Baseline Biodiversity Report for the Wilderness Gardens Preserve in Unincorporated San Diego County, California

Pala, California, USGS 7.5-minute Topographic Quadrangle Map
Township 9 South, Range 1, 2 West, Sections 31-36

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LIST OF ACRONYMS

Term	Definition (in MBA Capitalization Style)
°F	degrees Fahrenheit
AMSL	above mean sea level
APN	Assessor's Parcel Numbers
ASMDs	Area Specific Management Directives
BLM	U.S. Department of the Interior Bureau of Land Management
CAL FIRE	California Department of Forestry and Fire Protection
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CWA	Clean Water Act
DPR	Department of Parks and Recreation
ESA	Endangered Species Act
FRMP	Framework Resource Management Plan
GIS	geographical information system
HA	Hydrologic Area
I	Interstate
IA	Implementing Agreement
MBA	Michael Brandman Associates
MSCP	Multiple Species Conservation Program
NRCS	Natural Resources Conservation Service
RMP	Resource Management Plan
RPO	Resource Protection Ordinance
SDG&E	San Diego Gas & Electric
SR	State Route
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geologic Survey
WG	Wilderness Gardens (sampling location)
WGA	Wilderness Gardens Avian (sampling location)
WGB	Wilderness Gardens Bat (sampling location)

EXECUTIVE SUMMARY

Michael Brandman Associates (MBA) conducted a baseline biodiversity study of the County of San Diego's Wilderness Gardens Preserve (Preserve) to provide the Department of Parks and Recreation (DPR) with current baseline biological data and information to assist in developing a Resource Management Plan (RMP) including Area Specific Management Directives (ASMDs). The Preserve is located approximately nine miles east of Interstate (I) 15 and immediately south of State Route (SR) 76/Pala Road, in the northern portion of San Diego County, California. The Preserve is owned and managed by the County of San Diego DPR.

This report details all aspects of the baseline biodiversity study including the methodology used for research, sampling, and data analysis. A thorough discussion of the collected and analyzed data and recommendations for natural resource management, including ASMDs, is provided herein.

Baseline biological surveys were conducted on the 732.4-acre Preserve in the late spring and summer of 2009 (May through September). (The assessor's parcel data lists the Preserve as 737.07 acres; however, calculations generated from GIS data show the Preserve as 732.4. Therefore, this report references the property as 732.4 acres.) MBA biologists conducted several types of sampling methods to document as many different plant and wildlife species as possible within the Preserve including:

- Vegetation community mapping
- Invertebrate surveys
- Funnel traps
- Acoustic bat surveys
- Camera stations
- Plant surveys
- Pit-fall traps
- Avian point counts (day and night)
- Tracking stations

The 2009 baseline survey effort was conducted during a drought year. Coupled with lack of late winter to early spring sampling, results of these surveys may not represent an exhaustive list of all plant and wildlife species occurring within the Preserve.

Fifteen vegetation communities were mapped within the Preserve and consist of chamise chaparral, dense coast live oak woodland, Diegan coastal sage scrub, disturbed habitat, freshwater marsh, mule fat scrub, native grassland, non-native grassland, non-vegetated channel, open coast live oak woodland, open water, non-native vegetation, southern mixed

chaparral, southern riparian forest, and developed land. The most abundant vegetation community on the Preserve is southern mixed chaparral.

Floristic surveys documented 169 plant species occurring within the Preserve including three sensitive species, two of which are North County Multiple Species Conservation Program (North County MSCP) covered species. Wildlife surveys, along with incidental observations, identified 161 wildlife species within the Preserve including 11 butterfly species, 68 other invertebrate species, one amphibian species, 11 reptile species, 47 bird species, and 23 mammal species. A total of 10 sensitive wildlife species, including one North County MSCP covered species, were identified within the Preserve.

SECTION 1: INTRODUCTION

At the request of the County of San Diego (County) Department of Parks and Recreation (DPR), Michael Brandman Associates (MBA) conducted baseline biodiversity surveys to identify and map existing biological resources within the Wilderness Gardens Preserve (Preserve). The County designated the Wilderness Gardens Preserve in 1973 and it is the oldest open space preserve in San Diego County.

The Preserve is located approximately nine miles east of I-15 and immediately south of SR-76/Pala Road, in the northern portion of San Diego County, California. The Preserve is comprised of a combination of six contiguous parcels, totaling 707.6-acres, and one separate 24.8-acre parcel located southeast of the larger parcel and separated by private property. For the purpose of this report, the Preserve is defined as the combination of the small separate parcel and the larger collection of parcels, totaling 732.4 acres (Exhibits 2 and 3). All descriptions regarding directional location within the Preserve will refer to the Preserve as one contiguous parcel/property, unless otherwise noted. The total acreage of the Preserve was determined by MBA staff using Geographical Information Systems (GIS) software to calculate the acreage of the Preserve based on parcel boundary data received from the County of San Diego, updated in October 2009 (SANGIS 2009).

The Preserve is currently open for public recreational use and is patrolled and maintained by several County Park Rangers. The Preserve has remained relatively undisturbed for the last 30 years. The Preserve is included in the North County Multiple Species Conservation Program (North County MSCP) preserve system. The Preserve consists of valuable native habitats, as well as areas that have been marginally impacted by human activities. The County proposes to manage the Preserve in accordance with a Resource Management Plan (RMP), including Area Specific Management Directives (ASMDs), that will be prepared based upon the baseline biological survey information established in this report.

1.1 - Purpose of the Report

This report provides a detailed description of the existing biological resources currently present within the Preserve and provides recommendations for monitoring and management to protect and, where appropriate, enhance these resources. The information contained herein provides a basis for development of a RMP, including ASMDs, pursuant to the requirements of the North County MSCP and Framework Resource Management Plan (County of San Diego 2009a).

1.2 - North County MSCP Context

The Wilderness Gardens Preserve is located within the boundaries of the County of San Diego MSCP, and is included in the North County MSCP preserve system. The Preserve is located within the Upper San Luis Rey River Linkage and is designated as Pre-Approved Mitigation Area (PAMA) and Hardline Preserve (Exhibit 4). The Habitat Evaluation Model for the North County MSCP ranks the habitat within and immediately adjacent to the Preserve as ranging from Moderate to Very High in overall quality (County of San Diego 2009a).

SECTION 2: STUDY AREA DESCRIPTION

2.1 - Project Location

The Preserve is generally located north of SR-78, south of SR-76, east of I-15, and west of Cleveland National Forest (Exhibit 1). It is depicted on the Pala, California, U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map, Section 31 of Township 9 South, Range 1 West; Section 36 of Township 9 South, Range 2 West; and Section 6 of Township 10 South, Range 1 West (Exhibit 2). The Preserve is specifically located immediately south of SR-76/Pala Road between Pauma Ridge Road and Pala Mission Road (Exhibit 3).

The Preserve is located adjacent to Pala Mountain and the San Luis Rey River, and is comprised of the following seven Assessor's Parcel Numbers (APN):

110-190-04	110-190-12	111-070-22
110-190-05	110-190-15	
110-190-08	110-190-17	

2.2 - Geographical Setting

The Preserve is located in northwestern San Diego County adjacent to Pala Mountain. The Preserve ranges in elevation from 500 to 2,000 feet above mean sea level (AMSL). The lowest elevation within the Preserve occurs along the San Luis Rey River that flows along the northeastern boundary. The highest elevation within the Preserve occurs along the ridge of Pala Mountain located at the southwestern corner. A man-made pond occurs near the center of the Preserve, and several historic features are scattered throughout the Preserve. The Preserve is surrounded by vacant undeveloped land within the Pala Indian Reservation on the south and west, and by agricultural land on the north and east.

Topographically, the Preserve is located in the San Luis Rey River valley west of the Cleveland National Forest. Pala Mountain extends from the western Preserve boundary east to the San Luis Rey River sloping downhill from southwest to northeast. A steep cliff carved by the San Luis Rey River occurs along the northern Preserve boundary. The upper terrace of the river valley occurs to the north and east of the Preserve and is relatively flat and dominated by agricultural fields. The valley floor transitions to rolling hills further to the north and east.

2.3 - Geology and Soils

Many sensitive plant species have a limited distribution based exclusively on soil type. The United States Department of Agriculture (USDA) has published soil surveys that describe the soil series that occur within a particular area. A soil series is a group of soils with similar profiles. These profiles include major horizons with similar thickness, arrangement, and other important characteristics. These series are further subdivided into soil mapping units, which provide specific information regarding soil characteristics. Pertinent USDA soil survey maps were reviewed to determine the existing soil mapping units within the Preserve and to establish if soil conditions on-site are suitable for any sensitive plant species.

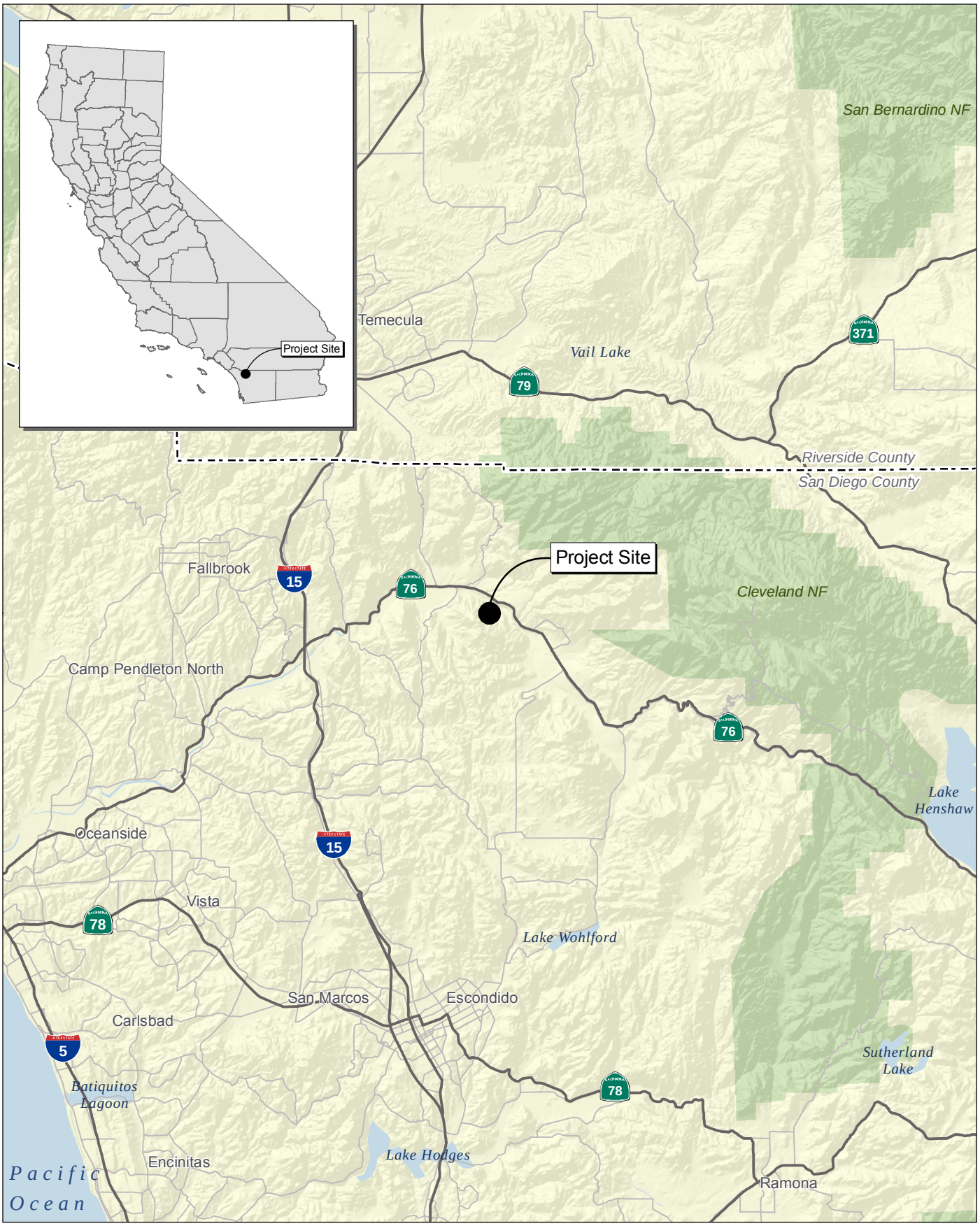
The Preserve contains eight soil-mapping units belonging to six soil series (USDA 1973). The majority of the Preserve consists of Cieneba-Fallbrook rocky sandy loam (Exhibit 5). A brief description of each soil series and associated soil mapping unit that occur on the Preserve, based on the Natural Resources Conservation Service's (NRCS) Official Soil Series Description, is provided below.

2.3.1 - Anderson Series

The Anderson series consists of somewhat excessively drained very gravelly sand loams that formed in stony, cobbly, and granitic and schist alluvium. Soils in this series occur on fans, flood plains and valley foot slopes, and vary in texture from gravelly loam to very gravelly sandy loam. The soil mapping unit found within the Preserve, Anderson very gravelly sand loam 5 to 9 percent slopes, exhibits slow to medium runoff with moderately rapid permeability. This soil series occurs within the central portion and northeast corners of the Preserve and supports native grassland and Diegan coastal sage scrub habitat.

2.3.2 - Cieneba Series

The Cieneba series consist of excessively drained, very shallow to shallow coarse sandy loams. These soils formed in material weathered in place from granitic rock. They are on rolling to mountainous uplands, have slopes of 5 to 75 percent, and occur on uplands in mountainous terrain with shallow to steep slopes. The Preserve contains two soil mapping units of the Cieneba series: Cieneba-Fallbrook rocky sandy loams, 9 to 30-percent slopes; and Cieneba-Fallbrook rocky sandy loams, 30 to 65-percent slopes. On the Preserve, these soil mapping units support dense stands of southern mixed and granitic chamise chaparral at the top of Pala Mountain.



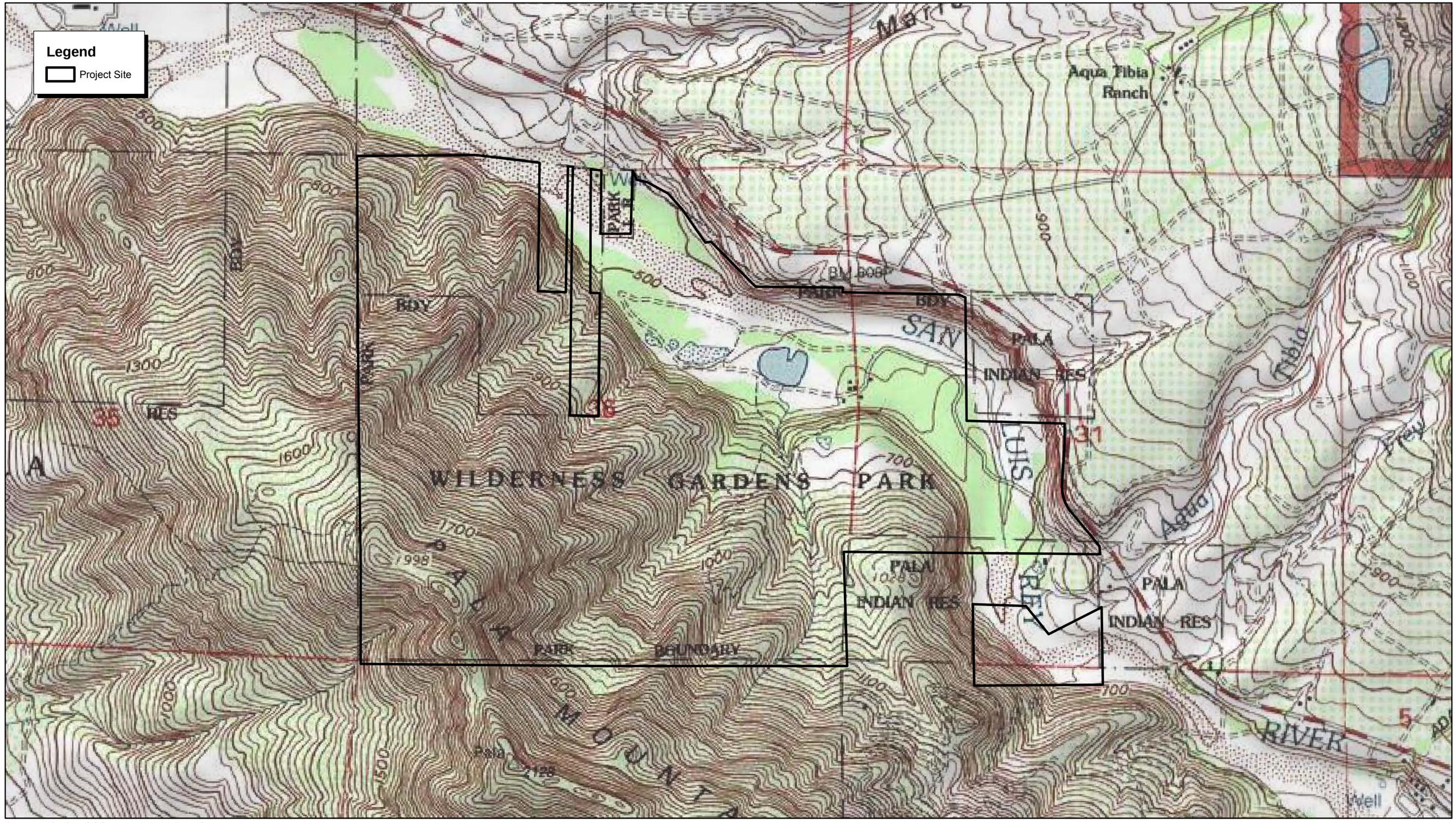
Source: Census 2000 Data, The CaSIL, MBA GIS 2009.

NORTH

5 2.5 0 5 Miles

Michael Brandman Associates

Exhibit 1
Regional Location Map



Source: TOPO! USGS Pala (1996) 7.5' DRG.

NORTH

1,000 500 0 1,000 Feet

Michael Brandman Associates

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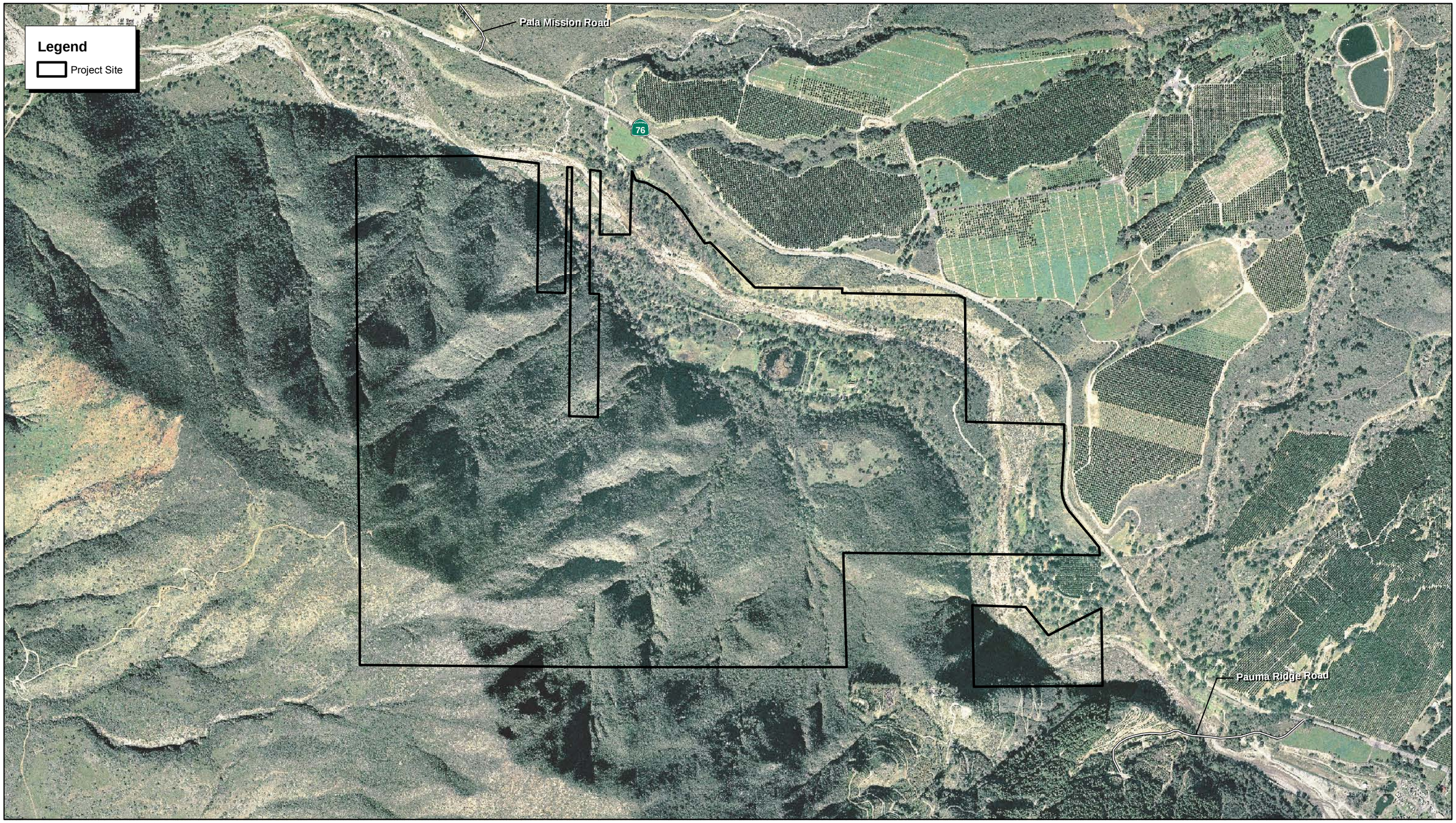
Exhibit 2
Local Vicinity Map
Topographic Base



Source: San Diego North Aerial, 2005.

NORTH

1,000 500 0 1,000
Feet

Michael Brandman Associates

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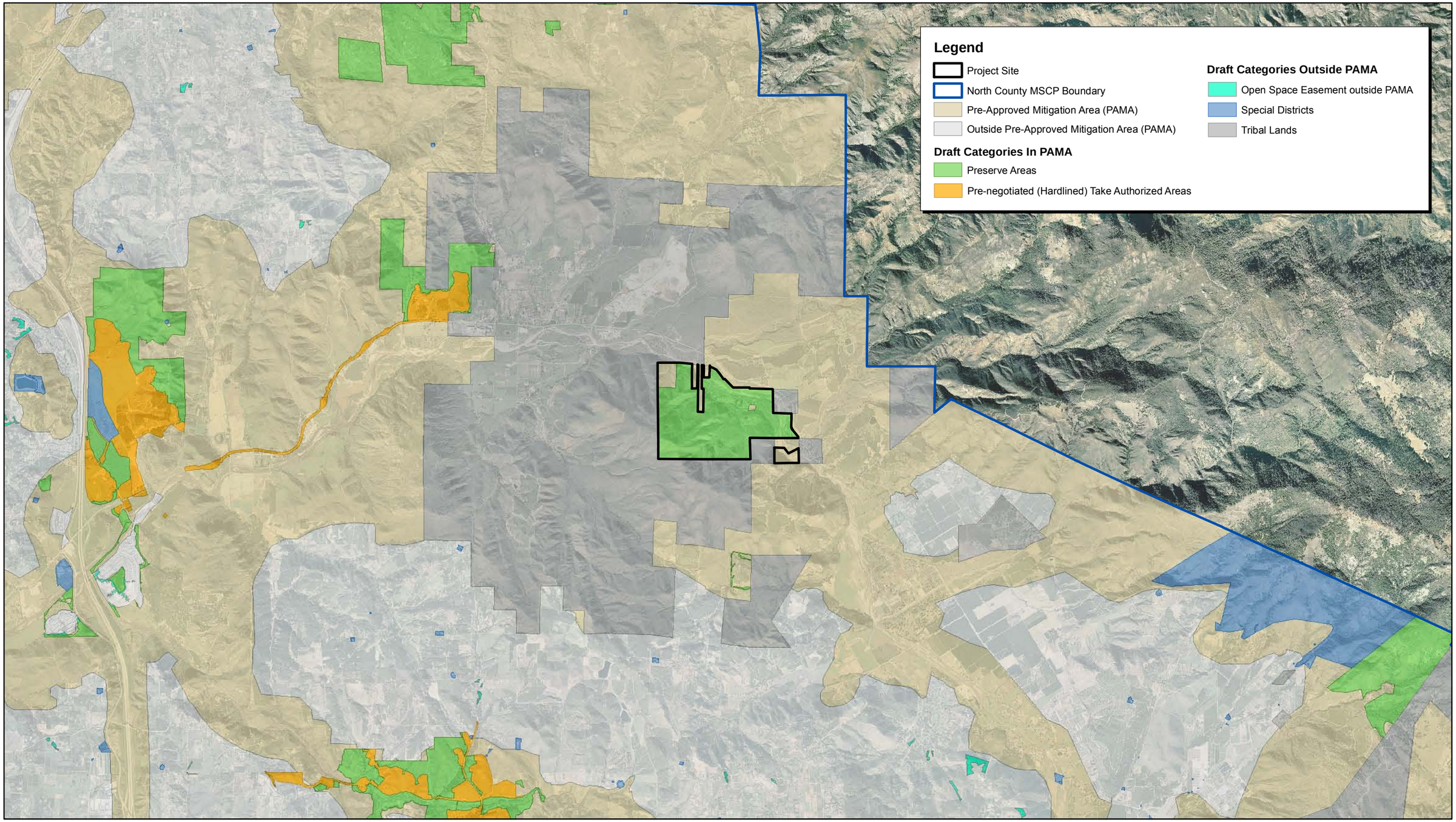
Exhibit 3
Local Vicinity Map
Aerial Base



Source: San Diego North Aerial, 2005. SANGIS Data. MBA Field Survey and GIS Data, 2009.

NORTH

1 0.5 0 1

Miles

Michael Brandman Associates

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Exhibit 4
North County MSCP Designations and Conserved Lands

2.3.3 - Las Posas Series

The Las Posas series consists of well-drained, moderately deep stony fine sandy loams that have clay subsoil. These soils occur on uplands in mountainous terrain with shallow to steep slopes. This soil series varies in texture from fine sandy loam to heavy clay and may have stony sections. Las Posas soils exhibit medium to rapid runoff with slow permeability. The Preserve contains two soil mapping units of the Las Posas series: Las Posas Fine Sandy Loam, 15 to 30-percent slopes; and Las Posas Stony Fine Sandy Loam, 30 to 65-percent slopes. On the Preserve, this soil series supports dense stands of southern mixed chaparral along the ridgeline of the Pala Mountains in the southwest corner of the Preserve.

2.3.4 - Riverwash

Riverwash occurs in intermittent stream channels and consists of material that is typically sandy, gravelly, or cobbly. It is excessively drained and rapidly permeable. While many riverwash areas are barren, alluvial plant species may be scattered throughout the channel, and scattered trees and shrubs may be present on the banks. On the Preserve, riverwash is located within the San Luis Rey River and floodplain, which supports low growing alluvial scrub and scattered mule fat (*Baccharis salicifolia*) in the channel, with western sycamore (*Platanus racemosa*) and Freemont cottonwood (*Populus fremontii*) trees lining the banks.

2.3.5 - Stony Land

Stony land consists of areas with stones, boulders, and cobble, but little or no vegetation. Stony land is often found at the base of cliffs on strongly sloping to very steep sloping landforms. Stony land occurs as a small intrusion in the southeast corner of the Preserve on a very steep slope adjacent to the San Luis Rey River.

2.3.6 - Terrace Escarpments

Terrace escarpments consist of steep to very steep escarpments and escarpment-like landforms with little or no vegetation, and high potential for erosion. Terrace escarpments occur on the nearly even fronts of terraces and escarpment-like landforms occur between narrow floodplains and adjoining uplands. On the Preserve, terrace escarpments bound the eastern border of the San Luis Rey River floodplain, and support a very sparse mixture of sage scrub species.

2.4 - Climate

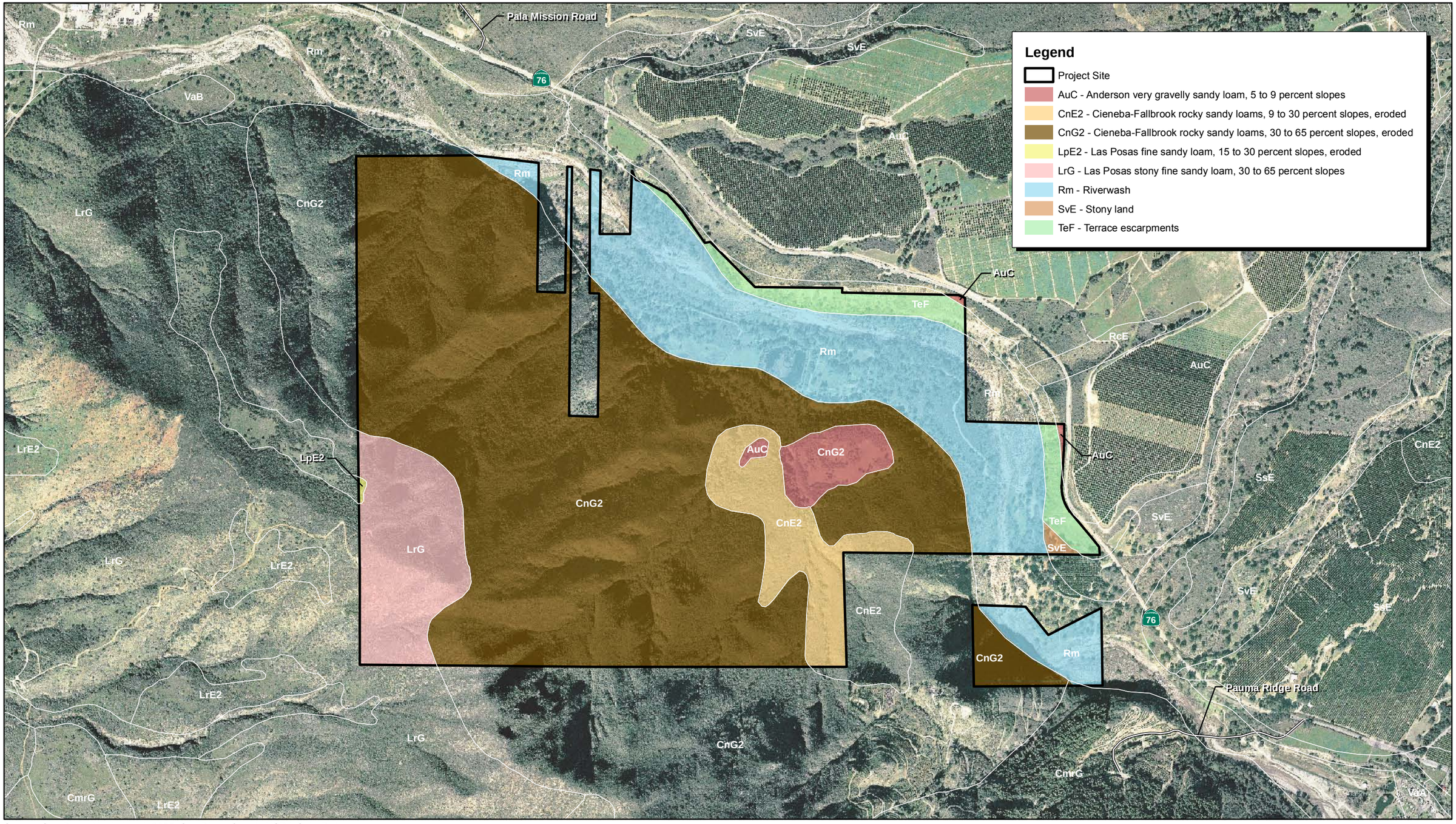
San Diego County has a Mediterranean to semi-arid climate, which is characterized by warm, dry summers and mild wet winters. The growing season is generally considered to be

year-round. Regional temperature and precipitation data recorded at the Temecula (KCATEMEC5) weather station (coordinates: +33.302763, -117.01255) for 2005 through 2009 are presented in Table 1 and Table 2, respectively (Weather Underground 2009). The Temecula weather station is located within 10 miles of the Preserve, and thus provides an accurate historical representation of regional weather conditions from 2005. No weather information is available prior to July 2005 at the Temecula weather station.

Table 1: Monthly Temperature (2005 - 2009)

2005	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High (°F)	-	-	-	-	-	-	103	106	102	96	89	84
Low (°F)	-	-	-	-	-	-	63	51	46	43	29	26
2006	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
High (°F)	86	86	80	89	92	103	113	101	103	90	92	82
Low (°F)	26	29	33	39	46	51	56	48	43	36	31	25
2007	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
High (°F)	83	87	92	92	93	97	99	104	106	92	88	79
Low (°F)	20	28	30	38	43	45	53	52	43	40	32	28
2008	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
High (°F)	75	81	86	96	98	104	98	100	100	97	90	78
Low (°F)	28	30	32	37	42	48	51	50	47	36	36	27
2009	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
High (°F)	84	84	86	99	93	101	102	104	102	97	91	78
Low (°F)	27	29	32	35	47	47	46	48	49	35	29	28

Daily climate conditions during the 2009 survey effort (May to September) were documented and are presented in the field data sheets (Appendix F). Average monthly temperatures in the region for 2009 were relatively standard when compared to the monthly temperatures for 2005 through 2008. A general warming period was observed from May through September of each year from 2005 through 2009. During field surveys, temperatures ranged from 58 to 93 degrees Fahrenheit (°F).



Source: San Diego North Aerial, 2005. San Diego County USDA Soils Data.

NORTH

1,000 500 0 1,000 Feet

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Exhibit 5
Soils Map

COUNTY OF SAN DIEGO PARKS • WILDERNESS GARDENS PRESERVE
BASELINE BIODIVERSITY REPORT

Table 2: Monthly Total Precipitation (2005 - 2009)

2005	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Precipitation (in)	-	-	-	-	-	-	0.05	0.00	0.11	1.06	0.00	0.18	1.4
2006	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
Precipitation (in)	1.33	2.00	2.51	2.49	0.32	0.02	0.10	0.00	0.47	0.09	0.02	0.37	9.72
2007	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
Precipitation (in)	0.15	0.70	0.24	0.56	0.02	0.00	0.00	0.06	0.05	0.10	0.00	0.94	2.82
2008	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
Precipitation (in)	5.90	1.76	0.01	0.00	0.74	0.00	0.02	0.00	0.00	0.02	1.18	3.81	13.44
2009	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
Precipitation (in)	0.10	2.26	0.13	0.09	0.02	0.20	0.00	0.00	0.00	0.05	0.15	2.27	5.27

The Preserve received approximately 5.27 inches of rainfall in 2009, with a majority of the rain events occurring January through April and October through December. This illustrates the characteristic arid moisture regime for the region with a below average rainfall recorded during the sampling period. Overall, total rainfall in 2009 was significantly less than 2008 and 2006, but similar to the amount of precipitation recorded for in 2007. Total rainfall data for 2005 is skewed due to lack of sufficient data.

2.5 - Hydrology

Prior to conducting surveys, MBA's biologists reviewed USGS topographic maps and aerial photography to identify any potential natural drainage features and water bodies. In general, all surface drainage features indicated as blue-line streams on USGS maps and linear patches of vegetation expected to exhibit evidence of flows are considered potentially subject to State and federal regulatory authority as "waters of the U.S. and/or state." The assessment was not intended as a formal delineation of waters of the U.S. or State, but rather to identify areas that may be subject to permitting requirements if any impacts are anticipated.

The San Luis Rey River watershed is comprised of three Hydrologic Areas (HA) (SanGIS 2009): Lower San Luis (HA 903.1), Monserate (HA 903.2), and Warner Valley (HA 903.3). The San Luis Rey River watershed covers approximately 360,000 acres and includes the Hydrologic Unit Areas 903.11 to 903.32. The San Luis Rey River originates in several mountain ranges on the western border of Anza Borrego Desert Park, Palomar Mountain, and Hot Springs Mountain. The San Luis Rey River extends over 55 miles across northern San Diego County and ultimately flows to the Pacific Ocean near Oceanside, California.

The two main water bodies in the watershed are the San Luis Rey River and Lake Henshaw. Water from the San Luis Rey River is diverted approximately 10 miles downstream of Henshaw Dam to serve the municipal water needs of the City of Escondido and the City of Vista. The San Luis Rey River Watershed is subject to agricultural and urban uses and receives urban runoff. Impacts to the San Luis Rey River include surface water quality, degradation, habitat loss, invasive species, and channel bed erosion. The Pacific Ocean shoreline at the mouth of the San Luis Rey River is listed as a Clean Water Act (CWA) 303(d) water for indicator bacteria, the lower 13 miles of the River is CWA 303(d) listed for chloride, and the lower 19 miles of the River is CWA 303(d) listed for total dissolved solids.

The San Luis Rey River is the main drainage feature that flows through the project site along the northern boundary. Frey Creek and Agua Tibia Creek flow into San Luis Rey River just upstream of the Preserve from the north. Marion Canyon Creek flows into San Luis Rey River just downstream of the Preserve also from the north (Exhibit 6).

2.6 - Fire History

Wildfires are a natural disturbance cycle that is an integral part of the southern California ecosystem. Occasional natural wildfires may benefit certain vegetation communities including southern mixed chaparral, which is dominant on the Preserve. Chaparral includes plant species that regenerate after fire due to certain triggers associated with fires (e.g., heat, chemicals present in charcoal, etc.). According to Conard and Weise (1998), fire cycles repeat every 50 to 150 years in chaparral, which tends to burn when fire conditions are extreme and generally results in complete replacement of the stand.

According to the California Department of Forestry and Fire Protection (CAL FIRE 2009), the last recorded fire on the Preserve occurred in 1953 (Exhibit 7). Recent wildfires near the Preserve include the Paradise fire (2003) six miles southeast of the Preserve, the Rice fire (2007) eight miles northwest of the Preserve, and the Poomacha fire (2007) nine miles southeast of the Preserve.

2.7 - Trails

The DPR currently maintains five active trails within the Preserve that provide four miles of easy to moderate hiking (Exhibit 8). Several paved and unpaved dirt roads occur within the Preserve that provides access to the Preserve and several trails. Portions of trails are also utilized as dirt roads for access and maintenance by Park Rangers. A staging area occurs near the entrance of the Preserve that allows access to the trails and provides portable

restrooms and picnic tables for visitors. The following is a brief description of the roads and trails within the Preserve.

2.7.1 - Main Trail

The Main Trail begins as a paved road at the entrance to the Preserve from SR-76 and extends the entire length of the Preserve. The Main Trail becomes a dirt road once it meets the San Luis Rey River and provides access to the Preserve interior, including the pond. This trail provides easy hiking through the different habitats of the Preserve, is generally shaded, and contains benches and public restrooms. The Main Trail is the most utilized trail in the Preserve and therefore is the most disturbed.

2.7.2 - Alice Fries Trail

The Alice Fries Trail is a 0.5-mile loop that provides access to the San Luis Rey River and meanders along the east side of the river within the upper-terrace. This trail begins near the staging area kiosk in the eastern portion of the Preserve and can be accessed from the Main Trail (Exhibit 8). The Alice Fries Trail follows along the eastern side of the San Luis Rey River and turns back along the base of the bluffs that occur along the northeastern boundary of the Preserve. This trail provides easy hiking along an alluvial fan sage scrub community in an area that serves as a movement corridor for various wildlife species.

2.7.3 - Upper Meadow Trail

The Upper Meadow Trail provides an overview of the Preserve and San Luis Rey River corridor from a higher elevation along the north-facing slope near the central portion of the Preserve. This trail begins near the pond in the north central portion of the Preserve and is accessed from the Main Trail. The Upper Meadow Trail is the highest elevation and southern most active trail on the Preserve and meanders along the ridge of a southern bluff that faces the San Luis Rey River valley (Exhibit 8). This trail has a moderate level of hiking difficulty and provides a scenic view of the San Luis Rey River valley below and the mountainous regions to the east of the Preserve.

2.7.4 - Pond Loop

The Pond Loop is a short trail that follows the perimeter of the pond located in the central portion of the Preserve (Exhibit 8). This trail begins near the western terminus of the Main Trail and provides access to all areas of the pond. This is the only area in the Preserve that contains open water with associated riparian and freshwater marsh vegetation. The Pond Loop allows visitors access to a number of wildlife species including various waterfowl.

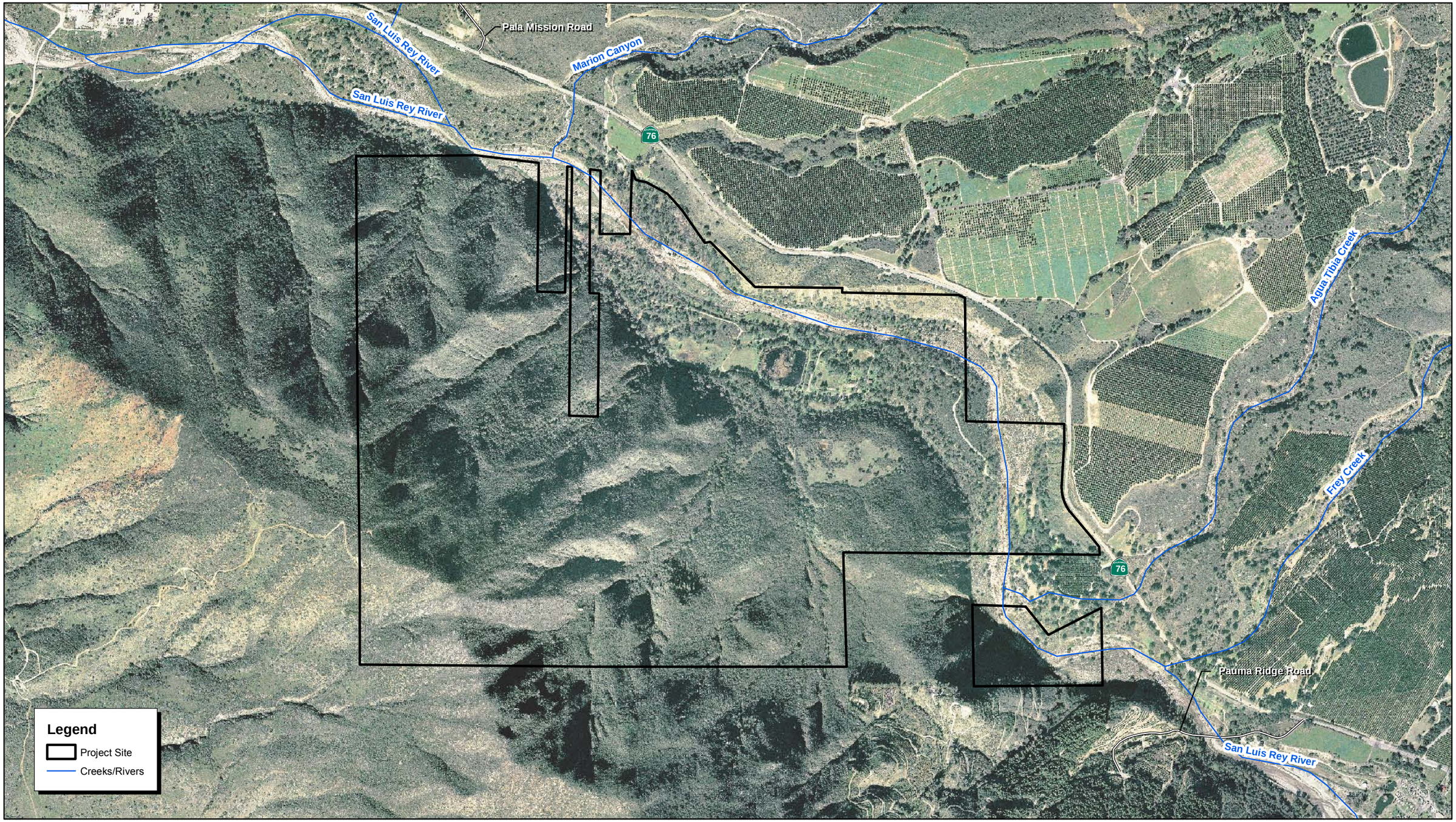
This trail is the shortest active trail in the Preserve, but provides scenic views of the surrounding bluffs, pond, and the San Luis Rey River.

2.7.5 - River View Trail

The River View Trail is a short footpath that runs parallel to the Pond Loop and the San Luis Rey River. The trail connects the Main Trail and the dirt access road in the western portion of the Preserve. The trail is very faint and is overgrown in many areas. This trail provides easy hiking along an alluvial fan sage scrub community in an area that serves as a movement corridor for various wildlife species. It provides another opportunity to hike near the river channel.

2.7.6 - Camellia Trail

The Camellia Trail is a short loop trail located at the west end of the Preserve that passes along an abandoned pond once used to irrigate hundreds of camellia plants (Exhibit 8). This trail begins west of the Pond Loop and can be accessed from the western terminus of the Main Trail. The Camellia Trail continues towards the northwestern boundary of the Preserve and loops back towards the trailhead. This trail provides an easy level of hiking and views of the native woodland habitat within the Preserve, as well as the various avian and small mammal species that inhabit the oak woodland habitat in this area.



Source: San Diego North Aerial, 2005. SANDAG and SANGIS Data. MBA Field Survey and GIS Data, 2009.

NORTH

1,000 500 0 1,000

Feet

Michael Brandman Associates

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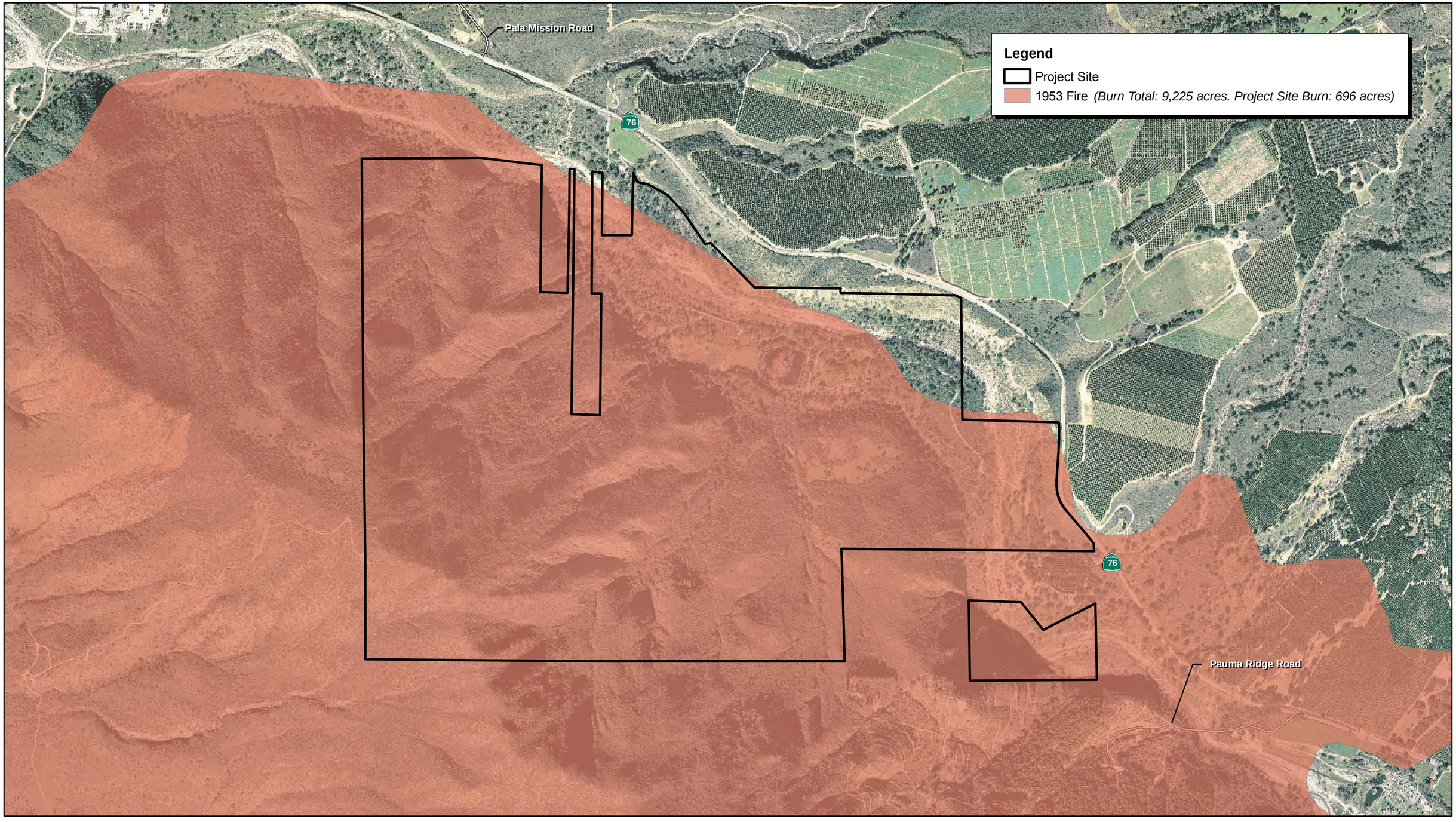
Exhibit 6
Hydrology Map

COUNTY OF SAN DIEGO PARKS • WILDERNESS GARDENS PRESERVE
BASELINE BIODIVERSITY REPORT



Source: San Diego North Aerial, 2005. SANGIS Data. MBA Field Survey and GIS Data, 2009.

NORTH

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Michael Brandman Associates

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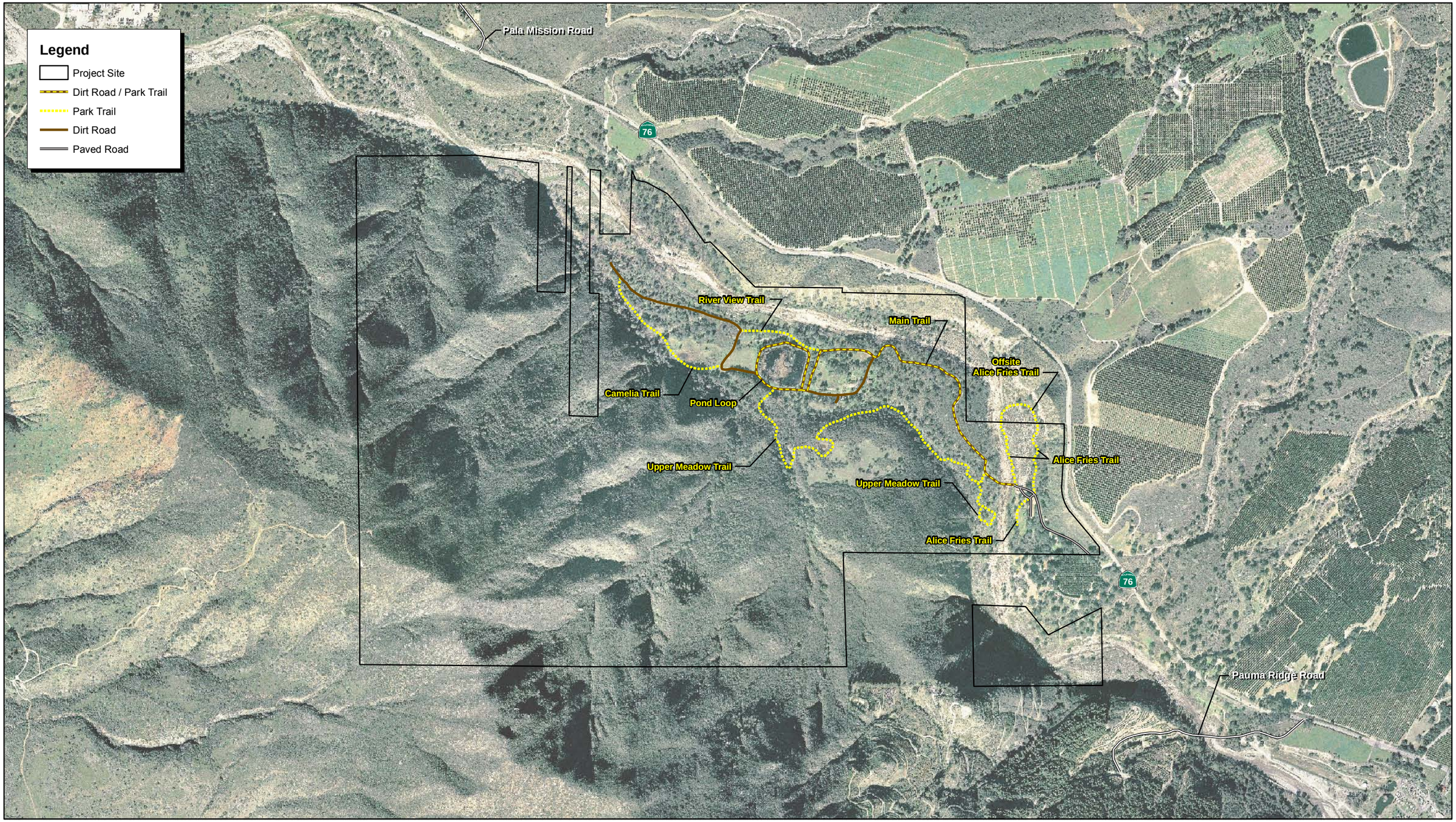
Exhibit 7
Fire History Map

COUNTY OF SAN DIEGO PARKS • WILDERNESS GARDENS PRESERVE
BASELINE BIODIVERSITY REPORT



Source: San Diego North Aerial, 2005. MBA Field Survey and GIS Data, 2009.

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Michael Brandman Associates

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Exhibit 8
Trails Map

COUNTY OF SAN DIEGO PARKS • WILDERNESS GARDENS PRESERVE
BASELINE BIODIVERSITY REPORT

SECTION 3: METHODS

The methods described below were utilized by MBA to conduct a biodiversity study at the Preserve. Generally, these methods include research of all applicable reports, reviewing aerial photography, and field surveys to collect data and identify all biological resources within the Preserve. All methods were conducted in accordance with all scientifically accepted, as well as local, State and Federal agency accepted protocols and procedures.

3.1 - Literature Review

Analysis of the biological resources associated with the Preserve began with a thorough review of relevant literature followed by a series of field surveys. The literature review provides a baseline from which to evaluate the sensitive biological resources potentially occurring on the Preserve, as well as the surrounding area. Special attention was paid to potentially occurring sensitive species that were identified during the literature review.

As part of the literature review, MBA biologists examined existing environmental documentation for the Preserve and local vicinity. This documentation included biological studies for the area, literature pertaining to habitat requirements of special status species potentially occurring near the Preserve, as well as federal register listings, protocols, and species data provided by the United States Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG). These and other reviewed documents are listed in Section 6, References.

Current USGS 7.5-minute topographic quadrangle map(s) and aerial photographs were also reviewed by MBA as a preliminary analysis of the existing conditions within the Preserve and immediate vicinity. Information from the review of the topographic maps included elevation range, general watershed information, and potential water body or drainage feature locations. Aerial photographs provided a perspective of the most current conditions with regard to on-site and off-site land use, plant community locations, and potential locations of wildlife movement corridors.

3.2 - Vegetation Communities/Habitat

3.2.1 - Vegetation Communities Mapping

USGS 7.5-minute topographic base maps and recent aerial photography are the primary source for mapping vegetation communities. Sensitive or unusual biological resources identified during the literature review were ground-truthed during the field surveys for

mapping accuracy. Vegetation types were categorized according to the Holland (1986) as modified by Oberbauer's (1996) classification system.

3.3 - Plants

An MBA biologist compiled a list of threatened, endangered, and otherwise sensitive plant species previously recorded to occur near the Preserve. The CDFG's California Natural Diversity Database (CNDDB), and the California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California database were the basis for the list. The CNDDB geographical information system (GIS) database along with ArcGIS software was used to determine the distance between known recorded occurrences of sensitive species and the Preserve.

The identification of common plant species was by the use of visual characteristics and morphology. Identification of uncommon and less familiar plants was by the use of taxonomical guides. A list of all species observed on the Preserve originates from the survey data, and was provided in Appendix A, Observed Species List - Plants. Taxonomic nomenclature follows Hickman (1993). In this report, scientific names are provided immediately following common names of plant species for the first reference only.

3.3.1 - Floristic Surveys

Floristic surveys consisted of three separate survey efforts. Initial survey visits focused on documenting vegetation communities and recording individual plant species occurring on the Preserve. Additional site visits focused specifically on documenting individual plant species. Also included, as part of the overall plant compendium, are incidental plant observations. An ongoing list of native and non-native plant species was kept throughout the entire survey period to document plant species with different flowering periods. Plant surveys were conducted from May to September.

3.4 - Wildlife

An MBA biologist compiled a list of threatened, endangered, and otherwise sensitive wildlife species previously recorded to occur near the Preserve. The CNDDB, database was the basis for the list. The CNDDB geographical information system (GIS) database along with ArcGIS software was used to determine the distance between known recorded occurrences of sensitive species and the Preserve.

Wildlife species detected during the surveys by sight, calls, tracks, scat, or other signs were recorded in field notebooks. Notations regarding suitable habitat for those sensitive species

with potential to occur within the Preserve were documented on data sheets and field notebooks. Appropriate field guides assisted with species identification during surveys. In this report, scientific names of wildlife species are provided immediately following common names for the first reference only. Appendix B, Observed Species List -Wildlife, identifies all wildlife species observed or detected on the Preserve during the 2009 surveys.

Information compiled from the literature review, including aerial photographs, USGS topographic maps, and resource maps for the vicinity, as well as field surveys, and knowledge of desired topography and resource requirements for wildlife were used to assess wildlife movement corridor impacts.

The results of the vegetation community mapping effort were used to determine the five primary wildlife sampling locations within the Preserve (Exhibit 9). Sampling locations were generally located in each major vegetation community scattered throughout the Preserve. Each sampling location contains a unique set of physical and morphological attributes. Below is a brief discussion of the sampling locations and the rationale for their selection.

3.4.1 - Sampling Location 1 (WG-1)

Sampling Location 1 (WG-1) is located in the northwestern portion of the Preserve, near the western extent of the Camellia Trail. The sampling location occurs within a generally flat area adjacent to the trail and in an area characterized by oak woodland habitat. The dominant vegetation at this sampling location consists of coast live oak, scrub oak, and poison oak, with an understory of ruderal species and leaf litter. This sampling location was chosen due to the mix of open and dense oak woodland habitats, and its close proximity to non-native grassland and potential bat roosting sites.

3.4.2 - Sampling Location 2 (WG-2)

Sampling Location 2 (WG-2) is located in the center of the Preserve, along the northern portion of the pond. This area is relatively flat and contains a mix of riparian vegetation, freshwater marsh, open water and disturbed areas associated with the trail. The vegetation within this sampling location consists of narrowleaf cattail (*Typha angustifolia*), coast live oak, wild cucumber (*Marah macrocarpus*), and non-native grasses. The understory is generally devoid of vegetation and the soil in this area is compacted due to previous installation of a utility pole and ongoing recreational use. This location contains the only area of open water and riparian habitat within the Preserve that provides suitable habitat for a number of wildlife species including various mammal, reptile, and waterfowl species.

3.4.3 - Sampling Location 3 (WG-3)

Sampling Location 3 (WG-3) is located within Diegan coastal sage scrub in the northeastern portion of the Preserve, immediately adjacent to the north bank of the San Luis Rey River An alluvial fan scrub community dominated by Our Lord's Candle (*Yucca whipplei*), California buckwheat (*Eriogonum fasciculatum*), and several common species of dudleya (*Dudleya sp.*), dominates the habitat at this sampling location. The soil within this area is generally sandy and provides good quality habitat for small mammal species and a number of common insect species. This sampling location occurs in an area that serves as a corridor for a number of wildlife that resides in and migrates through a variety of habitats including cliff faces, alluvial fans, sandy washes and woodlands.

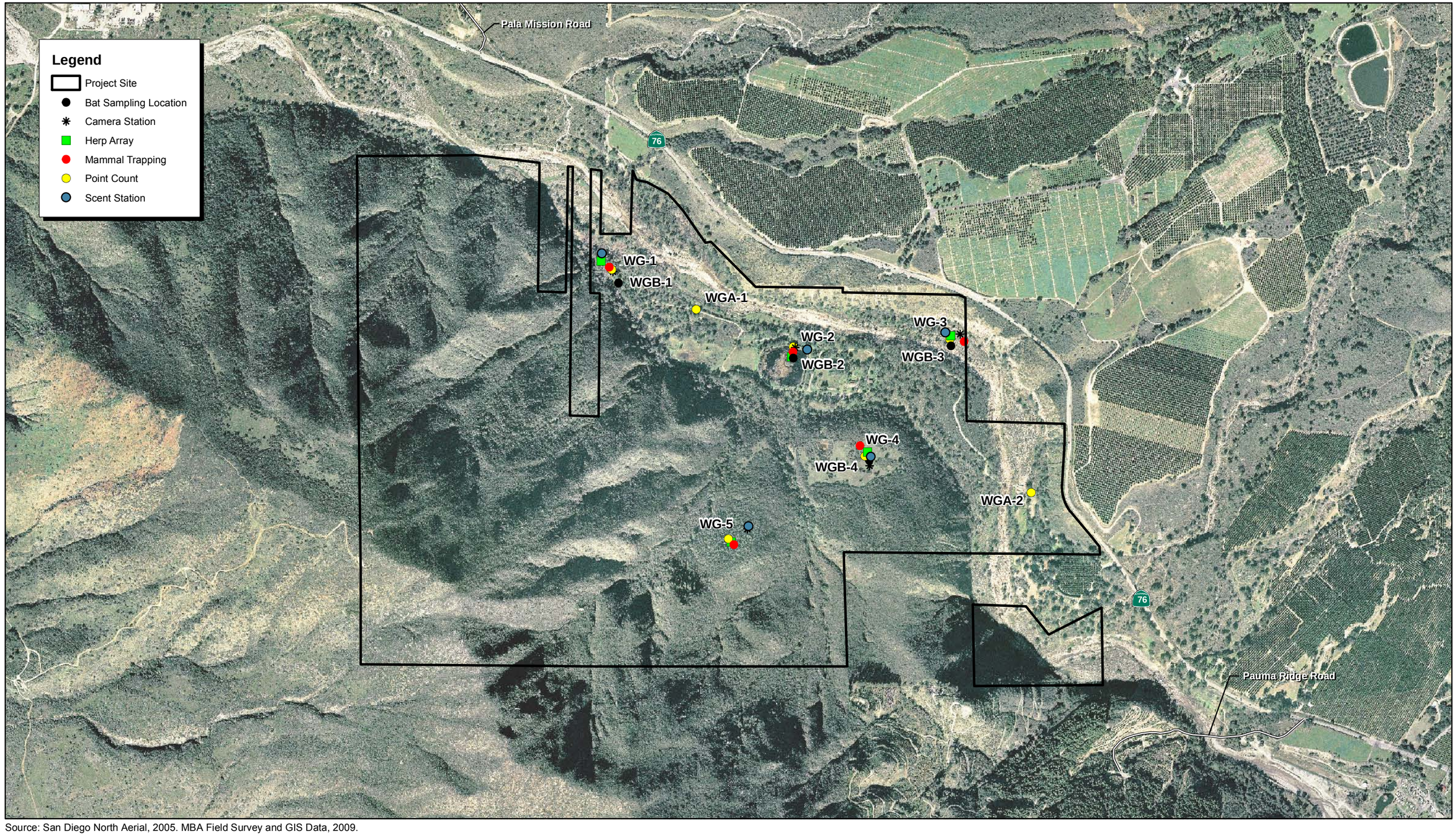
3.4.4 - Sampling Location 4 (WG-4)

Sampling Location 4 (WG-4) occurs near the center of the Preserve, adjacent to the Upper Meadow Trail, within a non-native grassland area along a ridge that overlooks the San Luis Rey River valley. This location occurs on a north-facing slope that is characterized by non-native grassland, dominated by slender oats (*Avena barbata*), short-podded mustard (*Hirshfeldia incana*), and cheat grass (*Hordeum tectorum*).

This open grassland area is surrounded by mature chaparral and is a transition area between the two habitats for various small mammal and reptile species. WG-4 is located in direct sunlight and is drier than the other sampling locations within the Preserve.

3.4.5 - Sampling Location 5 (WG-5)

Sampling Location 5 (WG-5) is the most southern and highest elevation sampling location within the Preserve. WG-5 is located near the terminus of an inactive trail that can be accessed from a native/non-native grassland downslope from WG-5. This sampling location occurs in an open area within dense southern mixed chaparral on a north-facing slope that continues southwest and ascends to the peak of Pala Mountain. The understory of this community consists of a mix of native and non-native grasses and herbaceous species, with scattered rock outcrops. The habitat at this sampling location is substantially different from the lower elevation sampling locations and provides an accurate representation of the chaparral habitat that occupies a majority of the Preserve.



Source: San Diego North Aerial, 2005. MBA Field Survey and GIS Data, 2009.

NORTH

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Feet

Michael Brandman Associates

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Exhibit 9
Sampling Locations Map

COUNTY OF SAN DIEGO PARKS • WILDERNESS GARDENS PRESERVE
BASELINE BIODIVERSITY REPORT

In order to achieve a comprehensive biological inventory, several types of field surveys were used, including:

- Invertebrate Surveys
- Pit-fall Traps
- Funnel Traps
- Avian Point Counts
- Camera Stations
- Small Mammal Traps
- Scent Stations
- Acoustical Bat Surveys

A detailed discussion of each survey method is discussed in the sections below. A list of the survey dates and the MBA biologists that conducted the surveys are located in Table 3.

Table 3: Survey Dates

Dates	Biologist	Survey Focus
May 7, 2009	SC	Plant Inventory and Vegetation Mapping
May 12, 2009	SC	Plant Inventory and Vegetation Mapping
June 10, 2009	TM, SC	Butterfly Surveys
June 12, 2009	TM, SC	Butterfly Surveys
July 8, 2009	SN, TM, DL, SC	Sampling Installation- Incidental Observations
July 9, 2009	SN, DL, SC,	Sampling Installation- Incidental Observations
July 13,2009	DH, DL, DS, TM	Wildlife Inventory[1]
July 14, 2009	DL, TM, DS, SN, SC	Wildlife Inventory
July 15, 2009	SN, DS, SC, DL	Wildlife Inventory
July 16, 2009	DL, SN, DS, DH	Wildlife Inventory
July 17, 2009	DH, DL, TM	Wildlife Inventory
August 17, 2009	SC, SN, TM	Wildlife Inventory
August 18, 2009	SN, TM, DH, KR	Wildlife Inventory
August 19, 2009	KR, DL, DH	Wildlife Inventory
August 20, 2009	DH, KR, TM	Wildlife Inventory
August 21, 2009	SN, DH	Wildlife Inventory
September 15, 2009	SN, TM, DL, DH, SC	Sampling Removal- Incidental Observations

Notes:
[1] Wildlife inventory surveys include all wildlife studies conducted during survey period.
DL = Diana Lloyd TM = Tommy Molioo SC = Scott Crawford DH = Dale Hameister
KR = Kelly Rios SN = Steven Norton DS = Deborah Stout

3.4.6 - Invertebrates

Butterfly Surveys

Butterfly surveys were conducted specifically to identify butterfly species within the Preserve. Surveys were conducted in various habitats including areas with sufficient nectar sources and available moisture. Meandering transects were walked within different habitat types in order to maximize observations. Other incidental observations of other insect species were also recorded during the butterfly surveys.

A Quino checkerspot butterfly habitat assessment was conducted as part of the general vegetation mapping surveys by USFWS permitted biologist Scott Crawford (Permit # TE-019947-3). The site assessment was based on the USFWS Quino Checkerspot Butterfly Survey Protocol Information (USFWS 2002). Based on the protocol, the project is outside of Quino survey area 2, therefore, protocol surveys are not required. The majority of the project site, approximately 95 percent, is described as an excluded area based on the dense chaparral and/or small openings (less than an acre) completely enclosed within dense chaparral or other habitats that are not suitable for Quino Checkerspot Butterfly.

Other Invertebrates

Invertebrate sampling was not a main focus of the survey effort and was limited to incidental collection and observation during the standardized sampling activities. During each sampling period, biologists slowly walked from one sampling location to the next, along existing trails looking for wildlife species, including insects. Biologists also stopped periodically to examine flowering plants and turned over rocks and logs to identify invertebrate species. Photographs of insects were used for off-site identification by comparing observed invertebrates with field guides and on-line collection sites. Many invertebrates are difficult to identify even by trained entomologists. Unidentified invertebrate species are not included in the compendium.

3.4.7 - Herpetofauna

Pit-fall Traps

Herpetological sampling methods included a total of five pit-fall trap arrays, one array at each primary sampling location mentioned above. Where applicable, the pit-fall arrays were designed based on the guidelines described in the USGS's Herpetological Monitoring Using a Pit-fall Trapping Design in Southern California (2008). Each pit-fall array consisted of a single five-gallon bucket in the middle of the array. Three drift fence arms approximately 15 meters long were spaced at 120-degree angles, if applicable. Pit-fall trap set-up and

arrangement during the 2009 sampling survey differed slightly at each sampling location with respect to general topography, soil type, and vegetation cover.

Pit-fall traps were placed within areas that had the highest potential for herpetofauna collection. Areas of minimal vegetation cover were selected to reduce the amount of vegetation removed during installation. Lids were staked over each bucket in order to provide shade. A six-inch long piece of one-inch diameter PVC pipe was placed in each bucket. Pit-fall traps were opened at dusk during a standard five-day work week and monitored in the morning. At the end of each five-day sampling period, the lids were secured on the buckets to prevent incidental capture without monitoring. Pit-fall trapping efforts were conducted from July to September.

Pit-fall traps, as mentioned above, are primarily used to capture and identify common reptile and amphibian species such as snakes, lizards, frogs, and toads. These traps can also capture insects, small mammals, and birds. Animals were removed from the pit-fall traps with small hand-trowels and sticks, depending on the size of the animal. Large snakes and lizards were carefully removed with gloved hands.

Pit-fall trap arrays met USGS guidelines at WG-1, WG-3, WG-4, and WG-5. Due to location of the pit-fall traps with regard to the existing ponded area, WG-2 has a long straight array that measures 45 meters in a single direction with pit-fall buckets spaced evenly.

In addition to pit-fall traps, the ponds were surveyed by boat to identify any active amphibian species within the aquatic habitat. A small rowboat, supplied by the San Diego County Parks Department, was used to scan the surface of the ponds. The dense cattails and surrounding vegetation made direct observation of the aquatic habitat nearly impossible, except for a few areas near the southern portion of the ponds.

Focused surveys for arroyo toad were not conducted because MBA inventory surveys were conducted outside of the survey window for this species. Arroyo toad surveys are generally conducted between March and July, with mandatory surveys conducted in March, April and May. The San Luis Rey River was completely dry during the inventory surveys, which allows for only incidental upland observations of this species.

Funnel Traps

Funnel traps were also used and were built based on the USGS protocol. A funnel trap was placed along each arm of the pit-fall trap array, for a total of three funnel traps per sampling location. A piece of burlap was placed over each funnel trap to protect any captured animals

from the sun. Funnel traps were checked twice each day during the sampling period, in the morning and at dusk. Wildlife species caught in the funnel traps were released by opening one side of the trap and allowing the animal to leave the trap unassisted.

3.4.8 - Birds

Avian Point Counts

Point count locations were selected based on the potential to detect or observe a wide variety of species at a single location. The biologist remained relatively still, listening for and to birdcalls while scanning the sky for passing birds. Although this sampling method is designed specifically to identify avian species, incidental observations of other animals occurred and were recorded.

Seven locations within the Preserve were selected to identify avian species that may utilize some portion of the Preserve. In addition, to the five primary sampling locations (WG-1 thru WG-5), two point count stations were added to increase the diversity of habitats sampled.

The first Wilderness Gardens Avian Point Count Location (WGA-1) is located east of the Camellia Trail trailhead in an open grassland area (Exhibit 9). WGA-1 provides a vantage point of grassland, woodland, and freshwater vegetation habitats and the associated avian species that utilize these habitats for foraging and nesting. A number of avian species are easily identifiable, both by site and by call, from this sampling location due to its placement within a transition area of several different habitat types.

The second Wilderness Gardens Avian Point Count Location (WGA-2) is located near the entrance of the Preserve, adjacent to the staging area, south of sampling location WG-3 (Exhibit 9). This area occurs on the periphery of coastal sage scrub and disturbed habitat associated with the Main Trail and the staging area. The reason for selecting this sampling location was to identify species that may occur within the Preserve that utilize the San Luis Rey River as a corridor and are commonly associated with areas that are more disturbed.

Point counts were conducted from a single vantage point at each location for 10 minutes. Each sampling location was located approximately 1,000 to 3,000 feet apart and was sampled for a five-day period once a month from July to September.

In addition to daytime avian point count surveys, nighttime avian point count surveys were conducted to document nocturnal avian species. Nocturnal point counts were conducted for 10 minutes at all seven standard avian point count locations.

All wildlife species observed or otherwise detected at the avian point count stations were recorded on standard datasheets. In addition, wildlife species observed on the way to, but not specifically observed at, the point count stations, were also noted on datasheets, but not included as part of the point count survey results. Only birds clearly observed or detected during the point counts were recorded as part of the point count results. Avian species observed or detected during other survey methods were recorded as incidentals. Datasheets with no avian observations are not included in Appendix F.

3.4.9 - Mammals

Camera Stations

Five Silent Image Professional Model PM35C31 cameras were installed at each of the primary sampling locations within the Preserve (Exhibit 9). These cameras capture 3.1 megapixel color images by day and 3.1 megapixel infrared monochrome images by night. The cameras also have an InstaOn Motion Sensor.

The cameras were placed in the designated camera stations on the Monday of each sampling week and removed Friday evening. The cameras operated continuously through that time and were pointed in a downward-diagonal direction to best photograph any wildlife species. Each camera location was adjusted as needed based on the prior week's photographs to optimize the camera location.

After each week of sampling, the cameras were removed and reinstalled during the following sampling period. Camera stations were subject to change during the sampling period when difficulties with vandalism or unintentional photo-trips occurred, or more suitable locations were discovered throughout the investigation period.

The camera stations were primarily used to document large mammals such as coyote (*Canis latrans*), bobcat (*Lynx rufous*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), desert cottontail (*Sylvilagus audubonii*), California ground squirrel (*Spermophilus beecheyi*), and opossum (*Didelphis virginiana*).

Small Mammal Traps

MBA biologists performed a standard, small mammal trapping effort within the Preserve. MBA sampled areas with the highest probability for trap success. Locations that could support a wide variety of small mammal species were selected for trapping. A single trap line was set up at each of the five sampling locations (Exhibit 9). At the Preserve, 50 traps were used for each trap line with a total of five trap locations. A maximum of 1,250 trap-nights were completed in August and September 2009.

Similar to protocols used by USFWS for sensitive species requiring permitted biologists, small mammal trapping was conducted for five consecutive evenings. Traps were baited with a birdseed mix at dusk and checked and closed at dawn. These traps were designed to capture small mammal species such as mice (*Peromyscus* sp.), kangaroo rats (*Dipodomys* sp.), wood rats (*Neotoma* sp.), and pocket mice (*Chaetodipus* sp.). These traps may also capture snakes, small birds, and squirrels.

Scent Stations

The five scent stations were selected based on the surrounding topography and proximity to other sampling locations (Exhibit 9). Each station was prepared using a two-foot high wooden stake with standard baking flour at the base to detect any wildlife tracks. Baking flour was used in place of diatomaceous earth due to potential health risks. Baking flour is also biodegradable and holds a print well for identification purposes. An attractant such as sardines or cat food was nailed to the wooden stake at the beginning of each survey week. The average scent station was approximately one square meter. The flour was sprinkled within the square meter to an approximate depth of five millimeters.

Scent stations were checked for wildlife tracks each morning for five days each in August and September. Once a station was recorded, the tracks in the flour were smoothed by dragging a fine broom across the entire area and additional flour was added as needed to refresh the station. The scent stations were located a distance away from the camera station in order to reduce data replication.

Tracks were measured and photographed, and compared to standard field guides for animal tracks (Murie 1974). Wildlife species that were expected to be identified in the tracking medium included coyote, bobcat, woodrat, weasel (*Mustela* sp.), rabbit, squirrel, and kangaroo rat. Other animals commonly detected in similar tracking medium include an assortment of birds, insects, and lizards.

Acoustical Bat Surveys

Acoustical (passive) surveys for bats were conducted using a Pettersson D240X bat detector, and the detections recorded using an iRiver digital MP3 player/recorder. Both the detector and the recorder were attached to a lightweight metal pole set into the ground. This was intended to improve the quality of the recordings, and to protect equipment and wires from rodents and other wildlife. Calls were downloaded from the recorder to a laptop computer each morning after surveys were completed. All recorded bat calls were processed and identified to the species level using Sonobat software. Calls were stored as digital sound files

in .wav format, and call data was analyzed and organized into a spreadsheet for use during subsequent report preparation.

Four bat survey locations (Exhibit 9) were established based on vegetation types, habitat structure, habitat elements (e.g. rock outcrops, barren soil), and the presence of edge habitat (e.g., at the transition from chaparral to live oak woodland). Also considered were areas that form natural flight corridors and tend to channel bats spatially into a defined area. Bat surveys were considered independent of the other sampling locations.

The first bat sampling location (WGB-1) is located adjacent to WG-1. The second bat survey area (WGB-2) is located in the center of the Preserve, adjacent to the pond and WG-2. The third bat sampling location (WGB-3) is located near the WG-3 sampling location in the northeastern corner of the Preserve (Exhibit 9). Bat sampling location 4 (WGB-4) is located in the non-native grassland area adjacent to WG-4, facing towards dense chaparral.

Bat surveys were conducted at each bat sampling location for two consecutive nights during each sampling period (once in August and once in September). An hour before sundown, detector/recorder units were installed at two separate sampling locations. Fresh batteries were used each night. The detectors and recorders ran all night and were picked up in the morning.

Additionally, bats were actively surveyed during the nighttime avian point counts. The active bat sampling locations were located at the passive sampling locations for bats.

Project Specific Methods

The above methods were tailored to best address project limitations and constraints. Despite the extensive inventory effort, not all species present in the Preserve could be detected. Certain limitations are unavoidable when conducting any survey. The limitations associated with this survey involve limited access in densely vegetated areas and time constraints. Many portions of the Preserve were inaccessible as there are limited roads and trails within the dense chaparral habitat. Also, because much of the surveying occurred during the summer months (July through September), some species, such as spring-flowering plants and overwintering birds, may not be detected.

SECTION 4: RESULTS AND DISCUSSION

The following is a detailed discussion of the data collected during the 2009 baseline survey effort on the Preserve. For the purpose of this report, sensitive species refers to all species formally listed as threatened and/or endangered under the Federal Endangered Species Act (ESA) and California Endangered Species Act (CESA), California Species of Special Concern, designated as Fully Protected by CDFG; given a status of 1A, 1B, or 2 by the CNPS; or designated as sensitive by San Diego County. Federal and State listed threatened and/or endangered species are legally protected under the ESA. The remaining species mentioned above have no direct legal protection, but require a significance analysis under California Environmental Quality Act (CEQA) and/or County guidelines.

4.1 - Vegetation Communities/Habitat

A total of fifteen vegetation communities occur within the Preserve including, chamise chaparral, dense coast live oak woodland, Diegan coastal sage scrub, disturbed habitat, freshwater marsh, mule fat scrub, native grassland, non-native grassland, non-vegetated channel, open coast live oak woodland, open water, non-native vegetation, southern mixed chaparral, southern riparian forest, and developed land (Exhibit 10). Table 4 below provides a summary of the vegetation community acreages and respective Holland vegetation community classification codes. Representative photographs of the communities are provided in Appendix E.

Table 4: Vegetation Community/Habitat Acreages

Vegetation Community/Habitat	Approximate Area (acres)
granitic chamise chaparral (37210)	42.47
dense coast live oak woodland (71162)	28.23
Diegan coastal sage scrub (32500)	38.08
disturbed habitat (11300)	5.90
freshwater marsh (52400)	2.37
mule fat scrub (63310)	0.34
native grassland (42100)	1.84
non-native grassland (42200)	40.49
non-native vegetation (11000)	1.64
non-vegetated channel (64200)	18.75
open coast live oak woodland (71161)	74.90

Table 4 (cont.): Vegetation Community/Habitat Acreages

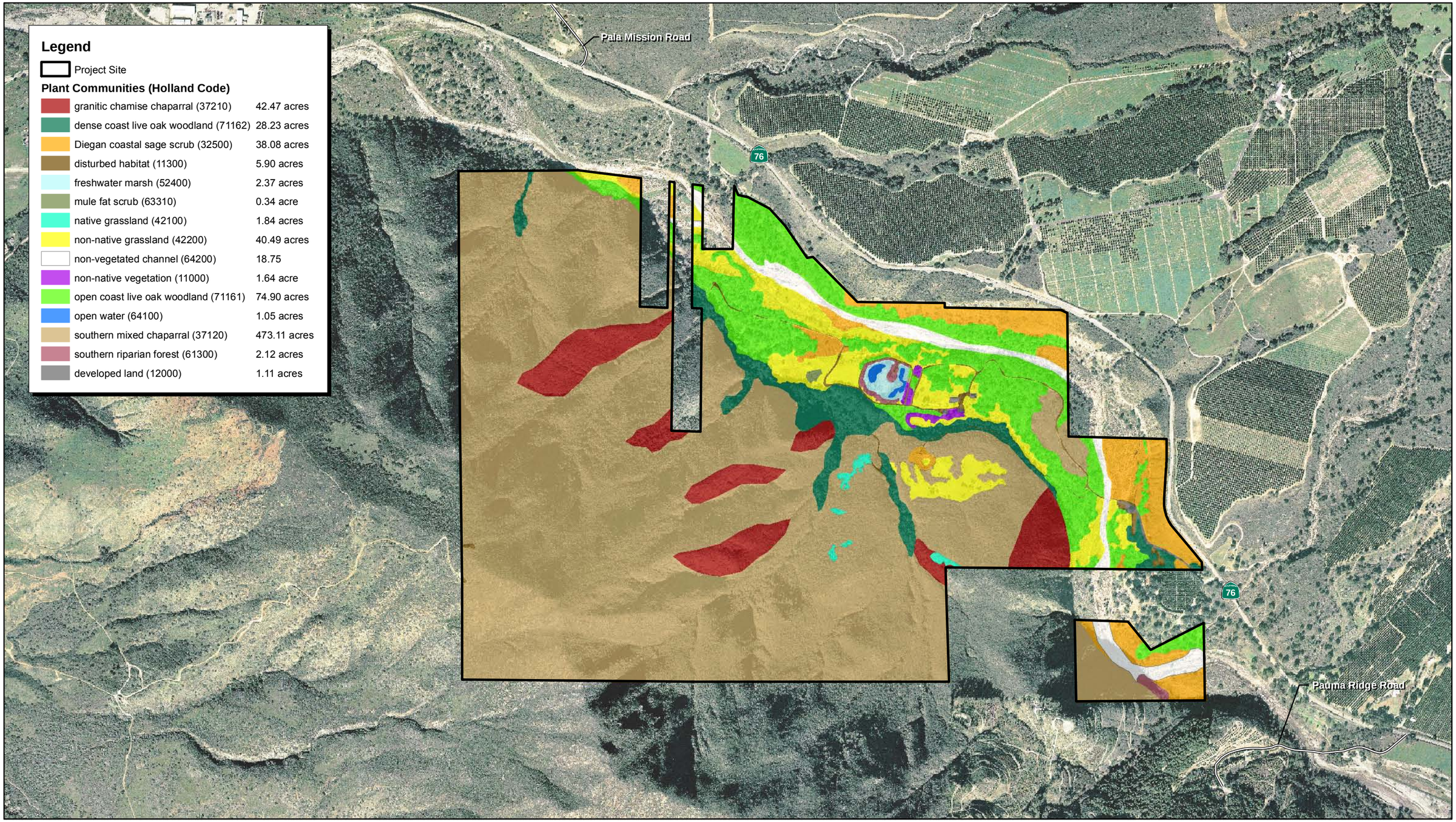
Vegetation Community/Habitat	Approximate Area (acres)
open water (64100)	1.05
southern mixed chaparral (37120)	473.11
southern riparian forest (61300)	2.12
developed land (12000)	1.11
Total	732.4

The Preserve is dominated by southern mixed chaparral habitat with small inclusions of chamise chaparral. The northeastern portion of the Preserve is dominated by coast live oak woodland, Diegan coastal sage scrub, and non-native grasslands. The relatively homogenous chaparral habitat is strongly associated with similar soil structure and a lack of significant disturbance, such as fires, for approximately 50 years. The northeastern portion of the Preserve has a greater diversity of habitats as a result of previous disturbance.

Sensitive vegetation communities are considered to be sensitive biological resources based on Federal, State, or local laws regulating their development, limited distributions, and habitat requirements of sensitive plants or wildlife species that occur within them. Per the North County MSCP, the Preserve contains sensitive vegetation communities consisting of both Tier I (native grassland, oak woodland and wetlands), Tier II (coastal sage scrub), and Tier III (chaparral and non-native grassland) habitats (County of San Diego 2009a). Additionally, native grassland is considered a sensitive habitat land under the County's Resource Protection Ordinance (RPO) and coast live oak woodland is provided protection under the California Oak Woodland Conservation Act.

Granitic Chamise Chaparral (Holland Code 37210)

Granitic chamise chaparral is a relatively sparse one- to three-meter tall chaparral community strongly dominated by chamise (*Adenostoma fasciculatum*) and found on granitic soil. Mature granitic chamise chaparral stands are often densely interwoven with very low species compositions and little herbaceous understory or litter. This community is adapted to repeated fires by stump sprouting. Granitic chamise chaparral often occurs on xeric slopes and ridges, with adjacent more mesic sites mantled by upper Sonoran mixed chaparrals and northern mixed chaparrals. It is similar to upper Sonoran mixed chaparral, but on shallower, drier soils or at somewhat lower elevations. Granitic chamise chaparral commonly occurs throughout mid-elevations in the southern California region. Granitic chamise chaparral is considered a Tier III Habitat under the North County MSCP (County of San Diego 2009a).



Source: San Diego North Aerial, 2005. MBA Field Survey and GIS Data, 2009.

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Michael Brandman Associates

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Exhibit 10
Vegetation Communities Map

COUNTY OF SAN DIEGO PARKS • WILDERNESS GARDENS PRESERVE
BASELINE BIODIVERSITY REPORT

The Preserve contains approximately 42.47 acres of granitic chamise chaparral, predominantly on north-facing slopes on the face of Pala Mountain. The granitic chamise chaparral within the Preserve is characterized by a strong dominance of chamise, scrub oak (*Quercus berberidifolia*) and sugar bush (*Rhus ovata*). Other common species observed in this community include toyon (*Heteromeles arbutifolia*), mountain mahogany (*Cercocarpus montanus* var. *glaber*), Our Lord's Candle (*Hesperoyucca whipplei*), California buckwheat, thick-leaved yerba santa (*Eriodictyon crassifolium*), and bigberry manzanita (*Arctostaphylos glauca*).

The granitic chamise chaparral community within the Preserve provides suitable habitat for common ground and shrub nesting avian species such as wrentit (*Chamaea fasciata*) and California towhee (*Pipilo crissalis*). In general, the habitat quality of the granitic chamise chaparral on-site is considered moderate, and provides nesting and foraging opportunities for common wildlife species. This community is locally and regionally widespread and is generally not associated with any endemic species that are narrowly distributed or rare.

Dense Coast Live Oak Woodland (Holland Code 71162)

The dense coast live oak woodland plant community typically consists of moderate to densely vegetated woodland dominated by coast live oak trees. These evergreen trees reach 30 to 80 feet in height and usually occur on north-facing slopes or south-facing slopes within shaded ravines. Dense coast live oak woodland is considered a Tier I Habitat under the North County MSCP (County of San Diego 2009a).

The Preserve contains 28.23 acres of dense coast live oak woodland, occurring within several stands of oak trees along the northeastern facing slopes near the base of Pala Mountain within the Preserve. Coast live oak trees dominate the tree canopy, which subsequently provides a deep layer of leaf litter beneath; however, several shrub and herbaceous plant species persist in the lower canopy. The species observed include toyon, creeping snowberry (*Symphoricarpos mollis*), and poison oak (*Toxicodendron diversilobum*).

The coast live oak woodland on the Preserve provides suitable habitat for native wildlife species common in dry, wooded areas, such as acorn woodpecker (*Melanerpes formicivorus*), western scrub jay (*Aphelocoma californica*), and great horned owl (*Bubo virginianus*).

Diegan Coastal Sage Scrub (Holland Code 32500)

Diegan coastal sage scrub consists of low-growing, drought-deciduous and evergreen shrubs that occur in foothills throughout coastal southern California south into Baja California, below 3,000 feet AMSL. This community is typically located on sites with low moisture

availability, such as steep, xeric slopes or clay-rich soils that release stored moisture slowly. It intergrades at higher elevations with chaparral communities and in drier, inland areas with Riversidean Sage Scrub. Characteristic dominant species include California sagebrush (*Artemisia californica*), California buckwheat, white sage (*Salvia apiana*), purple sage (*Salvia leucophylla*), and black sage (*Salvia mellifera*). Diegan coastal sage scrub is considered a Tier II Habitat under the North County MSCP (County of San Diego 2009a).

Several areas of Diegan coastal sage scrub are located throughout the Preserve, specifically, adjacent to the San Luis Rey River, totaling 38.08 acres. Dominant species observed within this community include California sagebrush, black sage, California buckwheat, and saw-toothed goldenbush (*Hazardia squarrosa*). Other species observed include deerweed (*Lotus scoparius*), white sage, and Our Lord's Candle. Scattered non-native species were observed within this community including foxtail brome (*Bromus rubens*) and slender oat (*Avena barbata*).

The Diegan coastal sage scrub throughout the Preserve is considered moderate-quality habitat for wildlife species, including the blue-grey gnatcatcher (*Polioptila caerulea*), California towhee, and desert cottontail.

Disturbed Habitat (Holland Code 11300)

Disturbed habitat includes areas in which the vegetative cover comprises less than 10 percent of the surface area (disregarding natural rock outcrops). These areas often contain evidence of soil surface disturbance and compaction from previous legal human activity. Also, where the vegetative cover is greater than 10 percent, there is often soil surface compaction associated with the disturbed nature of the site. In addition, this also includes the presence of building foundations and debris (e.g., irrigation piping, fencing, old wells, abandoned farming or mining equipment) resulting from legal activities (as opposed to illegal dumping). Vegetation commonly observed within disturbed habitat will have a high predominance of non-native or weedy species that are indicators of soil disturbance. Common species observed include Russian thistle (*Salsola tragus*), telegraph weed (*Heterotheca grandiflora*), horehound (*Marrubium vulgare*), and sow thistle (*Sonchus oleraceus*), and a sub-dominance of non-native grasses.

Disturbed habitat is predominantly limited to the trails, dirt access roads, and remnant structures associated with the Preserve, and totals 5.90 acres. These areas are mainly compacted with little vegetation except on the periphery of these areas, often transitioning into non-native grassland or woodland habitats. Common species observed within this habitat consist of foxtail brome, ripgut brome and Bermuda grass (*Cynodon dactylon*). This

habitat type provides very poor quality habitat for native plant and wildlife species; however, several insect species were observed in these areas during sampling surveys such as antlion (*Brachynemurus* sp.).

Freshwater Marsh (Holland Code 52400)

Freshwater marsh is a vegetation community typically dominated by perennial, emergent monocots that form dense, closed canopies. Dominant native species typically observed within this community consist of cattails (*Typha* sp.) and rushes (*Scirpus* sp.). Other common species include southern cottonwood (*Populus fremontii*) and various willow (*Salix* sp.) trees. This community often occurs in permanently flooded freshwater areas with a very low current. The prolonged saturation of these areas allows for accumulation of deep, peaty soils. Freshwater marsh communities also provide habitat for a number of wildlife species known to occur in wet environments. Freshwater marsh is considered a Tier I Habitat under the North County MSCP (County of San Diego 2009a).

Approximately 2.37 acres of a freshwater marsh community is located near the center of the northern portion of the Preserve, on and around the pond. The community is predominantly comprised of arroyo willow (*Salix lasiolepis*), narrowleaf cattail, scrub oak, and laurel sumac (*Malosma laurina*). Common wildlife species observed within this community include western scrub jay, mallard (*Anas platyrhynchos*), American coot (*Fulica americana*), great egret (*Casmerodius albus*), green heron (*Butorides virescens*), and red-winged black bird (*Agelaius phoeniceus*).

Mule Fat Scrub (Holland Code 63310)

The mule fat scrub community often occurs in small patches and narrow ribbons along streambeds and washes that tend to dry out quickly after storm events. This riparian habitat type consists primarily of mule fat, with scattered willows (*Salix* spp.), and coyote bush (*Baccharis pilularis*), along with occasional Mexican elderberry (*Sambucus mexicana*) forming the shrub canopy. In most areas, the understory contains upland grasses and forbs like wild oats (*Avena* spp.) and mustards (e.g., *Brassica, Hirschfeldia, Rapa* spp.). In areas where mule fat is particularly dense or where substantial scouring has occurred, the understory component of this habitat may be sparsely vegetated or absent. Mule fat scrub is considered a Tier I Habitat under the North County MSCP (County of San Diego 2009a).

The 0.34-acre mule fat scrub community on-site occurs in an abandoned ponded area used previously for agricultural and landscape purposes. The vegetation community consists of a monotypic stand of mule fat. Wildlife species associated with this area include lesser

goldfinch (*Carduelis psaltria*), yellow-rumped warbler (*Dendroica coronata*), and house finch (*Carpodacus mexicanus*).

Native Grassland (Holland Code 42100)

Native grassland is a plant community with a vegetative cover comprised of native grasses. Native grass species include perennial species such as deergrass (*Muhlenbergia rigens*) and wild rye (*Leymus* sp.). It also includes annual grass species such as small flower melic grass (*Melica imperfecta*), blue wild rye (*Elymus glaucus*), and purple needlegrass (*Nassella pulchra*). Native wildflowers species commonly occurring in native grasslands include goldfields (*Lasthenia californica*), blue-eyed grass (*Sisyrinchium bellum*), and blue dicks (*Dichelostemma capitatum*). Other non-native species observed in this community may include yellow star-thistle (*Centaurea solstitialis*) and short-podded mustard. Native grassland is considered a Tier I Habitat under the North County MSCP, and is considered an RPO sensitive land (County of San Diego 2009a).

Five isolated stands of native grasslands, totaling 1.84 acres, occur within the southern portion of the Preserve, on the side of north-facing slopes. Non-native grasses were also observed scattered throughout this community, including bromes (*Bromus* sp.) and slender oats. Native grasslands are increasingly rare because many non-native annual grasses have invaded these areas and out-compete the native grass species following a significant disturbance event. Native grasslands provide suitable habitat for several native plant species that cannot generally compete against dense stands of non-native grass species.

Non-Native Grassland (Holland Code 42200)

Non-native grassland is described as a dense to sparse cover of non-native annual grasses often associated with numerous weedy species and native annual forbs (wildflowers), especially in years with plentiful rain. Seed germination occurs with the onset of winter rains. Some plant growth occurs in winter, but most growth and flowering occurs in the spring. Plants then die in the summer and persist as seeds in the uppermost layers of soil until the next rainy season. Dominant plant genera typically found within non-native grasslands include brome (*Bromus* sp.), wild oats (*Avena* sp.), fescue (*Vulpia* sp.), and barley (*Hordeum* sp.). Non-native grassland is considered a Tier III Habitat under the North County MSCP (County of San Diego 2009a).

The non-native grassland within the Preserve is associated with human disturbance and adjacent developments. Approximately 40.49 acres of this community occurs within the Preserve. The northernmost stands are located adjacent to the residential development adjacent to the Preserve. These stands are mowed regularly for protection against potential

wildfire events. The other stands on the Preserve are located adjacent to the remnant structures. The non-native grassland community has colonized areas formerly cleared by the former residents of the structures. The plant species that occurred in all the stands on the Preserve include short-podded mustard, California brome (*Bromus carinatus*), ripgut brome (*Bromus diandrus*), soft brome (*Bromus hordeaceus*), foxtail brome (*Bromus rubens*), common Mediterranean grass (*Schismus barbatus*), and rat-tail fescue (*Vulpia myuros*).

Despite being comprised of non-native plant species, the non-native grassland plant community has been established within the United States for many generations and is considered by many to be a naturalized plant community. As such, it provides moderately suitable habitat for common, native bird species, such as horned lark (*Eremophila alpestris*), and reptile species, such as western rattlesnake (*Crotalus helleri*).

Non-Vegetated Channel (Holland Code 64200)

Non-vegetated channel is a habitat type that is virtually devoid of vegetation due to continual scouring from a flowing channel. Generally, vegetation occurs along the periphery of this habitat, often transitioning into a riparian associated scrub community. Due to continued scouring, the sparse vegetation that does occur often consists of short grasses or hydrophytic vegetation adapted to unstable environments.

Non-vegetated channel occurs along the northern and eastern portion of the Preserve, and is mapped as the San Luis Rey River channel. This habitat type occupies 18.75 acres of the Preserve. This observed habitat contains sparse vegetation along the banks of the channel consisting of mule fat, tree tobacco (*Nicotiana glauca*), castor bean (*Ricinus communis*), cocklebur (*Xanthium strumarium*), and salt cedar (*Tamarix ramosissima*). The substrate is sandy with rocky outcrops, and provides suitable habitat for common avian and reptilian wildlife species as well as the federally endangered arroyo toad (*Bufo californicus*).

Open Coast Live Oak Woodland (Holland Code 71161)

The open coast live oak woodland plant community typically consists of moderate to sparsely vegetated woodland dominated by coast live oak trees. This community is similar to the closed coast live oak woodland only it has a much more open canopy. Open coast live oak woodland is considered a Tier I Habitat under the North County MSCP (County of San Diego 2009a).

The Preserve contains a large stand of open coast live oak woodland, totaling 74.90 acres, along the upper terrace above the active San Luis Rey River channel. The tree canopy is dominated by coast live oak trees, which subsequently provides a much thinner layer of leaf

litter than the closed canopy woodland. The species observed in the understory are commonly associated with non-native grasslands and include short-podded mustard, California brome, ripgut brome, soft brome, foxtail brome and rat-tail fescue.

The open coast live oak woodland on the Preserve provides suitable habitat for acorn woodpecker, Nuttall's woodpecker (*Picoides nuttallii*), American kestrel (*Falco sparverius*), red-shouldered hawk (*Buteo lineatus*), and western fence lizard (*Sceloporus occidentalis*).

Open Water (Holland Code 64100)

The open water portion of the Preserve is associated with the 1.05-acre man-made pond in the central portion of the Preserve. This area is surrounded by fresh water marsh and typically has no vegetation associated with the feature. Water depths are typically too deep to provide suitable habitat for terrestrial plants. This area provides suitable habitat for a number of waterfowl such as mallard, American coot, and bullfrog (*Rana catesbeiana*).

Non-Native Vegetation (Holland Code 11000)

Non-native vegetation includes areas occupied by a variety of non-native, mature trees species artificially planted and maintained. Such habitats are generally limited in size and are subject to regular landscaping activities. Areas characterized as non-native vegetation typically include landscaped parks, residential developments, road right-of-ways, or areas planted for screening or as windrows.

The non-native vegetation that occurs in the north central portion of the Preserve is limited to 1.64 acres of a windrow of eucalyptus trees (*Eucalyptus* sp.) and a dense stand of Peruvian pepper tree (*Schinus molle*). The tree species commonly planted in non-native vegetation habitats are generally much taller than common native tree species in the area. Therefore, this community provides suitable perching opportunities for common raptor species, such as red-tailed hawk (*Buteo jamaicensis*), and nesting opportunities for common non-native bird species, such as European starlings (*Sturnus vulgaris*). This habitat may also provide roosting habitat for bat species.

Southern Mixed Chaparral (Holland Code 37120)

Southern mixed chaparral is a densely vegetated, tall-growing, shrub community that occurs on coastal and inland hillsides in Southern California. The community occurs in xeric climates and the vegetation typically reaches heights between five- and nine-feet high. Stands of southern mixed chaparral are generally mixed with characteristic species including chamise, manzanita, ceanothus (*Ceanothus* sp.), mountain mahogany, toyon, sugar bush (*Rhus ovata*), holly leaf cherry (*Prunus ilicifolia*), scrub oak, and Our Lord's Candle.

Southern mixed chaparral is considered a Tier III Habitat under the North County MSCP (County of San Diego 2009a).

The Preserve is predominantly comprised of a southern mixed chaparral plant community totaling 473.11 acres. An absence of recent burn events or other disturbances on the Preserve has allowed the vegetation to grow very dense and tall. The plant species within the southern mixed chaparral community on the Preserve are generally well mixed and commonly include species such as: chamise, scrub oak, sugar bush, toyon, mountain mahogany, Our Lord's Candle, hoary leaf ceanothus (*Ceanothus crassifolius*), Eastwood's manzanita (*Arctostaphylos glandulosa*), bigberry manzanita (*Arctostaphylos glauca*), thick-leaved yerba santa, California buckwheat, and virgins bower (*Clematis ligusticifolia*).

The southern mixed chaparral plant community provides high quality habitat for various native species characteristic to Southern California, including wrentit, desert woodrat, and southern Pacific rattlesnake (*Crotalus oreganus helleri*).

Southern Riparian Forest (Holland Code 61300)

Southern riparian forests commonly occur in association with watercourses and water bodies. The representative plant species are typically well adapted to a hydrological regime ranging from semi-permanent inundation to occasional soil saturation on or near the surface during at least a portion of the growing season. This community typically consists of a relatively dense tangle of broad-leaved, winter-deciduous riparian thickets dominated by willow species. Southern riparian forest is considered a Tier I Habitat under the North County MSCP (County of San Diego 2009a).

On site, this community occurs in one 2.12-acre isolated location associated with the man-made pond. This community surrounds the more herbaceous freshwater marsh. The small ring of southern riparian forest supports arroyo willow (*Salix lasiolepis*), desert wild grape (*Vitis girdiana*), and cottonwood (*Populus fremontii*). Also within this plant community are non-native species such as castor bean and Peruvian pepper tree. The southern riparian forest provides moderate quality habitat for acorn woodpecker, Nuttall's woodpecker, American goldfinch (*Carduelis tristis*), and common yellow-throat (*Geothlypis trichas*).

Developed Land (Holland Code 12000)

Developed land is generally subject to significant human disturbance associated with development. The developed areas within the Preserve consist of paved roads, existing buildings and infrastructure, totaling 1.11 acres. Both the roads and the structures are

currently maintained and both have experienced significant use over the years. The developed areas contain little to no vegetation and are generally considered very poor habitat.

4.2 - Plants

The vegetation communities discussed above provide habitat for a number of endemic plant species. A complete list of the 169 plant species observed within the Preserve is located in Appendix A, Observed Species List - Plants.

4.2.1 - Special-Status Plant Species Observed

Two special-status plant species were observed during the 2009 baseline surveys conducted by MBA and include heart-leaved pitcher sage and thread-leaf brodiaea. Rainbow manzanita was previously recorded as occurring within the Preserve (CNDDB 2009), but was not verified during the surveys. The locations of these observations are shown in Exhibit 11. These species and their habitat are further described below.

Heart-leaved Pitcher Sage (*Lepechinia cardiophylla*)

Heart-leaved pitcher sage is a CNPS List 1B.2 and County List A species. The species is a perennial shrub that blooms between April and June and has an elevation range between 1,560 and 4,110 feet AMSL. This species typically occurs on metavolcanic soils in openings in chaparral, closed-cone coniferous forest, and cismontane woodland habitats.

This species was observed within the dense coast live oak woodland at the base of the Pala Mountains located in the northern portion of the Preserve. The population size of this species observed during the survey was between approximately 20 and 50 individuals. The dense oak canopy cover is bordered by chaparral habitat and provides suitable habitat for the species.

Thread-leaf Brodiaea (*Brodiaea filifolia*)

Thread-leaf brodiaea is a Federally threatened and State endangered species, as well as a CNPS List 1B.1, County List A, and North County MSCP covered species. This species is a perennial bulbiferous herb that blooms between March and June, and has an elevation range between 75 to 2,500 feet AMSL. Thread-leaf brodiaea generally occurs in coastal scrub, cismontane woodland, grasslands and vernal pool habitats. Specifically, this species is associated with annual grasslands and vernal pools on clay substrates.

A population of thread-leaf brodiaea, between approximately 20 and 50 individuals, was observed in the native grassland area in the central portion of the Preserve. The relatively undisturbed native grasslands provides moderate to high quality habitat for this species.

Rainbow Manzanita (*Arctostaphylos rainbowensis*)

Rainbow manzanita is a CNPS List 1B.1, County List A, and North County MSCP covered species. This species is an evergreen shrub that blooms between December and March, and has an elevation range between 885 to 2,950 feet AMSL. Rainbow manzanita is known to occur within chaparral communities on gabbroic substrates throughout Riverside and San Diego counties.

This species was previously recorded within the Preserve, but this occurrence was not verified during the survey efforts. Therefore, based on previous observations and the presence of suitable habitat, this species is assumed to be present within the Preserve. The previously recorded occurrence is located within the ecotone between southern mixed chaparral and non-native grassland.

4.2.2 - Special-Status Plant Species with Potential to Occur

The Potential Sensitive Plant Species Table (Appendix C) identifies the Federal and State listed plant species, CNPS listed sensitive species, and County listed sensitive species that have a high, moderate, or low potential to occur within the Preserve. The table includes the species' status and required habitat. The table also includes analysis of all species proposed for coverage under the North County MSCP.

Species determined to have a high potential to occur are both previously recorded as occurring within three miles of the Preserve and have suitable habitat within the Preserve. Species with a moderate potential to occur have been previously recorded within five miles of the Preserve and have suitable habitat on-site, or those, which occur closer, but only marginally suitable habitat occurs on-site. Species with a low potential to occur have been previously recorded within the greater vicinity (five miles) of the Preserve and only marginally suitable habitat occurs on the Preserve. Species determined not likely to occur are only listed because they were previously recorded in the greater vicinity (five miles), but no suitable habitat occurs in the Preserve. Species proposed for coverage under the North County MSCP, but not recorded in the vicinity of the Preserve nor have suitable habitat on-site, were also listed as not likely to occur.

Based on MBA's literature review, 67 sensitive plant species have been previously recorded within the vicinity of the Preserve; however, the Preserve does not contain habitat suitable for all of these species. Three of these species, mentioned above, are present or are assumed present on-site. The Preserve contains suitable habitat and a high or moderate potential for the following six species to occur:

- Orcutt's brodiaea (*Brodiaea orcuttii*)
- Payson's jewelflower (*Caulanthus simulans*)
- Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*)
- felt-leaved rock mint (*Monardella hypoleuca lanata*)
- chaparral beargrass (*Nolina cismontana*)
- Engelmann Oak (*Quercus engelmannii*)

Orcutt's Brodiaea (*Brodiaea orcuttii*)

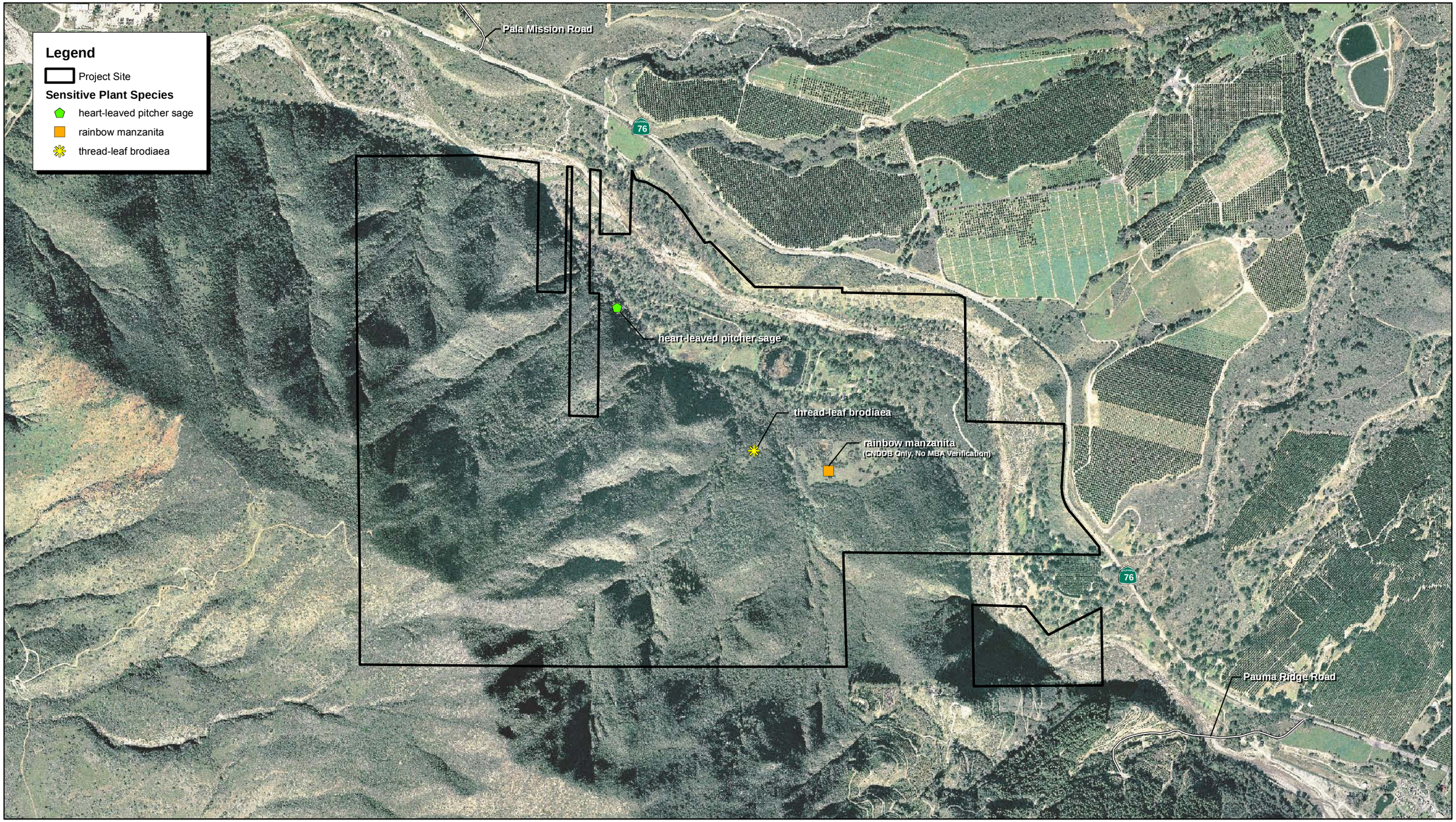
Orcutt's brodiaea is a CNPS List 1B.1, County List A, and North County MSCP covered species. This species is a bulbiferous herb that blooms from May through July, and has an elevation range between 90 and 5,076 feet AMSL. Orcutt's brodiaea generally occurs in mesic environments supported by clay and serpentine soils, within a variety of habitats including closed-cone coniferous forests, chaparral, cismontane woodlands, grasslands, and vernal pools.

This species was not observed during the survey efforts and no record of this species occurs within the vicinity of the Preserve. However, due to suitable habitat within the native grassland area in the central portion of the Preserve, and the presence of another *Brodiaea* species within that habitat, this species has a high potential to occur on-site.

Payson's Jewelflower (*Caulanthus simulans*)

Payson's jewelflower is a CNPS List 4D and County List D species. The species is an annual herb that occurs between 295 and 7,217 feet AMSL and blooms in the spring between March and May. Payson's jewel-flower is known to occur within chaparral and coastal scrub, frequently in burned areas or in disturbed sites such as streambeds or on rocky, steep slopes.

Open, disturbed areas along the margins of chaparral habitat occur along the dirt roads across the Preserve. Such areas contain suitable habitat for Payson's jewelflower; however, no occurrence of the species was observed during any of the 2009 surveys conducted by MBA. Although not observed on-site, there is still a moderate potential for this species to occur within the Preserve.



Source: San Diego North Aerial, 2005. MBA Field Survey and GIS Data, 2009.

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Michael Brandman Associates

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Exhibit 11
Sensitive Plant Species Map

COUNTY OF SAN DIEGO PARKS • WILDERNESS GARDENS PRESERVE
BASELINE BIODIVERSITY REPORT

Robinson's Pepper-Grass (*Lepidium virginicum* var. *robinsonii*)

Robinson's pepper-grass is a CNPS List 1B.2 and County List A species. The species is an annual herb that occurs between 1 and 2,835 feet AMSL and blooms between January and July. The species occurs in chaparral and coastal scrub habitats on dry soils.

The majority of the Preserve, specifically on the slopes of Pala Mountain, contains suitable habitat for Robinson's peppergrass. The species was not observed during the 2009 surveys conducted by MBA; however, due to the great extent of suitable habitat and a recorded occurrence within five miles of the Preserve, species presence cannot be ruled out.

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

Felt-leaved rock mint (also known as felt-leaf monardella) is a CNPS List 1B.2, County List A, and North County MSCP covered species. The species is a rhizomatous herb that occurs between 900 and 4,725 feet AMSL and blooms during the summer between June and August. Felt-leaved rock mint usually occurs in the understory of chaparral, beneath mature stands of chamise in xeric situations.

The Preserve contains suitable habitat for felt-leaved rock mint. The species was not observed during the 2009 surveys conducted by MBA; however, due to the occurrence of suitable habitat, species presence cannot be ruled out.

Chaparral Beargrass (*Nolina cismontana*)

Chaparral beargrass is a CNPS List 1B.2, County List A, and North County MSCP covered species. The species is an evergreen shrub that occurs between 420 and 3,825 feet AMSL and blooms in the early summer between May and July. The species occurs in coastal sage scrub and chaparral habitats with xeric conditions supported by sandstone or gabbroic soils.

The vast majority of the Preserve contains suitable habitat for chaparral beargrass. The species was not observed during the 2009 surveys conducted by MBA; however, due to the great extent of suitable habitat, species presence cannot be ruled out.

Engelmann Oak (*Quercus engelmannii*)

Engelmann oak is a CNPS List 4.2, County List D, and North County MSCP covered species. Engelmann oak is a large, deciduous tree that occurs between 360 and 3,900 feet AMSL, and within chaparral, cismontane woodland, riparian woodland, oak savannah, and valley and foothill grassland habitats.

The vast majority of the Preserve contains suitable habitat for Engelmann Oak. This species was not observed during the 2009 surveys conducted by MBA; however, due to the great extent of suitable habitat, species presence cannot be ruled out.

4.2.3 - Non-native and/or Invasive Plant Species

Non-native, invasive plants may outcompete native plant species or otherwise harm sensitive species. The following invasive plant species were observed within the Preserve:

- arundo (*Arundo donax*)
- castor bean (*Ricinus communis*)
- oleander (*Nerium oleander*)
- olive (*Olea europaea*)
- Peruvian pepper tree (*Schinus molle*)
- tamarisk (*Tamarix* sp.)
- tree tobacco (*Nicotiana glauca*)
- yellow star-thistle (*Centaurea solstitialis*)

The general location of each occurrence of these invasive plant species are depicted as points in Exhibit 12. Areas that contain a small population of no more than five individuals were designated with a single point.

Seven of these invasive, non-native species (arundo, castor bean, olive, Peruvian pepper, tamarisk, tree tobacco, and yellow star-thistle) are considered California Invasive Plant Council (Cal-IPC) listed plants with overall ratings of "limited" to "high." The eighth species, oleander, was evaluated by Cal-IPC, but is not listed. In addition, yellow star-thistle is also included on the State Noxious Weed List and is a primary target species of the San Diego Weed Management Area (SDWMA), a collaborative group working together to control selected invasive plant species within San Diego County.

Arundo is a vigorous, invasive perennial plant that displaces native plants and associated wildlife due to the immense stands it forms, competing with native plant species by monopolizing soil moisture and shading. Arundo is also suspected of altering hydrological regimes, reducing groundwater availability, altering channel morphology, and increasing fire hazards. The Cal-IPC inventory categorizes arundo as having an overall rating of "high." A "high" rating signifies species that have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and

other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.

Native to the Ethiopian region of tropical east Africa, castor bean has become naturalized in tropical and warm temperate regions throughout the world, and is becoming an increasingly abundant weed in the southwestern United States. This species is very common along stream banks, riverbeds, bottomlands, and just about any hot area where the soil is well drained and with sufficient nutrients and moisture to sustain growth. The Cal-IPC inventory categorizes castor bean as having an overall rating of "limited." A "limited" rating signifies species that are invasive, but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

Oleander is drought tolerant evergreen shrub native to northern Africa, the eastern Mediterranean basin and southeast Asia. It is extensively used in landscaping along highways and is widely cultivated for ornament in temperate and warm areas due to its showy flowers. This species was evaluated by Cal-IPC but is not listed as it is not known to be invasive. However, oleander is toxic and is very poisonous to humans, many animals and birds. A single leaf can be lethal to a child eating it, although mortality is generally low in humans.

Olive is a shrub or tree that can produce hundreds of seeds that are spread by birds and mammals. Though commonly grown as a crop in California, it has invaded open space areas in southern California and the Central Valley. The Cal-IPC inventory categorizes olive as having an overall rating of "limited."

Peruvian pepper tree is an aromatic, evergreen shrub or tree found in central and southern California. Along with Brazilian pepper tree, Peruvian pepper tree has escaped cultivation to become invasive. It currently has a limited distribution and impacts are largely unknown in California. The Cal-IPC inventory categorizes Peruvian pepper tree as having an overall rating of "limited." Habitats of concern include riparian areas.

Tamarisk was introduced from Eurasia and is now widespread in the United States. The species is found in desert washes, riparian areas, seeps and springs. Tamarisk is associated with dramatic changes in geomorphology, groundwater availability, soil chemistry, fire frequency, and plant community composition. High amounts of leaf litter can increase the frequency of fire where tamarisk is dominant in cover; moreover, this species re-sprouts

vigorously following fires. The Cal-IPC inventory categorizes tamarisk as having an overall rating of "high."

Originally from Bolivia and Argentina, tree tobacco has naturalized in the southwestern United States, becoming a common weed. The species is found in wetland-riparian areas, but can be found in non-wetland areas. The leaves of tree tobacco are toxic. The Cal-IPC inventory categorizes tree tobacco as having an overall rating of "moderate." A "moderate" rating signifies species that have substantial and apparent, but generally not severe, ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance.

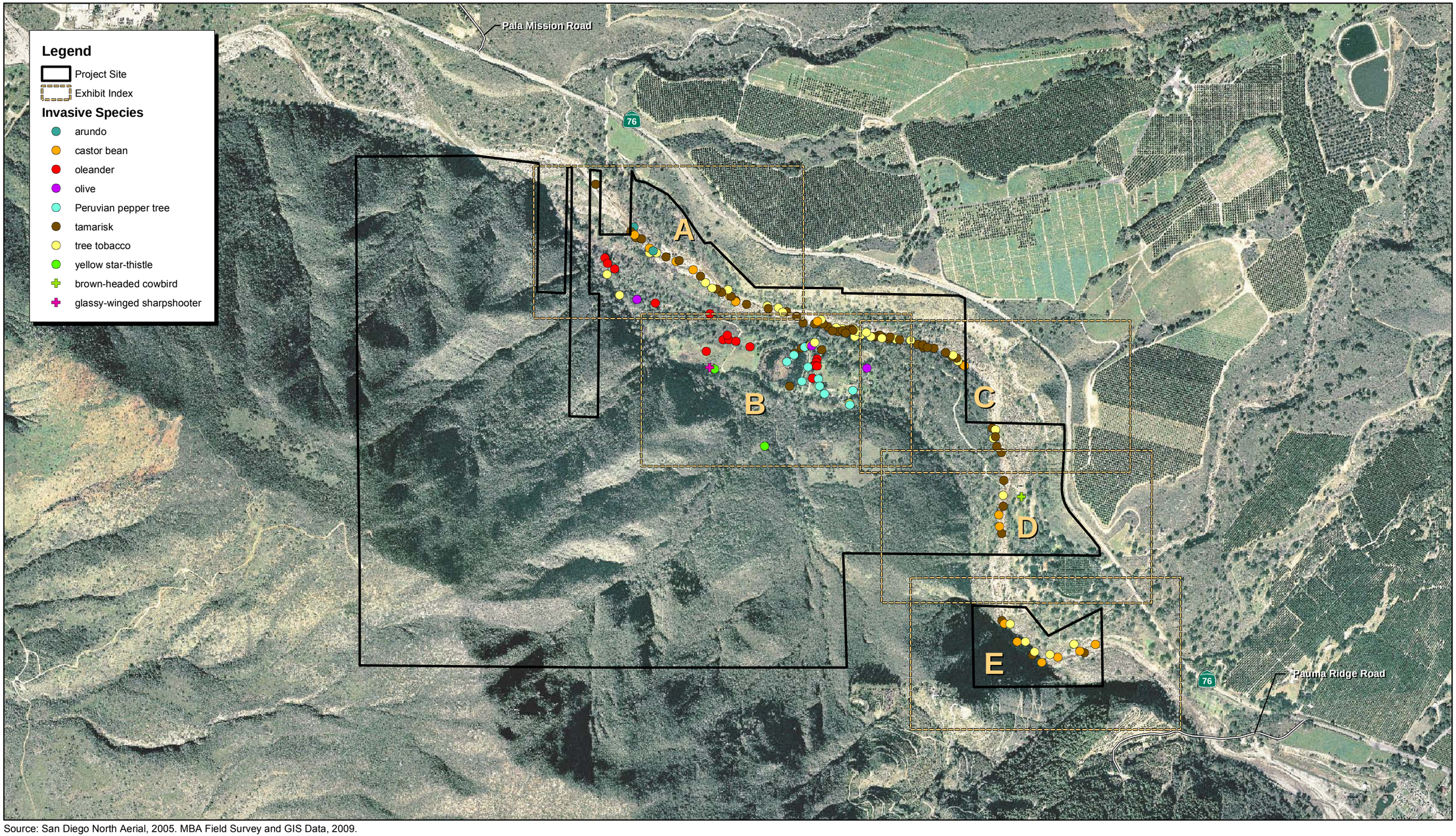
Yellow star-thistle is a bushy winter annual that invades 12 million acres in California. It inhabits open hills, grasslands, open woodlands, fields, roadsides, and rangelands. This species is considered one of the most serious rangeland weeds in the state (Cal-IPC 2010) and is included on the California Noxious Weed List "C." The Cal-IPC inventory categorizes yellow star-thistle as having an overall rating of "high." Habitats of concern include grasslands and woodlands. Yellow star-thistle has also been targeted by the SDWMA as one of four primary species for mapping and control efforts within the County.

4.3 - Wildlife

The vegetation communities discussed above provide habitat for a number of local wildlife species. A total of 161wildlife species were observed within the Wilderness Gardens Preserve during the 2009 baseline surveys. A complete list of wildlife species observed within the site during the field survey is presented in Appendix B, Observed Species List - Wildlife.

4.3.1 - Invertebrates

MBA was able to extensively survey the invertebrate populations on the Preserve through the various surveys conducted. However, the survey results are biased toward terrestrial-bound invertebrates, rather than those with wings, based on the amount of data collected from the pit-fall traps. Various incidental observations of winged invertebrates in conjunction with butterfly surveys provided some balance to the total invertebrate inventory. A total of 79 invertebrate species were identified within the Preserve, none of which are considered sensitive species.



Source: San Diego North Aerial, 2005. MBA Field Survey and GIS Data, 2009.

NORTH

1,000 500 0 1,000

Feet

Michael Brandman Associates

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Exhibit 12
Invasive Species Index Map

COUNTY OF SAN DIEGO PARKS • WILDERNESS GARDENS PRESERVE
BASELINE BIODIVERSITY REPORT



Source: San Diego North Aerial, 2005. MBA Field Survey and GIS Data, 2009.

NORTH

190 95 0 190

Feet

Michael Brandman Associates

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Exhibit 12a
Invasive Species Location Map

COUNTY OF SAN DIEGO PARKS • WILDERNESS GARDENS PRESERVE
BASELINE BIODIVERSITY REPORT

Legend

Project Site

Invasive Species

- castor bean
- oleander
- olive
- Peruvian pepper tree
- tamarisk
- tree tobacco
- yellow star-thistle
- glassy-winged sharpshooter

Source: San Diego North Aerial, 2005. MBA Field Survey and GIS Data, 2009.

NORTH

190 95 0 190

Feet

Michael Brandman Associates

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Exhibit 12b
Invasive Species Map

COUNTY OF SAN DIEGO PARKS • WILDERNESS GARDENS PRESERVE
BASELINE BIODIVERSITY REPORT



Source: San Diego North Aerial, 2005. MBA Field Survey and GIS Data, 2009.

NORTH

190 95 0 190

Feet

Michael Brandman Associates

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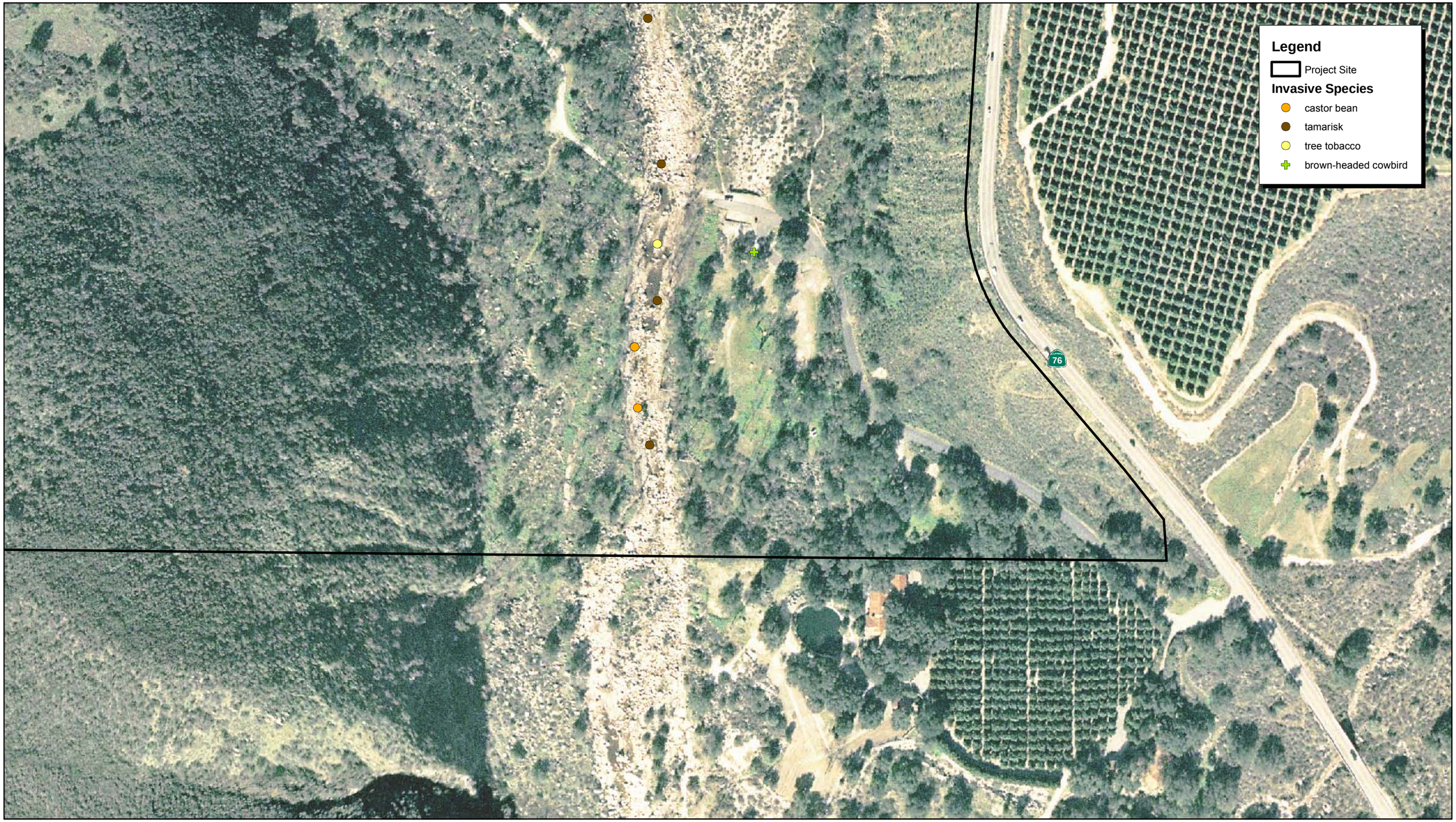
Exhibit 12c
Invasive Species Map

COUNTY OF SAN DIEGO PARKS • WILDERNESS GARDENS PRESERVE
BASELINE BIODIVERSITY REPORT



Source: San Diego North Aerial, 2005. MBA Field Survey and GIS Data, 2009.

NORTH

190 95 0 190

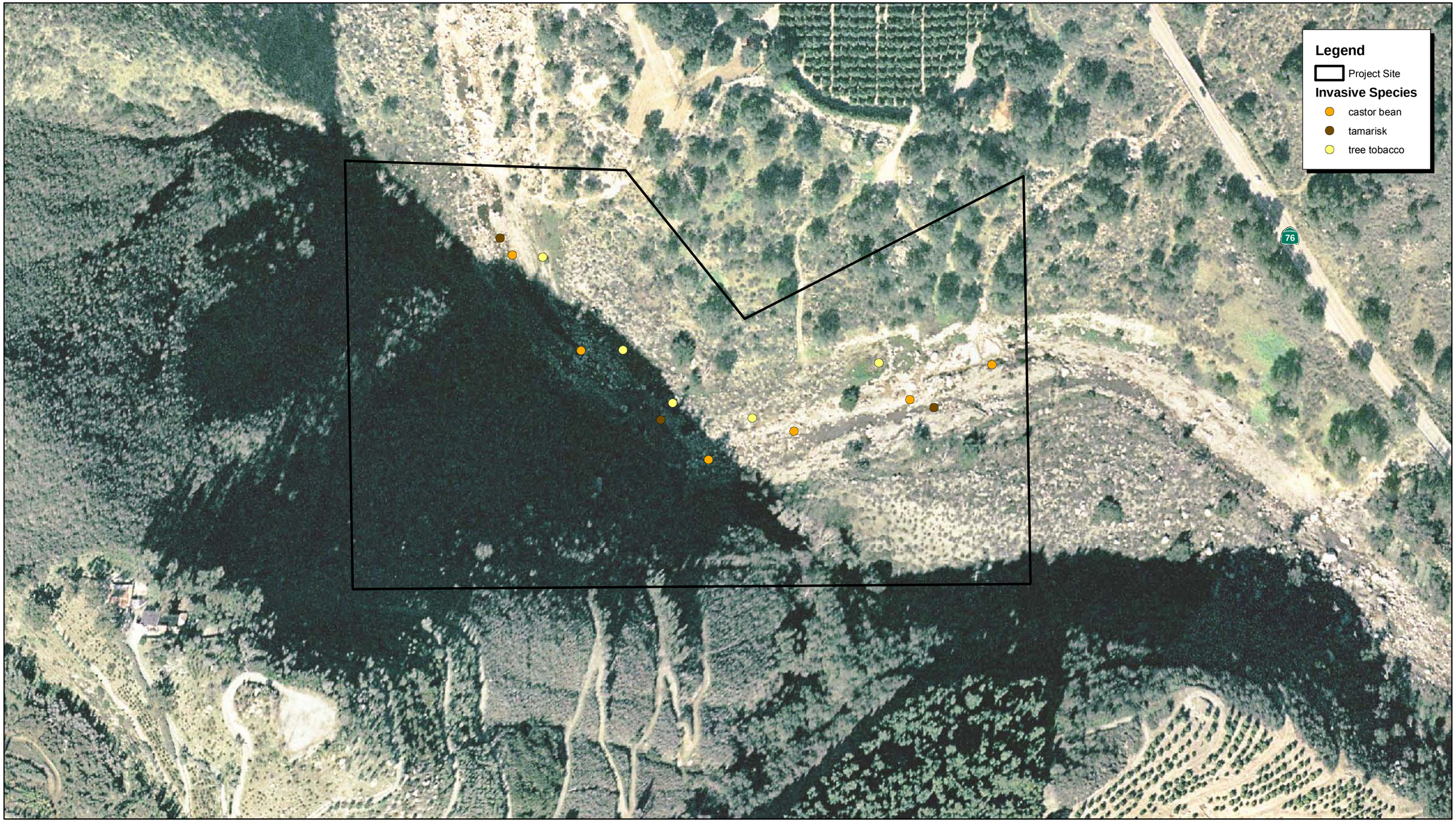
Feet

Michael Brandman Associates

00700035 • 03/2010 | 12d_invasive_species.mxd

Exhibit 12d
Invasive Species Map

COUNTY OF SAN DIEGO PARKS • WILDERNESS GARDENS PRESERVE
BASELINE BIODIVERSITY REPORT



Source: San Diego North Aerial, 2005. MBA Field Survey and GIS Data, 2009.

NORTH

190 95 0 190

Feet

Michael Brandman Associates

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Exhibit 12e
Invasive Species Map

COUNTY OF SAN DIEGO PARKS • WILDERNESS GARDENS PRESERVE
BASELINE BIODIVERSITY REPORT

Butterflies

The butterflies observed on-site are directly related to the vegetation communities within the Preserve and are commonly found in chaparral habitats. A total of 11 butterfly species were observed during the 2009 surveys. Species were observed from six different families including swallowtails, whites and sulfurs, blues, brush-foots, milkweeds, skippers, and metalmarks. The most frequently observed butterfly species include pale swallowtail (*Papilio eurymedon*), cabbage white (*Pieris rapae*), dainty sulphur (*Nathalis iole*), acmon blue (*Icaricia acmon*), queen (*Danaus gilippus*), painted lady (*Vanessa cardui*), fiery skipper (*Hylephila phyleus*), Behr's metalmark (*Apodemia mormo virgulti*), and Wright's metalmark (*Calephelis wrightii*). The observed wildlife species compendium in Appendix B contains an exhaustive list of all butterfly species observed on-site.

Diegan coastal sage scrub is one of the key constituent habitat components for Quino checkerspot butterfly habitat. Approximately 30 percent of the Diegan coastal sage scrub habitat within the Preserve is located along the upper-terrace of the San Luis Rey River. The remaining 60 percent is located along the steep bluff along the northeastern portion of the Preserve. A small patch of Quino checkerspot butterfly host plant, western plantain (*Plantago erecta*), occurs near WG-5. Although Quino checkerspot butterfly larval host plant was observed within the Preserve, it was not identified within the Diegan coastal sage scrub area. Other key habitat components such as rocky outcrops, hilltops, and cryptobiotic soil are not present within the Diegan coastal sage scrub. Based on the habitat requirements for Quino checkerspot butterfly, it is highly unlikely that this species occurs within the Preserve. However, the presence of this species cannot be completely ruled out.

Based on the vegetation on-site and the habitat requirements for sensitive butterfly species occurring in the general area, it is highly unlikely that the Preserve supports dune skipper (*Euphyes vestries harbisoni*). Hermes copper (*Lycaena hermes*) is not known to occur in the area (CNDDB 2009), and this species' preferred host plant, redberry buckthorn (*Rhamnus crocea*), does not occur within the Preserve.

Other Invertebrates

The most common terrestrial-bound invertebrates collected in the traps included harvester ant (*Pogonomyrmex californicus*), carpenter ant (*Camponotus* sp.), velvet ant (*Dasymutilla occidentalis*), armored stink beetle (*Coelocnemis californicus*), silverfish (*Lepisma saccharina*), and bristletail (*Trigoniophthalmus alternatus*). The predatory invertebrates commonly observed include wolf spider (*Sosippus californicus*), ground spider (*Zelotus*

gynethus), tarantula (*Aphonopelma eutylenum*), and California common scorpion (*Paruroctonus silvestrii*).

Several incidental observations were made through the extent of the surveys. They include winged species such as tarantula hawk (*Pepsis chrysothemis*) and familiar bluet damselfly (*Enallagma civile*). Other incidental observations include terrestrial bound insects such as largid bugs (*Largus cinctus*), bee assassin (*Apiomerus crassipes*), and antlion.

4.3.2 - Herpetofauna

The Preserve has limited suitable habitat for amphibian species, but many essential reptilian habitat characteristics. The pit-fall traps captured several small reptile species including various juvenile and adult lizards and skinks. A single amphibian and 11 reptile species were detected within the Preserve.

Amphibians

The conditions on the Preserve provide minimal suitable habitat for amphibian species. Aquatic habitat is limited to a small man-made pond in the central portion of the Preserve. In addition, the San Luis Rey River was once a perennial drainage feature, but is currently an intermittent stream that only flows during significant rain events. Bullfrogs were detected by call during nighttime avian point count surveys near the pond. No other amphibian species were detected during the survey. The Preserve also provides potentially suitable habitat for a number of additional amphibian species such as western toad (*Bufo boreas*), Pacific chorus frog (*Pseudacris regilla*), Pacific slender salamander (*Batrachoseps pacificus*), and the federally endangered arroyo toad (*Anaxyrus californicus*).

Reptiles

The Preserve has many essential reptilian habitat characteristics, such as hot, dry weather, significant vegetation cover, and significant basking areas void of vegetation. Thirteen reptile species were observed within the Preserve during the 2009 surveys including three sensitive species: orange-throated whiptail (*Cnemidophorus hyperythrus*), Coronado skink (*Eumeces skiltonianus interparietalis*), and San Diego ringneck snake (*Diadophis punctatus* ssp. *similis*). Western blind snake (*Leptotyphlops humilis*) and San Diego ringneck snake were captured within pit-fall traps. The funnel traps set during the surveys had a very low success rate with only one species captured, chaparral whipsnake (*Masticophis lateralis lateralis*). Incidental observations detected during the surveys include southern Pacific rattlesnake (*Crotalus oreganus helleri*), granite spiny lizard (*Sceloporus orcutti*), and side-blotched lizard (*Uta stansburiana*). Other species anticipated to occur but were not observed

include California kingsnake (*Lampropeltis getula californiae*) and gopher snake (*Pituophis melanoleucus*).

4.3.3 - Birds

A total of 47 avian species were detected on the Preserve during the 2009 surveys. The dominant plant community within the Preserve is chaparral and the vast majority of avian species observed are known to occur in this community. These species include wrentit, California quail (*Callipepla californica*), California towhee, California thrasher (*Toxostoma redivivum*), western scrub jay (*Aphelocoma californica*), blue-grey gnatcatcher, phainopepla (*Phainopepla nitens*), and spotted towhee (*Pipilo maculatus*).

In addition to the species common in chaparral, several woodland bird species were observed within the northernmost portion of the Preserve. These species include Cooper's hawk, lesser goldfinch (*Carduelis psaltria*), Nuttall's woodpecker, and acorn woodpecker. Waterfowl species observed within the pond area include mallard, western grebe (*Aechmophorus occidentalis*), great egret (*Ardea alba*), and American coot (*Fulica americana*). Nocturnal avian species detected include great-horned owl (*Bubo virginianus*) and barn owl (*Tyto alba*).

4.3.4 - Mammals

A total of 23 mammal species were observed or otherwise detected across the Preserve during the course of the 2009 survey effort. The trapping survey was conducted to inventory the small mammal population, and scent stations and motion sensor cameras were installed to inventory the medium and large mammal populations.

Small Mammals

The small mammal species captured during the mammal trapping efforts include dusky-footed woodrat (*Neotoma fuscipes*), San Diego desert woodrat (*Neotoma lepida*), western harvest mouse (*Reithrodontomys megalotis*), brush mouse (*Peromyscus boylii*), California mouse (*Chaetodipus californicus*), California pocket mouse, San Diego pocket mouse, and spiny pocket mouse (*Chaetodipus spinatus*). In addition to the trapping effort, one pit-fall trap also caught ornate shrew (*Sorex ornatus*). Incidental observations during the surveys detected desert cottontail (*Sylvilagus audubonii*) and California ground squirrel (*Spermophilus beecheyi*).

Medium and Large Mammals

The scent stations and motion sensor cameras detected fewer medium and large mammals than anticipated. The species detected include coyote, raccoon, bobcat, and domestic dog

(*Canis familiaris*). Despite the high potential for mule deer (*Odocoileus hemionus*), grey fox (*Urocyon cinereoargenteus*), and mountain lion (*Felis concolor*) to occur within the Preserve, no sign was observed during any of the surveys.

Bats

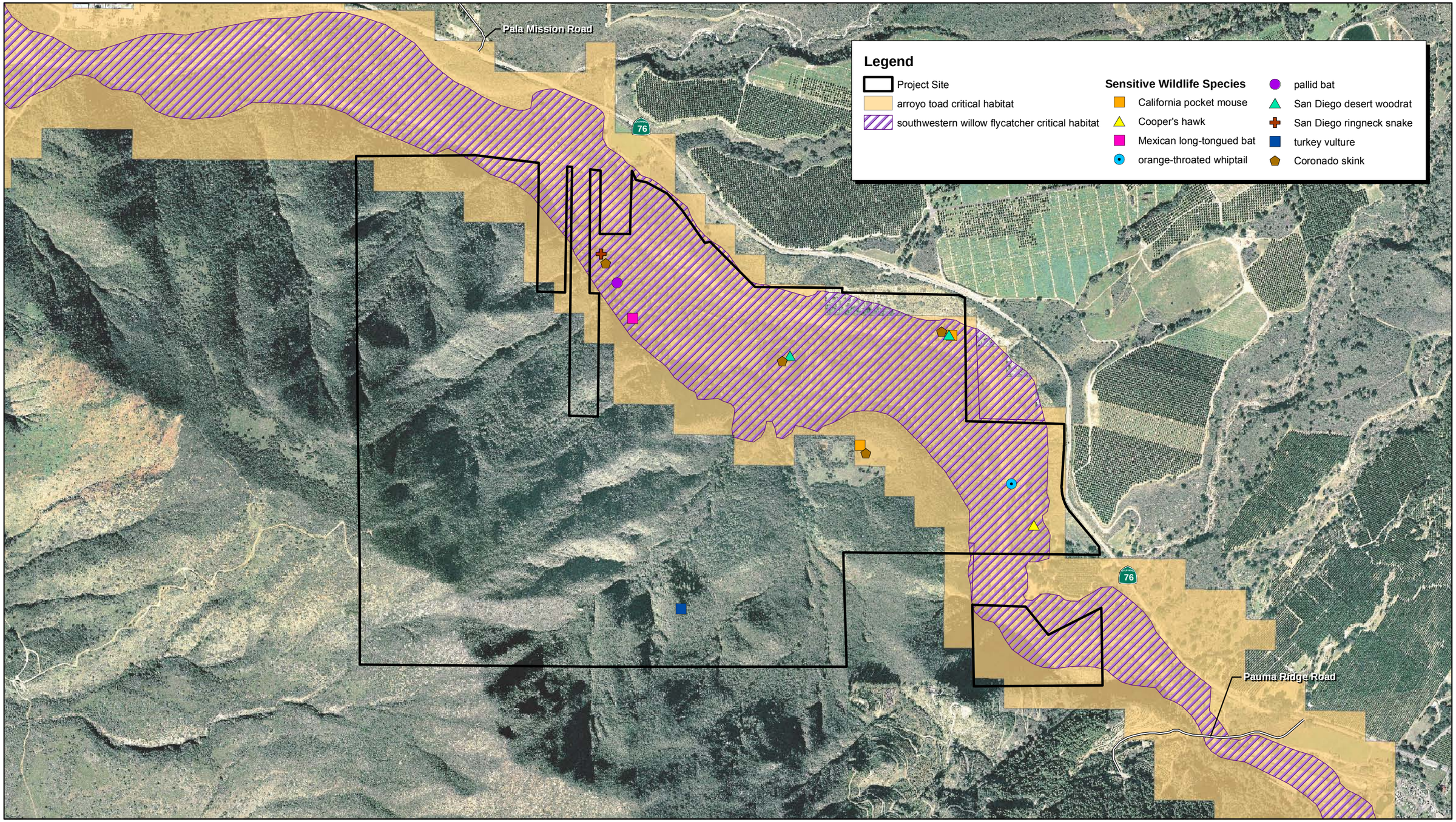
The bat acoustical surveys detected six species of bat on the Preserve. The species detected include pallid bat, big brown bat (*Eptesicus fuscus*), California myotis (*Myotis californicus*), western pipistrelle (*Pipistrellus hesperus*), Mexican long-tongued bat, and Brazilian free-tailed bat (*Tadarida brasiliensis*).

4.3.5 - Special-Status Wildlife Observed

Nine special-status wildlife species were observed or detected during the surveys conducted by MBA. The location of these observations are shown in Exhibit 13. These species observed include:

- orange-throated whiptail (*Cnemidophorus hyperythrus*)
- Coronado skink (*Eumeces skiltonianus interparietalis*)
- San Diego ringneck snake (*Diadophis punctatus* ssp. *similis*)
- Cooper's hawk (*Accipiter cooperii*)
- turkey Vulture (*Cathartes aura*)
- San Diego desert woodrat (*Neotoma lepida*)
- California pocket mouse (*Chaetodipus californicus*)
- Mexican long-tongued bat (*Choeronycteris mexicana*)
- pallid bat (*Antrozous pallidus*)

The following is a brief description of the habitat requirements for each sensitive species occurring on-site as well as the general location observed within the Preserve.



Source: San Diego North Aerial, 2005. MBA Field Survey and GIS Data, 2009.

NORTH

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Feet

Michael Brandman Associates

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Exhibit 13
Sensitive Wildlife Species Map

COUNTY OF SAN DIEGO PARKS • WILDERNESS GARDENS PRESERVE
BASELINE BIODIVERSITY REPORT

Orange-Throated Whiptail (*Cnemidophorus hyperythrus*)

Orange-throated whiptail is a California Species of Special Concern, County Group 2 and North County MSCP covered species. The orange-throated whiptail occurs in coastal scrub, chaparral, and valley and foothill hardwood habitats. This species prefers washes and sandy areas with patches of brush and rocks. Perennial plants are required to support its primary prey, termites. This species was observed along the San Luis Rey River just northwest of the parking area.

Coronado Skink (*Eumeces skiltonianus interparietalis*)

Coronado skink is a California Species of Special Concern. Coronado skinks commonly occur in grassland, chaparral, pinyon-juniper and juniper sage woodland, pine-oak and pine forest habitats in the coastal ranges of Southern California, particularly in San Diego County. The species prefers early successional stages or open areas and is typically found in rocky areas close to streams and on dry hillsides. This species was observed in a pit-fall trap at WG-1, WG-2, WG-3, and WG-4.

San Diego Ringneck Snake (*Diadophis punctatus* ssp. *similis*)

San Diego ringneck snake is a County Group 2 species. The San Diego ringneck snake is commonly found in wet meadows and moist rocky hillsides, gardens, farmlands, grassland, chaparral, mixed coniferous forests, and woodlands. This species was observed in a pit-fall trap at WG-1 within an open oak woodland with a dense leaf litter.

Cooper's Hawk (*Accipiter cooperii*)

Cooper's hawk is a California Taxa to Watch (nesting) and County Group 1 species. Cooper's hawk occurs in open, uninterrupted, or marginal type woodlands. Nest sites, which are sensitive, commonly occur in riparian growths of deciduous trees, such as live oaks. It also occurs in other various forest habitats that are near water. Dense woodlands and forests are primary foraging habitat for this raptor. This species was observed in the open oak woodland area in the northeastern portion of the Preserve near parking area. It is highly likely that this species nests in the oak woodland habitat within the Preserve.

Turkey Vulture (*Cathartes aura*)

Turkey vulture is a County Group 1 species. This scavenger is found in open country, woodlands, and near farms, but has wide foraging range that may cover many habitats. The vast majority of the Preserve contains suitable foraging habitat for turkey vulture. This species was observed over the southern portion of the Preserve.

San Diego Desert Woodrat (*Neotoma lepida intermedia*)

San Diego desert woodrat is a California Species of Special Concern and County Group 2 species. The San Diego desert woodrat is commonly found in open chaparral, desert scrub, and rocky areas. This species was captured in a small mammal trap at WG-2 within an open woodland area near the pond.

California Pocket Mouse (*Chaetodipus californicus*)

California pocket mouse is a California Species of Special Concern and a County Group 2 species. The California pocket mouse occurs in a variety of habitats including coastal scrub, chaparral, and grasslands in San Diego County and is commonly associated with grass-chaparral edges. Individuals were trapped at WG-2 and WG-3.

Pallid Bat (*Antrozous pallidus*)

Pallid bat is a California Species of Special Concern, County Group 2 and North County MSCP covered species. Pallid bats roost in rock crevices, tree hollows, mines, caves and a variety of anthropogenic structures, including vacant and occupied buildings. Tree roosting has been documented in large conifer snags, inside basal hollows of redwoods and giant sequoias, and bole cavities in oaks. They have also been reported roosting in stone piles. Individuals were recorded at WGB-1. Suitable rock crevices, tree hollows, and structures occur within the Preserve that may provide suitable roosting habitat.

Mexican Long-Tongued Bat (*Choeronycteris mexicana*)

Mexican long-tongued bat is a California Species of Special Concern and County Group 2 species. This species may be found in mine tunnels, caves, rock fissures, and even buildings from the lower edge of the oak zone through the pine-oak woodland to the pine-fir belt. Typical vegetation in the vicinity of roost sites includes ocotillo, yucca, agave, manzanita, evergreen oak, and juniper. The bat has a tendency to roost in well-lighted sites. An individual bat was recorded at WGB-1.

4.3.6 - Special-Status Wildlife with Potential to Occur

The Potential Sensitive Wildlife Species Table (Appendix D) identifies the Federal and State listed, and County listed sensitive species that have a high, moderate, or low potential to occur within the Preserve. The table includes the species' status and required habitat. The table also includes analysis of all North County MSCP covered species.

Species determined to have a high potential to occur are those that are both previously recorded as occurring within three miles of Preserve and those that have suitable habitat on-site. Species with a moderate potential to occur have been previously recorded within five

miles of the Preserve and have suitable habitat on-site, or those that occur closer but only marginally suitable habitat occurs on-site. Species with a low potential to occur have been previously recorded within the greater vicinity (five miles) of the Preserve and only marginally suitable habitat occurs on the Preserve. Species determined not likely to occur are only listed because they were previously recorded in the greater vicinity (five miles), but no suitable habitat occurs on-site. Species covered under the North County MSCP, but not recorded in the vicinity of the Preserve were also listed as not likely to occur.

Based on MBA's literature review, 13 sensitive wildlife species have been previously recorded within the vicinity of the Preserve. The Preserve contains suitable habitat and a high or moderate potential for the following species to occur:

- arroyo toad (*Anaxyrus californicus*)
- western spadefoot (*Spea hammondii*)
- northern red diamond rattlesnake (*Crotalus ruber ruber*)
- San Diego horned lizard (*Phrynosoma coronatum*)
- osprey (*Pandion haliaetus*)
- Bell's sage sparrow (*Amphispiza belli belli*)
- least Bell's vireo (*Vireo belli pusillus*)
- southwestern willow flycatcher (*Empidonax traillii extimus*)
- greater western mastiff bat (*Eumops perotis californicus*)
- western red bat (*Lasiurus blossevillii*)
- small-footed myotis (*Myotis ciliolabrum*)
- Yuma myotis (*Myotis yumanensis*)
- pocketed free-tailed bat (*Nyctinomops femorosaccus*)

Arroyo Toad (*Anaxyrus californicus*)

Arroyo toad is federally endangered, a California Species of Special Concern, and a County Group 1 and North County MSCP covered species. The arroyo toad breeds along large streams with persistent in-channel pools between late March and mid-June. Larvae have very specific habitat requirements: very shallow water, usually less than four inches deep, with slight currents; a substrate of gravel or fine cobble that supports filamentous algae; emergent vegetation is usually absent; and the stream terrace pools are usually in full sunlight. After metamorphosis, juveniles remain on nearby gravel bars associated with large riparian trees and shrubs in areas lacking grass or herbaceous ground cover present.

The San Luis Rey River located along the northeastern boundary of the Preserve is designated as USFWS Critical Habitat for arroyo toad. Suitable habitat for arroyo toad occurs along the length of the San Luis Rey River channel. The river channel has sandy banks with little to no vegetation. Arroyo toad have been previously recorded both upstream and downstream of the Preserve. This species is highly secretive and although not observed during the 2009 survey effort, it is highly likely to occur within the Preserve.

Northern Red Diamond Rattlesnake (*Crotalus ruber ruber*)

Northern red diamond rattlesnake is a California species of special concern and North County MSCP covered species. This reptile occurs from coastal San Diego County to the eastern slopes of the mountains and in desert habitats. It is commonly found from sea level to 2,400 feet AMSL in chaparral, woodland, and arid desert habitats in rocky areas with adjacent dense vegetation.

The vast majority of the Preserve contains suitable habitat for northern red diamond rattlesnake. The species was not observed during the 2009 surveys; however, due to the extent of suitable habitat within the Preserve, species presence cannot be ruled out.

San Diego (Coast) Horned Lizard (*Phrynosoma coronatum*)

San Diego horned lizard is a California Species of Special Concern, County Group 2 species and North County MSCP covered species. It generally occurs in grassland, sage scrub, and chaparral, but can also be found in coniferous forest and broadleaf woodland. It is usually found in open sandy areas such as ridge tops and washes, especially where harvester ants (*Pogonomyrmex* spp.) are found. This species was formerly common throughout southern California west of the deserts, but has declined substantially due to development. Recent evidence also indicates that its preferred food, the harvester ant, has declined dramatically in areas near human habitation with the introduction and spread of the non-native Argentine ant (*Iridiomyrmex humilis*), which outcompete the native species.

The Preserve contains suitable habitat for San Diego horned lizard. The species was not observed during the 2009 surveys; however, it has a high potential to occur within the Preserve.

Western Spadefoot (*Spea hammondii*)

Western spadefoot is a California Species of Special Concern, County Group 2 species, and North County MSCP covered species. It prefers open areas with sandy or gravelly soils in a variety of habitats including mixed woodlands, grasslands, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Rain

pools that do not contain bullfrogs, fish, or crayfish are necessary for western spadefoot breeding.

Suitable habitat for this species occurs within the Preserve; however, the man-made pond contains a population of bullfrogs. This greatly reduces the likelihood of the Preserve to support a population of western spadefoot.

Osprey (*Pandion haliaetus*)

Osprey is a California Taxa to Watch (nesting), County Group 1 species, and North County MSCP covered species. This bird commonly occurs near rivers, lakes, and coastal areas where fish are plentiful. Nesting sites are typically on top of large trees, not far from water. This species is often observed flying over a property in search of suitable foraging habitat.

The man-made pond within the Preserve may provide foraging habitat for this species. The fish population within the pond was not evaluated as part of the inventory. It is possible that a sufficient amount of fish occurs within the pond to support a pair of osprey.

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

Bell's sage sparrow is a California species of special concern and North County MSCP covered species. This bird is common, but also a localized resident breeder in dry chaparral and coastal sage scrub along the coastal lowlands, inland valley, and in the lower foothills of local mountains. Vertical structure, habitat patchiness, and vegetation density may be more important in habitat selection by the species than the specific shrub species, but is closely associated with sagebrush. The preference for chamise chaparral appears to occur only in the more northern parts of its range.

The vast majority of the Preserve contains marginally suitable habitat for Bell's sage sparrow. The species was not observed during the 2009 surveys; however, due to the extent of suitable habitat within the Preserve, species presence cannot be ruled out.

Least Bell's Vireo (*Vireo belli pusillus*)

Least Bell's vireo is federally and State endangered, a County Group 1 species and North County MSCP covered species. It is a small insectivorous bird, which nests and forages almost exclusively in riparian woodland habitats. The largest least Bell's vireo populations in southern California are currently located at the Prado Basin in Riverside County, and along the Tijuana River, San Luis Rey River, San Diego River, Santa Margarita River and other drainages in Camp Pendleton in San Diego County. During the last decade, least Bell's vireo has begun to exhibit a substantial recovery and has been observed in moderate to low

quality riparian habitats. The riparian habitat within the Preserve is low to moderate quality and is frequently scoured during rain events. Higher quality habitat occurs both upstream and downstream of the Preserve. The Preserve is likely used as a corridor between suitable habitat patches.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

The southwestern willow flycatcher is federally and State endangered, a County Group 1 species and North County MSCP covered species. This small, insectivorous songbird is one of four subspecies of willow flycatchers recognized in North America, and is distinguished by subtle differences in color and morphology. This flycatcher is drab olive-brown above with a white throat and a pale yellow belly. The species breeds in riparian habitats along rivers, streams, or other wetlands characterized by dense willows and shrubs in woodlands with standing water. Currently, southwestern willow flycatcher occupies a small fraction of its former range and less than 100 breeding pairs are known in southern California. The decline has been attributed to widespread destruction and degradation of riparian habitats and brood-parasitism by the brown-headed cowbird.

The San Luis Rey River located along the northeastern boundary of the Preserve is designated as USFWS Critical Habitat for the southwestern willow flycatcher. The Preserve is likely used as a corridor between suitable habitat patches, but is not suitable for foraging or nesting habitat.

Greater Western Mastiff Bat (*Eumops perotis californicus*)

Greater western mastiff bat is a California Species of Special Concern and County Group 2 species. The western mastiff bat ranges throughout California in a wide range of habitat types, typically below 9,000 feet AMSL. Distribution is correlated with suitable rock features required for roosting. Western mastiff bats are non-migratory; however, they may move short distances within their home ranges. This bat species does not hibernate and is active periodically throughout the winter. Greater western mastiff bat is a cliff-dwelling species, and virtually any habitat with cliff features may be suitable. Preferred habitats include chaparral and oak woodlands. Roosts are generally high above the ground, allowing a clear vertical drop of at least 10 feet for flight. Suitable cliff habitat is located along the northern portion of the Preserve.

Western Red Bat (*Lasiurus blossevillii*)

Western red bat is a California Species of Special Concern and a County Group 2 species. This bat is a solitary species known to occur in riparian forests dominated by cottonwoods, oaks, sycamores, and walnuts, and sometimes in orchards, and urban areas. The preferred

prey is moths. They often forage adjacent to streams and near lampposts where moths are abundant. This species is believed to be migratory in much of the Southwest. This species has a moderate potential to occur in the oak woodland and ponded area within the Preserve.

Small-Footed Myotis (*Myotis ciliolabrum*)

Small-footed myotis is a County Group 2 species. Small-footed myotis are found in a wide range of habitat types; however, they are primarily found within arid wooded and brushy uplands, including open stands in forests and woodlands, adjacent to water. Caves, buildings, mines, and crevices are used for refuge. Marginally suitable habitat occurs throughout the Preserve.

Yuma Myotis (*Myotis yumanensis*)

Yuma myotis is a County Group 2 species. Yuma myotis occur near open water associated with woodlands and forests; maternity colonies occur in caves, mines, buildings, or crevices. Marginally suitable habitat occurs throughout the Preserve.

Pocketed Free-Tailed Bat (*Nyctinomops femorosaccus*)

Pocketed free-tailed bat is a California Species of Special concern and County Group 2 species. This species is an inhabitant of semiarid desert lands. It has been found using day-roosts in caves, crevices in cliffs, and under the roof tiles of buildings. Marginally suitable habitat occurs throughout the Preserve.

4.3.7 - Critical Habitat

The Endangered Species Act (ESA) requires the federal government to designate "critical habitat" for any species it lists under the ESA. "Critical habitat" is defined as: (1) specific areas within the geographical area occupied by the species at the time of listing, if they contain physical or biological features essential to conservation, and those features may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation. The Preserve contains designated critical habitat for arroyo toad and southwestern willow flycatcher.

4.3.8 - Non-native and/or Invasive Species

Non-native and/or invasive wildlife includes species which are not native to the vicinity and may displace native plant or wildlife species. Three non-native, invasive species, brown-headed cowbird (*Molothrus ater*), bullfrog (*Rana catesbeiana*), and glassy-winged sharpshooter (*Homalodisca vitripennis*) were detected on the Preserve during the 2009 surveys. Brown-headed cowbird is a brood parasite, which destroys the eggs in a different

avian species' active nest and replaces them with their own eggs. Brown-headed cowbird parasitism has been attributed as a significant contributor to population declines of several special-status species. The species was detected only once during an avian point count.

One common non-native amphibian species, bullfrog, was detected during nighttime avian surveys near the man-made pond. Native to the eastern United States, the bullfrog was introduced to California and is now widespread and common in the state. The bullfrog is the largest frog in California and preys on, or competes for food and space with, native amphibians such as arroyo toad and western spadefoot toad. Both arroyo toad and western spadefoot toad have been documented along the San Luis Rey River both upstream and downstream of the Preserve and suitable habitat exists on-site; however, the occurrence of bullfrogs greatly reduces the likelihood of the Preserve to support a population of arroyo toad or western spadefoot toad.

Native to southeast United States, the glassy-winged sharpshooter is a large leafhopper that obtains its nutrients by feeding on plant fluids in the water-conducting tissues of a plant (the xylem). This species is considered an agricultural pest due to its ability to spread *Xylella fastidiosa*, the bacterium that causes devastating crop diseases such as Pierce's disease, which is fatal to grapevines.

4.4 - Wildlife Movement

The Wilderness Gardens Preserve is just south of a designated linkage between the Santa Ana Mountains and Palomar Mountains, also known as the Santa Ana-Palomar wildlife corridor (South Coast Wildlands 2008). However, it is located within the Upper San Luis Rey River Linkage, which consists of 6,839 acres along the San Luis Rey River between the Pala Reservation and Hellhole Canyon Preserve and is an important east-west connection, including a natural land connection to Palomar Mountain (County of San Diego 2009a).

Most animals seek cover when moving across the landscape and, therefore, often seek out riparian areas as their preferred movement corridors. Although the Preserve does not contain a dense riparian area for movement, the open canopy oak woodland habitat provides some protection during east-west movement along the San Luis Rey River channel. The camera tracking stations identified several medium to small mammal species moving through this area including coyote (*Canis latrans*), bobcat (*Lynx rufus*), desert cottontail (*Sylvilagus audubonii*), and raccoon (*Procyon lotor*).

SECTION 5: CONCLUSIONS AND MANAGEMENT RECOMMENDATIONS

Baseline biological surveys identified 15 vegetation communities and habitat types and detected a total of 330 plant and wildlife species within the Wilderness Gardens Preserve. A total of 169 plant taxa, 79 invertebrate species, one amphibian species, 11 reptile species, 47 bird species, and 23 mammal species (six bats, 12 small mammals, and five medium and large mammals) were documented within the Preserve. Two sensitive plants and nine sensitive wildlife species were included in this list of observed species. The data collected during these baseline surveys will assist DPR in developing a RMP, including ASMDs, for the Preserve.

This section provides site-specific conclusions and management recommendations for the various habitats and taxonomic groups assessed during the 2009 survey effort. These recommendations are based on the information gained during the baseline surveys, and the management and monitoring guidelines provided in the North County MSCP Framework Resource Management Plan (FRMP), as well as area-specific FRMP conservation goals. The FRMP provides general direction for all preserve management and biological monitoring within the preserve system.

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

5.1 - Vegetation Communities/Habitat

The Preserve consists of 15 different vegetation communities and habitat types including riparian habitats, coastal sage scrub, chaparral, grasslands and oak woodlands. As part of the Upper San Luis Rey River Linkage, the FRMP conservation goals for the Preserve are to

minimize impacts to sensitive habitats, including arroyo toad and western spadefoot toad habitat (particularly for aestivation), and to maintain riparian and upland habitat along the San Luis Rey River for water quality and sensitive species. The FRMP indicates the biggest challenges facing these habitats are related to invasive species, fire and hydrology, and the management and monitoring guidelines provided for these habitats are specific to these threats. Specific recommendations regarding hydrology, fire and invasive species are discussed in Sections 5.4, 5.6 and 5.8.2, respectively.

It is recommended that the County conduct on-going habitat monitoring within the Preserve to maintain an up-to-date inventory of the distribution and species composition and other basic characteristics of the vegetation communities on-site. On-going monitoring within the Preserve will identify any adverse changes in vegetation community distribution and habitat quality, such as changes from fire, invasion by non-natives or decline of existing species, and indicate if modifications to current management actions are needed. Per the FRMP, habitat monitoring should be repeated at least once every five years and should follow the CNPS Vegetation Rapid Assessment Protocol (CNPS 2005).

5.2 - Plants

The 2009 survey effort documented three sensitive plant species within the Preserve including: heart-leaved pitcher sage and thread-leaf brodiaea. In addition, rainbow manzanita was previously documented on site and is assumed present within the Preserve. Both thread-leaf brodiaea and rainbow manzanita are covered species under the North County MSCP. Species-specific measures for management of sensitive species are currently under development in the FRMP. Once these are developed, the County should include recommendations for management of covered species on-site. In the meantime, the FRMP indicates that the management recommendations provided for specific habitat types are intended to be adequate for the conservation of all covered species.

Periodic floristic surveys, as identified by the North County MSCP, are recommended to monitor the North County MSCP-covered plant species detected on the Preserve. Surveys should be scheduled during the appropriate time of year to maximize detection. The 2009 plant species compendium for the Preserve is based on a few months of collections during the late spring and summer months, and additional collection surveys during the early to mid spring (March to early May), are recommended to complete the list of plant species present within the Preserve. Many of the early spring-flowering species were missed due to timing constraints of the 2009 baseline survey effort as well as the drought year conditions.

Species-specific monitoring protocols, including survey methods and frequencies, for thread-leaf brodiaea and rainbow manzanita should follow any recommendations identified by the final North County MSCP FRMP. Should future monitoring for these species reveal additional covered species, these species should also be monitored following North County MSCP FRMP recommendations.

Because the previous documented occurrence of a single rainbow manzanita was not verified during the 2009 inventory, impacts to this shrub should be avoided, but no specific management recommendations are proposed. However, rainbow manzanita is identified in the FRMP as a primary species that will benefit from the recommended resource management actions for chaparral habitats.

A population of thread-leaf brodiaea was detected within the native grassland habitat on the Preserve. As such, it will benefit from resource management actions for this habitat type. Since the Preserve is open to the public, it is recommended that, at a minimum, barriers or fencing should be installed along trail edges that lead to the native grassland areas to minimize the amount of trampling in these areas. It may be necessary, based on the findings of future monitoring, to restrict access to this area of the Preserve if the native grasslands deteriorate over time.

5.3 - Wildlife

The 2009 survey effort documented nine sensitive wildlife species within the Preserve, two of which are North County MSCP covered species, orange-throated whiptail and pallid bat. Species-specific measures for management of sensitive species are currently under development in the FRMP. Once these are developed, the County should include recommendations for management of covered species on-site. In the meantime, the FRMP indicates that the management recommendations provided for specific habitat types are intended to be adequate for the conservation of all covered species.

5.3.1 - Invertebrates

Butterfly surveys conducted in June 2009 resulted in the detection of 11 butterfly species. Some butterfly species have a tendency to congregate on ridges, also known as “hilltopping.” Hilltopping was not observed due to a lack of access to the ridgeline that runs along the southern portion of the Preserve. It is recommended that the highest points of hilltops on the Preserve should remain free of development, and that any potential future planned trail and public vistas should be minimized, in these locations.

Focused surveys are not recommended for any sensitive invertebrate species due to lack of suitable habitat, including Quino checkerspot butterfly or Hermes Copper. Additionally, focused surveys for Quino checkerspot butterflies are not required because the Preserve is not within a Quino checkerspot butterfly survey area. Both these species are identified in the FRMP as primary species that will benefit from the recommended resource management actions for coastal sage scrub, chaparral, and grassland habitats. Monitoring protocols, including survey methods and frequencies, for these two species should follow any recommendations identified by the final North County MSCP FRMP. In the event that future inventories identify any federal or State listed threatened or endangered invertebrate species, these species should also be monitored following North County MSCP FRMP recommendations.

5.3.2 - Herpetofauna

Three sensitive reptile species were detected within the Preserve during the 2009 surveys including one North County MSCP covered species, orange-throated whiptail. This species is identified in the FRMP as a primary species that will benefit from the recommended resource management actions for coastal sage scrub, chaparral, and grassland habitats. Monitoring protocols, including survey methods and frequencies, for this species should follow any recommendations identified by the final North County MSCP FRMP. Should future monitoring reveal additional covered herpetofauna species, these species should also be monitored following North County MSCP FRMP recommendations.

Downed wood provides refuge habitat for many herpetofauna species. This is often viewed as a fire hazard and removed. However, it is recommended that downed wood be left in place to provide refuge habitat for species of salamanders, lizards, and snakes. Downed wood should be removed if blocking trails within the Preserve.

5.3.3 - Birds

Avian surveys resulted in the detection of two sensitive bird species within the Preserve, Cooper's hawk and turkey vulture. Neither of these species is covered under the North County MSCP; however, Cooper's hawk is identified in the FRMP as a primary species that will benefit from the recommended resource management actions for riparian habitats. Should future monitoring uncover North County MSCP covered species, these species should be monitored following North County MSCP FRMP recommendations.

5.3.4 - Mammals

Small Mammals

Two sensitive small mammal species were documented on the Preserve during the 2009 baseline surveys, California pocket mouse and San Diego desert woodrat. Neither of these species is covered under the North County MSCP. Therefore, there is no monitoring requirement for these species. However, if monitoring is proposed, it should follow similar methods as those used for the baseline surveys. The small mammal population at the Preserve will generally benefit from habitat management measures, such as invasive species removal, if no herbicides are used in areas where animals sensitive to these chemicals occur. For example, the ornate shrew (*Notiosorex ornata*) is insectivorous and the use of insecticides on the Preserve may negatively impact this species. If insecticides or other chemicals are considered for use on the Preserve, a qualified biologist should be consulted prior to application.

Medium and Large Mammals

Based on the survey data, there was no medium to large mammals covered under the North County MSCP detected during the 2009 surveys. No sign of mule deer or mountain lion occurred within the Preserve. In the event that either of these two species is documented within the Preserve during other monitoring efforts, these species should be monitored following any recommendations identified by the final North County MSCP FRMP.

Domestic dogs were observed on the Preserve. It is recommended that the County amend signage on the Preserve to state that dog owners should remove all feces in order to minimize potential vector born disease transmission to the local coyote population. In addition, feces bags and disposal bins should be provided at trailheads to encourage the public to remove feces. Signage should reinforce that all dogs must be kept on a leash to avoid potential harm to wildlife.

Bats

Two sensitive bat species were detected during baseline surveys conducted in summer of 2009 including pallid bat, which is a North County MSCP covered species. Monitoring protocols, including survey methods and frequencies, for this species should follow any recommendations identified by the final North County MSCP FRMP. Should future monitoring for this species uncover additional covered species, these species should also be monitored following North County MSCP FRMP recommendations.

Oak woodlands at the Preserve provide important bat habitat and foraging areas. It is recommended that all oak woodland habitats be maintained. Impacts to oak woodlands, including removal of dead trees and snags which bats are known to utilize as roost sites, should be minimized. In addition, disturbances of large rocky outcrops and cliff faces within the Preserve should be prevented.

The existing pond likely provides bats with a year-round water source. Most bat species are insectivorous and the use of insecticides on the Preserve may negatively impact these species. If insecticides or other chemicals are considered for use on the Preserve, a qualified biologist should be consulted prior to application.

5.3.5 - Critical Habitat

The Preserve contains USFWS designated critical habitat for both arroyo toad and southwestern willow flycatcher. Any potential impacts to USFWS designated critical habitat from proposed projects within the Preserve would require consultation under Section 7 or Section 10 of the federal ESA. Currently, there are no planned projects within the Preserve. However, formal consultation may be required if future Preserve improvements are proposed.

5.4 - Non-Native Invasive Species Removal and Control

As part of the Upper San Luis Rey River Linkage, one of the FRMP conservation goals for the Preserve is the removal of invasive, non-native species (e.g., arundo, tamarisk, brown-headed cowbirds, bullfrogs, etc.) to enhance habitat quality.

5.4.1 - Plants

The majority of the significant stands of invasive plant species observed are located within the active channel of the San Luis Rey River. The vegetation within the channel is widely spaced with large areas of open space between individual plants. There is also a significant amount of invasive plant species surrounding the pond. The majority of these plants are considered ornamental and were planted many years ago as part of the original landscape plan for the area.

MBA recommends removing the invasive plants by hand, since the use of herbicides within the drainage feature may be harmful to downstream sensitive species, including arroyo toad. Upon removal, the vegetation should be monitored every six months for the first year and annually for the next two years, to ensure no re-growth occurs. Arundo, tamarisk, and yellow star-thistle have a high invasive plant rating and are considered high priority for

removal. Tree tobacco, olive, Peruvian pepper tree, castor bean, and oleander should also be removed during Preserve maintenance activities or in conjunction with the removal of the high priority invasive plant species. Additional non-native, invasive vegetation removal details are included in the Vegetation Management Report developed for the Preserve (MBA 2010).

5.4.2 - Wildlife

Only one detection of brown-headed cowbird occurred during the 2009 surveys. The detection is attributed to a flyover by an individual and does not imply a pair or population currently occupies the project site. However, due to the potentially significant effect this species can have on local avian populations, subsequent inventories should document and monitor the extent of cowbird parasitism, if any, on target species nests in the Preserve. If future monitoring indicates that cowbird parasitism is occurring within the Preserve and having a detrimental effect on native bird species, DPR may consider establishing a cowbird trapping program to increase nesting success of target species.

Bullfrogs were also detected within the Preserve during the 2009 surveys. The Preserve contains suitable habitat for both arroyo toad and western spadefoot toad and occurrences of these species have been recorded both upstream and downstream of the Preserve. The presence of adult bullfrogs within the Preserve greatly reduces the likelihood of the Preserve to support a population of arroyo toad or western spadefoot toad. Therefore, it is recommended that an intensive eradication effort be implemented within the Preserve at the man-made pond that is currently serving as a source for this invasive predator.

Only one individual glassy-winged sharpshooter was detected within the Preserve during the 2009 surveys. Because of the devastating affects this species may have on the adjacent agricultural lands, it is recommended that DPR coordinate with the County Department of Agriculture, Weights and Measures to determine if additional investigations of this species within the Preserve may be warranted.

5.5 - Restoration Opportunities

The vast majority of the Preserve remains undeveloped and undisturbed. The only areas with potential to be restored to a more natural, ecological state are the areas recommended for non-native vegetation removal surrounding the existing pond and along the San Luis Rey River. Following the removal of non-native and/or invasives in these areas, a program of hand seeding with a seed palette appropriate to the surrounding habitat is recommended.

Additional habitat restoration details are included in the Vegetation Management Report developed for the Preserve (MBA 2010).

5.6 - Fire Management

Wildfire is a natural part of the southern California ecosystem and has shaped the landscape for decades. Natural wildfires are required for some plants to germinate. Fires also opens up dense canopy cover and allow a more diverse understory development. Increased human presence has increased the frequency of fires and has caused considerable damage to the natural landscape. Therefore, fire management is necessary to protect life and property at the wildland-urban interface.

The last significant fire within Preserve burned in 1953. The Preserve has over 55 years of old growth chaparral and includes a large fuel source for wildfire. Fire management in open space intended for the conservation of biological and ecological resources has been evaluated in the County of San Diego's Vegetation Management Report (County of San Diego 2009b), and plan-wide and habitat-specific stewardship, management and monitoring guidelines for fire are provided in the North County MSCP FRMP.

In accordance with the FRMP plan wide stewardship guidelines for fire management, DPR should continue to maintain the established fuel modification zone on the eastern portion of the Preserve property adjacent to the existing residential structure that is within 100 feet of the Preserve boundary. Management of the fuel modification zones should adhere to CAL FIRE and/or North County Fire Protection District requirements.

In addition to stewardship considerations, fire management for ecosystem and species health should also be considered. Although the FRMP plan wide management guidelines for vegetation management are currently under development, it does indicate that a vegetation management plan, including fuel load management, should be prepared using the habitat-specific guidelines for the particular vegetation communities within the Preserve. The FRMP identifies several threats to chaparral, grassland, and oak woodland habitats posed by fire and suggests guidelines for management and monitoring of these threats including: prescribed fire where appropriate, public outreach and enforcement to prevent human-cause ignition of fires, review of fire history maps, inspection of fuel management zones, and post-fire management (County of San Diego 2009a).

MBA has developed a Vegetation Management Report for Wilderness Gardens Preserve (MBA 2010) which details recommended measures, including fire management and

monitoring recommendations, intended to adaptively manage the Preserve for ecosystem health and public safety. This plan includes recommended management directives for fuel reduction and management including thinning vegetation along trails and roadways, removing downed vegetation and snags deemed hazardous, and removing/thinning vegetation from around existing buildings and historical structures. The fire management directives recommended in the Vegetation Management Report meet the requirements for habitat-specific management as outlined in the FRMP Section 3.4. These Directives will reduce the potential for fires igniting from human sources, and will comply with fuel management zones as well as post-fire monitoring.

5.7 - Wildlife Linkages and Corridors

The Wilderness Gardens Preserve is located within the Upper San Luis Rey River Linkage. Most animals seek cover when moving across the landscape and, therefore, often seek out riparian areas as their preferred movement corridors. The Preserve contains an extensive oak woodland area that facilitates animal movement along the San Luis Rey River. The Preserve provides relatively easy movement in an east-west direction. The dense stand of chaparral and the steep cliff along the northern boundary of the Preserve, prohibit north-south movement for most terrestrial vertebrates.

The North County MSCP target species for corridor use, including mountain lions and southern mule deer, were not verified by camera/tracking stations or a biologist during the 2009 surveys. However, monitoring of corridor usage by mammals should continue to be conducted within the Preserve every five years to determine if the Preserve is being utilized, but not to determine the extent of use (i.e., how many individuals of any given species use a corridor). To monitor corridor use, stations utilizing track identification, scat identification, and video observation should be established within the Preserve.

5.8 - Additional Management Recommendations

5.8.1 - Trails and Access Roads

The County should maintain all management roads within the Preserve to be accessible to fire fighting personnel. The management of fire access roads includes the periodic removal of exotic species or non-native grasses within the confines of these roads to avoid increased flammability. Continuing coordination with CAL FIRE, the North County Fire Protection District, the U.S. Forest Service (USFS), and adjacent landowners and communities can increase the likelihood of sustaining long-term ecosystem health and processes in these fire-adapted lands.

The main dirt access road crosses the San Luis Rey River as a dry riverbed crossing with no culvert or road base. A few erosion control abutments have been installed to reduce impacts to the area. The road is unusable during large storm events and the Preserve is typically closed due to lack of suitable access. MBA recommends installing a permanent bridge structure to provide consistent access to the Preserve during storm events for safety and emergency purposes.

5.8.2 - Hydrological Management

The Preserve is located within the San Luis Rey River watershed and the San Luis Rey River is the main drainage feature that flows through the Preserve along the northern boundary. Per the FRMP, some of the biggest challenges to riparian habitats, such as those within the Preserve associated with the San Luis Rey River, are directly related to hydrology factors including accumulation of contaminants in water sources, alteration of hydrologic regimes, and erosion due to human uses.

The County of San Diego Watershed Protection Program monitors water quality throughout the County annually for pollutants that are likely to be delivered from nearby land use. It is recommended that data resulting from the Watershed Protection Program's efforts should be analyzed to identify any potential water quality concerns within the Preserve.

It is also recommended that in conjunction with the habitat monitoring described in Section 5.1, a visual assessment of channel conditions should be conducted. Where channel conditions are considered poor (e.g., unstable banks) follow up surveys should be conducted to determine if management actions are necessary. Where necessary, DPR should take measures to stabilize banks and control erosion.

Conversely, there may be situations where existing erosion control structures should be removed in order to create a more natural stream/riparian ecosystem. Currently, the main access road crossing location has large concrete diversion features, which are necessary to reduce erosion at the road crossing location. However, if a bridge is installed as recommended in Section 5.8.1, these concrete diversion features could be removed to return the natural flow of the river in this area.

In addition, use of land adjacent to the riverbed and floodplain should be limited. Any off-trail use in these areas should be controlled through installation of signage, trail management and regular patrols by park rangers. Also, any potential construction/development projects proposed within the Preserve occurring in the upland areas adjacent to riparian habitat should

follow regulations regarding best management practices and take all measures to prevent spills, runoff or dumping of any materials into riparian zones.

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Appendix A:
Observed Species List - Plants

Flora Compendia

Dennstaedtiaceae		**Bracken Family**
Pteridium	*aquilinum var. pubescens*	western bracken
Dryopteridaceae		**Wood Fern Family**
Polystichum	*californicum*	sword fern
Polypodiaceae		**Polypody Family**
Polypodium	*californicum*	California polypody
Pteridaceae		**Brake Family**
Adiantum	*capillus-veneris*	southern maiden-hair
Cheilanthes	*parryi*	Parry's lip fern
Pellaea	*andromedifolia*	coffee fern
Pellaea	*mucronata*	bird's-foot fern
Pentagramma	*triangularis*	goldenback fern
Amaranthaceae		**Amaranth Family**
Amaranthus	*albus*	tumbling pigweed
Amaranthus	*arenicola*	pigweed
Tidestromia	*lanuginosa*	woolly tidestromia
Anacardiaceae		**Sumac or Cashew Family**
Malosma	*laurina*	laurel sumac
Rhus	*ovata*	sugar bush
Rhus	*trilobata*	skunkbrush
Schinus	*molle*	Peruvian pepper tree **
Toxicodendron	*diversilobum*	poison oak
Apiaceae		**Carrot Family**
Cymopterus	*ripleyi*	Ripley's cymopterus
Daucus	*carota*	carrot
Apocynaceae		**Dogbane Family**
Apocynum	*cannabinum var. glaberrimum*	Indian hemp
Nerium	*oleander*	oleander **
Asclepiadaceae		**Milkweed Family**
Sarcostemma	*cynanchoides*	climbing milkweed
Asteraceae		**Sunflower Family**
Ambrosia	*psilostachya*	western ragweed
Arnica	*chamissonis ssp. foliosa*	Chamisso arnica
Artemisia	*californica*	California sagebrush
Artemisia	*douglasiana*	mugwort
Baccharis	*brachyphylla*	shortleaf baccharis
Baccharis	*salicifolia*	mule fat
Bebbia	*juncea*	sweet bush
Brickellia	*californica*	California brickellbush

Flora Compendia

Calycadenia	*spicata*	spiked western rosinweed
Carduus	*pycnocephalus*	Italian thistle *
Centaurea	*solstitialis*	yellow star-thistle **
Chaenactis	*artemisiifolia*	white pincushion
Chaenactis	*carphoclinia*	pebble pincushion
Chaenactis	*glabriuscula*	yellow pincushion
Cirsium	*occidentale*	cobwebby thistle
Coreopsis	*gigantea*	giant coreopsis
Coreopsis	*hamiltonii*	Mt. Hamilton tickseed
Corethrogyne	*filaginifolia*	California aster
Galinsoga	*quadriradiata*	shaggy soldier
Gnaphalium	*californicum*	California everlasting
Gutierrezia	*sarothrae*	broom snakeweed
Hazardia	*squarrosa*	sawtooth goldenbush
Hemizonia	*paniculata*	San Diego tarweed
Heterotheca	*grandiflora*	telegraphweed
Lepidospartum	*squamatum*	California broomsage
Perityle	*megalocephala*	Nevada rock daisy
Picris	*echioides*	bristly ox-tongue *
Pleurocoronis	*pluriseta*	arrow leaf
Pseudognaphalium	*canescens*	everlasting cudweed
Sonchus	*asper*	sow thistle *
Stephanomeria	*virgata*	twiggy wreathplant
Viguiera	*laciniata*	San Diego County viguiera
Xanthium	*strumarium*	cocklebur
Boraginaceae		**Borage Family**
Amsinckia	*menziesii*	Menzies' fiddleneck
Cryptantha	*hispidula*	Napa cryptantha
Cryptantha	*intermedia*	clearwater cryptantha
Pectocarya	*linearis*	sagebrush combseed
Brassicaceae		**Mustard Family**
Erysimum	*menziesii ssp. eurekense*	Humboldt wallflower
Hirschfeldia	*incana*	short-podded mustard *
Lepidium	*fremontii var. fremontii*	desert pepperweed
Lepidium	*nitidum*	shining peppergrass
Lesquerella	*occidentalis*	wetsern bladderpod
Raphanus	*raphanistrum*	wild radish
Thelypodium	*brachycarpum*	shortpod thelypody
Thysanocarpus	*laciniatus*	narrow-leaved fringe pod
Cactaceae		**Cactus Family**

* - Non-native
** - Invasive

Flora Compendia

Mammillaria	*grahamii*	Graham's nipple cactus
Mammillaria	*tetrancistra*	common fishhook cactus
Opuntia	*parryi*	valley cholla
Capparaceae		**Caper Family**
Cleomella	*brevipes*	shortstalk stinkweed
Caprifoliaceae		**Honeysuckle Family**
Lonicera	*subspicata*	southern honeysuckle
Sambucus	*mexicana*	blue elderberry
Caryophyllaceae		**Pink Family**
Silene	*californica*	Indian pink
Stellaria	*media*	common chickweed
Chenopodiaceae		**Goosefoot Family**
Chenopodium	*album*	lamb's quarters *
Convolvulaceae		**Morning-Glory Family**
Calystegia	*macrostegia*	island false bindweed
Calystegia	*malacophylla*	Sierra false bindweed
Crassulaceae		**Stonecrop Family**
Dudleya	*caespitosa*	sea lettuce
Dudleya	*edulis*	ladie's-fingers
Dudleya	*lanceolata*	lance-leaved dudleya
Dudleya	*pulverulenta*	chalk dudleya
Sedum	*obtusatum ssp. obtusatum*	Sierra stonecrop
Cucurbitaceae		**Gourd Family**
Cucurbita	*foetidissima*	calabazilla
Cucurbita	*palmata*	coyote gourd
Cuscutaceae		**Dodder Family**
Cuscuta	*californica*	California dodder
Euphorbiaceae		**Spurge Family**
Chamaesyce	*serpyllifolia ssp. serpyllifolia*	thyme-leaved spurge
Croton	*californicus*	California croton
Croton	*setigerus*	dove weed
Ricinus	*communis*	castor bean **
Fabaceae		**Legume Family**
Lotus	*heermannii var. heermannii*	Heermann's birds-foot trefoil
Lotus	*junceus var. junceus*	rush broom
Lotus	*purshianus*	Spanish clover
Lotus	*scoparius*	common deerweed
Lotus	*strigosus*	strigose lotus
Lupinus	*citrinus var. citrinus*	orange flowere lupine

Flora Compendia

Pickeringia	*montana*	chaparral pea
Trifolium	*longipes aap. shastense*	Shasta clover
Vicia	*americana*	American vetch
Vicia	*lathyroides*	spring vetch
Fagaceae		**Oak Family**
Quercus	*agrifolia*	coast live oak
Quercus	*berberidifolia*	scrub oak
Geraniaceae		**Geranium Family**
Erodium	*botrys*	longe beak stork's bill *
Erodium	*cicutarium*	red-stemmed stork's bill
Erodium	*moschatum*	musky stork's bill
Hydrophyllaceae		**Waterleaf Family**
Phacelia	*cicutaria*	caterpillar phacelia
Phacelia	*glandulifera*	sticky phacelia
Phacelia	*minor*	wild canterbury-bell
Pholistoma	*auritum*	blue fiesta flower
Turricula	*parryi*	poodle-dog bush
Lamiaceae		**Mint Family**
Lepechinia	*cardiophylla*	heart-leaved pitcher sage
Marrubium	*vulgare*	horehound
Monardella	*viridis*	green monardella
Malvaceae		**Mallow Family**
Malva	*parviflora*	cheeseweed *
Sidalcea	*oregana ssp. eximia*	coast checkerbloom
Nyctaginaceae		**Four O'Clock Family**
Mirabilis	*laevis var. retrorsa*	wishbone
Myrtaceae		**Myrtle Family**
Eucalyptus	*camaldulensis*	river red gum *
Eucalyptus	*polyanthemos*	red box *
Oleaceae		**Olive Family**
Olea	*europaea*	olive **
Onagraceae		**Evening Primrose Family**
Camissonia	*bistorta*	southern sun cup
Camissonia	*pallida*	pale yellow sun cup
Clarkia	*affinis*	chaparral clarkia
Clarkia	*arcuata*	glandular clarkia
Clarkia	*purpurea*	wine cup clarkia
Oenothera	*elata*	Hooker's evening-primrose
Papaveraceae		**Poppy Family**

Flora Compendia

Eschscholzia	*caespitosa*	tufted poppy
Eschscholzia	*californica*	California poppy
Fumaria	*officinalis*	drug fumitory
Plantaginaceae		**Plantain Family**
Plantago	*erecta*	western plantain
Platanaceae		**Sycamore Family**
Platanus	*racemosa*	western sycamore
Polygonaceae		**Buckwheat Family**
Chorizanthe	*fimbriata*	fringed spineflower
Eriogonum	*baileyi var. baileyi*	Bailey's buckwheat
Eriogonum	*fasciculatum*	California buckwheat
Eriogonum	*roseum*	wand buckwheat
Portulacaceae		**Purslane Family**
Claytonia	*perfoliata*	miner's lettuce
Montia	*linearis*	narrow leaf miner's lettuce
Primulaceae		**Primrose Family**
Anagallis	*arvensis*	scarlet pimpernel *
Ranunculaceae		**Buttercup Family**
Clematis	*ligusticifolia*	virgins bower
Rhamnaceae		**Buckthorn Family**
Ceanothus	*crassifolius*	hoary leaf ceanothous
Rhamnus	*crocea*	redberry buckthorn
Rhamnus	*ilicifolia*	holly leaf redberry
Rosaceae		**Rose Family**
Adenostoma	*fasciculatum*	chamise
Cercocarpus	*montanus var. glaber*	mountain mahogany
Heteromeles	*arbutifolia*	toyon
Prunus	*ilicifolia*	holly leaf cherry
Prunus	*subcordata*	Klamath plum
Rubus	*ursinus*	California blackberry
Rubiaceae		**Madder Family**
Galium	*angustifolium*	narrow-leaved bedstraw
Galium	*parisiense*	wall bedstraw
Salicaceae		**Willow Family**
Populus	*fremontii*	Fremont cottonwood
Salix	*laevigata*	red willow
Salix	*lasiolepis*	arroyo willow
Saxifragaceae		**Saxifrage Family**
Heuchera	*rubescens var. glandulosa*	pink alumroot

Flora Compendia

Scrophulariaceae		**Figwort Family**
Antirrhinum	*nuttallianum*	Nuttall's snapdragon
Castilleja	*exserta*	purple owl's-clover
Collinsia	*parryi*	Parry's blue-eyed Mary
Diplacus	*aurantiacus ssp. aurantiacus*	sticky-leaf monkeyflower
Keckiella	*cordifolia*	heart leaf keckiella
Mimulus	*alsinoides*	wingstem monkeyflower
Mimulus	*guttatus*	seep monkeyflower
Penstemon	*rydbergii var. oreocharis*	herbaceous penstemon
Scrophularia	*desertorum*	desert figwort
Solanaceae		**Nightshade Family**
Datura	*wrightii*	jimson weed
Lycium	*barbarum*	matirmony vine
Nicotiana	*glauca*	tree tobacco **
Solanum	*xanti*	chaparral nightshade
Tamaricaceae		**Tamarisk Family**
Tamarix	*ramosissima*	Mediterranean tamarisk **
Verbenaceae		**Vervain Family**
Verbena	*hastata*	swamp vervain
Vitaceae		**Grape Family**
Vitis	*girdiana*	desert wild grape
Zygophyllaceae		**Caltrop Family**
Tribulus	*terrestris*	puncture vine
Agavaceae		**Agave Family**
Hesperoyucca	*whipplei*	Our Lord's Candle
Cyperaceae		**Sedge Family**
Carex	*nigricans*	black alpine sedge
Eleocharis	*macrostachya*	pale spikerush
Schoenus	*nigricans*	black bog rush
Iridaceae		**Iris Family**
Sisyrinchium	*bellum*	western blue-eyed grass
Liliaceae		**Lilly Family**
Allium	*burlewii*	Burlew's onion
Bloomeria	*crocea*	common golden star
Brodiaea	*filifolia*	thread leaf brodiaea
Calochortus	*bruneaunis*	Bruneau mariposa lily
Calochortus	*catalinae*	Santa Catalina mariposa lily
Dichelostemma	*capitatum*	blue dicks
Lilium	*kelloggii*	Kellog's lily

* - Non-native
** - Invasive

Flora Compendia

Lilium	*pardalinum*	leopard lily
Poaceae		**Grass Family**
Achnatherum	*occidentale*	western needle grass
Alopecurus	*saccatus*	Pacifica foxtail
Arundo	*donax*	giant reed **
Avena	*barbata*	slender oat *
Bromus	*diandrus*	ripgut brome *
Bromus	*rubens*	foxtail brome *
Cynodon	*dactylon*	Bermuda grass *
Festuca	*minutiflora*	small flower fescue
Gastridium	*phleoides*	nit grass
Hordeum	*vulgare*	hore barley *
Lamarckia	*aurea*	golden top grass *
Melica	*bulbosa*	onion grass
Nassella	*cernua*	nodding needle grass
Nassella	*pulchra*	purple needle grass
Polypogon	*monspeliensis*	annual rabbitsfoot grass *
Setaria	*pumila*	yellow foxtail *
Spartina	*gracilis*	alkali cord grass

Appendix B:
Observed Species List - Wildlife

Fauna Compendia

Gnaphosidae		**Ground Spiders**
Herpyllus	*propinquus*	western Parson spider
Scotophaeus	*blackwallii*	ground spider
Zelotus	*gynethus*	ground spider
Lycosidae		**Wolf Spiders**
Sosippus	*californicus*	wolf spider
Philodromidae		**Running Crab Spiders**
Tibellus	*sp.*	slender crab spider
Salticidae		**Jumping Spiders**
Habronattus	*oregonensis*	jumping spider
Phidippus	*johnsoni*	Johnson Jumper
Sitticus	*sp.*	jumping spider
Sparassidae		**Giant Crab Spiders**
Heteropoda	*venatoria*	huntsman spider
Theraphosidae		**Tarantulas**
Aphonopelma	*eutylenum*	California ebony tarantula
Thomisideae		**Crab Spiders**
Misumenops	*californicus*	flower spider
Protolophidae		**Harvestman**
Protolophus	*sp.*	harvestman
Vaejovidae		**Scorpions**
Paruroctonus	*silvestrii*	California common scorpion
Eremobatidae		**Straight-faced solifugids**
Eremobates	*sp.*	sun spider
Aeshnidae		**Darners**
Aeshna	*Multicolor*	blue-eyed darner
Libellulidae		**Skimmers**
Celithemis	*elisa*	calico pennant
Pachydiplax	*longipennis*	blue dasher
Coenagrionidae		**Common Damselflies**
Enallagma	*civile*	familiar bluet damselfly
Largidae		**Largid Bugs**
Largus	*cinctus*	largid bugs
Gryllidae		**Crickets**
Gryllus	*sp.*	field cricket
Rhaphidophoridae		**Camel Crickets**
Ceuthophilus	*hesperus*	camel cricket
Stenopelmatidae		**Jerusalem Crickets**
Stenopelmatus	*fuscus*	Jerusalem Cricket

Fauna Compendia

Acrididae		**Short-horned Grasshoppers**
Arphia	*sp.*	speckled grasshopper
Chloealtis	*gracilis*	slant-faced grasshopper
Mantidae		**Mantids**
Stagmomantis	*californica*	California praying mantis
Polyphagidae		**Sand Roaches**
Arenivaga	*investigata*	desert cockroach
Reduviidae		**Assassin Bugs**
Apiomerus	*crassipes*	bee assassin
Cicadellidae		**Leafhoppers**
Homalodisca	*vitripennis*	glassy-winged sharpshooter (invasive)
Rhyparochromidae		**Dirt-Colored Seed Bugs**
Xanthochilus	*saturnius*	Mediterranean seed bug
Myrmeleontidae		**Antlions**
Brachynemurus	*sp.*	antlion
Carabidae		**Ground Beetles**
Amara	*sp.*	ground beetle
Pterostichini	*melanarius*	ground beetle
Psydrus	*piceus*	ground beetle
Lampyridae		**Fireflies or Lightning Bugs**
Microphotus	*angustus*	pink glowworm
Coccinellidae		**Ladybird Beetles**
Coccinella	*novemnotata franciscana*	nine-spotted ladybird beetle
Tenebrionidae		**Darkling Beetles**
Eleodes	*acuticauda*	darkling beetle
Eleodes	*osculans*	wooly darkling beetle
Coelocnemis	*californicus*	armored stink beetle
Nyctoporis	*carinata*	darkling beetle
Scarabaeidae		**Scarab Beetles**
Aphodius	*sp.*	dung beetle
Curculionidae		**Weevils**
Apleurus	*albovestitus*	weevil
Trichobaris	*sp.*	weevil
Cerambycidae		**Longhorn Beetles**
Strophiona	*sp.*	longhorn beetle
Pseudoluperus	*maculicollis*	skeletonizing leaf beetle
Saxinis	*saucia*	red-shouldered leaf beetle
Zopheridae		**Ironclad Beetles**
Asbolus	*verrucosus*	desert ironclad beetle

Fauna Compendia

Nosoderma	*diabolicum*	diabolical ironclad beetle
Phloeodes	*pustulosus*	ironclad beetle
Papilionidae		**Swallowtail Butterflies**
Papilio	*rutulus*	western tiger swallowtail
Papilio	*eurymedon*	pale swallowtail
Pieridae		**Whites, Sulphurs, and Orangetips**
Pieris	*rapae*	cabbage white
Nathalis	*iole*	dainty sulphur
Lycaenidae		**Blues and Hairstreaks**
Icaricia	*acmon*	acmon blue
Hemiargus	*isola*	Mexican blue
Nymphalidae		**Brush-Footed Butterflies**
Vanessa	*cardui*	painted lady
Danaidae		**Milkweed Butterflies**
Danaus	*gilippus*	queen
Hesperiidae		**Skippers**
Hylephila	*phyleus*	fiery skipper
Riodinidae		**Metalmarks**
Apodemia	*mormo virgulti*	Behr's metalmark
Calephelis	*wrightii*	Wright's metalmark
Bombyliidae		**Bee Flies**
Villa	*sp.*	bee fly
Sarcophagidae		**Flesh Flies**
Sarcophaga	*sp.*	flesh fly
Mutillidae		**Velvet Ants**
Dasymutilla	*occidentalis*	velvet ant
Dasymutilla	*sackenii*	white velvet ant
Sphaeropthalma	*sp.*	velvet ant
Formicidae		**Ants**
Solenopsis	*invicta*	fire ant
Pogonomyrmex	*californicus*	harvester ants
Camponotus	*sp.*	carpenter ants
Pompilidae		**Spider Wasps**
Pepsis	*chrysothemis*	tarantula hawk
Vespidae		**Paper Wasps & Potter Wasps**
Vespula	*pensylvanica*	western yellowjacket
Sphecidae		**Thread-Waisted Wasps**
Sceliphron	*caementarium*	wind dauber
Podalonia	*sp.*	wasp

Fauna Compendia

Halictidae		**Sweat Bees**
Dialictus	*sp.*	metallic sweat bee
Apidae		**Honey Bees and Bumble Bees**
Apis	*mellifera*	honey bee
Crabronidae		**Wasps**
Aphilanthops	*sp.*	Aphilanthops wasp
Machilidae		**Bristletails**
Trigoniophthalmus	*alternatus*	bristletail
Lepismatidae		**Silverfish**
Lepisma	*saccharina*	silverfish
Scolopendridae		**Centipedes**
Scolopendra	*polymorpha*	centipede
Armadillidiidae		**Pillbugs**
Armadillidium	*vulgare*	common pillbug
Cambaridae		**Freshwater crawfish**
Procambarus	*clarkii*	freshwater crawfish
Ranidae		**True Frogs**
Rana	*catesbeiana*	bullfrog (invasive)
Teiidae		**Whiptails**
Aspidoscelis	*tigris*	coastal western whiptail
Aspidoscelis	*hyperytha*	orange-throated whiptail
Scincidae		**Skinks**
Eumeces	*skiltonianus interparietalis*	Coronado skink
Anguidae		**Alligator Lizards**
Elgaria	*multicarinata*	southern alligator lizard
Phrynosomatidae		**Lizards**
Uta	*stansburiana*	side-blotched lizard
Sceloporus	*occidentalis*	western fence lizard
Sceloporus	*orcutti*	granite spiny lizard
Colubridae		**Egg-laying snakes**
Diadophis	*punctatus similis*	San Diego ringneck snake
Masticophis	*lateralis lateralis*	chaparral whipsnake
Leptotyphlopidae		**Slender Blind Snakes**
Leptotyplhlops	*humilis*	western blind snake
Viperidae		**Vipers**
Crotalus	*oreganus helleri*	southern Pacific rattlesnake
Anatidae		**Waterfowl**
Anas	*platyrhynchos*	mallard
Odontophoridae		**Quail**

Fauna Compendia

Callipepla	*californica*	California quail
Podicipedidae		**Grebes**
Aechmophorus	*occidentalis*	western grebe
Ardeidae		**Herons/Bitterns**
Ardea	*alba*	great egret
Bubulcus	*ibis*	cattle egret
Butorides	*virescens*	green heron
Nycticorax	*nycticorax*	black-crowned night-heron
Accipitridae		**Hawks**
Buteo	*lineatus*	red-shouldered hawk
Buteo	*jamaicensis*	red-tailed hawk
Falconidae		**Falcons**
Falco	*sparverius*	American kestrel
Rallidae		**Rails**
Fulica	*americana*	American coot
Columbidae		**Pigeons/Doves**
Zenaida	*macroura*	mourning dove
Trochilidae		**Hummingbirds**
Calypte	*anna*	Anna's hummingbird
Picidae		**Woodpeckers**
Melanerpes	*formicivorus*	acorn woodpecker
Picoides	*nuttallii*	Nuttall's woodpecker
Colaptes	*auratus*	northern flicker
Cardinalidae		**Cardinals**
Pheucticus	*melanocephalus*	black-headed grosbeak
Empidonax	*difficilis*	Pacific-slope flycatcher
Sayornis	*nigricans*	black phoebe
Tyrannus	*vociferans*	Cassin's kingbird
Vireonidae		**Vireos**
Vireo	*huttoni*	Hutton's vireo
Corvidae		**Jays/Crows**
Aphelocoma	*californica*	western scrub-jay
Corvus	*brachyrhynchos*	American crow
Corvus	*corax*	common raven
Hirundinidae		**Swallows**
Tachycineta	*thalassina*	violet-green swallow
Paridae		**Chickadees/Titmice**
Baeolophus	*inornatus*	oak titmouse
Aegithalidae		**Bushtits**

Fauna Compendia

Psaltriparus	*minimus*	bushtit
Sittidae		**Nuthatches**
Sitta	*carolinensis*	white-breasted nuthatch
Troglodytidae		**Wrens**
Thryomanes	*bewickii*	Bewick's wren
Troglodytes	*aedon*	house wren
Sylviidae		**Old world warblers**
Polioptila	*caerulea*	blue-gray gnatcatcher
Timaliidae		**Old world babblers**
Chamaea	*fasciata*	wrentit
Mimidae		**Mockingbirds/Thrashers**
Toxostoma	*redivivum*	California thrasher
Sturnidae		**Starlings**
Sturnus	*vulgaris*	European starling
Prilogonatidae		**Silky-flycatchers**
Phainopepla	*nitens*	phainopepla
Parulidae		**New world warblers**
Geothlypis	*trichas*	common yellowthroat
Thraupidae		**Tanagers**
Piranga	*rubra*	summer tanager
Emberizidae		**Warblers, sparrow, etc.**
Pipilo	*maculatus*	spotted towhee
Pipilo	*crissalis*	California towhee
Melospiza	*melodia*	song sparrow
Zonotrichia	*albicollis*	white-throated sparrow
Icteridae		**New world blackbirds**
Agelaius	*phoeniceus*	red-winged blackbird
Euphagus	*cyanocephalus*	Brewer's blackbird
Molothrus	*ater*	brown-headed cowbird (invasive)
Fringillidae		**Finches**
Carpodacus	*mexicanus*	house finch
Carduelis	*psaltria*	lesser goldfinch
Carduelis	*tristis*	American goldfinch
Soricidae		**Shrews**
Sorex	*ornatus*	ornate shrew
Phyllostomidae		**Leaf-Nosed Bats**
Choeronycteris	*mexicana*	Mexican long-tongued bat
Vespertilionidae		**Evening Bats**
Antrozous	*pallidus*	pallid bat

Fauna Compendia

Eptesicus	*fuscus*	big brown bat
Myotis	*californicus*	California myotis
Pipistrellus	*hesperus*	western pipistrelle
Molossidae		**Free-Tailed Bats**
Tadarida	*brasiliensis*	Brazilian free-tailed bat
Leporidae		**Hares and Rabbits**
Sylvilagus	*audubonii*	desert cottontail
Sciuridae		**Squirrels**
Spermophilus	*beecheyi*	California ground squirrel
Muridae		**Mice, Rats, and Voles**
Peromyscus	*californicus*	California mouse
Peromyscus	*maniculatus*	deer mouse
Reithrodontomys	*megalotis*	western harvest mouse
Neotoma	*fuscipes*	dusky-footed woodrat
Neotoma	*lepida*	desert woodrat
Peromyscus	*boylii*	brush mouse
Heteromyidae		**Pocket Mice and Kangaroo Rats**
Chaetodipus	*californicus*	California pocket mouse
Chaetodipus	*fallax*	San Diego pocket mouse
Chaetodipus	*spinatus*	spiny pocket mouse
Geomyidae		**Pocket Gophers**
Thomomys	*bottae*	Botta's pocket gopher
Canidae		**Wolves and Foxes**
Canis	*familiaris*	domestic dog
Canis	*latrans*	coyote
Felidae		**Cats**
Lynx	*rufus*	bobcat
Procyonidae		**Raccoons**
Procyon	*lotor*	raccoon

Appendix C:
Potential Sensitive Species Table - Plants

Special Status Plant Species Table

Species		Status				Preferred Habitat	Life Form	Bloom Period	Potential to Occur/ Known Occurrence/ Suitable Habitat
Scientific Name	Common Name	USFWS	CDFG	CNPS	San Diego County				
Abronia villosa var. *aurita*	Foothill sand verbena	None	None	1B.1	List A, NC	This species typically occurs in sandy areas within chaparral and coastal scrub habitats. Known Elevation Limits: 262 to 5,250 feet	Annual herb	Jan to Sept	**Not likely to occur.** No record of the species within 5 miles of the site. No sandy soils occur within the chaparral habitat on the project site.
Acanthomintha ilicifolia	San Diego thornmint	FC	SE	1B.1	List A, NCMSCP	Occurs in coastal sage scrub, chaparral, and grassland areas. Known Elevation Limits: 30 to 2,880	Annual herb	April to May	**Not likely to occur.** No record of the species within 5 miles of the site. Suitable chaparral habitat occurs on site.
Adolphia californica	San Diego adolphia	None	None	2.1	List B, NCMSCP	Occurs in chaparral, coastal scrub, valley, and foothill grassland areas. Known Elevation Limits: 135 to 2,220 feet	Deciduous shrub	Dec to May	**Not likely to occur.** No record of the species within 5 miles of the site. Suitable chaparral habitat occurs on site.
Ambrosia pumila	San Diego ambrosia	FE	None	1B.1	List A, NCMSCP	Occurs in chaparral, coastal scrub, valley, and foothill grassland, vernal pools. Often found in disturbed areas and sometimes in alkaline soils. Known Elevation Limits: 60 to 1,260 feet	Rhizomatous herb	May to Oct	**Not likely to occur.** No record of the species within 5 miles of the site. No alkaline soils present.
Arctostaphylos glandulosa crassifolia	Del Mar manzanita	FE	None	1B.1	List A, NCMSCP	Occurs in chaparral habitat. Known Elevation Limits: 0 to 1,095 feet	Evergreen shrub	Dec to June	**Not likely to occur.** No record of the species within 5 miles of the site. Suitable chaparral habitat occurs on site.

Species		Status				Preferred Habitat	Life Form	Bloom Period	Potential to Occur/ Known Occurrence/ Suitable Habitat
Scientific Name	Common Name	USFWS	CDFG	CNPS	San Diego County				
Arctostaphylos rainbowensis	Rainbow manzanita	None	None	1B.1	List A, NCMSCP	This species is known to occur within gabbro chaparral communities in Riverside and San Diego counties. Previously called *A. peninsularis* or considered a hybrid between *A. glandulosa* and *A. glauca.* Known Elevation Limits: 885 to 2,590 feet	Evergreen shrub	Dec to March	**Present.** The species was recorded on site, but was not verified during surveys. This species should be assumed present, based on suitable habitat and know recorded occurrence on site.
Astragalus oocarpus	San Diego milk-vetch	None	None	1B.2	List A, NC	This species occurs within cismontane chaparral edges at the periphery of meadows. Often associated with *Arcostaphylos* and other woody shrubs well interspersed with *Adenostoma fasciculatum.* Associated with Crouch coarse sandy loams and occasionally disturbed locales. Known Elevation Limits: 1,000 to 5,000 feet	Perennial herb	May to Aug	**Low potential to occur.** No record of this species within 5 miles of the site. No microhabitat and associated soils for this species occur onsite.
Astragalus pachypus var. *jaegeri*	Jaeger's milkvetch	None	None	1B.1	List A, NC	This species occurs within coastal scrub, chaparral, valley and foothill grassland, and cismontane woodlands. Specifically, on dry ridges and valleys and open sandy slopes.	Shrub	Dec to June	**Not likely to occur.** No record of the species within 5 miles of the site. No sandy soils in chaparral habitat occur on the site.

Species		Status				Preferred Habitat	Life Form	Bloom Period	Potential to Occur/ Known Occurrence/ Suitable Habitat
Scientific Name	Common Name	USFWS	CDFG	CNPS	San Diego County				
						Known Elevation Limits: 1,195 to 3,000 feet			
Atriplex coulteri	Coulter's saltbrush	—	—	1B.2	List A, NCMSCP	Occurs in coastal bluff scrub, coastal dunes, coastal scrub, and valley and foothill grassland habitats with alkaline or clay soils. Known Elevation Limits: 10 to 1,380 feet	Perennial herb	Mar to Oct	**Not likely to occur.** No record of the species within 5 miles of the site. No suitable habitat within the project site.
Atriplex parishii	Parish brittlescale	—	—	1B.1	List A, NCMSCP	Occurs in chenopod scrub playas, vernal pool habitats in alkaline soil. Known Elevation Limits: 75 to 5,700 feet	Annual herb	June to Oct	**Not likely to occur.** No record of the species within 5 miles of the site. No suitable habitat within the project site.
Baccharis vanessae	Encinitas baccharis	FT	SE	1B.1	List A, NCMSCP	Occurs in maritime chaparral, and cismontane woodland areas. Known Elevation Limits: 180 to 2,160 feet	Deciduous shrub	Aug to Nov	**Not likely to occur.** No record of the species within 5 miles of the site. No suitable habitat within the project site.
Berberis nevinii	Nevin's barberry	FT	SE	1B.1	List A, NCMSCP	Nevin's barberry occurs in chaparral, cismontane woodland, coastal scrub and riparian scrub, specifically on steep, north facing slopes or in low grade sandy washes. Known Elevation Limits: 951 to 5,167 feet	Evergreen shrub	Mar to Jun	**Not likely to occur.** No record of the species within 5 miles of the site. No suitable habitat within the project site. No steep north facing slopes within the project site.

Species		Status				Preferred Habitat	Life Form	Bloom Period	Potential to Occur/ Known Occurrence/ Suitable Habitat
Scientific Name	Common Name	USFWS	CDFG	CNPS	San Diego County				
Bloomeria clevelandii	San Diego goldenstar	None	None	1B.1	List A, NCMSCP	Occurs in chaparral, coastal scrub, valley, and foothill grassland, vernal pool habitats in clay soils. Known Elevation Limits: 150 to 1,380 feet	Bulbiferous herb	Apr to May	**Low Potential to occur.** No record of the species within 5 miles of the site. Bloomeria sp. observed within the project site, but was not identifiable to the species level. Most likely Bloomeria crocea.
Brodiaea filifolia	Thread-leaf brodiaea	FT	SE	1B.1	List A, NCMSCP	Occurs in coastal scrub, cismontane woodland, grasslands, and vernal pools. Usually associated with annual grassland and vernal pools in clay soils. Elevation limits: 75 to 2,500 feet.	Perennial bulbiferous herb	Mar to Jun	**Present.** Observed in the native grassland area in the central portion of the project site.
Brodiaea orcuttii	Orcutt's brodiaea	None	None	1B.1	List A, NCMSCP	Closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools in mesic environments supported by clay and sometimes serpentine soils. Known Elevation Limits: 90 to 5,076 feet	Bulbiferous herb	May to Jul	**High Potential to Occur.** Suitable habitat occur within the native grassland area in the central portion of the project site.
Callitropsis forbesii	Tecate cypress	None	None	1B.1	Not listed, NC	Is commonly found in closed-cone coniferous forest, and chaparral. Known Elevation Limits: 775 to 4,540 feet	Tree	None	**Low potential to occur.** Recorded to occur within 5 miles of the project site. Marginally suitable habitat occurs on site.

Species		Status				Preferred Habitat	Life Form	Bloom Period	Potential to Occur/ Known Occurrence/ Suitable Habitat
Scientific Name	Common Name	USFWS	CDFG	CNPS	San Diego County				
Calochortus weedii var. *intermedius*	Intermediate mariposa-lily	None	None	1B.2	Not listed, NC	This species is known to occur within coastal scrub, chaparral, valley and foothill grassland, specifically on dry, rocky open slopes and rock outcrops. Known Elevation Limits: 345 to 2,805 feet	Bulbiferous herb	May to Jul	**Low potential to occur.** No recorded occurrence recorded within 5 miles of the project site. Marginally suitable habitat occurs within the project site.
Caulanthus simulans	Payson's jewelflower	None	None	4.2	List D, NC	Payson's jewel-flower is known to occur within chaparral and coastal scrub, frequently in burned areas or in disturbed sites such as streambeds; also on rocky, steep slopes. Known Elevation Limits: 295 to 7,217 feet	Annual herb	Mar to May	**Moderate potential to occur.** The species was recorded within 5 miles, and the disturbed dirt roads that run through the project site contain suitable habitat. Project site does not burn frequently.
Ceanothus cyaneus	Lakeside ceanothus	—	—	1B.2	List A, NC	Typically occurs in a tall, mesic, dense, almost impenetrable chaparral with a mix of chamise and other shrubs. Known to occur on Acid Igneous rock land and Cieneba very rocky coarse sandy loam. Known Elevation Limits: 700 to 2,265 feet	Evergreen shrub	Apr to Jun	**Not Likely to occur.** No record of the species within 5 miles of the site. No suitable habitat occurs within the project site.

Species		Status				Preferred Habitat	Life Form	Bloom Period	Potential to Occur/ Known Occurrence/ Suitable Habitat
Scientific Name	Common Name	USFWS	CDFG	CNPS	San Diego County				
Ceanothus ophiochilus	Vail Lake ceanothus	FT	SE	1B.1	Not listed, NC	Occurs within chamise chaparral associated with reddish-hued, pyroxenite and gabbroic soils. Known Elevation Limits: 1,902 to 3,494 feet	Evergreen shrub	Feb to Mar	**Low potential to occur** No record of this species within 5 miles of the project site. Marginally suitable habitat occurs on the site.
Ceanothus verrucosus	Wart stemmed ceanothus	None	None	2.2	List B, NCMSCP	Occurs in southern maritime chaparral and southern mixed chaparral. Known Elevation Limits: 3 to 1,140 feet	Evergreen shrub	Dec to May	**Not likely to occur.** No record of the species within 5 miles of the site. Suitable chaparral habitat occurs on site.
Centromadia parryi ssp. *australis*	Southern tarplant	None	None	1B.1	List A, NCMSCP	Occurs on margins of marshes and swamps, vernally mesic valley and foothill grassland, and vernal pool habitats. Known Elevation Limits: 0 to 1,280 feet	Annual Herb	May to Nov	**Not likely to occur.** No record of the species within 5 miles of the site. No suitable habitat within the project site.
Chorizanthe orcuttiana	Orcutt's spineflower	FE	SE	1B.1	List A, NCMSCP	Occurs in closed-cone coniferous forest, maritime chaparral, and coastal scrub in sandy openings. Known Elevation Limits: 10 to 375 feet	Annual herb	Mar to May	**Not likely to occur.** No record of the species within 5 miles of the site. No suitable habitat within the project site.
Chorizanthe parryi var. *parryi*	Parry's spineflower	None	None	1B.1	Not Listed, NC	Occurs in coastal scrub and chaparral habitats on dry slopes and flats. Sometimes at the interface of two vegetation types, such as chaparral and oak woodland on dry sandy soils.	Annual herb	Apr to Jun	**Low potential to occur.** No record of this species within 5 miles of the project site. Marginally suitable habitat occurs on the site.

Species		Status				Preferred Habitat	Life Form	Bloom Period	Potential to Occur/ Known Occurrence/ Suitable Habitat
Scientific Name	Common Name	USFWS	CDFG	CNPS	San Diego County				
						Known Elevation Limits: 900 to 4,000 feet			
Chorizanthe polygonoides var. *longispina*	Long-spined spineflower	None	None	1B.2	List A, NC	Typically found on clay lenses devoid of shrubs, on the periphery of vernal pools and montane meadows near vernal seeps. Associated with Boomer stony loams and Redding gravelly loams. Known Elevation Limits: 98 to 1,520 feet	Annual herb	Apr to July	**Low potential to occur.** No record of this species within 5 miles of the project site. Marginally suitable habitat occurs on the site.
Comarostaphylis diversifolia diversifolia	Summer holly	None	None	1B.2	List A, NCMSCP	Occurs in southern maritime chaparral, southern mixed chaparral, and cismontane woodlands. Known Elevation Limits: 90 to 1,650 feet	Evergreen shrub	Apr to Jun	**Not likely to occur.** No record of the species within 5 miles of the site. Suitable chaparral habitat occurs on site.
Deinandra mohavensis	Mojave tarplant	None	SE	1B.3	List A, NC	This species inhabits riparian scrub and chaparral communities, specifically on low sand bars in river beds, riparian areas, or ephemeral grassy areas. Known Elevation Limits: 2,100 to 5,250 feet	Annual herb	Jun to Oct	**Not likely to occur.** No record of the species within 5 miles of the project site. The site is below the known elevation limit for this species.
Delphinium hesperium ssp. *cuyamacae*	Cuyamaca larkspur	None	Rare	1B.2	List A, NC	This species occurs within densely vegetated montane meadows with a dominant presence of *Muhlenbergia rigens*. Associated with	Perennial herb	May to Jul	**Not likely to occur.** No record of the species within 5 miles of the project site. The site is below the known

Species		Status				Preferred Habitat	Life Form	Bloom Period	Potential to Occur/ Known Occurrence/ Suitable Habitat
Scientific Name	Common Name	USFWS	CDFG	CNPS	San Diego County				
						mesic sites and Holland stony fine sandy loam. Known Elevation Limits: 4,000 to 5,350 feet			elevation limit for this species.
Dodecahema leptoceras	Slender-horned spineflower	FE	SE	1B.1	Not listed, NC	This species is known to inhabit chaparral, coastal scrub, and alluvial fan sage scrub on flood deposited terraces and washes. Known Elevation Limits: 656 to 2,493 feet	Annual herb	April to June	**Low Potential to occur.** No record of the species within 5 miles of the site. Suitable habitat and adjacent terrace habitat occurs within the project site.
Dudleya brevifolia	Short-leaved dudleya	None	SE	1B.1	List A, NCMSCP	Occurs in maritime chaparral openings, and coastal scrub in Torrey sandstone soils. Known Elevation Limits: 90 to 750 feet	Perennial herb	Apr	**Not likely to occur.** No record of the species within 5 miles of the site. No suitable habitat occurs on site.
Dudleya multicaulis	Many-stemmed dudleya	None	None	1B.2	List A, NC	Occurs in openings in Diegan sage scrub and valley grasslands, sometimes occurring on rocky/stony sites. Associated with Huerhuero loams and Olivenhain cobbly loams and clay soils. Known Elevation Limits: 50 to 2,590 feet	Perennial herb	Apr to Jul	**Low potential to occur.** No record of the species within 5 miles of the project site. No suitable habitat occurs on site.

Species		Status				Preferred Habitat	Life Form	Bloom Period	Potential to Occur/ Known Occurrence/ Suitable Habitat
Scientific Name	Common Name	USFWS	CDFG	CNPS	San Diego County				
Dudleya viscida	Sticky (-leaved) dudleya	None	SE	1B.2	List A, NCMSCP	Occurs in coastal bluff scrub, chaparral, cismontane woodland, and coastal scrub in rocky soils. Known Elevation Limits: 30 to 1,650 feet	Perennial herb	May to Jun	**Not likely to occur.** No record of the species within 5 miles of the site. Suitable chaparral habitat occurs on site.
Eryngium aristulatum parishii	San Diego button-celery	FE	SE	1B.1	List A, NCMSCP	Occurs in coastal scrub, valley and foothill grassland, and vernal pool habitats in mesic soils. Known Elevation Limits: 60 to 1,860 feet	Annual/ perennial herb	Apr to Jun	**Not likely to occur.** No record of the species within 5 miles of the site. No suitable habitat occurs on site.
Ferocactus viridescens	Coast barrel cactus	None	None	2.1	List B, NCMSCP	Occurs in chaparral, coastal scrub, valley, and foothill grassland habitats. Known Elevation Limits: 10 to 1,350 feet	Stem succulent	May to Jun	**Not likely to occur.** No record of the species within 5 miles of the site. No suitable habitat occurs on site.
Harpagonella palmeri	Palmer's grappling hook	—	—	4.2	List B, NC	Chaparral, coastal scrub, and valley and foothill grassland. Lower montane coniferous forest. Open grassy areas within shrublands on clay soils. Known Elevation Limits: 60 to 2,865 feet	Annual herb	Mar to May	**Not likely to occur.** The species was recorded within 5 miles of the site. No clay soil occurs onsite.
Horkelia cuneata ssp. *puberula*	Mesa horkelia (Star potentilla)	None	None	1B.1	List A, NC	This horkelia can be found in chaparral, cismontane woodland, and coastal scrub habitats, specifically on sandy or gravelly sites. Known Elevation Limits: 230 to 2,655 feet	Perennial herb	February to July	**Not likely to occur.** No record of the species within 5 miles of the site. Marginally suitable habitat occurs on site.

Species		Status				Preferred Habitat	Life Form	Bloom Period	Potential to Occur/ Known Occurrence/ Suitable Habitat
Scientific Name	Common Name	USFWS	CDFG	CNPS	San Diego County				
Hulsea californica	San Diego hulsea	None	None	1B.3	Not listed, NC	This species is found in open areas within yellow pine forests. Known Elevation Limits: 3,000 to 6,000 feet	Perennial herb	April to June	**Not likely to occur.** The species was recorded within 5 miles of the site. Project site is well below elevational limits.
Lepechinia cardiophylla	Santa Ana pitcher sage	—	—	1B.2	List A, NC	Occurs in closed-cone coniferous forest, openings in chaparral, and cismontane woodland habitats. Metavolcanic soils. Known Elevation Limits: 1,560 to 4,110 feet	Shrub	April to June	**Present.** The species was observed within the oak woodland area in the western portion of the project site. Suitable habitat occurs in woodland areas.
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	None	None	1B.2	List A, NC	The species occurs in chaparral and coastal scrub habitats on dry soils. Known Elevation Limits: 1 to 2,835 feet	Annual herb	January to July	**High potential to occur.** The species was observed within 5 miles and suitable habitat occurs on site.
Lilium parryi	Lemon lily	None	None	1B.2	List A, NC	Generally inhabits riparian forests in very mesic conditions closely associated with water. Often associated with *Cicuta douglasii* and Loamy alluvial soils. Known Elevation Limits: 4,000 to 9,000 feet	Bulbiferous herb	Jul to Aug	**Not likely to occur.** No record of the species within 5 miles of the project site. The site is below the known elevation limit for this species.

Species		Status				Preferred Habitat	Life Form	Bloom Period	Potential to Occur/ Known Occurrence/ Suitable Habitat
Scientific Name	Common Name	USFWS	CDFG	CNPS	San Diego County				
Linanthus orcuttii	Orcutt's linanthus	None	None	1B.3	Not Listed, NC	Typically occurs in chaparral and yellow pine forests. Known Elevation Limits: 2,770 to 6,495 feet	Annual herb	May to June	**Not likely to occur.** Species was observed within 5 miles. Project site is below the elevational limits for this species.
Monardella hypoleuca lanata	Felt-leaved rock mint	None	None	1B.2	List A, NCMSCP	Occurs in the understory of chaparral. Associated with Acid Igneous rock lands. Known Elevation Limits: 900 to 4,725 feet	Rhizomatous herb	Jun to Aug	**Moderate potential to occur.** Species was observed within 5 miles and marginally suitable habitat occurs on the site.
Monardella macrantha ssp. *hallii*	Hall's monardella	None	None	1B.3	List A, NCMSCP	Occurs in chaparral, foothill woodlands, yellow pine forest, mixed evergreen forest, and valley grasslands. Known Elevation Limits: 2,200 to 6,645 feet	Perennial herb	Jun to Aug	**Not likely to occur.** Species was observed within 5 miles. Project site is below the elevational limits for this species.
Monardella nana ssp. *leptosiphon*	San Felipe monardella	None	None	1B.2	List A, NC	Inhabits lower montane coniferous forests on Crouch coarse sandy loams. Often associated under the canopy of *Pseudotsuga macrocarpa*. Known Elevation Limits: 3,937 to 6,085 feet	Perennial (rhizomatous) herb	Jun to Jul	**Not likely to occur.** No record of the species within 5 miles of the project site. The site is below the known elevation limit for this species.
Myosurus minimus apus	Little mousetail	None	None	3.1	List C, NCMSCP	Occurs in valley and foothill grasslands, and in alkaline vernal pool habitats. Known Elevation Limits: 60 to 1,920	Annual herb	Mar to Jun	**Not likely to occur.** No record of the species within 5 miles of the site. No suitable habitat occurs on site.

Species		Status				Preferred Habitat	Life Form	Bloom Period	Potential to Occur/ Known Occurrence/ Suitable Habitat
Scientific Name	Common Name	USFWS	CDFG	CNPS	San Diego County				
Navarretia fossalis	Spreading navarretia	None	ST	1B.1	List A, NCMSCP	Chenopod scrub, marshes and swamps (assorted shallow freshwater), playas, vernal pools, and vernal swales. Known Elevation Limits: 90 to 3,900 feet	Annual herb	Apr to Jun	**Not likely to occur.** The species was recorded within 5 miles of the site, but no vernally wet areas or other suitable habitat occurs on the project site.
Nolina cismontana	Chaparral beargrass	None	None	1B.2	List A, NCMSCP	Coastal sage scrub and chaparral with xeric conditions supported by sandstone or gabbroic soils. Elevation Limits: 420 to 3,825 feet	Evergreen shrub	May to Jul	**Moderate potential to occur.** The species was recorded within 3 miles and suitable habitat occurs across the project site. Gabbroic soils are not known to occur on site.
Packera ganderi	Gander's ragwort	None	Rare	1B.2	List A, NCMSCP	This species occurs within chaparral habitats and recently burned sites and gabbro outcrops. Known Elevation Limits: 1,310 to 3,940 feet	Perennial herb	April to June	**Low potential to occur.** Species recorded within 3 miles of the site and suitable habitat occurs within the dirt road portion of the site. Gabbroic soils are not known to occur on site nor are recent fires.
Phacelia suaveolens ssp. *keckii*	Santiago Peak phacelia	None	None	1B.3	Not listed, NC	This species is known to occur within closed-cone coniferous forest, chaparral, open areas and sometimes along creeks. Known Elevation Limits: 1,788 to 5,250 feet	Annual herb	May to Jun	**Not likely to occur.** No record of the species within 5 miles of the project site. The site is below the known elevation limit for this species.

Species		Status				Preferred Habitat	Life Form	Bloom Period	Potential to Occur/ Known Occurrence/ Suitable Habitat
Scientific Name	Common Name	USFWS	CDFG	CNPS	San Diego County				
Pseudognaphalium leucocephalum	White rabbit-tobacco	None	None	2.2	Not listed, NC	Occurs in riparian woodland, cismontane woodland, coastal scrub and chaparral habitats on sandy and gravelly sites. Known Elevation Limits: 0 to 6,890 feet	Perennial herb	Aug to Nov	**Not likely to occur.** No record of the species within 5 miles of the site. No suitable habitat occurs on site.
Quercus dumosa	Nuttall's scrub oak	None	None	1B.1	List A, NCMSCP	Occurs in closed-cone coniferous forest, chaparral, and coastal scrub habitats in sandy and clay loam soils. Known Elevation Limits: 45 to 1,200 feet	Perennial shrub	Feb to Apr	**Not likely to occur.** No record of the species within 5 miles of the site. Marginally suitable habitat occurs on the site.
Quercus engelmannii	Engelmann oak	None	None	4.2	List D, NCMSCP	Occurs in chaparral, cismontane woodland, riparian woodland, savannah, valley and foothill grassland habitats. Known elevation limits: 360 to 3,900 feet	Deciduous tree	Mar to Jun	**Moderate potential to occur** No record of the species within 5 miles of the site. Marginally suitable habitat occurs on site
Satureja chandleri	San Miguel savory	None	None	1B.2	List A, NCMSCP	Occurs in coastal scrub, chaparral, riparian woodland, cismontane woodland, oak woodland, and valley and foothill grassland habitats supported by rocky, gabbroic, or metavolcanic soils. Known Elevation Limits: 360 to 3,225 feet	Shrub	Mar to Jul	**Not likely to occur.** No record of the species within 5 miles of the site. Gabbroic soils are not known to occur on site

Species		Status				Preferred Habitat	Life Form	Bloom Period	Potential to Occur/ Known Occurrence/ Suitable Habitat
Scientific Name	Common Name	USFWS	CDFG	CNPS	San Diego County				
Scutellaria bolanderi ssp. *austromontana*	Southern Mountains skullcap	None	None	1B.2	List A, NC	Typically grows on moist embankments of montane creeks, with little canopy cover and among a diverse assemblage of facultative wetland annuals and herbaceous perennials. Associated with Riverwash soil mapping unit. Known Elevation Limits: 1,395 to 6,561 feet	Rhizomatous herb	Jun to Aug	**Not likely to occur.** No record of the species within 5 miles of the project site. The site is below the known elevation limit for this species.
Symphyotrichum defoliatum	San Bernardino aster	None	None	1B.2	Not listed, NC	Generally occurs within meadows and seeps, marshes and swamps, coastal scrub, cismontane woodland, lower montane coniferous forest, grassland. As well as vernally mesic grassland or near ditches, streams and springs. Known Elevation Limits: 6 to 6,690 feet	Rhizomatous herb	Jul to Nov	**Low potential to occur.** No record of the species within 5 miles of the site. No suitable habitat occurs on site.
Tetracoccus dioicus	Parry's tetracoccus	None	None	1B.2	List A, NCMSCP	Chaparral, often chamise-dominated, and coastal sage scrub, on stony, decomposed gabbro soils. Preferred soils are of the Las Posas series. Elevation Limits: 495 to 3,000 feet	Deciduous shrub	Apr to May	**Low potential to occur.** Species recorded within 3 miles of the site. Las Posas soils occur in the southeast corner of the project site.

Species		Status				Preferred Habitat	Life Form	Bloom Period	Potential to Occur/ Known Occurrence/ Suitable Habitat
Scientific Name	Common Name	USFWS	CDFG	CNPS	San Diego County				
Viola aurea	Golden violet	None	None	2.2	Not Listed, NC	Occurs in sagebrush scrub and Pinyon-Juniper Woodland	Perennial herb	Apr to Jun	**Not likely to occur.** Species recorded within 5 miles, but no suitable habitat occurs within the project site.

U.S. Fish and Wildlife Service
FE Federal Endangered
FT Federal Threatened
PE Proposed Endangered
PT Proposed Threatened
FC Federal Candidate
FSC Species of Concern*
*No longer recognized as a federal designation.

California Department of Fish and Game
CE California Endangered
CT California Threatened
CR California Rare

California Native Plant Society
1A Plants presumed extinct in California.
1B Plants rare, threatened, or endangered in California and elsewhere.
2 Plants rare, threatened, or endangered in California, but more common elsewhere.
3 Plants in need of more information.
4 Plants of limited distribution.

*.1-Seriously threatened in California (high degree/immediacy of threat)
*.2-Fairly threatened in California (moderate degree/immediacy of threat)
*.3-Not very threatened in California (low degree/immediacy of threats or no current threats known)

San Diego County
San Diego County Sensitive
List A: Plants rare, threatened or endangered in California and elsewhere
List B: Plants rare, threatened or endangered in California but more common elsewhere
List C: Plants which may be rare, but need more information to determine their true rarity status
List D: Plants of limited distribution and are uncommon, but not presently rare or endangered)
Not Listed: Species not listed by San Diego County

Proposed North County Multiple Species Conservation Plan
NCMSCP: Species proposed for coverage
NC: Species not proposed for coverage

Not Likely to Occur - There are no present or historical records of the species occurring on or in the immediate vicinity, (within 5 miles) of the project site and the diagnostic habitats strongly associated with the species do not occur on or in the immediate vicinity of the site.

Low Potential to Occur - There is a historical record of the species in the vicinity of the project site and potentially suitable habitat on site, but existing conditions, such as density of cover, prevalence of non-native species, evidence of disturbance, limited habitat area, isolation, substantially reduce the possibility that the species may occur.

Moderate Potential to Occur - The diagnostic habitats associated with the species occur on or in the immediate vicinity of the project site, and there is a recorded occurrence of the species within the greater vicinity (within 5 miles). Some species that contain extremely limited distributions may be considered moderate, even if there is a recorded occurrence in the immediate vicinity.

High Potential to Occur - There is both suitable habitat associated with the species and a historical record of the species on or in the immediate vicinity of the project site (within 3 miles).

Species Present - The species was observed on the project site at the time of the survey or during a previous biological survey.

Appendix D:
Potential Sensitive Species Table - Wildlife

Special Status Wildlife Species Table

Species		Status				
Scientific Name	Common Name	Federal	State	San Diego County	Required Habitat	Potential to Occur/ Known Occurrence/ Suitable Habitat
Branchiopods						
Branchinecta sandiegoensis	San Diego fairy shrimp	FE	None	Group 1, MSCP	Restricted to vernal pools.	**Not likely to occur.** No record of the species within 5 miles of the site. No suitable habitat within the project site.
Streptocephalus woottoni	Riverside fairy shrimp	FE	CDFG: CSC	Group 1, MSCP	Occurs in tectonic swales and earth slump basins in grassland and coastal sage scrub. Inhabits seasonally astatic pools filled by winter/spring rains. Hatches in warm water later in the season.	**Not likely to occur.** Species was recorded within 5 miles, but no vernal pools or other suitable habitat occur on the site.
Euphydryas editha quino	Quino checkerspot butterfly	FE	None	Group 1, MSCP	Found on grassy openings in vegetation on hills and mesas near the coast with high density of food plants (*Plantago erecta, P. insularis, Orthocarpus purpurescens*)	**Not likely to occur.** No record of the species occurs within 5 miles of the site. No suitable habitat occurs on site.
Euphyes vestris harbisoni	Dun skipper	FPT	None	Group 1, MSCP	Found in riparian areas, intermittent streams, and oak woodlands with San Diego sedge *(Carex spissa*).	**Not likely to occur.** No record of the species within 5 miles of the site. No suitable habitat within the project site.
Lycaena hermes	Hermes copper	None	None	Group 1, MSCP	Found in mixed woodlands, chaparral, and coastal sage scrub habitats.	**Low Potential to Occur.** No record of the species within 5 miles of the site. Suitable habitat occurs within the project site and a few host plants (*Rhamnus crocea*) were observed on site.

Species		Status				
Scientific Name	Common Name	Federal	State	San Diego County	Required Habitat	Potential to Occur/ Known Occurrence/ Suitable Habitat
Pyrgus ruralis lagunae	Laguna Mountains skipper	FE	None	Group 1, NC	Occurs only in a few open meadows in yellow pine forests between 5,000 and 6,000 feet in the vicinity of Mt. Laguna and Palomar Mt. Eggs are laid on leaves of *Horkelia bolanderi clevelandii* and larvae feed on leaves and overwinter on the host plant.	**Not likely to occur.** No record of the species within 5 miles of the site. The site does not support suitable habitat for this species.
Fish						
Gila orcutti	Arroyo chub	—	SSC	Group 1, NC	This species occurs within south coastal streams, within slow water stream sections with mud or sand bottoms, and feeds heavily on aquatic vegetation and associated invertebrates.	**Not likely to occur.** Species recorded within 5 miles, but perennial stream habitat occurs on the site.
Reptiles and Amphibians						
Actinemys marmorata pallida	Southwestern pond turtle	None	SSC	Group 1, MSCP	The southwestern pond turtle inhabits permanent or nearly permanent bodies of water in many habitat types below 6,000 feet. Requires basking sites such as partially submerged logs, vegetation mats, or open mud banks. Needs suitable nesting sites.	**Not likely to occur.** Species recorded within 3 miles, but no pond or other suitable aquatic habitat occurs within the project site.
Anaxyrus californicus	Arroyo toad	Endangered	None	Group 1, MSCP	This species can be found in semi-arid regions near washes or	**High Potential to Occur** Species recorded

Species		Status				
Scientific Name	Common Name	Federal	State	San Diego County	Required Habitat	Potential to Occur/ Known Occurrence/ Suitable Habitat
					intermittent streams, including valley-foothill and desert riparian, desert wash, along rivers with sandy banks, willows, cottonwoods, and sycamores, specifically in loose, gravelly areas of streams in drier parts of its range.	within 5 miles. Known to occur within the San Luis Rey River that runs through the project site.
Cnemidophorus hyperythrus	Orange-throated whiptail	—	SSC	Group 2, MSCP	Coastal scrub, chaparral, and valley and foothill hardwood habitats. Prefers washes and sandy areas with patches of brush and rocks. Perennial plants required to support its primary prey termites.	**Present.** Species was observed during the surveys and the site contains moderately suitable habitat throughout.
Crotalus ruber ruber	Northern red diamond rattlesnake	—	SSC	Group 2, MSCP	Occurs from coastal San Diego County to the eastern slopes of the mountains and in desert habitats. Occurs from sea level to 2,400 feet in chaparral, woodland, and arid desert habitats in rocky areas and dense vegetation.	**High potential to occur.** Species recorded within 5 miles, and suitable chaparral habitat occurs across the site.
Diadophis punctatus similis	San Diego ringneck snake	—	—	Group 2, NC	Wet meadows and moist rocky hillsides, gardens, farmlands, grassland, chaparral, mixed coniferous forests, and woodlands.	**Present.** Species was observed in an oak woodland area in the western portion of the project site. Suitable habitat throughout the bottomland of the site.

Species		Status				
Scientific Name	Common Name	Federal	State	San Diego County	Required Habitat	Potential to Occur/ Known Occurrence/ Suitable Habitat
Ensatina klauberi	Large-blotched salamander	None	DFG: SSC	Group 1, NC	Typically found in conifer and woodland associations; specifically within leaf litter, decaying logs and shrubs in heavily forested areas.	**Low potential to occur.** No record of the species within 5 miles of the site. Marginally suitable habitat occurs on the site.
Eumeces skiltonianus interparietalis	Western skink	—	DFG: SSC	Group 1, NC	Occurs in grassland, chaparral, pinon-juniper and juniper sage woodland, pine-oak and pine forest habitats in the coastal ranges of Southern California. The species prefers early successional stages or open areas. Typically found in rocky areas close to streams and on dry hillsides.	**Present.** Species was observed throughout the project site during the surveys and the site contains suitable habitat.
Phrynosoma coronatum blainvillei	San Diego horned lizard	None	DFG: SSC	Group 2, MSCP	Inhabits coastal sage scrub and chaparral in arid and semi-arid climate conditions and prefers friable, rocky, or shallow sandy soils.	**High potential to occur.** Species recorded within 5 miles, and suitable chaparral habitat occurs across the site.
Rana muscosa	Sierra Madre yellow-legged frog	FE	DFG: SSC	Group 1, NC	The federal listing of this species refers to populations in the San Gabriel, San Jacinto and San Bernardino Mountains only. This frog is always encountered within a few feet of water. Tadpoles may require 2-4 years	**Low potential to occur.** No record of the species within 5 miles of the site. Marginally suitable pond habitat occurs on site.

Species		Status				
Scientific Name	Common Name	Federal	State	San Diego County	Required Habitat	Potential to Occur/ Known Occurrence/ Suitable Habitat
					to complete their aquatic development.	
Spea hammondii	Western spadefoot	None	DFG: SSC	Group 2, MSCP	Found in coastal sage scrub, chaparral, and grassland habitats, but most common in grasslands with vernal pools or mixed grassland/CSS habitats.	**High potential to occur.** Species recorded within 5 miles, and suitable ponded habitat occurs on site.
Thamnophis hammondii	Two-striped garter snake	None	SSC	Group 1, MSCP	This species is known to occur in coastal California from the vicinity of Salinas to northwest Baja California from sea level to about 7,000 feet in elevation. It is highly aquatic and found in or near permanent fresh water, often along streams with rocky beds and riparian growth.	**Low potential to occur.** No record of the species within 5 miles of the site. Marginally suitable ponded habitat occurs on site.
Taricha torosa torosa	California newt	None	CSC	Group 2, MSCP	Upland habitat includes woodland, brush, and grassland; ponds and calm pools of streams are required for breeding	**Low potential to occur.** No record of the species within 5 miles of the site. Marginally suitable ponded habitat occurs on site.
Avian						
Accipiter cooperi	Cooper's hawk	—	—	Group 1, NC	(Nesting) Open, uninterrupted, or marginal type woodlands. Nest sites in riparian growths of deciduous trees, live oaks. Also other various forest habitats that are near water. Dense woodlands	**Present.** Species observed foraging within the oak woodland on the eastern portion of the site.

Species		Status				
Scientific Name	Common Name	Federal	State	San Diego County	Required Habitat	Potential to Occur/ Known Occurrence/ Suitable Habitat
					and forests are primary foraging habitat for this accipiter.	
Agelaius tricolor	Tricolored blackbird	None	SSC	Group 1, MSCP	Open grassland, farmland, lakeshores, or scrub for foraging; requires wetlands with tall emergent vegetation for breeding.	**Low potential to occur.** No record of the species within 5 miles of the site. Marginally suitable ponded habitat occurs on site.
Aimophila ruficeps canescens	Rufous-crowned sparrow	—	SSC	Group 1, MSCP	Resident in southern California coastal sage scrub and sparse mixed chaparral.	**Not likely to occur.** No record of the species within 5 miles of the site. Limited patches of coastal sage scrub vegetation occurs onsite. Additionally, no significant stands of sparse chaparral occur on site.
Ammodramus savannarum perpallidus	Grasshopper sparrow	None	None	Group 1, MSCP	Coastal lowlands in undisturbed grassland with tall dense grasses	**Not likely to occur.** No record of the species within 5 miles of the site. No suitable habitat within the project site.
Amphispiza belli belli	Bell's sage sparrow	—	SSC	Group 1, MSCP	This species is closely associated with sagebrush. The preference for chamise chaparral appears to occur only in the more northern parts of its range.	**Moderate potential to occur.** No record of the species within 5 miles of the site. Marginally suitable habitat occurs across the site.
Aquila chrysaetos	Golden eagle	Eagle Protection Act	—	Group 1, MSCP	(Nesting and Wintering) Rolling foothills and mountain areas, juniper-sage flats, and deserts. Primarily associated with cliff-walled canyons and large trees in open	**Not likely to occur.** No record of the species within 5 miles of the site. But a single cliff-walled area occurs along the northern project site boundary.

Species		Status				
Scientific Name	Common Name	Federal	State	San Diego County	Required Habitat	Potential to Occur/ Known Occurrence/ Suitable Habitat
					habitats for nesting. Shrub-steppe and native grassland communities provide important foraging habitat. Also carrion.	
Athene cunicularia	Burrowing owl	—	CDFG: CSC	Group 1, MSCP	Open grasslands, desert, and sparse scrublands with low-growing vegetation. Subterranean nester, dependent upon pre-existing burrow, most commonly from ground squirrels.	**Not likely to occur.** No record of the species within 5 miles of the site. Marginally suitable grassland habitat occurs on site near the parking area.
Cathartes aura	Turkey vulture	—	—	Group 1, NC	Scavenger found in open country, woodlands, and near farms.	**Present.** This species was observed soaring over the southern portion of the project site.
Campylorhynchus brunneicapillus sandiegensis	Coastal cactus wren	None	CSC	Group 1, MSCP	Occurs in southern California coastal sage scrub vegetation. This wren require tall Opuntia cactus for nesting and roosting.	**Not likely to occur.** Species was recorded as occurring within 3 miles. No significant patches of native cactus were observed onsite and no suitable habitat occurs.
Circus cyaneus	Northern harrier	None	CSC	Group 1, MSCP	Grasslands, agricultural fields, wetlands, and open coastal sage scrub	**Low potential to occur.** Known observation within 5 miles of the site. Marginally suitable foraging habitat occurs on site.
Dendroica petechia brewsteri	Yellow warbler	None	DFG: SSC	Group 2, NC	Breeds in riparian woodlands from the coast to desert lowlands, also montane chaparral, open ponderosa pine and mixed conifer habitats with	**Low potential to occur.** No record of the species within 5 miles of the site. Marginally suitable habitat occurs onsite.

Species		Status				
Scientific Name	Common Name	Federal	State	San Diego County	Required Habitat	Potential to Occur/ Known Occurrence/ Suitable Habitat
					substantial amounts of brush.	
Elanus leucurus	White-tailed kite	None	None	Group 1, NC	Generally resides in rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Specifically, uses open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**Low potential to occur.** No record of the species within 5 miles of the site. Marginally suitable habitat occurs onsite.
Empidonax traillii extimus	Southwestern willow flycatcher	Endangered	Endangered	Group 1, MSCP	Southwestern willow flycatcher can be found within riparian woodlands throughout Southern California.	**Low potential to occur.** Species recorded within 5 miles, but no dense riparian or other suitable habitat occurs on the project site. Project site is more suitable for dispersing juveniles or seasonal migration.
Eremophila alpestris actia	California horned lark	None	None	Not listed, NC	Occurs within coastal regions throughout California among short-grass prairies, bald hills, mountain meadows, open coastal plains, fallow grain fields and alkali flats.	**Low potential to occur.** No record of the species within 5 miles of the site. No suitable nesting habitat occurs on site.
Icteria virens	Yellow-breasted chat	None	DFG: SSC	Group 1, MSCP	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Specifically nests in low, dense riparian vegetation,	**Low potential to occur.** Species recorded within 5 miles, but no dense riparian or other suitable habitat occurs on the project site.

Species		Status				
Scientific Name	Common Name	Federal	State	San Diego County	Required Habitat	Potential to Occur/ Known Occurrence/ Suitable Habitat
					consisting of willow, blackberry, wild grape. Forages and nests within 10 feet of ground.	
Nycticorax nycticorax	Black-crowned night heron	None	None	Not Listed, NC	A colonial nester, usually in trees, occasionally in tule patches. Rookery sites are located adjacent to foraging areas, such as lake margins, mud-bordered bays, and other marshy spots.	**Present** Observed at the ponded area in the central portion of the project site.
Pandion haliaetus	Osprey	None	DFG: SSC	Group 1, MSCP	Requires large bodies of water where fish are available for forage	**Moderate potential to occur.** No recorded occurrences within 5 miles. Marginally suitable foraging habitat occurs within the ponded areas on site.
Piranga rubra	Summer tanager	None	DFG: SSC	Group 2, NC	A summer resident of desert riparian areas along the lower Colorado River. Requires cottonwood-willow riparian forests for nesting and foraging, preferring older, dense stands along streams.	**Low potential to occur.** No record of the species within 5 miles of the site. Marginally suitable habitat occurs on site.
Plegadis chihi	White-faced ibis	None	SSC	Group 1, MSCP	Brackish and fresh water lagoons, rivers, lakes, wet agricultural fields, occasionally salt marshes	**Not likely to occur.** No record of the species within 5 miles of the site. No suitable habitat within the project site.
Polioptila californica californica	Coastal California gnatcatcher	FT	SSC	Group 1, MSCP	This species is an obligate, permanent resident of coastal sage scrub below	**Not likely to occur.** No record of the species within 5 miles of the site. No

Species		Status				
Scientific Name	Common Name	Federal	State	San Diego County	Required Habitat	Potential to Occur/ Known Occurrence/ Suitable Habitat
					2,500 feet in Southern California. Specifically inhabits, low, coastal sage scrub in arid washes, on mesa and slopes. Not all areas classified as coastal sage scrub are occupied.	suitable habitat within the project site.
Rallus longirostris levipes	Light-footed clapper rail	FE	SE	Group 1, MSCP	Saltwater marshes dominated by cordgrass (*Spartina foliosa*) and pickleweed (*Salicornia sp.*)	**Not likely to occur.** No record of the species within 5 miles of the site. No suitable habitat within the project site.
Vireo bellii pusillus	Least Bell's vireo	FE	SE	Group 1, MSCP	Least Bell's vireo is a summer resident of Southern California inhabiting low riparian habitats in the vicinity of water or in dry river bottoms below 2,000 feet. Its nests are placed along margins of bushes or on twigs projecting into pathways, usually willow, baccharis and/or mesquite.	**Moderate potential to occur.** Species recorded within 5 miles, but no dense riparian or other suitable habitat occurs on the project site. Project site is more suitable for dispersing juveniles or seasonal migration and not a nesting site.
Mammals						
Chaetodipus californicus	California pocket mouse	—	SSC	Group 2, NC	Variety of habitats including coastal scrub, chaparral, and grasslands in San Diego County. Associated with grass-chaparral edges.	**Present.** Species observed during the survey and suitable habitat occurs on the site.
Chaetodipus fallax	San Diego pocket mouse	—	SSC	Group 2, NC	Found in coastal scrub, chaparral, grasslands, and	**Present.** Species observed during the survey

Species		Status				
Scientific Name	Common Name	Federal	State	San Diego County	Required Habitat	Potential to Occur/ Known Occurrence/ Suitable Habitat
					sagebrush, among other low-lying habitat types, in western San Diego County.	and suitable habitat occurs on the site.
Dipodomys stephensi	Stephens' kangaroo rat	FE	ST	Group 1, MSCP	This species can be found primarily within annual and perennial grasslands, but also occurs in coastal scrub and sagebrush with sparse canopy cover. It prefers buckwheat, chamise, brome grass and filaree and will burrow into firm soil.	**Not likely to occur.** No record of the species within 5 miles of the site. Marginally suitable habitat occurs at the grassland sites near the southern and eastern portions of the project site.
Neotoma lepida intermedia	San Diego desert woodrat	—	SSC	Group 2, NC	Typically occurs in coastal scrub throughout Southern California. Prefers moderate to dense canopies and are particularly abundant in rock outcrops, and rocky cliffs and slopes.	**Low potential to occur.** Species observed within 5 miles, marginally suitable habitat occurs on the project site.
Lepus californicus bennettii	San Diego black-tailed jackrabbit	—	SSC	Group 2, MSCP	Open desert scrub with suitable cover and burrowing substrate. Burrows beneath desert shrubs and loose friable soils.	**Not likely to occur.** Species recorded within 5 miles of the site, but no open, grassland areas occur on the project site.
Choeronycteris mexicana	Mexican long-tongued bat	—	SSC	Group 2, NC	Inhabit deep canyons where they use caves and mine tunnels as day roosts. They also have been found in buildings. Feed on nectar and pollen from agave and other plants.	**Present.** Species detected onsite during surveys and suitable habitat occurs onsite.

Species		Status				
Scientific Name	Common Name	Federal	State	San Diego County	Required Habitat	Potential to Occur/ Known Occurrence/ Suitable Habitat
Antrozous pallidus	Pallid bat	—	SSC	Group 2, NC	Roosts in rock crevices, tree hollows, mines, caves and a variety of anthropogenic structures, including vacant and occupied buildings. Tree roosting has been documented in large conifer snags, inside basal hollows of redwoods and giant sequoias, and bole cavities in oaks. They have also been reported roosting in stone piles.	**Present.** Species detected onsite during surveys and suitable habitat occurs onsite.
Eumops perotis californicus	Greater western mastiff bat	—	SSC	Group 2, NC	Rocky areas and cliff faces. Roosts in cliff crevices and buildings.	**High potential to occur.** Recorded within 5 miles of the site. Marginally suitable habitat occurs across the site.
Lasiurus blossevillii	Western red bat	—	—	Group 2, NC	Roosts primarily within trees throughout a wide range of habitat, from sea level to mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected by dense canopies and have open areas in the understory for foraging.	**High potential to occur.** Recorded within 5 miles of the site. Marginally suitable habitat occurs across the site.
Myotis ciliolabrum	Small-footed myotis	None	None	Group 2, NC	Wide range of habitat types however primarily within arid wooded and brushy uplands, including open stands in forests	**High potential to occur.** Recorded within 5 miles of the site. Marginally suitable habitat occurs across the site.

Species		Status				
Scientific Name	Common Name	Federal	State	San Diego County	Required Habitat	Potential to Occur/ Known Occurrence/ Suitable Habitat
					and woodlands, adjacent to water. Caves, buildings, mines, and crevices used for refuge.	
Myotis yumanensis	Yuma myotis	None	None	Group 2, NC	Uses open water near woodlands and forests. Maternity colonies in caves, mines, buildings, or crevices.	**High potential to occur.** Recorded within 5 miles of the site. Marginally suitable habitat occurs across the site.
Nyctinomops femorosaccus	Pocketed free-tailed bat	None	DFG: SSC	Group 2, NC	Occurs in arid areas associated with Pine-Juniper woodlands, desert scrub, palm oasis, desert wash, and desert riparian. Specifically in rocky areas with high cliffs.	**High potential to occur.** Recorded within 5 miles of the site. Marginally suitable habitat occurs across the site.
Taxidea taxus	American badger	None	None	Group 2, MSCP	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils & open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	**Not likely to occur.** No record of the species within 5 miles of the site. No suitable habitat within the project site.
Felis concolor	Mountain lion	None	None	Group 2, MSCP	Uses rocky areas, cliffs, and ledges that provide cover within open woodlands and chaparral, as well as riparian areas that provide protective habitat connections for movement between fragmented core habitat. Also,	**Low potential to occur.** The species is not included within sensitive species occurrence databases. Suitable habitat occurs on the project site, however, no mule deer were observed within any portion of the project site.

Species		Status				
Scientific Name	Common Name	Federal	State	San Diego County	Required Habitat	Potential to Occur/ Known Occurrence/ Suitable Habitat
					need both vertical and horizontal cover components, such as rocks and downed logs, to feel secure enough to bed. Typically associated with populations of the species primary prey, mule deer.	
Odocoileus hemionus	Southern mule deer	None	None	Group 2, NC	Mule deer occupy a wide range of habitat types within their home range. In San Diego County, this species prefers more arid, open situations.	**Not likely to occur.** Vegetation on the site is mostly dense, chaparral throughout with several meandering trails. No evidence of the species was observed during the surveys.

Federal
FE Federal Endangered
FT Federal Threatened
FSC Federal Species of Concern
PFT Proposed Federal Threatened
C Candidate for Federal Listing
D Delisted

State
SE State Endangered
ST State Threatened
DFG:SSC California Species of Concern
CDFG:FP Fully Protected Species
CDFG: P Protected Species

San Diego County
Sensitive Animal Lists
Group 1: High Sensitivity; species listed or has specific local natural history requirements
Group 2: Species declining, but not in immediate threat of extinction or extirpation

Proposed North County Multiple Species Conservation Plan
MSCP: Species proposed for coverage under February 2008 list
NC: Species not proposed for coverage under February 2008 list

Not Likely to Occur - There are no present or historical records of the species occurring on or in the immediate vicinity, (within 5 miles) of the project site and the diagnostic habitats strongly associated with the species do not occur on or in the immediate vicinity of the site.

Low Potential to Occur - There is a historical record of the species in the vicinity of the project site and potentially suitable habitat on site, but existing conditions, such as density of cover, prevalence of non-native species, evidence of disturbance, limited habitat area, isolation, substantially reduce the possibility that the species may occur.

Moderate Potential to Occur - The diagnostic habitats associated with the species occur on or in the immediate vicinity of the project site, and there is a recorded occurrence of the species within the greater vicinity (within 5 miles). Some species that contain extremely limited distributions may be considered moderate, even if there is a recorded occurrence in the immediate vicinity.

High Potential to Occur - There is both suitable habitat associated with the species and a historical record of the species on or in the immediate vicinity of the project site (within 3 miles).

Species Present - The species was observed on the project site at the time of the survey or during a previous biological survey.

Appendix E:
Site Photographs



Photograph 1: Looking east at the pit-fall trap array at WG-1. Dense coast live oak woodland in the background. Non-native grassland understory in the foreground.



Photograph 2: Looking north at the northern arm of the pit fall array at WG-1. Understory dominated by non-native grasslands with a dense canopy of coast live oak woodland. Rocky outcrops occur sporadically.

Source: Michael Brandman Associates, 2009.

Michael Brandman Associates

Appendix E
Site Photographs 1 and 2



Photograph 3: Looking southeast at the central bucket of the pit-fall array at WG-2. Wild grape and red willow in the background. Utility pole in the foreground is located on a small berm that separates the two ponded areas.



Photograph 4: Looking northeast at the northern extent of WG-2 from the central portion of the western ponded area. American coots and cattails in the background.

Source: Michael Brandman Associates, 2009.

Michael Brandman Associates

Appendix E
Site Photographs 3 and 4



Photograph 5: Looking northeast at the eastern extend of the pit-fall array at WG-3. The area is dominated by Diegan sage scrub with open coast live oak woodland in the background.



Photograph 6: Looking east at the small mammal trap line at WG-3. Note orange flagging, which indicates trap location. Steep cliff up to Highway 76 in the background.

Source: Michael Brandman Associates, 2009.



Photograph 7: Looking north at the pit-fall array at WG-4. Area is dominated by non-native grasslands with a dense stand of southern mixed chaparral in the background.



Photograph 8: Looking east at the pit-fall array at WG-4. Note the funnel trap adjacent to the eastern extent of the pit-fall array arm.

Source: Michael Brandman Associates, 2009.



Photograph 9: Looking southwest at the pit-fall array at WG-5. Sample location was placed in a relatively open area within a dense stand of southern mixed chaparral.



Photograph 10: Looking northwest at the central portion of the pit-fall array at WG-5. Note the pink flagging in the background, which represents small mammal trap locations.

Source: Michael Brandman Associates, 2009.

Michael Brandman Associates

Appendix E
Site Photographs 9 and 10



Photograph 11: Looking east at a typical photo station set-up. This camera station is located at WG-5 along the access trail.



Photograph 12: Looking down at a typical scent station set-up. This scent station is located at WG-4 and was set up in an existing wildlife travel path.

Source: Michael Brandman Associates, 2009.



Photograph 13: Looking east at the bat sampling station at WG-4. Sample locations were set up in areas with the highest potential to record bats.



Photograph 14: Looking southwest at a coyote that was traveling along the southern end of the ponded area at WG-2. Animal activity was high at this sample location, which is likely due to the available water source.

Source: Michael Brandman Associates, 2009.



Photograph 15: Looking west from Camera Station at WG-2. The position of the camera was moved prior to each sampling effort to provide a variety of photograph angles.



Photograph 16: Looking northwest at the main trail that leads up to WG-4 and WG-5. This racoon was one of many wildlife species observed at this camera station.

Source: Michael Brandman Associates, 2009.

Appendix F:
Field Data Sheets

Field Data Sheets Are Available Upon Request