occasionally found on the periphery of vernal pools and mima mounds. Soil types include San Miguel-Exchequer rocky silt loams and Redding gravelly loams.	Low elevation coastal sage scrub vegetation is not present on the Properties.	**Not expected to occur**. The Properties are possibly too high in elevation, even though species occurs to the south and west of the Properties.
Palmer s grapplinghook	*Harpagonella palmeri*	CRPR: List 4.2	Clay habitat, chaparral, coastal scrub, and valley and foothill grassland Elevation 20 to 955 meters Annual herb Blooms March through May	The species occurs on clay vertisols with open grassy slopes and open Diegan sage scrub. Diablo clays are favored on the coast.	The Properties lack clay soils required for this species.	**Not expected to occur**. The Properties lack suitable habitat.
Ramona horkelia	*Horkelia truncata*	CRPR: List 1B.3 County List A	Clay and gabbroic habitat Elevation 400 to 1,300 meters Perennial herb Blooms May through June	The species occurs in chamise chaparral. Soil types include Cieneba very rocky coarse sandy loams and gabbro, frequently on ridge tops.	The Properties generally lack the necessary soils for this species.	**Low potential to occur**. The Properties lack gabbro soils.

Common Name	Scientific Name	Status[1]	General Habitat Description	Microhabitat Description	Habitat Present/ Absent	Rationale
San Diego marsh-elder	*Iva hayesiana*	CRPR: List 2.2 County List B	Marshes, swamps, and playas Elevation 10 to 500 meters Perennial herb Blooms April through October	The species occurs in creeks and intermittent streambeds with open riparian canopy allowing substantial sunlight.	Low drainages within the Properties contain potentially suitable habitat.	**Low potential to occur**. The Properties have little suitable habitat.
heart-leaved pitcher sage	*Lepechinia cardiophylla*	CNPS 1B.2, MSCP narrow endemic County List A	Chaparral elevation 300 to 700 meters Perennial Shrub Blooms April through July	The species occurs in openings in chaparral.	The high hills on the Wu parcels may contain suitable habitat.	**Moderate Potential to occur**. May be too isolated from other locations. Occurs 2 miles away on similar soils (Calflora 2016).
Robinson's pepper-grass	*Lepidium virginicum* var. *robinsonii*	CRPR: List 1B.2 County List A	Chaparral and coastal scrub Elevation 1 to 885 meters Annual herb Blooms February through July	The species occurs in openings in chaparral and coastal sage scrub, usually found in foothill elevations. Sites are dry with exposed locales.	Suitable habitat for this species exists within the Properties.	**Moderate potential to occur**. Suitable habitat occurs on the Properties and the species occurs in other locations that are similar to the Properties.
felt-leaved monardella	*Monardella hypoleuca* ssp. *lanata*	CRPR: List 1B.2	Chaparral and cismontane woodland Elevation 300 to 1,575 meters Perennial rhizomatous herb Blooms June through August	The species occurs in chaparral understory usually under stands of chamise in xeric situations. Soils include San Miguel-Exchequer rocky silt loams often near Otay Mountain.	Suitable habitat for this species exists within the Properties.	**Moderate potential to occur**. The Properties contain ridge tops and suitable understory habitat.
willowy monardella	*Monardella. viminea*	USFWS: Endangered CDFW: Endangered CRPR: List 1B.1 County List A MSCP narrow endemic	Open areas in broad drainages and large canyons Blooms June through August	The species occurs in sandy soils in drainage beds and stream bottoms as well as the lower sides of rocky canyons.	No suitable habitat within the Properties.	**Not expected to occur**. The Properties lack suitable habitat even though there is USFWS-designated critical habitat for the species several miles south USFWS 2012 .
Engelmann oak	*Quercus engelmannii*	CRPR: List 4.2 County List D	Oak woodland, chaparral, and grasslands	The species occurs in drainages and north-facing slopes in heavy chaparral and oak woodland. Also rolling hills with grass or white sage *Salvia apiana* .	Suitable habitat for this species exists within the Properties.	**Present.** Individual Engelmann oaks were found near the center of the Cielo parcel and the southeast corner of the Wu parcels.
mesa spike-moss	*Selaginella cinerascens*	CRPR: List 4.1 County List D	Flat soils and areas around rock slabs, also mesas around vernal pools.	Undisturbed soils with cryptogamic crusts on flat mesas and adjacent to rock slabs.	Suitable habitat for this species exists within the Properties.	**Present.** Mesa spike-moss was found on the southeastern portion of the Wu parcels.

Common Name	Scientific Name	Status[1]	General Habitat Description	Microhabitat Description	Habitat Present/ Absent	Rationale
purple stemodia	*Stemodia durantifolia*	CRPR: List 2.1 County List B	Ephemerally dry moist locations in dry landscape Elevation 180 to 300 meters Perennial herb Blooms February through December	The species occurs in rocky drainage areas.	No suitable habitat within the Properties.	**Not expected to occur**. The Properties lack suitable habitat.
rush chaparral-star	*Xanthisma junceum*	CRPR: List 4.3 County List D	Dry slopes in chaparral and coastal sage scrub Flowers May through October	Openings in the edges of chaparral and coastal sage scrub habitat.	Suitable habitat for this species exists within the Properties.	**Species was observed.** Rush chaparral-star was found on the southeastern portion of the Wu parcels.

[1] Federal: U.S. Fish and Wildlife Service USFWS
State: California Department of Fish and Wildlife CDFW
Other: California Rare Plant Rank CRPR):
1B: Plants rare, threatened, or endangered in California and elsewhere
2: Plants rare, threatened, or endangered in California, but more common elsewhere
3: Plants more information is needed – a review list
4: Plants of limited distribution – a watch list
CRPR R-E-D Code -
R Rarity : 1 Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction or extirpation is low at this time; 2 = Occurrence confined to several populations or to one extended population;
3 Occurrence limited to one or a few highly restricted populations, or present in such numbers that it is seldom reported
E Endangerment : 1 Not endangered; 2 Endangered in a portion of its range; 3 Endangered throughout its range
D Distribution : 1 More or less widespread outside California; 2 Rare outside California; 3 Endemic to California

County Designations-
County List A Plants rare, threatened, or endangered in California and elsewhere
County List B Plants rare, threatened, or endangered in California but common elsewhere
County List C Plants which may be rare, but need more information to determine their true rarity status
County List D Plants of limited distribution and are uncommon, but not presently rare or endangered

Literature Cited

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APPENDIX C

WILDLIFE SPECIES DETECTED ON THE PROPERTIES

Appendix C
Wildlife Species Detected on the Properties

Common Name and Family	Scientific Name	Status (Federal/State/MSCP County Group, Covered[1]
Invertebrates		
Family Hesperiidae		
funereal duskywing	*Erynnis funerealis*	None/None/None
white checkered skipper	*Pyrgus albescens*	None/None/None
Family Lycaenidae		
brown elfin	*Callophrys augustinus*	None/None/None
acmon blue	*Icaricia acmon acmon*	None/None/None
marine blue	*Leptotes marina*	None/None/None
gray hairstreak	*Strymon melinus*	None/None/None
Family Nymphalidae		
common buckeye	*Junonia coenia*	None/None/None
American lady	*Vanessa virginiensis*	None/None/None
mylitta crescent	*Phycoides mylitta*	None/None/None
FamilyPapilionidae		
pale swallowtail	*Papilio eurymedon*	None/None/None
anise swallowtail	*Papilio zelicaon*	None/None/None
FamilyPieridae		
Sara orangetip	*Anthocharis sara sara*	None/None/None
orange sulphur	*Colias eurytheme*	None/None/None
checkered white	*Pontia protodice*	None/None/None
Family Riodinidae		
Behr s metalmark	*Apodemia mormo virgulti*	None/None/None
Reptiles Amphibians		
Family Phrynosomatidae		
Blainville's horned lizard	*Phrynosoma blainvillii*	None/SSC/County Group 2, Covered
Family Scincidae		
western red-tailed skink	*Plestiodon gilberti rubricaudatus*	None/None/None
Family Boidae		
northern three-lined boa (formerly coastal rosy boa	*Lichanura orcutti*	None/None/County Group 2

Common Name and Family	Scientific Name	Status (Federal/State/MSCP County Group, Covered[1]
Family Teiidae		
San Diegan tiger whiptail	*Aspidoscelis tigris stejnegeri*	None/SSC/County Group 2
Belding's orange-throated whiptail	*Aspidoscelis hyperythra beldingi*	None/WL/County Group 2, Covered
Family Anguidae		
southern alligator lizard	*Elgaria multicarinata*	None/None/None
Family Phrynosomatidae		
western fence lizard	*Sceloporus occidentalis*	None/None/None
western side-blotched lizard	*Uta stansburiana elegans*	None/None/None
Family Colubridae		
California striped racer	*Coluber lateralis lateralis*	None/None/None
gopher snake	*Pituophis catenifer*	None/None/None
California kingsnake	*Lampropeltis californiae*	None/None/None
long-nosed snake	*Rhinocheilus lecontei*	None/None/None
coast patch-nosed snake	*Salvadora hexalepis virgultea*	None/SSC/County Group 2
Family Viperidae		
red diamond rattlesnake	*Crotalus ruber*	None/SSC/County Group 2,
southern Pacific rattlesnake	*Crotalus oreganus helleri*	None/None/None
southwestern speckled rattlesnake	*Crotalus mitchellii pyrrhus*	None/None/None
Avian		
Family Accipitridae		
red-tailed hawk	*Buteo jamaicensis*	None/None/None
sharp-shinned hawk	*Accipiter striatus*	None/WL/ County Group 1
bald eagle	*Haliaeetus leucocephalus*	Delisted/Endangered, FP/County Group 1, Covered
Family Cathartidae		
turkey vulture	*Cathartes aura*	None/None/County Group 1
Family Trochilidae		
Anna s hummingbird	*Calypte anna*	None/None/None
Costa s hummingbird	*Calypte costae*	None/None/None
rufous/Allen s hummingbird	*Selasphorus rufus/sasin*	None/None/None
Family Caprimulgidae		
common poorwill	*Phalaenoptilus nuttallii*	None/None/None

Common Name and Family	Scientific Name	Status (Federal/State/MSCP County Group, Covered[1]
Family Columbidae		
mourning dove	*Zenaida macroura*	None/None/None
Family Odontophoridae		
California quail	*Callipepla californica*	None/None/None
Family Cuculidae		
greater roadrunner	*Geococcyx californianus*	None/None/None
Family Aegithalidae		
bushtit	*Psaltriparus minimus*	None/None/None
Family Cardinalidae		
lazuli bunting	*Passerina amoena*	None/None/None
blue grosbeak	*Passerina caerulea*	None/None/None
Family Corvidae		
western scrub-jay	*Aphelocoma californica*	None/None/None
common raven	*Corvus corax*	None/None/None
Family Emberizidae		
southern California rufous-crowned sparrow	*Aimophila ruficeps canescens*	None/ WL/County Group 1, Covered
Lincoln s sparrow	*Melospiza lincolnii*	None/None/None
chipping sparrow	*Spizella passerina*	None/None/None
California towhee	*Melozone crissalis*	None/None/None
fox sparrow	*Passerella iliaca*	None/None/None
spotted towhee	*Pipilo maculatus*	None/None/None
black-chinned sparrow	*Spizella atrogularis*	None/None/None
golden-crowned sparrow	*Zonotrichia atricapilla*	None/None/None
white-crowned sparrow	*Zonotrichia leucophrys*	None/None/None
Family Fringillidae		
house finch	*Haemorhous mexicanus*	None/None/None
Lawrence s goldfinch	*Spinus lawrencei*	None/None/None
lesser goldfinch	*Spinus psaltria*	None/None/None
Family Hirundinidae		
cliff swallow	*Petrochelidon pyrrhonota*	None/None/None
Family Icteridae		
Bullock’s oriole	*Icterus bullockii*	None/None/None

Common Name and Family	Scientific Name	Status (Federal/State/MSCP County Group, Covered[1]
brown-headed cowbird	*Molothrus ater*	None/None/None
great-tailed grackle	*Quiscalus mexicanus*	None/None/None
Family Mimidae		
California thrasher	*Toxostoma redivivum*	None/None/None
Family Parulidae		
orange-crowned warbler	*Oreothlypis celata*	None/None/None
yellow-rumped warbler	*Setophaga coronata*	None/None/None
Family Polioptilidae		
blue-gray gnatcatcher	*Polioptila caerulea*	None/None/None
coastal California gnatcatcher	*Polioptila californica californica*	Threatened/SSC/County Group 1, Covered
Family Ptilogonatidae		
phainopepla	*Phainopepla nitens*	None/None/None
Family Sylviidae		
wrentit	*Chamaea fasciata*	None/None/None
Family Sturnidae		
European starling	*Sturnus vulgaris*	None/None/None
Family Troglodytidae		
rock wren	*Satyrium auretorum*	None/None/None
Bewick s wren	*Thryomanes bewickii*	None/None/None
house wren	*Troglodytes aedon*	None/None/None
canyon wren	*Catherpes mexicanus*	None/None/None
Family Turdidae		
hermit thrush	*Catharus guttatus*	None/None/None
western bluebird	*Sialia mexicana*	None/None/County Group 2, Covered
Family Tyrannidae		
ash-throated flycatcher	*Myiarchus cinerascens*	None/None/None
Cassin's kingbird	*Tyrannus vociferans*	None/None/None
western kingbird	*Tyrannus verticalis*	None/None/None
Family Vireonidae		
Hutton’s vireo	*Vireo huttoni*	None/None/None
warbling vireo	*Vireo gilvus*	None/None/None

Common Name and Family	Scientific Name	Status (Federal/State/MSCP County Group, Covered[1]
Family		
great horned owl	*Bubo virginianus*	None/None/None
Mammals		
Family Cervidae		
mule deer	*Odocoileus hemionus*	None/None/County Group 2, Covered
Family Canidae		
coyote	*Canis latrans*	None/None/None
Family Felidae		
bobcat	*Lynx rufus*	None/None/None
Family Molossidae		
Mexican free-tailed bat	*Tadarida brasiliensis*	None/None/None
pocketed free-tailed bat	*Nyctinomops femorosaccus*	None/SSC/County Group 2
Family Vespertilionidae		
Townsend's big-eared bat	*Corynorhinus townsendii*	None/CT, SSC/County Group 2
big brown bat	*Eptesicus fuscus*	None/None/None
hoary bat	*Lasiurus cinereus*	None/None/None
western red bat	*Lasiurus blossevillii*	None/SSC/County Group 2
western yellow bat	*Lasiurus xanthinus*	None/SSC/None
California myotis	*Myotis californicus*	None/None/None
Yuma myotis	*Myotis yumanensis*	None/None/County Group 2
western small-footed myotis	*Myotis ciliolabrum*	None/None/County Group 2
canyon bat also known as western pipistrelle	*Pipistrellus hesperus*	None/None/None
Family Leporidae		
desert cottontail	*Sylvilagus audubonii*	None/None/None
Family Cricetidae		
California vole	*Microtus californicus*	None/None/None
Family Heteromyidae		
Dulzura pocket mouse	*Chaetodipus californicus femoralis*	None/SSC/County Group 2
Dulzura kangaroo rat	*Dipodomys simulans*	None/None/None
northwestern San Diego pocket mouse	*Chaetodipus fallax fallax*	None/SSC/County Group 2

Common Name and Family	Scientific Name	Status (Federal/State/MSCP County Group, Covered[1]
Family Muridae		
San Diego desert woodrat	*Neotoma bryanti intermedia*	None/SSC/County Group 2
California mouse	*Peromyscus californicus*	None/None/None
cactus mouse	*Peromyscus eremicus*	None/None/None
deer mouse	*Peromyscus maniculatus*	None/None/None
Family Geomyidae		
Botta s pocket gopher	*Thomomys bottae*	None/None/None
Family Rodentia		
California ground squirrel	*Otospermophilus beecheyi*	None/None/None

[1] State Status Abbreviations: CT: Candidate Threatened; FP: Fully Protected; SSC: Species of Special Concern; WL: Watch List

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APPENDIX D

SPECIAL-STATUS WILDLIFE SPECIES EVALUATED FOR POTENTIAL TO OCCUR ON THE PROPERTIES

Appendix D
Special-Status Wildlife Species Evaluated for Potential to Occur on the Properties

Scientific Name	Common Name	Status[1]	General Habitat	Potential for Occurrence[2]
INVERTEBRATES				
Branchinecta sandiegonensis	San Diego fairy shrimp	Federal: Endangered County: Group 1 MSCP: Covered	Vernal pools and seasonal depressions, restricted to mesas and other areas with suitable soils.	**Not expected to occur**. The Properties contain no suitable habitat vernal pools for this species.
Euphydryas editha quino	Quino checkerspot butterfly	Federal: Endangered County: Group 1	Larvae feed on several host plants including dot-seed plantain *Plantago erecta* , woolly plantain *Plantago patagonica* , southern Chinese houses *Collinsia conclor* , purple owl's clover *Castilleja exserta* , and others. Adults nectar on a variety of flowering annuals including cryptantha species *Cryptantha* sp.), linanthus *Linanthus* sp. . Populations occur in semi-open Diegan coastal sage scrub, various chaparral types, and open ridgelines and hilltops.	**High potential to occur**. Suitable habitat occurs within the Properties with multiple patches of host plants and nectar sources. This species was recorded in 2005 within the Sycamore Canyon/Goodan Ranch Preserve County of San Diego 2013).
Lycaena hermes	Hermes copper butterfly	Federal: Candidate County: Group 1	Hermes copper butterfly larvae utilize redberry *Rhamnus crocea* as a foodplant and the distribution of the Hermes copper is closely tied to the distribution of redberry, typically occurring in chaparral or coastal sage scrub. Adults visit flowers, especially those of flat-top buckwheat *Eriogonum fasciculatum* .	**High potential to occur**. There are historical records of this species from the Sycamore Canyon/Goodan Ranch Preserve before the 2003 Cedar Fire County of San Diego 2013). The Properties contain suitable chaparral habitat with abundant nectar sources. Larval host plants are present within the Properties.
Pyrgus ruralis lagunae	Laguna Mountains skipper	Federal: Endangered County: Group 1	Inhabits wet montane meadows, reaching altitudes of approximately 4,000 to 6,000 feet 1,800 meters in yellow pine forests of the Laguna and Palomar Mountains. The larval host plant is Cleveland s horkelia *Horkelia clevelandii* .	**Not expected to occur**. The Properties are located outside of the known range of this species.
AMPHIBIANS				
Anaxyrus californicus	arroyo toad	Federal: Endangered State: SSC County: Group 1 MSCP: Covered	Gravelly or sandy washes, stream and river banks, and arroyos. Also upland habitat near washes and streams such as sage scrub, mixed chaparral, Joshua tree woodland, and sagebrush habitats.	**Not expected to occur**. The Properties contain no suitable habitat for this species and the species does not occur nearby.
Rana muscosa	Sierra Madre yellow-legged frog	Federal: Endangered County: Group 1	Inhabits rocky streams in narrow canyons and in the chaparral belt.	**Not expected to occur**. This species is extirpated from San Diego County.

Scientific Name	Common Name	Status[1]	General Habitat	Potential for Occurrence[2]
Spea hammondii	western spadefoot	State: SSC County: Group 2	Sandy or gravelly soil in grasslands, open chaparral and pine-oak woodlands, coastal sage scrub; vernal pools or freshwater marshes are essential for breeding.	**High potential to occur**. There is suitable aestivation habitat for this species within the Properties, but no suitable breeding habitat or potentially ponded areas are present. The species is known to occur south in the Sycamore Canyon/Goodan Ranch Preserve.
REPTILES				
Anniella stebbinsi	Southern California legless lizard formerly silvery legless lizard	State: SSC County: Group 2	Occurs in moist warm loose soil with plant cover. Moisture is essential. Found in beach dunes, pine-oak woodlands, chaparral, desert scrub, washes, and stream terraces.	**Moderate potential to occur**. The Properties contain marginally suitable habitat patches for this species.
Aspidoscelis hyperythra beldingi	Belding's orange-throated whiptail	State: WL County: Group 2 MSCP: Covered	Low-elevation coastal scrub, chaparral, and valley-foothill hardwood habitats. Prefers washes and other sandy areas with patches of brush and rocks. Perennial plants necessary for its major food-termites.	**Present**. Detected throughout the Properties during drift fence surveys in 2016.
Aspidoscelis tigris stejnegeri	San Diegan tiger whiptail	State: SSC County: Group 2	Open areas in grasslands, scrublands, and woodlands.	**Present**. Detected throughout the Properties during drift fence surveys in 2016.
Clemmys marmorata pallida	southwestern pond turtle	State: SSC County: Group 1 MSCP: Covered	Ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches, with abundant vegetation, and either rocky or muddy bottoms, in woodland, forest, and grassland. In streams, prefers pools to shallower areas. Logs, rocks, cattail mats, and exposed banks are required for basking. May enter brackish water and even seawater.	**Not expected to occur.** The Properties lack suitable wetland habitat for this species.
Coleonyx variegatus abbottii	San Diego banded gecko	County: Group 2	Occurs in arid areas including creosote flats, sagebrush desert, pinion-juniper woods, and chaparral. Prefers rocky areas but may occur in rock-free areas such as sand dunes.	**High potential to occur.** The Properties contain suitable habitat for this species and it is known to occur around San Vicente Reservoir.
Crotalus ruber	red diamond rattlesnake	State: SSC County: Group 2	Coastal sage scrub and grasslands. Occurs in rocky areas and dense vegetation with rodent burrows, cracks in rocks, or surface cover objects.	**Present**. Detected within the Wu parcel during drift fence surveys in 2016.
Diadophis punctatus similis	San Diego ringed-neck snake	County: Group 2	Prefers moist habitats, including wet meadows, rocky hillsides, gardens, grassland, chaparral, mixed coniferous woods, and woodlands.	**High potential to occur**. The Properties contain suitable habitat for this species.
Ensatina klauberi	large-blotched salamander	State: SSC County: Group 1	Inhabits moist shaded evergreen and deciduous forests and oak woodlands on Palomar Mountain and in the Peninsular Ranges.	**Not expected to occur.** The Properties lie outside the known range of this species.

Scientific Name	Common Name	Status[1]	General Habitat	Potential for Occurrence[2]
Eumeces skiltonianus interparietalis	Coronado Island skink	State: WL County: Group 2	Scrub habitats with leaf litter and sandy substrates.	**Moderate potential to occur**. The Properties contain marginally suitable habitat for the species and it has been detected in the adjacent Sycamore Canyon/Goodan Ranch Preserve.
Lichanura orcutti	northern three-lined boa former subspecies of coastal rosy boa)	County: Group 2	Scrub habitats with rock outcrops. Once common on the coast, now typically found in inland locations.	**Present**. Detected in the Wu parcel during drift fence surveys in 2016.
Phrynosoma blainvillei	Blainville's horned lizard	State: SSC County: Group 2 MSCP: Covered	Coastal sage scrub and chaparral in arid and semi-arid climate conditions. Prefers friable, rocky, or shallow sandy soils.	**Present**. Detected within the Wu parcel during surveys in 2016.
Salvadora hexalepis virgultea	coast patch-nosed snake	State: SSC County: Group 2	Grasslands, scrublands, and woodlands with sandy soils and leaf litter.	**Present**. Detected within the Wu parcel during the drift fence surveys on 2016.
Thamnophis hammondii	two-striped garter snake	State: SSC County: Group 2	Aquatic habitats, preferably rocky streams with protected pools, cattle ponds, marshes, vernal pools, and other shallow bodies of water lacking large aquatic predators.	**Low potential to occur**. The Properties are primarily upland chaparral and do not contain riparian habitat. However the species has been detected in the adjacent Sycamore Canyon/Goodan Ranch Preserve.
BIRDS				
Accipiter cooperii	Cooper's hawk	State: WL Nesting County: Group 1 MSCP: Covered	Usually found nesting in oak woodlands, but occasionally in willow or eucalyptus woodlands.	**High potential to occur**. There is suitable adjacent habitat for breeding and the Properties contain suitable foraging habitat for the species. The species is known to occur in the adjacent Sycamore Canyon/Goodan Ranch Preserve.
Accipiter striatus	sharp-shinned hawk	State: WL Nesting County: Group 1	A winter visitor, distributed over the coastal slope of San Diego County. The habitat of this species encompasses a variety of vegetation communities and land covers. It requires a certain amount of dense cover, but this can be localized and scattered through relatively open country.	**Present**. Detected within the Properties during surveys in 2016.
Agelaius tricolor	tricolored blackbird	State: SSC County: Group 1 MSCP: Covered	Freshwater marshes with cattails and other emergent vegetation.	**Low potential to occur.** There is no suitable breeding habitat within the Properties or nearby.
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	State: WL County: Group 1 MSCP: Covered	Coastal sage scrub and sparse mixed chaparral, often in steep or rocky terrain.	**Present**. Detected throughout the Properties during surveys in 2016.
Ammodramus savannarum	grasshopper sparrow	State: SSC Nesting County: Group 1	This species prefers open, low-growing grassland habitat interspersed with small shrubs. Open, low-growing Diegan coastal sage scrub with mixed grasses is also suitable.	**Low potential to occur** No suitable nesting habitat occurs within the Properties; however, the species may occasionally forage or fly over the Properties.

Scientific Name	Common Name	Status[1]	General Habitat	Potential for Occurrence[2]
Aquila chrysaetos	golden eagle	State: FP, WL Nesting and Wintering County: Group 1 MSCP: Covered	Nests on cliff ledges and trees on steep slopes. Hunts for prey in nearby grasslands, sage scrub, or broken chaparral. Requires very large territories.	**High potential to occur**. The Properties contain suitable foraging habitat for this species and there are known nearby nesting locations San Vicente Reservoir is the closest known nesting location). The species has been detected within the adjacent Sycamore Canyon/Goodan Ranch Preserve.
Artemisiospiza belli	Bell's sparrow	State: WL County: Group 1	Coastal sage scrub and sparse chaparral, typically in large unfragmented blocks in inland locales.	**High potential to occur**. The Properties contain suitable breeding habitat for this species and it is known to occur in the nearby Sycamore Canyon/Goodan Ranch Preserve.
Asio otus	long-eared owl	State: SSC Nesting County: Group 1	Sporadic nester within San Diego County in the nests of other raptor species in dense woodland habitats.	**Low potential to occur.** No suitable nesting habitat occurs within the Properties; however, the species may occasionally forage or fly over the Properties.
Athene cunicularia hypugaea	western burrowing owl	State: SSC (Burrow sites and some Wintering sites) County: Group 1 MSCP: Covered	Grasslands, open scrublands, and margins of agriculture fields with burrows. Subterranean nester, dependent upon burrowing mammals, especially California ground squirrel.	**Low potential to occur.** The Properties lack the characteristic open, grassland habitat for this species. However, the species has been detected in the adjacent Sycamore Canyon/Goodan Ranch Preserve.
Buteo lineatus	red-shouldered hawk	County: Group 1	Occurs mainly in swamp, riverine, riparian, and forest habitats. They use the same nesting site from year to year, often placed in a large sycamore or oak tree.	**High potential to occur**. There is suitable breeding habitat adjacent to the Properties, and suitable foraging habitat within the Properties. The species is known to occur within the adjacent Sycamore Canyon/Goodan Ranch Preserve.
Campylorhynchus brunneicapillus sandiegensis	coastal San Diego cactus wren	State: SSC County: Group 1 MSCP: Covered	Coastal sage scrub with abundant mature cactus patches that provide vertical structure for their nests.	**Not expected to occur.** The Properties lack large patches of cactus that this species requires for nesting.
Cathartes aura	turkey vulture	County: Group 1	Forages aerially above virtually any vegetation type or terrain, except dense human development. Secluded cliff ledge or rock fissure in remote, rugged terrain required for nesting. Native or non-native tree groves in lowlands often used as winter roosts.	**Present**. Detected within the Properties during surveys in 2016 including an active nest with two eggs in the Wu parcel.
Charadrius alexandrinus nivosus	western snowy plover	Federal: Threatened State: SSC County: Group 1 MSCP: Covered	Coastal sandy beaches, dunes, and estuary habitats.	**Not expected to occur**. The Properties contain no suitable habitat for this species.

Scientific Name	Common Name	Status[1]	General Habitat	Potential for Occurrence[2]
Circus cyaneus	northern harrier	State: SSC Nesting County: Group 1 MSCP: Covered	A resident breeder within San Diego County in grassland, marsh, and scrubby habitats. It tends to prefer flat areas with dense low-growing vegetation for nesting and foraging. Tends to prefer nesting and foraging along the coastal slope and inland valleys.	**Moderate potential to occur** The species is known to occur in the adjacent Sycamore Canyon/Goodan Ranch Preserve, but there is only limited foraging habitat within the Properties.
Contopus cooperi	olive-sided flycatcher	State: SSC County: Group 2	Inhabits openings in and edges to dense coniferous forests.	**Low potential to occur**. The Properties do not contain suitable breeding habitat for this species, as it is out of its known breeding range. However, the species may migrate though the Properties.
Dendroica petechia brewsteri	yellow warbler	State: SSC County: Group 2	Mature riparian woodlands consisting of cottonwood, willow, alder, and ash trees. Restricted to this increasingly patchy habitat.	**Low potential to occur.** No suitable riparian habitat exists on the Properties; however, the species may occur as a migrant.
Elanus leucurus	white-tailed kite	State: FP, SSC Nesting County: Group 1	Widespread over the coastal slope of San Diego County preferring riparian woodlands, oak groves, or sycamore groves adjacent to grasslands.	**Moderate potential to occur**. The Properties contain limited patches of suitable foraging and nesting habitat for this species, and the species is known to occur at the adjacent Sycamore Canyon/Goodan Ranch Preserve.
Empidonax traillii extimus	southwestern willow flycatcher	Federal: Endangered State: Endangered County: Group 1 MSCP: Covered	Restricted to a few colonies in riparian woodlands scattered throughout southern California. Riparian forests are integral to this species' persistence.	**Low potential to occur**. No suitable riparian habitat exists on the Properties; however, the species may occur as a migrant.
Eremophila alpestris actia	California horned lark	State: WL County: Group 2	The species breeds in open grassy and semi-open habitats where it forages on the ground. This species breeds in areas with low to no vegetative growth.	**Moderate potential to occur**. Limited suitable habitat within the Wu parcel. The species is known to occur in the adjacent Sycamore Canyon/ Goodan Ranch Preserve.
Falco columbarius	merlin	State: WL Wintering County: Group 2	This species only winters in San Diego County and forages for birds in a variety of habitats from open grassy areas, to wooded areas, agricultural areas, and other locations where prey species congregate.	**Moderate potential to occur**. No suitable nesting habitat occurs within the Properties; however the species may occasionally forage or fly over the Properties.
Falco mexicanus	prairie falcon	State: WL Nesting County: Group 1	A resident breeder within San Diego County in cliff and rocky habitat. Forages widely, but prefers	**Low potential to occur.** No suitable nesting habitat occurs within the Properties; however, the species may occasionally forage or fly over the Properties.

Scientific Name	Common Name	Status[1]	General Habitat	Potential for Occurrence[2]
Haliaeetus leucocephalus	bald eagle	Federal: Delisted State: Endangered, FP Nesting and Wintering County: Group 1 MSCP: Covered	Bald eagles breed across the United States and from Alaska to south Florida. They breed primarily in tall, mature trees in proximity to bodies of water. They consume a wide variety of prey items from fish, waterbirds, carrion, to ground squirrels. The species is now a regular visitor to wetland areas within Southern California and multiple pairs breed within San Diego County. During the winter months there is an additional influx of bald eagles into the County.	**Present**. Detected flying over the Properties during surveys in 2016 and is known to occur in the nearby San Vicente Reservoir. However, no suitable nesting or foraging habitat is present within the Properties.
Icteria virens	yellow-breasted chat	State: SSC County: Group 1	Riparian woodland, with dense undergrowth.	**Low potential to occur**. No suitable riparian habitat exists on the Properties; however, the species may occur as a migrant. The species is known to occur in the adjacent Sycamore Canyon/Goodan Ranch Preserve.
Ixobrychus exilis	least bittern	State: SSC County: Group 2	Marsh habitats or large emergent wetlands with cattails *Typha* sp. and tules.	**Not expected to occur**. The Properties contain no suitable habitat for this species.
Lanius ludovicianus	loggerhead shrike	State: SSC Nesting County: Group 1	This species is both a resident breeder, and there is an increase in their numbers during winter. The species prefers open habitats, with scattered shrubs for perching and nesting.	**Moderate potential to occur**. Limited suitable nesting habitat occurs within the Wu parcel, and the species may occasionally forage or fly over the Properties.
Laterallus jamaicensis coturniculus	California black rail	State: FP, SSC County: Group 2	Freshwater and saltwater marshes with bulrush or pickleweed.	**Not expected to occur**. The Properties contain no suitable habitat for this species.
Pandion haliaetus	osprey	State: WL Nesting County: Group 1	Primarily a winter visitor, and occasional resident breeder to lakes, rivers, estuaries, and other bodies of water containing fish within San Diego County. Known to occur around San Vicente Reservoir.	**Low potential to occur**. There is no suitable habitat for this species within the Properties; however, it may fly over during migration. The species is known to occur in the adjacent Sycamore Canyon/Goodan Ranch Preserve.
Passerculus sandwichensis beldingi	Belding's savannah sparrow	State: Endangered County: Group 1 MSCP: Covered	Salt marsh and mudflats with pickleweed.	**Not expected to occur**. The Properties contain no suitable habitat for this species.
Phalacrocorax auritus	double-crested cormorant	State: WL County: Group 2	Marine, freshwater and estuary environments. Needs water for foraging and perching areas to dry out.	**Not expected to occur**. The Properties contain no suitable habitat for this species.
Plegadis chihi	white-faced ibis	State: WL County: Group 1 MSCP: Covered	Freshwater marsh, shallow lacustrine waters, muddy ground of wet meadows, and irrigated or flooded pastures and croplands. Nests in dense freshwater marsh.	**Not expected to occur**. The Properties contain no suitable habitat for this species.

Scientific Name	Common Name	Status[1]	General Habitat	Potential for Occurrence[2]
Polioptila californica californica	coastal California gnatcatcher	Federal: Threatened State: SSC County: Group 1 MSCP: Covered	Coastal sage scrub below 2,500 feet in elevation. Low, coastal sage scrub, in arid washes, on mesas and slopes.	**Present**. Detected within the Properties during surveys in 2016.
Rallus obsoletus levipes	light-footed Ridgway's rail	Federal: Endangered State: Endangered, FP County: Group 1 MSCP: Covered	Coastal salt marshes and freshwater marshes with connection to estuarine habitats.	**Not expected to occur**. The Properties contain no suitable habitat for this species.
Sialia mexicana	western bluebird	County: Group 2 MSCP: Covered	Frequents open woodlands for foraging, but requires suitable roosting and nesting cavities usually in snags. Availability of suitable nesting cavities in large trees may limit population density.	**Present**. Detected within the Properties during surveys in 2016.
Sterna antillarum browni	California least tern	Federal: Endangered State: Endangered, FP County: Group 1 MSCP: Covered	Coastal beaches and saltflats.	**Not expected to occur**. The Properties contain no suitable habitat for this species.
Tyto alba	barn owl	County: Group 2	Inhabit grasslands, deserts, marshes, agricultural fields, narrow forest strips, brushy fields, and suburbs and cities. They nest in tree cavities, caves, and in buildings.	**High potential to occur**. Suitable foraging habitat exists on the Properties and the species is known to occur within the adjacent Sycamore Canyon/Goodan Ranch Preserve.
Vireo bellii pusillus	least Bell's vireo	Federal: Endangered State: Endangered County: Group 1 MSCP: Covered	Willow and mulefat-dominated riparian forests and woodlands.	**Low potential to occur**. No suitable riparian habitat exists on the Properties; however, the species may occur as a migrant.
MAMMALS				
Antrozous pallidus	pallid bat	State: SSC County: Group 2	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect species from high temperatures.	**High potential to occur.** The Properties contain suitable habitat for this species and the species was detected in the adjacent Sycamore Canyon/Goodan Ranch Preserve.
Chaetodipus californicus femoralis	Dulzura pocket mouse	State: SSC County: Group 2	Slopes covered with chaparral and live oaks.	**Present**. Detected within the Properties during surveys in 2016.
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	State: SSC County: Group 2	Sagebrush scrub, annual grassland, chaparral, and desert scrubs. Sandy, herbaceous areas, usually in association with rocks or coarse gravel.	**Present**. Detected within the Properties during surveys in 2016.

Scientific Name	Common Name	Status[1]	General Habitat	Potential for Occurrence[2]
Corynorhinus townsendii	Townsend's big-eared bat	State: CT, SSC County: Group 2	Coniferous forests, deserts, prairies, riparian communities, active agricultural areas, and coastal habitats with caves and cave-like roosting habitat, mines, and abandoned buildings.	**Present**. Detected within the Properties during surveys in 2016.
Dipodomys stephensi	Stephens' kangaroo rat	Federal: Endangered State: Threatened County: Group 1	Inhabits annual and perennial grassland habitats, but may occur in coastal scrub or sagebrush with sparse canopy cover, or in disturbed areas.	**Not expected to occur.** The Properties contain no suitable habitat for this species and there are no known adjacent populations.
Eumops perotis californicus	western mastiff bat	State: SSC County: Group 2	Chaparral; live oaks; and arid, rocky regions. Requires downward-opening crevices.	**High potential to occur.** The Properties contain suitable habitat for this species and the species was detected in the adjacent Sycamore Canyon/Goodan Ranch Preserve.
Lasiurus blossevillii	western red bat	State: SSC County: Group 2	Feeds over grasslands, shrublands, open woodlands, forests, and croplands. Roosts primarily in trees and at times, shrubs, often in edge habitats along streams, fields, or urban areas.	**Present**. Detected within the Properties during surveys in 2016.
Lasiurus xanthinus	western yellow bat	State: SSC	Associated with thorny vegetation on the Mexican Plateau and found in desert regions of the southwestern United States, particularly in association with palms.	**Present**. Detected within the Properties during surveys in 2016.
Lepus californicus bennettii	San Diego black-tailed jackrabbit	State: SSC County: Group 2	Grasslands, open scrub habitats, disturbed areas, and agricultural fields.	**High potential to occur.** The Properties contain suitable habitat for this species and the species was detected in the adjacent Sycamore Canyon/Goodan Ranch Preserve.
Macrotus californicus	California leaf-nosed bat	State: SSC County: Group 2	Preferred habitats are caves, mines, and rock shelters, mostly in Sonoran desert scrub.	**Not expected to occur.** The Properties contain no suitable habitat for this species.
Myotis ciliolabrum	western small-footed myotis	County: Group 2	Inhabits deserts, semideserts, and desert mountains, and roosts in crevices and cracks in canyon walls, caves, mine tunnels, behind loose tree bark, or in abandoned houses.	**Present**. Detected within the Properties during surveys in 2016.
Myotis evotis	long-eared myotis	County: Group 2	Uses mostly forested areas, especially with broken rock outcrops, also shrubland, meadows near tall timber, wooded streams, and reservoirs. Often roosts in buildings, hollow trees, mines, caves, fissures, etc.	**Low potential to occur.** The Properties contain limited suitable habitat for this species.
Myotis thysanodes	fringed myotis	State: SSC County: Group 2	Occurs in a variety of habitats from desert scrub to fir-pine associations. Oak and pinyon woodlands most commonly used. Roosts within caves, mines, and buildings.	**Low potential to occur.** The Properties contain limited suitable habitat for this species.
Myotis yumanensis	Yuma myotis	County: Group 2	Primarily an inhabitant of desert regions where it is most commonly encountered in lowland habitats near open water, where it prefers to forage.	**Present**. Detected within the Properties during surveys in 2016.

Scientific Name	Common Name	Status[1]	General Habitat	Potential for Occurrence[2]
Neotoma lepida intermedia	San Diego desert woodrat	State: SSC County: Group 2	Sagebrush scrub, annual grassland, chaparral, and desert scrubs, often with cactus patches, rock outcrops, or rock piles.	**Present**. Detected within the Cielo parcel during surveys in 2016.
Nyctinomops femorosaccus	pocketed free-tailed bat	State: SSC County: Group 2	Rugged cliffs, rocky outcrops, and slopes in desert shrub and pine oak forests.	**Present**. Detected within the Properties during surveys in 2016.
Nyctinomops macrotis	big free-tailed bat	State: SSC County: Group 2	Low-lying arid areas in Southern California.	**High potential to occur.** The Properties contain suitable habitat for this species, and it has been detected in the adjacent Sycamore Canyon/Goodan Ranch Preserve.
Odocoileus hemionus	mule deer	County: Group 2 MSCP: Covered	Mountain forests, wooded hills, desert areas and in chaparral.	**Present**. Detected within the Properties during surveys in 2016.
Perognathus longimembris pacificus	Pacific pocket mouse	Federal: Endangered State: SSC County: Group 1	Coastal areas with sandy substrates and sparse vegetation. Known populations are restricted to Dana Point, and three populations on Marine Corps Base Camp Pendleton. Only occurs along the coast and up to 3 miles inland.	**Not expected to occur**. The Properties contain no suitable habitat for this species and are outside the range for the species.
Puma concolor	mountain lion	County: Group 2 MSCP: Covered	Rugged mountains, forests, deserts, and swamps with abundant prey particularly mule deer .	**High potential to occur**. The Properties contain suitable habitat and abundant prey mule deer for this species and the species has been documented within the Sycamore Canyon and Goodan Ranch Preserve.
Taxidea taxus	American badger	State: SSC County: Group 2 MSCP: Covered	Shrub, forest, and herbaceous habitats, with friable soils, often associated with vast tracts of grassland areas but species also occurs in grassy canyons. Needs sufficient food and friable soils. Preys on burrowing rodents, especially California ground squirrels.	**Moderate potential to occur**. The Properties contain suitable habitat for this wide-ranging species, but it has not been detected nearby.

[1] State Status Abbreviations: CT: Candidate Threatened; FP: Fully Protected; SSC: Species of Special Concern; WL: Watch List CDFW 2016a

[2] Species potential for occurrence was based on AECOM field studies in 2016, a 1-mile radius CNDDB search around the Properties CDFW 2016b ,and previous biological surveys for the existing Sycamore Canyon/Goodan Ranch Preserve County of San Diego 2013).

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APPENDIX E

PHOTOGRAPHS

Appendix E
Photographs

E. 1 Representative Photographs of Small Mammal Trapping Locations

Photograph of trapping location in Diegan coastal sage scrub vegetation.

Photograph of trapping location in rocky southern mixed chaparral.

Photograph of trapping location in burned and regrowing coastal sage-chaparral transition vegetation.

Photograph of trapping location using 12-inch Sherman trap adjacent to woodrat nest.

E. 2 Representative Photographs of Small Mammals Captured

Photograph of Dulzura pocket mouse *Chaetodipus californicus femoralis* .

Photograph of northwestern San Diego pocket mouse *Chaetodipus fallax fallax*).

Photograph of subadult San Diego desert woodrat (*Neotoma bryanti intermedia*).

Photograph of California vole (*Microtus californicus*).

E. 3 Photographs of Wildlife Camera Locations

Photograph of camera station 1, along a ridge where two trails intersect.

Photograph of camera station 2, along nonnative grassland valley facing a trail.

Photograph of camera station 3 where two trails intersect.

Photograph of camera station 4 placed within a shallow valley between two hills.

E. 4 Representative Photographs of Wildlife Captured at Camera Stations

Photograph of coyote (*Canis latrans* sniffing scent lure at camera station 4.

Photograph of bobcat *Lynx rufus*) at camera station 2.

Photograph of young mule deer *Odocoileus hemionus*) buck and doe investigating scent lure at camera station 4.

E. 5 Representative Photographs of Drift Fences and Box Funnel Traps

Photograph of drift fence and box funnel trap in Diegan coastal sage scrub.

Photograph of drift fence and box funnel trap showing PVC pipe, coverboard, and fence wings.

Photograph of drift fence and box funnel trap within rocky Diegan coastal sage scrub.

Photograph of drift fence and box funnel trap in previously burned Diegan coastal sage scrub.

E.6 Representative Photographs of Reptiles Captured

Photograph of Belding's orange-throated whiptail *Aspidoscelis hyperythra beldingi*).

Photograph of San Diegan tiger whiptail *Aspidoscelis tigris stejnegeri*).

Photograph of Blainville's horned lizard (*Phrynosoma coronatum blainvillei*).

Photograph of juvenile red diamond rattlesnake (*Crotalus ruber* moving along drift fence.

Photograph of southwestern speckled rattlesnake *Crotalus mitchellii pyrrhus*).

Photograph of northern three-lined boa (*Lichanura orcutti*).

E. 7 Representative Photographs of Butterflies Observed

Photograph of white checkered skipper *Pyrgus albescens* .

Photograph of American lady (*Vanessa virginiensis* .

Photograph of brown elfin (*Callophrys augustinus*).

E. 8 Representative Photographs of Bat Survey Locations

Photograph of AnaBat detector 1 facing northeast within the Wu parcels.

Photograph of AnaBat detector 2 facing northwest within the Cielo parcel.

E. 8 Representative Photographs of Avian Species

Photograph of southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*).

Photograph of great horned owl (*Bubo virginianus* nest with young.