Baseline Biodiversity Report for the Mount Olympus Preserve in Unincorporated San Diego County, California

Pechanga, California, USGS 7.5-minute Topographic Quadrangle Map
Township 9 South, Range 2 West, Sections 4, 8, 9, and 10

Prepared for:

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

Contact: Ms. Jennifer Haines

Prepared by:

Michael Brandman Associates
220 Commerce, Suite 200
Irvine, CA 92602
714.508.4100

Contact: Kenneth J. Lord, Project Manager
Author: Scott Crawford, Senior Project Biologist and Tommy Molioo, Biologist

Report Date: December 22, 2009

Revised: April 12, 2010

TABLE OF CONTENTS

List of Tables

List of Exhibits

LIST OF ACRONYMS

Term	Definition (in MBA Capitalization Style)
°F	degrees Fahrenheit
AMSL	above mean sea level
APN	Assessor's Parcel Numbers
ASMD	Area Specific Management Directives
BLM	U.S. Department of the Interior Bureau of Land Management
CAL FIRE	California Department of Forestry and Fire Protection
Cal-IPC	California Invasive Plant Council
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
DPR	Department of Parks and Recreation
DT	Disturbed Trail
ESA	Endangered Species Act
FRMP	Framework Resource Management Plan
GIS	Geographical Information System
I	Interstate
IA	Implementing Agreement
MBA	Michael Brandman Associates
MO	Mount Olympus (sampling location)
MOA	Mount Olympus Avian (sampling location)
MOB	Mount Olympus Bat (sampling location)
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

Term	Definition (in MBA Capitalization Style)
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WUI	Wildland-Urban Interface

EXECUTIVE SUMMARY

Michael Brandman Associates (MBA) conducted a baseline biodiversity study of the County of San Diego's Mount Olympus 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 six miles south of the City of Temecula just east of the Community of Rainbow 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 707.6-acre[1]. Preserve in the late spring and summer of 2009 (April through September). 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.

Six vegetation communities including coast live oak woodland, native grassland, non-native grassland, non-native vegetation, southern mixed chaparral, and disturbed habitat were identified within the Preserve. Southern mixed chaparral is the most abundant vegetation community on the Preserve. Plant surveys documented 133 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, documented 149 wildlife species within the Preserve including 16 butterfly species, 51 other invertebrate species , one amphibian species, 11

1 The assessor's parcel data list the Preserve to be 749.65 acres; however, calculations generated from the GIS data show the Preserve as 707.6. Therefore, this report references the property as 707.6 acres.

reptile species, 42 bird species, and 27 mammal species. A total of 13 sensitive wildlife species were detected, four of which are North County MSCP covered species.

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 Mount Olympus Preserve (Preserve). DPR began acquiring the properties that make up the Preserve beginning in the early 1990s with the most recent property added in 2008.

The Preserve is located approximately six miles south of the City of Temecula just east of the Community of Rainbow in the northwestern portion of unincorporated San Diego County, California. The Preserve is comprised of two non-contiguous parcels totaling 707.6 acres. The parcels are separated by property owned by San Diego Gas & Electric (SDG&E). The SDG&E property divides the Preserve into a west parcel and a larger east parcel. For the purpose of this report, the Preserve shall be defined and described as the combination of the west parcel (126.5 acres) and the larger east parcel (581.1 acres) (Exhibit 2). All descriptions regarding directional location within the Preserve will refer to the Preserve as one contiguous parcel/property, unless otherwise noted. The acreage of the Preserve (707.6 acres) was determined by MBA staff using Geographical Information System (GIS) software to calculate the acreage of the Preserve based on parcel boundaries rather than available assessor information. This information was verified by Jeff Olsen, Chief Assessor for the County of San Diego in December 2009.

Currently the Preserve is not open to the public; however, some evidence of unauthorized use is present. Several County Park Rangers patrol the Preserve and implement various, low-impact improvement projects. The Preserve is included in the North County Multiple Species Conservation Program (North County MSCP) preserve system. The Preserve currently contains 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 Mount Olympus 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 Mount Olympus Core Area and is designated as Pre-Approved Mitigation Area (PAMA) (Exhibit 4). The Habitat Evaluation Model for the North County MSCP ranks the habitat within and immediately adjacent to the Preserve as ranging from Low to Very High in overall quality (County of San Diego 2009a).

SECTION 2: STUDY AREA DESCRIPTION

2.1 - Project Location

The 707.6-acre Preserve is generally located north of State Route (SR) 76, south of SR-79, east of Interstate (I) 15 and west of the Cleveland National Forest in unincorporated San Diego County, California (Exhibit 1). It is depicted on the Pechanga, California, U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map in Sections 4, 8, 9, and 10 of Township 9 South, Range 2 West (Exhibit 2). The site is specifically located north of Arouba Road, south of Rainbow Heights Road, east of Rainbow Crest Road, and west of Pala-Temecula Road (Exhibit 3). The Preserve is comprised of the nine Assessors' Parcel Numbers (APNs):

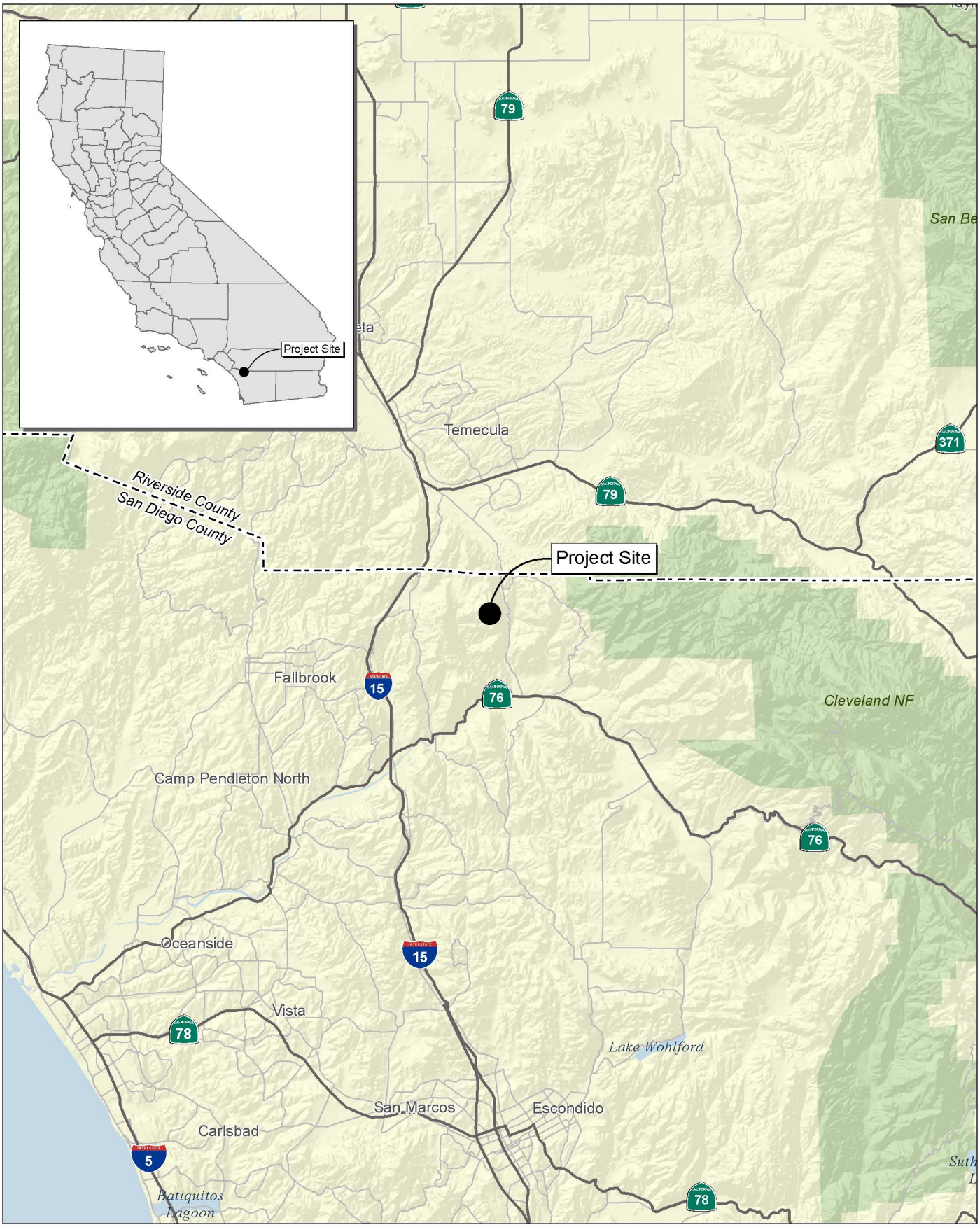
109-080-12	109-080-22	109-081-07
109-081-08	109-280-03	109-280-42
109-300-08	109-371-03	109-412-06

2.2 - Geographical Setting

The Preserve is located on and surrounding Mount Olympus in the northwestern portion of unincorporated San Diego County. The Preserve ranges in elevation from 790 to 2,224 feet above sea level (AMSL). The lowest elevation within the Preserve occurs in the southeastern corner. The highest elevation is at the top of Mount Olympus, which is located in the center of the Preserve. The Preserve is approximately 20 miles northeast of the Pacific Ocean. No bodies of water or significant drainage features occur on the Preserve.

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 onsite are suitable for any sensitive plant species.



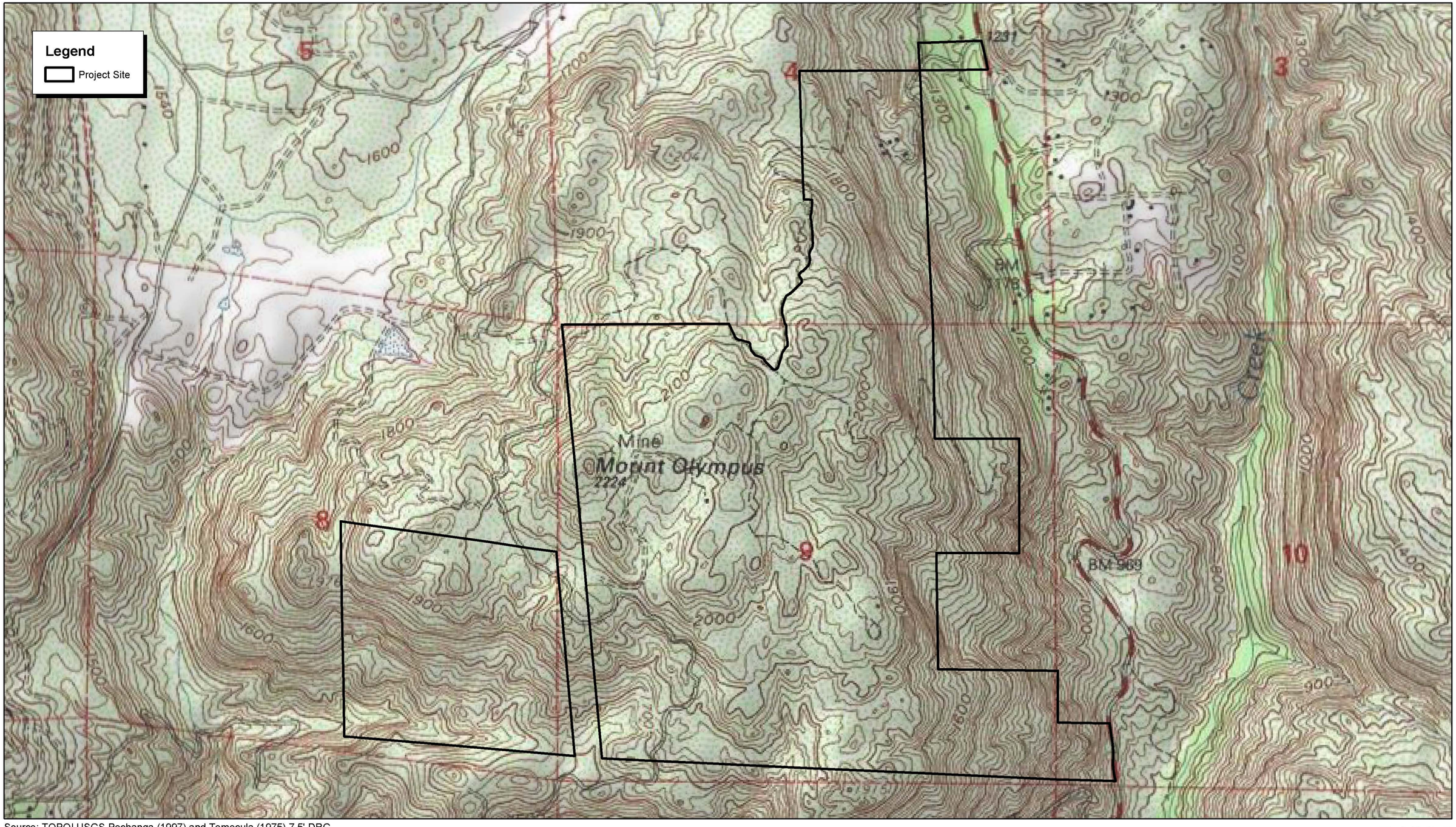
Source: Census 2000 Data, The CaSIL, MBA GIS 2009.

NORTH

5 2.5 0 5 Miles

Michael Brandman Associates

Exhibit 1
Regional Location Map



Source: TOPO! USGS Pechanga (1997) and Temecula (1975) 7.5' DRG.

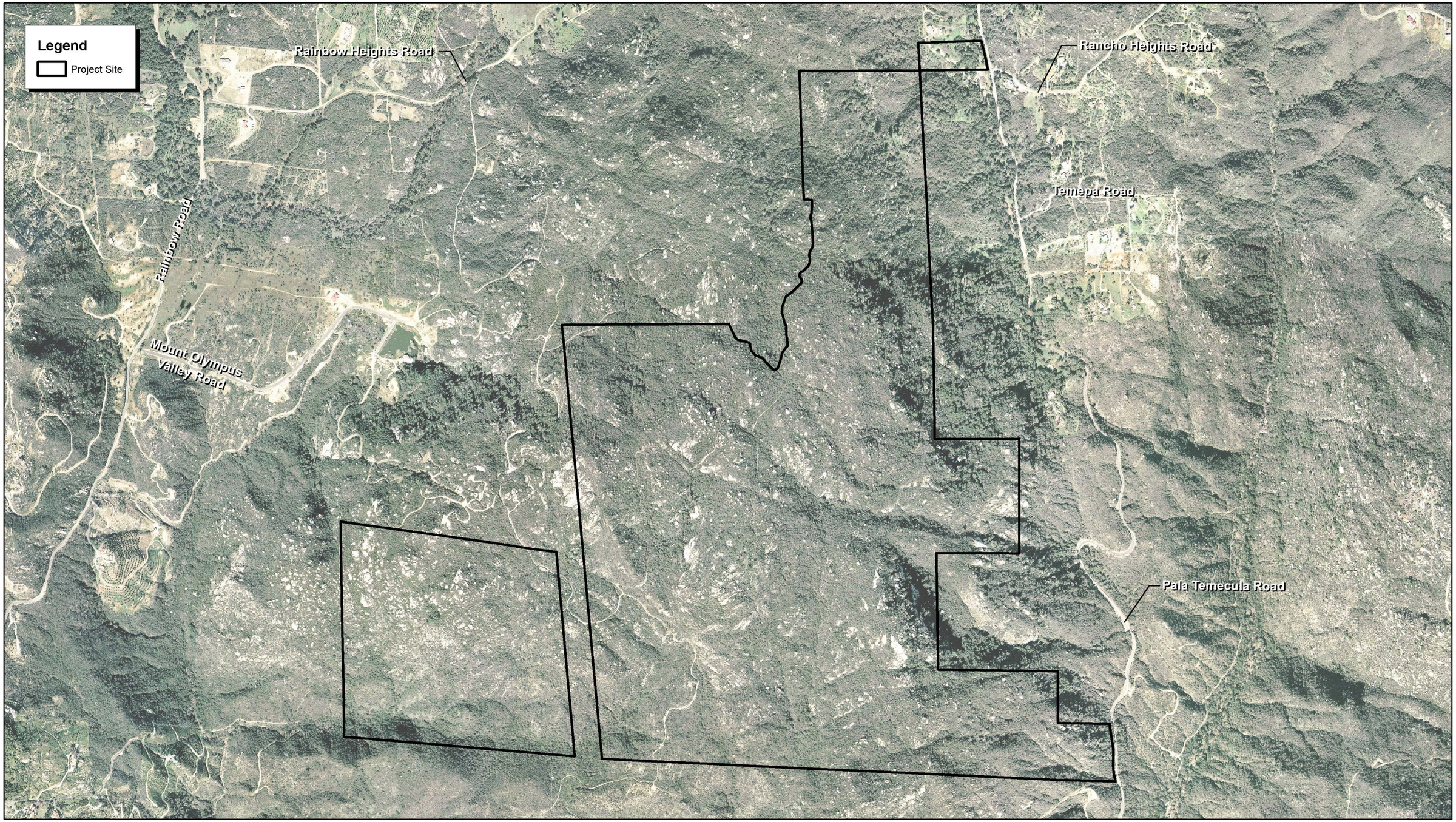
1,000 500 0 1,000 Feet

NORTH

Michael Brandman Associates

00700035 • 02/2010 | 2_local_topo.mxd

Exhibit 2
Local Vicinity Map
Topographic Base



Source: San Diego North Aerial, 2005.

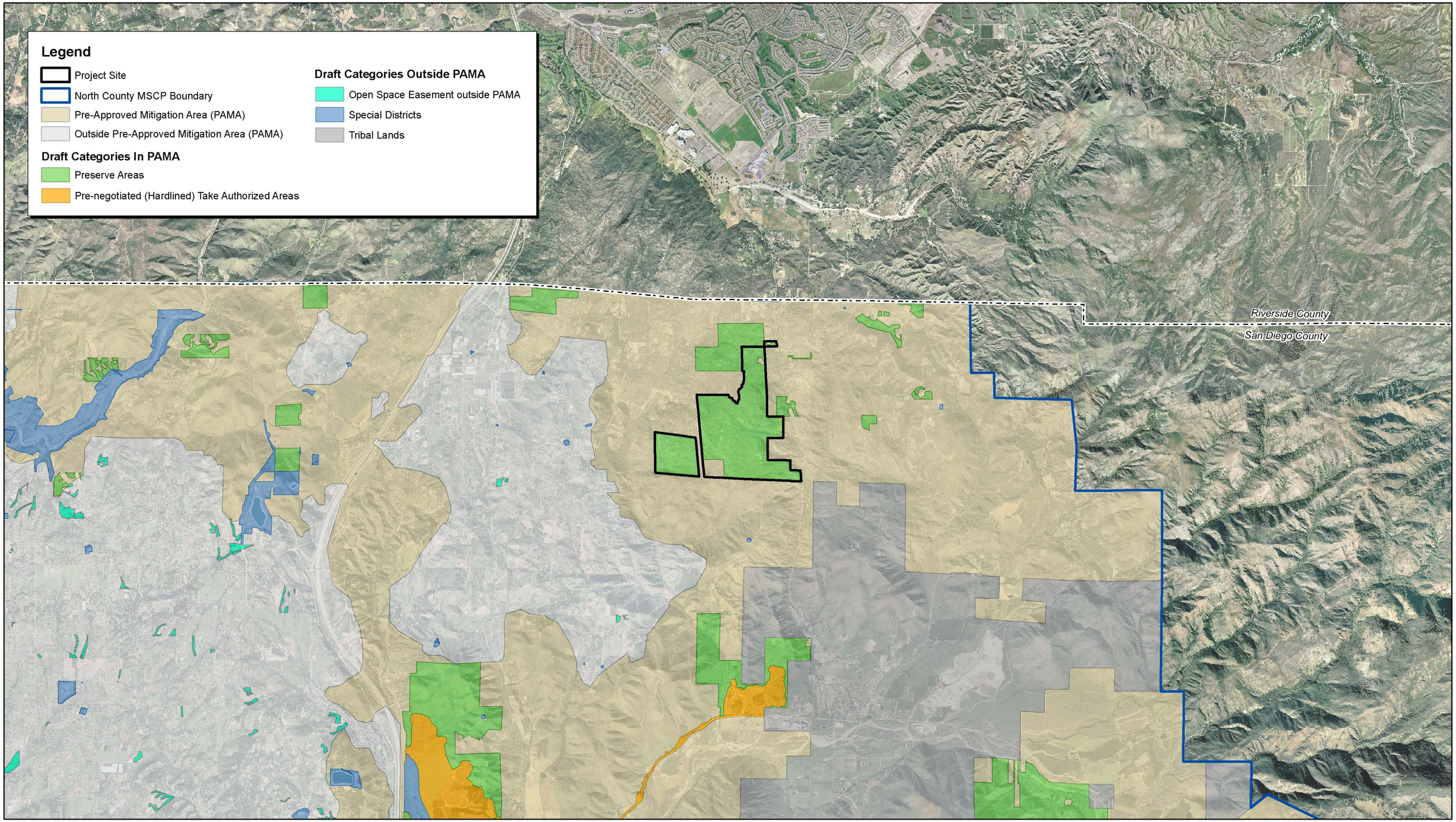
NORTH

1,000 500 0 1,000 Feet

Michael Brandman Associates

00700035 • 02/2010 | 3_local_aerial.mxd

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

00700035 • 02/2010 | 4_ncmscp_map.mxd

Exhibit 4
North County MSCP Designations and Conserved Lands

The Preserve contains six soil-mapping units belonging to five soil series (USDA 1973). The majority of the Preserve consists of acid igneous rockland with inclusions of Cieneba rocky and very rocky coarse sandy loam in the north, and Las Posas stony fine sandy loam in the southeast (Exhibit 5). Two small inclusions of Visalia sandy loam and Cieneba-Fallbrook rocky sandy loams are located on the southern boundary of the Preserve. A brief description of each soil series and associated soil mapping unit based on the Natural Resources Conservation Service's (NRCS) Official Soil Series Description is provided below.

2.3.1 - Acid Igneous Rockland

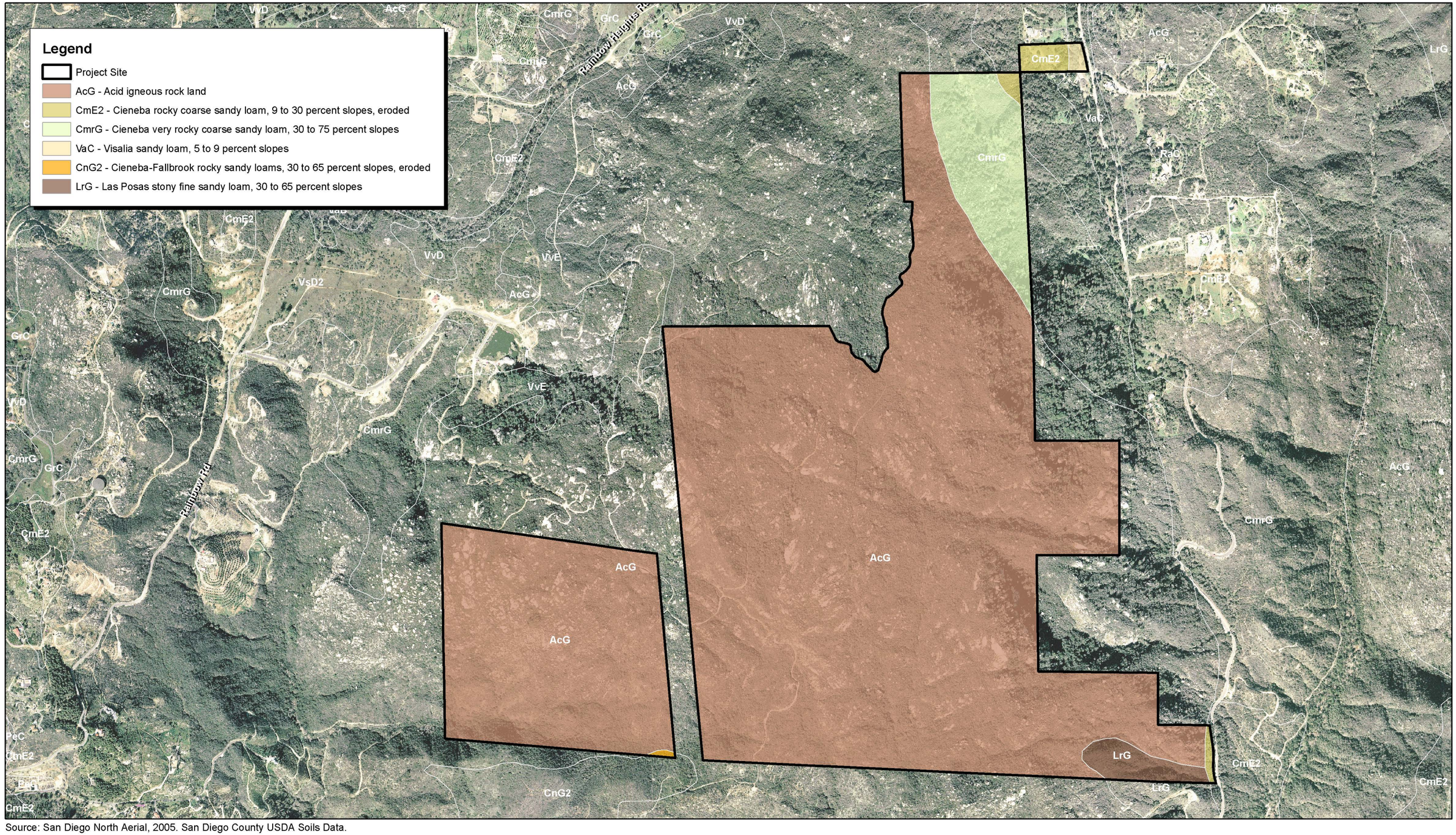
The vast majority of the Preserve is comprised of acid igneous rockland. This soil series consists of rough broken terrain with topography that ranges from low hills to very steep mountains. Large boulders and rock outcrops cover 50 to 90 percent of the total area, which allows for very rapid rainfall runoff. The soil material consists of decomposed granite or basic igneous rock, which transitions to loam to loamy coarse sand and is very shallow throughout the Preserve. In a few places, there are pockets of deep soil between the rocks that provides suitable habitat for larger trees. On the Preserve, the acid igneous rockland soil series predominantly supports southern mixed chaparral.

2.3.2 - Cieneba Series

The Preserve contains two soil-mapping units of the Cieneba soil series: Cieneba rocky coarse sandy loam and Cieneba very rocky coarse sandy loam. The Cieneba series consists of very shallow and shallow, somewhat excessively drained soils that formed from material weathered from granitic rock. Cieneba soils are formed from material weathered from granite and other rocks of similar texture and composition. The soils are generally found at elevations of 500 to 4,000 feet AMSL and have slopes of 9 to 85 percent. On the Preserve, the Cieneba soils supports southern mixed chaparral, coast live oak woodland, non-native grassland, and non-native vegetation. These soils occur in the northeastern corner of the Preserve between the acid igneous rock and the Visalia sandy loam, and along a small portion of the southeastern boundary.

2.3.3 - Las Posas Series

The Las Posas series consists of deep, well-drained soils that formed in material weathered from basic igneous rocks. Las Posas soils are typically found on mountainous uplands at elevations of 200 to 3,000 feet AMSL and have slopes of 5 to 50 percent. The soils are formed in material weathered from basic igneous rocks. In general, some areas have up to 10 percent rock outcrop. On the Preserve, the Las Posas soil is located in the southeastern corner of the Preserve and supports a dense stand of southern mixed chaparral.



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

NORTH

1,000 500 0 1,000 Feet

Michael Brandman Associates

00700035 • 02/2010 | 5_soils_map.mxd

Exhibit 5
Soils Map

COUNTY OF SAN DIEGO PARKS • MOUNT OLYMPUS PRESERVE
BASELINE BIODIVERSITY REPORT

2.3.4 - Visalia Series

The Visalia series consists of moderately well-drained, very deep sandy loams derived from granitic alluvium. These soils are typically found on alluvial fans and flood plains at elevations of 400 to 2,000 feet AMSL and have slopes of 0 to 15 percent. Vegetation associated with this soil type is chiefly annual grasses, chamise, California buckwheat, California live oak, and scrub oak. On the Preserve, the Visalia soil is located in the northeastern corner of the Preserve and supports coast live oak woodland and non-native grasslands.

2.3.5 - Cieneba-Fallbrook Series

Cieneba-Fallbrook rocky sandy loam soil is a combination of the Cieneba and Fallbrook soil series. Both soil series originate from granitic rocks and occur on uplands with moderate slopes. Cieneba soils consist of shallow to very shallow soils that have low to medium runoff with moderate permeability. Fallbrook soils consist of deep soils that have medium to very rapid runoff with moderately slow permeability. Vegetation that occurs on Cieneba soils includes chaparral, chamise, gray pine (*Pinus sabiana*), oak trees (*Quercus* sp.), annual grasses, and forbs. Vegetation that occurs on Fallbrook soils includes annual grasses, forbs, chaparral, chamise, buckwheat, and other shrubs. On the Preserve, the Cieneba-Fallbrook soils support southern mixed chaparral. This soil is limited to the southernmost portion of the Preserve adjacent to the SDG&E property that bisects the Preserve.

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 due to insufficient data.

Table 1: Monthly Average 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

Table 1: Monthly Average Temperature (2005 - 2009) Continued

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

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

Daily climate conditions during the 2009 survey effort (April to September) were documented and are presented in the field data sheets (Appendix F). Average monthly temperature in the region for 2009 was relatively standard when compared to the average monthly temperatures for 2005 through 2008. A general warming period was observed from April through September of each year from 2005 through 2009.

The Preserve received approximately 2.7 inches of rain between January 2009 and May 2009, and only 0.05 inches of rain between June 2009 and September 2009. 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 2005, but similar to the amount of precipitation recorded for 2006 and 2007. Although temperatures can drop below freezing, it is typically for a short time and it is not likely that this area sustains any significant snowstorms. During field surveys, temperatures ranged from 58 to 93°F.

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. Pala Creek is a north-south drainage, which occurs east of the Preserve. Gomez Creek is a southeast running drainage that occurs southwest of the Preserve (Exhibit 6). Sheet flows from the Preserve flow into these drainage features. No water bodies or drainage features occur within the boundaries of the Preserve.

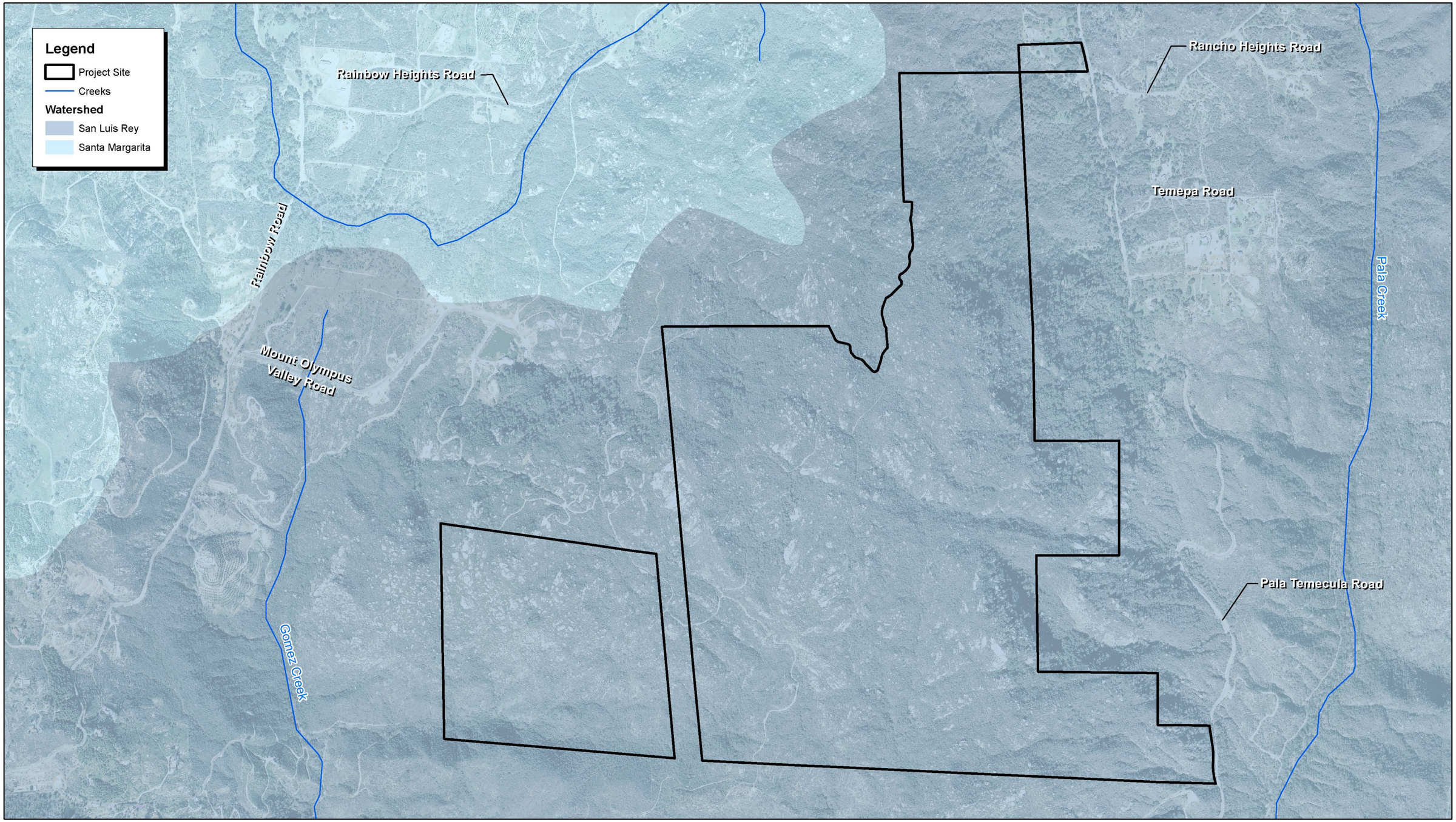
2.6 - Fire History

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 first recorded significant fire within the Preserve occurred in 1919 (Exhibit 7). The fire burned a total of 300.5 acres, of which only 7.8 acres was within the southeastern corner of the Preserve. The Preserve completely burned in a 1942 fire that burned a total of approximately 7,081 acres (SANGIS 2009). The site has not significantly burned since 1942. This absence of significant fire is evident by the tall, dense growth of the chaparral across the site along with dense leaf litter. Two small ignitions, approximately one-acre in size, were recorded within the Preserve during the last five years. Both fires were caused by arson and are known as the Hemme Fire (2004) and the Lilac Fire (2005). The minimal size of the fires did not significantly alter the vegetation within the Preserve.

2.7 - Trails

A review of current and historical aerial photographs was used to identify areas that appear to be significantly disturbed throughout the Preserve. These disturbed areas were verified in the field in order to develop a map (Exhibit 8) depicting current areas of access within the Preserve. The disturbed areas in the Preserve are defined as existing dirt access roads and disturbed trails. Since the Preserve is not currently open for public use, there is no designated trail system within the Preserve.



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

NORTH

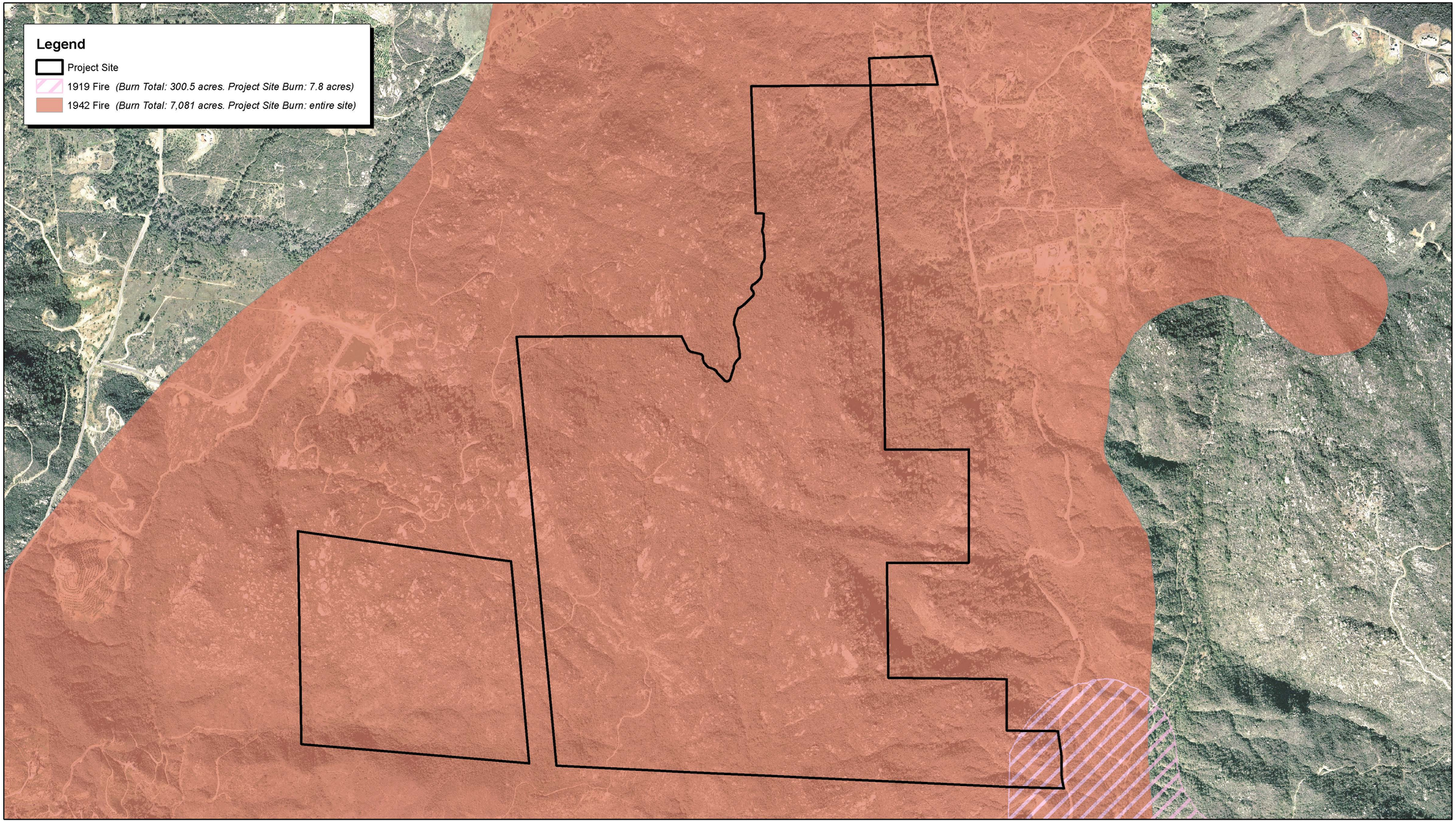
1,000 500 0 1,000 Feet

Michael Brandman Associates

00700035 • 02/2010 | 6_hydrology.mxd

Exhibit 6
Hydrology Map

COUNTY OF SAN DIEGO PARKS • MOUNT OLYMPUS PRESERVE
BASELINE BIODIVERSITY REPORT



Source: San Diego North 2005 Aerial. CALfire FRAP data. MBA GIS data, 2009.

NORTH

1,000 500 0 1,000

Feet

Michael Brandman Associates

00700035 • 02/2010 | 7_fire_history.mxd

Exhibit 7
Fire History Map

COUNTY OF SAN DIEGO PARKS • MOUNT OLYMPUS PRESERVE
BASELINE BIODIVERSITY REPORT

Dirt Access Roads

The Preserve currently contains two main access roads located near the northeast and southwest corners of the Preserve. The dirt access roads are frequently used and easily accessible, and have little to no vegetation within the access road footprint and/or have been recently cleared by DPR or SDG&E. Generally, the access roads are compacted and wide enough to allow vehicular access.

Dirt Access Road 1 is located at the northeast corner of the Preserve, near the compound site, which consists of an area of historic structures built in the mid-part of the 20th century. This access road is the main point of access to the Preserve from Pala Temecula Road and connects to Disturbed Trail (DT) 1 that crosses the entire Preserve.

Dirt Access Road 2 is located near the southwestern boundary of the Preserve adjacent to the SDG&E property that bisects the Preserve. This access road travels south to north and allows access to the small western parcel of the Preserve and to the southern extent of DT 1. Dirt Access Road 2 occurs both on-site and off-site, and connects to DT 6 from its northern off-site route.

Disturbed Trails

There are a number of disturbed areas throughout the Preserve that show evidence of previous use and clearing, potentially for the purpose of creating trails. These disturbed trails traverse the entire Preserve (Exhibit 8). The disturbed trails are generally more vegetated, narrower and less disturbed than the dirt access roads. Vegetation and canopy cover on the disturbed trails range from sparse and very open, to dense with a closed canopy of tall chaparral species.

DT 1 is located at the northeast corner of the Preserve and begins at Dirt Access Road 1. DT 1 allows access to a majority of the Preserve, traveling from the northeast corner to the southwest portion of the Preserve. This is the main disturbed trail within the Preserve, as all other disturbed trails initiate from DT 1.

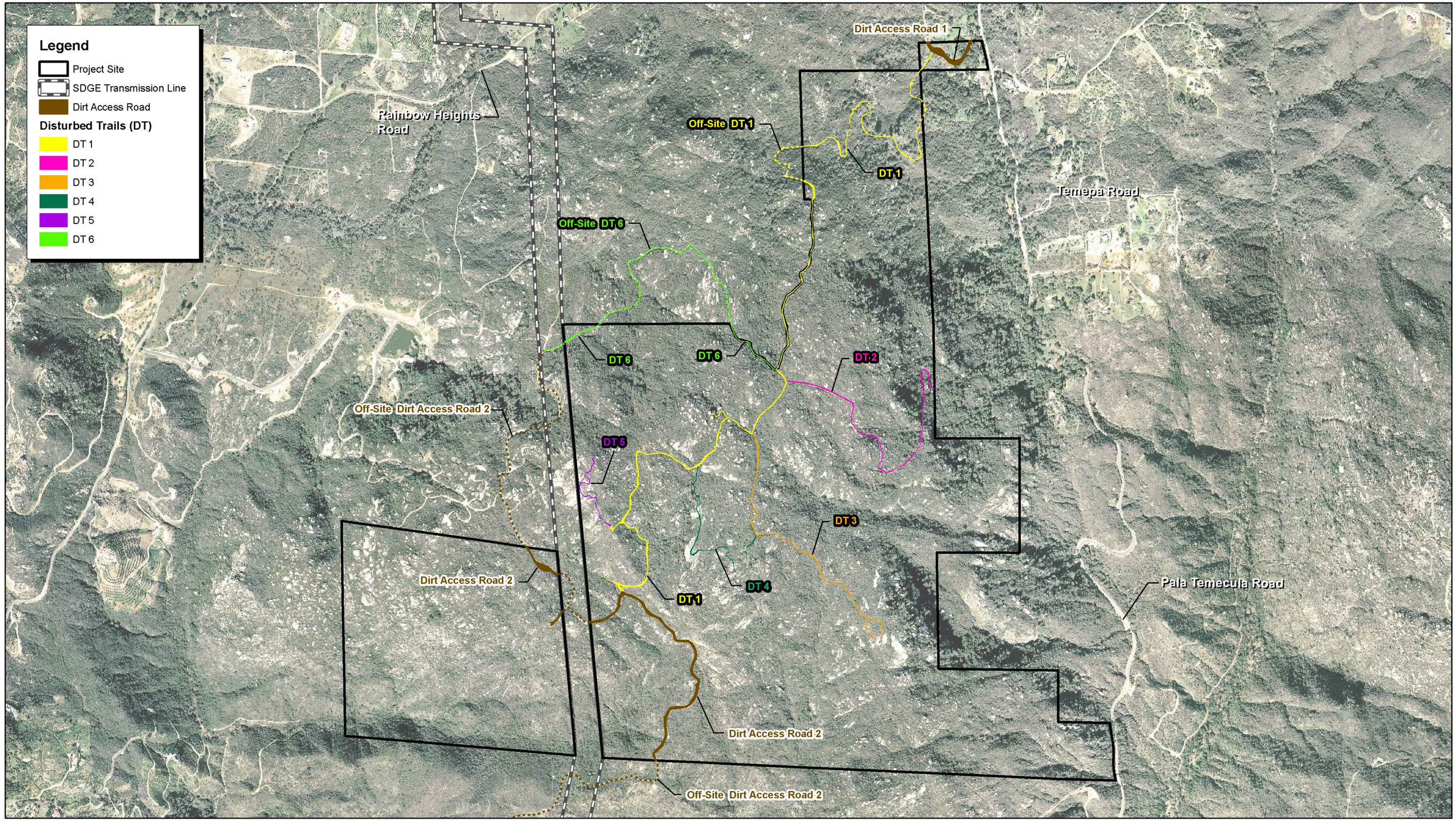
DT 2 begins at DT 1 and allows access to the central eastern portion of the Preserve. This disturbed trail is located approximately 175 feet south from the intersection of DT 1 and DT 6. Portions of DT 2 are visible on aerial photographs in 2005, but currently are covered with dense stands of chaparral.

DT 3 extends from the central portion of the Preserve, from DT 1, and continues southeast. Near the southeast terminus of DT3, there is a fork in the disturbed trail, with both routes terminating at a large rocky outcrop with a scenic view to the south. This disturbed trail used to form a complete loop at the base of DT 3, but is currently covered with a dense stand of chaparral.

DT 4 originates at a rocky outcrop area that once contained a small structure, off DT 1. The disturbed trail travels to the south and is somewhat difficult to follow, but does have evidence of previous use. This disturbed trail connects to a small trail spur that breaks off from DT 3. These two disturbed trails meet in the central portion of the Preserve.

DT 5 stems off DT 1 along the western edge of the eastern parcel of the Preserve. This disturbed trail travels to the north, following a rocky outcrop, and is difficult to follow in some places. DT 5 terminates at a rocky outcrop near the western boundary of the Preserve.

DT 6 originates approximately 215 feet north of the intersection of DT 1 and DT 2, and travels northwest along the northern boundary of the Preserve. A majority of this disturbed trail travels through off-site locations, but crosses the Preserve in two locations and connects to Dirt Access Road 2 at the northwest corner of the Preserve.



Source: San Diego North Aerial, 2005. MBA Field Survey Data, 2009. MBA GIS Data, 2010.

NORTH

1,000 500 0 1,000 Feet

Michael Brandman Associates

00700035 • 03/2010 | 8_disturbed_trails.mxd

Exhibit 8
Access Roads and Disturbed Trails

COUNTY OF SAN DIEGO PARKS • MOUNT OLYMPUS 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 project site 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 U.S. 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 onsite and offsite 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 (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 is 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.

Sampling Location 1 (MO-1)

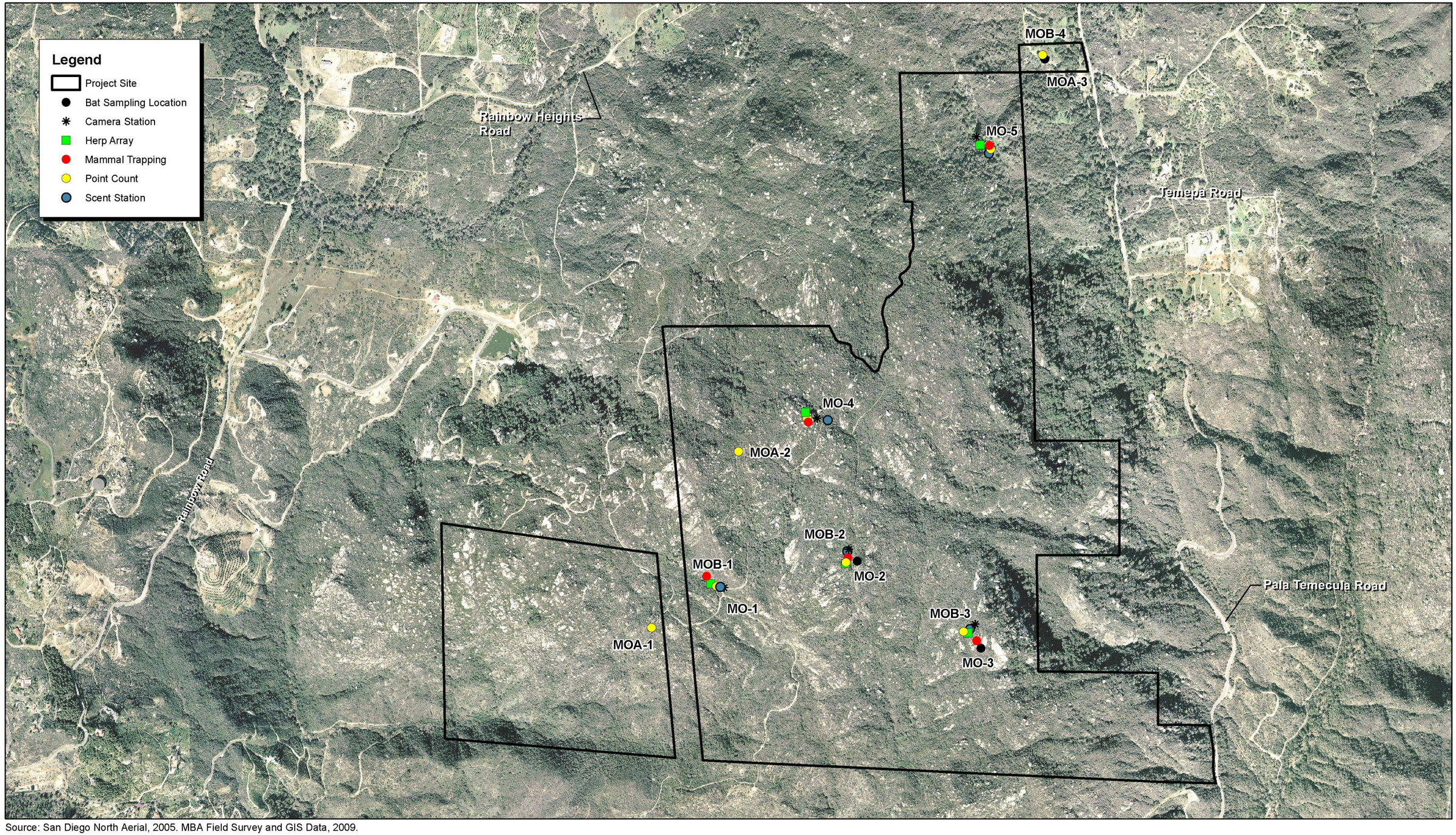
Sampling Location 1 is located in the southwestern portion of the Preserve near the intersection of DT 1 and Dirt Access Road 2. The sampling location is within a flat area likely used as a previous dirt access road. The slope is generally to the southwest and contains a mixture of dense scrub oak and more open canopy chamise chaparral. The understory in this area varies from non-native grasslands to herbaceous natives. Large rocky outcrops are to the north of the sampling area. This sampling location contains a mix of habitats associated with the western portion of the Preserve.

Sampling Location 2 (MO-2)

The central sampling location (MO-2) is located in a small open native grassland area surrounded by dense chaparral, just south of the intersection of DT 3 and DT 4. The location is generally south facing but also has large rocky outcrops to the south. This is one of the few areas within the dense chaparral that contains a native grassland component considered large enough to map (i.e. encompasses an area of at least 0.1 acre). This vegetation community is visible in historic aerial photographs as early as 1946 (HistoricAerial.com).

Sampling Location 3 (MO-3)

The southernmost sampling location (MO-3) is located on an edge of a significant rocky outcrop at the southeast terminus of DT 3 in the southeastern corner of the Preserve. This area is south facing and is dominated by a mix of open and dense chaparral with a grassland understory. This sampling area is much drier than other locations within the Preserve and has more direct sunlight exposure.



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

NORTH

1,000 500 0 1,000 Feet

Michael Brandman Associates

00700035 • 02/2010 | 9_sampling_locations.mxd

Exhibit 9
Sampling Locations Map

COUNTY OF SAN DIEGO PARKS • MOUNT OLYMPUS PRESERVE
BASELINE BIODIVERSITY REPORT

Sampling Location 4 (MO-4)

Sampling Location 4 (MO-4) is located in an oak woodland-chaparral ecotone off of a spur from DT 1, approximately 310 feet northwest of the intersection of DT 1 and DT 3. This sampling area has a northern and eastern facing slope and is similar to the northernmost sampling location (MO-5). This area appears to be drier than the MO-1 sample location and has a significantly different understory comprised of leaf litter, bare ground and few groundcover species.

Sampling Location 5 (MO-5)

Sampling Location MO-5 is located in a dense oak woodland area surrounded by dense chaparral, near the northwest corner of the Preserve. This sampling location can be accessed from DT 1 by traveling south from Dirt Access Road 1. The slope is generally northeast to east facing and has little direct sunlight. There is a fairly dense understory with large boulders throughout. This sampling area is located a few hundred feet northwest of the compound area and is located along the side of the existing dirt access road. The compound area has a mix of native and non-native ornamental plant species.

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
April 30, 2009	KR, SC	Vegetation Mapping
May 7, 2009	SC	Vegetation Mapping
May 14, 2009	KR, SC	Vegetation Mapping
May 19, 2009	KR, SC	Vegetation Mapping
June 4, 2009	SC, DH	Butterfly Surveys
June 12, 2009	SC, DH	Vegetation Mapping
June 18, 2009	DH, SC	Butterfly Surveys
June 25, 2009	SC, KR, DL, TM	Sampling Installation, Incidental Observations
June 26, 2009	SC, DL, TM	Sampling Installation, Incidental Observations

Table 3: Survey Dates Continued

Dates	Biologist	Survey Focus
June 29, 2009	KR, SC, TM	Wildlife Inventory
June 30, 2009	KR, TM, DL	Wildlife Inventory
July 1, 2009	KR, DL, SN, TM	Wildlife Inventory
July 2, 2009	DL, SN, DH	Wildlife Inventory
July 3, 2009	SN, DH	Wildlife Inventory
August 3, 2009	KR, DH, DL, SN, DS	Wildlife Inventory, Bat Surveys
August 4, 2009	KR, DL, SN, DS	Wildlife Inventory, Bat Surveys
August 5, 2009	SC, KR, SN, DL, DS	Wildlife Inventory, Bat Surveys
August 6, 2009	SC, DL, DH, TM, DS	Wildlife Inventory, Bat Surveys
August 7, 2009	DH, TM, DS	Wildlife Inventory, Bat Surveys
September 1, 2009	SC, SN, DL, DH, TM	Sampling Removal, Incidental Observations
September 7, 2009	TM	Bat Surveys
September 8, 2009	TM	Bat Surveys
September 9, 2009	TM	Bat Surveys
September 10, 2009	TM	Bat Surveys
September 11, 2009	SC, DL	Bat Surveys
Notes: DL = Diana Lloyd TM = Tommy Molioo SC = Scott Crawford DH = Dale Hameister KR = Kelly Rios SN = Steven Norton DS = Deborah Stout		

3.4.1 - Invertebrates

Butterfly Surveys

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. 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 within Quino survey area 2, but is described as an excluded area based on the dense chaparral and/or small openings (less than an acre) completely enclosed within dense chaparral. The small openings within the dense chaparral do not contain suitable habitat for this species.

A single area, less than 0.1 acres, was observed near MO-1, that contained several constituent habitat components for this species including rocky outcrops, cryptogrammic crusts, and dwarf plantain

(*Plantago erecta*). However, this small patch of suitable habitat was completely surrounded by dense stands of chaparral and meets the requirements for an excluded area. Therefore, all portions of the preserve fall within an excluded area for the species.

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.

3.4.2 - Herpetofauna

Pit-fall Trapping

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. 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 MO-2, MO-4, and MO-5. Due to large boulders and dense vegetation, MO-1 had a long straight array that measured 45 meters in a single direction with

pit-fall buckets spaced evenly. MO-3 had a single arm of 15 meters and two arms shortened to 10 meters. However, these 10-meter arms still maintained the same number of required buckets.

Funnel Traps

Funnel traps were also used and were built based on 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 locations. 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.

3.4.3 - 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.

Eight 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 (MO-1 to MO-5), three additional point count stations were added to increase the diversity of habitats sampled.

The first Mount Olympus Avian Point Count Location (MOA-1) was located in western parcel of the Preserve. This parcel is separated from the majority of the Preserve by property owned by SDG&E (Exhibit 9). Point count station MOA-1 was located in the eastern portion of the parcel along the base of a SDG&E lattice tower. This area contains dense chaparral habitat on a west-facing slope.

The second avian point count location (MOA-2) was located in a dense stand of chaparral along the western portion of the Preserve. This point count station was located immediately adjacent to dense chaparral habitat in the central portion of the Preserve.

The third Mount Olympus Avian Point Count Location (MOA-3) was located at the northeastern corner of the Preserve at Dirt Access Road 1, northeast of sample location MO-5. This area contains recently cleared vegetation around the base of a large oak tree. The area is also located near a private single-family residence. The location of MOA-3 was chosen to identify species within the Preserve that are more 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 5-day period once a month from July to September.

In addition to day-time avian point count surveys, night-time avian point count surveys were conducted to document nocturnal avian species. Nocturnal point counts were conducted for 10 minutes at all eight standard avian point count locations.

All wildlife species observed or otherwise detected at the 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.

3.4.4 - 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 rufus*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), desert cottontail (*Sylvilagus audubonii*), California ground squirrel (*Spermophilus beecheyi*), and opossum (*Didelphis virginiana*).

Small Mammal Trapping

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 primary sampling locations (Exhibit 9). At the Preserve, 50 traps were used for each trap line with a total of five trap locations. A total of 1,250 trap-nights were completed in July and August 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 bird seed mix at dusk and checked and closed at dawn. These traps were designed to capture small mammal species such as kangaroo rat (*Dipodomys* sp.), wood rat (*Neotoma* sp.), and pocket mouse (*Chaetodipus* sp.). These traps may also capture snakes, small birds, and squirrels.

Scent Stations

The five scent station locations 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.

The first bat sample location (MOB-1) was placed within a cleared area on a south facing slope located northwest of MO-1. The second bat survey area (MOB-2) was located in the central portion of the Preserve, within a native grassland area near MO-2. The third sample location (MOB-3) was located just south of MO-3 near the terminus of DT 3. The final sample location (MOB-4) was placed in the northeast corner of the Preserve off Dirt Access Road 1, near MOA-3, facing west towards sampling location MO-5.

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 can be detected. Certain limitations are unavoidable when conducting any surveys. 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 (April 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 six vegetation communities or habitat types occur within the Preserve including: southern mixed chaparral, coast live oak woodland, native grassland, non-native grassland, non-native vegetation, and disturbed habitat (Exhibit 10). Table 4 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: Plant Community/Habitat Acreages

Vegetation Community/Habitat Type	Approximate Area (acres)
Southern Mixed Chaparral (37120)	661.4
Coast Live Oak Woodland (71160)	36.5
Disturbed Habitat (11300)	6.7
Non-Native Grassland (42200)	2.3
Non-Native Vegetation (11000)	0.5
Native Grassland (42100)	0.2
Total	707.6

The Preserve is dominated by old-growth chaparral habitat with smaller inclusions of coast live oak woodland. The relatively homogenous vegetation communities are strongly associated with similar soil structure and the lack of significant disturbance, such as fires, within the Preserve for approximately 65 years.

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

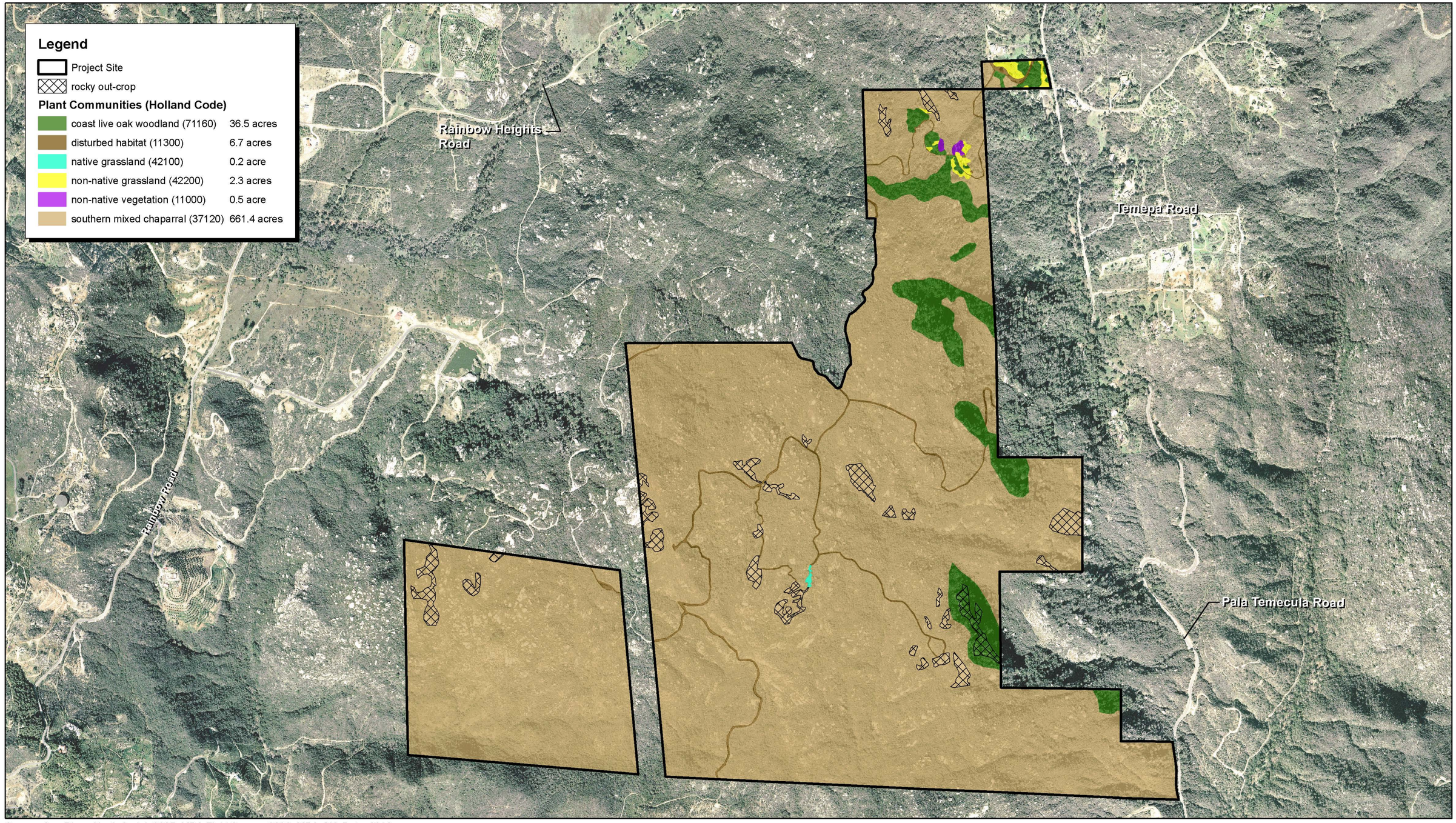
MSCP, the Preserve contains sensitive vegetation communities consisting of both Tier I (native grassland and oak woodland) and Tier III (southern mixed chaparral and non-native grassland) habitats (County of San Diego 2009a). Additionally, native grassland is considered a sensitive habitat land under the County's Resource Protection Ordinance (RPO) and coast live oak woodland is provided protection under the California Oak Woodland Conservation Act.

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 to nine feet high. Vegetation within stands of southern mixed chaparral is generally mixed with characteristic species including chamise, manzanita, ceanothus, mountain mahogany (*Cercocarpus montanus*), toyon (*Heteromeles arbutifolia*), sugar bush, holly leaf cherry (*Prunus ilicifolia*), scrub oak, and chaparral yucca (*Hesperoyucca whipplei*). 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 southern mixed chaparral totaling approximately 661.4 acres. An absence of recent burn events or other disturbances on the Preserve has allowed the vegetation to grow very dense and tall. Plant species observed include chamise, scrub oak, sugar bush, toyon, mountain mahogany, chaparral yucca, hoary leaf ceanothus (*Ceanothus crassifolius*), Eastwood's manzanita (*Arctostaphylos glandulosa*), bigberry manzanita (*Arctostaphylos glauca*), thick-leaved yerba santa (*Eriodictyon crassifolium*), California buckwheat, and virgins bower (*Clematis ligusticifolia*).

The vegetation across the Preserve varies based on the elevation and microclimate within the varying topography. In the foothills, the vegetation is mainly a sparse cover of laurel sumac, sugar bush (*Rhus ovata*), chamise, and ceanothus. In the steeper portion of the Preserve, chamise, manzanita, red shank, ceanothus, and scrub oak are the common species. The southern mixed chaparral observed within the Preserve also contains areas with rocky outcrops that are large enough to map (i.e., encompass at least 0.1 acre). These rocky outcrops contain limited vegetative cover because plant species are restricted to growth in shallow, interstitial areas where soil has accumulated. Plant species observed occurring in the rocky outcrop areas on the Preserve include western plantain (*Plantago erecta*), ladies'-fingers (*Dudleya edulis*), and lance-leaved dudleya (*Dudleya lanceolata*).



Source: San Diego North Aerial, 2005. MBA Field Survey, 2009. MBA GIS Data, 2010.

NORTH

1,000 500 0 1,000 Feet

Michael Brandman Associates

00700035 • 03/2010 | 10_veg.mxd

Exhibit 10
Vegetation Communities Map

COUNTY OF SAN DIEGO PARKS • MOUNT OLYMPUS PRESERVE
BASELINE BIODIVERSITY REPORT

Southern mixed chaparral provides high quality habitat for various native species characteristic to Southern California, including wrentit (*Chamaea fasciata*), desert woodrat (*Neotoma lepida*), and chaparral whipsnake (*Masticophis lateralis lateralis*). Rocky outcrops provide basking habitat for several reptile species, including western fence lizard (*Sceloporus occidentalis*) and speckled rattlesnake (*Crotalus mitchelli*).

Coast Live Oak Woodland (Holland Code 71160)

Coast live oak woodland typically consists of moderate to densely vegetated woodlands 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. Coast live oak woodland is considered a Tier I Habitat under the North County MSCP (County of San Diego 2009a) and is protected under the California Oak Woodland Conservation Act.

The Preserve contains several stands of coast live oak woodland along the eastern facing slopes and ravines, totaling 36.5 acres. The tree canopy is dominated by coast live oak trees, which subsequently provides a deep layer of leaf litter; however, several shrub and herbaceous plant species persist in the lower canopy. The understory species observed include toyon, creeping snowberry (*Symphoricarpos mollis*), poison oak (*Toxicodendron diversilobum*), and deergrass (*Muhlenbergia rigens*).

Additionally, several single oak trees are found scattered throughout the Preserve. These individual trees are not of a density that would constitute a vegetation community and thus were not included in the coast live oak woodland community acres.

Rocky outcrops occur within the coast live oak woodland community in the southern portion of the Preserve (Exhibit 10). The rocky outcrop in this community is generally devoid of vegetation, but occurs within the understory of coast live oak trees. As such, vegetation is comprised of western plantain, scattered brome grass (*Bromus* sp.), with an understory of bare ground and leaf litter.

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*), scrub jay (*Aphelocoma californica*), and western red bat (*Lasiurus blossevillii*). Rocky outcrop provides basking habitat for reptile species including granite spiny lizard (*Sceloporus orcutti*) and western fence lizard.

Disturbed Habitat (Holland Code 11300)

Disturbed habitat consists of areas that are generally subject to significant human disturbance, often associated with development. The disturbed habitat within the Preserve consist of 6.7 acres of dirt access roads and disturbed trails that extend across the Preserve and the remnant structures that occur on the northern portion of the Preserve identified as the compound. Neither the dirt roads nor the structures are currently maintained and both have experienced significant degradation. The disturbed habitat areas contain little to no vegetation and are generally considered very poor habitat.

The dirt access roads on the Preserve consist of heavily disturbed, barren soils subject to significant erosion. These area provide suitable habitat for disturbance-following plant species, such as bird's beak (*Cordylanthus* sp.) and eriastrum (*Eriastrum* sp.), and reptile species that require open areas for basking. The remnant structures do not provide habitat for plant species, but do provide roosting and nesting habitat for some rodent, bat, and avian 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).

Non-native grassland occurs on 2.3 acres within the Preserve and is associated with human disturbance and adjacent developments. The northernmost stands are located near the residential development adjacent to the Preserve. The other stands of non-native grasslands on the Preserve are located adjacent to the remnant structures associated with the compound site. The plant species that occurred in all the stands on the Preserve include short-podded mustard (*Hirschfeldia incana*), 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*).

This plant community provides moderately suitable habitat for common, native bird species, such as lesser goldfinch (*Carduelis psaltria*) and reptile species such as Coronado skink (*Eumeces skiltonianus interparietalis*).

Non-Native Vegetation (Holland Code 11000)

Non-native vegetation habitat includes areas occupied by a variety of non-native and 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, and road rights-of-way, or areas planted for screening or as windrows.

Non-native vegetation occurs on 0.5 acres of the Preserve and is comprised of several non-native trees and shrubs planted in association with the compound in the northern portion of the Preserve. As with the abandoned structures, the ornamental plants have remained unattended for a number of years. Tree species include black locust (*Robinia pseudoacacia*), lemon (*Citrus limonia*), and pine (*Pinus* sp.). Shrub species such as oleander (*Nerium oleander*), striata aloe (*Aloe saponaria x aloe*),

charming centaury (*Centaurium venustum*), cutleaf geranium (*Geranium dissectum*), and regal pelargonium (*Pelargonium domesticum*), also occur within the compound area.

Tree species commonly planted in non-native vegetation habitats are generally 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 bird species, such as European starling (*Sturnus vulgaris*). This habitat may also provide roosting habitat for bat species.

Native Grassland (Holland Code 42100)

Native grassland is a plant community that has a vegetative cover comprising of at least ten percent native grass species. Native grass species include perennial species such as deergrass (*Muhlenbergia rigens*) and wild rye (*Leymus* sp.) as well as annual species, such as purple needlegrass (*Nassella pulchra*). Other species commonly occurring in native grasslands include native wildflowers, such as goldfields (*Lasthenia californica*) and blue dicks (*Dichelostemma capitatum*), but may also include non-native grasses, such as bromes (*Bromus* sp.) and wild oats (*Avena* sp.). Native grasslands are increasingly rare because many non-native annual grasses have out-competed 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. Native grassland is considered a Tier I Habitat under the North County MSCP (County of San Diego 2009a) and a RPO sensitive habitat land.

A 0.2-acre native grassland plant community is located in the center of the Preserve. The community is predominantly comprised of deergrass, but also includes native annual species such as blue dicks, blue-eyed grass (*Sisyrinchium bellum*), small flower melic grass (*Melica imperfecta*), Orcutt's brodiaea (*Brodiaea orcuttii*), and blue wild rye (*Elymus glaucus*), with some non-native grasses such as wild oat.

Wildlife species commonly observed in this area include pale swallowtail (*Papilio eurymedon*), California ebony tarantula (*Aphonopelma eutylenum*), lesser goldfinch (*Carduelis psaltria*), and desert cottontail.

4.2 - Plants

The vegetation communities discussed above provide habitat for a number of endemic plant species. A complete list of the 133 plant species observed within the Preserve is located in Appendix A, Observed Species List - Plants.

4.2.1 - Special-Status Plant Species Observed

Three special-status plant species were observed during the 2009 baseline surveys conducted by MBA. None of these species were previously recorded in the vicinity of the Preserve. The locations of these observations are shown in Exhibit 11. These species observed include:

- Orcutt's brodiaea
- Heart-leaved pitcher sage
- Engelmann oak

Orcutt's Brodiaea (*Brodiaea orcuttii*)

Orcutt's brodiaea is a CNPS List 1B.1, County List A, and North County MSCP covered species. The species is a bulbiferous herb that blooms in the late spring-summer months between May and July. It may occur in closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pool habitats in mesic environments supported by clay and sometimes serpentine soils. It is typically found at elevations ranging between 90 to 5,076 feet AMSL.

This species was observed within the native grassland located in the central portion of the site at an elevation of approximately 2,080 feet AMSL. The soils in this area are likely located atop an impermeable rock. The conditions are too dry to create any pool formation, but the soils likely hold moisture for long periods, enabling the appropriate conditions for a population of Orcutt's brodiaea to establish. The population size is estimated to be between 150 and 200 plants.

Heart-Leaved Pitcher Sage (*Lepechinia cardiophylla*)

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

Heart-leaved pitcher sage was observed within the native grassland located in the central portion of the Preserve at an elevation of approximately 2,080 feet AMSL. The native grassland plant community is bordered by chaparral and the ecotone between these two habitats provides suitable shady habitat for this species. This species was also observed in understory along DT 4. The population within the Preserve is estimated to be between 20 and 30 plants.

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 occurrence of this species on the Preserve consists of a solitary tree, which was likely planted for ornamental purposes in association with the remnant buildings located at the compound area in the northern portion of the Preserve.

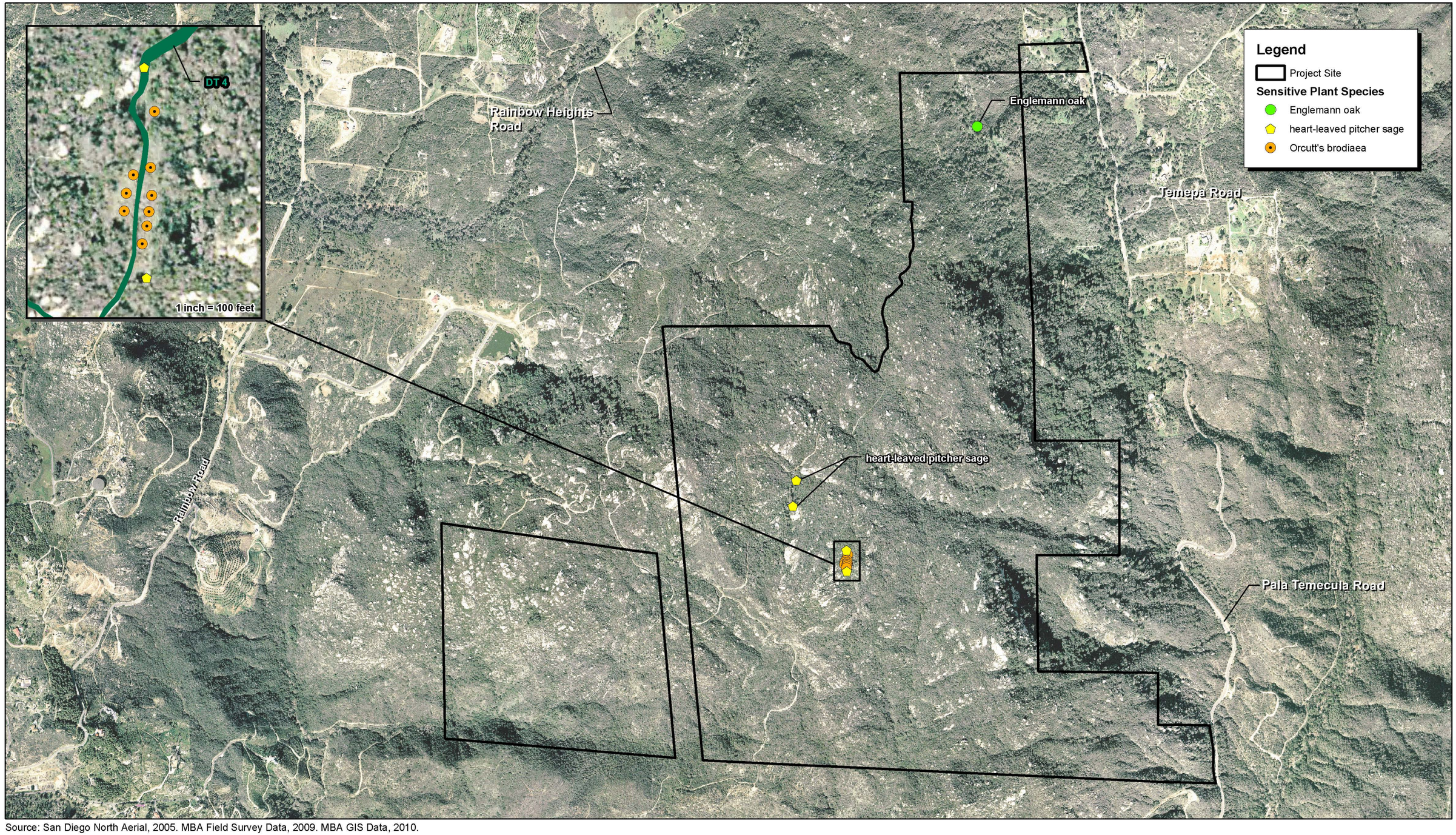
4.2.2 - Special-Status Plant Species with Potential to Occur

The Potential Sensitive Plant Species Table (Appendix C) identifies the Federal and State listed plant species, and CNPS 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 those which are both previously recorded as occurring within three miles of Preserve and suitable habitat for these species occurs within the Preserve. Species with a moderate potential to occur have been previously recorded within five miles of the Preserve and have suitable habitat or those, which occur closer, but only marginally suitable habitat occurs on the Preserve. 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 onsite. Species proposed for coverage under the North County MSCP, but not recorded near the Preserve were also listed as not likely to occur.

Based on MBA's literature review, 45 sensitive plant species have been previously recorded within the vicinity of the Preserve; however, the Preserve does not contain habitat suitable for all these species. Three of these species, mentioned above, are present onsite. The Preserve contains suitable habitat and a high or moderate potential for the following eight species to occur:

- Rainbow manzanita (*Arctostaphylos rainbowensis*)
- Felt-leaved rock mint (*Monardella hypoleuca lanata*)
- Payson's jewelflower (*Caulanthus simulans*)
- Chaparral beargrass (*Nolina cismontana)*
- Lakeside ceanothus (*Ceanothus cyaneus*)
- Gander's ragwort (*Packera ganderi*)
- Robinson's pepper-grass (*Lepidium virginicum var. robinsonii*)
- Parry's tetracoccus (*Tetracoccus dioicus*)



Source: San Diego North Aerial, 2005. MBA Field Survey Data, 2009. MBA GIS Data, 2010.

NORTH

1,000 500 0 1,000
Feet

Michael Brandman Associates

00700035 • 03/2010 | 11_sens_plant_species.mxd

Exhibit 11
Sensitive Plant Species Map

COUNTY OF SAN DIEGO PARKS • MOUNT OLYMPUS PRESERVE
BASELINE BIODIVERSITY REPORT

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 occurs between 885 and 2,590 feet AMSL and blooms in the late winter and early spring between December and March. Rainbow manzanita occurs within gabbro chaparral communities.

This species is considered a hybrid between *Arctostaphylos glandulosa* and *Arctostaphylos glauca*. No occurrence of the species was observed during any of the surveys conducted by MBA. Although not observed onsite, there is still a moderate potential for this species to occur within the interior portions of the Preserve that are difficult to access by foot.

Payson's Jewelflower (*Caulanthus simulans*)

Payson's jewelflower is a CNPS List 4D and County List D species. This 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 surveys conducted by MBA. Although not observed onsite, there is still a moderate potential for this species to occur on rocky outcrops that are too steep to survey.

Lakeside Ceanothus (*Ceanothus cyaneus*)

Lakeside ceanothus is a CNPS List 1B.2 and County List A species. The species is an evergreen shrub that occurs between 700 and 2,265 feet AMSL and blooms in the spring between April and June. Lakeside ceanothus typically occurs in tall, mesic, dense, almost impenetrable chaparral with a mix of chamise and other shrubs. The species is known to occur on acid igneous rock land and Cieneba very rocky coarse sandy loam.

The vast majority of the Preserve contains suitable habitat for Lakeside ceanothus. This species is known to occur in a few very restricted areas in an offsite area within San Diego County. The species was not observed during any of the surveys conducted by MBA, however, due to the great extent of suitable habitat and the dense nature of the chaparral, species presence cannot be ruled out. This plant has a moderate potential to occur within the preserve.

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 vast majority of the Preserve contains suitable habitat for Robinson's pepper-grass. 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.

Felt-Leaved Rock Mint (*Monardella hypoleuca 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. Associated soils include acid igneous rocklands.

The vast majority of the Preserve contains suitable habitat for felt-leaved rock mint. 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.

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.

Gander's Ragwort (*Packera ganderi*)

Gander's ragwort (also known as Gander's butterweed) is listed as Rare by the State, and is a CNPS List 1B.2, County List A, and North County MSCP covered species. The species is a perennial herb that occurs between 1,310 and 3,940 feet AMSL and blooms between April and June. This species occurs within chaparral habitats at recently burned sites and gabbro outcrops.

Open, disturbed areas along the margins of chaparral habitat occur along the dirt roads and in the open, rocky outcrops scattered across the Preserve. Such areas contains suitable habitat for Gander's ragwort, however, no occurrence of the species was observed during the 2009 surveys conducted by MBA.

Parry's Tetracoccus (*Tetracoccus dioicus*)

Parry's tetracoccus is a CNPS List 1B.2, County List A, and North County MSCP covered species. The species is a deciduous shrub that occurs between 495 and 3,000 feet AMSL and blooms between April and May. This species occurs within chaparral habitats, often dominated by chamise. It may

also occur in coastal sage scrub on stony, decomposed gabbro soils. Las Posas series soils are preferred and are located in the southwestern corner of the Preserve.

The vegetation community associated with the Las Posas series soils within the Preserve is southern mixed chaparral, but it is not dominated by chamise. This portion of the Preserve also contains rocky outcrops commonly associated with this species. The suitable habitat areas for Parry's tetracoccus were surveyed, however, no occurrence of the species was observed during the 2009 surveys conducted by MBA.

4.2.3 - Non-native and/or Invasive Plant Species

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

- Yellow star-thistle (*Centaurea solstitialis*)
- Milk thistle (*Silybum marianum*)
- Blue gum (*Eucalyptus globulus*)
- Oleander (*Nerium oleander*)

The general location of each occurrence of these invasive plant species are depicted as points in Exhibit 12. For the smaller herbaceous invasive species, such as yellow star-thistle and milk thistle, each point represents the central location of an individual population, which includes a minimum of five individuals. The point locations for the larger perennial plants, including blue gum and oleander, represent the population size, which can be distinguished on an aerial photograph and may be as small as a single individual.

Three of these invasive, non-native species (yellow star-thistle, milk thistle, and blue gum) are considered California Invasive Plant Council (Cal-IPC) listed plants with overall ratings of "limited" to "high". The fourth 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.

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". 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. Habitats of concern include grasslands and woodlands (Cal-IPC

2010). Yellow star-thistle has also been targeted by the SDWMA as one of four primary species for mapping and control efforts within the County.

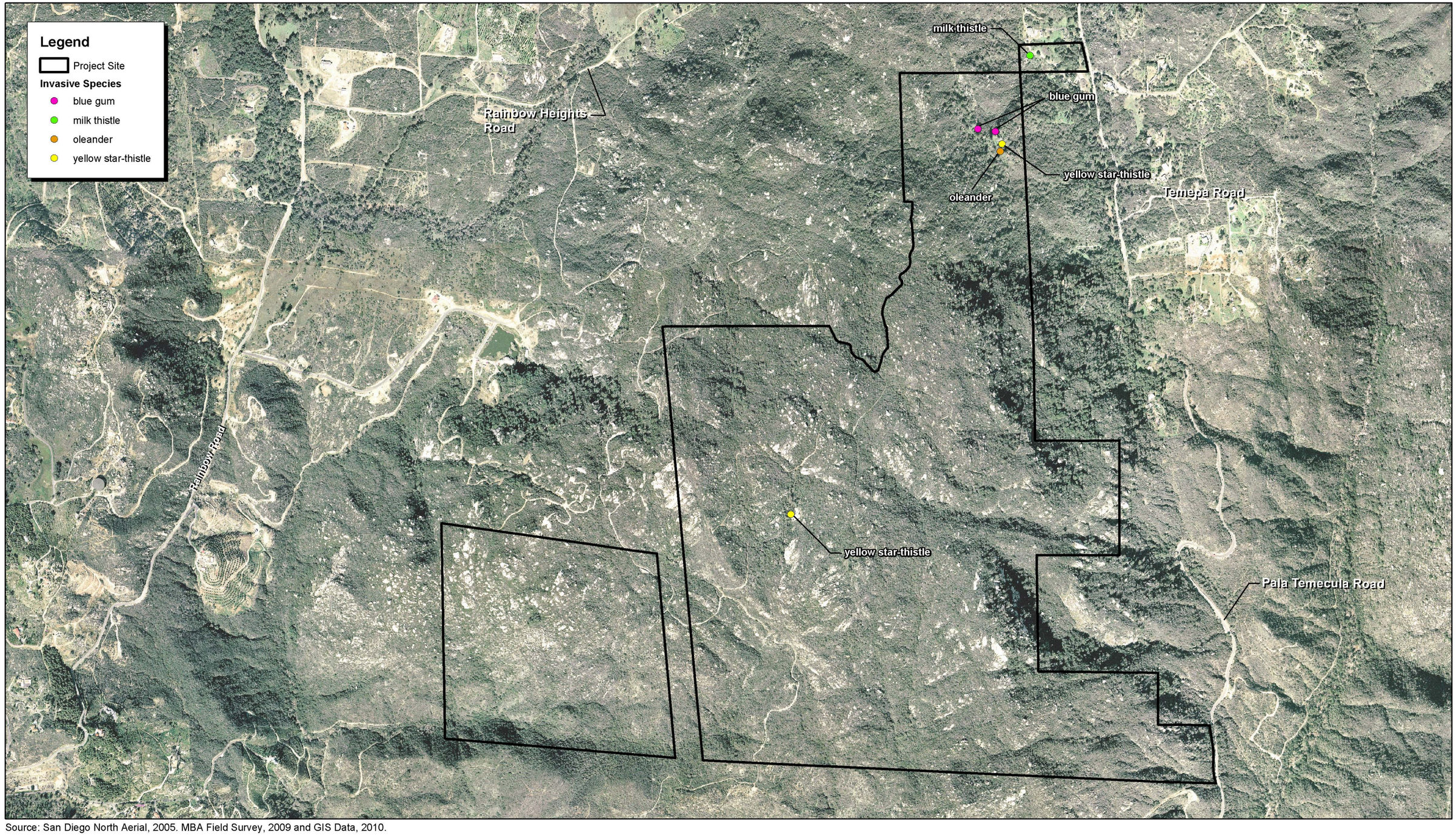
Milk thistle is a winter annual or biennial with prickly leaves and is widely spread throughout California in disturbed areas. This species produces tall, dense stands that outcompete native species. The Cal-IPC inventory categorizes milk thistle as having an overall rating of "limited". A "limited" rating signifies species that are invasive, but their ecological impacts are minor on 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. Habitats of concern include grasslands and riparian areas (Cal-IPC 2010).

Blue gum is a tree found throughout California, but has primarily escaped to become invasive along the coast from northern to southern California. Native plants are unable to grow underneath groves of eucalyptus. The Cal-IPC inventory categorizes blue gum 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. Habitats of concern include riparian areas, coastal grasslands and scrub; however, impacts are typically higher in coastal areas (Cal-IPC 2010).

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. The lethal dose of green oleander leaves for cattle and horses is 0.005% of the animals body weight (Cal-IPC 2010).

4.3 - Wildlife

The vegetation communities discussed above provide habitat for a number of local wildlife species. A total of 149 wildlife species were observed within the Mount Olympus 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.



Source: San Diego North Aerial, 2005. MBA Field Survey, 2009 and GIS Data, 2010.

NORTH

1,000 500 0 1,000

Feet

Michael Brandman Associates

00700035 • 03/2010 | 12_invasive_species.mxd

Exhibit 12
Invasive Species Location Map

COUNTY OF SAN DIEGO PARKS • MOUNT OLYMPUS PRESERVE
BASELINE BIODIVERSITY REPORT

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 aquatic species or 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 provide some balance to the total invertebrate inventory. A total of 67 invertebrates were observed within the Mount Olympus Preserve, none of which are considered sensitive species.

Butterflies

A total of 16 butterfly species were observed during the 2009 surveys. Species were observed from six different families including brush-foots, swallowtails, blues, skippers, whites and sulfurs, and metalmarks. The most commonly observed butterfly species include pale swallowtail (*Papilio eurymedon*), cabbage white (*Pieris rapae*), acmon blue (*Icaricia acmon*), California sister (*Adelpha bredowii californica*), funereal dusky wing (*Erynnis funeralis*), mountain mahogany hairstreak (*Satyrium tetra*), and Behr's metalmark (*Apodemia mormo virgulti*).

The observed wildlife species compendium in Appendix B contains an exhaustive list of all butterfly species observed onsite. The butterflies observed onsite are directly related to the vegetation communities within the Preserve and are commonly found in chaparral habitats. The lack of significant riparian or other aquatic habitats limits the number of species within the Preserve. Based on the vegetation onsite 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*).

A small patch of Quino checkerspot butterfly (*Euphydryas editha quino*) host plant, western plantain (*Plantago erecta*), occurs near MO-1. Other key habitat elements such as rocky outcrops, nectar sources, and cryptogrammic crust, also occur. Although it is unlikely that this species occurs within the Preserve, the presence of this species cannot be completely ruled out. Based on the habitat assessment discussed in Section 3.4.1, this area is considered excluded from further focused surveys for Quino checkerspot butterfly. Hermes copper (*Lycaena hermes*) is not known to occur in the area (CNDDB 2009); however, this species' preferred host plant, redberry buckthorn (*Rhamnus crocea*), does occur within the Preserve.

Other Invertebrates

The most common terrestrial-bound invertebrates collected in the pit-fall traps included harvester ant (*Pogonomyrmex californicus*), carpenter ant (*Camponotus* sp.), velvet ant (*Dasymutilla occidentalis*), armored stink beetle (*Coelocnemis californicus*), springtail (*Ctenolepisma* sp.), and bristletail (*Trigoniophthalmus alternatus*). The predatory invertebrates commonly observed included 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 species such as garden orbweaver (*Argiope* sp.).

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 ten reptile species were detected within the Preserve.

Amphibians

The conditions on the Preserve provide little to no suitable habitat for any amphibian species. No aquatic habitats commonly associated with amphibian reproduction occur within the Preserve. Amphibian species anticipated to occur within the Preserve are those species that require very little association with aquatic habitats. A single western toad was observed in the northeastern corner of the Preserve near the intersection of Dirt Access Road 1 and DT 1. It is highly likely that this species was foraging within the Preserve, but reproduces elsewhere in the vicinity of the Preserve. There are small depressions within the rocky outcrops within the Preserve. It is highly unlikely that these areas contain a sufficient amount of standing water long enough to support amphibian reproduction.

Reptiles

Conversely, the Preserve has many essential reptilian habitat characteristics, such as hot, dry weather, significant vegetation cover, large invertebrate population, and significant basking areas void of vegetation. A total of 10 reptile species were observed within the Preserve. The pit-fall traps captured several small reptile species including various juvenile and adult lizards and skinks, such as Coronado skink, western red-tailed skink (*Eumeces gilberti rubricaudatus*), coastal western whiptail (*Aspidoscelis tigris*), and western fence lizard. A pit-fall trap at MO-5 captured a single San Diego ringneck snake (*Diadophis punctatus similis*). The funnel traps set during the surveys had a very low success rate. One individual chaparral whipsnake (*Masticophis lateralis lateralis*) was captured during the sampling effort at MO-4. Incidental observations detected during the surveys include night snake (*Hypsiglena torquata*), speckled rattlesnake (*Crotalus mitchelli*), San Diego horned lizard (*Phrynosoma coronatum*), granite spiny lizard (*Sceloporus orcutti*), and side-blotched lizard (*Uta stansburiana*).

4.3.3 - Birds

A total of 42 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 (*Chamaea fasciata*), California quail (*Callipepla californica*), California towhee (*Pipilo crissalis*), California thrasher (*Toxostoma*

redivivum), western scrub jay (*Aphelocoma californica*), blue-grey gnatcatcher (*Polioptila caerulea*), phainopepla (*Phainopepla nitens*), canyon wren (*Catherpes mexicanus*), white-throated swift (*Aeronautes saxatalis*), and Costa's hummingbird (*Calypte costae*).

In addition to the species common in chaparral, several woodland bird species were observed within the northernmost portion of the Preserve near the remnant buildings and adjacent residential development. These species include Cooper's hawk (*Accipiter cooperii*), house wren (*Troglodytes aedon*), Hutton's vireo (*Vireo huttoni*), and acorn woodpecker (*Melanerpes formicivorus*).

Nocturnal avian species detected include great horned owl (*Bubo virginianus*), barn owl (*Tyto alba*), and common poorwill (*Phalaenoptilus nuttallii*).

4.3.4 - Mammals

A total of 27 mammal species were observed or otherwise detected across the Preserve during the course of the 2009 surveying effort. The trapping survey was conducted to inventory the small mammal population, and the 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*), western harvest mouse (*Reithrodontomys megalotis*), brush mouse (*Peromyscus boylii*), California mouse (*Chaetodipus californicus*), California pocket mouse (*Chaetodipus californicus*), and desert pocket mouse (*Chaetodipus penicillatus*). In addition to the trapping effort, the pit-fall trap also caught one ornate shrew (*Sorex ornatus*). Incidental observations during the surveys detected desert cottontail (*Sylvilagus audubonii*), brush rabbit (*Sylvilagus bachmani*), and California ground squirrel.

Medium and Large Mammals

The scent stations and motion sensor cameras detected fewer medium and large mammals than anticipated. The species commonly detected include coyote, raccoon, bobcat, Virginia opossum, and stripped skunk. Despite the high potential for mule deer (*Odocoileus hemionus*), grey fox (*Urocyon cinereoargenteus*), and mountain lion (*Felis concolor*) to occur on the site, no sign was observed during any of the surveys in the Preserve.

Bats

The bat acoustical surveys detected nine species of bat on the Preserve. Bat detections occurred at MOB-1, MOB-2, and MOB-4. There were no bat detections at MOB-3. The species detected include pallid bat (*Antrozous pallidus*), big brown bat (*Eptesicus fuscus*), western red bat (*Lasiurus blossevillii*), California myotis (*Myotis californicus*), little brown myotis (*Myotis lucifugus*), Yuma myotis (*Myotis yumanensis*), western pipistrelle (*Pipistrellus hesperus*), greater western mastiff bat (*Eumops perotis*), and Brazilian free-tailed bat (*Tadarida brasiliensis*).

4.3.5 - Special-Status Wildlife Observed

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

- Orange-throated whiptail (*Cnemidophorus hyperythrus*)
- San Diego ringneck snake (*Diadophis punctatus* ssp. *similis*)
- Coronado skink (*Eumeces skiltonianus interparietalis*)
- San Diego horned lizard (*Phrynosoma coronatum*)
- Cooper's hawk (*Accipiter cooperii*)
- Turkey vulture (*Cathartes aura*)
- Northern harrier (*Circus cyaneus*)
- California pocket mouse (*Chaetodipus californicus*)
- Pallid bat (*Antrozous pallidus*)
- Small-footed myotis (*Myotis leibii*)
- Yuma myotis (*Myotis yumanensis*)
- Greater western mastiff bat (*Eumops perotis*)
- Western red bat (*Lasiurus blossvillii*)

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

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. It is also found in washes and sandy areas with patches of brush and rocks. Perennial plants are required to support its primary prey, termites. This species was observed foraging near MO-1.

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 pitfall trap at MO-5 within a dense oak woodland with thin leaf litter.

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 MO-1.

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. San Diego horned lizards inhabit coastal sage scrub and chaparral in arid and semi-arid climate conditions and prefer friable, rocky, or shallow sandy soils. This species is commonly found basking in open dirt access roads and trails. This species relies on camouflage to avoid predation and often stays motionless when approached. This species is known to feed on harvester ants (*Pogonomyrmex californicus*). This species was observed at the intersection of DT 3 and DT 4 during a weekly monitoring visit.

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 the primary foraging habitat for this raptor. This species was observed in the dense oak woodland area in the northeastern portion of the Preserve. It is highly likely that this species nests in the oak woodland habitat onsite or immediately adjacent to the Preserve.

Turkey Vulture (*Cathartes aura*)

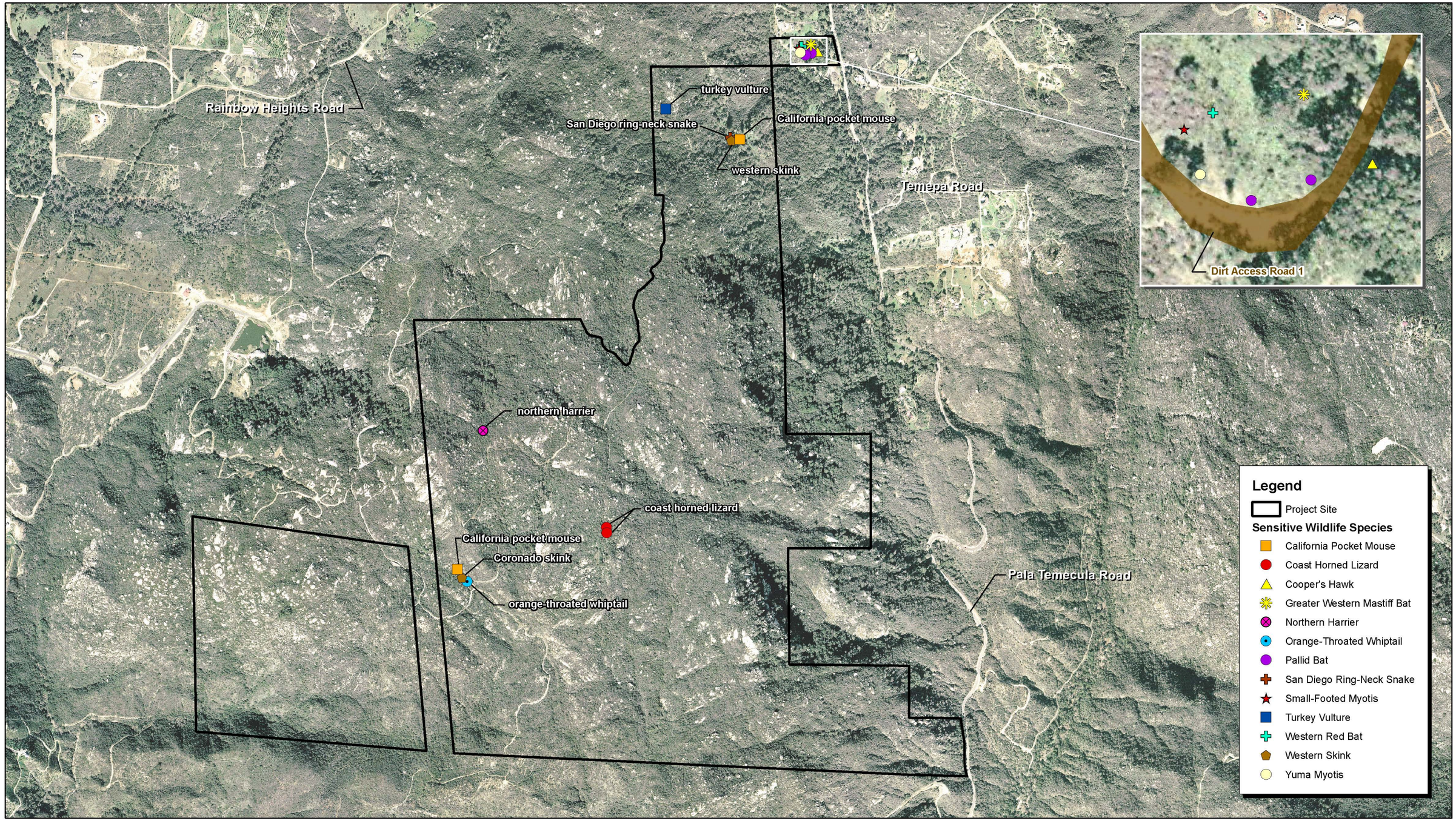
Turkey vulture is a County Group 1 species. This scavenger is found in open country, woodlands, and near farms, but has wide foraging range that may cover many habitats. The vast majority of the Preserve contains suitable foraging habitat for turkey vulture. This species was observed in the northern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

Northern Harrier (*Circus cyaneus*)

Northern harrier is a California Species of Special Concern (nesting), County Group 1 and North County MSCP covered species. Northern harriers occur in open grasslands, agricultural fields, wetlands, and open coastal sage scrub. This species has been known to forage over long distances. This species was likely over-flying the Preserve to suitable habitat in the vicinity. A single northern harrier was observed near DT 1.

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 MO-1 and MO-5.



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

Michael Brandman Associates

NORTH

1,000 500 0 1,000 Feet

00700035 • 04/2010 | 13_sens_wildlife_species.mxd

Exhibit 13
Sensitive Wildlife Species Map

COUNTY OF SAN DIEGO PARKS • MOUNT OLYMPUS PRESERVE
BASELINE BIODIVERSITY REPORT

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. This species was detected at MOB-4 through Sonabat identification. Suitable rock crevices, tree hollows, and structures occur within the Preserve that may provide suitable roosting habitat.

Small-Footed Myotis (*Myotis leibii*)

Small-footed myotis is a County Group 2 species. Small-footed myotis are found in a wide range of habitat types; however, primarily 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. Suitable rock crevices and structures occur within the Preserve that may provide suitable roosting habitat. This species was detected at MOB-4.

Yuma Myotis (*Myotis yumanensis*)

Yuma myotis is a County Group 2 species. Yuma myotis occurs near open water associated with woodlands and forests; maternity colonies occur in caves, mines, buildings, or crevices. Suitable rock crevices and structures occur within the Preserve that may provide suitable roosting habitat. This species was detected at MOB-4.

Greater Western Mastiff Bat (*Eumops perotis*)

Greater western mastiff bat is a California Species of Special Concern and a County Group 2 species. The greater western mastiff bat is often found in rocky areas and cliff faces; it roosts in cliff crevices and buildings. Suitable rock crevices and structures occur within the Preserve that may provide suitable roosting habitat. This species was detected at MOB-4.

Western Red Bat (*Lasiurus blossvillii*)

Western red bat is a California Species of Special Concern and a County Group 2 species. Western red bats roost primarily within trees throughout a wide range of habitat, from sea level to mixed conifer forests. The species prefers habitat edges and mosaics with trees that are protected by dense canopies and have open areas in the understory for foraging. This species was detected at MOB-4.

4.3.6 - Special-Status Wildlife with High 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 onsite. Species with a moderate potential to occur have been previously recorded within five miles of the Preserve and have suitable habitat onsite, or those that occur closer but only marginally suitable habitat occurs onsite. 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 onsite. 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, six sensitive wildlife species have been previously recorded within the vicinity of the Preserve, however, the Preserve does not contain habitat suitable for all these species. The Preserve contains suitable habitat and a high or moderate potential for the following species to occur:

- Northern red diamond rattlesnake (*Crotalus ruber ruber*)
- Bell's sage sparrow (*Amphispiza belli belli*)

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.

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

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 project site contains no designated critical habitat.

4.3.8 - Non-native and/or Invasive Species

Non-native and/or invasive wildlife include species that are not native to the vicinity and may displace native plant or wildlife species. One pest species, brown-headed cowbird (*Molothrus ater*) was detected on the Preserve during the surveys. This species is a brood parasite, which destroys the eggs in a different avian species' active nest and replaces them with brown-headed cowbird eggs. Brown-headed cowbird parasitism has been attributed as a significant contributor to population declines of several special-status avian species. Brown-headed cowbird was observed at MO-2, MO-3, and MO-4 within a two-day span. The detection is likely due to a flyover by an individual. No other invasive wildlife species were identified during surveys in 2009.

4.4 - Wildlife Movement

The Mount Olympus Preserve is an important component of a large regional linkage between the Santa Ana Mountains and Palomar Mountains, also known as the Santa Ana-Palomar wildlife corridor (South Coast Wildlands 2008). The Preserve is located within the central part of the corridor along the southern edge.

The Preserve is crucial in providing an upland area linking Gomez Creek to the west and Pala Creek to the east. 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 an extensive riparian area for movement, the many dirt access roads and trails facilitate animal movement across an otherwise dense stand of southern mixed chaparral. The Preserve borders a few isolated patches of U.S. Department of the Interior Bureau of Land Management (BLM) land as well as several large parcels of Pala Indian Reservation Lands. The Preserve is also immediately west of the Agua Tibia Wilderness.

Medium to small mammal species identified from the camera tracking stations include coyote (*Canis latrans*), bobcat (*Lynx rufus*), desert cottontail (*Sylvilagus audubonii*), and raccoon (*Procyon lotor*).

SECTION 5: CONCLUSIONS AND MANAGEMENT RECOMMENDATIONS

Baseline biological surveys identified six vegetation communities and habitat types and detected a total of 281 plant and wildlife species within the Mount Olympus Preserve. A total of 133 plant taxa, 67 invertebrate species, 1 amphibian species, 11 reptile species, 42 bird species, and 27 mammal species (10 bats, 9 small mammals, and 8 medium to large mammals) were documented within the Preserve. Three sensitive plant and 13 sensitive wildlife species were included in this list of observed species. The data collected during these baseline surveys will assist 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). 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 majority of the Preserve consists of southern mixed chaparral with small pockets of grassland and oak woodland habitat. The FRMP indicates the biggest challenges facing these habitats are fire and invasive species, and the management and monitoring guidelines provided for these habitats are specific to these threats. Specific recommendations regarding fire and invasive species are discussed in Sections 5.6 and 5.4, 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 Orcutt's brodiaea, heart-leaved pitcher sage, and Engelmann oak. Both Orcutt's brodiaea and Engelmann oak are covered species under the North County MSCP. 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 proposed 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 data collections during the late spring and summer months, and additional plant identification 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 Orcutt's brodiaea and Engelmann oak 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 single Engelmann oak found within the Preserve appears to have been planted as an ornamental within the disturbed compound area, impacts to this tree should be avoided, but no specific management recommendations are proposed. However, the population of Orcutt's brodiaea was detected within the native grassland habitat on the Preserve. As such, it will benefit from resource management actions for this habitat type. If the Preserve is opened to the public in the future, it is recommended that, at a minimum, barriers or fencing should be installed along trail edges in the native grassland area 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 13 sensitive wildlife species within the Preserve, four of which are North County MSCP covered species, including orange-throated whiptail, San Diego (coast) horned lizard, northern harrier, and pallid bat. 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 16 butterfly species. Butterfly species have a tendency to congregate on ridges, also known as "hilltopping." Hilltopping was observed within the Preserve along the dirt access roads by mountain mahogany hairstreak, buckeyes, and cabbage white butterflies. Therefore, it is recommended that the highest points of hilltops on the Preserve should remain free of development and that any potential future planned trails and public vistas should be minimized, in these locations.

Focused surveys should be conducted for Hermes copper, a North County MSCP covered species, to determine if this species occurs onsite. Although this species was not detected during 2009 surveys, the butterfly's larval host plant, redberry buckthorn, was observed near MO-1 during 2009 plant surveys. Hermes Copper 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. Future monitoring for this species should follow any recommendations identified by the final North County MSCP FRMP. Should future monitoring for this species reveal additional covered species, these species should also be monitored following North County MSCP FRMP recommendations.

5.3.2 - Herpetofauna

Four sensitive reptile species were detected within the Preserve during the 2009 surveys. These included two North County MSCP covered species, coast horned lizard and orange-throated whiptail. 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. Should future monitoring for these species reveal additional covered 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 some downed wood be left in place to provide refuge habitat for species of salamanders, lizards, and snakes. Downed wood should be removed if

blocking authorized access within the Preserve. However, downed wood may be used purposely to block non-authorized areas.

5.3.3 - Birds

Avian surveys resulted in the detection of three sensitive bird species within the Preserve. The only North County MSCP covered bird species detected during the 2009 surveys was northern harrier. 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.

5.3.4 - Mammals

Small Mammals

Only one sensitive small mammal species, California pocket mouse, was detected on the Preserve during the 2009 baseline surveys. California pocket mouse is not covered under the North County MSCP; therefore, there is no monitoring requirement for this species. However, the small mammal population at the Preserve will generally benefit from habitat management measures, such as invasive species removal, provided that no herbicides are used in areas where animals sensitive to these chemicals occur. For example, the ornate shrew 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 are no medium to large mammals covered under the North County MSCP detected during 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. Dogs can become efficient predators and will occasionally kill or harass native animals. It is recommended that a public information campaign (e.g., through the distribution of informative flyers) be initiated to inform neighbors to keep their pets indoors or within the confines of their properties. In addition, if the Preserve is opened for public use in the future, it is recommended that signage be posted to inform recreational users of leash requirements and to state that dog owners are required to remove all feces in order to minimize potential vector born disease transmission to the local coyote population. Feces bags and disposal bins should also be provided at trailheads to encourage the public to remove feces.

Bats

Three 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 habitat 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 within the Preserve should be prevented. It is recommended that measures be taken to prevent people from accessing the large rocky outcrop areas and prohibit recreational rock climbing unless focused bat surveys are conducted in areas to be designated as climbing areas.

5.4 - Non-Native Invasive Species Removal and Control

5.4.1 - Plants

All the significant stands of invasive plant species observed are located adjacent to the remnant buildings on the northern portion of the Preserve near the abandoned compound site, with the exception of a small stand of yellow star-thistle in the native grassland area. The stands currently are relatively small and have not begun to invade any of the surrounding vegetation communities. MBA recommends removing invasive plants and monitoring every six months for the first year and annually for the next two years, to ensure no re-growth occurs. Yellow star-thistle has a highly invasive plant rating and should be removed first. The blue gum onsite has a moderate rating for removal, but is limited to a few tall trees with no evidence of dispersal.

5.4.2 - Wildlife

Brown-headed cowbird was observed at Sampling Locations MO-2, MO-3, and MO-4 within a two-day span. The detection is attributed to a flyover by an individual and does not imply a pair or population currently occupies the Preserve. However, due to the potentially significant affects 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.

Horseback riding may be considered within the Preserve as a passive recreational use if, and when, the Preserve is opened to the Public. The manure left behind by horses may attract exotic wildlife species, including brown-headed cowbirds. The manure and the insects associated with manure

provide the brown-headed cowbird with foraging opportunities. If, in the future, the Preserve is opened to equestrian use, an education program should be implemented on the Preserve regarding the potential negative impacts to native ecosystems from the accumulation of non-point source pollutants in staging areas and on frequently used trails. In addition, a volunteer trail patrol could be instituted to keep trails and staging areas free of non-point source pollutants associated with horseback riding.

5.5 - Restoration Opportunities

The vast majority of the Preserve remains undeveloped and undisturbed. The main area with potential for restoration efforts is the area associated with the abandoned compound in the northern portion of the Preserve. MBA recommends eradicating the invasive plant species from the compound area prior to any additional seed dispersal activities. Following the removal of invasives at the compound, a program of hand seeding with a mix of chaparral and oak woodland species is recommended. MBA also recommends restoring vegetation on any closed access roads and trails, and any eroded areas alongside these roads and trails through sediment stabilization and native vegetation planting, if applicable. See also Section 5.8.3.

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 open 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 (WUI).

The last significant fire within Preserve burned in 1942. The Preserve has over 65 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 zones on the northeast portion of the Preserve property adjacent to the existing residential structures that are 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 Mount Olympus Preserve (MBA 2010b) 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: thinning vegetation along each side of any proposed trails as identified in the Public Access Plan (MBA 2010b) and roadways; thinning vegetation surrounding the historic buildings located at the Compound site (remaining or removed from the site); and maintenance of existing fuel modification zones on Preserve property adjacent to existing residential structures.

The Preserve has not burned since 1942, the chaparral is extremely dense with a high percentage of the chaparral plants no longer alive (MBA 2010a). Where chaparral plants are uniformly old, and cover a broad area, fires tend to be large and devastating. The measures listed above are designed to reduce the potential for a fire rather than increase the health of the chaparral. Since there are so few sensitive species within the Preserve and the area is surrounded by some homes, the buffer approach along the WUI was suggested. Monitoring of the Preserve, if opened to the public for recreation should occur and if an increase in ignitions occurs the recommendation will need to be re-examined.

5.7 - Wildlife Linkages and Corridors

The Mount Olympus Preserve is an important component of the Santa Ana-Palomar wildlife corridor. The Preserve is a small parcel of open space in comparison to the overall linkage between the Santa Ana and Palomar Mountains, but is a crucial part of the linkage. 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 an extensive riparian area for movement, the many dirt access roads facilitates animal movement across an otherwise dense stand of southern mixed chaparral. The Preserve borders a few isolated patches of BLM land as well as several large parcels of Indian Reservation Lands.

The North County MSCP target species for corridor use, including mountain lions and southern mule deer, were not verified by camera/track station 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 - Public Access

Many of the existing access roads and disturbed trails provide high quality lookout points of northwestern San Diego County. MBA recommends supporting public access along the existing access roads and disturbed trails by enhancing these areas for passive recreation use if the Preserve is opened to the public. Enhancing the existing roads and disturbed trails, however, should be done wisely so as not to degrade the existing, high-quality plant and wildlife habitat present within the Preserve. This entails providing appropriate facilities, signage, and waste disposal, as well as improving the existing roads and disturbed trails and implementing erosion control measures. The discussion provided in the sections below further elaborates the recommended actions. A more thorough and detailed discussion of the potential access to the Preserve, including discussion of trail systems and management, is included in the Public Access Plan developed for the Preserve (MBA 2010a).

5.8.2 - Fencing and Gates

The majority of the Preserve consists of old-growth southern mixed chaparral. This plant community is characteristically tall, very dense, and hard to travel through, even with all-terrain vehicles, and provides a natural barrier effectively restricting access into the Preserve. Therefore, no perimeter fencing is recommended surrounding the Preserve. The native grassland area should be monitored on a regular basis by park rangers if the Preserve is opened to the public. If the native grassland area is impacted by human activities, fencing may be necessary to protect the resource and restrict access to this area.

Restricting access to the existing dirt roads to regular operating hours will reduce unsupervised activity that can lead to increased potential for wildland fires and other safety concerns. Gates are currently in place at two access points around the Preserve and help to minimize trespassing and vandalism on the Preserve after hours. Maintenance of these gates is recommended to ensure only authorized access is permitted.

5.8.3 - 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 can increase the likelihood of sustaining long-term ecosystem health and processes in these fire-adapted lands.

Many portions of DT 1 and adjacent areas show evidence of significant erosion. Erosion causes trails to be impassable by recreationists and results in an inability for plants to establish on these areas. MBA recommends strategically installing water bars and other erosion control measures on all of the roads and any trails proposed for use and improvement if the Preserve is opened to the public. Any trails and roads proposed to be excluded from further development, and subsequently closed to future traffic, should be evaluated for potential restoration projects. The restoration efforts should include installing native plant seedlings along the barren areas to allow re-establishment of native plant species, and installing flow diversion techniques, such as water bars.

5.8.4 - Signage and Education

Natural history kiosks are currently in place at the main access point of many of the existing preserves within San Diego County. Similar kiosks should also be included at strategic locations within the Mount Olympus Preserve if the Preserve is opened to the public. These kiosks should be maintained and updated to provide the public with valuable information about the Preserve. Information should include, but not be limited to, common native plant and wildlife species that occur within the Preserve as well as poisonous plant and wildlife species. Information regarding wildlife encounters and safety issues should be provided in these kiosks to ensure the protection of plant and wildlife species and visitors of the Preserve. Signage should be placed in locations along trails identifying conservation goals, advising to stay on trails and keep pets on leash, and including safety instructions with regard to rattlesnakes and poison oak.

5.8.5 - Litter/Trash Removal

It is very important to provide and maintain trash collecting receptacles at all entrances to the Preserve if the Preserve is opened to the public. With an increase in human activity, there will follow an increase in trash and debris. Providing trash receptacles will reduce the amount of rubbish that is left on the Preserve. An increase in trash will increase the amount of scavenging wildlife species such as crows, ravens, and rats. An increase in scavenging wildlife species may have an adverse affect on the native species, with an increase in predation.

5.8.6 - Illegal Off-Road Activity

It is important that appropriate efforts are made to prevent illegal off-road activity from occurring on the Preserve. Some evidence of illegal off-road activity was observed during the 2009 surveys along the dirt access roads and DT 1. Off-road activities can have negative impacts on vegetation communities and plant and wildlife species, increase fire potential, the rate of weed invasion, and lead to direct mortality of wildlife. Gates are currently in place at two access points around the Preserve. Maintenance of these gates is recommended to ensure only authorized access is permitted. Appropriate signage, fencing, frequent ranger patrol, and public education should also be implemented to reduce illegal off-road activity on the Preserve.

5.8.7 - Hydrological Management

The Mount Olympus Preserve does not contain water bodies or drainage features and therefore does not require Hydrologic Management beyond that associated with trail maintenance activities to prevent erosion.

5.8.8 - Erosion Control

Multiple eroded areas were identified along the existing disturbed trails within the Preserve. Erosion is promoted by the combination of erodible soils, steep slopes, sparse to no vegetation, and certain hydrologic condition of the soils. Erosion can be aggravated by human disturbance such as fire-control activities, trail or road construction, or off-road vehicle activity. In order to prevent additional erosion damage within the Preserve, it is recommended that all areas of moderate to severe erosion, causes of the erosion, and any current or potential effects to habitat or cultural resources be identified and ranked for priority. An erosion control plan, including measures such as establishment of physical features to slow surface flow (e.g., water bars) and revegetation of eroded surfaces, should be developed for those areas identified as high priority. Additionally, contingency native seeding plans should be prepared for highly erosive areas which may be temporarily disturbed by fire or other disturbances and bare surface grading for fuel management should be prohibited on steep slopes. All techniques implemented for fire control should leave (or replace) adequate vegetation cover to prevent surface erosion.

5.8.9 - Emergency and Safety Issues

The Preserve contains areas of dense southern mixed chaparral. Access for emergency equipment is limited to existing access roads that can accommodate emergency vehicles. A majority of the disturbed trails are not wide enough to support emergency vehicles. The vegetation associated with the existing disturbed trails and access roads is mostly chaparral habitat and removal of the habitat would not result in a significant impact. However, the dirt access roads within the Preserve are wide enough for vehicular use and occur within open vegetation, therefore, little to no clearing of vegetation would be required.

SECTION 6: REFERENCES

American Ornithologists' Union. 1983 (and supplements 1985, 1987, 1989, 1991, 1993, and 1995). The A.O.U. Check-List of North American Birds. 6th ed. Allen Press. Lawrence, Kansas.

Burt, W.H., and Grossenheider, R.P. 1980. Peterson Field Guides, Mammals. Houghton Mifflin Company. New York, New York.

California Department of Forestry and Fire Protection (CAL FIRE). 2009. CAL FIRE FRAP Data.

California Department of Fish and Game (CDFG). 1988a. California's Wildlife, Volume I: Amphibians and Reptiles. State of California Resources Agency. Sacramento, California.

California Department of Fish and Game (CDFG). 1988b. California's Wildlife, Volume II: Birds. State of California Resources Agency. Sacramento, California.

California Department of Fish and Game (CDFG). 1988c. California's Wildlife, Volume III: Mammals. State of California Resources Agency. Sacramento, California.

California Department of Fish and Game (CDFG). 2003. Natural Communities List. The Resources Agency of California, Department of Fish and Game, Natural Diversity Data Base. Sacramento, California. September.

California Department of Fish and Game (CDFG). 2009. Endangered and Threatened Animals List. The Resources Agency of California, Department of Fish and Game, Natural Heritage Division, Natural Diversity Data Base. Sacramento, California. July.

California Department of Fish and Game (CDFG). 2009. Endangered, Threatened, and Rare Plants. The Resources Agency of California, Department of Fish and Game, Natural Heritage Division, Natural Diversity Data Base. Sacramento, California. July.

California Department of Fish and Game (CDFG). 2009. RareFind 3 personal computer program. Data Base Record Search for Information on Threatened, Endangered, Rare, or Otherwise Sensitive Species for the Bonsall, Pala, Pechanga, and Temecula, California USGS Topographic Quadrangles. California Department of Fish and Game, State of California Resources Agency. Sacramento, California.

California Department of Fish and Game (CDFG). 2009. Special Animals List. The Resources Agency of California, Department of Fish and Game, Natural Heritage Division, Natural Diversity Data Base. Sacramento, California. July.

California Department of Fish and Game (CDFG). 2009. Special Vascular Plants, Bryophytes, and Lichens List. The Resources Agency of California, Department of Fish and Game, Natural Heritage Division, Natural Diversity Data Base. Sacramento, California. July.

California Invasive Plant Council (Cal-IPC). 2010. California Invasive Plant Inventory Database. Available at: http://www.cal-ipc.org/ip/inventory/weedlist.php.

California Native Plant Society (CNPS). 2006. California Native Plant Society's Electronic Inventory of Rare and Endangered Vascular Plants of California. Electronic document, http://www.northcoast.com/~cnps/cgi-bin/cnps/sensinv.cgi.

California, State of. 1989. Fish And Game Code.

Conard, G.S., and D.R. Weise. 1998. Management of Fire Regime, Fuels, and Fire Effects in the Southern California Chaparral: Lessons from the Past and Thoughts for the Future. U.S.F.S. Pacific Southwest Research Station. Riverside County, California.

County of San Diego. 2008. County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements. Biological Resources. Land Use and Environment Group. Department of Planning and Land Use. Department of Public Works. San Diego County, California. Second Revision July 30, 2008.

County of San Diego. 2009a. Multiple Species Conservation Program: Draft North County Plan. San Diego County, California.

County of San Diego. 2009b. Vegetation Management Report, a Report on Vegetation Management in the Unincorporated Area of San Diego, County.

Department of the Army. 1986. 33 CFR Parts 320 Through 330, Regulatory Programs of the Corps of Engineers; Final Rule. Federal Register 51(219):41206-41260. November 13.

Department of the Army. 2000. 33 CFR Parts 320 Through 330, Regulatory Programs of the Corps of Engineers; Final Rule. Federal Register 65(47):12818-12899. March 9.

Department of the Army. 2002. 33 CFR Parts 320 Through 330, Regulatory Programs of the Corps of Engineers; Final Rule. Federal Register 67(10):2020-2095. January 15.

Google. 2009. GoogleEarth Pro. Accessed 2006 aerial photographs.

Hickman, J. C. 1993. The Jepson Manual: Higher Plants of California. University of California Press. Berkeley, California.

Historical Aerial.com. 1946, 1964, 1967, 1978, 1981, 1989, and 2005.

Holland, R.F. 1986 (updated 1996). Preliminary Descriptions of the Terrestrial Natural Communities of California. Non-game Heritage Program. California Department of Fish and Game. Sacramento, California.

Luke, C., K. Penrod, C.R. Cabanero, P. Beier, W. Spencer, and S. Shapiro. 2004. A linkage design for the Santa Ana-Palomar Mountains connection. Unpublished report. San Diego State University Field Station Programs, San Diego, California.

Michael Brandman Associates (MBA). 2010a. Public Access Plan for the Mount Olympus Preserve Project prepared for the County of San Diego Parks Department, San Diego County, California.

Michael Brandman Associates (MBA). 2010b. Vegetation Management Report for the Mount Olympus Preserve Project prepared for the County of San Diego Parks Department, San Diego County, California.

Munz, P.A. 1974. A Flora of Southern California. University of California Press. Berkeley, California.

Murie, O.J. 1974. Peterson Field Guides, Animal Tracks. Houghton Mifflin Company. Boston, California.

National Geographic Society. 1999. National Geographic Society Field Guide to the Birds of North America. 3rd ed. National Geographic Society. Washington D.C.

Natural Resources Conservation Service, Soil Survey Staff, United States Department of Agriculture. Official Soil Series Descriptions [Online WWW]. Available URL: "http://soils.usda.gov/technical/classification/osd/index.html" [Accessed 1 February 2010]. USDA-NRCS, Lincoln, NE.

Oberbauer, Thomas. 1996. Terrestrial Vegetation Communities in San Diego County Based on Holland's Description. County of San Diego Department of Planning and Land Use. Revised February 1996.

Reed, P.B. 1988. National List of Plant Species That Occur in Wetlands: California (Region 0). National Wetlands Inventory, U.S. Fish and Wildlife Service Biological Report 88 (26.9).

San Diego Geographic Information Systems Data (SANGIS). 2009. Website: www.sangis.org

Sawyer, J.O. and T. Keeler-Wolf. 1995. A Manual of California Vegetation. California Native Plant Society. Sacramento, California.

Stebbins, R.C. 2003. A Field Guide to Western Reptiles and Amphibians. 2nd ed. Houghton-Mifflin Company. Boston, Massachusetts.

Tibor, D.P. 2001. California Native Plant Society's Inventory of Rare and Endangered Plants of California. California Native Plant Society. Special Publication, No. 1, 6th ed.

Udvardy, M.D. 1994. National Audubon Society Field Guide to North American Birds. Alfred A. Knopf, Inc. New York, New York.

United States Army Corps of Engineers (USACE). 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U.S. Army Corps of Engineers Waterways Experiment Station. Vicksburg, Mississippi.

United States Army Corps of Engineers (USACE). 2006. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region. Ed. J.S. Wakely, R.W. Lichvar, and C.V. Noble. ERDC/EL TR. U.S. Army Engineer Research and Development Center. Vicksburg, Mississippi.

United State Department of Agriculture (USDA). 1973. Soil Survey of San Diego County, California. Department of the Interior. U.S. Government Printing Office. Washington, D.C.

United States Department of Agriculture (USDA). 2010. The PLANTS Database Website: California State-Listed Noxious Weeds. Available at: http://plants.usda.gov.

United States Fish and Wildlife Service (USFWS). 2002. Quino Checkerspot Butterfly (*Euphydras editha quino*) Survey Protocol Information. February 2002.

United States Fish and Wildlife Service (USFWS). 1993. Plant Taxa for Listing as Endangered or Threatened Species; Notice of Review. Federal Register 50 CFR Part 17. U.S. Department of the Interior. Washington, D.C. September 30.

United States Fish and Wildlife Service (USFWS). 1994. Endangered and Threatened Wildlife and Plants; Animal Candidate Review for Listing as Endangered or Threatened Species. Federal Register 50 CFR Part 17. U.S. Department of the Interior. Washington, D.C. November 15.

United States Fish and Wildlife Service (USFWS). 1997c. Endangered and Threatened Wildlife and Plants. Federal Register 50 CFR Part 17.11 and 17.12. U.S. Department of the Interior. Washington, D.C. October 31.

United States Geological Survey (USGS). 1968. Pechanga, California 7.5-Minute Topographic Quadrangle Map. Department of the Interior. U.S. Government Printing Office. Washington D.C.

United States Geological Survey (USGS). 2008. Herpetological Monitoring Using a Pit-fall Trapping Design in Southern California. U.S. Government Printing Office. Washington D.C.

Weather Underground. 2009. Website: http://www.wunderground.com/wundermap.

Wetherwax, M. 2002. Editorial Comment 1, Arctostaphylos peninsularis P. V. Wells, Jepson Interchange for California Floristics. Jepson Interchange for California Floristics Online Database. Website: http://ucjeps.berkeley.edu/. Species account updated: February 27, 2002.

SECTION 7: PROJECT RESPONSIBILITY

Principal-In-Charge ..... Thomas F. Holm
Project Manager ..... Kenneth J. Lord, Ph.D.
Senior Project Biologist..... Scott Crawford
Project Biologist ..... Kelly Rios, Deb Stout, Dale Hameister
Baseline Biodiversity Report: Primary Author ..... Scott Crawford/Tommy Molioo
Technical Review of Baseline Biodiversity Report ..... Kelly Rios
Field Personnel ..... Diana Lloyd, Steve Norton, Dale Hameister and Tommy Molioo
Senior Editor / Document Processor ..... Sandra L. Tomlin
Graphics..... Karlee McCracken
Reprographics..... José Morelos
Photography (Site Photographs)..... Dale Hameister

All staff responsible for report preparation and fieldwork are MBA employees and can be contacted at 714.508.4100.

Appendix A: Observed Species List - Plants

Flora Compendia

Pteridaceae		**Brake Family**
Pellaea	*mucronata*	bird's-foot fern
Pentagramma	*triangularis*	goldenback fern
Selaginellaceae		**Spike-Moss Family**
Selaginella	*bigelovii*	Bigelow's spike-moss *
Pinaceae		**Pine Family**
Pinus	*sp.*	Unknown pine species
Anacardiaceae		**Sumac or Cashew Family**
Malosma	*laurina*	laurel sumac
Rhus	*ovata*	sugar bush
Toxicodendron	*diversilobum*	poison oak
Apocynaceae		**Dogbane Family**
Nerium	*oleander*	oleander **
Asteraceae		**Sunflower Family**
Achillea	*millefolium*	California yarrow
Ambrosia	*psilostachya*	western ragweed
Antennaria	*dimorpha*	low pussytoes
Artemisia	*californica*	California sagebrush
Artemisia	*douglasiana*	mugwort
Carduus	*pycnocephalus*	Italian thistle *
Centaurea	*solstitialis*	yellow star-thistle **
Chaenactis	*glabriuscula*	yellow pincushion
Cirsium	*occidentale var. californicum*	cobwebby thistle
Cirsium	*vulgare*	bull thistle *
Eriophyllum	*confertiflorum*	golden yarrow
Filago	*vulgaris*	common cottonrose
Gnaphalium	*californicum*	California everlasting
Hazardia	*squarrosa*	sawtooth goldenbush
Hemizonia	*paniculata*	San Diego tarweed
Hypochaeris	*glabra*	smooth cat's-ear
Pseudognaphalium	*canescens*	everlasting cudweed
Sonchus	*asper*	sow thistle *
Sonchus	*oleraceus*	common sow thistle *
Stephanomeria	*virgata*	twiggy wreathplant
Boraginaceae		**Borage Family**
Cryptantha	*micromeres*	pygmyflowered cryptantha
Plagiobothrys	*collinus*	Cooper's popcorn flower
Brassicaceae		**Mustard Family**
Hirschfeldia	*incana*	short-podded mustard *
Lepidium	*nitidum*	shining peppergrass

Flora Compendia

Cactaceae		**Cactus Family**
Opuntia	*ficus-indica*	Indian fig *
Opuntia	*micordasys*	polka-dot cactus *
Caprifoliaceae		**Honeysuckle Family**
Lonicera	*subspicata*	southern honeysuckle
Symphoricarpos	*mollis*	creeping snowberry
Caryophyllaceae		**Pink Family**
Silene	*californica*	Indian pink
Cistaceae		**Rock-Rose Family**
Helianthemum	*scoparium*	peak rush-rose
Convolvulaceae		**Morning-Glory Family**
Calystegia	*macrostegia*	island false bindweed
Crassulaceae		**Stonecrop Family**
Crassula	*connata*	pygmy-weed
Crassula	*argentea*	jade plant *
Dudleya	*edulis*	ladie's-fingers
Dudleya	*lanceolata*	lance-leaved dudleya
Dudleya	*pulverulenta*	chalk dudleya
Cucurbitaceae		**Gourd Family**
Marah	*macrocarpus*	wild cucumber
Cuscutaceae		**Dodder Family**
Cuscuta	*californica*	California dodder
Ericaceae		**Heath Family**
Arctostaphylos	*glandulosa*	Eastwood's manzanita
Arctostaphylos	*glauca*	bigberry manzanita
Xylococcus	*bicolor*	mission manzanita
Fabaceae		**Legume Family**
Lotus	*purshianus var. purshianus*	Spanish clover
Lotus	*scoparius*	common deerweed
Lotus	*strigosus*	strigose lotus
Pickeringia	*montana*	chaparral pea
Robinia	*pseudoacacia*	black locust *
Fagaceae		**Oak Family**
Quercus	*agrifolia*	coast live oak
Quercus	*berberidifolia*	scrub oak
Quercus	*engelmannii*	Engelmann oak
Gentianaceae		**Gentian Family**
Centaurium	*venustum*	charming centaury *
Geraniaceae		**Geranium Family**

Flora Compendia

Geranium	*dissectum*	cutleaf geranium
Pelargonium	× *domesticum*	regal pelargonium *
Grossulariaceae		**Gooseberry Family**
Ribes	*malvaceum*	chaparral currant
Hydrophyllaceae		**Waterleaf Family**
Eriodictyon	*crassifolium*	thick-leaved yerba santa
Phacelia	*cicutaria*	caterpillar phacelia
Phacelia	*distans*	fern-leaf phacelia
Phacelia	*minor*	wild canterbury-bell
Juglandaceae		**Walnut Family**
Juglans	*californica var. hindsii*	California black walnut
Lamiaceae		**Mint Family**
Lepechinia	*cardiophylla*	heart-leaved pitcher sage
Salvia	*apiana*	white sage
Salvia	*clevelandii*	fragrant sage
Salvia	*mellifera*	black sage
Linaceae		**Flax Family**
Hesperolinon	*micranthum*	dwarf flax
Malvaceae		**Mallow Family**
Sidalcea	*malvaeflora*	checker mallow
Myrtaceae		**Myrtle Family**
Eucalyptus	*globulus*	blue gum **
Onagraceae		**Evening Primrose Family**
Clarkia	*affinis*	chaparral clarkia
Clarkia	*bottae*	Botta's clarkia
Clarkia	*purpurea*	wine cup clarkia
Paeoniaceae		**Peony Family**
Paeonia	*californica*	California peony
Papaveraceae		**Poppy Family**
Dendromecon	*rigida*	bush poppy
Eschscholzia	*californica*	California poppy
Plantaginaceae		**Plantain Family**
Plantago	*erecta*	western plantain
Plantago	*lanceolata*	English plantain *
Polemoniaceae		**Phlox Family**
Navarretia	*hamata*	hooked navarretia
Polygonaceae		**Buckwheat Family**
Eriogonum	*fasciculatum*	California buckwheat
Rumex	*crispus*	curly dock *

Flora Compendia

Primulaceae		**Primrose Family**
Anagallis	*arvensis*	scarlet pimpernel *
Ranunculaceae		**Buttercup Family**
Clematis	*ligusticifolia*	virgins bower
Delphinium	*californicum*	California larkspur
Thalictrum	*fendleri*	Fendler's meadow-rue
Rhamnaceae		**Buckthorn Family**
Ceanothus	*crassifolius*	hoary leaf ceanothous
Ceanothus	*cuneatus var. cuneatus*	buck brush
Ceanothus	*oliganthus*	hairy ceanothous
Rhamnus	*crocea*	redberry buckthorn
Rhamnus	*ilicifolia*	holly leaf redberry
Rosaceae		**Rose Family**
Adenostoma	*fasciculatum*	chamise
Adenostoma	*sparsifolium*	red shank
Cercocarpus	*montanus var. glaber*	mountain mahogany
Heteromeles	*arbutifolia*	toyon
Prunus	*ilicifolia*	holly leaf cherry
Rubiaceae		**Madder Family**
Galium	*angustifolium*	narrow-leaved bedstraw
Rutaceae		**Rue Family**
Citrus	*limonia*	lemon *
Scrophulariaceae		**Figwort Family**
Antirrhinum	*nuttallianum*	Nuttall's snapdragon
Cordylanthus	*rigidus*	stiff branch bird's-beak
Diplacus	*aurantiacus ssp. aurantiacus*	sticky-leaf monkeyflower
Keckiella	*cordifolia*	heart leaf keckiella
Mimulus	*cardinalis*	scarlet monkeyflower
Scrophularia	*californica*	California figwort
Solanaceae		**Nightshade Family**
Solanum	*xanti*	chaparral nightshade
Styracaceae		**Storax Family**
Styrax	*officinalis var. redivivus*	California snowdrop bush
Agavaceae		**Agave Family**
Agave	*americana variegata*	century plant *
Hesperoyucca	*whipplei*	Our Lord's Candle
Yucca	*elephantipes*	yucca tree *
Cyperaceae		**Sedge Family**
Cyperus	*eragrostis*	tall flatsedge

Flora Compendia

Iridaceae		**Iris Family**
Sisyrinchium	*bellum*	western blue-eyed grass
Juncaceae		**Rush Family**
Juncus	*bufonius*	toad rush
Juncus	*effusus*	common rush
Liliaceae		**Lilly Family**
Aloe	*saponaria x aloe striata*	aloe *
Brodiaea	*orcuttii*	Orcutt's brodiaea
Calochortus	*splendens*	splendid mariposa lily
Calochortus	*weedii*	Weed's mariposa lily
Dichelostemma	*capitatum*	blue dicks
Poaceae		**Grass Family**
Agrostis	*pallens*	seashore bent grass
Avena	*fatua*	wild oat *
Bromus	*carinatus*	California brome
Bromus	*diandrus*	ripgut brome *
Bromus	*rubens*	foxtail brome *
Bromus	*tectorum*	cheat grass *
Elymus	*glaucus*	blue wild rye
Melica	*imperfecta*	small flower melic grass
Muhlenbergia	*rigens*	deer grass
Nassella	*cernua*	nodding needle grass
Phalaris	*canariensis*	annual canary grass *
Schismus	*barbatus*	common Mediterranean grass *
Vulpia	*myuros*	rat-tail fescue *

Appendix B: Observed Species List - Wildlife

Fauna Compendia

Invertebrates

Araneidae		**Orb Weavers**
Argiope	*sp.*	garden orbweaver
Corinnidae		**Antmimics and Ground Sac Spider**
Castianeira	*cinqulata*	two-banded antmimic
Gnaphosidae		**Ground Spiders**
Zelotus	*gynethus*	ground spider
Lycosidae		**Wolf Spiders**
Sosippus	*californicus*	wolf spider
Salticidae		**Jumping Spiders**
Phidippus	*johnsoni*	Johnson Jumper
Theraphosidae		**Tarantulas**
Aphonopelma	*eutylenum*	California ebony tarantula
Ixodidae		**Hard Ticks**
Dermacentor	*occidentalis*	deer tick
Protolophidae		**Harvestman**
Protolophus	*sp.*	harvestman
Vaejovidae		**Scorpions**
Paruroctonus	*silvestrii*	California common scorpion
Eremobatidae		**Straight-faced solifugids**
Eremobates	*sp.*	sun spider
Libellulidae		**Skimmers**
Pachydiplax	*longipennis*	blue dasher
Coenagrionidae		**Common Damselflies**
Enallagma	*civile*	familiar bluet damselfly
Gryllidae		**Crickets**
Gryllus	*sp.*	field cricket
Rhaphidophoridae		**Camel Crickets**
Ceuthophilus	*hesperus*	camel cricket
Stenopelmatidae		**Jerusalem Crickets**
Stenopelmatus	*fuscus*	Jerusalem Cricket
Acrididae		**Short-horned Grasshoppers**
Arphia	*sp.*	speckled grasshopper
Chloealtis	*gracilis*	slant-faced grasshopper
Polyphagidae		**Sand Roaches**
Arenivaga	*investigata*	desert cockroach
Reduviidae		**Assassin Bugs**
Apiomerus	*crassipes*	bee assassin
Triatoma	*sp.*	blood sucking cone nose
Issidae		**Plant Hoppers**

Fauna Compendia

Unknown Sp.		plant hopper
Rhyparochromidae		**Dirt-Colored Seed Bugs**
Xanthochilus	*saturnius*	Mediterranean seed bug
Elateridae		**Click Beetles**
Elater	*sp.*	click beetle
Buprestidae		**Metallic Wood-boring beetles**
Acmaeodera	*labyrinthica*	spotted flower buprestid
Coccinellidae		**Ladybird Beetles**
Coccinella	*novemnotata franciscana*	nine-spotted ladybird beetle
Tenebrionidae		**Darkling Beetles**
Coelocnemis	*californicus*	armored stink beetle
Nyctoporis	*carinata*	darkling beetle
Scarabaeidae		**Scarab Beetles**
Aphodius	*sp.*	dung beetle
Chrysomelidae		**Leaf Beetles**
Pseudoluperus	*maculicollis*	skeletonizing leaf beetle
Melyridae		**Soft-Winged Flower Beetle**
Attalus	*sp.*	soft-winged flower beetles
Zopheridae		**Ironclad Beetles**
Nosoderma	*diabolicum*	diabolical ironclad beetle
Phloeodes	*pustulosus*	ironclad beetle
Papilionidae		**Swallowtail Butterflies**
Papilio	*eurymedon*	pale swallowtail
Pieridae		**Whites, Sulphurs, and Orangetips**
Colias	*eurytheme*	alfalfa butterfly
Pieris	*rapae*	cabbage white
Pontia	*protodice*	common white
Nathalis	*iole*	dainty sulphur
Lycaenidae		**Blues and Hairstreaks**
Glaucopsyche	*lygdamus australis*	southern blue
Icaricia	*acmon*	acmon blue
Satyrium	*tetra*	mountain mahogany hairstreak
Nymphalidae		**Brush-Footed Butterflies**
Adelpha	*bredowii californica*	California sister
Precis	*coenia*	buckeye butterfly
Vanessa	*cardui*	painted lady
Satyridae		**Satyrids**
Coenonympha	*californica*	California ringlet
Hesperiidae		**Skippers**

Fauna Compendia

Erynnis	*funeralis*	funereal dusky wing
Hylephila	*phyleus*	fiery skipper
Riodinidae		**Metalmarks**
Apodemia	*mormo virgulti*	Behr's metalmark
Calephelis	*wrightii*	Wright's metalmark
Asilidae		**Robber Flies**
Diogmites	*sp.*	robber fly
Stenopogon	*sp.*	robber fly
Bombyliidae		**Bee Flies**
Bombylius	*sp.*	bee fly
Therevidae		**Stiletto Flies**
Thereva	*nobilitata*	horse fly
Sarcophagidae		**Flesh Flies**
Sarcophaga	*sp.*	flesh fly
Mutillidae		**Velvet Ants**
Dasymutilla	*occidentalis*	velvet ant
Dasymutilla	*sackenii*	white velvet ant
Formicidae		**Ants**
Linepithema	*humile*	Argentine ants
Pogonomyrmex	*californicus*	harvester ants
Camponotus	*sp.*	carpenter ants
Pompilidae		**Spider Wasps**
Pepsis	*chrysothemis*	tarantula hawk
Apidae		**Honey Bees and Bumble Bees**
Apis	*mellifera*	honey bee
Machilidae		**Bristletails**
Trigoniophthalmus	*alternatus*	bristletail
Anisolabididae		**Black Earwigs**
Euborellia	*annulipes*	earwig
Lepismatidae		**Silverfish**
Ctenolepisma	*lineata*	four-lined silverfish
Ctenolepisma	*olongicaudata*	gray silverfish
Scolopendridae		**Centipedes**
Scolopendra	*polymorpha*	centipede
Armadillidiidae		**Pillbugs**
Armadillidium	*vulgare*	common pillbug
Porcellionidae		**Wood Lice**
Porcellio	*sp.*	rough sowbug
Amphibians **Bufonidae**		**True Toads**

Fauna Compendia

	Bufo	*boreas*	western toad
Reptiles	**Teiidae**		**Whiptails**
	Aspidoscelis	*tigris*	coastal western whiptail
	Aspidoscelis	*hyperytha*	orange-throated whiptail
	Scincidae		**Skinks**
	Eumeces	*skiltonianus interparietalis*	Coronado skink
	Eumeces	*gilberti rubricaudatus*	western red-tailed skink
	Phrynosomatidae		**Lizards**
	Phrynosoma	*coronatum*	coast-horned lizard
	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
	Hypsiglena	*torquata*	night snake
	Masticophis	*lateralis lateralis*	chaparral whipsnake
	Viperidae		**Vipers**
	Crotalus	*mitchelli ipyrrhus*	southwestern speckled rattlesnake
Birds	**Odontophoridae**		**Quail**
	Callipepla	*californica*	California quail
	Cathartidae		**Vultures**
	Cathartes	*aura*	turkey vulture
	Accipitridae		**Hawks**
	Circus	*cyaneus*	northern harrier
	Accipiter	*cooperii*	cooper's hawk
	Buteo	*lineatus*	red-shouldered hawk
	Buteo	*jamaicensis*	red-tailed hawk
	Falconidae		**Falcons**
	Falco	*sparverius*	American kestrel
	Columbidae		**Pigeons/Doves**
	Zenaida	*macroura*	mourning dove
	Tytonidae		**Barn owls**
	Tyto	*alba*	barn owl
	Strigidae		**True Owls**
	Bubo	*virginianus*	great horned owl
	Caprimulgidae		**Goatsuckers**
	Phalaenoptilus	*nuttallii*	common poorwill
	Apodidae		**Swifts**
	Aeronautes	*saxatalis*	white-throated swift

Fauna Compendia

Trochilidae		**Hummingbirds**
Calypte	*anna*	Anna's hummingbird
Calypte	*costae*	Costa'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
Myiarchus	*cinerascens*	ash-throated flycatcher
Tyrannus	*vociferans*	Cassin's kingbird
Vireonidae		**Vireos**
Vireo	*huttoni*	Hutton's vireo
Corvidae		**Jays/Crows**
Aphelocoma	*californica*	western scrub-jay
Corvus	*brachyrhynchos*	American crow
Hirundinidae		**Swallows**
Stelgidopteryx	*serripennis*	northern rough-winged swallow
Paridae		**Chickadees/Titmice**
Baeolophus	*inornatus*	oak titmouse
Aegithalidae		**Bushtits**
Psaltriparus	*minimus*	bushtit
Troglodytidae		**Wrens**
Catherpes	*mexicanus*	canyon wren
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**
Mimus	*polyglottos*	northern mockingbird
Toxostoma	*redivivum*	California thrasher
Prilogonatidae		**Silky-flycatchers**
Phainopepla	*nitens*	phainopepla
Parulidae		**New world warblers**
Vermivora	*celata*	orange-crowned warbler

Fauna Compendia

	Emberizidae		**Warblers, sparrow, etc.**
	Pipilo	*maculatus*	spotted towhee
	Pipilo	*crissalis*	California towhee
	Icteridae		**New world blackbirds**
	Molothrus	*ater*	brown-headed cowbird
	Fringillidae		**Finches**
	Carpodacus	*mexicanus*	house finch
	Carduelis	*psaltria*	lesser goldfinch
Mammals	**Didelphidae**		**New World Opossums**
	Didelphis	*virginiana*	Virginia opossum
	Soricidae		**Shrews**
	Sorex	*ornatus*	ornate shrew
	Vespertilionidae		**Evening Bats**
	Antrozous	*pallidus*	pallid bat
	Eptesicus	*fuscus*	big brown bat
	Lasiurus	*blossevillii*	western red bat
	Myotis	*californicus*	California myotis
	Myotis	*leibii*	small-footed myotis
	Myotis	*lucifugus*	little brown myotis
	Myotis	*yumanensis*	Yuma myotis
	Pipistrellus	*hesperus*	western pipistrelle
	Molossidae		**Free-Tailed Bats**
	Eumops	*perotis*	western mastiff bat
	Tadarida	*brasiliensis*	Brazilian free-tailed bat
	Leporidae		**Hares and Rabbits**
	Sylvilagus	*audubonii*	desert cottontail
	Sylvilagus	*bachmani*	brush rabbit
	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
	Peromyscus	*boylii*	brush mouse
	Heteromyidae		**Pocket Mice and Kangaroo Rats**
	Chaetodipus	*californicus*	California pocket mouse
	Chaetodipus	*penicillatus*	desert pocket mouse
	Canidae		**Wolves and Foxes**

Fauna Compendia

Canis	*familiaris*	domestic dog
Canis	*latrans*	coyote
Mustelidae		**Weasels, Skunks, and Otters**
Mephitis	*mephitis*	striped skunk
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.** The species was recorded within 3 miles, but no sandy soils occur on the project site.
Acanthomintha ilicifolia	San Diego thornmint	FC	SE	1B.1	List A, MSCP	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, MSCP	Occurs in chaparral, coastal scrub, and 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, MSCP	Occurs in chaparral, coastal scrub, and 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, MSCP	Occurs in chaparral habitat. Known Elevation Limits: 0 to 1,095 feet	Evergreen shrub	Dec to Jun	**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 peninsularis	Peninsular manzanita	None	None	None	Not Listed, NC	Occurs in chaparral habitat in interior mountain ranges of Baja California. The species does not naturally occur in California.	Evergreen shrub	Unknown	**Not likely to occur.** In 1994, previously recorded occurrences of the species in northern San Diego County were determined to be misidentified and the records have been removed from state databases (CNDDB 2009) (Wetherwax 2002)
Arctostaphylos rainbowensis	Rainbow manzanita	None	None	1B.1	List A, MSCP	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	**Moderate Potential to occur.** The species was recorded within 1 mile of the site, Similar soils of known locations occur in small inclusions in the project site. Soils within the project site are not considered gabbro, but may have similar characteristics in some areas.
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 ci smontane woodlands. Specifically, on dry ridges and valleys and open sandy slopes. Known Elevation Limits: 1,195 to 3,000 feet	Shrub	Dec to June	**Not likely to occur.** The species was recorded within 5 miles of the site. No sandy soils occur on the site.
Atriplex coulteri	Coulter's saltbrush	None	None	1B.2	List A, MSCP	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.

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				
Atriplex parishii	Parish brittlescale	None	None	1B.1	List A, MSCP	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, MSCP	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, MSCP	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.** The species was recorded within 5 miles of the site, but no sandy soils occur on the site. No suitable habitat within the project site. No steep north facing slopes within the project site.
Bloomeria clevelandii	San Diego goldenstar	None	None	1B.1	List A, MSCP	Occurs in chaparral, coastal scrub, valley, and foothill grassland, vernal pool habitats in clay soils. Known Elevation Limits: 150 to 1,380 feet	Bulbifours 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, MSCP	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	**Not likely to occur.** No record of the species within 5 miles of the site. No suitable habitat 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				
Brodiaea orcuttii	Orcutt's brodiaea	None	None	1B.1	List A, MSCP	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	**Present.** This species was observed within the native grassland area in the central portion of the site. The overall site soils are acidic and the native grassland area contains fine soils, both suitable for the species.
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	March 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	None	None	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	**Moderate potential to occur.** The species was recorded within 3 miles of the site and suitable habitat occurs throughout the site. This species was not observed during botanical surveys. Limited known distribution.
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 recorded occurrence of this species within 5 miles of the site. Marginally suitable habitat occurs for this species within the chaparral communities that occur onsite.

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 verrucosus	Wart stemmed ceanothus	None	None	2.2	List B, MSCP	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, MSCP	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.
Centromadia pungens ssp. *laevis*	Smooth tarplant	None	None	1B.1	List A, NC	This species occurs in valley and foothill grasslands, particularly near alkaline locales. Associated with Hanford coarse sandy loam with minimal shrub cover. Known Elevation Limits: 0 to 2,100 feet	Annual herb	Apr to Sep	**Low potential to occur.** No record of this species within 5 miles of the site. Marginally suitable habitat within grassland areas within the site.
Chorizanthe orcuttiana	Orcutt's spineflower	FE	SE	1B.1	List A, MSCP	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 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	**Not likely to occur** No record of this 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				
Comarostaphylis diversifolia diversifolia	Summer holly	None	None	1B.2	List A, MSCP	Occurs in southern maritime chaparral, southern mixed chaparral, and cismontane woodlands. Known Elevation Limits: 90 to 1,650 feet	Evergreen shrub	Apr-Jun	**Not likely to occur.** No record of the species within 5 miles of the site. Suitable chaparral habitat occurs on site.
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. Indicator species include *Encelia*, *Dalea*, and *Lepidospartum*. Known Elevation Limits: 656 to 2,493 feet	Annual herb	Apr to Jun	**Not likely to occur.** Species recorded as occurring within 3 miles, but no wash or adjacent terrace habitat occurs within the project site.
Dudleya brevifolia	Short-leaved dudleya	None	SE	1B.1	List A, MSCP	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 viscida	Sticky (-leaved) dudleya	None	SE	1B.2	List A, MSCP	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, MSCP	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.

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				
Ferocactus viridescens	Coast barrel cactus	None	None	2.1	List B, MSCP	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	None	None	4.2	List B, NC	Chaparral, coastal scrub, valley and foothill grassland, and 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 soils occur 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	Feb to July	**Not likely to occur.** The species was recorded within 5 miles of the site, but no sandy or gravely soils occur onsite. Although a Mesa Horkelia was observed onsite, it was not believed to be the puberula subspecies.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	None	None	1B.1	List A, NC	Occurs in tidal marsh areas near the coast and along the periphery of vernal pools. Also known to utilize alkaline marshes within western Riverside County valleys. Known Elevation Limits: 3 to 4,000 feet	Annual herb	Feb to Jun	**Not likely to occur.** No record of this species within 5 miles of the site. No suitable habitat occurs within the project site.
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	Jan to July	**High potential to occur.** The species was observed within 3 miles and 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				
Monardella hypoleuca lanata	Felt-leaved rock mint	None	None	1B.2	List A, MSCP	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	**High potential to occur.** Species was observed within 3 miles and suitable habitat occurs on the site.
Myosurus minimus apus	Little mousetail	None	None	3.1	List C, MSCP	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.
Navarretia fossalis	Spreading navarretia	None	ST	1B.1	List A, MSCP	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, MSCP	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, MSCP	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	**High 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

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				
Quercus dumosa	Nuttall's scrub oak	None	None	1B.1	List A, MSCP	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.** Suitable habitat occurs on the site, but no record of the species occurs within 5 miles. No suitable habitat occurs on site.
Quercus engelmannii	Engelmann oak	None	None	4.2	List D, MSCP	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	**Present.** The species was observed within the compound area and may have been planted as an ornamental landscape plant.
Lepechinia cardiophylla	Heart-leaved pitcher sage	None	None	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	ApriltoJune	**Present.** The species was observed within the native grassland area in the central portion of the project site. Suitable habitat occurs in chaparral openings.
Satureja chandleri	San Miguel savory	None	None	1B.2	List A, MSCP	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
Schizymenium shevockii	Shevock's copper moss	None	None	1B.2	Not Listed, NC	Occurs in cismontane woodlands on metamorphic rocks, and mesic sites. Elevation limits: 2,250 to 4,200 feet	Moss	None	**Not likely to occur.** Species recorded within 5 miles. No suitable habitat occurs at minimum elevation limits.

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				
Tetracoccus dioicus	Parry's tetracoccus	None	None	1B.2	List A, MSCP	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	**Moderate potential to occur.** Species recorded within 3 miles of the site. Las Posas soils occur in the southeast corner of the project site.
Tortula californica	California screw moss	None	None	1B.2	Not Listed, NC	Occurs in chenopod scrub, and valley and foothill grasslands. The species is a moss that grows on sandy soil. Elevation Limits: 30 to 4,380 feet	Moss	None	**Not likely to occur.** Species recorded within 5 miles, but no sandy soils occur on the 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
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 D: Potential Sensitive Species Table - Wildlife

Special Status Wildlife Species Table

Species		Status			Required Habitat	Potential to Occur/ Known Occurrence/ Suitable Habitat
Scientific Name	Common Name	Federal	State	San Diego County		
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	DFG: SSC	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*)	**Low potential to occur.** No record of the species occurs within 5 miles of the site. Small patch of suitable habitat occurs onsite.
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.
Fish						
Gila orcutti	Arroyo chub	None	DFG: 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 no stream habitat occurs on the site.

Species		Status			Required Habitat	Potential to Occur/ Known Occurrence/ Suitable Habitat
Scientific Name	Common Name	Federal	State	San Diego County		
Reptiles and Amphibians						
Actinemys marmorata pallida	Southwestern pond turtle	None	DFG: 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.
Bufo microscaphus californicus	Arroyo toad	Endangered	None	Group 1, MSCP	This species can be found in semi-arid regions near washes or 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.	**Not likely to occur.** Species recorded within 5 miles, but no riparian or other suitable habitat occurs on the site.
Charina trivirgata	Rosy boa	None	None	Group 2, NC	This species is known to occur within chaparral and desert habitats from the coast to the Mojave and Colorado deserts. Prefers moderate to dense vegetation and rocky cover. Specifically inhabits a mix of brushy cover and rocky soil, coastal canyons and hillsides, desert canyons, washes and mountains.	**Low potential to occur.** There is no recorded occurrence of this species within 5 miles of the site. Moderately suitable habitat occurs within the rocky chaparral areas of the project site.
Cnemidophorus hyperythrus	Orange-throated whiptail	None	None	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	None	DFG: 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	None	None	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 northern portion of the project site. Suitable habitat throughout the bottomland of the site.

Species		Status			Required Habitat	Potential to Occur/ Known Occurrence/ Suitable Habitat
Scientific Name	Common Name	Federal	State	San Diego County		
Eumeces skiltonianus interparietalis	Western skink	None	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 in the northern and southwestern portions of 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.	**Present.** The species was observed within the central portion of the project site during the surveys and the site contains suitable habitat throughout.
Scaphiopus hammondii	Western spadefoot toad	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.	**Not likely to occur.** Species recorded within 5 miles, but no vernal pools or other suitable habitat occurs on the project site.
Thamnophis hammondii	Two-striped garter snake	None	DFG: 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.	**Not likely to occur.** Species recorded within 5 miles but no aquatic habitat occurs on the site.
Taricha torosa torosa	California newt	None	DFG: SSC	Group 2, MSCP	Upland habitat includes woodland, brush, and grassland; ponds and calm pools of streams are required for breeding	**Not likely to occur.** Species recorded within 5 miles but no aquatic habitat occurs on the site.
Avian						
Accipiter cooperi	Cooper's hawk	None	None	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 and forests are primary foraging habitat for this accipiter.	**Present.** Species observed foraging within the oak woodland on the northeastern-most portion of the site.
Agelaius tricolor	Tricolored blackbird	None	DFG: SSC	Group 1, MSCP	Open grassland, farmland, lakeshores, or scrub for foraging; requires wetlands with tall emergent vegetation for breeding	**Not likely to occur.** No record of the species within 5 miles of the site. No suitable habitat within the project site.

Species		Status			Required Habitat	Potential to Occur/ Known Occurrence/ Suitable Habitat
Scientific Name	Common Name	Federal	State	San Diego County		
Aimophila ruficeps canescens	Rufous-crowned sparrow	None	DFG: SSC	Group 1, MSCP	Resident in southern California coastal sage scrub and sparse mixed chaparral.	**Not likely to occur.** Species recorded within 5 miles of the site. No 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	None	DFG: SSC	Group 1, MSCP	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. Common, but localized resident breeder in dry chaparral and coastal sage scrub along the coastal lowlands, inland valley, and in the lower foothills of local mountains. The preference for chamise chaparral appears to occur only in the more northern parts of its range.	**Moderate potential to occur.** Species recorded within 5 miles of the site. Marginally suitable habitat occurs across the site.
Aquila chrysaetos	Golden eagle	Eagle Protection Act	None	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 habitats for nesting. Shrub-steppe and native grassland communities provide important foraging habitat. Also carrion.	**Not likely to occur.** Species recorded within 5 miles, but no cliff-walled canyons, large trees in open areas, or other suitable habitat occurs on the project site.
Athene cunicularia	Burrowing owl	None	DFG: SSC	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.** Species recorded within 5 miles of the project site. No suitable habitat occurs on site.
Cathartes aura	Turkey vulture	None	None	Group 1, NC	Scavenger found in open country, woodlands, and near farms.	**Present.** This species was observed foraging over the northern portion of the project site.

Species		Status			Required Habitat	Potential to Occur/ Known Occurrence/ Suitable Habitat
Scientific Name	Common Name	Federal	State	San Diego County		
Campylorhynchus brunneicapillus cousei	Coastal cactus wren	None	DFG: SSC	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 patches of native cactus were observed onsite and no suitable habitat occurs.
Circus cyaneus	Northern harrier	None	DFG: SSC	Group 1, MSCP	Grasslands, agricultural fields, wetlands, and open coastal sage scrub	**Present.** This species was observed foraging over the northern portion of the project site.
Coccyzus ameircanus occidentalis	Western yellow-billed cuckoo	Candidate	Endangered	Group 1, NC	This species is typically a riparian forest nester, along the broad, lower flood-bottoms of larger river systems. It nests in riparian jungles of willow, often mixed with cottonwoods, with an understory of blackberry, nettles, or wild grape.	**Not likely to occur.** Species recorded within 5 miles, but no riparian or other suitable habitat occurs on the project site.
Dendroica petechia brewsteri	Yellow warbler	None	DFG: SSC	Group 2,	This species is associated with riparian areas, preferring to nest within willows, cottonwoods, aspens, sycamores and alders. Also known to nest in montane shrubs in open conifer forests.	**Not likely to occur.** No recorded occurrence of this species within 5 miles. No riparian areas occur within the site.
Empidonax traillii extimus	Southwestern willow flycatcher	Endangered	Endangered	Group 1, MSCP	Southwestern willow flycatcher can be found within riparian woodlands throughout Southern California.	**Not likely to occur.** Species recorded within 5 miles, but no riparian or other suitable habitat occurs on the project 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, consisting of willow, blackberry, wild grape. Forages and nests within 10 feet of ground.	**Not likely to occur.** Species recorded within 5 miles, but no riparian or other suitable habitat occurs on the project site.
Ixobrychus exilis	Least bittern	None	DFG: SSC	Group 2, NC	A colonial nester in marshlands and borders of ponds and reservoirs which provide ample cover. Nests are usually constructed in low tules, over water.	**Not likely to occur.** No recorded occurrence of this species within 5 miles of the site. No suitable habitat occurs within the site.

Species		Status			Required Habitat	Potential to Occur/ Known Occurrence/ Suitable Habitat
Scientific Name	Common Name	Federal	State	San Diego County		
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.	**Not likely to occur.** Species recorded within 5 miles, but no nearby water bodies or other suitable foraging habitat occurs on site.
Pandion haliaetus	Osprey	None	DFG: SSC	Group 1, MSCP	Requires large bodies of water where fish are available for forage	**Not likely to occur.** No record of the species within 5 miles of the site. No suitable habitat within the project site.
Plegadis chihi	White-faced ibis	None	DFG: 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	DFG: SSC	Group 1, MSCP	This species is an obligate, permanent resident of coastal sage scrub below 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.	**Not likely to occur.** Species recorded within 5 miles, but no coastal sage scrub habitat occurs on the 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.	**Not likely to occur.** Species recorded within 5 miles, but no riparian areas or other suitable habitat occur on the project site.
Mammals						
Chaetodipus californicus femoralis	California pocket mouse	None	DFG: 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.

Species		Status			Required Habitat	Potential to Occur/ Known Occurrence/ Suitable Habitat
Scientific Name	Common Name	Federal	State	San Diego County		
Chaetodipus fallax fallax	Northwestern San Diego pocket mouse	None	DFG: SSC	Group 2, NC	Found in coastal scrub, chaparral, grasslands, and sagebrush, among other low-lying habitat types, in western San Diego County.	**Not likely to occur.** No record of the species within 5 miles of the site. Marginally suitable habitat within the project 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.** Species recorded within 5 miles, but no significant stands of grassland or similar habitats occur on the project site.
Perognathus longimembris brevinasus	Los Angeles pocket mouse	None	DFG: SSC	Group 2 NC	This species inhabits lower elevation grasslands and coastal sage communities in and around the Los Angeles Basin. It prefers open ground with fine sandy soils. May not dig extensive burrows, instead will hide under weeds and dead leaves.	**Not likely to occur.** Species recorded within 5 miles, but no fine, sandy soils occur on the project site.
Neotoma lepida intermedia	San Diego desert woodrat	None	DFG: 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.
Lasiurus cinereus	Hoary bat	None	None	None	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees and feeds primarily on moths. Associated with open water.	**Low potential to occur.** No recorded occurrence of this species within 5 miles of the site. Marginally suitable habitat within the project site. Site lacks areas of open water.
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None	DFG: 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.
Antrozous pallidus	Pallid bat	None	DFG: 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.

Species		Status			Required Habitat	Potential to Occur/ Known Occurrence/ Suitable Habitat
Scientific Name	Common Name	Federal	State	San Diego County		
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 and woodlands, adjacent to water. Caves, buildings, mines, and crevices used for refuge.	**Present.** Species detected onsite during the surveys. Moderately suitable habitat occurs onsite.
Myotis yumanensis	Yuma myotis	None	None	Group 2, NC	Uses open water near woodlands and forests. Maternity colonies in caves, mines, buildings, or crevices.	**Present.** Species detected onsite during the survey. Marginally suitable habitat occurs onsite.
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.	**Not likely to occur.** Species not recorded within 5 miles of the site, and no suitable desert habitat present.
Eumops perotis californicus	Greater western mastiff bat	None	DFG: SSC	Group 2, NC	Rocky areas and cliff faces. Roosts in cliff crevices and buildings.	**Present.** Species detected onsite during the surveys and suitable habitat occurs on site.
Lasiurus blossevillii	Western red bat	None	None	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.	**Present.** Species detected onsite during the surveys. Suitable habitat occurs onsite.
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.
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.

Species		Status			Required Habitat	Potential to Occur/ Known Occurrence/ Suitable Habitat
Scientific Name	Common Name	Federal	State	San Diego County		
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, 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.	**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.

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 southeast at Sample Station #1. This area contains rocky outcrops in the foreground and fairly sparse chaparral habitat. The photo was taken at the center of the small mammal trapping area prior to setting up sampling station.

Photograph 2: Looking west at the Herp-Array at Sample Station #1. The photo was taken at the edge of the existing dirt access road. Typical southern mixed chaparral, as shown in the photograph, occurs throughout the project site. Pink flagging in the background indicates Sherman live trap locations.

Source: Michael Brandman Associates, 2009.

Michael Brandman Associates

Appendix E
Site Photographs 1 and 2

Photograph 3: Looking south at the native grassland area at the central portion of the preserve. The grassland area is surrounded by dense stands of southern mixed chaparral and has a gentle downward slope from north to south. The native grassland area is the sample Station #2 location.

Photograph 4: Looking south at the central portion of the Herp-Array at Sample Station #2. The large rock in the background occurs at the southern edge of the native grassland. Pink flagging in the background indicates Sherman live trap locations.

Source: Michael Brandman Associates, 2009.

Michael Brandman Associates

Appendix E
Site Photographs 3 and 4

Photograph 5: Looking south at the northern extent of the Herp-Array at Sample Station #3. This array was installed in an open area with minimal rocks. Installation of the silt fence in progress when photograph was taken.

Photograph 6: Looking southeast at the southern extent of mammal trapping at Sample Station #3. Orange flagging in the foreground indicate the location of Sherman live traps.

Source: Michael Brandman Associates, 2009.

Michael Brandman Associates

Appendix E
Site Photographs 5 and 6

Photograph 7: Looking east at the silt fence and pit-fall buckets at Sample Station #4. Funnel trap, small pitfall bucket in the foreground and blue flagging material indicates small mammal trap location.

Photograph 8: Looking northwest at the central portion of the Herp-Array at Sample Station #4. The site is dominated by coast live oak woodland and herbaceous under-story. Blue flagging in the foreground indicates Sherman live trap locations.

Source: Michael Brandman Associates, 2009.

Photograph 9: Looking west at one of the arms of the Herp-Array at Sample Station #5. Vegetation consists of tall dense chaparral adjacent to coast live oak woodlands. There are several fallen trees and dense leaf little at this location. Blue flagging in the foreground indicates Sherman live trap locations.

Photograph 10: Looking north at the northern extent of the Herp-Array at Sample Station #5. Area is dominated by coast live oak woodland with a diverse under-story. Several large rocky outcrops occur throughout the area.

Source: Michael Brandman Associates, 2009.

Michael Brandman Associates

Appendix E
Site Photographs 9 and 10

Photograph 11: Photograph of a coyote taken near Sample Location #1 along the main access road.

Photograph 12: Photograph of a coyote taken near Sample Location #4 along a hiking trail.

Source: Michael Brandman Associates, 2009.

Photograph 13: Photograph of a bobcat taken near Sample Location #4 along a hiking trail.

Photograph 14: Photograph of a desert cottontail near Sample Location #2 along a hiking trail.

Source: Michael Brandman Associates, 2009.

Michael Brandman Associates

Appendix E
Site Photographs 13 and 14

Appendix F: Data Sheets

Field Data Sheets Are Available Upon Request