

**Baseline Biological Surveys  
Technical Report  
for the MacPherson Property**

**Measure M2 Freeway Environmental Mitigation  
Program Acquisition Properties Evaluation in  
Orange County, California**

Prepared for

Lesley L. Hill  
Project Manager, Environmental Programs  
Orange County Transportation Authority  
600 South Main Street, 9<sup>th</sup> Floor  
Orange, California 92868

Prepared by

Ann M. Johnston  
Vice President, Resource Management  
BonTerra Psomas  
2 Executive Circle, Suite 175  
Irvine, California 92614  
T: (714) 444-9199 F: (714) 444-9599

September 2015



**TABLE OF CONTENTS**

<b><u>Section</u></b>	<b><u>Page</u></b>
<b>1.0 Introduction .....</b>	<b>1</b>
1.1 Background .....	1
1.2 Project Location and Physical Environmental Setting .....	2
<b>2.0 Survey Methods .....</b>	<b>6</b>
2.1 Literature Review .....	6
2.2 Vegetation Mapping and General Surveys.....	6
2.3 Focused Biological Surveys .....	7
<b>3.0 Existing Biological Resources.....</b>	<b>9</b>
3.1 Vegetation Types and Other Areas .....	9
3.2 Wildlife Populations and Movement Patterns.....	11
3.3 Special Status Biological Resources.....	16
3.4 Covered Species Summary.....	39
<b>4.0 References.....</b>	<b>43</b>

**TABLES**

<b><u>Table</u></b>	<b><u>Page</u></b>
1 Summary of Survey Data and Conditions for Gnatcatcher Surveys .....	8
2 Vegetation Types and Other Areas on the MacPherson Property .....	9
3 Special Status Plant Species Reported from the Property Vicinity .....	22
4 Intermediate Mariposa Lily Populations Observed on the Property .....	28
5 Chaparral Nolina Populations Observed on the Property .....	29
6 Special Status WILDLIFE SPecies Reported from the Property Vicinity.....	30
7 Summary of Covered Species .....	40

**EXHIBITS**

<b><u>Exhibit</u></b>	<b><u>Follows Page</u></b>
1	Project Location ..... 1
2	USGS 7.5-Minute Quadrangle ..... 2
3	Soil Types ..... 2
4	Regional Environmental Setting ..... 2
5	Fire History ..... 4
6	Anthropogenic Features and Invasive Species ..... 5
7	Vegetation Types and Other Areas ..... 9
8	Special Status Species ..... 28

**ATTACHMENTS**

- A Plant and Wildlife Compendia
- B Site Photographs

## **1.0 INTRODUCTION**

This Biological Technical Report has been prepared to support California Environmental Quality Act (CEQA) documentation and resource management planning for the Measure M2 Freeway Environmental Mitigation Program (EMP) Acquisition Properties Evaluation Project. The EMP project originally included five separate Orange County Transportation Authority (OCTA) acquisition properties (Hayashi, Ferber Ranch, O'Neill Oaks, Hafen, and Saddle Creek South). An additional acquisition was made of the MacPherson property, also located in unincorporated Orange County, California (Exhibit 1). This report is limited to the MacPherson property; separate reports were previously prepared for the other properties.

This information has been reported in accordance with accepted scientific and technical standards that are consistent with the requirements of the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW).

### **1.1 BACKGROUND**

#### **1.1.1 Project Description**

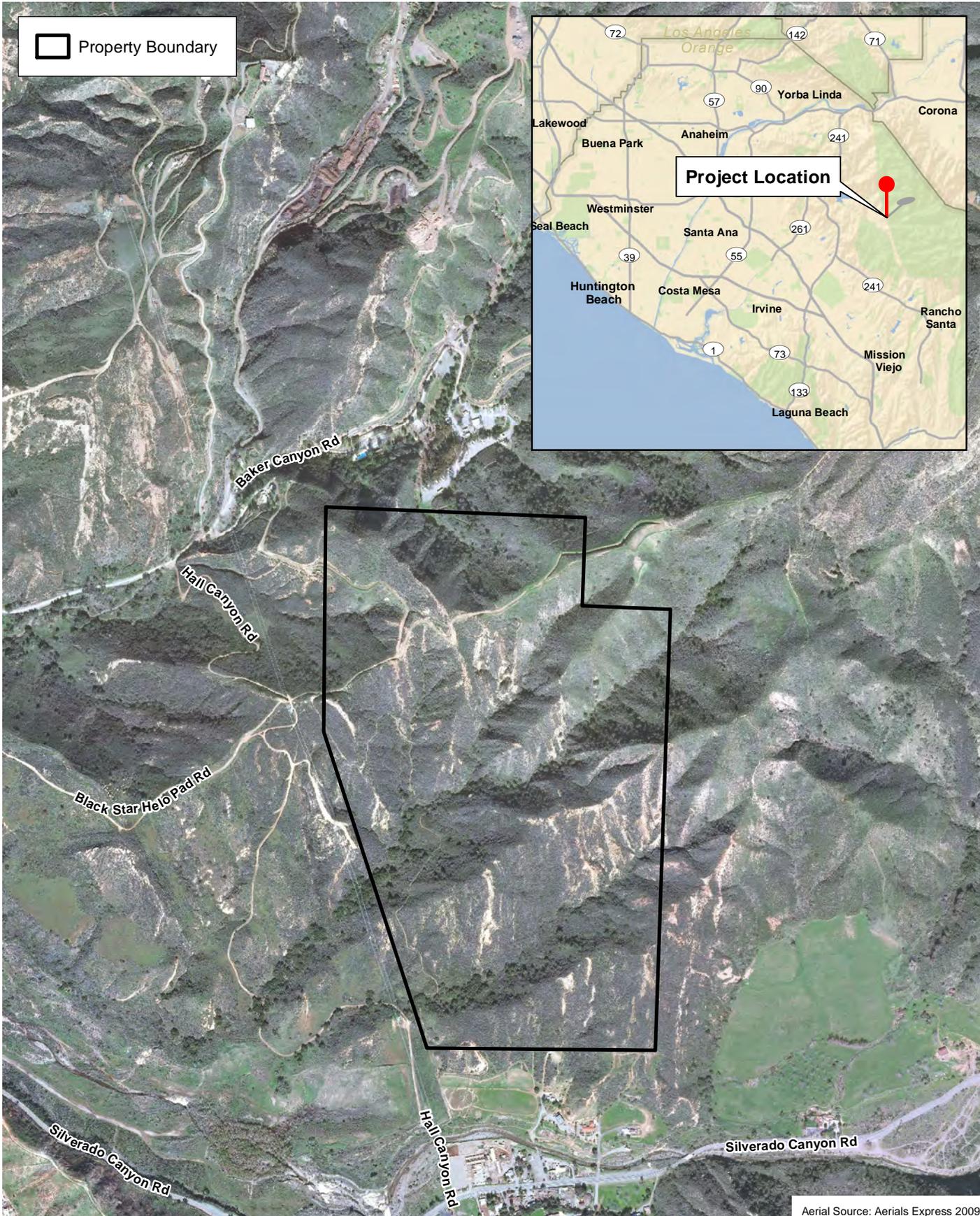
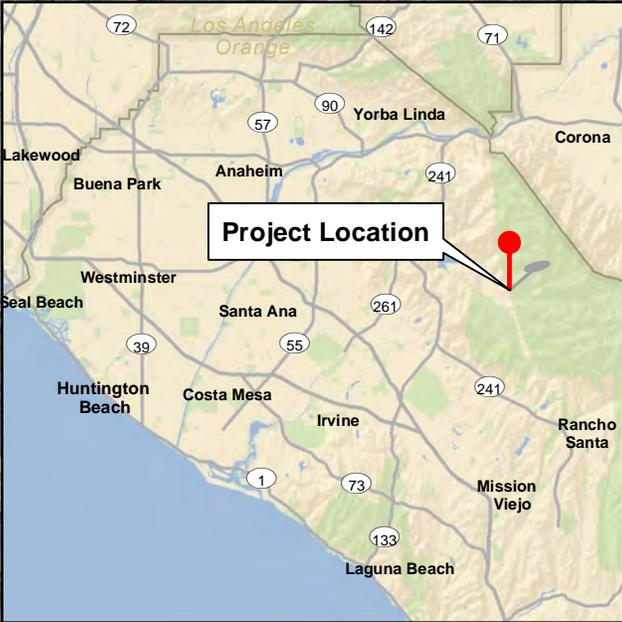
In 2006, Orange County voters approved the renewal of Measure M, effectively extending the half-cent sales tax in the County from April 2011 to March 2041. Renewed Measure M (or Measure M2) will continue to provide funding for transportation projects and programs in the County, including select freeway and roadway improvements, transit programs, and two environmental programs.

OCTA's M2 Freeway EMP provides comprehensive mitigation to offset the environmental impacts of the 13 Measure M2-funded freeway projects. The EMP is spearheaded by the Environmental Oversight Committee (EOC), which is made up of OCTA Board members and representatives from the California Department of Transportation (Caltrans), resource agencies, environmental groups, and the public.

Instead of mitigating the natural resource impacts of Measure M2 freeway projects on a project-by-project basis, the EMP presents a comprehensive mitigation approach that not only replaces habitat, but also provides the opportunity to improve the overall functions and values of sensitive biological resources throughout Orange County. Working collaboratively with the resource and regulatory agencies, OCTA ultimately decided that creation of a Natural Community Conservation Plan (NCCP)/Habitat Conservation Plan (HCP) and programmatic wetland permitting program would best serve as the EMP's main implementation tools.

As one of the key components of the conservation strategy for the NCCP/HCP and wetlands permitting, OCTA has undertaken a systematic approach to identifying and acquiring habitat preserves to meet the goals and objectives of the NCCP/HCP and wetland mitigation programs. A formal conservation assessment was completed by Conservation Biology Institute (CBI) for Orange County, which resulted in the identification of Priority Conservation Areas (PCA); these included candidate parcels and properties that could be considered for habitat and wildlife conservation purposes. OCTA solicited willing sellers and evaluated each property using standardized criteria and a prioritization process to rank properties for purchase. Properties for acquisition were selected based on conservation values, policy considerations, mitigation credits, mitigation plan review, and adoption and real estate value/economics.

Property Boundary



Aerial Source: Aerials Express 2009

### Project Location

### Exhibit 1

Measure M2 Acquisition Properties Evaluation – MacPherson Property



(Rev: 10-08-2014 JAZ) R:\Projects\OCTA\OCTAU008\Graphics\MacPherson\BioTech\lex1\_ProjectLocation.pdf

D:\Projects\OCTAU008\WXD\MacPherson\BioTech\lex1\_Aerial.mxd

The MacPherson property was selected and acquired on December 24, 2013. Baseline biological surveys were completed in 2014 with the following purposes:

- A general biological assessment was completed to establish the baseline biological value of the property and to identify any biological threats that have the potential to reduce the long-term biological value. In addition, information on the overall condition of the property will guide the development of a site-specific Resource Management Plan (RMP).
- Comprehensive surveys of vegetation types were completed to provide detailed knowledge of the natural habitat and a quantification of habitat type credits on the property.
- Focused surveys for OCTA M2 NCCP/HCP Covered Species and their habitats were completed to establish a baseline of the property status and conditions. Results of future biological monitoring will be compared to the baseline results to evaluate habitat and Covered Species trends.

## **1.2 PROJECT LOCATION AND PHYSICAL ENVIRONMENTAL SETTING**

### **1.2.1 Property Location and Physical Condition**

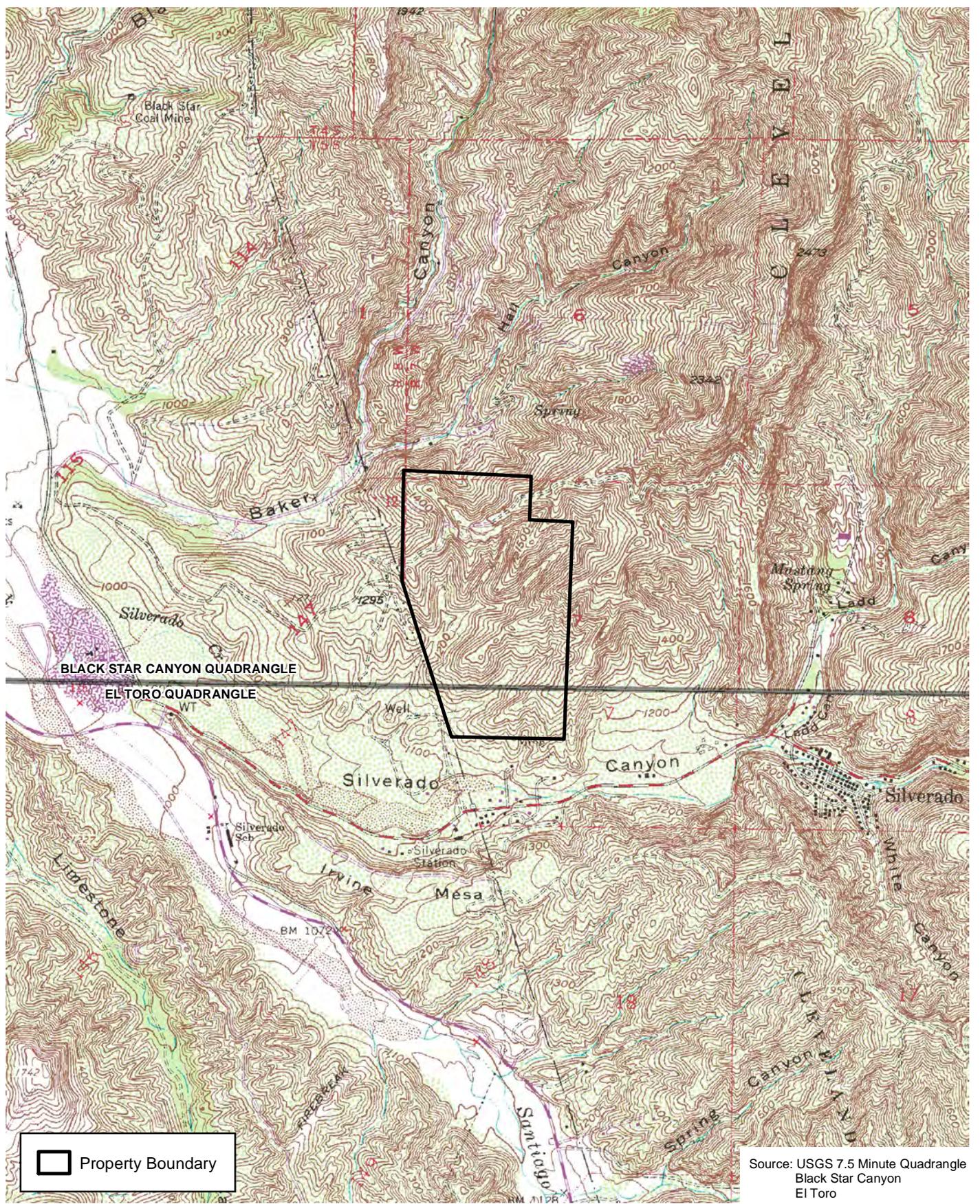
The approximate 204-acre MacPherson property is located in unincorporated Orange County, east of the cities of Orange and Irvine (Exhibit 1). Baker Canyon Road is to the north, Ladd Canyon Road is to the east, Silverado Canyon Road is to the south, and Black Star Canyon Road is to the west. The property is located on the U.S. Geological Survey's (USGS') Black Star Canyon and El Toro 7.5-minute topographic quadrangle maps in Sections 6 and 7 of Township 5 South, Range 7 West (Exhibit 2).

The majority of the property is within the Cleveland National Forest; the western edge of the property is within Irvine Ranch Open Space. The property is within a "Non-Reserve Open Space" area of the Orange County NCCP/HCP for the Central-Coastal Subregion. The property is also located within the Silverado-Modjeska Specific Plan area. The purpose of this plan is to "ensure the preservation of the rural environment and lifestyle of the area while providing for reasonable development" (Orange County 1977).

Topography on the property is hilly, with the main ridgelines oriented in a northeast to southwest direction. Elevations range from approximately 1,135 to 1,678 feet above mean sea level (msl). No blue-line streams occur on the property, but multiple drainage features are present in the canyon bottoms. Soil types mapped on the property consist of Anaheim clay loam (30 to 50 percent slopes), Cieneba sandy loam (30 to 75 percent slopes, eroded), Myford sandy loam (2 to 9 percent slopes), and Soper loam (30 to 50 percent slopes) (Exhibit 3).

### **1.2.2 Regional Environmental Setting**

The MacPherson property is located in the cismontane foothills of the Santa Ana Mountains (Exhibit 4). This area is part of a 31-mile swath of continuous wildlife habitat that spans from the Cleveland National Forest in the south to the west end of the Puente Hills (i.e., above Whittier Narrows) in the north. This represents the "last major natural open space resource connecting Los Angeles, Orange, San Bernardino, and Riverside Counties" (Los Angeles County et al. 2003). Specifically, the property occurs between Baker and Hall Canyons to the north, Ladd Canyon to the east, Silverado Canyon to the south, and Santiago Canyon to the west. These canyons are part of the Santiago Hydrologic Subarea of the 1,680-square-mile Santa Ana Watershed. The two main drainages on the property are mapped by the National Wetlands Inventory as freshwater forested/shrub wetland, with the various tributaries mapped as riverine



D:\Projects\OCTA\008\WXD\Map\Pherson\Biot\Tech\ex\_USGS.mxd

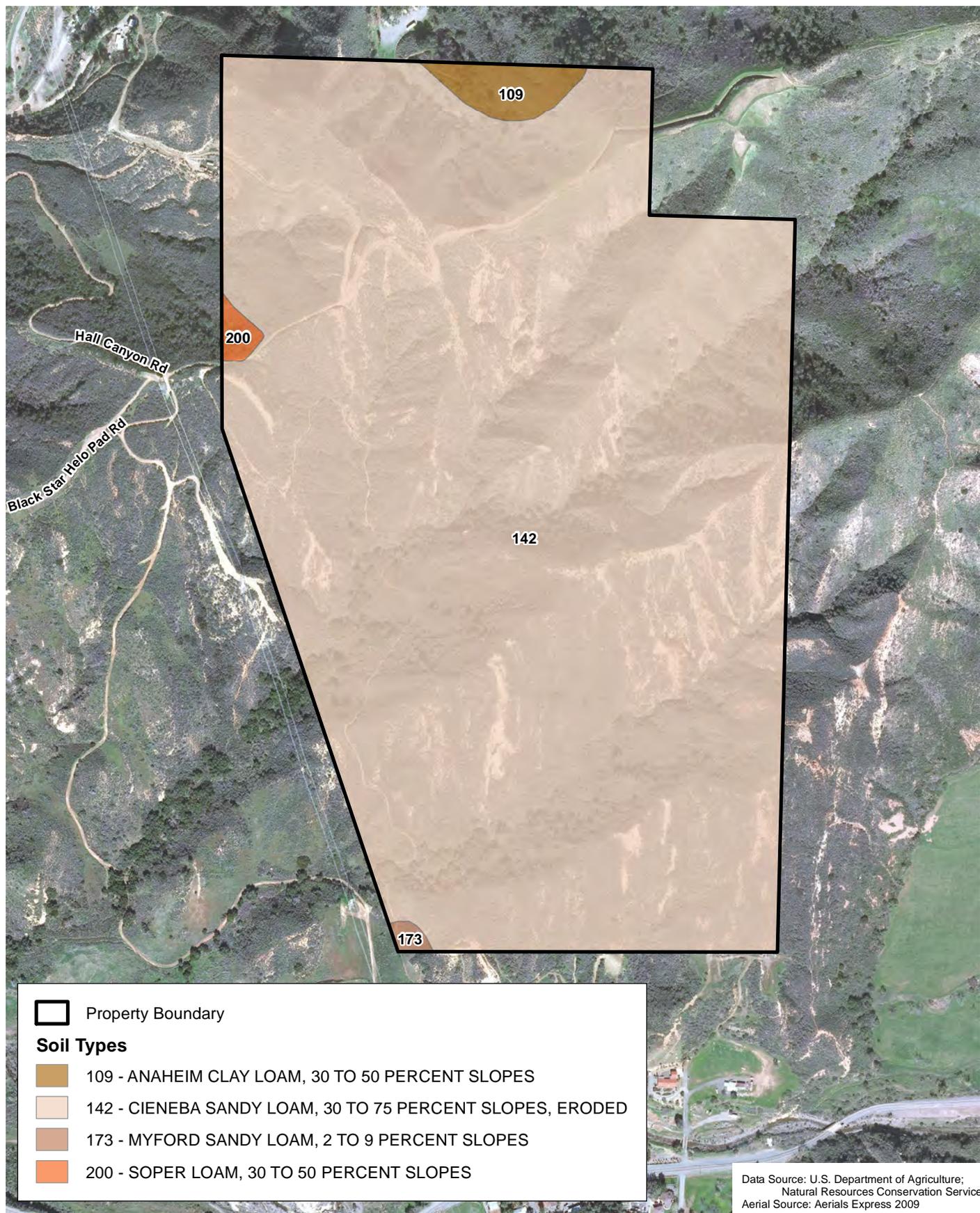
# USGS 7.5-Minute Quadrangle

# Exhibit 2

Measure M2 Acquisition Properties Evaluation – MacPherson Property



D:\Projects\OCTAU008\WXD\MacPherson\Biot\Tech\Soils.mxd



### Soil Types

Measure M2 Acquisition Properties Evaluation – MacPherson Property

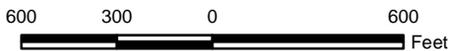
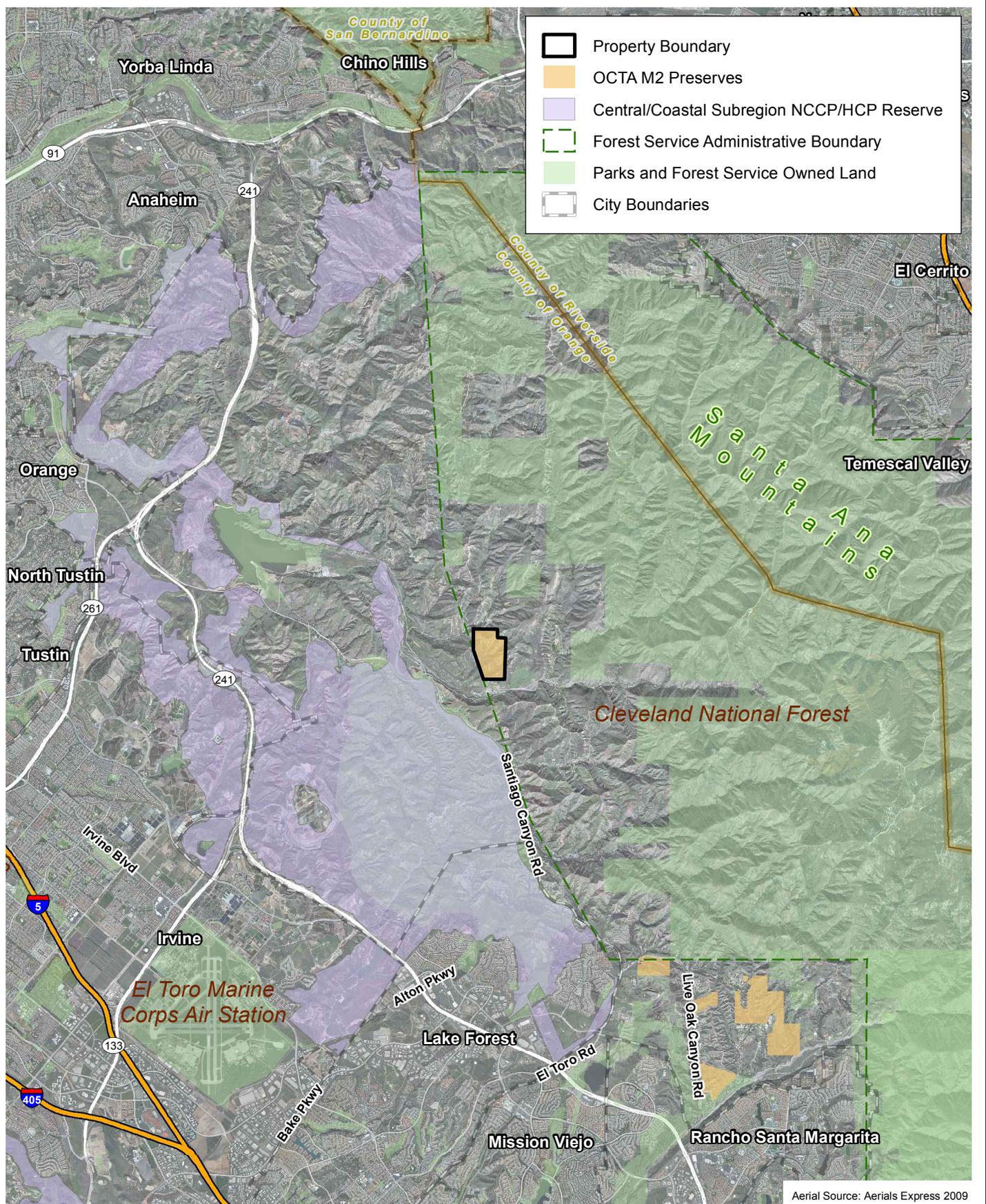


Exhibit 3



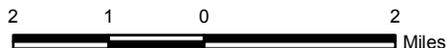


D:\Projects\OCTA\008\XDX\MacPherson\BioTech\ex\_RegionalEnvironmentalSetting\_20141211.mxd

## Regional Environmental Setting

## Exhibit 4

Measure M2 Acquisition Properties Evaluation – MacPherson Property



(USFWS 2006). These drainages flow into Santiago Creek, which is a tributary to the Santa Ana River.

### 1.2.3 Fire History

There are various hypotheses regarding the fire history of Southern California; what constitutes a “natural” fire regime; and the role of fire for chaparral plant species. Traditionally, the fire season in Southern California is from May through September (OCFA 2007). In the past, fires were started by lightning and typically moved down slopes due to falling brands and coals. According to one school of thought, fires only occasionally formed the hot runs on steep slopes that are typical of today’s fires and large, intense fires were uncommon (Howard 1992). This fire regime resulted in a mosaic of numerous small burns. New fires were limited by recently burned regions with very little fuel; dead wood and other fuels could not accumulate for long. However, an opposing hypothesis is that large, high-intensity chaparral fires were regular occurrences in the 19<sup>th</sup> century, often driven by severe weather that involved high temperatures, low humidity, and high winds (Keeley and Zedler 2009).

Mediterranean shrub communities, including those types found on the property, are resilient to infrequent wildfires and historically burned at a frequency of every 30 to 150 years (Halsey 2005). Many plant species associated with chaparral and scrub communities’ exhibit characteristics that constitute adaptations to fire. A new fire will then typically burn hot and high into the canopy, killing much of the aboveground biomass. These canopy fires facilitate seed establishment by removing shrub cover and eliminating competitors. In the first few years after a fire, herbs and herbaceous shrubs—such as deerweed (*Acmispon glaber* [*Lotus scoparius*]), lupines (*Lupinus* spp.), paintbrushes (*Castilleja* spp.), and phacelias (*Phacelia* spp.)—are abundant. Because chaparral fires burn nitrogenous compounds in plant tissues and detritus, there is a large loss of nitrogen from the ecosystem. This allows species equipped with nitrogen-fixing bacteria to grow quickly after a fire.

While herbaceous species are establishing, the previously dominant chaparral species are also returning. Many chaparral species rely on fire to release and germinate seeds. Others resprout from roots or buds at the base of the stem. As the shrub canopy closes, whether due to resprouting of individuals burned by the fire or due to seedling growth, these herbaceous species decrease in abundance.

Fire is also a natural element of oak ecosystems and a decreasing fire frequency tends to favor development of oak woodland over scrub or chaparral. Coast live oak is especially fire resistant; trees can survive and resprout even after severe burning due to food reserves stored in the extensive root system. Adaptations to fire include evergreen leaves, thick bark, and the ability to resprout. Trees resprout from the main trunk and upper crown, but also from the root crown; resprouting may result in a multi-trunk tree. While acorns on the soil are killed, animal-buried acorns usually survive moderately severe fire which allows for high rates of post-fire establishment. Post-fire establishment may also be facilitated by western scrub-jays (*Aphelocoma californica*), which prefer burned areas for caching sites (Steinberg 2002). The frequent, low-intensity burning by Native Americans likely resulted in cohorts of large oak trees growing in open, savannah-like stands (McCreary 2004).

Although fires are a natural part of chaparral, scrub, and oak communities, both unnatural increases and decreases in fire frequency can have a negative impact. Now, nearly all wildfires are started by humans, either through arson or accidents (Schoenherr 1992). While the fire season traditionally occurred from May through September, in the past 15 years, Orange County has experienced its most devastating wildfires from October through April (OCFA 2008). Drought conditions contribute to an increase in dead fuels; drier and more explosive fuels; and more intense fire behavior. In addition, sustained Santa Ana Winds increase the speed of fire

and magnify the effects on the available fuel bed. Santa Ana Winds are strong, warm, and dry winds that flow down into the valleys when stable; during these conditions, high pressure air is forced across and then down the lee-side slopes of a mountain range. The descending air is warmed and dried, which produces critical fire weather conditions.

Anthropogenic increases in fire frequency can change the natural resilience of native communities. With a high frequency of fires, plants may not store enough energy between fires to resprout from roots or buds. In general, when an area burns too often for the community to mature, native plants may not be able to maintain dominance, often resulting in a habitat type conversion. Ruderal species, including annual grasses and invasive forbs, often thrive in post-fire conditions. As a result, fires often promote the spread of non-native species into native habitats. In turn, this high degree of non-native grass and forb cover can lead to more frequent fire return intervals (e.g., intervals of less than eight years have been reported) (Minnich and Dezzani 1998).

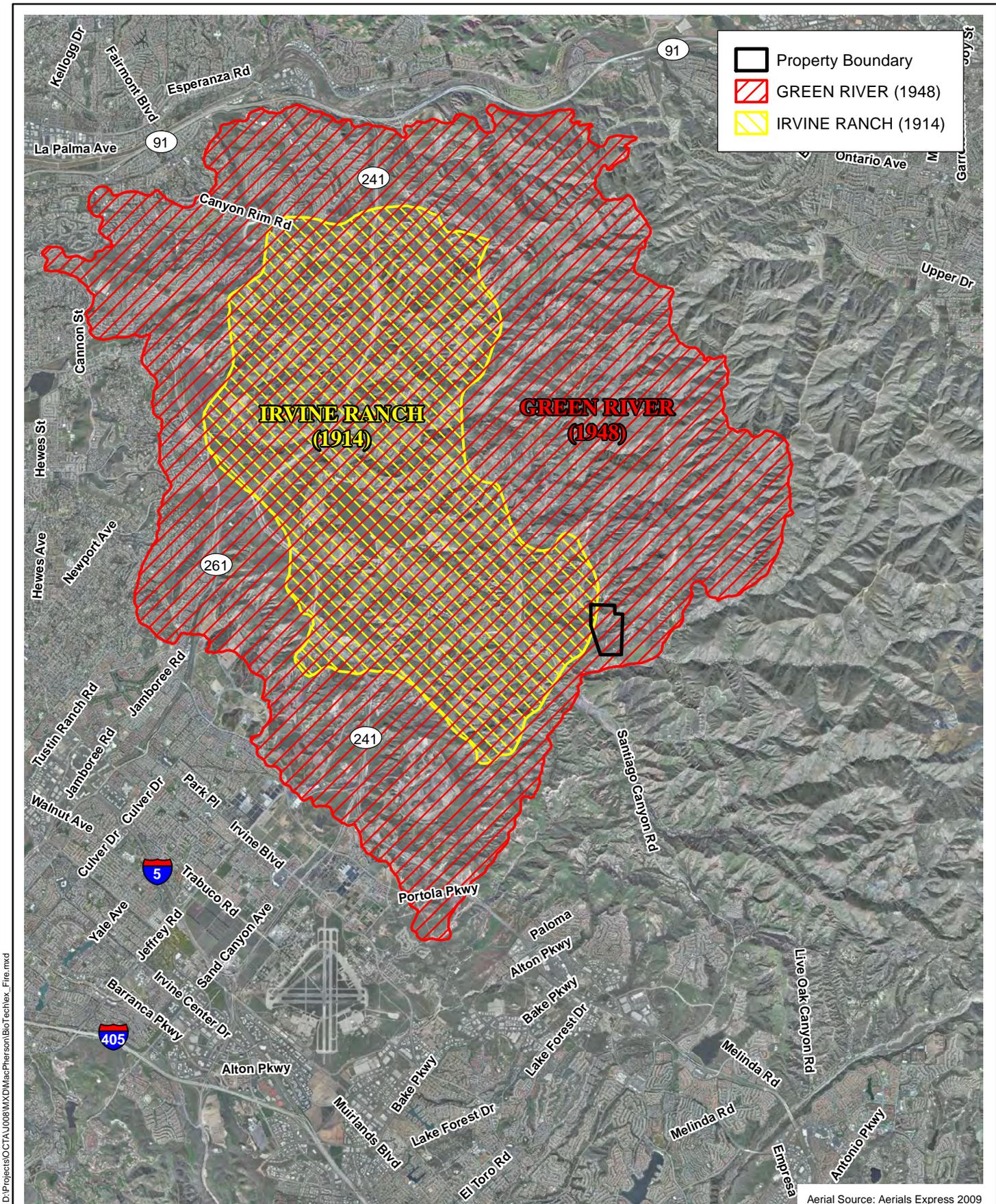
A decrease in fire frequency may also hinder reproduction of fire-adapted species. In the past, government agencies tried to prevent and stop the spread of wildfires through a policy of fire suppression. These efforts were found to be unsuccessful, and they occasionally resulted in larger and more catastrophic fires. While they are less frequent, unnaturally large fires may burn so hot and intense that the canopy, roots, and even the seeds of fire-adapted plants are destroyed. Habitat type conversion may occur in scrub and chaparral communities where fire suppression allows oaks to increase in density (McCreary 2004). When fire is not allowed to regenerate the understory of oak savannahs, the shrub component increases and more severe, crown-consuming fires may result.

Over the past 60 years, Orange County has experienced a number of major (i.e., burned greater than 2,000 acres, burned for an extended period or time, and/or resulted in extraordinary property loss) wildland fires, including 20 that burned over 2,000 acres (OCFA 2008). Most recently, the Silverado Fire burned a total of 968 acres approximately 2.75 miles east of the property in September 2014. The California Department of Forestry and Fire Protection (CAL FIRE) has tracked significant fire events on the MacPherson property. Exhibit 5 shows the fire history of the property. The Irvine Ranch Fire (1914) burned approximately 17.43 acres on the property and the Green River Fire (1948) burned the entire property (CAL FIRE 2014).

#### **1.2.4 Climate**

Southern California experiences a Mediterranean climate characterized by mild, rainy winters and hot, dry summers. There can also be dramatic differences in rainfall from year to year. Consequently, the vegetation types in the Southern California area consist of drought-tolerant, woody shrubs and trees and annual, fall/winter-sprouting grasses.

The temperature in Southern California is moderated by the coastal influence of the Pacific Ocean, which creates mild conditions throughout most of the year. The stable atmosphere creates cloudless conditions, producing dry summers and a subtropical climate with many days of sunshine (Ritter 2006). The most distinguishing characteristic of a Mediterranean climate is its seasonal precipitation. In Southern California, precipitation is characterized by brief, intense storms generally between November and March. It is not unusual for a majority of the annual precipitation to fall during a few storms over a close span of time. Rainfall patterns are subject to extreme variations from year to year and longer-term wet and dry cycles.



D:\Projects\OCTAJ008\WXD\MacPherson\Biot\tech\ex\_5\_Fire.mxd

## Fire History

Measure M2 Acquisition Properties Evaluation – MacPherson Property

## Exhibit 5



In the region, the average daily temperature in the summer<sup>1</sup> is approximately 71 degrees Fahrenheit (°F). The average daily temperature in the winter is approximately 56°F. The region receives an average of 12.4 inches of rain a year; the majority of this rain falls in the winter months, which receive an average of 6.7 inches; summer rain is approximately 0.10 inch (NWS 2014).

### 1.2.5 Anthropogenic Uses of the Property

According to the U.S. Forest Service (USFS), the area was inhabited by the Kumeyaay, Luiseño, Cahuilla, and Cupeño Native Americans, who would burn the brushlands along the coast and in the mountains (USFS 2013). Juan Rodriguez Cabrillo arrived in 1542, but the land did not undergo significant change until the establishment of the California missions by Junipero Serra and a ranching culture. The Silverado-Modjeska Canyon area was named “Canyon de la Madera” (or “Canyon of Timber”) in 1769 during a Spanish expedition led by Gaspar de Portolá (CLCF 2011). The Spanish had received land grants in the canyons for logging timber as well as for cattle and horse grazing. In 1877, silver was found in Silverado Canyon and coal was found near the canyon’s entrance the following year. By 1883, both the coal mine and silver mines were closed. In the early 1900s, the sulphur springs in the canyon attracted residents, and mining resumed at the Blue Light Mine. Suburban development continues to encroach into the area.

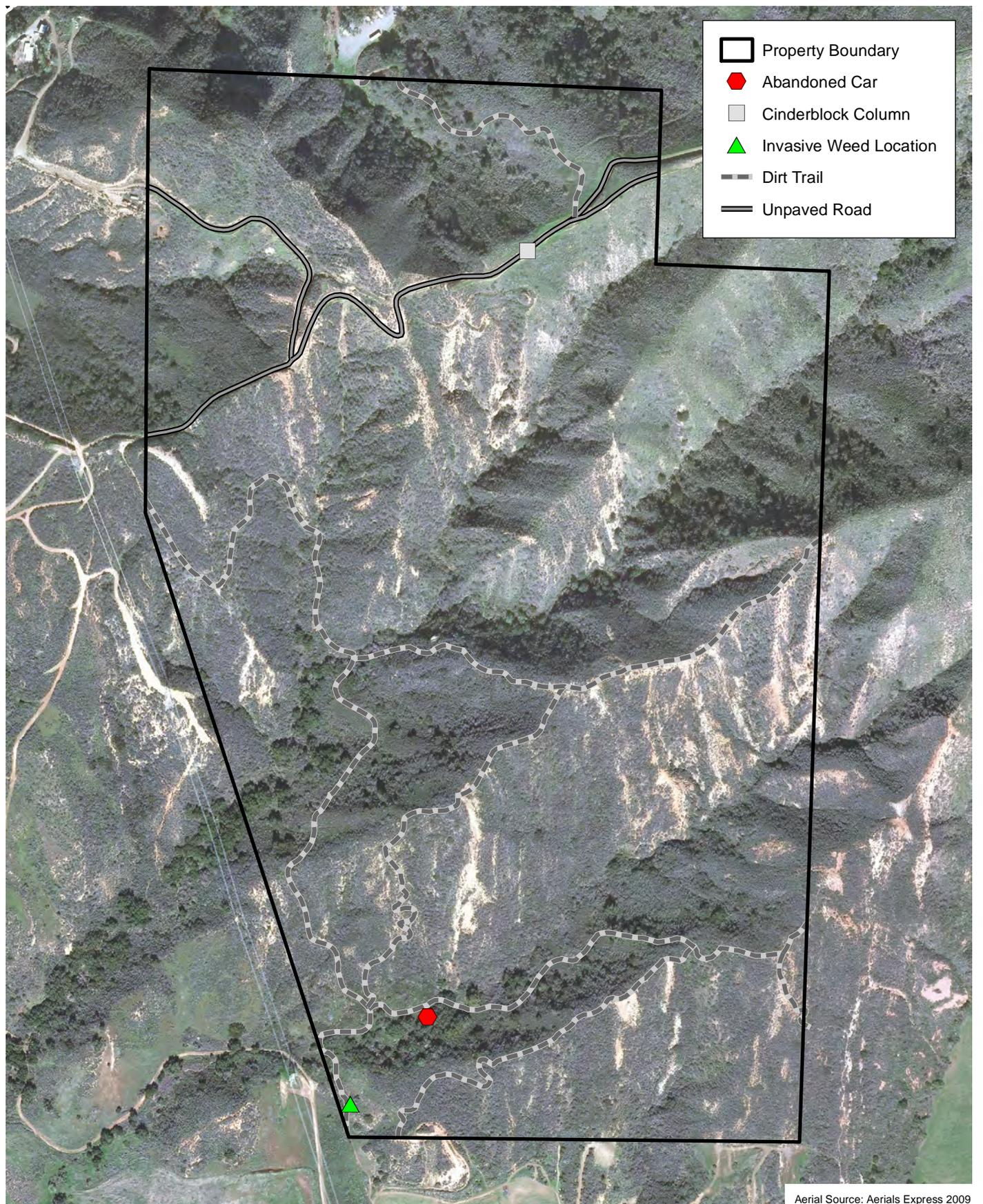
A review of historic aerial photographs of the property shows that, in general, vegetation communities have not significantly altered since 1946. Low density development along Silverado Canyon Road is present in aerial photographs as early as 1946, though development along Baker Canyon Road has occurred since 1952. Buildings or otherwise significant structures are not identified in the historic aerials on the property.

Anthropogenic features on the property are shown in Exhibit 6. The property is currently used by hikers and mountain bikers; multiple informal trails cross the property. There is some evidence that target practice occurs on the property (see photograph on left). An old car (see photograph on right) was abandoned in the canyon bottom in the southern portion of the property. A short rebar and cinderblock column was observed along the access road at the northeast corner of the property. Relatively little trash was observed during the surveys and included old barbed wire, portions of cans, and a brush. Evidence of grazing is not present on this property.



<sup>1</sup> Seasons are climatological; winter is considered to be December, January, and February and summer is considered to be June, July, and August.

D:\Projects\OCTAU008\WXD\MacPherson\Biot\Tech\ex\_AnthropogenicAndInvasive.mxd



## Anthropogenic Features and Invasive Species

Exhibit 6

Measure M2 Acquisition Properties Evaluation – MacPherson Property



**Bonterra**  
PSOMAS

(Rev: 10-14-2014 JAZ) R:\Projects\OCTAU008\Graphics\MacPherson\Biot\Tech\ex6\_AnthropogenicAndInvasive.pdf

## 2.0 SURVEY METHODS

This section describes the methods used to conduct the literature review; perform general biological surveys, vegetation mapping, and focused biological surveys; and assess the property's potential to support special status species. A cumulative list of all plant and wildlife species observed on the property is included as Attachments A-1 and A-2, respectively. Photographs of the property are included as Attachment B.

### 2.1 LITERATURE REVIEW

BonTerra Psomas conducted a literature search to identify special status plants, wildlife, and habitats reported to occur in the vicinity of the MacPherson property. This search included a review of the USGS' Black Star Canyon and El Toro 7.5-minute quadrangles in the California Native Plant Society's (CNPS') Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2014b) and the CDFW's California Natural Diversity Database (CNDDDB) (CDFW 2014a). In addition, a species list was obtained from the USFWS' Information, Planning, and Conservation System (IPaC) for the property.

### 2.2 VEGETATION MAPPING AND GENERAL SURVEYS

BonTerra Psomas Senior Biologists Ann Johnston and Allison Rudalevige conducted a general survey to describe and map the vegetation types on the property on April 7, 2014. Vegetation mapping was refined concurrently with the special status plant survey conducted on July 1, 2014. Nomenclature for vegetation types follows *A Manual of California Vegetation* (Sawyer et al. 2009) for recognized Alliances or Associations.<sup>2</sup> Vegetation was mapped in the field on an aerial photograph at a scale of 1 inch equals 150 feet (1"=150').

The general surveys included an evaluation of the property's potential to support special status plant and wildlife species, with special focus on M2 NCCP/HCP Covered Species. Covered Species include intermediate mariposa lily (*Calochortus weedii* var. *intermedius*), southern tarplant (*Centromadia parryi* ssp. *australis* [*Hemizonia* p. ssp. *a.*]), many-stemmed dudleya (*Dudleya multicaulis*), arroyo chub (*Gila orcutti*), Blainville's [coast] horned lizard (*Phrynosoma blainvillii*), orange-throated whiptail (*Aspidoscelis hyperythra* [*Cnemidophorus* h.]), Pacific [western] pond turtle (*Actinemys marmorata* [*Emys* m.]), southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*), coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*), coastal California gnatcatcher (*Polioptila californica californica*), bobcat (*Lynx rufus*), and mountain lion (*Puma concolor* [*Felis* c.]). Suitable habitat and/or observed individuals were documented in field notes and with global positioning system (GPS) units, and a CNDDDB form was filled out for each occurrence.

During field surveys, natural or physical resources and opportunities were identified (mapped and included in field notes) that "preserve, restore and enhance aquatic, riparian and terrestrial natural communities and ecosystems that support Covered Species" (OCTA 2010). The following resources were mapped and documented in field notes: resources that provide valuable enhancement, restoration, or preservation opportunities (e.g., significant stands of non-native species requiring eradication/control; presence of rock outcroppings that provide niche areas for unusual plants, bats, ringtails [*Bassariscus astutus*], or other species; nesting cavities; large mammal burrows; avian rookeries/roosts; and dens). This may include significant stands of invasive plant species based on the California Invasive Plant Council (Cal-IPC) Inventory.

<sup>2</sup> Alliance is "a classification unit of vegetation, containing one or more associations and defined by one or more diagnostic species, often of high cover, in the uppermost layer or the layer with the highest canopy cover". Association is "a vegetation classification unit defined by a diagnostic species, a characteristic range of species composition, physiognomy, and distinctive habitat conditions" (Sawyer et al. 2009).

Anthropogenic influences/structures on the property (e.g., paved and unpaved roads, trails, cell towers, water towers, abandoned vehicles and/or “dumped” trash or debris) were also documented. GPS devices were utilized for recording all point locations.

Plant species were identified in the field or collected for subsequent identification using keys in Baldwin et al. (2012), Hickman (1993), and Munz (1974). Taxonomy follows Baldwin et al. (2012), Hickman (1993), and current scientific data (e.g., scientific journals) for scientific and common names. Active searches for reptiles and amphibians included lifting, overturning, and carefully replacing rocks and debris. Birds were identified by visual and auditory recognition. Surveys for mammals were conducted during the day and included searching for and identifying diagnostic sign, including scat, footprints, burrows, and trails. Taxonomy and nomenclature for wildlife generally follows Crother (2008) for amphibians and reptiles, American Ornithologists' Union (AOU 2013) for birds, and Smithsonian National Museum of Natural History (SNMNH 2011) for mammals. All species observed were recorded in field notes and are included in Attachments A-1 and A-2.

## 2.3 FOCUSED BIOLOGICAL SURVEYS

Focused biological surveys were conducted in 2014 for special status plant species and coastal California gnatcatcher. Surveys were conducted in suitable habitat, based on the Senior Biologists' best professional judgment.

### 2.3.1 Special Status Plant Species

Special status plant surveys were floristic in nature and were conducted following the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFG 2009). Target species included the following Covered Species: intermediate mariposa lily and many-stemmed dudleya.

Rainfall received in the winter and spring determines the germination of many annual and perennial herb species. The region received approximately 5.92 inches of precipitation between June 30, 2013 and July 31, 2014 (data taken from Irvine – South Coast Valleys Station No. 75) (CIMIS 2014). The average annual precipitation for this area is between 10 and 13 inches. In years of low or unusual rainfall patterns, monitoring of reference populations is important in order to ensure that the surveys were comprehensive. Prior to conducting the field surveys, accessible reference populations of target species known from the Orange County area were monitored to ensure that the scheduled surveys were comprehensive and conducted during the appropriate blooming period for these species. A population of many-stemmed dudleya was confirmed blooming at the University of California, Irvine Ecological Reserve on May 7, 2014, and the initial survey visit was scheduled after that date. Reference populations were not monitored for intermediate mariposa lily because it was observed on site during the initial plant survey. Reference populations were not monitored for large perennials (e.g., Tecate cypress [*Hesperocyparis forbesii*] and chaparral nolina [*Nolina cismontana*]), which would be identifiable throughout the year. Rainfall throughout the region was below average for the year. Although reference populations and regional rainfall amounts were monitored to ensure the scientific adequacy of these focused surveys, there is always a minimal potential for false negative survey results as species could possibly be present on a site but may not be detectable at the time of the surveys.

The survey area for special status plant species consisted of the entire property. Surveys were conducted on May 20, 2014, by Ms. Rudalevige, BonTerra Psomas Senior Biologists Jennifer Pareti and Lindsay Messett, and Biologist Jason Mintzer and on July 1, 2014, by Ms. Rudalevige, Ms. Pareti, Mr. Mintzer, and Consulting Botanist David Bramlet. Systematic walking surveys were conducted in all areas of suitable special status plant habitat (i.e., coastal

sage scrub, chaparral) and transects were walked at regularly spaced intervals to achieve 100 percent visual coverage of the ground surface (i.e., ridgelines, trails, canyon bottoms) and all potential habitat within the survey area. The habitat preferences of target species (see Table 3, below) were compared to the resources on site (e.g., community associations, soil, slope, shade) to determine which portions of the property represented suitable habitat. All plant species observed were recorded in field notes. Plant species were identified in the field or collected for later identification. Plants were identified to the taxonomic level necessary to determine whether or not they are a special status species using taxonomic keys, descriptions, and illustrations in Baldwin et al. (2012), Hickman (1993), and Munz (1974). Any voucher specimens collected would be deposited with the herbarium at Rancho Santa Ana Botanic Gardens in Claremont, California.

**2.3.2 Coastal California Gnatcatcher**

Surveys for the coastal California gnatcatcher were conducted in accordance with the guidelines issued by the USFWS for areas participating in an NCCP/HCP (USFWS 1997). These guidelines stipulate that three surveys must be conducted in suitable habitats with at least one week between site visits; the surveys can be conducted year-round. All visits must take place during the morning hours, and no more than 100 acres of suitable habitat may be surveyed per visit.

Ms. Messett (USFWS Permit No. PRT-067064-2) conducted all coastal California gnatcatcher surveys on the MacPherson property. The surveys covered all potentially suitable habitats for the coastal California gnatcatcher. A summary of the focused survey dates and conditions is shown in Table 1 below.

**TABLE 1  
SUMMARY OF SURVEY DATA AND CONDITIONS FOR  
GNATCATCHER SURVEYS**

Date	Time	Weather Conditions		
		Temperature (°F) (Start/End)	Wind (mph) (Start/End)	Cloud Cover (%) (Start/End)
August 22, 2014	0700/1200	70/84	0-1/0-3	30/10
August 29, 2014	0640/1150	68/87	0-1/0-4	40/Clear
September 5, 2014	0630/1200	66/85	0-1/0-4	20/Clear
°F: degrees Fahrenheit; mph: miles per hour.				
Source: BonTerra Psomas 2014.				

Weather conditions met the USFWS survey protocol requirements for optimal gnatcatcher detection. Weather conditions that were too cold (below 55 degrees Fahrenheit [°F]), too hot (above 95°F), or too windy (wind speed greater than 15 miles per hour) were avoided. Surveys were conducted by slowly walking through all appropriate habitats while listening and watching for gnatcatcher activity. A combination of recordings of gnatcatcher vocalizations and “pishing” sounds were used in an attempt to elicit responses from any gnatcatchers that might be present. The frequency of vocalization playback and “pishing” varied depending on conditions (e.g., habitat patch size and topography). All bird species detected during the survey were recorded, including notable observations of special status wildlife species.

### 3.0 EXISTING BIOLOGICAL RESOURCES

This section describes the biological resources that occur or potentially occur on the MacPherson property. Vegetation types, wildlife populations and movement patterns, and special status biological resources are discussed below.

#### 3.1 VEGETATION TYPES AND OTHER AREAS

Eleven vegetation types and other areas occur on the MacPherson property, as shown in Table 2 and Exhibit 7. Descriptions of these vegetation types are provided below. Note that classification follows *A Manual of California Vegetation* (Sawyer et al. 2009), but Gray and Bramlet’s (1992) classification is provided that is more condensed than the formal classification. These vegetation types were also cross-walked to the general vegetation types used in the NCCP/HCP Plan.

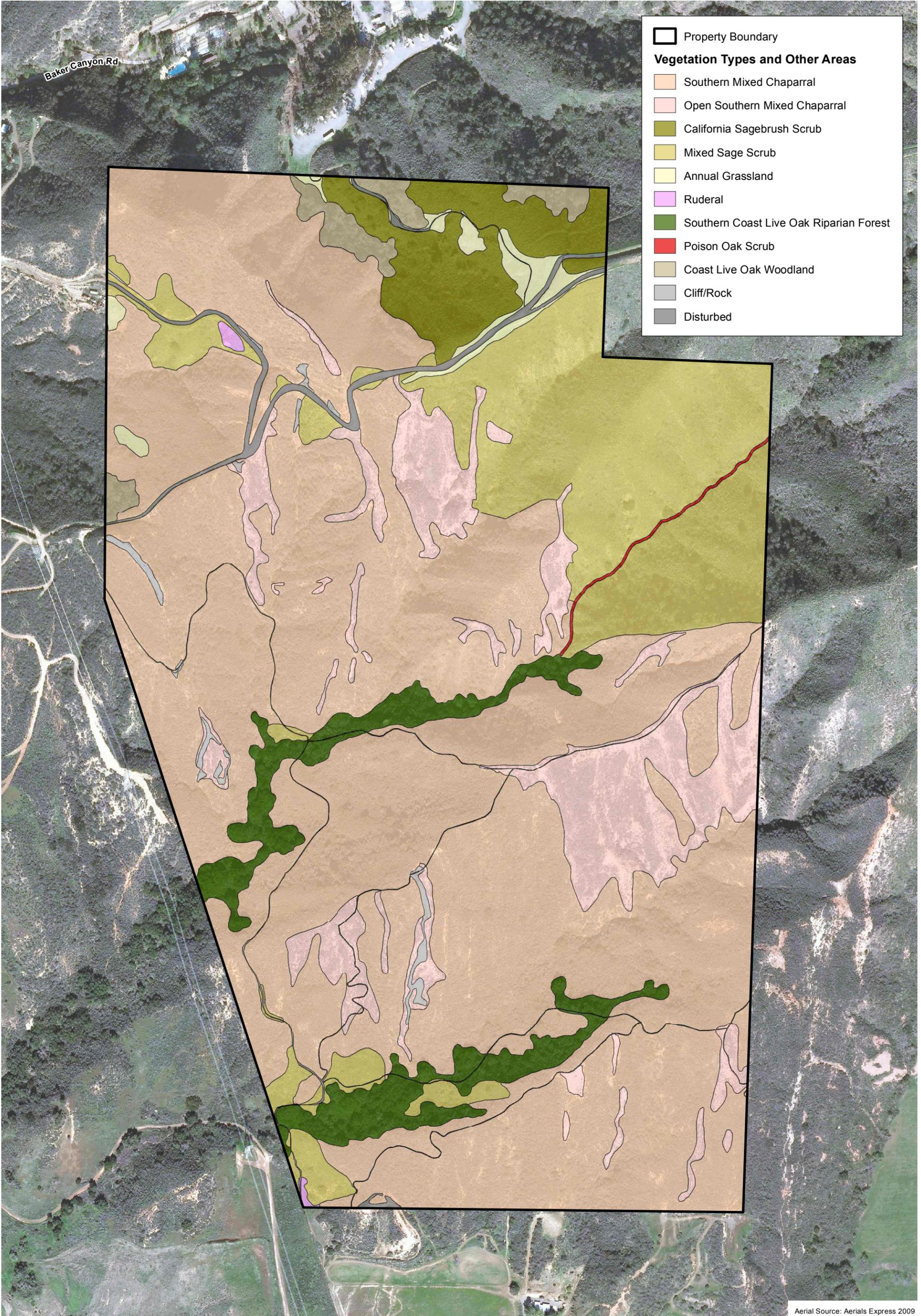
**TABLE 2  
VEGETATION TYPES AND OTHER AREAS ON  
THE MACPHERSON PROPERTY**

General Vegetation Types	Vegetation Types and Other Areas	Status	Amount on Property (Acres)
<b>Chaparral</b>	southern mixed chaparral	G5 S5	123.91
	open southern mixed chaparral	G5 S5	20.78
	<i>Chaparral Subtotal</i>		<b>144.69</b>
<b>Scrub</b>	California sagebrush scrub	G5 S5	8.23
	mixed sage scrub	G4 S4	32.12
	<i>Scrub Subtotal</i>		<b>40.35</b>
<b>Grassland</b>	annual grassland	G3? S3?	2.27
	ruderal	—	0.23
	<i>Grassland Subtotal</i>		<b>2.50</b>
<b>Riparian</b>	southern coast live oak riparian forest	G4 S4	9.48
	poison oak scrub	G4 S4	0.29
	<i>Riparian Subtotal</i>		<b>9.77</b>
<b>Woodland</b>	coast live oak woodland	G4 S4	2.80
<b>Barren</b>	cliff/rock	—	0.96
<b>Developed/Non-Native</b>	disturbed	—	2.56
<b>Total Acreage</b>			<b>203.63</b>
G: Global; S: State. <b>Status</b> 3 Vulnerable and at moderate risk of extinction or elimination 4 Apparently secure and uncommon but not rare 5 Secure ? Inexact numeric rank, but existing information points to this rank			

#### **Chaparral**

##### Southern Mixed Chaparral

A total of 123.91 acres of southern mixed chaparral (the *Adenostoma fasciculatum* – *Ceanothus crassifolius* Shrubland Association [Sawyer et al. 2009]) occurs on slopes throughout the property. This vegetation type is dominated by a mix of chamise (*Adenostoma fasciculatum*)



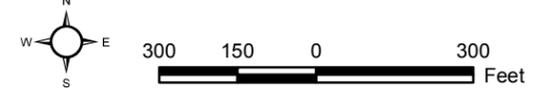
- Property Boundary
- Vegetation Types and Other Areas**
- Southern Mixed Chaparral
- Open Southern Mixed Chaparral
- California Sagebrush Scrub
- Mixed Sage Scrub
- Annual Grassland
- Ruderal
- Southern Coast Live Oak Riparian Forest
- Poison Oak Scrub
- Coast Live Oak Woodland
- Cliff/Rock
- Disturbed

D:\Projects\OCTAJ008\MXD\MacPherson\BioTech\ex\_Veg.mxd

Aerial Source: Aerials Express 2009

**Vegetation Types and Other Areas**  
 Measure M2 Acquisition Properties Evaluation – MacPherson Property

**Exhibit 7**



(Rev: 12-11-2014 JAZ) R:\Projects\OCT\_OCTAJ008\Graphics\MacPherson\BioTech\ex7\_Veg.pdf

and hoaryleaf ceanothus (*Ceanothus crassifolius*), with the proportion of each varying across the site. The plant cover is dense, with no understory vegetation except along the margins, where sage scrub species and non-native grasses and herbs extend into the chaparral.

### Open Southern Mixed Chaparral

A total of 20.78 acres of open southern mixed chaparral (the *Adenostoma fasciculatum* – *Ceanothus crassifolius* Shrubland Association [Sawyer et al. 2009]) occurs on steep, eroding slopes and ridgelines throughout the property. The vegetation composition is similar to that of southern mixed chaparral, but the density of shrubs is much lower. Bare ground occurs between the shrubs.

## **Scrub**

### California Sagebrush Scrub

A total of 8.23 acres of the California sagebrush scrub (the *Artemisia californica* Shrubland Alliance [Sawyer et al. 2009]) occurs on north-facing slopes at the northern edge of the property. This vegetation type is dominated by California sagebrush (*Artemisia californica*). Some slopes contain scattered blue elderberry (*Sambucus nigra* ssp. *caerulea*) or toyon (*Heteromeles arbutifolia*).

### Mixed Sage Scrub

A total of 32.12 acres of mixed sage scrub (the *Artemisia californica* – *Eriogonum fasciculatum* – *Salvia mellifera* Association [Sawyer et al. 2009]) occurs on slopes in the northeast corner of the property and in scattered patches in the southern portion of the property. This vegetation type is dominated by a mix of coastal sage scrub species, primarily black sage (*Salvia mellifera*), California sagebrush, and California buckwheat (*Eriogonum fasciculatum*). Some areas of mixed sage scrub contain needlegrass (*Stipa* sp.) or stands of laurel sumac (*Malosma laurina*) and toyon.

## **Grassland**

### Annual Grassland

A total of 2.27 acres of annual grassland (the *Deinandra fasciculata* – Annual Grass-Herb Association [Sawyer et al. 2009]) occurs along roadsides and in openings of coastal sage scrub and chaparral throughout the property. These areas are dominated by non-native grasses and herbs such as wild oat (*Avena* sp.), ripgut grass (*Bromus diandrus*), black mustard (*Brassica nigra*), and tocalote (*Centaurea melitensis*) with a seasonal component of fascicled tarweed (*Deinandra fasciculata* [*Hemizonia* f.]). Some scattered shrubs, such as California buckwheat, are also present.

### Ruderal

A total of 0.23 acre of ruderal (various semi-natural herbaceous stands [Sawyer et al. 2009]) occurs in small patches near the northwestern and southwestern corners of the property. This vegetation type is dominated by non-native, weedy herbs such as black mustard, tocalote, red-stemmed filaree (*Erodium cicutarium*), and Russian thistle (*Salsola tragus*).

**Riparian****Southern Coast Live Oak Riparian Forest**

A total of 9.48 acres of southern coast live oak riparian forest (the *Quercus agrifolia* Woodland Alliance [Sawyer et al. 2009]) occurs in the major drainages bisecting the property. This vegetation type is dominated by a canopy of coast live oak (*Quercus agrifolia*). Understory species are scattered in varying densities and include caterpillar phacelia (*Phacelia cicutaria*), giant wild rye (*Elymus condensatus* [Leymus c.]), bush monkeyflower (*Mimulus aurantiacus*), western poison oak (*Toxicodendron diversilobum*), and smilo grass (*Stipa miliacea* [Piptatherum m.]).

**Poison Oak Scrub**

A total of 0.29 acre of poison oak scrub (the *Toxicodendron diversilobum* Shrubland Alliance [Sawyer et al. 2009]) occurs along a canyon bottom in the northeast corner of the property. This vegetation type consists of an approximate ten-foot-wide strip of western poison oak.

**Woodland****Coast Live Oak Woodland**

A total of 2.80 acres of coast live oak woodland (the *Quercus agrifolia* Woodland Alliance [Sawyer et al. 2009]) occurs on upland slopes in the northern portion of the property. This vegetation type is dominated by a canopy of coast live oak. Note that Sawyer et al. (2009) do not distinguish between riparian and upland oak woodlands, but these areas are discussed separately because the community composition differs.

**Barren****Cliff/Rock**

A total of 0.96 acre of cliff/rock occurs along ridgelines and on steep, eroding slopes. This represents areas of exposed rock face or eroding hillsides that lack vegetation.

**Developed/Non-Native****Disturbed**

A total of 2.56 acres of disturbed areas occur on the property. This represents unpaved roads and dirt trails located throughout the property. No vegetation is present in these areas.

**3.2 WILDLIFE POPULATIONS AND MOVEMENT PATTERNS**

Vegetation on and adjacent to the property provides potential habitat for a number of wildlife species. Common wildlife species observed or expected to occur on the property and/or in adjacent off-site areas are discussed below.

**3.2.1 Fish**

Most creeks and waterways in Southern California are subject to periods of high water flow in winter and spring and little to no flow during the late summer and fall. Most drainages occurring on the property are expected to convey water only following storm events. No fish species were observed on the property, nor are they expected to occur, due to lack of suitable habitat.

### 3.2.2 Amphibians

Amphibians require moisture for at least a portion of their life cycle and many require standing or flowing water for reproduction. Terrestrial species may or may not require standing water for reproduction; they survive in dry areas by aestivating (i.e., remaining beneath the soil in burrows or under logs and leaf litter, and emerging only when temperatures are low and humidity is high). Many of these species' habitats are associated with water and they emerge to breed once the rainy season begins. Soil moisture conditions can remain high throughout the year in some habitat types depending on factors such as amount of vegetation cover, elevation, and slope/aspect.

Marginally suitable habitat for amphibian species occurs in the drainages on the property. No amphibian species were observed on the property. Common amphibian species that may occur on the property include garden slender salamander (*Batrachoseps major*), western toad (*Anaxyrus boreas*), and Pacific treefrog (*Pseudacris [Hyla] regilla*).

### 3.2.3 Reptiles

Reptiles are well-adapted to life in arid habitats. They have several physiological adaptations that allow them to conserve water. Reptiles can also become dormant during weather extremes, allowing them to survive prolonged droughts and paucity of food (Ruben and Hillenius 2005). Reptilian diversity and abundance typically varies with vegetation type and character. Many species prefer only one or two vegetation types; however, most species will forage in a variety of habitats. Most reptile species that occur in open areas will excavate a burrow or use rodent burrows for cover, protection from predators, and refuge during extreme weather conditions.

Common reptile species observed on the property include western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), and gopher snake (*Pituophis catenifer*).

### 3.2.4 Birds

A variety of bird species are expected to be residents on the property, using habitats throughout the year. Other species are present only during certain seasons. For example, the white-crowned sparrow (*Zonotrichia leucophrys*) is expected to occur on the property during the winter season, but would not occur in the summer season because it migrates north to its breeding range.

Resident bird species observed on the property include California quail (*Callipepla californica*), western scrub-jay, common raven (*Corvus corax*), bushtit (*Psaltriparus minimus*), Bewick's wren (*Thryomanes bewickii*), wrenit (*Chamaea fasciata*), California thrasher (*Toxostoma redivivum*), spotted towhee (*Pipilo maculatus*), and California towhee (*Pipilo crissalis*). Urban-tolerant species that occur in disturbed areas and in natural vegetation types that were also observed on the property include mourning dove (*Zenaida macroura*), Anna's hummingbird (*Calypte anna*), black phoebe (*Sayornis nigricans*), American crow (*Corvus brachyrhynchos*), northern mockingbird (*Mimus polyglottos*), house finch (*Carpodacus mexicanus*), and lesser goldfinch (*Spinus [Carduelis] psaltria*).

Wintering birds are those species that generally breed outside the region but migrate to the area for the winter season. Wintering species that may occur on the property include Townsend's warbler (*Setophaga [Dendroica] townsendi*), chipping sparrow (*Spizella passerina*), and fox sparrow (*Passerella iliaca*). Summer residents are species that migrate into the region to breed, but generally winter south of the region. Summer breeders that may occur on the property include black-chinned hummingbird (*Archilochus alexandri*) and western kingbird (*Tyrannus*

*verticalis*). During spring and fall migration, the property also provides foraging habitat for a variety of migratory species.

Birds of prey (raptors) observed on the property include turkey vulture (*Cathartes aura*) (a scavenger), red-tailed hawk (*Buteo jamaicensis*), and American kestrel (*Falco sparverius*).

### **3.2.5 Mammals**

Burrows provide cover for a number of small mammal species. Small ground-dwelling mammals observed or expected to occur on the property include California ground squirrel (*Spermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), dusky-footed woodrat (*Neotoma fuscipes*), and desert woodrat (*Neotoma lepida*).

Open grassland communities and the leafy understory of scrub and woodland communities provide excellent foraging habitat for herbivorous mammals. Common herbivores observed or expected to occur on the property include mule deer (*Odocoileus hemionus*) and desert cottontail (*Sylvilagus audubonii*).

Medium to larger mammalian predators (both carnivorous and omnivorous species) observed or expected to occur on the property in a variety of habitats include common striped skunk (*Mephitis mephitis*), gray fox (*Urocyon cinereoargenteus*), coyote (*Canis latrans*), and mountain lion.

Bat activity on the property may occur in the lower elevation canyons and ravines where the bats are most likely to find more abundant insect food. No suitable cliffs, buildings, or other man-made structures that would be suitable for roosting are present on the property. The property has some potential to support roosting bats in tree snags or under bark; however, the closed nature of the chaparral habitat provides limited open areas suitable for foraging. Species such as the Brazilian free-tailed bat (*Tadarida brasiliensis*), big brown bat (*Eptesicus fuscus*), and Yuma myotis (*Myotis yumanensis*), may occur on the property.

### **3.2.6 Wildlife Movement**

Wildlife corridors link together areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. The fragmentation of open space areas by urbanization creates isolated "islands" of wildlife habitat. In the absence of habitat linkages that allow movement to adjoining open space areas, various studies have concluded that some wildlife species, especially the larger and more mobile mammals, will not likely persist over time in fragmented or isolated habitat areas because they prohibit the infusion of new individuals and genetic information (MacArthur and Wilson 1967; Soule 1987; Harris and Gallagher 1989; Bennett 1990). Corridors mitigate the effects of this fragmentation by (1) allowing animals to move between remaining habitats, thereby permitting depleted populations to be replenished and promoting genetic exchange; (2) providing escape routes from fire, predators, and human disturbances, thus reducing the risk that catastrophic events (such as fire or disease) will result in population or local species extinction; and (3) serving as travel routes for individual animals as they move in their home ranges in search of food, water, mates, and other necessary resources (Noss 1983; Fahrig and Merriam 1985; Simberloff and Cox 1987; Harris and Gallagher 1989).

Wildlife movement activities usually fall into one of three movement categories: (1) dispersal (e.g., juvenile animals from natal areas or individuals extending range distributions); (2) seasonal migration; and (3) movements related to home range activities (e.g., foraging for food or water, defending territories or searching for mates, breeding areas, or cover). A number of terms such as “wildlife corridor”, “travel route”, “habitat linkage”, and “wildlife crossing” have been used in various wildlife movement studies to refer to areas in which wildlife move from one area to another. To clarify the meaning of these terms and to facilitate the discussion on wildlife movement in this analysis, these terms are defined as follows:

- **Travel Route** – a landscape feature (such as a ridgeline, drainage, canyon, or riparian strip) within a larger natural habitat area that is used frequently by animals to facilitate movement and to provide access to necessary resources (e.g., water, food, cover, den sites). The travel route is generally preferred because it provides the least amount of topographic resistance in moving from one area to another. It contains adequate food, water, and/or cover while moving between habitat areas and it provides a relatively direct link between target habitat areas.
- **Wildlife Corridor** – a piece of habitat, usually linear in nature, that connects two or more habitat patches that would otherwise be fragmented or isolated from one another. Wildlife corridors are usually bound by urban land areas or other areas unsuitable for wildlife. The corridor generally contains suitable cover, food, and/or water to support species and to facilitate movement while in the corridor. Larger, landscape-level corridors (often referred to as “habitat linkages” or “landscape linkages”) can provide both transitory and resident habitat for a variety of species.
- **Wildlife Crossing** – a small, narrow area, relatively short in length and generally constricted in nature that allows wildlife to pass under or through an obstacle or barrier that otherwise hinders or prevents movement. Crossings typically are man-made and include culverts, underpasses, drainage pipes, and tunnels to provide access across or under roads, highways, pipelines, or other physical obstacles. These often represent “choke points” along a movement corridor, which may impede wildlife movement and increase the risk of predation.

It is important to note that, in a large open space area where there are few or no man-made or naturally occurring physical constraints to wildlife movement, wildlife corridors (as defined above) may not yet exist. Given an open space area that is both large enough to maintain viable populations of species and to provide a variety of travel routes (e.g., canyons, ridgelines, trails, riverbeds, and others), wildlife will use these “local” routes while searching for food, water, shelter, and mates and will not need to cross into other large open space areas. Based on their size, location, vegetative composition, and availability of food, some of these movement areas (e.g., large drainages and canyons) are used for longer lengths of time and serve as source areas for food, water and cover, particularly for small- and medium-sized animals. This is especially true if the travel route is within a larger open space area. However, once open space areas become constrained and/or fragmented as a result of urban development or construction of physical obstacles (such as roads and highways), the remaining landscape features or travel routes that connect the larger open space areas become corridors as long as they provide adequate space, cover, food and water, and do not contain obstacles or distractions (e.g., man-made noise, lighting) that would generally hinder wildlife movement.

In general, animals discussed within the context of movement corridors typically include larger, more mobile species (such as mule deer, black bear [*Ursus americanus*], mountain lion, fox [*Urocyon* sp.], and coyote) and even some of the mid-sized mammals (such as raccoon [*Procyon lotor*], striped skunk, American badger [*Taxidea taxus*], and Virginia opossum

[*Didelphis virginiana*]). Most of these species have relatively large home ranges through which they move to find adequate food, water, and breeding and wintering habitat. It is assumed that corridors that serve larger, more fragile species also serve as corridors for many smaller, less mobile species, such as reptiles, amphibians, and rodents (generally discussed within the context of local movement). Regional movement for these species facilitates gene flow and requires at least some local “stepping stone” movement of individuals between populations.

The availability of open space corridors is generally considered less important for bird species. Most bird species are believed to fly in more or less direct paths to desired locations; however, some habitat-specific species may not move great distances from their preferred habitat types, and are believed to be less inclined to travel across unsuitable areas.

Ideally, an open space corridor should encompass a heterogeneous mix of vegetation types to accommodate the ecological requirements of a wide variety of resident species in any particular region. Most species typically prefer adequate vegetation cover during movement, which can serve as both a food source and as protection from weather and predators. Drainages, riparian areas, and forested canyon bottoms typically serve as natural movement corridors because these features provide cover, food, and often water for a variety of species. Very few species will move across large expanses of open, uncovered habitat unless it is the only option available to them. For some species, landscape linkages must be able to support animals for sustained periods, not just for travel. Smaller or less mobile animals (such as rodents and reptiles) require long periods to traverse a corridor, so the corridor must contain adequate food and cover for survival.

### ***Regional Movement***

The MacPherson property occurs within the boundaries of the Cleveland National Forest and the Irvine Ranch Open Space. This represents approximately 460,000 and 50,000 acres of open space, respectively. Open space on the property is contiguous with larger areas of open space in the Santa Ana Mountains. Wildlife movement is relatively unhindered to the east of the property, with no major roads or development in that direction. Low density rural residential development occurs along Silverado Canyon Road south of the property, and a recreational vehicle (RV) park occurs to the north along Baker Canyon Road. The relatively undeveloped nature of the landscape is highly conducive to regional wildlife movement.

### ***Local Movement***

The MacPherson property contains multiple ridgelines and canyons that provide a variety of travel routes for local wildlife movement. The trails and access roads on the property may also be used for movement. Movement is expected to occur on the property, as well as between the property and contiguous off-site habitat. Coyote, a wildlife species that requires a relatively large home range, was observed on the MacPherson property.

### 3.3 SPECIAL STATUS BIOLOGICAL RESOURCES

This section addresses special status biological resources that were observed, reported, or have the potential to occur on the property or in adjacent off-site areas. These resources include plant and wildlife species that have been afforded special status and/or recognition by federal and State resource agencies and private conservation organizations. In general, the principal reason an individual taxon (i.e., species, subspecies, or variety) is given such recognition is the documented or perceived decline or limitations of its population size, geographic range, and/or distribution resulting in most cases from habitat loss. Tables 3 and 6 respectively provide a summary of special status plant and wildlife species known to occur in the vicinity of the MacPherson property (i.e., the USGS' Black Star Canyon and El Toro 7.5-minute quadrangles) and include information on the status; habitat; potential for occurrence; results of focused survey efforts; and definitions for the various status designations. Generally, this list includes species reported by the CNDDDB and CNPS, supplemented with species from the author's experience that either occur nearby or could occur based on the presence of suitable habitat. In addition to species, special status biological resources include vegetation types and habitats that are either unique; of relatively limited distribution in the region; or of particularly high wildlife value. These resources have been defined by federal, State, and local government conservation programs. Sources used to determine the status of biological resources are listed below.

- **Plants** – Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2014b); the CNDDDB (CDFW 2014a); various USFWS *Federal Register* notices regarding listing status of plant species; and the *List of Special Vascular Plants, Bryophytes, and Lichens* (CDFW 2014c).
- **Wildlife** – California Wildlife Habitat Relationships Database System (CDFW BDB 2014); the CNDDDB (CDFW 2014a); various USFWS *Federal Register* notices regarding listing status of wildlife species; and the *List of Special Animals* (CDFW 2014b).
- **Habitats** – CNDDDB (CDFW 2014a) and the *List of California Natural Communities* (CDFG 2010).

#### 3.3.1 Definitions of Special Status Biological Resources

A **federally Endangered species** is one facing extinction throughout all or a significant portion of its geographic range. A **federally Threatened species** is one likely to become Endangered in the foreseeable future throughout all or a significant portion of its range. The presence of any federally Threatened or Endangered species in a project impact area generally imposes severe constraints on development, particularly if a project would result in “take” of the species or its habitat. The term “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct. Harm, in this sense, can include any disturbance of habitats used by the species during any portion of its life history.

**Proposed species** or **Candidate species** are those officially proposed by the USFWS for addition to the federal Threatened and Endangered species list. Because proposed species may soon be listed as Threatened or Endangered, these species could become listed prior to or during implementation of a proposed project. The presence of a Proposed or Candidate species within a project impact area may impose constraints on development if they are listed prior to issuance of project permits, particularly if a project would result in “take” of the species or its habitat.

The State of California considers an **Endangered species** as one whose prospects of survival and reproduction are in immediate jeopardy; a **Threatened species** as one present in such small numbers throughout its range that it is likely to become an Endangered species in the near future in the absence of special protection or management; and a **Rare species** as one present in such small numbers throughout its range that it may become Endangered if its present environment worsens. Rare species applies only to California native plants. State-listed Threatened and Endangered species are protected against take unless an Incidental Take Permit is obtained from the resource agencies. The presence of any State-listed Threatened or Endangered species in a project impact area generally imposes severe constraints on development, particularly if a project would result in “take” of the species or its habitat.

**California Species of Special Concern** is an informal designation used by the CDFW for some declining wildlife species that are not State Candidates. This designation does not provide legal protection, but signifies that these species are recognized as special status by the CDFW. Recently, the CDFW downgraded some of these species from Species of Special Concern to the **Watch List**.

Species that are **California Fully Protected** and **Protected** include those protected by special legislation for various reasons, such as the mountain lion and white-tailed kite (*Elanus leucurus*). Fully Protected species may not be taken or possessed at any time. California Protected species include those species that may not be taken or possessed at any time except under special permit from the CDFW issued pursuant to the *California Code of Regulations* (Title 14, §650, §670.7) or Section 2081 of the *California Fish and Game Code*.

Species of **Local Concern** are those that have no official status with the resource agencies, but are being watched because there is either a unique population in the region or the species is declining in the region.

**Special Animal** is a general term that refers to species that the CNDDDB is interested in tracking, regardless of legal or protective status. This term includes species designated as any of the above terms, but also includes species that may be considered biologically rare; restricted in distribution; declining throughout their range; have a critical, vulnerable stage in their life cycle that warrants monitoring; are on the periphery of their range and are threatened with extirpation in California; are associated with special status habitats; or are considered by other State or federal agencies or private organizations to be sensitive or declining.

The California Rare Plant Rank (CRPR), formerly known as CNPS List, is a ranking system by the Rare Plant Status Review group<sup>3</sup> and managed by the CNPS and the CDFW. A ranking is given based on information regarding the distribution, rarity, and endangerment of California’s vascular plants. Plants with a CRPR of **1A** are presumed extinct in California because they have not been seen in the wild for many years. Plants with a CRPR of **1B** are Rare, Threatened, or Endangered throughout their range. Plants with a CRPR of **2A** are presumed extirpated from California, but are more common elsewhere. Plants with a CRPR of **2B** are considered Rare, Threatened, or Endangered in California, but are more common elsewhere. Plants with a CRPR of **3** require more information before they can be assigned to another rank or rejected; this is a “review” list. Plants with a CRPR of **4** are of limited distribution or infrequent throughout a broader area in California; this is a “watch” list. The CRPR Threat Rank is an extension added onto the CRPR to designate the level of endangerment by a 1 to 3 ranking (CNPS 2014a). An extension of **.1** is assigned to plants that are considered to be “seriously threatened” in California (i.e., over 80 percent of the occurrences are threatened or have a high degree and immediacy of threat). Extension **.2** indicates the plant is “fairly threatened” in California (i.e.,

<sup>3</sup> This group consists of over 300 botanical experts from the government, academia, non-governmental organizations, and the private sector.

between 20 and 80 percent of the occurrences are threatened or have a moderate degree and immediacy of threat). Extension .3 is assigned to plants that are considered “not very threatened” in California (i.e., less than 20 percent of occurrences are threatened or have a low degree and immediacy of threat or no current threats known). The absence of a threat code extension indicates plants lacking any threat information.

In addition to providing an inventory of special status plant and wildlife species, the CNDDDB also provides an inventory of vegetation types that are considered special status by the State and federal resource agencies, academic institutions, and various conservation groups (such as the CNPS). Determination of the level of imperilment (i.e., exposure to injury, loss, or destruction) is based on the NatureServe Heritage Program Status Ranks that rank both species and vegetation types on a global (G) and statewide (S) basis according to their rarity; trend in population size or area; and recognized threats (e.g., proposed developments, habitat degradation, and non-native species invasion) (Faber-Langendoen et al. 2009). The ranks are scaled from 1 to 5. NatureServe considers **G1** or **S1** communities to be critically imperiled and at a very high risk of extinction or elimination due to extreme rarity, very steep declines, or other factors; **G2** or **S2** communities to be imperiled and at high risk of extinction or elimination due to very restricted range, very few populations or occurrences, steep declines, or other factors; **G3** or **S3** communities to be vulnerable and at moderate risk of extinction or elimination due to a restricted range, relatively few populations or occurrences, recent and widespread declines, or other factors; **G4** or **S4** communities to be apparently secure and uncommon but not rare with some cause for long-term concern due to declines or other factors; and **G5** or **S5** communities to be secure. A question mark (?) denotes an inexact numeric rank, but existing information points to this rank (Faber-Langendoen et al. 2009). For vegetation alliances<sup>4</sup> that have State ranks of S1–S3, all associations within the alliance are considered to be highly imperiled.

### 3.3.2 Vegetation Types

Special status vegetation types observed on the property are described further below.

#### **Chaparral Communities**

The predominant vegetation type on the MacPherson property is southern mixed chaparral (123.91 acres). Open southern mixed chaparral occurs in steep, eroding slopes and has lower shrub cover. These vegetation types are considered to be the *Adenostoma fasciculatum* – *Ceanothus crassifolius* Shrubland Association, which is ranked by the CDFW as G5 S5.

Chaparral is a “drought tolerant plant community dominated by sclerophyllous, woody shrubs shaped by a Mediterranean-type climate and naturally recurring wildfires” (Halsey 2007). It is the most extensive vegetation community in California and is not presently considered to have special status, though its status in the future may be uncertain given continuing drought conditions; increased fire frequencies; and limited understanding of the system.

#### **Scrub Communities**

California sagebrush shrub (8.23 acres) and mixed sage scrub (32.12 acres) occur on the MacPherson property. California sagebrush scrub is considered to be the *Artemisia californica* Shrubland Alliance, which is ranked as G5 S5. Mixed sage scrub most closely matches the *Artemisia californica* – *Eriogonum fasciculatum* – *Salvia mellifera* Association, which is ranked as G4 S4.

<sup>4</sup> A vegetation alliance is “a classification unit of vegetation, containing one or more associations and defined by one or more diagnostic species, often of high cover, in the uppermost layer or the layer with the highest canopy cover” (Sawyer et al. 2009).

While the Global/State rankings of California sagebrush shrub and mixed sage scrub indicate that they are secure or apparently secure, they are of local concern as part of the larger coastal sage scrub community and because they have potential to support Threatened or Endangered species. Coastal sage scrub had, as a whole, declined approximately 70 to 90 percent in its historic range in California by the mid-1990s (Noss and Peters 1995). Sage scrub has largely been lost to land use changes in Southern California basins and foothills. The ecological function of Southern California's remaining sage scrub is threatened by habitat fragmentation and degradation, which is largely the result of invasive non-native species, livestock grazing, off-highway vehicles, altered fire regime, and air pollution (O'Leary 1995; Allen et al. 2000).

### **Grassland Communities**

Annual grassland (2.27 acres) and ruderal vegetation (0.23 acre) occur on the MacPherson property. Ruderal areas, dominated by non-native vegetation, are considered to be semi-natural herbaceous stands and so are not given a ranking. The annual grassland on the property corresponds to the *Deinandra fasciculata* – Annual Grass-Herb Association. This association is ranked as G3? S3?.

While native grasslands, which once may have covered nearly  $\frac{1}{5}$  of the state, have declined by approximately 99 percent in their historic range in California (Barry 1972; Noss and Peters 1995), the annual grasslands on the property primarily contain non-native grasses and herbs. They would be considered semi-natural herbaceous stands by Sawyer et al. (2009) except for the seasonal component of the native fascicled tarweed. Therefore, this vegetation would not be considered as biologically valuable as vegetation undisturbed by non-native species.

### **Riparian Communities**

Southern coast live oak riparian forest (9.48 acres) and poison oak scrub (0.29 acre) occur on the MacPherson property. The *Quercus agrifolia* Woodland Alliance is ranked as G5 S4. However, the CDFW considers southern coast live oak riparian forest to be ranked G4 S4. Poison oak scrub is considered to be the *Toxicodendron diversilobum* Shrubland Alliance, which is ranked as G4 S4.

Typically, riparian vegetation provides important biological functions for an ecosystem such as (1) for cover and water sources for wildlife; (2) for filtration of runoff water and groundwater to be recharged; and (3) for flood-control and sediment stabilization purposes. Riparian habitats are biologically productive as well as diverse, and are the exclusive habitat of several special status species. As a result, the resource agencies often consider riparian vegetation types to be important resources. It is estimated that as much as 95 to 97 percent of historic riparian habitats in Southern California had been lost by the late 1980s due to agriculture, urban development, flood control, and other human-caused impacts (Faber et al. 1989; Bell 1997). Additionally, since the 1970s, giant reed (*Arundo donax*) has become the greatest threat to the remaining riparian resources in coastal Southern California (Bell 1997). This invasive species competes with native species such as willows (*Salix* spp.), mule fat, and cottonwoods (*Populus* spp.); is difficult to control; and apparently does not provide food or nesting habitat for native species (Bell 1997).

### **Woodland Communities**

Coast live oak woodland (2.80 acres) occurs on the MacPherson property. The *Quercus agrifolia* Woodland Alliance is ranked as G5 S4. However, the CDFW considers coast live oak woodland to be ranked G4 S4.

Oak woodlands are declining throughout California due to residential, commercial, and industrial development. Woodlands are an important resource in California that provide aesthetic, cultural, economic, and environmental value, in addition to wildlife habitat.

### **Jurisdictional Areas**

Drainages, which may include wetlands and other “waters of the U.S.,” are protected under Section 404 of the Clean Water Act (CWA) and are under the jurisdiction of the U.S. Army Corps of Engineers (USACE). “Waters of the U.S.” include navigable coastal and inland waters, lakes, rivers, streams and their tributaries; interstate waters and their tributaries; wetlands adjacent to such waters; intermittent streams; and other waters that could affect interstate commerce. Wetland “waters of the U.S.” are delineated based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology pursuant to the USACE guidance documents (i.e., Environmental Laboratory 1987; USACE 2008).

A CWA Section 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB) is required before the USACE will issue a Section 404 permit. The RWQCB shares the USACE jurisdiction unless isolated waters are present. If isolated waters are present, the RWQCB takes jurisdiction using the USACE’s definition of the Ordinary High Water Mark and/or the three-parameter wetlands method.

In addition, if drainages on the property meet the criteria established by Section 1600 of the *California Fish and Game Code*, the CDFW may require a Streambed Alteration Agreement prior to any modification of the bed, bank, or channel. The CDFW’s jurisdiction is defined as the top of the bank of the stream, channel, or basin or the outer limit (drip-line) of riparian vegetation located within or immediately adjacent to the river, stream, creek, pond, or lake.

The drainages on the MacPherson property are potentially under the jurisdiction of the USACE, the RWQCB, and the CDFW. A jurisdictional delineation should be performed to describe the type and extent of resources on the property. Should jurisdictional resources be impacted by management activities on the property, permits/agreements from the regulatory agencies would be required. This would consist of a USACE Section 404 Permit; an RWQCB Section 401 Water Quality Certification; and a CDFW Section 1602 Streambed Alteration Agreement.

A California Rapid Assessment Method (CRAM) analysis may be required as part of the permitting procedure. CRAM is a tool for assessing the overall condition<sup>5</sup> of a wetland; it was developed by a consortium of federal, State, and local scientists and managers. The results of a condition assessment can be used to infer the ability to provide various functions or services to which a wetland is most suited. This analysis can be used for a variety of applications, such as in evaluating a site to inform regulatory decisions (e.g., Section 401 and 404 permitting) or restoration or mitigation site evaluation.

CRAM scores range from 25 to 100. The maximum score possible represents how a wetland is doing relative to the best achievable conditions for that wetland type in the state. It is assumed that the same scores for different wetlands of the same type represent the same overall condition and functional capacity. Therefore, these scores may be used to track the progress of restoration efforts over time; to compare impacted sites to their in-kind mitigation sites; or to compare an individual wetland to the status and trends in ambient condition of its wetland type. Enhancement of the property, such as through targeted removal of weed species, may result in higher CRAM scores.

<sup>5</sup> “Condition” is defined as the state of a wetland Assessment Area’s (AA’s) physical and biological structure, the hydrology, and its buffer and landscape context relative to the best achievable states for the same type of wetland (CWMW 2012).

### **3.3.3 Special Status Plants**

Based on the results of the literature review, 33 special status plant species have been reported in the vicinity of the MacPherson property. These species and their potential for occurrence (which is based on the presence of suitable habitat) are summarized in Table 3. Note that these species are listed alphabetically according to their scientific name. Three special status plant species were observed on the property. These species are discussed after the table.

**TABLE 3  
SPECIAL STATUS PLANT SPECIES REPORTED FROM THE PROPERTY VICINITY**

Species	Status			Blooming Period	Habitat	Range	Potential to Occur on the Property; Results of Survey
	USFWS	CDFW	CRPR				
<i>Abronia villosa</i> var. <i>aurita</i> chaparral sand-verbena	-	-	1B.1	Between January and September.	Sandy places, primarily in coastal sage scrub and chaparral habitats and in alluvial washes and river benches.	Central and southern South Coast and western Sonoran (Colorado) Desert; between sea level and 5,250 feet above msl.	No suitable habitat; not expected to occur and not observed during surveys.
<i>Astragalus brauntonii</i> Braunton's milkvetch	FE	-	1B.1	Between March and July.	Recent burns or disturbed areas in chaparral and tecate cypress forest.	Western Transverse Ranges, San Gabriel Mountains possibly to the South Coast, and northern Peninsular Ranges; between sea level and 2,133 feet above msl.	Suitable habitat, but at edge of known range in Orange County; not observed during surveys.
<i>Baccharis malibuensis</i> Malibu baccharis	-	-	1B.1	Between August and September.	Grassy openings in chaparral.	Western Transverse Ranges and Peninsular Ranges; between 164 and 984 feet above msl.	Only known from Fremont Canyon in Orange County (Roberts 2008); not expected to occur and not observed during surveys.
<i>Brodiaea filifolia</i> thread-leaved brodiaea	FT	SE	1B.1	Between March and June.	Grasslands and vernal pools.	South Coast, San Bernardino Mountains, and western Peninsular Ranges; between 80 and 2,820 feet above msl.	No suitable habitat; not expected to occur and not observed during surveys.
<i>Calandrinia breweri</i> Brewer's calandrinia	-	-	4.2	Between March and June, uncommonly as early as February.	Heavy soils in open grasslands, coastal sage scrub, and chaparral.	Southern Central Coast, western South Coast, and Channel Islands; between sea level and 2,300 feet above msl.	Suitable habitat; not observed during surveys.
<i>Calochortus catalinae</i> Catalina mariposa lily	-	-	4.2	Between May and July.	Coastal sage scrub; dry, rocky chaparral; and yellow-pine forest.	South Coast and Peninsular Ranges; between sea level and 5,580 feet above msl.	Suitable habitat; not observed during surveys.

**TABLE 3  
SPECIAL STATUS PLANT SPECIES REPORTED FROM THE PROPERTY VICINITY**

Species	Status			Blooming Period	Habitat	Range	Potential to Occur on the Property; Results of Survey
	USFWS	CDFW	CRPR				
<i>Calochortus plummerae</i> Plummer's mariposa lily	-	-	4.2	Between August and September.	Grassy openings in chaparral.	Western Transverse Ranges and Peninsular Ranges; between 164 and 984 feet above msl.	Suitable habitat but at edge of known range in Orange County; not observed during surveys.
<b><i>Calochortus weedii</i> var. <i>intermedius</i></b> <b>intermediate mariposa lily<sup>a</sup></b>	-	-	1B.2	<b>Between May and July.</b>	<b>Coastal sage scrub and chaparral on dry, rocky, open slopes.</b>	<b>South Coast and northern Peninsular Ranges; between sea level and 2,230 feet above msl.</b>	<b>Suitable habitat; observed during surveys.</b>
<i>Camissoniopsis lewisii</i> Lewis' evening-primrose	-	-	3	Between March and June.	Sandy or clay soils of coastal grassland.	South Coast, western Peninsular Ranges, and northern Baja California, Mexico; between sea level and 984 feet above msl.	Outside elevation range; not expected to occur and not observed during surveys.
<i>Centromadia parryi</i> ssp. <i>australis</i> southern tarplant <sup>a</sup>	-	-	1B.1	Between May and November.	Seasonally moist, silty, alkaline soils in salt marshes, alkali meadows, mesic grasslands, vernal pools, ditches, and coastal scrub.	South Coast to northwestern Baja California, Mexico; between sea level and 655 feet above msl.	Outside elevation range; not expected to occur and not observed during surveys.
<i>Chorizanthe parryi</i> var. <i>fernandina</i> San Fernando Valley spineflower	FC	SE	1B.1	Between April and June.	Sandy areas.	Laskey Mesa in Ventura County and the northern Santa Susana Mountains of Los Angeles County; between 295 and 1,640 feet above msl.	Outside current known range; not expected to occur and not observed during surveys.
<i>Chorizanthe polygonoides</i> var. <i>longispina</i> long-spined spineflower	-	-	1B.2	Between April and June.	Sandy areas.	Peninsular Ranges; between 98 and 4,921 feet above msl.	Only known from Gypsum Canyon in Orange County (Roberts 2008); not expected to occur and not observed during surveys.

**TABLE 3  
SPECIAL STATUS PLANT SPECIES REPORTED FROM THE PROPERTY VICINITY**

Species	Status			Blooming Period	Habitat	Range	Potential to Occur on the Property; Results of Survey
	USFWS	CDFW	CRPR				
<i>Deinandra paniculata</i> paniculate tarplant	-	-	4.2	Between April and September.	Open or disturbed sites, grassland, scrub, woodland, and vernal pools.	Southern Central Coast, western Outer South Coast Ranges, Southwestern California to central Baja California, Mexico; between sea level and 3,937 feet above msl.	Suitable habitat; observed during surveys.
<i>Dodecahema leptoceras</i> slender-horned spineflower	FE	SE	1B.1	Between April and June.	Sandy or gravelly areas.	East-central South Coast, adjacent foothills of the Transverse Ranges, and Peninsular Ranges; between 655 and 2,295 feet above msl.	Outside current known range; not expected to occur and not observed during surveys.
<i>Dudleya multicaulis</i> many-stemmed dudleya <sup>a</sup>	-	-	1B.2	Between April and July.	Heavy (often clayey) soils in coastal sage scrub and native grassland on coastal plains and sandstone outcrops.	South Coast; between sea level and 1,970 feet above msl.	Suitable habitat; not observed during surveys.
<i>Dudleya stolonifera</i> Laguna Beach dudleya	FT	ST	1B.1	Between May and July.	North-facing cliffs and outcrops.	San Joaquin Hills; between sea level and 820 feet above msl.	No suitable habitat; not expected to occur and not observed during surveys.
<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i> Santa Ana River woollystar	FE	SE	1B.1	Between May and September.	Washes, floodplains, and dry river beds.	Eastern South Coast (i.e., the Santa Ana River drainage and southwestern San Bernardino County); between sea level and 1,640 feet above msl.	No suitable habitat; not expected to occur and not observed during surveys.
<i>Harpagonella palmeri</i> Palmer's grapplinghook	-	-	4.2	Between March and April.	Dry, semi-barren sites in chaparral, coastal scrub, and grassland.	South Coast, Peninsular Ranges, southwest Sonoran Desert, southwestern Arizona, to northwestern Mexico; between sea level and 3,281 feet above msl.	Suitable habitat; not observed during surveys.

**TABLE 3  
SPECIAL STATUS PLANT SPECIES REPORTED FROM THE PROPERTY VICINITY**

Species	Status			Blooming Period	Habitat	Range	Potential to Occur on the Property; Results of Survey
	USFWS	CDFW	CRPR				
<i>Hesperocyparis [Callitropsis] forbesii</i> Tecate cypress	-	-	1B.1	—	Chaparral.	Western Peninsular Ranges to northwestern Baja California, Mexico; planted outside native range; between 1,476 and 4,921 feet above msl.	Suitable habitat; not observed during surveys.
<i>Hesperocyparis [Callitropsis] goveniana</i> Gowen cypress	FT	-	1B.2	—	Closed-cone pine/cypress forests, mixed-evergreen forest, maritime chaparral, and coastal terraces.	Monterey Peninsula of the Central Coast; between 164 and 525 feet above msl.	Outside current known range; not expected to occur and not observed during surveys.
<i>Lepechinia cardiophylla</i> heart-leaved pitcher sage	-	-	1B.2	Between April and July.	Chaparral.	Peninsular Ranges; between 1,969 and 3,937 feet above msl.	Suitable habitat, but at edge of elevation range; not observed during surveys.
<i>Lepidium virginicum</i> var. <i>robinsonii</i> Robinson's pepper-grass <sup>b</sup>	-	-	4.3	Between January and July.	Dry, sandy, or thin soils in coastal sage scrub and chaparral.	Southwestern California and Baja California, Mexico; between sea level and 1,640 feet above msl.	Suitable habitat; not observed during surveys.
<i>Lilium humboldtii</i> ssp. <i>ocellatum</i> ocellated Humboldt lily	-	-	4.2	Between May and August.	Oak canyons, chaparral, and yellow-pine forest.	Southern, central-western, and southwestern California; between sea level and 5,906 feet above msl.	Suitable habitat; not observed during surveys.
<i>Monardella hypoleuca</i> ssp. <i>intermedia</i> intermediate monardella <sup>a</sup>	-	-	1B.3	Between June and September.	Dry slopes of chaparral, oak woodland, and occasionally conifer forest.	Northwestern Peninsular Ranges (Orange, western Riverside, and northern San Diego counties); between 656 and 4,101 feet above msl.	Suitable habitat; not observed during surveys.

**TABLE 3  
SPECIAL STATUS PLANT SPECIES REPORTED FROM THE PROPERTY VICINITY**

Species	Status			Blooming Period	Habitat	Range	Potential to Occur on the Property; Results of Survey
	USFWS	CDFW	CRPR				
<i>Nama stenocarpum</i> mud nama	-	-	2B.2	Between March and October.	Intermittently wet areas and margins of vernal pools and ponds.	San Joaquin Valley, South Coast, southern Channel Islands, western Peninsular Ranges, southeastern Sonoran Desert to Texas and northern Mexico; between sea level and 2,657 feet above msl.	No suitable habitat; not expected to occur and not observed during surveys.
<i>Nolina cismontana</i> chaparral nolina	-	-	1B.2	Between May and July.	Dry chaparral or coastal mountains.	<b>South Coast, Western Transverse Ranges, and Peninsular Ranges; between 655 and 4,265 feet above msl.</b>	<b>Suitable habitat; observed during surveys.</b>
<i>Penstemon californicus</i> California beardtongue	-	-	1B.2	Between May and June.	Sandy soils of yellow-pine forest or pinyon/juniper woodland.	Peninsular Ranges and Mexico; between 3,937 and 7,546 feet above msl.	No suitable habitat and outside current known range; not expected to occur and not observed during surveys.
<i>Pentachaeta aurea</i> ssp. <i>allenii</i> Allen's pentachaeta	-	-	1B.1	Between March and May.	Grassy areas.	Southern South Coast and Peninsular Ranges of Orange County; between sea level and 1,640 feet above msl.	Suitable habitat; not observed during surveys.
<i>Pickeringia montana</i> var. <i>tomentosa</i> woolly chaparral-pea	-	-	4.3	Between May and August.	Chaparral and washes.	San Bernardino Mountains, Peninsular Ranges to Baja California, Mexico; between sea level and 5,577 feet above msl.	Suitable habitat; not observed during surveys.
<i>Polygala cornuta</i> var. <i>fishiae</i> Fish's milkwort	-	-	4.3	Between May and August.	Chaparral and oak woodland.	Southern Outer South Coast Ranges, Western Transverse Ranges, San Gabriel Mountains, and Peninsular Ranges to northern Baja California, Mexico; between 295 and 4,167 feet above msl.	Suitable habitat; not observed during surveys.

**TABLE 3  
SPECIAL STATUS PLANT SPECIES REPORTED FROM THE PROPERTY VICINITY**

Species	Status			Blooming Period	Habitat	Range	Potential to Occur on the Property; Results of Survey
	USFWS	CDFW	CRPR				
<i>Pseudognaphalium leucocephalum</i> white rabbit-tobacco	–	–	2B.2	Between August and November, uncommonly as early as July or as late as December.	Sandy or gravelly benches, dry stream bottoms, and canyon bottoms.	South Coast, San Bernardino Mountains, and Peninsular Ranges to Arizona, New Mexico, and Mexico; between sea level and 1,640 feet above msl.	Marginally suitable habitat; not observed during surveys.
<i>Romneya coulteri</i> Coulter's matilija poppy	–	–	4.2	Between March and July.	Dry washes and canyons.	South Coast, Western Transverse Ranges, and Peninsular Ranges; between sea level and 3,937 feet above msl.	Suitable habitat; observed just east of the property.
<i>Senecio aphanactis</i> chaparral ragwort	–	–	2B.2	Between January and April.	Alkaline flats and dry, open rocky areas of coastal bluff scrub and coastal sage scrub.	Central Western California and South Coast to Baja California, Mexico; between 30 and 1,805 feet above msl.	Suitable habitat; not observed during surveys.

USFWS: U.S. Fish and Wildlife Service; CDFW: California Department of Fish and Wildlife; CRPR: California Rare Plant Rank; msl: mean sea level.

<u>Federal (USFWS)</u>		<u>State (CDFW)</u>	
FE	Endangered	SE	Endangered
FT	Threatened	ST	Threatened
FC	Candidate		

CRPR

1B Plants Rare, Threatened, or Endangered Throughout Their Range  
 2B Plants Rare, Threatened, or Endangered in California But More Common Elsewhere  
 3 Plants that require more information before they can be assigned to another rank or rejected  
 4 Plants of Limited Distribution – A Watch List

CRPR Threat Rank Extensions

None Plants lacking any threat information  
 .1 Seriously Endangered in California (over 80% of occurrences threatened; high degree and immediacy of threat)  
 .2 Fairly Endangered in California (20–80% of occurrences threatened; moderate degree and immediacy of threat)  
 .3 Not very Threatened in California (<20% of occurrences threatened; low degree and immediacy of threat or no current threats known)

<sup>a</sup> A Covered Species  
<sup>b</sup> Robinson's pepper-grass is not recognized in Baldwin et al. (2012); however, it is still tracked by the CNDDB.

### ***Intermediate Mariposa Lily***

Intermediate mariposa lily has a CRPR of 1B.2. It typically blooms between June and July (Baldwin et al. 2012). This perennial bulbiferous herb occurs on dry, rocky, open slopes in chaparral and coastal sage scrub at elevations between sea level and approximately 2,231 feet above msl (Roberts 2008; Baldwin et al. 2012). This species is known from the South Coast and northern Peninsular Ranges (Baldwin et al. 2012).

A total of 18 intermediate mariposa lily individuals were observed in 9 locations on the property (Table 4; Exhibit 8). These plants were observed primarily on south-facing slopes and ridgelines in loamy soils. The species generally associated with these populations included chamise, black sage, chaparral yucca (*Hesperoyucca whipplei*), California buckwheat, California sagebrush, hoaryleaf ceanothus, blue dicks (*Dichelostemma capitatum*), wild oat, and red brome (*Bromus madritensis* ssp. *rubens*). A voucher specimen was not collected due to the small population size.

**TABLE 4  
INTERMEDIATE MARIPOSA LILY  
POPULATIONS OBSERVED  
ON THE PROPERTY**

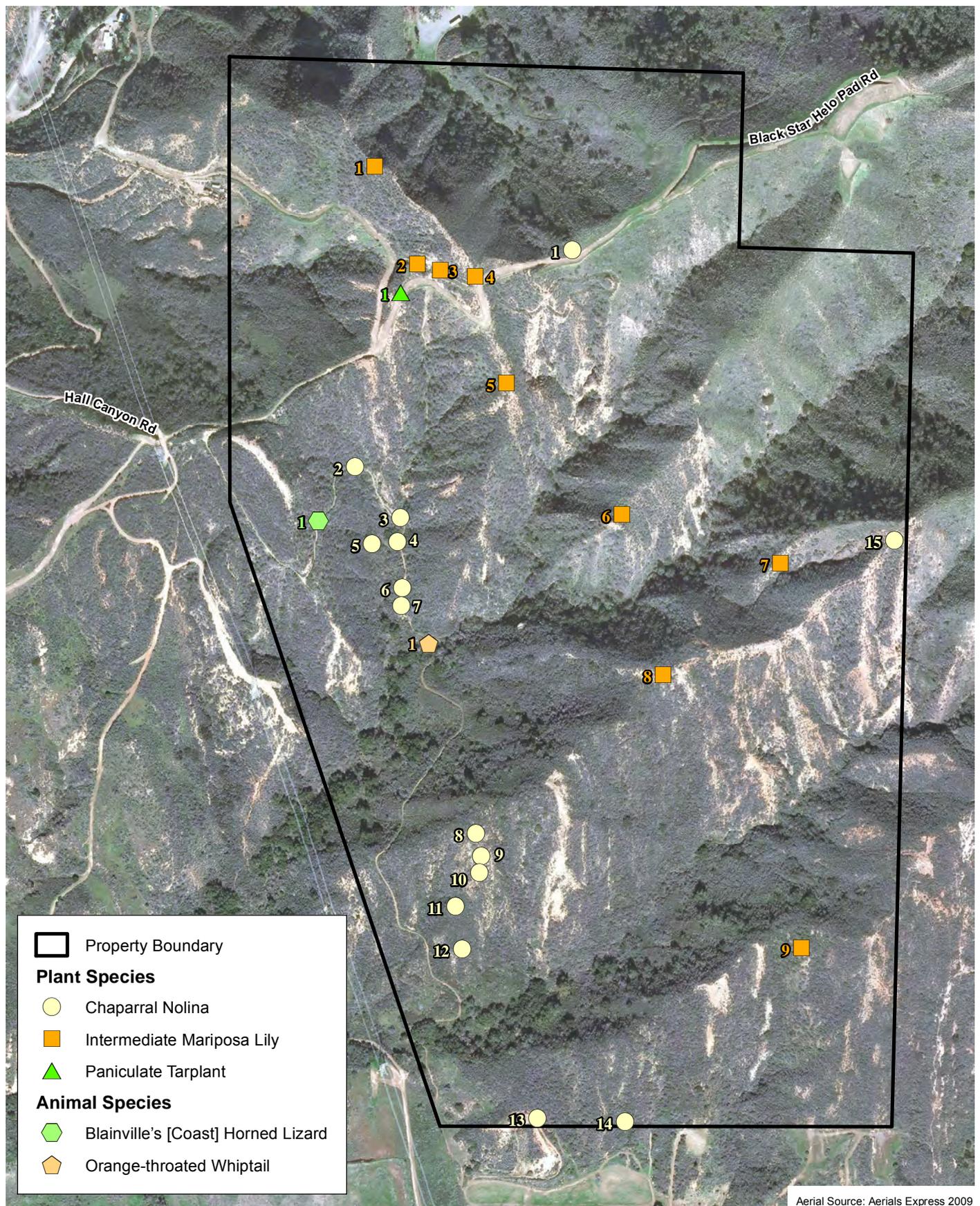
Population	Number of Individuals	Phenology Percentage		
		Vegetative	Flowering	Fruiting
1	3	100	–	–
2	2	–	50	50
3	1	–	–	100
4	5	80	20	–
5	1	–	100	–
6	3	–	100	–
7	1	–	100	–
8	1	–	100	–
9	1	–	100	–
<b>Total</b>	<b>18</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

### ***Paniculate Tarplant***

Paniculate tarplant (*Deinandra paniculata* [formerly in *Hemizonia*]) has a CRPR of 4.2. It typically blooms between May and November (Baldwin et al. 2012). This annual herb occurs in grassland, open chaparral and woodland, and disturbed areas at elevations between sea level and approximately 4,331 feet above msl (Baldwin et al. 2012). This species is known from the southern Central Coast/Outer South Coast Ranges, southern Outer South Coast Ranges, South Coast, eastern Santa Ynez Mountains of the Western Transverse Ranges, Peninsular Ranges, and northern Baja California, Mexico (Baldwin et al. 2012).

One paniculate tarplant individual was observed blooming along an access road in the northern portion of the property (Exhibit 8). The species generally associated with this individual included California buckwheat, chamise, fascicled tarweed, deerweed, and wild oat. A voucher specimen was not collected due to the small population size.

D:\Projects\OCTAJ008\WXD\MacPherson\BioTech\ex\_8\_SSP\Plants.mxd

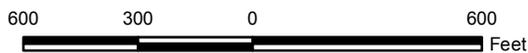


Aerial Source: Aerials Express 2009

### Special Status Species

### Exhibit 8

Measure M2 Acquisition Properties Evaluation – MacPherson Property



### **Chaparral Nolina**

Chaparral nolina has a CRPR of 1B.2. It typically blooms between May and July (Baldwin et al. 2012). This perennial subshrub occurs in dry chaparral and coastal sage scrub at elevations between approximately 656 and 4,265 feet above msl (Roberts 2008; Baldwin et al. 2012). This species is known from the South Coast, Western Transverse Ranges, and Peninsular Ranges (Baldwin et al. 2012).

A total of 326 chaparral nolina individuals were observed in 15 locations on the property (Table 5; Exhibit 8). These plants were observed primarily on south-facing slopes and canyon bottoms in loamy soils. The species generally associated with these populations included chamise, black sage, hoaryleaf ceanothus, and California buckwheat. A voucher specimen was not collected due to the growth form of the species.

**TABLE 5  
CHAPARRAL NOLINA POPULATIONS  
OBSERVED  
ON THE PROPERTY**

Population	Number of Individuals	Phenology Percentage		
		Vegetative	Flowering	Fruiting
1	20	100	0	0
2	10	100	0	0
3	1	100	0	0
4	2	100	0	0
5	2	100	0	0
6	2	100	0	0
7	1	100	0	0
8	6	84	0	16
9	15	100	0	0
10	30	100	0	0
11	20	100	0	0
12	5	100	0	0
13	10	100	0	0
14	200	~80	0	~20
15	2	100	0	0
<b>Total</b>	<b>326</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

#### **3.3.4 Special Status Wildlife**

Based on the results of the literature review and the list of proposed covered wildlife species for the NCCP/HCP, 57 special status wildlife species are known to occur in vicinity of the MacPherson property. These species and their potential for occurrence (which is based on the presence of suitable habitat) are summarized in Table 6. Note that these species are listed taxonomically. Two special status wildlife species were observed on the property. These species are discussed after the table.

**TABLE 6  
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE PROPERTY VICINITY**

Species	Status		Habitat	Range	Potential to Occur on the Property/ Results of Focused Surveys
	USFWS	CDFW			
<b>Invertebrates</b>					
<i>Branchinecta sandiegonensis</i> San Diego fairy shrimp	FE	–	Vernal pools and ephemeral ponds.	Coastal Orange County and San Diego County.	No suitable habitat; not expected to occur.
<i>Streptocephalus woottoni</i> Riverside fairy shrimp	FE	–	Vernal pools and ephemeral ponds.	Coastal Ventura County south to Baja California, Mexico.	No suitable habitat; not expected to occur.
<b>Fish</b>					
<i>Catostomus santaanae</i> Santa Ana sucker	FT	SSC	Small to medium-sized perennial streams, preferably with coarse gravel, rubble, or boulder substrate.	Los Angeles, San Gabriel, and Santa Ana River drainages.	No suitable habitat; not expected to occur.
<i>Gila orcuttii</i> arroyo chub <sup>a</sup>	–	SSC	Coastal freshwater streams and rivers with steady current and emergent vegetation.	Currently found at three native locations: Santa Margarita and De Luz Creeks in San Diego County, Trabuco and San Juan Creeks in Orange County, and Malibu Creek in Los Angeles County; introduced elsewhere.	No suitable habitat; not expected to occur.
<i>Rhinichthys osailolus</i> Santa Ana speckled dace	–	SSC	Small streams, springs, large rivers, deep lakes; prefer clear oxygenated water with movement from current or waves and typically with overhanging vegetation cover.	Restricted to the headwaters of the Los Angeles, Santa Ana, and San Gabriel rivers.	No suitable habitat; not expected to occur.
<b>Amphibians</b>					
<i>Spea hammondi</i> western spadefoot	–	SSC	Quiet streams, vernal pools, and temporary ponds.	Great Valley and bordering foothills and Coast Ranges from Monterey Bay south to Baja California, Mexico.	Limited suitable habitat; limited potential to occur.
<i>Anaxyrus californicus</i> [ <i>Bufo microscaphus californicus</i> ] arroyo toad	FE	SSC	Semi-arid regions near washes or intermittent streams; requires suitable breeding pools.	Southern California and northwestern Baja California, Mexico.	No suitable habitat; not expected to occur.
<i>Lithobates</i> [ <i>Rana</i> ] <i>pipiens</i> northern leopard frog (native populations)	–	SSC	Variety of habitats such as grasslands, brushlands, woodlands, and forests; requires aquatic habitat for overwintering and breeding.	Broadly distributed; native in California only from Modoc and Lassen Counties.	Outside native range of species; not expected to occur as a native population.

**TABLE 6  
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE PROPERTY VICINITY**

Species	Status		Habitat	Range	Potential to Occur on the Property/ Results of Focused Surveys
	USFWS	CDFW			
<i>Taricha torosa</i> Coast Range newt	–	SSC	Wet forests, oak forests, chaparral, and grasslands. Breeds in streams, rivers, ponds, lakes, and reservoirs.	Coast and coast range mountains from Mendocino County south to San Diego County.	Limited suitable habitat; limited potential to occur.
<b>Reptiles</b>					
<i>Actinemys marmorata</i> [ <i>Emys m.</i> ] Pacific [western] pond turtle <sup>a</sup>	–	SSC	In ponds, lakes, marshes, rivers, streams, and irrigation ditches with a rocky or muddy bottom and aquatic vegetation.	Pacific slope drainages from Washington south to northern Baja California, Mexico.	No suitable habitat; not expected to occur.
<i>Phrynosoma blainvillii</i> Blainville's [coast] horned lizard <sup>a</sup>	–	SSC	<b>Scrubland, grassland, coniferous forests, and broadleaf woodland with friable soil for burrowing.</b>	<b>Northern California south to northern Baja California, Mexico.</b>	<b>Suitable habitat; observed on the property.</b>
<i>Aspidoscelis hyperythra</i> [ <i>Cnemidophorus hyperythrus beldingi</i> ] orange-throated whiptail <sup>a</sup>	–	SSC	<b>Washes and open areas of sage scrub and chaparral in friable, gravelly soil.</b>	<b>Western Peninsular Ranges from Orange and San Bernardino Counties south to Baja California, Mexico.</b>	<b>Suitable habitat; observed on the property.</b>
<i>Aspidoscelis [Cnemidophorus] tigris stejnegeri</i> coastal whiptail [coastal western whiptail]	–	SA	Hot and dry open areas with sparse foliage (e.g., chaparral, woodland).	Coastal Southern California, mostly west of the Peninsular Ranges, south of the Transverse Ranges, and north into Ventura County.	Suitable habitat; may occur.
<i>Salvadora hexalepis virgultea</i> coast patch-nosed snake	–	SSC	Sandy or rocky grasslands, chaparral, sagebrush plains, piñon-juniper woodlands, and desert scrub.	Coast of California from San Luis Obispo County south to Baja California, Mexico.	Suitable habitat; may occur.
<i>Thamnophis hammondi</i> two-striped garter snake	–	SSC	Perennial or intermittent freshwater streams with rocky beds bordered by willows or other dense vegetation.	From Monterey County south to El Rosario in Baja California, Mexico.	Limited suitable habitat; limited potential to occur.

**TABLE 6  
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE PROPERTY VICINITY**

Species	Status		Habitat	Range	Potential to Occur on the Property/ Results of Focused Surveys
	USFWS	CDFW			
<i>Crotalus ruber</i> red-diamond rattlesnake	–	SSC	Open scrub, chaparral, woodland, and grassland.	Orange County and San Bernardino County south to Baja California, Mexico.	Suitable habitat; may occur.
<b>Birds</b>					
<i>Accipiter cooperii</i> Cooper's hawk (nesting)	–	WL	Prefers to nest in oak woodlands and riparian woodlands; forages primarily in forest habitats.	Breeds from southern Canada into northwestern and north-central Mexico; wintering range extends south.	Suitable foraging and nesting habitat; expected to occur for foraging and nesting.
<i>Accipiter striatus</i> sharp-shinned hawk (nesting)	–	WL	Nests and forages in forest habitats.	Breeds in Alaska and Canada; portions of the U.S.; in the West Indies; and south through Mexico, Central America, and South America. Migrant and winter visitor in Orange County.	Suitable foraging habitat; may occur for foraging. Outside the breeding range of the species; not expected to occur for nesting.
<i>Aquila chrysaetos</i> golden eagle (nesting and non-breeding/wintering)	–	FP, WL	Nests in open and semi-open habitats (e.g., tundra, shrublands, grasslands, woodland-brushlands, coniferous forests, farmland, and riparian habitats). Forages in broad expanses of open country.	Resident throughout Southern California, except in the Colorado Desert and Colorado River, where it is a casual winter visitor.	Suitable foraging habitat; may occur for foraging. Limited suitable nesting habitat; limited potential to occur for nesting.
<i>Buteo regalis</i> ferruginous hawk (non-breeding/ wintering)	–	WL	Open, dry habitats such as grasslands, shrublands, rangelands, and plowed agricultural fields.	Winter resident in California; visitor along the coast of Southern California.	Suitable foraging habitat; may occur for foraging. Outside the breeding range of the species; not expected to occur for nesting.
<i>Circus cyaneus</i> northern harrier (nesting)	–	SSC	Breeds on the ground within dense vegetation. Forages in open habitats such as marshes and fields.	Winter migrant throughout Southern California, but a scarce local breeder.	Limited suitable foraging and nesting habitat; limited potential to occur for foraging and nesting.
<i>Elanus leucurus</i> white-tailed kite (nesting)	–	FP	Low elevation grassland, agricultural areas, wetlands, oak woodlands, savannahs, and riparian habitat adjacent to open areas.	Resident in coastal Southern California and a visitor and local breeder on the western edge of the deserts.	Suitable foraging and nesting habitat; may occur for foraging and nesting.

**TABLE 6  
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE PROPERTY VICINITY**

Species	Status		Habitat	Range	Potential to Occur on the Property/ Results of Focused Surveys
	USFWS	CDFW			
<i>Haliaeetus leucocephalus</i> bald eagle (nesting and wintering)	Delisted	SE, FP	Forested areas adjacent to large bodies of water.	Occurs from Alaska and Canada; throughout the U.S.; and Baja California, Mexico.	Limited suitable foraging and nesting habitat; limited potential to occur for foraging and nesting.
<i>Falco columbarius</i> merlin (non-breeding/ wintering)	–	WL	Breeds in forests and prairies. Occures along the coast in open grasslands and savannahs; in inland and montane valleys; and in the desert.	Breeds in northern North America, Europe, and Asia. Fall transient and rare winter visitor in California.	Suitable foraging habitat; may occur for foraging. Outside the breeding range of the species; not expected to occur for nesting.
<i>Falco mexicanus</i> prairie falcon (nesting)	–	WL	Nests on cliffs; forages in grassland and scrub vegetation.	Year-round resident of interior Southern California. Winter resident and rare summer resident along the Southern California coast.	Suitable foraging habitat; may occur for foraging. No suitable nesting habitat; not expected to occur for nesting.
<i>Asio otus</i> long-eared owl (nesting)	–	SSC	Nests in dense trees such as oaks and willows. Forages over grasslands and other open habitats.	Breeds in Canada south to northern Baja California, Mexico. Winters throughout breeding range to the interior of Mexico.	Limited suitable foraging habitat; limited potential to occur for foraging. Suitable nesting habitat; may occur for nesting.
<i>Athene cunicularia</i> burrowing owl (burrow sites; wintering in northern counties)	–	SSC	Sparse vegetation in arid and semi-arid habitats such as grasslands, steppes, deserts, prairies, and agricultural areas. Nests in mammal burrows or man-made cavities.	In California from the Central Valley and Southern California.	No suitable habitat; not expected to occur.
<i>Empidonax traillii extimus</i> southwestern willow flycatcher <sup>a</sup> (nesting)	FE	SE	Riparian habitats with dense growths of willows, often with a scattered overstory of cottonwood.	Breeds in coastal Southern California.	No suitable habitat; not expected to occur.
<i>Lanius ludovicianus</i> loggerhead shrike (nesting)	–	SSC	Grasslands and other dry, open habitats.	Throughout North America; a year-round resident in Southern California.	Suitable foraging and nesting habitat; may occur for foraging and nesting.
<i>Vireo bellii pusillus</i> least Bell's vireo <sup>a</sup> (nesting)	FE	SE	Riparian habitat dominated by willows with dense understory vegetation.	Breeds throughout the Central Valley and other low-elevation river systems in California and Baja California, Mexico.	No suitable habitat; not expected to occur.

**TABLE 6  
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE PROPERTY VICINITY**

Species	Status		Habitat	Range	Potential to Occur on the Property/ Results of Focused Surveys
	USFWS	CDFW			
<i>Eremophila alpestris actia</i> California horned lark	–	WL	Open habitats with bare ground or short vegetation, such as shortgrass prairie, deserts, brushy flats, alpine, shrubsteppe, and agricultural areas.	From Alaska and the Canadian arctic south to Mexico. Common migrant and winter resident that remains to breed along the Southern California coast.	Limited suitable habitat; limited potential to occur.
<i>Campylorhynchus brunneicapillus sandiegensis</i> coastal cactus wren <sup>a</sup> (San Diego and Orange Counties)	–	SSC	Coastal sage scrub and alluvial sage scrub with prickly pear cactus and/or cholla.	Southern Orange County and San Diego County to northwestern Baja California, Mexico.	No suitable habitat; not expected to occur.
<i>Polioptila californica californica</i> coastal California gnatcatcher <sup>a</sup>	FT	SSC	Coastal sage scrub vegetation.	Los Angeles, Orange, Riverside, and San Diego Counties south to Baja California, Mexico.	Suitable habitat; not observed during focused surveys.
<i>Dendroica petechia brewsteri</i> yellow warbler (nesting)	–	SSC	Riparian vegetation, often with willows and cottonwoods.	Breeds in Southern California.	No suitable habitat; not expected to occur.
<i>Icteria virens</i> yellow-breasted chat (nesting)	–	SSC	The border of streams, creeks, sloughs, and rivers in dense thickets and tangles of blackberry, wild grape, and willow.	Summer resident in Southern California along the coast and in the deserts.	No suitable habitat; not expected to occur.
<i>Aimophila ruficeps canescens</i> Southern California rufous-crowned sparrow	–	WL	Steep, dry, rocky, south- or west-facing slopes in scrub vegetation interspersed with grasses and forbs or rock outcrops.	Year-round in Southern California.	Suitable habitat; may occur.
<i>Ammodramus savannarum</i> grasshopper sparrow (nesting)	–	SSC	Dense, dry or well-drained grassland.	Across North America from southern Canada south to Ecuador. Summer resident along the coastal slope of Southern California.	Limited suitable foraging and nesting habitat; limited potential to occur for foraging and nesting.
<i>Amphispiza belli belli</i> Bell's sage sparrow	–	WL	Low, dense chamise chaparral and dry scrub vegetation, often with stands of cactus.	Resident in interior foothills or coastal Southern California.	Suitable habitat; may occur.

**TABLE 6  
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE PROPERTY VICINITY**

Species	Status		Habitat	Range	Potential to Occur on the Property/ Results of Focused Surveys
	USFWS	CDFW			
<b>Mammals</b>					
<i>Antrozous pallidus</i> pallid bat	-	SSC	Low elevation grasslands, shrublands, woodlands, and forests. Roosts in caves, crevices, mines, bridges, and occasionally in hollow trees.	Throughout California except the high Sierra Nevada from Shasta County to Kern County and in the northwestern portion of the State.	Suitable foraging habitat; may occur for foraging. Limited suitable roosting habitat; limited potential to occur for roosting.
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	-	CT, SSC	Wide variety of habitats except subalpine and alpine. Roosts in caves, mines, tunnels, buildings, or other human-made structures.	Throughout most of California.	Suitable foraging habitat; may occur for foraging. No suitable roosting habitat; not expected to occur for roosting.
<i>Euderma maculatum</i> spotted bat	-	SSC	Foothills, mountains, arid deserts, grasslands, and mixed conifer forests. Roosts in rock crevices, occasionally in caves and buildings.	Western North America from southern British Columbia to Mexico.	Suitable foraging habitat; may occur for foraging. No suitable roosting habitat; not expected to occur for roosting.
<i>Lasiorycteris noctivagans</i> silver-haired bat	-	SA	Coastal and montane forests, valley foothill woodlands, pinyon-juniper woodlands, and valley foothill and montane riparian habitats. Primarily a forest dweller.	North America, from southern British Columbia to northern Mexico.	Suitable foraging habitat; may occur for foraging. Limited suitable roosting habitat; limited potential to occur for roosting.
<i>Lasiurus blossevillii</i> western red bat	-	SSC	Prefers riparian areas dominated by walnuts, oaks, willows, cottonwoods, and sycamores where they roost in these broad-leaved trees.	Found in western Canada, the western U.S., western Mexico and Central America.	Suitable foraging habitat; may occur for foraging. Limited suitable roosting habitat; limited potential to occur for roosting.
<i>Lasiurus cinereus</i> hoary bat	-	SA	Prefers open habitats or habitat mosaics, with access to trees and open areas or habitat edges.	Widest range of any New World bat, living from Argentina and Chile northward through Canada.	Suitable foraging habitat; may occur for foraging. Limited suitable roosting habitat; limited potential to occur for roosting.

**TABLE 6  
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE PROPERTY VICINITY**

Species	Status		Habitat	Range	Potential to Occur on the Property/ Results of Focused Surveys
	USFWS	CDFW			
<i>Lasiurus xanthinus</i> western yellow bat	–	SSC	Valley foothill riparian, desert riparian, desert wash, and palm oasis. Roosts in trees.	Mexican Plateau, coastal western Mexico, and deserts of the southwestern U.S.	Suitable foraging habitat; may occur for foraging. Limited suitable roosting habitat; limited potential to occur for roosting.
<i>Myotis ciliolabrum</i> western small-footed myotis	–	SA	Arid uplands, primarily in arid wooded and brushy uplands near water. Roosts in caves, buildings, mines, crevices, and occasionally under bridges and under bark.	Southern British Columbia, Alberta, and Saskatchewan, Canada to the southwestern U.S.	Suitable foraging habitat; may occur for foraging. Limited suitable roosting habitat; limited potential to occur for roosting.
<i>Myotis evotis</i> long-eared myotis	–	SA	Nearly all brush, woodland, and forest habitats, but appears to prefer coniferous woodlands and forests. Roosts in buildings, crevices, spaces under bark, and snags.	Western Canada; western U.S.; and Baja California, Mexico.	Suitable foraging habitat; may occur for foraging. Limited suitable roosting habitat; limited potential to occur for roosting.
<i>Myotis yumanensis</i> Yuma myotis	–	SA	Open forests and woodlands, closely associated with water bodies. Roosts in buildings, mines, caves, crevices, swallow nests, and under bridges.	Southwestern British Columbia through the western U.S., and into central Mexico.	Suitable foraging habitat; may occur for foraging. No suitable roosting habitat; not expected to occur for roosting.
<i>Eumops perotis californicus</i> western mastiff bat	–	SSC	Open, semi-arid to arid habitats including conifer and deciduous woodland, coastal scrub, grasslands, palm oases, chaparral, desert scrub, and urban. Roosts in crevices in cliffs, high buildings, trees, and tunnels.	Southeastern San Joaquin Valley and Coastal Ranges from Monterey County south through Southern California, and from the coast eastward to the Colorado Desert.	Suitable foraging habitat; may occur for foraging. Limited suitable roosting habitat; limited potential to occur for roosting.

**TABLE 6  
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE PROPERTY VICINITY**

Species	Status		Habitat	Range	Potential to Occur on the Property/ Results of Focused Surveys
	USFWS	CDFW			
<i>Nyctinomops femorosaccus</i> pocketed free-tailed bat	–	SSC	Pinyon-juniper woodland, desert scrub, desert succulent scrub, desert riparian, and desert. Roosts in crevices in cliffs, caverns, or buildings.	Southwestern U.S. to south-central Mexico.	Suitable foraging habitat; may occur for foraging. No suitable roosting habitat; not expected to occur for roosting.
<i>Lepus californicus bennettii</i> San Diego black-tailed jackrabbit	–	SSC	Herbaceous and desert-shrub areas and open, early stages of forest and chaparral.	Pacific slope from Santa Barbara County south to northwestern Baja California, Mexico.	Limited suitable habitat; limited potential to occur.
<i>Chaetodipus fallax fallax</i> northwestern San Diego pocket mouse	–	SSC	Chaparral, coastal sage scrub, and grassland.	Southwest San Bernardino County south to northern Baja California, Mexico.	Suitable habitat; may occur.
<i>Perognathus longimembris brevinasus</i> Los Angeles pocket mouse	–	SSC	Lower elevation grasslands and coastal sage scrub with fine sandy soils.	Los Angeles Basin to San Bernardino, Cabazon, Hemet, and Aguanga.	Suitable habitat; may occur.
<i>Neotoma lepida intermedia</i> San Diego desert woodrat	–	SSC	Joshua tree woodland, pinyon-juniper, mixed and chamise-redshank chaparral, sagebrush, and desert habitats.	Pacific slope from San Luis Obispo south to northwestern Baja California, Mexico.	Suitable habitat; may occur.
<i>Taxidea taxus</i> American badger	–	SSC	Drier, open stages of shrub, forest, and herbaceous habitats with friable soil.	Throughout California except the extreme northwest.	Suitable habitat; may occur.
<i>Puma [Felis] concolor</i> mountain lion <sup>a</sup>	–	–	Broad variety of habitats in range except shrubless deserts and agricultural areas.	Latitudinal range of 110 degrees in North and South America.	Suitable habitat; may occur.

**TABLE 6  
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE PROPERTY VICINITY**

Species	Status		Habitat	Range	Potential to Occur on the Property/ Results of Focused Surveys																												
	USFWS	CDFW																															
<i>Lynx rufus</i> bobcat <sup>a</sup>	–	–	Broad variety of habitats.	Throughout contiguous U.S. and Mexico south to Rio Mescale, and Canada.	Suitable habitat; may occur.																												
USFWS: U.S. Fish and Wildlife Service; CDFW: California Department of Fish and Wildlife. <b>LEGEND</b> <table border="0"> <tr> <td colspan="2"><b>Federal (USFWS)</b></td> <td colspan="2"><b>State (CDFW)</b></td> </tr> <tr> <td>FE</td> <td>Endangered</td> <td>SE</td> <td>Endangered</td> </tr> <tr> <td>FT</td> <td>Threatened</td> <td>CT</td> <td>Candidate Threatened</td> </tr> <tr> <td></td> <td></td> <td>SSC</td> <td>Species of Special Concern</td> </tr> <tr> <td></td> <td></td> <td>WL</td> <td>Watch List</td> </tr> <tr> <td></td> <td></td> <td>FP</td> <td>Fully Protected</td> </tr> <tr> <td></td> <td></td> <td>SA</td> <td>Special Animal</td> </tr> </table>						<b>Federal (USFWS)</b>		<b>State (CDFW)</b>		FE	Endangered	SE	Endangered	FT	Threatened	CT	Candidate Threatened			SSC	Species of Special Concern			WL	Watch List			FP	Fully Protected			SA	Special Animal
<b>Federal (USFWS)</b>		<b>State (CDFW)</b>																															
FE	Endangered	SE	Endangered																														
FT	Threatened	CT	Candidate Threatened																														
		SSC	Species of Special Concern																														
		WL	Watch List																														
		FP	Fully Protected																														
		SA	Special Animal																														
<sup>a</sup> Proposed Covered Species in the NCCP/HCP.																																	

### ***Blainville's [Coast] Horned Lizard***

Blainville's [coast] horned lizard is a California Species of Special Concern. It is a small, spiny, somewhat rounded lizard that occurs in scrubland, grassland, coniferous forests, and broadleaf woodland vegetation types. It prefers open areas for basking and loose, friable soil for burrowing. The Blainville's [coast] horned lizard occurs throughout much of California, west of the desert and Cascade-Sierra highlands south to Baja California, Mexico. However, many of the populations in lowland areas have been reduced or eliminated due to urbanization and agricultural expansion (Stebbins 2003). Three factors have contributed to its decline: loss of habitat, overcollecting, and the introduction of exotic ants (Jennings and Hayes 1994). Blainville's [coast] horned lizard was observed in an opening of southern mixed chaparral vegetation in the western portion of the property.

### ***Orange-Throated Whiptail***

Orange-throated whiptail is a California Species of Special Concern. The orange-throated whiptail occurs in washes and in open areas of sage scrub and chaparral with gravelly soils, often with rocks. It prefers well drained, friable soil on slopes with a southern exposure that are barren or only sparsely covered with vegetation. This species occurs between sea level and 2,000 feet above msl in the western Peninsular Ranges from Orange and San Bernardino Counties south to Baja California, Mexico. Approximately 75 percent of the former range has been lost to development, and the remaining populations are highly fragmented (Stebbins 2003). Orange-throated whiptail was observed in an opening of mixed sage scrub vegetation in the center of the property.

#### **3.3.5 Critical Habitat**

The federal Endangered Species Act defines critical habitat as follows:

(1) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of Section 4 of this [Endangered Species] Act, on which are found those physical or biological features (a) essential to the conservation of the species and (b) which may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of Section 4 of this [Endangered Species] Act, upon a determination by the Secretary that such areas are essential for the conservation of the species.

On February 9, 2011, the USFWS published a Final Rule designating critical habitat for arroyo toad. This Final Rule designates 98,366 acres in Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, Orange, and San Diego Counties as critical habitat. The property is within Unit 8 of the current final critical habitat for arroyo toad.

### **3.4 COVERED SPECIES SUMMARY**

The baseline surveys described in this document were focused towards establishing baseline knowledge of the set of species covered by the OCTA M2 NCCP/HCP. The OCTA M2 NCCP/HCP includes requirements to understand and document the status of Covered Species and their habitats within the Preserves. Table 7 provides a summary of the OCTA M2 NCCP/HCP Covered Species; whether they were observed during the baseline surveys; other information documenting the potential for the Covered Species to occur on site; and a description of the threats and opportunities for management of the Preserve to benefit Covered Species.

Potential threats to Covered Species and their habitats on the property include habitat destruction by hikers and mountain bikers; illegal hunting; the spread of non-native plants and wildlife (e.g., Spanish broom and non-native ants); and wildland fires. A RMP may incorporate restricting unauthorized access on the property; restoring native habitat by removing invasive plants; and maintaining movement opportunities through the property. A grant from the Wildlife Conservation Board (WCB), which provides funding for watershed-wide habitat enhancement, may be available to assist with restoration activities.

The grasslands on the property represent the primary candidate areas for habitat restoration to native grassland, scrub, or woodland communities, depending on the slope, aspect, and soils present. Control of species such as ripgut grass, wild oat, black mustard, and tocalote presents a challenge given their prevalence throughout the wildlands of Orange County. However, the Spanish broom (*Spartium junceum*), which was observed in the southwestern corner of the property (see Exhibit 6), should be targeted for removal.

**TABLE 7  
SUMMARY OF COVERED SPECIES**

Species	Observations During Baseline Surveys	Potential to Occur on the Property	Opportunities, Threats, and Management
<b>Plants</b>			
<i>Calochortus weedii</i> var. <i>intermedius</i> intermediate mariposa lily	Observed on site.	Suitable habitat; additional individuals/populations may be present.	<p>Potential threats include hikers and mountain bikers.</p> <p>Opportunities occur to establish the species in areas with suitable conditions (e.g., soils) that are currently degraded.</p> <p>An RMP may restrict unauthorized access on site and allow for transplantation and/or seeding of this variety in suitable areas on site.</p>
<i>Centromadia parryi</i> ssp. <i>australis</i> southern tarplant	Not observed on site.	No suitable habitat; not expected to occur.	No opportunities available because suitable habitat does not occur on the property.
<i>Dudleya multicaulis</i> many-stemmed dudleya	Not observed on site.	Suitable habitat; may establish on site.	<p>Potential threats include hikers and mountain bikers.</p> <p>Opportunities occur to establish the species in areas with suitable conditions (e.g., soils) that are currently degraded.</p> <p>An RMP may restrict unauthorized access on site and allow for transplantation and/or seeding of this variety in suitable areas on site.</p>
<b>Fish</b>			
<i>Gila orcuttii</i> arroyo chub	Not observed on site.	No suitable habitat; not expected to occur.	No opportunities available because suitable habitat does not occur on the property.
<b>Reptiles</b>			
<i>Actinemys marmorata</i> [ <i>Emys m.</i> ] Pacific [western] pond turtle	Not observed on site.	No suitable habitat; not expected to occur.	No opportunities available because suitable habitat does not occur on the property.

**TABLE 7  
SUMMARY OF COVERED SPECIES**

Species	Observations During Baseline Surveys	Potential to Occur on the Property	Opportunities, Threats, and Management
<i>Phrynosoma blainvillii</i> Blainville's [coast] horned lizard	Observed on site.	Suitable habitat; additional individuals/populations are likely present.	<p>Potential threats include mortality and habitat destruction due to hikers and mountain bikers, intense fire events, and the spread of non-native ant species.</p> <p>Habitat restoration opportunities for coastal sage scrub and other suitable habitat occurs on site.</p> <p>An RMP may restrict unauthorized access on site and ensure any plant/soil material brought on site is free of non-native ant species.</p>
<i>Aspidoscelis hyperythra</i> [ <i>Cnemidophorus hyperythrus beldingi</i> ] orange-throated whiptail	Observed on site.	Suitable habitat; additional individuals/populations are likely present.	<p>Potential threats include mortality and habitat destruction due to hikers and mountain bikers and intense fire events.</p> <p>Habitat restoration opportunities for coastal sage scrub and other suitable habitat occurs on site.</p> <p>An RMP may incorporate restoration opportunities for coastal sage scrub and other native habitats utilized by this species.</p>
<b>Birds</b>			
<i>Empidonax traillii extimus</i> southwestern willow flycatcher (nesting)	Not observed on site.	No suitable habitat; not expected to occur.	No opportunities available because suitable habitat does not occur on the property.
<i>Vireo bellii pusillus</i> least Bell's vireo (nesting)	Not observed on site.	No suitable habitat; not expected to occur.	No opportunities available because suitable habitat does not occur on the property.
<i>Campylorhynchus brunneicapillus sandiegensis</i> coastal cactus wren (San Diego and Orange Counties)	Not observed on site.	Suitable habitat present.	<p>Potential threats include mortality and habitat destruction due to hikers and mountain bikers and intense fire events.</p> <p>Protection of coastal sage scrub habitat that contains cactus is crucial for the preservation of this subspecies.</p> <p>Habitat restoration opportunities for coastal sage scrub with cactus species occur on site.</p>

**TABLE 7  
SUMMARY OF COVERED SPECIES**

Species	Observations During Baseline Surveys	Potential to Occur on the Property	Opportunities, Threats, and Management
<p><i>Polioptila californica</i> coastal California gnatcatcher</p>	<p>Not observed on site.</p>	<p>Suitable habitat present.</p>	<p>Potential threats include mortality and habitat destruction due to hikers and mountain bikers and intense fire events.</p> <p>Protection of coastal sage scrub habitat is crucial for the preservation of this subspecies.</p> <p>There are limited opportunities to provide habitat for this subspecies on site because coastal sage scrub is a component of the chaparral vegetation. Coastal sage scrub may be established in suitable semi-natural herbaceous stands on site.</p>
<p><b>Mammals</b></p>			
<p><i>Puma [Felis] concolor</i> mountain lion</p>	<p>Not observed on site.</p>	<p>Suitable habitat present.</p>	<p>Potential threats include illegal hunting and intense fire events.</p> <p>Opportunities are available for on-site native habitat restoration and enhancement, which would benefit this species.</p> <p>Management should include maintenance of movement opportunities through the site.</p>
<p><i>Lynx rufus</i> bobcat</p>	<p>Not observed on site.</p>	<p>Suitable habitat present.</p>	<p>Potential threats include illegal hunting and intense fire events.</p> <p>Opportunities are available for on-site native habitat restoration and enhancement, which would benefit this species.</p> <p>Management should include maintenance of movement opportunities through the site.</p>

## 4.0 REFERENCES

- Allen, E.B, S.A. Eliason, V.J. Marquez, G.P. Schultz, N.K. Storms, C.D. Stylinski, T.A. Zink, and M.F. Allen. 2000. What are the Limits to Restoration of Coastal Sage Scrub in Southern California (pp. 253–262). *2<sup>nd</sup> Interface Between Ecology and Land Development in California* (J.E. Keeley, M. Baer-Keeley, and C.J. Fotheringham, Eds.). Sacramento, CA: U.S. Geological Survey.
- American Ornithologists' Union (AOU). 2013 (September). *Check-list of North American Birds* (7<sup>th</sup> ed., as revised through 54<sup>th</sup> Supplement). Washington, D.C.: AOU. <http://www.aou.org/checklist/north/index.php>.
- Baldwin, B.G., D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken (Eds.). 2012. *The Jepson Manual: Vascular Plants of California* (Second ed.). Berkeley, CA: University of California Press.
- Barry, W.J. 1972. *California Prairie Ecosystems. Vol. 1: The Central Valley Prairie*. Sacramento, CA: State of California Resources Agency, Department of Parks and Recreation.
- Bell, G. 1997. Ecology and Management of *Arundo donax* and Approaches to Riparian Habitat Restoration in Southern California (pp. 103–113). *Plant Invasions: Studies from North America and Europe* (J.H. Brock, M. Wade, P. Pysek, and D. Green, Eds.). Leiden, The Netherlands: Blackhuys Publishers.
- Bennett, A.F. 1990. Habitat Corridors and the Conservation of Small Mammals in the Fragmented Forest Environment. *Landscape Ecology* 4(2–3):109–122. New York, NY: International Association for Landscape Ecology.
- BonTerra Psomas. 2014 (October 16). *Results of Focused Presence/Absence Coastal California Gnatcatcher Surveys for the MacPherson Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation in Orange County, California*. Irvine, CA: BonTerra Psomas.
- California Department of Fish and Game (CDFG). 2010 (September). *List of Vegetation Alliances and Associations, Vegetation Classification and Mapping Program*. Sacramento, CA: CDFG.
- . 2009 (November 24). *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities*. Sacramento, CA: CDFG.
- California Department of Fish and Wildlife (CDFW). 2014a. California Natural Diversity Database. Records of Occurrence for the USGS Black Star Canyon and El Toro 7.5-minute quadrangles. Sacramento, CA: CDFW, Natural Heritage Division.
- . 2014b (September). *Special Animals*. Sacramento, CA: CDFW, Natural Heritage Division.
- . 2014c (October). *Special Vascular Plants, Bryophytes, and Lichens List*. Sacramento, CA: CDFW, Natural Heritage Division.
- California Department of Fish and Wildlife, Biogeographic Data Branch (CDFW BDB). 2014. Wildlife Habitats — California Wildlife Habitat Relationships System. Sacramento, CA: CDFW BDB. [http://www.dfg.ca.gov/bdb/html/wildlife\\_habitats.html](http://www.dfg.ca.gov/bdb/html/wildlife_habitats.html).

- California Department of Forestry and Fire Protection (CAL FIRE). 2014. Fire Perimeter Data. Sacramento, CA: CAL FIRE, U.S. Department of Agriculture Forest Service Region 5 Remote Sensing Lab, Bureau of Land Management, National Park Service. [http://frap.cdf.ca.gov/projects/fire\\_data/fire\\_perimeters/](http://frap.cdf.ca.gov/projects/fire_data/fire_perimeters/).
- California Irrigation Management Information System (CIMIS). 2014. CIMIS Monthly Report for Irvine – South Coast Valleys Station #75. Sacramento, CA: California Department of Water Resources, CIMIS. <http://www.cimis.water.ca.gov>.
- Canyon Land Conservation Fund (CLCF). 2011. Canyon History. Silverado, CA: CLCF. <http://www.canyonland.org/canyonhistory.html>.
- California Native Plant Society (CNPS). 2014a. *The CNPS Ranking System*. Sacramento, CA: CNPS. <http://www.cnps.org/cnps/rareplants/ranking.php>.
- . 2014b. Electronic Inventory of Rare and Endangered Vascular Plants of California. Records of Occurrence for the USGS Black Star Canyon and El Toro 7.5-minute quadrangles. Sacramento, CA: CNPS. <http://www.cnps.org/inventory>.
- California Wetlands Monitoring Workgroup (CWMW). 2012 (March). *California Rapid Assessment Method (CRAM) for Wetlands and Riparian Areas* (Version 6.0).
- Crother, B.I. (Ed.). 2008 (May 2011, last update). Scientific and Standard English Names of Amphibians and Reptiles of North American North of Mexico, with Comments Regarding Confidence in our Understanding (Edition 6.1). Shoreview, MN: Society for the Study of Amphibians and Reptiles. [http://www.ssarherps.org/pages/comm\\_names/Index.php](http://www.ssarherps.org/pages/comm_names/Index.php).
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual* (Technical Report Y-87-1). Vicksburg, MS: U.S. Army Engineer Waterways Experiment Station.
- Faber, P., E. Keller, A. Sands, B. Massey. 1989. *The Ecology of Riparian Habitats of the Southern California Coastal Region: A Community Profile* (Biological Report 85 [7.27]). Washington, D.C: U.S. Fish and Wildlife Service, Research and Development, National Wetlands Research Center.
- Faber-Langendoen, D., L. Master, J. Nichols, K. Snow, A. Tomaino, R. Bittman, G. Hammerson, B. Heidel, L. Ramsay, and B. Young. 2009. *NatureServe Conservation Status Assessments: Methodology for Assigning Ranks*. Arlington, VA: NatureServe. [http://www.natureserve.org/publications/ConsStatusAssess\\_RankMethodology.pdf](http://www.natureserve.org/publications/ConsStatusAssess_RankMethodology.pdf).
- Fahrig, L. and G. Merriam. 1985. Habitat Patch Connectivity and Population Survival. *Ecology* 66(6): 1762–1768. Tempe, AZ: Ecological Society of America.
- Gray, J. and D. Bramlet. 1992. *Habitat Classification System Natural Resources Geographic Information System (GIS) Project* (Prepared for the County of Orange Environmental Management Agency). Santa Ana, CA: Gray and Bramlet.
- Halsey, R.W. 2007. Chaparral: Pure California. *Fremontia* 35(4): 2–7. Sacramento, CA: CNPS.
- . 2005. *Fire, Chaparral, and Survival in Southern California*. San Diego, CA: Sunbelt Publications, Inc.

- Harris, L.D. and P.B. Gallagher. 1989. New Initiatives for Wildlife Conservation: The Need for Movement Corridors (pp. 11–34). *Preserving Communities and Corridors* (G. Mackintosh, Ed.). Washington, D.C.: Defenders of Wildlife.
- Hickman, J.C., Ed. 1993. *The Jepson Manual of Higher Plants of California*. Berkeley, CA: University of California Press.
- Howard, J.L. 1992. Malomsa laurina. In: Fire Effects Information System, [Online]. Golden, CO: U.S., Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory. <http://www.fs.fed.us/database/feis/>.
- Jennings, M.R. and M.P. Hayes. 1994. Decline of Native Ranid Frogs in the Desert Southwest. In *Herpetology of the North American Deserts: Proceedings of a Symposium* (P.R. Brown and J.W. Wright, Eds.). *Southwestern Herpetologists Society Special Publication No. 5*. Van Nuys, CA: Southwestern Herpetologists Society.
- Keeley, J.E. and P.H. Zedler. 2009. Large, High-intensity Fire Events in Southern California Shrublands: Debunking the Fine-grain Age Patch Model. *Ecological Applications* 19(1): 69-94. Tempe, AZ: Ecological Society of America.
- Los Angeles, County of, Santa Monica Mountains Conservancy, City of Brea, City of La Habra Heights, City of Whittier, and City of Diamond Bar (Los Angeles County et al.). 2003 (October 14, adopted). Wildlife Corridor Conservation Authority Joint Exercise of Powers Agreement (an agreement “to provide for the proper planning, conservation, environmental protection, and maintenance of the habitat and wildlife corridor between the Whittier-Puente Hills and the Cleveland National Forest in the Santa Monica Mountains.”).
- MacArthur, R.H. and E.O. Wilson. 1967. *The Theory of Island Biogeography*. Princeton, NJ: Princeton University Press.
- McCreary, D.D. 2004. *Fire in California’s Oak Woodlands*. University of California Integrated Hardwood Range Management Program. Davis, CA: University of California, Agricultural Issues Center, Integrated Hardwood Range Management Program. <http://ucanr.org/faqs/filegroups/faqs14-sep-09-1109/16808.pdf>.
- Minnich, R.A. and R.J. Dezzani. 1998. Historic Decline of Coastal Sage Scrub in the Riverside – Perris Plain, California. *Western Birds*. 29(4): 366–391. San Diego, CA: Western Field Ornithologists.
- Munz, P.A. 1974. *A Flora of Southern California*. Berkeley, CA: University of California Press.
- National Weather Service (NWS). 2014. International Station Meteorological Climate Summary for El Toro Station 722974. Salt Lake City, UT: National Oceanic and Atmospheric Administration, NWS Western Region Headquarters.
- Noss, R.F. 1983. A Regional Landscape Approach to Maintain Diversity. *BioScience*. 33(11): 700–706. Washington, D.C.: American Institute of Biological Sciences.
- Noss, R.F. and R.L. Peters. 1995. *Endangered Ecosystems: a Status Report on America’s Vanishing Habitat and Wildlife*. Washington, D.C.: Defenders of Wildlife.
- O’Leary, J. 1995. Coastal Sage Scrub: Threats and Current Status. *Fremontia*. 23(4): 27–31. Sacramento, CA: California Native Plant Society.

- Orange, County of. 1977 (as amended). *Silverado-Modjeska Specific Plan*. Santa Ana, CA: Orange County Board of Supervisors.
- Orange County Fire Authority (OCFA). 2008 (November 15). *After Action Report: Freeway Complex Fire*. Irvine, CA: OCFA.
- . 2007 (October). *After Action Report: Santiago Fire*. Irvine, CA: OCFA.
- Orange County Transportation Authority (OCTA). 2010 (December 3). Notice of Preparation to Prepare an Environmental Impact Report. Orange, CA: OCTA.
- Ritter, M.E. 2006. The Physical Environment: Mediterranean or Dry Summer Subtropical Climate. Stevens Point, WI: University of Wisconsin. [http://www.uwsp.edu/geo/faculty/ritter/geog101/textbook/climate\\_systems/mediterranean.html](http://www.uwsp.edu/geo/faculty/ritter/geog101/textbook/climate_systems/mediterranean.html).
- Roberts, F.M. 2008. *The Vascular Plants of Orange County, California: An Annotated Checklist*. San Luis Rey, CA: F.M. Roberts Publications.
- Ruben, J.A. and W.J. Hillenius. 2005 (May). Cold Blooded. *Natural History*. New York, NY: American Museum of Natural History.
- Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. *A Manual of California Vegetation* (2<sup>nd</sup> ed.). Sacramento, CA: CNPS.
- Schoenherr, A.A. 1992. *A Natural History of California*. Berkeley, CA: University of California Press.
- Simberloff, D. and J. Cox. 1987. Consequences and Costs of Conservation Corridors. *Conservation Biology* 1(1): 63–71. Boston, MA: Blackwell Scientific Publications.
- Smithsonian National Museum of Natural History (SNMNH). 2011. Mammal Species of the World (3<sup>rd</sup> ed.) (a database based on Wilson, D.E. and D.M. Reeder's 2005 publication entitled *Mammal Species of the World, A Taxonomic and Geographic Reference, 3<sup>rd</sup> ed.*). Washington, D.C.: SNMNH. <http://www.vertebrates.si.edu/msw/mswcfapp/msw/index.cfm>.
- Soule, M.E. 1987. *Viable Populations for Conservation*. New York, NY: Cambridge University Press.
- Stebbins, R.C. 2003. *A Field Guide to Western Reptiles and Amphibians* (3<sup>rd</sup> ed.). Boston, MA: Houghton-Mifflin Company.
- Steinberg, P.D. 2002. *Quercus agrifolia*. In: Fire Effects Information System, [Online]. Golden, CO: USDA, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory. <http://www.fs.fed.us/database/feis/>.
- U.S. Army Corps of Engineers (USACE). 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*. (J.S. Wakeley, R.W. Lichvar, and C.V. Noble, Eds.). Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- U.S. Fish and Wildlife Service (USFWS). 2011 (February 9). Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for the Arroyo Toad; Final Rule. *Federal Register* 76(27): 7245–7467. Washington, D.C.: USFWS.

- . 2006 (March 24). Wetland Mapper [Information for the MacPherson Property]. Washington D.C.: USFWS, National Wetlands Inventory. <http://www.fws.gov/wetlands/Data/Mapper.html>.
- . 1997 (February 28). *Coastal California Gnatcatcher (Polioptila californica californica)*. *Presence/Absence Survey Guidelines*. Washington, D.C.: USFWS.
- U.S. Forest Service (USFS). 2013 (March). Cleveland National Forest: History Heritage. San Diego, CA: Cleveland National Forest.

**ATTACHMENT A**  
**PLANT AND WILDLIFE COMPENDIA**

**A-1**  
**PLANT SPECIES OBSERVED DURING SURVEYS**

Species	
<b>PTERIDOPHYTES – FERNS AND ALLIES</b>	
PTERIDACEAE – BRAKE FAMILY	
<i>Pellaea mucronata</i>	bird's-foot fern
<i>Pentagramma triangularis</i> ssp. <i>triangularis</i>	goldenback fern
SELAGINELLACEAE – SPIKE-MOSS FAMILY	
<i>Selaginella bigelovii</i>	Bigelow's or bushy spike-moss
<b>ANGIOSPERMAE – FLOWERING PLANTS</b>	
<b>EUDICOTS</b>	
ADOXACEAE – MUSKROOT FAMILY	
<i>Sambucus nigra</i> ssp. <i>caerulea</i> [ <i>S. mexicana</i> ]	blue elderberry
ANACARDIACEAE – SUMAC FAMILY	
<i>Malosma laurina</i>	laurel sumac
<i>Rhus integrifolia</i>	lemonade berry
<i>Rhus ovata</i>	sugar bush
<i>Toxicodendron diversilobum</i>	western poison oak
APIACEAE – CARROT FAMILY	
<i>Lomatium lucidum</i>	shiny lomatium
<i>Sanicula</i> sp.	sanicle
ASTERACEAE – SUNFLOWER FAMILY	
<i>Acourtia microcephala</i>	sacapellote
<i>Artemisia californica</i>	California sagebrush
<i>Artemisia douglasiana</i>	mugwort
<i>Baccharis pilularis</i> ssp. <i>consanguinea</i> [ <i>B. pilularis</i> ]	coyote brush
<i>Baccharis salicifolia</i> ssp. <i>salicifolia</i> [ <i>B. salicifolia</i> ]	mule fat
<i>Carduus pycnocephalus</i> ssp. <i>pycnocephalus</i> *	Italian thistle
<i>Centaurea melitensis</i> *	tochalote, Malta star-thistle
<i>Chaenactis artemisiifolia</i>	white pincushion
<i>Corethrogyne filaginifolia</i> [ <i>Lessingia</i> f.]	California-aster
<i>Cynara cardunculus</i> *	cardo, globe artichoke
<i>Deinandra fasciculata</i> [ <i>Hemizonia</i> f.]	fascicled tarweed
<i>Deinandra paniculata</i> [ <i>Hemizonia</i> p.]	San Diego, paniculate tarplant
<i>Encelia californica</i>	California brittlebush
<i>Erigeron foliosus</i>	leafy fleabane
<i>Eriophyllum confertiflorum</i>	golden-yarrow
<i>Gazania linearis</i> *	gazania
<i>Hazardia squarrosa</i>	saw-toothed goldenbush
<i>Helianthus gracilentus</i>	slender sunflower
<i>Heterotheca grandiflora</i>	telegraph weed
<i>Hypochaeris glabra</i> *	smooth cat's-ear
<i>Isocoma menziesii</i>	coastal goldenbush
<i>Lactuca serriola</i> *	prickly lettuce
<i>Logfia filaginoides</i> [ <i>Filago californica</i> ]	California cottonrose
<i>Logfia gallica</i> [ <i>Filago</i> g.]*	daggerleaf cottonrose
<i>Malacothrix saxatilis</i>	malacothrix
<i>Osmadenia tenella</i>	osmadenia

**A-1**  
**PLANT SPECIES OBSERVED DURING SURVEYS**

Species	
<i>Pseudognaphalium californicum</i> [ <i>Gnaphalium</i> c.]	California everlasting
<i>Pseudognaphalium canescens</i> [ <i>Gnaphalium</i> c.]	everlasting
<i>Pseudognaphalium microcephalum</i> [ <i>Gnaphalium canescens</i> ssp. m.]	white everlasting
<i>Silybum marianum</i> *	milk thistle
<i>Sonchus oleraceus</i> *	common sow thistle
<i>Stephanomeria exigua</i>	wreath plant
<i>Stylocline gnaphaloides</i>	everlasting neststraw
<i>Uropappus lindleyi</i> [ <i>Microseris</i> l.]	silver puffs
<b>BORAGINACEAE – BORAGE FAMILY</b>	
<i>Cryptantha</i> sp.	cryptantha
<i>Eriodictyon crassifolium</i>	thick-leaf yerba santa
<i>Eucrypta chrysanthemifolia</i>	common eucrypta
<i>Phacelia cicutaria</i>	caterpillar phacelia
<i>Phacelia minor</i>	wild canterbury-bell
<i>Phacelia parryi</i>	Parry's phacelia
<b>BRASSICACEAE – MUSTARD FAMILY</b>	
<i>Brassica nigra</i> *	black mustard
<i>Hirschfeldia incana</i> *	shortpod mustard
<i>Raphanus sativus</i> *	radish
<b>CACTACEAE – CACTUS FAMILY</b>	
<i>Opuntia littoralis</i>	coastal prickly-pear
<i>Opuntia x occidentalis</i>	western prickly-pear
<b>CARYOPHYLLACEAE – PINK FAMILY</b>	
<i>Silene gallica</i> *	small-flower catchfly
<b>CHENOPODIACEAE – GOOSEFOOT FAMILY</b>	
<i>Salsola tragus</i> *	Russian thistle
<b>CISTACEAE – ROCK-ROSE FAMILY</b>	
<i>Helianthemum scoparium</i>	peak rush-rose
<b>CONVOLVULACEAE – MORNING-GLORY FAMILY</b>	
<i>Calystegia macrostegia</i>	large-bracted morning-glory?????
<i>Convolvulus arvensis</i> *	bindweed
<i>Cuscuta californica</i>	chaparral dodder
<i>Cuscuta subinclusa</i>	canyon dodder
<b>CRASSULACEAE – STONECROP FAMILY</b>	
<i>Dudleya lanceolata</i>	lance-leaved dudleya, lanceleaf, coastal dudleya, coastal live-forever
<b>CUCURBITACEAE – GOURD FAMILY</b>	
<i>Marah macrocarpus</i>	wild cucumber, chilicothe
<b>EUPHORBIACEAE – SPURGE FAMILY</b>	
<i>Chamaesyce albomarginata</i> [ <i>Euphorbia</i> a.]	rattlesnake weed
<b>FABACEAE – LEGUME FAMILY</b>	
<i>Acmispon glaber</i> [ <i>Lotus scoparius</i> ]	deerweed
<i>Acmispon strigosus</i> [ <i>Lotus</i> s.]	strigose lotus
<i>Lupinus hirsutissimus</i>	stinging lupine

**A-1**  
**PLANT SPECIES OBSERVED DURING SURVEYS**

Species	
<i>Medicago polymorpha</i> *	California burclover
<i>Melilotus indica</i> *	sourclover
<i>Pickeringia montana</i>	chaparral pea
<i>Spartium junceum</i> *	Spanish broom
FAGACEAE – OAK/BEECH FAMILY	
<i>Quercus agrifolia</i>	coast live oak
GERANIACEAE – GERANIUM FAMILY	
<i>Erodium botrys</i> *	long-beaked filaree
<i>Erodium cicutarium</i> *	red-stemmed filaree
GROSSULARIACEAE – GOOSEBERRY FAMILY	
<i>Ribes indecorum</i>	white-flowered currant
<i>Ribes malvaceum</i>	chaparral currant
<i>Ribes speciosum</i>	fuchsia-flowered gooseberry
LAMIACEAE – MINT FAMILY	
<i>Salvia apiana</i>	white sage
<i>Salvia columbariae</i>	chia
<i>Salvia mellifera</i>	black sage
<i>Trichostema lanatum</i>	woolly blue curls
LOASACEAE – LOASA FAMILY	
<i>Mentzelia micrantha</i>	small-flowered stick-leaf
MALVACEAE – MALLOW FAMILY	
<i>Malacothamnus fasciculatus</i>	chaparral bushmallow
<i>Malva parviflora</i> *	cheeseweed
MYRSINACEAE – MYRSINE FAMILY	
<i>Anagallis arvensis</i> *	scarlet pimpernel
MYRTACEAE – MYRTLE FAMILY	
<i>Eucalyptus globulus</i> *	blue gum
NYCTAGINACEAE – FOUR-O'CLOCK FAMILY	
<i>Mirabilis laevis</i> var. <i>crassifolia</i> [ <i>M. californica</i> ]	wishbone bush, California wishbone bush
ONAGRACEAE – EVENING-PRIMROSE FAMILY	
<i>Eulobus californicus</i> [ <i>Camissonia californica</i> ]	mustard-like evening primrose
OXALIDACEAE – WOOD-SORREL FAMILY	
<i>Oxalis californica</i> [ <i>O. albicans</i> ssp. <i>c.</i> ]	California wood-sorrel
PAPAVERACEAE – POPPY FAMILY	
<i>Eschscholzia californica</i>	California poppy
PHRYMACEAE – LOPSEED FAMILY	
<i>Mimulus aurantiacus</i>	bush monkeyflower
<i>Mimulus brevipes</i>	slope semaphore
PLANTAGINACEAE – PLANTAIN FAMILY	
<i>Antirrhinum kelloggii</i>	Kellogg's/climbing snapdragon
<i>Keckiella cordifolia</i>	heart-leaved bush-penstemon
<i>Penstemon centranthifolius</i>	scarlet bugler
<i>Plantago erecta</i>	dwarf plantain, California plantain

**A-1**  
**PLANT SPECIES OBSERVED DURING SURVEYS**

<b>Species</b>	
<i>POLEMONIACEAE – PHLOX FAMILY</i>	
<i>Eriastrum sapphirinum</i>	sapphire woollystar
<i>POLYGONACEAE – BUCKWHEAT FAMILY</i>	
<i>Eriogonum elongatum</i> var. <i>elongatum</i>	long-stemmed wild buckwheat
<i>Eriogonum fasciculatum</i>	California buckwheat
<i>Pterostegia drymarioides</i>	woodland threadstem
<i>RHAMNACEAE – BUCKTHORN FAMILY</i>	
<i>Ceanothus crassifolius</i>	hoaryleaf ceanothus
<i>Rhamnus crocea</i>	spiny redberry
<i>Rhamnus ilicifolia</i>	hollyleaf redberry
<i>ROSACEAE – ROSE FAMILY</i>	
<i>Adenostoma fasciculatum</i>	chamise
<i>Heteromeles arbutifolia</i>	toyon, Christmas berry
<i>RUBIACEAE – MADDER FAMILY</i>	
<i>Galium angustifolium</i>	narrowly leaved bedstraw
<i>Galium nuttallii</i> ssp. <i>nuttallii</i>	San Diego bedstraw
<i>SOLANACEAE – NIGHTSHADE FAMILY</i>	
<i>Solanum xanti</i>	chaparral nightshade
<b>MONOCOTYLEDONES – MONOCOTS</b>	
<i>AGAVACEAE – CENTURY PLANT FAMILY</i>	
<i>Chlorogalum parviflorum</i>	miniature soap plant
<i>Hesperoyucca whipplei</i> [ <i>Yucca w.</i> ]	chaparral yucca
<i>IRIDACEAE – IRIS FAMILY</i>	
<i>Sisyrinchium bellum</i>	western blue-eyed grass
<i>LILIACEAE – LILY FAMILY</i>	
<i>Calochortus splendens</i>	splendid mariposa lily
<i>Calochortus weedii</i> var. <i>intermedius</i>	intermediate mariposa lily
<i>POACEAE – GRASS FAMILY</i>	
<i>Avena barbata</i> *	slender wild oat
<i>Avena fatua</i> *	wild oat
<i>Bothriochloa barbinodis</i>	cane bluestem
<i>Brachypodium distachyon</i> *	purple false brome
<i>Bromus diandrus</i> *	ripgut grass
<i>Bromus hordeaceus</i> *	soft chess
<i>Bromus madritensis</i> ssp. <i>rubens</i> *	red brome
<i>Cynodon dactylon</i> *	bermuda grass
<i>Elymus condensatus</i> [ <i>Leymus c.</i> ]	giant wild rye
<i>Eragrostis cilianensis</i> *	stink grass
<i>Festuca myuros</i> [ <i>Vulpia m.</i> var. <i>myuros</i> ]*	rattail fescue
<i>Lamarckia aurea</i> *	goldentop
<i>Melica imperfecta</i>	little California melic grass
<i>Muhlenbergia microsperma</i>	littleseed muhly
<i>Pennisetum setaceum</i> *	crimson fountain grass
<i>Poa secunda</i>	one-sided bluegrass, malpais bluegrass
<i>Schismus barbatus</i> *	Mediterranean schismus

**A-1**  
**PLANT SPECIES OBSERVED DURING SURVEYS**

Species	
<i>Stipa lepida</i> [ <i>Nassella l.</i> ]	foothill needlegrass
<i>Stipa miliacea</i> [ <i>Piptatherum miliacea</i> ]*	smilo grass
<i>Stipa pulchra</i> [ <i>Nassella p.</i> ]	purple needlegrass
<i>RUSCACEAE</i> – BUTCHER'S-BROOM FAMILY	
<i>Nolina cismontana</i>	chaparral nolina
<i>THEMIDACEAE</i> – BRODIAEA FAMILY	
<i>Bloomeria crocea</i>	common goldenstar
<i>Dichelostemma capitatum</i>	blue dicks
* non-native to the region it was found	

**A-2**  
**WILDLIFE SPECIES OBSERVED DURING SURVEYS**

<b>Species</b>	
<b>REPTILES</b>	
<b>LEPIDOSAURIA – LIZARDS AND SNAKES</b>	
<i>PHRYNOSOMATIDAE</i> – ZEBRA-TAILED, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, AND HORNED LIZARDS	
<i>Sceloporus occidentalis</i>	western fence lizard
<i>Uta stansburiana</i>	side-blotched lizard
<i>Phrynosoma blainvillii</i>	Blainville's [coast] horned lizard
<i>TEIIDAE</i> – WHIPTAIL LIZARDS	
<i>Aspidoscelis [Cnemidophorus] hyperythra</i>	orange-throated whiptail
<i>COLUBRIDAE</i> – COLUBRID SNAKES	
<i>Pituophis catenifer</i>	gopher snake
<b>BIRDS</b>	
<b>AVES – BIRDS</b>	
<i>ODONTOPHORIDAE</i> – QUAILS	
<i>Callipepla californica</i>	California quail
<i>CATHARTIDAE</i> – NEW WORLD VULTURES	
<i>Cathartes aura</i>	turkey vulture
<i>ACCIPITRIDAE</i> – HAWKS, KITES, EAGLES, AND ALLIES	
<i>Buteo jamaicensis</i>	red-tailed hawk
<i>COLUMBIDAE</i> – PIGEONS AND DOVES	
<i>Zenaida macroura</i>	mourning dove
<i>CUCULIDAE</i> – CUCKOOS AND ROADRUNNERS	
<i>Geococcyx californianus</i>	greater roadrunner
<i>APODIDAE</i> – SWIFTS	
<i>Aeronautes saxatalis</i>	white-throated swift
<i>TROCHILIDAE</i> – HUMMINGBIRDS	
<i>Calypte anna</i>	Anna's hummingbird
<i>Selasphorus sasin</i>	Allen's hummingbird
<i>FALCONIDAE</i> – FALCONS	
<i>Falco sparverius</i>	American kestrel
<i>TYRANNIDAE</i> – TYRANT FLYCATCHERS	
<i>Sayornis nigricans</i>	black phoebe
<i>Tyrannus vociferans</i>	Cassin's kingbird
<i>CORVIDAE</i> – CROWS AND JAYS	
<i>Aphelocoma californica</i>	western scrub-jay
<i>Corvus brachyrhynchos</i>	American crow
<i>Corvus corax</i>	common raven
<i>HIRUNDINIDAE</i> – SWALLOWS	
<i>Tachycineta thalassina</i>	violet-green swallow
<i>Petrochelidon pyrrhonota</i>	cliff swallow
<i>AEGITHALIDAE</i> – BUSHTITS	
<i>Psaltiriparus minimus</i>	bushtit
<i>TROGLODYTIDAE</i> – WRENS	
<i>Salpinctes obsoletus</i>	rock wren
<i>Thryomanes bewickii</i>	Bewick's wren

**A-2**  
**WILDLIFE SPECIES OBSERVED DURING SURVEYS**

<b>Species</b>	
<i>POLIOPTILIDAE</i> – GNATCATCHERS AND GNATWRENS	
<i>Polioptila caerulea</i>	blue-gray gnatcatcher
<i>SYLVIIDAE</i> – SYLVIID WARBLERS	
<i>Chamaea fasciata</i>	wrentit
<i>TURDIDAE</i> – THRUSHES AND ROBINS	
<i>Sialia mexicana</i>	western bluebird
<i>MIMIDAE</i> – THRASHERS	
<i>Toxostoma redivivum</i>	California thrasher
<i>Mimus polyglottos</i>	northern mockingbird
<i>PTILOGONATIDAE</i> – SILKY-FLYCATCHERS	
<i>Phainopepla nitens</i>	phainopepla
<i>PARULIDAE</i> – WARBLERS	
<i>Setophaga [Dendroica] nigrescens</i>	black-throated gray warbler
<i>EMBERIZIDAE</i> – SPARROWS AND JUNCOS	
<i>Pipilo maculatus</i>	spotted towhee
<i>Melospiza [Pipilo] crissalis</i>	California towhee
<i>Chondestes grammacus</i>	lark sparrow
<i>FRINGILLIDAE</i> – FINCHES	
<i>Haemorhous [Carpodacus] mexicanus</i>	house finch
<i>Spinus [Carduelis] psaltria</i>	lesser goldfinch
<i>Spinus [Carduelis] tristis</i>	American goldfinch
<b>MAMMALS</b>	
<b>MAMMALIA – MAMMALS</b>	
<i>LEPORIDAE</i> – HARES AND RABBITS	
<i>Sylvilagus audubonii</i>	desert cottontail
<i>CANIDAE</i> - DOGS, FOXES, AND WOLVES	
<i>Canis latrans</i>	coyote
* introduced species	
Note that this compendium only includes vertebrate species.	

**ATTACHMENT B**  
**SITE PHOTOGRAPHS**



Overview of the project site from the north end facing south.



Mixed sage scrub (foreground) and southern mixed chaparral (background) in the southwestern corner of the property.



Patches of annual grassland and southern mixed chaparral in the northwestern corner of the property.



Southern coast live oak riparian forest in the southern portion of the property.



Disturbed access road and cliff/rock surrounded by mixed chaparral and mixed sage scrub in the northern portion of the property.



Spanish broom observed in the southwestern corner of the property.

## Site Photographs

Measure M2 Acquisition Properties Evaluation – MacPherson Property

Attachment B

**Bonterra**  
PSOMAS

(10/08/2014 JAZ) R:\Projects\OCT\_OCTA\J008\Graphics\MacPherson\BioTech\AttB\_SP.pdf