Final Area Specific Management Directives
for
Boulder Oaks Open Space Preserve
San Diego County

June 2008

PARKS AND RECREATION
COUNTY OF SAN DIEGO
Where having fun is natural.

BOULDER OAKS PRESERVE

AREA SPECIFIC MANAGEMENT DIRECTIVES

June 26, 2008

Approved by:

Renée E. Bahl, Director
County of San Diego
Department of Parks and Recreation

26 June 2008
Date

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1.0 Introduction

Boulder Oaks Open Space Preserve (Preserve) consists of approximately 1,268 acres located south of the unincorporated township of Ramona in central San Diego County, California. The Preserve is situated in the meadows and hills just northwest of the San Vicente Reservoir, extending east from Iron Mountain and north of Fosters Canyon, and is bisected by Foster Truck Trail. The County acquired the Preserve in 2003 for inclusion in the County of San Diego's Multiple Species Conservation Program (MSCP) preserve system. The Preserve consists of very high value natural communities as well as areas that have been moderately impacted by human activities including existing dirt ranch roads.

1.1. Purpose of Management Plan

The Area Specific Management Directives (ASMDs) has been prepared as a guidance document to preserve and manage the biological and cultural resources within the Preserve while balancing the need to provide appropriate passive recreational opportunities. It is the goal of the County of San Diego Department of Parks and Recreation (DPR) to promote natural and cultural resource management strategies that ensure environmental preservation, quality of life, and economic development. Enhancing the quality of life for San Diego County residents requires a balance between the responsibility to preserve biological and cultural resources, with our obligation to meet the residents varying recreational needs.

1.2. Implementation

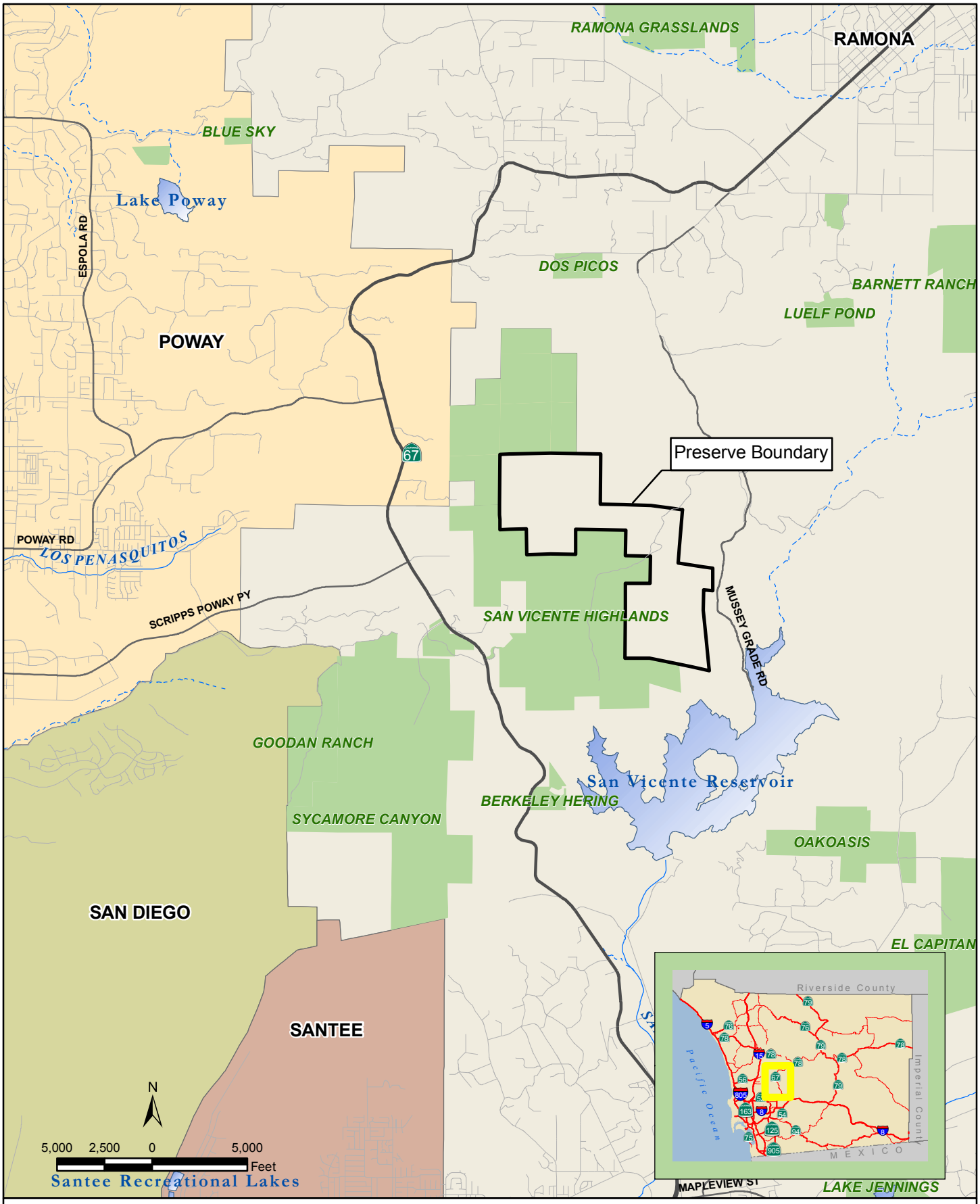
1.2.1 Responsible Parties/Designation of Manager

The County of San Diego is the owner of the Preserve and the DPR District Park Manager assigned to the Preserve is the habitat manager. The Preserve is located in the management district of one senior park ranger, one park ranger, and four seasonals.

2.0 Property Description

2.1 Legal Description

The Preserve property is located approximately three miles south of the unincorporated township of Ramona, between State Route 67 and Mussey Grade Road, in central San Diego County, California (Figure 1). On the USGS 7.5' San Vicente Reservoir, California quadrangle, the Preserve area includes portions of Sections 11, 12, 13, 14 and 24 of Township 14 S, Range 1 W, and of Sections 18 and 19 of Township 14 S, Range 1 E (Figure 2). The Assessor's Parcel Numbers for the Preserve are 324-021-03; 322-050-01; 322-061-02; 324-031-01; 329-011-01; 324-030-03; 324-060-03; and 329-040-01.



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PARKS AND RECREATION COUNTY OF SAN DIEGO

Figure 1
Regional Location

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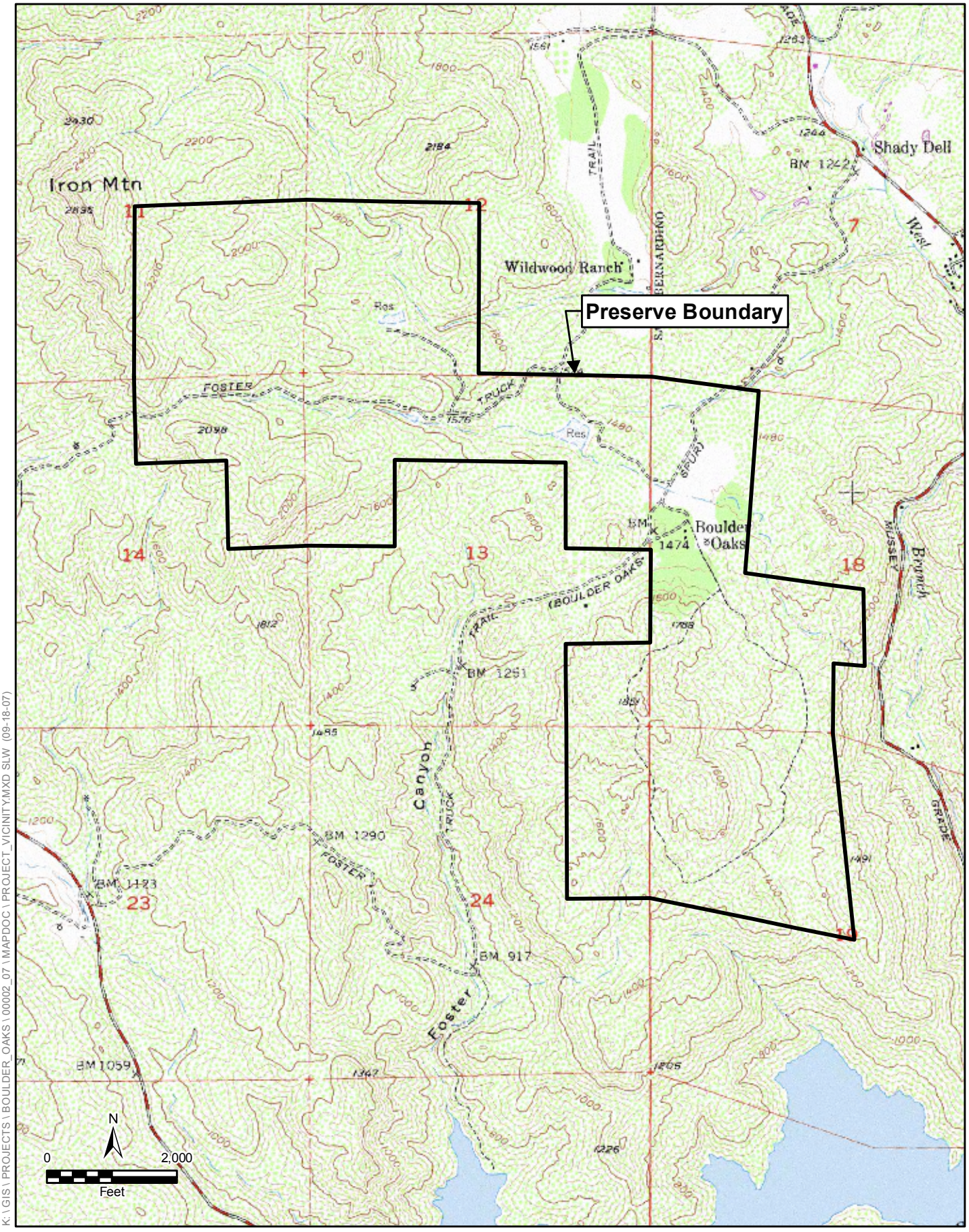

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Source: USGS 7.5' Quad., California: San Vicente Reservoir (1955; Photorevised 1971)

Figure 2
Project Vicinity
Boulder Oaks Open Space Preserve

Jones & Stokes

2.2 Geographical Setting

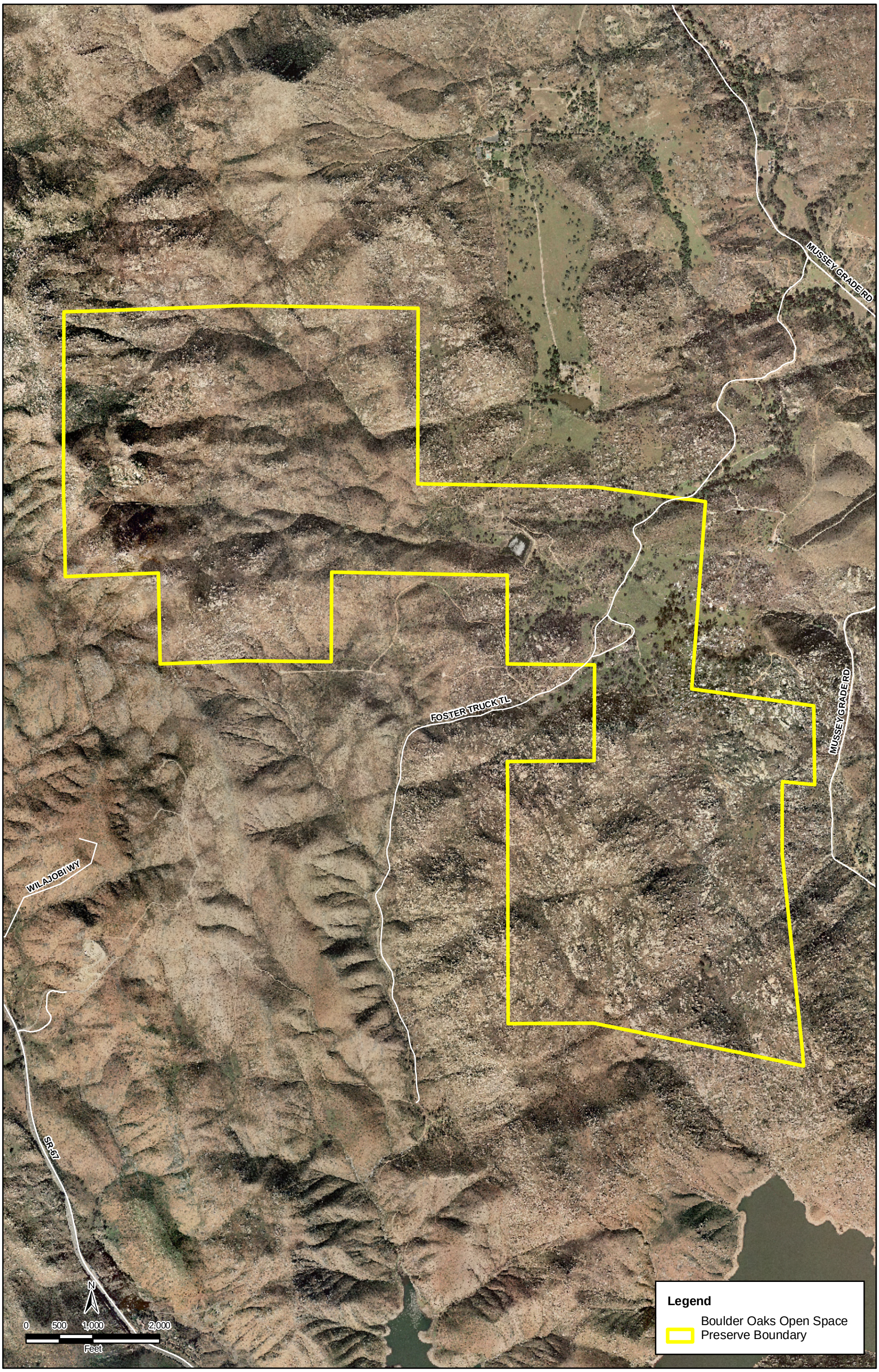
The natural setting of the Preserve consists of steep mountain uplands with ridgelines separated by numerous canyons, ravines, and drainages. The western edge of Preserve is bounded by a ridgeline that extends beyond the Preserve to include Iron Mountain. The top of Iron Mountain (2,696 feet) is roughly 0.1 miles west of the northwest corner of the Preserve. The west branch of San Vicente Creek valley lies along the Preserve's eastern boundary. The central portion of the Preserve includes relatively flat areas, with most outlying portions composed of moderately steep canyons (see Figures 2 and 3). Elevations on the Preserve range from approximately 2,400 feet above mean sea level at the northwest corner of the Preserve to 1,150 feet about one mile north of the southeastern corner.

2.3 Relationship to the MSCP

The MSCP is a cooperative habitat program that encompasses 582,000 acres and establishes a 172,000-acre preserve system in southwestern San Diego County. The MSCP covers 85 plant and animal species and 23 vegetation communities. Agencies participating in the MSCP include the County, other local jurisdictions, the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG). Local jurisdictions and special districts implement their respective portions of the MSCP Plan through Subarea plans, which describe specific implementing mechanisms for the MSCP. The combination of the subregional MSCP Plan and Subarea plans serve as a Multiple Species Habitat Conservation Plan (HCP) pursuant to Section 10(a)(1)(B) of the Federal Endangered Species Act (FESA), the Natural Community Conservation Planning (NCCP) Program pursuant to the California NCCP Act of 1991 and the California Endangered Species Act (CESA). The Preserve is fully owned and operated by the County and is included under the County of San Diego South County MSCP Subarea Plan.

MSCP Section 6.3.1 and Implementing Agreement Section 10.10 required the County to prepare a Framework Management Plan for the portion of the MSCP Preserve within the County's Subarea. The document was submitted to the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG; collectively, "Wildlife Agencies") on August 31, 2001. The County is responsible for management of the County-owned lands committed to the Preserve, meeting the conditions of coverage, and biological monitoring.

The Framework Management Plan incorporates a requirement for the subsequent preparation and implementation of ASMDs. These directives are required to be developed following baseline surveys, using generally accepted practices and procedures for management of biological Preserves, and in compliance with the criteria established by the Framework Management Plan. They are intended to be specific management actions that are appropriate for the habitats and species found in a local area and take into account the particular circumstances of the given area. In addition to addressing the general directives of the Framework Management Plan and species-specific management



SOURCE: SANDAG (Aerial - 2004; Roads - 2007)

Jones & Stokes

Figure 3
Project Site
Boulder Oaks Open Space Preserve

requirements of MSCP Table 3-5, ASMDs are required to address fuel management activities.

Planned infrastructure projects within the Preserve will be analyzed under the California Environmental Quality Act.

2.4 Site Access

The northeastern area of the Preserve can be accessed from Foster Truck Trail, off of Mussey Grade Road. Several graded dirt roads traverse the Preserve including roads that provide access to the site from the northern, eastern, and western preserve boundaries. A fence is located on the northern boundary of the Preserve blocking access to the dirt road; a gate is located at the entrance to the western boundary of the Preserve and; topographic barriers prevent access to the dirt road located on the eastern boundary.

2.5 Property Boundaries and Adjacent Lands

The Preserve is bounded by San Vicente Highlands Preserve to the south, Iron Mountain to the northwest and rural residential development to the east, west, and north (Figure 1).

2.6 Geology and Soils

The Preserve is situated atop the southern California batholith consisting of Cretaceous granitic rocks. These rocks form the majority element of this massive feature that underlies roughly two-fifths of San Diego County. In the project area this exposed granitic bedrock is comprised of the Woodson Mountain Granodiorite Formation, consisting, principally, of granodiorite with minor granite and quartz diorite (tonalite) (Strand 1962). The physical and chemical decomposition of these rocks has produced two soil associations within the project area. In the western portion of the project area, the Friant-Escondido association presents “well-drained fine sandy loams and very fine sandy loams over metasedimentary rock in 30 to 70 percent slopes” and, in the eastern portion, the Cieneba-Fallbrook association exhibits “excessively drained to well-drained coarse sandy loams and sandy loams that have a sandy clay loam subsoil over decomposed granodiorite, with slopes ranging from 9 to 75 percent” (USDA 1973, Figure 4).

2.7 Climate

A semi-permanent, Pacific high-pressure cell, located over the Pacific Ocean, dominates San Diego County’s climate. This cell drives the dominant on-shore circulation, maintaining clear skies for much of the year. Summers in the Preserve area are typically warm and dry, while winters are mild with occasional rain (USDA 1973). The average temperatures range from approximately 53.3° Fahrenheit (F) (low) to 94.4°F (high) in the summer and approximately 35.4°F (low) to 67.8°F (high) in the winter (Ramona Chamber of Commerce). In a normal year, precipitation averages 15-18 inches and falls mostly in the winter and spring (San Diego County Flood Control District).

Preserve Boundary
100-Foot Buffer
Staging Areas
Interim Trail System

Soils Distribution

- AcG - Acid igneous rock land
- AvC - Arlington coarse sandy loam, 2 to 9 percent slopes
- CmE2 - Cieneba rocky coarse sandy loam, 9 to 30 percent slopes , eroded
- CmrG - Cieneba very rocky coarse sandy loam, 30 to 75 percent slopes
- FwF - Friant fine sandy loam, 30 to 50 percent slopes
- FxE - Friant rocky fine sandy loam, 9 to 30 percent slopes
- FxG - Friant rocky fine sandy loam, 30 to 70 percent slopes
- OhE - Olivenhain cobbly loam, 9 to 30 percent slopes
- VvD - Vista rocky coarse sandy loam, 5 to 15 percent slopes
- VvG - Vista rocky coarse sandy loam, 30 to 65 percent slopes

Source : Aerial 2004

Jones & Stokes

0 0.1 0.2 Miles

N

Figure 4
Soils

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A predominant feature of the local climate is the sea-breeze/land-breeze cycle. During the daytime, particularly in the summer, on-shore winds move inland with speeds of approximately seven to ten miles per hour (mph). Easterly land breezes of approximately two to four mph often occur at night. Surrounding rugged terrain, which induces turbulence into the airflow, modifies the influence of this cycle. n addition, this cycle is periodically affected by land airflow that dominates weather patterns. The most widely recognized of these are the Santa Ana conditions, during which strong, hot, dry easterly winds prevail for two or three-day periods.

2.8 Hydrology

The Preserve is in the San Vicente Hydrologic Area of the San Diego River Watershed. Designated beneficial uses for the San Diego River and its tributaries, include municipal and domestic supply, agricultural supply, industrial service supply, industrial process supply, contact and non-contact water recreation, warm freshwater habitat, cold freshwater habitat, wildlife habitat, and rare, threatened, or endangered species (California Regional Water Quality Control Board San Diego Region 2003).

Two unnamed drainages, shown as intermittent blue-line streams on the USGS 7.5-minute, San Vicente Reservoir quadrangle map, cross the site from west to east. The more northerly drainage flows from the east face of Iron Mountain, crosses the Preserve for a short distance before extending across Wildwood Ranch, and empties into the west branch of San Vicente Creek. The other extends from just below the saddle in the west ridgeline on the Preserve, west across the central portion of the reserve and then southwest, emptying into the West Branch of San Vicente Creek shortly above where the latter empties into San Vicente Reservoir. Two of the three manmade reservoirs on the site consist of dammed portions of the more southerly of the two drainages. Both drainages are likely spring-fed and, therefore, may be important sources of fresh water.

For context, drainages presented in this report are from the County's GIS drainage layer, along with a few others observed on the site (Figure 4). However, those shown are illustrative only, and are not intended to define, for example limits of waters of the U.S. or other specific features.

During drought conditions, the two drainages are dry at the surface after early spring, and the two smaller reservoirs dry out by late spring. The largest reservoir has a ponded surface area of approximately 1.5 acres throughout spring and summer.

San Vicente Reservoir, approximately one-third of a mile south of the south boundary of the Preserve, is a steep-sided, deep, man-made reservoir. When full, it has 1,069 surface acres, a maximum water depth of 190 feet, and 14 shoreline miles (City of San Diego Water Department 2004). In 2008 it was proposed to increase by approximately 130 feet, but this will not directly impact the Preserve.

2.9 Trails

No officially designated trails currently exist on the Preserve. However, several graded ranch roads are present within the Preserve. Foster Truck Trail runs north south through the Preserve and connect Mussey Grade Road to San Vicente Highlands (Figure 3). In addition, several existing dirt roads traverse the Preserve including roads that provide access to the site from the northern, eastern, and western preserve boundaries.

2.10 Fire Cycle

The Preserve is dominated by chaparral vegetation, which is naturally maintained by infrequent fires. If the natural fire cycle is suppressed, the chaparral can become aged, declining in both health and diversity. If the fire frequency is increased, vegetation could shift towards disturbed grassland habitats or opportunistic pioneering shrub communities. The fire cycles within the area are affected by actions within and adjacent to the Preserve. Surrounding development and brush management actions associated with urban development have altered the fire cycles throughout most of western San Diego County. The entire Preserve burned during the 2003 Cedar Fire. In 2007 the Witch Fire burned through areas to the north, northeast, and west of the Preserve, but did not burn the Preserve itself.

3.0 Biological Resources Description

In 2007 Jones & Stokes Associates, Inc. performed baseline biological resources surveys of the Preserve. The survey results were used in the preparation of this ASMD and this document is attached as Appendix A. The Preserve supports a diverse flora dominated by native species and native vegetation communities. Vegetation communities and land cover types present within the Preserve consist of open coast live oak woodland, open Engelmann oak woodland, southern mixed chaparral, scrub oak chaparral, nonnative grassland, southern willow scrub, freshwater marsh, open water, and disturbed land; southern mixed chaparral is the dominant vegetation community on the Preserve. Seasonal pools were also observed within several rock outcroppings and potential vernal pools were observed within the meadow areas within the Preserve. Floristic inventories documented 228 native and naturalized plant species. These include eight special status plant species: felt-leaved monardella, Ramona horkelia, orcutt's brodiaea, San Miguel savory, Lakeside ceanothus, California adder's tongue, mountain misery, and Engelmann oak.

Quino checkerspot was not detected during protocol surveys for this species on the Preserve. Other invertebrate species were documented through direct observation or were captured in pitfall traps; rare or sensitive invertebrate species were not detected during surveys. A total of 45 invertebrates were detected and identified below the level of family, including 14 butterfly species.

A total of 17 herpetiles (three amphibians and 14 reptiles) were detected (following USGS protocol) during current surveys of the Preserve including six sensitive species: Coastal western whiptail, Coronado western skink, coastal patchnose snake, coast horned

lizard, red diamond rattlesnake, and rosy boa. One additional special-status species was previously recorded (western spadefoot) and may simply have been undetected this year due to drought conditions.

Avian species richness (total species detected) was found to be moderately high at the Preserve. A total of 104 species of birds was detected during the 2007 surveys including six species of raptors, 15 species of waterbirds, and numerous songbirds. Surveys documented 14 birds considered sensitive by the County including rufous-crowned sparrow and western bluebird, which are also MSCP-covered species.

A total of 30 mammal species was detected within the Preserve through direct observation, trapping, by track or sign, using an Anabat detector for bats, or remote cameras. This included nine species considered sensitive by the County including six bat species, desert woodrat, California pocket mouse, and mule deer. Another sensitive species, mountain lion was recorded as a probable occurrence based on sign (i.e., scat).

The Preserve provides habitat for the 196 wildlife and 228 plant species detected during the 2007 surveys as well as additional species known to occur in the area. There are undoubtedly additional species that use the Preserve that were not detected due to the severe drought conditions experienced during 2006-2007. Management considerations of the Preserve include: enhancement and restoration of disturbed habitat; siting staging areas and new trails away from high concentrations of rare plants, wildlife corridors, and potential vernal pools; and control of invasive plants to prevent degradation of native habitats. Management of the ponds on site should be done in a manner that considers their high value to a wide range of wildlife.

3.1 Vegetation Communities/Habitat

Overall, the Preserve supports a diverse flora dominated by native species and native vegetation communities. Although one vegetation community dominates the Preserve (southern mixed chaparral), the diversity within this vegetation community is quite high. This is due presumably to modest levels of past disturbance, diversity of soils, and abundance of exposed granitic boulders.

Vegetation communities and land cover types present within the Preserve consist of open coast live oak woodland, open Engelmann oak woodland, southern mixed chaparral, scrub oak chaparral, nonnative grassland, southern willow scrub, freshwater marsh, open water, and disturbed land (Figure 5). In addition, seasonal pools were observed within several rock outcroppings and potential vernal pools were observed within grasslands. Due to the low rainfall during the 2006-2007 winter, these areas could not be confirmed as supporting sufficient hydrology for vernal pool plant species. A description of the vegetation communities and the dominant plant species detected during the surveys are found below and outlined in Table 1.

Table 1. Vegetation Types within the Preserve

Vegetation/Land Cover Type	Acreage
Southern Mixed Chaparral	1,145
Open Coast Live Oak Woodland	42
Nonnative Grassland	40
Open Engelmann Oak Woodland	21
Scrub Oak Chaparral	7
Disturbed Land	7
Freshwater Marsh	2
Open Water	2
Southern Willow Scrub	1
Total	**1,268**

Riparian Habitats

Southern Willow Scrub (1 acre)

Southern willow scrub is found on loose, sandy, or fine gravelly alluvium deposited near stream channels. This vegetation community was once extensive along the major rivers of coastal southern California but has been greatly reduced by urbanization, flood control, and streambed alterations. Southern willow scrub consists of dense, broad-leafed, winter-deciduous riparian thickets dominated by several *Salix* species, including arroyo willow (*Salix lasiolepis*) and sub-dominant mule fat (*Baccharis salicifolia*). This vegetation type occurs along margins of the two small ponds in the western portion of the Preserve.

The southern willow scrub on-site has moderate ecological value as it represents a relatively small patch of riparian vegetation community isolated from other riparian communities. Larger and more contiguous corridors of southern willow scrub often provide higher ecological value because they provide unique habitat for rare, threatened, and endangered species. However, the presence of even modest amounts of this community on the Preserve provides ecological and structural complexity, and may provide some buffer against drought for wildlife (i.e., “refugia”). This vegetation community is considered a special-status community by the County, state, and federal agencies.

Vernal Pool

Vernal pools are a unique microhabitat with a flora that often includes several habitat-specialist species. Typically, vernal pools are wetlands that occur in shallow basins underlain by an impervious subsoil layer (clay, volcanic rock, or sometimes granitic rock). The basins are covered by shallow water for extended periods during the cool

season but are dry during the summer and fall. Vernal pools are considered a special-status community by the County, state, and federal agencies.

Areas that may be vernal pools are within the nonnative grassland along the eastern portion of the Preserve and in rock basins atop some of the numerous mountain ridges on the property. With the exception of several rock pools along the western portion of the Preserve, plant species typically limited to areas in or near vernal pools were not observed. However, within the rock pools several vernal pool indicator plants were observed including prairie plantain (*Plantago elongata*), and water pygmy weed (*Crassula aquatica*). The acreages of the potential vernal pools were not calculated because the areas could not be confirmed as supporting sufficient hydrology for vernal pool plant species due to the low rainfall during the winter of 2006-2007.

Terrestrial Habitats

Open Coast Live Oak Woodland (42 acres)

Open coast live oak woodland is typically dominated by Coast Live Oak trees, which reach 9 to 24 meters (30 to 80 ft) in height. The shrub layer within this vegetation community is usually poorly developed while the herb layer is continuous and typically dominated by nonnative grasses. This community typically occurs on north-facing slopes and within shaded ravines in southern California (Holland 1986).

Coast Live Oak is the dominant plant species in areas mapped as coast live oak woodland on the Preserve. This vegetation type is most common in the northeastern portion of the Preserve intermixed with nonnative grassland. There are scattered smaller patches of this community within ravines on the western and southern portions of the Preserve. Engelmann oak (*Quercus engelmannii*), western poison-oak (*Toxicodendron diversilobum*), toyon (*Heteromeles arbutifolia*), and interior scrub oak (*Quercus berberidifolia*) are also present in this vegetative community within the Preserve.

The open coast live oak woodland located within the survey area has high ecological value. Oak woodlands are considered special-status vegetation communities by the County and state and provide nesting habitat and valuable cover for a wide range of wildlife species. The oak woodland within the Preserve provides suitable nesting habitat for several species of raptors and other birds.

Preserve Boundary
100-Foot Buffer
Jurisdictional Drainages
Potential Vernal Pool (44000)
Rock Vernal Pool (44000)
California adders tongue
Engelmann oak
Felt-leaved monardella*
Lakeside ceanothus*
Mountain misery
San Miguel savory*
California Adders Tongue (18.3 Acres)
Survey Area (Potenital Staging Areas)
Coast Live Oak Woodland
Disturbed Land
Freshwater Marsh
Non-native Grassland
Open Engelmann Oak Woodland
Open Water
Scrub Oak Chaparral
Southern Mixed Chaparral
Southern Willow Scrub

Source : Aerial 2004

Jones & Stokes

0 850 1,700 3,400 Feet

N

Figure 5
Botanical Resources

Open Engelmann Oak Woodland (21 acres)

Open Engelmann oak woodland is evergreen woodland dominated by Engelmann oaks typically with an understory of annual grasses. The community is found on fine textured soils in areas with gentle slopes and in valley bottoms. It surrounds grassland meadows and often occupies the ecotone between the grassland and the surrounding shrublands. Engelmann oak is a California Native Plant Society (CNPS) List 4 and County Group D species and is the dominant plant species within the areas mapped as Engelmann oak woodland. Open Engelmann oak woodland occurs in the northeastern portion of the Preserve intermixed with the coast live oak woodland and nonnative grassland (Figure 5).

As with the other woodlands found within the survey area, the open Engelmann oak woodland has high ecological value. Oak woodlands are considered special-status vegetation communities by the County and state and provide nesting habitat and valuable cover for a wide range of wildlife species. The oak woodland within the survey area provides suitable nesting habitat for several species of raptors and other birds.

Southern Mixed Chaparral (1,145 acres)

Southern mixed chaparral is the most widespread vegetation type on the Preserve. This community typically consists of broad-leaved sclerophyllous shrubs approximately 1.5 to 3 meters tall. This vegetation community may include patches of bare soil, and sometimes forms a mosaic with coastal sage scrub or Riversidian sage scrub. The southern mixed chaparral on site was burned in the Cedar Fire in October 2003. The vegetation community has not fully recovered since the fire and shrubs are generally more sparse and shorter (0.5 to 2.0 meters) than more mature stands of mixed chaparral. Dominant plants occurring within the survey area include chamise (*Adenostoma fasciculatum*), Ramona-lilac (*Ceanothus tomentosus*), interior scrub oak (*Quercus berberidifolia*), laurel sumac (*Malosma laurina*), spiny redberry (*Rhamnus crocea*), and Mission manzanita (*Xylococcus bicolor*). The under-story is generally sparse but dominated by native herbs on south-facing slopes, while on north-facing slopes the under-story has somewhat greater cover due to the addition of a greater proportion of nonnative herbs, especially foxtail chess (*Bromus madritensis*) and other European grasses.

Southern mixed chaparral has high ecological value as it provides nesting and foraging habitat for several wildlife species including rufous-crowned sparrow (*Aimophila ruficeps*), sage sparrow (*Amphispiza bellii*), many neotropical migrant birds, pocket mice, and desert woodrat (*Neotoma lepida*), and can contain rare plant species. This vegetation community is considered a special-status community in San Diego County. The southern mixed chaparral in the northwestern portion of the Preserve occurs on metasedimentary soils and supports special-status plants.

Scrub Oak Chaparral (7 acres)

Scrub oak chaparral consists of a dense, evergreen chaparral up to 20 feet tall dominated by Interior Scrub Oak. The scrub oak chaparral in the Preserve was burned in the Cedar Fire in October 2003 and consists of dense patches interspersed with open areas vegetated with herbaceous species. Dominating the understory and openings are nonnative grasses and herbs including soft chess (*Bromus hordeaceus*), foxtail chess (*Bromus madritensis*), and red-stemmed filaree (*Erodium cicutarium*).

Scrub oak chaparral is considered a special-status vegetation community in San Diego County.

Non-native Grassland (40 acres)

Nonnative grassland is characterized by a dense to sparse cover of annual grasses reaching up to 1 m (3 ft), which may include numerous native wildflowers, particularly in years of high rainfall. These annuals germinate with the onset of the rainy season and set seeds in the late spring or summer. This community is usually found on fine-textured soils that proceed from moist or waterlogged in the winter to very dry during the summer and fall (Holland 1986). Nonnative grasslands, in many circumstances, have replaced native grasslands as a result of disturbance (directly manmade [e.g., mechanical disturbance, grazing] or natural [i.e., altered fire cycles]).

Dominant species that characterize the nonnative grassland within the Preserve area include Harding grass (*Phalaris aquatica*), wild oat (*Avena barbata*), soft chess, foxtail chess, and spring vetch (*Vicia sativa*). Cover is generally dense throughout the grasslands on the Preserve except within limited areas where drainages are present.

The nonnative grassland located on site has high conservation value. It is located within and adjacent to the open coast live oak woodland and the open Engelmann oak woodland, and represents a large, contiguous vegetation community that is unique in the area. This community is also known to support special-status species, including Orcutt's brodiaea (*Brodiaea orcuttii*), and is considered prime foraging habitat for several species of raptors. Additionally, there is a fairly high potential for vernal pool resources to occur within the larger patches of nonnative grassland within the Preserve. Due to the low rainfall during the 2006-2007 winter, ponded areas were not observed within the grasslands. However, patches of hydrophytic vegetation such as rushes (*Juncus mexicanus*), Harding Grass, and curly dock (*Rumex crispus*) were observed within the grasslands on the Preserve, indicating that these areas may pond or remain wet for a substantial duration during typical years. This vegetation type is considered to be of special status by the County.

Disturbed Land (7 acres)

Disturbed land consists of compacted dirt roads and trails that support very sparse or no vegetation, as well as the house pad area and olive orchard. This land cover type has a

low ecological value due to the limited natural habitat elements. This land cover type is not considered to be of special status by any local, state, or federal agencies. Because of the limited extent of these areas, there appears to be little effect of attracting non-native animals such as house mouse (*Mus musculus*). The potential to restore these areas is discussed below in section 5.3.1, Biological Element, Habitat Restoration.

Freshwater Marsh (2 acres)

Freshwater marsh communities are found in areas permanently inundated or flooded by fresh water, lacking significant current from water movement. Prolonged saturation in these communities allows for the accumulation of deep, peaty soils. Freshwater marshes are usually located in the coastal valleys near river mouths and around the margins of lakes and springs. Freshwater marsh is dominated by perennial, emergent monocots, typically ranging from 1.2 to 1.5 meters (4 to 5 feet) tall. Typically, species of the genera *Typha* (cat-tails) and *Scirpus* (bulrush) dominate this community. Dominant plants observed on site included California bulrush (*Scirpus californicus*), red-root flatsedge (*Cyperus erythrorhizos*) and saltmarsh fleabane (*Pluchea odorata*).

Freshwater marsh has high ecological value as it provides nesting and foraging habitat for several wildlife species including waterfowl. This vegetation community is considered a special-status community in San Diego County. The freshwater marsh within the Preserve occurs in patches within and along the margins of the ponds found in the western portion and near the middle of the Preserve (Figure 5).

Open Water (2 acres)

Open water consists of areas inundated by water and unvegetated. This land cover type typically occurs in depressions or areas of lower elevations than the surrounding land and with an impervious substrate. The open water within the Preserve consists of three small ponds (approximately two acres total) that were created by manmade earthen dams along natural drainage courses (Figure 5).

Open water has high ecological value as it provides nesting and foraging habitat for several wildlife species. Open water also provides a resting and feeding location for waterbirds.

3.2 Plant Species

3.2.1 Plant Species Present

Floristic inventories documented 228 native and naturalized plant species, along with a few persisting ornamental species at the house pad. Nonnative species are most abundant at the house pad, along existing roads, and in the grasslands. The Preserve has potential to support many additional native or naturalized species. However, due to the limited rainfall in 2006/2007 detection of some species may not have been possible. The

Baseline Biological Resources Evaluation (Appendix A) includes the complete list of all species observed during the surveys.

3.2.2 Rare, Threatened, or Endangered Plant Species Present

The California Natural Diversity Database (CNDDB) search, CNPS search, and field surveys identified 66 special-status plant species that occur or have potential to occur in the project vicinity (Appendix A and Figure 6). The CNDDB and CNPS searches were conducted for the San Vicente Reservoir, San Pasqual, El Cajon, Ramona, El Cajon Mountain, Alpine, Escondido, Poway, and La Mesa, California 7.5-minute USGS quadrangles (CDFG 2007).

Eight special status plant species were detected within the survey area: felt-leaved monardella (*Monardella hypoleuca* ssp. *lanata*), Ramona horkelia (*Horkelia truncata*), Orcutt's brodiaea (*Brodiaea orcuttii*), San Miguel savory (*Satureja chandleri*), Lakeside ceanothus (*Ceanothus cyaneus*), California adder's tongue (*Ophioglossum californicum*), Southern mountain misery (*Chamaebatia australis*), and Engelmann oak (*Quercus engelmannii*). Discussions of the plants species incorporate information from Reiser (1994) and Hickman (1993). Each of these species is addressed below in more detail.

Orcutt's Brodiaea (*Brodiaea orcuttii*) is on CNPS List 1B, is a County Group A species, and an MSCP covered species associated with grasslands and vernal pools. Due to the limited rainfall in 2007 an accurate assessment of the population size that would be present within the Preserve in more typical years is difficult to determine. However, over 200 individuals of Orcutt's brodiaea were observed within the nonnative grassland, Engelmann oak woodland and coast live oak woodland within the eastern most portion of the Preserve.

Lakeside Ceanothus (*Ceanothus cyaneus*) is on CNPS List 1B, is a County Group A species, and an MSCP covered species known from an extremely small range (southern Ramona to the foothills of Lakeside). Typically, this *Ceanothus* occurs in dense, almost impenetrable chaparral with a mix of chamise and other shrubs such as manzanita. On-site Lakeside ceanothus is found within the rocky chaparral located within the southern portion of the Preserve. This species is a common component of the chaparral in the southwestern portion of the site; therefore, counting individuals was not feasible.

Felt-leaved Monardella (*Monardella hypoleuca*) is on CNPS List 1B, considered a County Group A species, and an MSCP covered species typically found within the understory of mature chaparral. Felt-leaved monardella was found primarily on the Friant series soils along the western portion of the Preserve. Given the extensive amount of suitable habitat and the wide distribution of documented individuals, it is estimated that over 400 individuals occur within the Preserve.

Ramona Horkelia (*Horkelia truncate*) is on CNPS List 1B and is a County Group A species typically associated with chamise chaparral. Approximately 50 individuals of Ramona horkelia were found within the northwestern portion of the Preserve. Specifically, these plants were found atop a prominent mountaintop within southern

mixed chaparral. Of note, at this location felt-leaved monardella was also observed growing side by side with Ramona horkelia.

San Miguel Savory (*Satureja chandleri*) is on CNPS List 4, is a County Group D species, and an MSCP covered species that is a small herbaceous shrub associated with chaparral and oak woodlands that primarily occur on gabbroic or metavolcanic soils. On-site San Miguel savory was observed within the understory of southern mixed chaparral on a north-facing slope. This slope contains soil mapped from the Friant series that is derived from metasedimentary rock.

California Adder's Tongue (*Ophioglossum californicum*) is on CNPS List 4 and is a County Group D species associated with chaparral, grasslands, and vernal pools at elevations ranging from 60–525 meters. Individuals of California adder's tongue were found within the survey area along segments of the existing ranch roads. In addition, a large patch of California adder's tongue was mapped within the northeastern portion of the Preserve and is estimated to include tens of thousands of individuals. This population covers approximately 18.3 acres.

Southern Mountain Misery (*Chamaebatia australis*) is on CNPS List 4 and is a County Group D species. This evergreen shrub is found in chaparral at elevations between 300–700 meters. Individuals were found primarily within the southern mixed chaparral along the western portion of the Preserve.

Engelmann Oak (*Quercus engelmannii*) is on CNPS List 4 and a County Group D species, is commonly found in the foothills between 152 and 1,219 m (500 and 4,000 ft). Growing to 12 m tall (40 ft), this tree has flat, grey-blue-green leaves and tolerates less water than coast live oak. Larger individuals are sometimes found growing in savannah grasslands but it may also occur as a shrubby element within the chaparral. All Engelmann oaks on the Preserve were found along the existing ranch roads or within the nonnative grassland/Engelmann oak woodland interface along the eastern most portion of the project site

Legend

Boulder Oaks Open Space Preserve Boundary

Special Status Plants (Area)

- California adder's tongue
- Lakeside ceanothus

Special Status Plants (Individuals or Groupings of Individuals)

- California adder's tongue
- Englemann oak
- Felt-leaved monardella
- Mountain misery
- Orcutt's brodiaea
- Ramona horkelia
- San Miguel savory

FOSTER TRUCK TL

MUSSEY GRADE RD

WILAJOBI WY

SR-67

N

0 500 1,000 2,000

Feet

V:\ GIS \ PROJECTS \ BOULDER_OAKS \ 00002_07 \ MAPDOC \ SPECIAL_STATUS_PLANTS.MXD CM (09-21-07)

SOURCE: SANDAG (Aerial - 2004; Roads - 2007)

Jones & Stokes

Figure 6
Special Status Plants
Boulder Oaks Open Space Preserve

3.2.3 Rare, Threatened, or Endangered Plant Species not Observed but with High Potential to Occur

Gander's Ragwort (*Packera ganderi*), on CNPS List 1B and a County Group A species, is a very localized endemic ragwort, in San Diego County typically found in heavy leaf litter within chaparral. This species was not observed within the Preserve but the CNDDB reports an account of this species just north of the Preserve boundary.

San Diego Thorn-mint (*Acanthomintha ilicifolia*) is federally threatened, State endangered, on CNPS List 1B and a County Group A species typically associated with friable clay soils. This species was not observed during the surveys but it is considered to have a high potential to occur onsite because suitable habitat and soils occur within the Preserve. Furthermore, a CNDDB record reports this species approximately 3.5 km to the northeast of the study area.

San Diego Goldenstar (*Bloomeria clevelandii*) is on CNPS List 1B and is a County Group A species typically associated with clay soils in a variety of vegetation communities including native grasslands, vernal pools, Diegan coastal sage scrub and southern mixed chaparral. This species was not observed during the surveys but is still considered to have a high potential to occur within the preserve because suitable habitat and soils occur on site. Furthermore, Merkel & Associates reports this species as occurring within the southern mixed chaparral directly south of the Preserve boundary (Merkel & Associates, 2006).

Variegated Dudleya (*Dudleya variegate*) is on the CNPS List 1B and is a County Group A species typically associated with coastal mesas, coastal sage scrub and grasslands on foothill slopes among rocks, especially metavolcanics. This species was not observed during the surveys but is still considered to have a high potential to occur within the Preserve because suitable habitat and soils occur on site. Furthermore, CNPS has identified the species in the San Vicente Reservoir, California quadrangle.

Thread-leaved Brodiaea (*Brodiaea filifolia*) is federally threatened, State endangered, on the CNPS List 1B and is a County Group A species typically associated with clay soils and near vernal pools. The species is also associated with chaparral, coastal sage scrub, and valley and foothill grassland. This species was not observed during the surveys but is still considered to have a high potential to occur within the Preserve because suitable habitat and soils occur on site. The species has been identified northwest of the Preserve.

3.2.4 Non-native and/or Invasive Plant Species

Nonnative plants within the Preserve where found at the house pad area including ornamentals not likely to naturalize or persist, as well as invasive species with potential to spread to natural communities and degrade biological values of the Preserve. The latter include Bermuda grass (*Cynodon dactylon*), Mexican fan palm (*Washingtonia robusta*), and African fountain grass (*Pennesitum setaceum*). Twenty- three California

Invasive Plant Council (CAL-IPC) listed plants were identified during field surveys. Those with the highest priority for control within the Preserve are listed in Table 2 below.

Table 2. Non-native Plants with Highest Priority for Control on the Preserve

Species	Cal-IPC Status	Comments
Pampas Grass (Cortaderia selloana)	High	Single individuals at upper pond and along roadway
Yellow Star-thistle (*Centaurea solstitialis*)	High	Currently rare along roadways
Salt Cedar (Tamarix ramosissima)	High	Currently limited presence at ponds (an additional individual is present along the current access road a few yards east of the Preserve)
Harding Grass (Phalaris aquatica)	Moderate	Common perennial in grasslands on Preserve
Bermuda Grass (*Cynodon dactylon*)	Moderate	Currently, primarily at house pad, scattered elsewhere at roadsides, grasslands
Mexican Fan Palm (Washingtonia robusta)	Moderate	Currently limited to house pad
Italian Thistle (Carduus pycnocephalus)	Moderate	Currently rare to uncommon at scattered locations
African Fountain Grass (*Pennisetum setaceum*)	Moderate	Currently limited to house pad

The remaining fifteen non-native plants include, ripgut grass (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), foxtail chess (*Bromus madritensis* ssp. *rubens*), Italian ryegrass (*Lolium multiflorum*), annual beard grass (*Polypogon monspeliensis*), rat-tail fescue (*Vulpia myuros*), greater periwinkle (*Vinca major*), smooth cat's ear (*Hypochaeris glabra*), London rocket (*Sisymbrium irio*), black locust (*Robinia pseudoacacia*), red-stem filaree (*Erodium cicutarium*), horehound (*Marrubium vulgare*), grass poly (*Lythrum hyssopifolia*), curly dock (*Rumex crispus*), and tree tobacco (*Nicotiana glauca*).

3.3 Wildlife Species

3.3.1 Wildlife Species Present

Invertebrates

Butterflies

Butterfly and skipper species observed during the 2007 focused Quino survey are Pacific orangetip (*Anthocharis sara*), Behr's metalmark (*Apodemia virgulti*), western green hairstreak (*Callophrys affinis*), brown elfin (*Callophrys augustinus*), funeral duskywing (*Erynnis funeralis*), silvery blue (*Glaucopsyche lygdamus*), Acmon blue (*Icaricia acmon*), pale swallowtail (*Papilio eurymedon*), checkered white (*Pontia protodice*), painted lady (*Vanessa cardui*), west coast lady (*Vanessa annabella*), monarch (*Dannaus plexippus*), Anise swallowtail (*Papilio zelicaon*) and orange sulphur (*Colias eurytheme*). The Baseline Biological Resources Evaluation (Appendix A) includes a list of all invertebrates identified on the Preserve below the level of family.

No Quino checkerspot butterfly (Quino) or any other special-status butterfly species was observed on the Preserve. Full details of the Quino survey are provided in the attached Quino Checkerspot Survey Report (Appendix C of the Baseline Biological Resources Evaluation – Appendix A). However, both Quino and Hermes copper (*Lycaena hermes*) have potential to occur based on the presence of their host plants, dwarf plantain (*Plantago erecta*) and spiny redberry (*Rhamnus crocea*), respectively. No additional, special-status invertebrate species are reported for the Preserve by the CNNDB (CDFG 2007).

Other Invertebrates
Other invertebrate species captured in the pitfall traps associated with the herpetological arrays or during other fieldwork were identified in the field or photographed and identified in the Consultant's office. No invertebrate species were collected. The Baseline Biological Resources Evaluation (Appendix A) includes a list of all invertebrate species captured in the herpetological arrays or during active herpetological searches and identified below to the family level.

Amphibians
The array of pitfall traps captured two amphibian species during the 2007 sampling period at the Preserve. There is one native species, western toad (*Bufo boreas*) and one nonnative, invasive species, bullfrog (*Rana catesbieana*). The bullfrog was captured west of the main pond during 2007 surveys.

One other native amphibian species, Pacific chorus frog (*Pseudacris regilla*), was detected during active searches. It was breeding in the small pools along the drainage southeast of the main pond.

One additional amphibian species is expected within the Preserve and has been observed in prior years by Fred Sproul and Kurt Campbell (unpublished notes), the western spadefoot toad (*Spea hammondii*); it is included in the current faunal list of the Baseline Biological Resources Evaluation (Appendix A). The County of San Diego considers this to be a special-status species. Sproul and Campbell noted spadefoot reproduction in ponded areas of the grasslands on the eastern portion of the Preserve during wetter years. Other amphibians with potential to occur are limited to California chorus frog (*Pseudacris cadaverina*), arboreal salamander (*Aneides lugubris*), garden slender salamander (*Batrachoseps major major*), and common Ensatina (*Ensatina eschscholtzi*).

Reptiles
Seven reptile species, representing five families, were captured by arrays during the 2007 sampling periods at the Preserve: coastal western whiptail (*Aspidoscelis tigris stejnegeri*), southern alligator lizard (*Elgaria multicarinata*), Gilbert's skink (*Eumeces gilberti*), Coronado western skink (*Eumeces skiltonianus interparietalis*), western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*) and coastal patchnose snake (*Salvadora hexalepis virgultea*). One additional species, rosy boa (*Lichanura trivirgata*), was observed under a cover board northwest of the main pond. A complete

list of herpetofauna observed within the Preserve during 2007 is in the faunal list of the Baseline Biological Resources Evaluation (Appendix A).

Additional reptile species observed or detected but not captured in the arrays are coast horned lizard (*Phrynosoma coronatum*; MSCP covered species), granite spiny lizard (*Sceloporus orcutti*), granite night lizard (*Xantusia henshawi*), red diamond rattlesnake (*Crotalus ruber*), western rattlesnake (*Crotalus oregonus*), rosy boa (*Lichanura trivirgata*), and San Diego gopher snake (*Pituophis catenifer annectans*).

Based on the presence of potentially suitable habitat, the following species may also occur onsite: western racer (*Coluber mormon*), speckled rattlesnake (*Crotalus mitchellii*), Ringneck snake (*Diadophis punctatus*), night snake (*Hypsiglena torquata*), common kingsnake (*Lampropeltis getula*), western blind snake (*Leptotyphlops humilis*), coachwhip (*Masticophis flagellum*), striped racer (*Masticophis lateralis*), longnose snake (*Rhinocheilus lecontei*), western blackhead snake (*Tantilla planiceps*), two-striped garter snake (*Thamnophis hammondii*), lyre snake (*Trimorphodon biscutatus*), California legless lizard (*Anniella pulchra*), orangethroat whiptail (*Cnemidophorus hyperythrus*) and western banded gecko (*Coleonyx variegatus*). No additional sensitive herpetiles are currently listed on the Preserve by the CNDDB (CDFG 2007).

Due to the low abundance and species richness captured by the arrays, the potential effect of dry conditions in 2006 and 2007 and the indiscernible variation among array captures, differences in abundance or diversity within the Preserve remain unclear.

Vertebrate wildlife species detected during the 2007 herpetological surveys are indicated in the faunal list in the Baseline Biological Resources Evaluation (Appendix A).

Birds

Avian species richness (total species detected) was found to be moderately high at the Preserve. A total of 102 species of birds was detected. These included year-round residents, winter-only species, breeding species that migrate to the Neotropics, and species that are strictly migratory through the Preserve, neither breeding nor wintering there. Compared with similar vegetation communities elsewhere in central San Diego County, spring migration appeared to be about average in strength to slightly weaker than expected, but no data were available to compare with other sites during this dry year.

The site has a good diversity of raptors (birds of prey), including eight species detected including one osprey (*Pandion haliaetus*) high overhead that was likely just commuting to San Vicente Reservoir from elsewhere. The other seven species all appeared to be represented by just one or two breeding pairs, except for red-tailed hawks (*Buteo jamaicensis*). It appeared that at least three pairs foraged on the Preserve, though not all of these may breed there. No active raptor nests were observed.

A significant component of the Preserve's avifauna is waterbirds, all of which utilized the main pond. This included at least seven species of ducks and at least another eight species including American coot (*Fulica americana*) and pied-billed grebe (*Podilymbus*

podiceps); both of the latter two nested. The pond also appeared to be very important to a wide variety of songbirds. These include common yellowthroat (*Geothlypis trichas*), song sparrow (*Melospiza melodia*), red-winged blackbird (*Agelaius phoeniceus*), all of which nested on the Preserve, as well as six species of swallows. Swallows that utilized the main pond included violet-green (*Tachycineta thalassina*), which probably bred in cavities in the oaks, cliff (*Petrochelidon pyrrhonota*) and northern rough-winged swallow (*Stelgidopteryx serripennis*), which probably bred in nearby areas and foraged at the pond, and migrating tree (*Tachycineta bicolor*) and bank (*Riparia riparia*) swallows. The bank swallow is a state-listed, threatened species (one was seen at the pond in migration).

Woodpeckers construct most of the tree cavities on the Preserve and these provide vital nest sites for a variety of birds. At least two species of woodpeckers nest on the Preserve, and at least another six species of birds that nest there do so only in cavities, including western bluebird (*Sialia mexicanus*).

Acorn woodpeckers (*Melanerpes formicivorus*) are resident on the Preserve in the general area of the house pad. They normally store food in highly visible granaries, consisting of acorns stored in holes. However, no granaries were found during the current work. They may have been missed, or may have been removed when trees were downed after the fire. If lost, this may put the colony at risk through combination with stresses due to the current drought.

Turkey vultures (*Cathartes aura*) were observed foraging over virtually the entire Preserve, and were fairly common to uncommon. Both Southern California rufous-crowned (*Aimophila ruficeps canescens*) and Bell's sage (*Amphispiza bellii bellii*) sparrows are widespread in chaparral on the preserve. Western Bluebirds were present only at selected ecotones between oak woodlands and grasslands in the central portion of the Preserve. Both loggerhead shrike (*Lanius ludovicianus*) and yellow-breasted chat (*Icteria virens*) were noted as single individuals, the former on multiple dates in the same area and the latter as a somewhat out-of-habitat migrant in chaparral.

There is no reasonable potential for southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*), or coastal California gnatcatcher (*Polioptila californica californica*) to occur at the Preserve beyond rare and brief visits, due to lack of suitable habitat. It is likely that other subspecies of Willow Flycatcher pass through the preserve in spring and fall, though they were not recorded during the current work. The southern willow scrub on the Preserve is grossly suitable, but much to isolated and limited in extent, to support nesting Bell's Vireos. No coastal sage scrub community is present on or adjacent to the Preserve, thus excluding California Gnatcatcher.

The nocturnal bird survey documented three species of birds primarily active at night: barn owl (*Tyto alba*), Great horned owl (*Bubo virginianus*), and common poorwill (*Phalaenoptilus nuttallii*). Great horned owl was noted in oak woodlands at several locations in the central portions of the Preserve. Barn Owls were noted at grassland edges in the central portions of the Preserve and at the house pad, and Barn Owl feathers were noted at two locations in oak woodlands. Common poorwills were seen on roads

and in chaparral across most of the Preserve, heard calling from chaparral at night, and flushed on two occasions while hiking during daytime in chaparral. All three are common and widespread breeding species in the county, with the two owl species being the most common owls in human-altered landscapes.

The Preserve holds potentially suitable habitat for Western screech-owl (*Megascops kennicottii*) and long-eared owl (*Asio otus*). Both species could be present in small numbers, though undetected. However, they may be absent from the Preserve due to the open, fragmentary structure of the woodlands (both species appear to prefer dense woodlands), due to the 2003 fire, the 2007 drought, or other factors. In addition, the Preserve supports potentially suitable habitat for grasshopper sparrow (*Ammodramus savannarum*), burrowing owl (*Athene cunicularia*), and cactus wren (*Campylorhynchus brunneicapillus*). Grasshopper sparrow and burrowing owl could be present in the non-native grassland habitats of the Preserve with cactus wren potentially present in the mosaic of coastal sage scrub found within the southern mixed chaparral on-site.

Mammals

Mammal presence was observed by small mammal trapping or by incidental trapping of species during the herpetofauna survey and included California pocket mouse (*Chaetodipus californicus*), Dulzura kangaroo rat (*Dipodomys simulans*), California mouse (*Peromyscus californicus*), deer mouse (*Peromyscus maniculatus*), dusky-footed woodrat (*Neotoma fuscipes*), and desert woodrat (*Neotoma lepida*). Open grassland communities and the leafy understory of scrub and woodland communities provide excellent foraging habitat for herbivorous mammals and the larger mammals are associated with woodland communities in the Preserve. These mammals are all common species in sagebrush- or chaparral-dominated habitats in San Diego County.

The most prominent mammals visually observed were Dulzura kangaroo rat, desert woodrat, California pocket mouse, and deer mouse. These were mostly found near the road located in the western area of Preserve on a hillside with southern mixed chaparral, west of the main pond in scrub oak chaparral and southern mixed chaparral, and in the southern portion of the Preserve in non-native grassland and southern mixed chaparral habitat.

Bats

Anabat recordings totaled 516 recorded detections at the main pond in the Preserve over the 26-day survey period. Analysis of the sonograms showed that the majority of the bat activity was that of two species–the Brazilian free-tailed bat (*Tadarida brasiliensis*) and the western pipistrelle (*Pipistrellus hesperus*). Considerably fewer recordings were made of the echolocation calls of Townsend's big eared bat (*Corynorhinus townsendii*), western small-footed myotis (*Myotis ciliolabrum*), Yuma myotis (*Myotis yumanensis*), pallid bat (*Antrozous pallidus*), hoary bat (*Lasiurus cinereus*), big brown bat (*Eptesicus fuscus*), long-eared myotis (*Myotis evotis*), western red bat (*Lasiurus blossevillii*) and pocketed free-tailed bat (*Nyctinomops femoroscaccus*). These represent eleven of approximately 23 species of bats known to occur in San Diego County.

The large pond provides a reliable water source that undoubtedly draws bats from considerable distances and a broad diversity of habitats. The many scattered boulders in the area and the trees of the riparian corridor leading up from the pond also are likely to provide suitable roost sites for many bats.

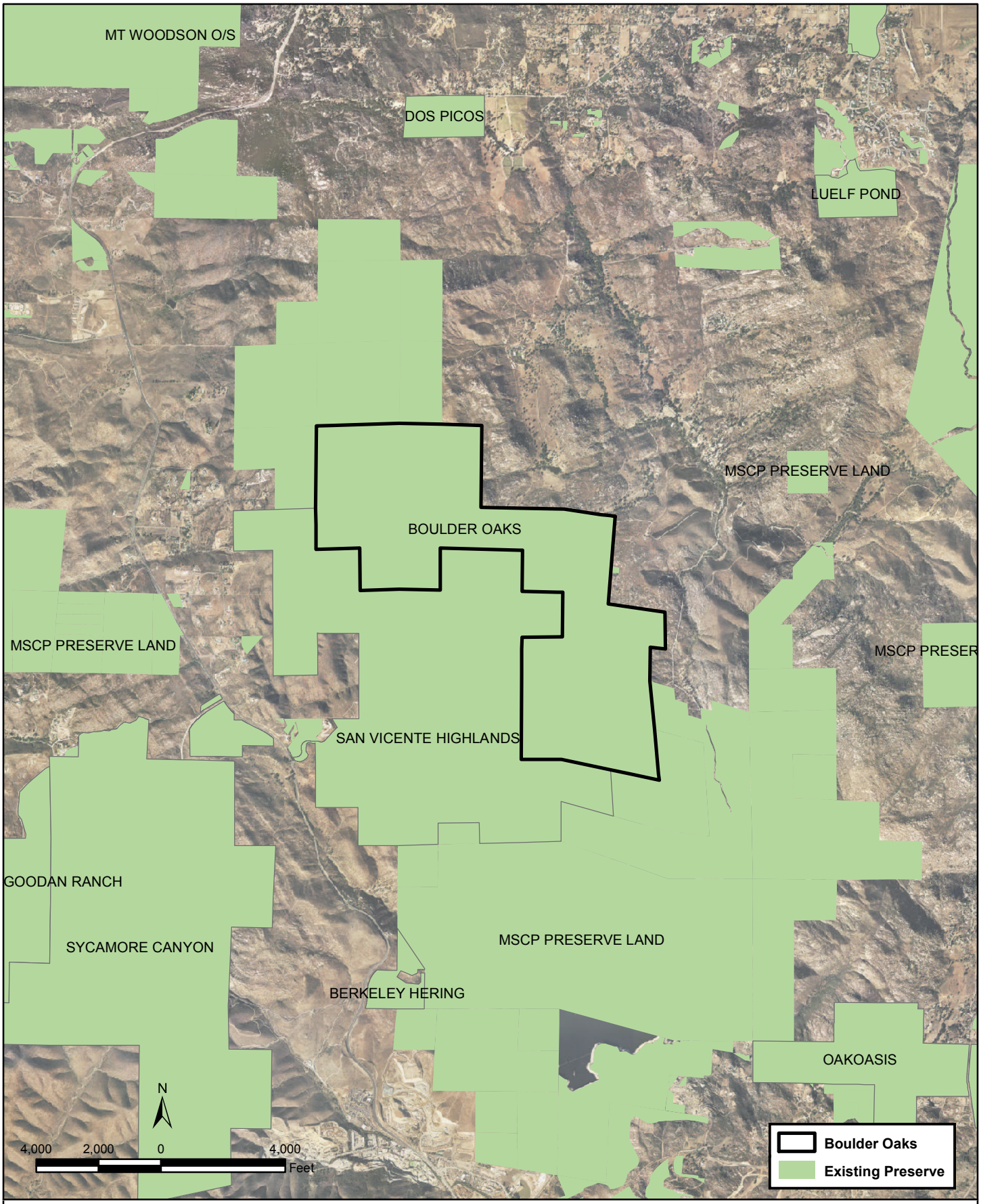
Wildlife Corridors

A total of eleven species of medium to large mammal species was detected on the Preserve through tracks and sign, and a twelfth species was probable. The species and relevant notes are provided in Table 3, below. Based on these results, the Preserve appears to have a large and diverse population of larger mammals. As is typical for these species in open areas, movement of larger animals appeared to be concentrated along easily traveled routes with good visibility such as roads and ridges. Most sign of smaller animals (rabbits, skunks) was within natural communities with cover, especially chaparral and oak woodlands.

No clear evidence of regular or important, larger-scale dispersal across the site was found, though such movement may well occur. Preserved lands are located north and south of the Preserve including Iron Mountain to the north and San Vicente Highlands Preserve, San Vicente Reservoir, El Capitan Preserve, Oakoasis Preserve, and Stelzer Regional Park to the south (Figure 7). Movement of larger animals between these preserved lands is possible. Coyote sign composed largely of fish remains was found on several occasions on roads on the Preserve, and these are expected to be the result of local animals utilizing San Vicente Reservoir, south of the Preserve, as a food source.

Certainly it can be assumed that larger mammals regularly move on, off of, and across the Preserve, to and from adjacent open space.

At the Preserve, southern mule deer (*Odocoileus hemionus*) appear to primarily use woodlands rather than grasslands, marsh, or chaparral for day beds and fawning, however sampling was limited to the period from March through September in a dry year and with chaparral relatively open after the Cedar Fire of October 2003. Thus, these conclusions may not hold for the Preserve year round or under other conditions.



SanGIS

PARKS AND RECREATION COUNTY OF SAN DIEGO

Figure 7
Wildlife Corridors

Path: E:\MXDs\08\08_06_BoulderOaksWildlifeCorridors.mxd, 06/26/08, ekochert

Table 3. Detections of Mammals on the Preserve

Species	Special Regulatory Status	Vegetation Communities	Notes
Desert Cottontail *Sylvilagus audubonii*	None	all communities	widespread but only fairly common, perhaps due to drought
Brush Rabbit *Sylvilagus bachmani*	None	Southern Mixed Chaparral	One mortality (cause not determined); sign in chaparral uncommon
Domestic Dog *Canis familiaris*	None (non-native)	Disturbed Areas	detected on main roads on two occasions
Coyote *Canis latrans*	None	all communities	Common and widespread; one old mortality detected
Common Gray Fox *Urocyon cinereoargenteus*	None	Disturbed Areas; Southern Mixed Chaparral	Fairly common, mostly detected through sign on roads and paths
Common Raccoon *Procyon lotor*	None	Freshwater Marsh	Detected at and near the two lower ponds
Western Spotted Skunk *Spilogale gracilis*	None	Southern Mixed Chaparral, Disturbed Areas	Detected through small amounts of sign and tracks along roads and in chaparral
Striped Skunk *Mephitis mephitis*	None	oak woodland; Disturbed Areas	Detected along roads and sparingly in oak woodlands
Bobcat *Lynx rufus*	None	all communities	Sign common along roads, found sparingly but widely elsewhere
Domestic Horse *Equus caballus*	None (non-native)	Disturbed Areas	Sign uncommon along main roads
Southern Mule Deer *Odocoileus hemionus*	County List 2; MSCP	all communities	Ubiquitous; two old mortalities noted
Mountain Lion *Puma concolor*	None	Southern Mixed Chaparral	Probable only; one detection of scat (see Appendix D, Photo 43)

3.3.2 Rare, Threatened, or Endangered Wildlife Species Present or Likely to Occur and MSCP Coverage Status

The field survey identified 31 sensitive wildlife species that occur within the project site as found on the faunal list in the Baseline Biological Resources Evaluation (Appendix A). Special status wildlife species detected within the survey area consist of: coast horned lizard, western skink, osprey, white-tailed kite (*Elanus caeruleus*), Cooper's hawk (*Accipiter cooperii,* MSCP-covered species), western bluebird (MSCP-covered species), rufous-crowned sparrow (MSCP-covered species), Townsend's big-eared bat, California pocket mouse, desert woodrat, and southern mule deer.

Coast horned lizard was observed within the Preserve, but not captured in the herpetological arrays. This species is considered a federal species of concern, state species of special concern, and an MSCP-covered species. Western skink was captured by the herpetological arrays during the 2007 surveys and is listed as a state species of

special concern and is on the County List 2. Western whiptail was also captured by the herpetological arrays during the 2007 surveys and is on the County List 2.

Special-status bird species detected within the Preserve included gadwall, osprey, white-tailed kite, Cooper's hawk, turkey vulture, red-shouldered hawk, barn owl, loggerhead shrike, bank swallow, western bluebird, yellow warbler, yellow-breasted chat, and Bell's sage sparrow.

The Preserve lies within the range of the Dulzura subspecies of California pocket mouse (*Chaetodipus californicus femoralis*) and San Diego subspecies of desert woodrat (*Neotoma lepida interedia*); both subspecies are state species of special concern.

Stephens' kangaroo rat (SKR) is not expected on the Preserve because the site is outside of this species' known range and conditions do not appear to fit the species' habitat requirements. The woodlands and dense shrub and nonnative grassland communities cover nearly the entire site and likely preclude the species. SKR is found almost exclusively in open grasslands or sparse shrublands with plant cover of less than fifty percent. SKR avoids dense grasses (for example, nonnative bromes [*Bromus* spp.]) and is more likely to inhabit areas where annual forbs disarticulate in summer and leave open areas.

Southern grasshopper mouse (*Onychomys torridus*) was expected but none was captured. Within coastal southern California, this species is found in low, arid scrub and semi-scrub vegetation. It is also found in grasslands and sparse coastal sage scrub habitats. It often occurs at low densities and, in addition, the recent fire and subsequent drought may have reduced the number present or locally extirpated it. It could either be absent or may simply have been missed during surveys.

The northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*) was expected, but none was captured. This species inhabits coastal sage scrub, sage scrub/grassland ecotones, and chaparral communities. It inhabits open, sandy areas of both the Upper and Lower Sonoran life zones of southwestern California and northern Baja California, Mexico. Like the Southern Grasshopper Mouse, numbers may have been reduced by fire and subsequent drought, or the species may simply have been missed.

The County of San Diego considers six of the bat species detected on the Preserve to be sensitive. These species consist of: western small-footed myotis, Yuma myotis, pallid bat, long-eared myotis, western red bat, and pocketed free-tailed bat. Among these, pallid, hoary, western red, and pocketed free-tailed bats are also state species of special concern. Townsend's big-eared bat is considered a federal and state species of concern.

Southern mule deer, observed to be widespread on the Preserve, is on County List 2 and is an MSCP-covered species.

3.3.3 Non-native and/or Invasive Wildlife Species

Amphibians

Bullfrog

In the Preserve, bullfrogs were isolated to open water and fresh water marsh areas most notably the main pond and west of the main pond. Originally native to eastern North America, the bullfrog has been widely introduced in the western U.S. where it out competes native species and has caused population declines in native frog species. One adult bullfrog was captured west of the main pond. This species is usually found in association with permanent water, but can disperse over land at least several miles. This species requires permanent water because it over-winters as a tadpole.

Birds

Brown-headed Cowbirds

Small numbers of brown-headed cowbird (*Molothrus ater*) were seen within the Preserve, including a juvenile being fed by a song sparrow at the main pond. Most cowbird species are generalist parasites, laying their eggs in the nests of a wide range of other bird species. Cowbirds tend to be associated with dairies, stables, and other areas where large domestic animals are present because they forage on the grain that is provided to the animals, as well as on the insects that are attracted to the animals' manure.

European Starling

Small numbers of European starling were observed within the Preserve, which nested in cavities in oaks and then departed. The European starling (*Sturnus vulgaris*) is a bird native to Europe, Asia, and northern Africa. This bird is often associated with urban areas, farmlands, and other disturbed or non-native habitats. Its diet is extremely diverse, including insects, seeds, fruits, and scavenged garbage. Starlings nest in cavities, usually using available nesting holes to the exclusion of native cavity nesters such as woodpeckers, flycatchers, and even wood ducks.

4.0 Cultural Resources

In 2007 Jones & Stokes Associates, Inc. performed Phase I cultural resources surveys of the Preserve. The survey results were used in the preparation of this ASMD and this document is attached as Appendix B. San Diego County is characterized by a rich and varied historical past. The Boulder Oaks Open Space Preserve includes both natural and cultural resources. Cultural resources, which reflect this history, consist of archaeological remains, historic buildings, artifacts, photographs, oral histories, Native American memories and public documents. This ASMD identifies the known cultural resources within the Preserve and describes areas of potential resources. Cultural Resources can be categorized as pre-contact archaeology, post-contact and American ranch resources.

4.1 Pre-contact

The Kumeyaay (Diegueño, Ipai, Tipai) Indians originally inhabited Boulder Oaks Open Space Preserve. Their territory included San Diego County, Imperial County, and ranged 60 miles into northern Baja California. Descendants of these original Kumeyaay Indians lived in the Boulder Oaks area. This is part of the traditional tribal territory of the Mesa Grande Band. The Kumeyaay lived in this area for over 12,000 years. By utilizing resources from the mountains to the Pacific Coast, they had a successful and complex economic structure. Because the environment is rich and varied, the Kumeyaay remained hunter-gatherers until the time of contact with Europeans.

Thirty-two prehistoric sites and isolates were identified during the 2007 surveys and five appear to represent either village or major campsite locations based on the complexity of the elements observed and one is considered a ceremonial site. These five site locations may represent loci of a dispersed village pattern of settlement proposed by Carrico and Cooley (2005) as Late Prehistoric Kumeyaay in the Ramona area. Smaller adjacent sites with midden components may represent small habitation areas, associated with the main site loci, or they may represent a special purpose; procurement and processing locations in proximity to the main loci. The sites identified within the Preserve represent a unified composite of sites best understood when taken together.

4.2 Post-contact

California Indians suffered greatly under the Spanish and California political structures (Carrico 1980). While the Ramona area was part of the road from San Diego to Arizona, little is known about the Kumeyaay in the Boulder Oaks area after Euro-American contact.

In the early 1800s, Mexico decided it no longer needed oversight by Spain. In 1821, after a ten-year struggle, Mexican revolutionary forces defeated Spain and won their independence. To encourage settlement of frontier lands including California, the Mexican government implemented significant changes in land use and property ownership policies. By 1834, secularization was instituted throughout California. The Preserve became part of the large land holdings of the Mexican government. Many of the people who lived in San Diego at the time of secularization realized that this was the time to obtain land in payment for years of service to Spain. The Preserve is located near the boundaries of the Rancho Santa Maria to the north and Rancho Cañada de San Vicente y Mesa del Padre Barona to the east. In 1843 José Joaquín Ortega and his son-in-law, Edward F. Stokes applied for and received a land grant which they called by various names, Rancho Santa María or Valle de Pamo, which totaled 17,719 acres. Stokes and Ortega were also granted the land grant for Santa Ysabel Rancho located northeast of Ramona. In the San Vicente Valley, Don Juan Lopez obtained title to the 13,316-acre Rancho Cañada de San Vicente y Mesa del Padre Barona in 1846 and subsequently deeded it to his nephew, Domingo Yorba in 1850 (LeMenager 1990:9).

In 1850, California became the 31st state to join the Union. California owners of the ranchos were required to confirm their ownership of the land. This was a very lengthy

and involved process. Following a series of legal challenges, the ownership was finally confirmed to Ortega and Stokes in 1872.

Following entry into the United States, the State of California passed laws, which legalized the hunt for Indians. Government officials in Washington D.C. soon recognized that the only way to protect Native Americans was to develop reservations and to place Indian tribes under the care of the federal government through the ratification of treaties. However, the majority of Californians opposed these treaties because they feared the loss of land for farming, mining, or other commercial pursuits. The Native Americans in the area around the Preserve were moved to the Mesa Grande Indian Reservation.

4.3 American Period

The Preserve is located in between two historic ranchos that continued ranching into the late 1800s and early 1900s. There is no evidence the Preserve was ever used by either Rancho Santa Maria or Rancho Cañada de San Vicente y Mesa del Padre Barona. When gold was discovered near Julian, competing stagecoach lines battled for supremacy of the routes to and from the backcountry. The Atkinson brothers developed a shorter, maintained route up Foster Canyon grade (located within the Preserve) in 1873. This route ran through the center of the existing Preserve. The route did not remain for a long period. Major activity in the Preserve began with the construction of the Keith House in 1890 and the Adams House in 1910. The Keith family had orchards and grew crops on their property. Dr. Adams retired to his house and there is no information about what he did in the Preserve. Two San Diego Mayors, John F. Forward in 1909 and Louis J. Wilde in 1914 bought and developed residential property in the Preserve. Both properties were utilized as weekend and vacation properties. Thirteen sites were identified during the 2007 surveys as representing the historic period.

4.4 Previous Cultural Resource Assessments at the Preserve

Previous research in the area, though not extensive, has included both archaeological and historical studies. Cultural resources studies associated with regulatory compliance for the California Environmental Quality Act (CEQA) and/or for the federal regulations such as the National Historical Preservation Act (NHPA) have been conducted on, or in the vicinity of, the Preserve. Three such cultural resources studies are documented within the Preserve. The first was conducted in 1985 by Richard Jenkins, and consisted of an archaeological assessment of the Del Cielo project completed for the California Department of Forestry. Two additional surveys, one by Gross et al. (1992) for the Sycamore-Creelman Transmission Line and Access Roads project, and the other by Gallegos and Associates (2003) for the San Vicente Highlands Preserve Area Specific Management Directives and Fire Management Plan project, recorded resources within the Preserve boundaries

4.5 Cultural Resource Significance

A wide variety of pre- and post-contact sites were located in the Preserve (Jordan, Cooley et al. 2007; Table 4). Pre-contact sites consist of quarries, rockshelters, and village and ceremonial sites. Twenty-four pre-contact sites and eight isolates were recorded in the Preserve. Nine of these sites were considered to have a high potential for subsurface artifacts and features. Historic sites, thirteen in total, include a historic road, house compounds, damns and associated ponds, wells, rock walls, and a traditional cultural property. The number and variety of pre-contact Kumeyaay sites indicate that the Preserve is an area of high pre-contact occupation cultural resources. Based on the history of the area, the Preserve was used for ranching for approximately 120 years. But very few resources were identified from the historic ranching period during the 2007 surveys.

Table 4. Cultural Sites Subsurface Potential for Resources

Trinomial or Primary #	Resource Description	Subsurface Potential
SDI-12821H	Atkinson Toll Road/Foster Truck Trail	Low
SDI-13084	Prehistoric Lithics, Bedrock Milling, Yonis; Historic Foundations of Boulder Oaks	High
SDI-13085	Prehistoric Lithics, Bedrock Milling Features & Tools, Pottery	High
SDI-18336	Historic Refuse Scatters	Medium
SDI-18337	Prehistoric Lithics, Bedrock Milling	High
SDI-18334	Historic Refuse & Well	Low
P-37-028316	Historic Water Conveyance	Low
P-37-028317	Historic Small Dam	Low
P-37-028313	Isolate Flake	Low
SDI-18335	Historic Refuse Scatter	Low
SDI-18333	Prehistoric Single Bedrock Milling Feature	Medium
P-37-028320	Historic Large Dam	Low
P-37-028623	Isolate Flake	Low
P-37-028624	Isolate Flake	Low
CA-SDI-18404	Prehistoric Lithics, Bedrock Milling Features & Tools; Historic rock wall	High
CA-SDI-18405	Prehistoric Bedrock Milling	Medium
P-37-028627	Isolate Flake	Low

Trinomial or Primary #	Resource Description	Subsurface Potential
CA-SDI-18406	Prehistoric Single Bedrock Milling Feature	Medium
CA-SDI-18407	Prehistoric Lithics, Bedrock Milling, Granary Base	Medium
CA-SDI-18408	Historic Structure Ruins, Foundation	Low
CA-SDI-18409	Prehistoric Granary Base/Rock Ring	Low
CA-SDI-18410	Prehistoric Single Bedrock Milling Feature	Medium
P-37-028633	Historic North Reservoir	Low
CA-SDI-18411	Prehistoric Single Bedrock Milling Feature	Low
CA-SDI-18412	Prehistoric Quartz Quarry	Low
P-37-028636	Isolate Flake	Low
CA-SDI-18413	Prehistoric Lithics, Bedrock Milling	Medium
P-37-028638	Isolate Flake	Low
P-37-028639	Historic Four Winds Boulder & Stacked Rock Wall	Low
CA-SDI-18414	Prehistoric Bedrock Milling, Granary Base/Rock Ring	Medium
CA-SDI-18415	Prehistoric Lithics, Bedrock Milling, Rock Shelter	High
CA-SDI-18416	Prehistoric Lithics, Bedrock Milling Features & Tools, Pottery	High
CA-SDI-18417	Prehistoric Milling Tools, Granary Base/Rock Ring	High
P-37-028644	Historic Stacked Rock Trail or Boundary Marker	Low
P-37-028645	Isolate Mano	Low
CA-SDI-18418	Prehistoric Quarry or Historic Mining	Low
CA-SDI-18419	Historic Stacked Rock Trail or Boundary Marker or Prehistoric Cairn	Low
CA-SDI-18420	Prehistoric Milling Tools, Lithics	Medium
P-37-028649	Isolate Obsidian Flake	Low
CA-SDI-18421	Prehistoric Granary Base/Rock Ring	Medium
CA-SDI-18422	Prehistoric Granary Base/Rock Ring	Medium
CA-SDI-18423	Historic Troughs, Fencing; Prehistoric Yoni Rock Feature	Low
CA-SDI-18424	Prehistoric Bedrock Milling, Granary Base/Rock Ring	High

Trinomial or Primary #	Resource Description	Subsurface Potential
CA-SDI-18425	Prehistoric Granary Base/Rock Ring	Medium
CA-SDI-18426	Prehistoric Yoni Rock Feature	Low
CA-SDI-18427	Prehistoric Shell Bead, Bedrock Milling Tools, Rock Shelter	High

5.0 MANAGEMENT GOALS, OBJECTIVES, & RECOMMENDATIONS

5.1 Definitions of Management Program Terms

Policies and Priorities – DPR has a priority to balance the need to provide appropriate passive recreational opportunities while conserving the natural and cultural resources of the Preserve. In establishing goals and objectives for the ASMD, both short-term and long-term objectives and their compatibility must be considered. Furthermore, not all uses may be established or maintained within a limited area or with limited resources.

Element - An element refers to any biological, cultural, public use, or facility maintenance program for which goals and objectives have been prepared and presented within the ASMD.

Biological Element - Biological elements consist of species, habitats, or communities for which specific management goals and objectives have been developed within the ASMD.

Cultural Element – Cultural elements consist of precontact and post-contact or historic resources for which specific management goals and objectives have been developed within the ASMD.

Public Use/Facility Maintenance Element - Public use elements are any recreational or other use programs appropriate to and compatible with the purposes for which this property was acquired and describe the maintenance and administrative program which helps maintain beneficial management of the area.

Biological Goal - A biological goal is the statement of intended results of management (based upon the feasibility of maintaining, enhancing or restoring species populations and/or habitat).

Cultural Resource Goal – A cultural resource goal is the statement of intended management practices that will assure compliance with federal and state statues and Native American concerns.

Public Use/Facility Maintenance Goal - A public use goal is the statement of the desired type and level of public use compatible with the biological element goals previously specified within the ASMD.

Objective - Objectives are statements of the intended results of management actions that promote the biological, public use, or operations/maintenance goals.

Recommendation – Recommendations are the individual projects or work elements, which implement the objective. Recommendations describe management actions, form the basis for day to day management, and are useful in planning operation and maintenance budgets.

It is anticipated that the recommended management actions would be dynamic in nature. Applying adaptive management, the effectiveness and appropriateness of recommended management actions would be determined through review of objective and goal achievement and changes can be made to management actions as needed. Adaptive management techniques depend upon the specific issues impacting the resources. Therefore, the techniques herein may be subject to change or revisions when applied.

5.2 Management Policies and Priorities

San Diego's expanding population is expected to produce increased demand for outdoor recreational opportunities and amenities. The priority of the ASMD is summarized as follows:

- The Preserve shall be managed for its biologic and cultural resource values and for its public use benefits. Where conflicts between resource management and public access arise, the biologic and cultural resources should be avoided whenever practicable. If impacts are required, adequate mitigation shall be provided.

The ASMD has been divided into three elements: 1) biological resources; 2) cultural resources; and 3) public use/facility maintenance, which addresses anticipated potential future use demands and the general maintenance of the Preserve. Most of the recommended management actions relate to both biology and cultural resources. Recommendations have been grouped where they appear most suitable.

Monitoring tasks have been narrowed and prioritized, with highest priority given to providing information necessary to: 1) ensure long-term persistence of species covered by the South County MSCP and 2) ensure invasive non-native plant species are controlled. For the purposes of this ASMD, Priority 1 monitoring tasks are the highest priority, and Priority 2 monitoring tasks, while important, are a lower priority.

5.3 Plan Implementation, Enforcement, and Responsibility

The County of San Diego DPR will be responsible for the implementation and enforcement of the ASMD. One senior park ranger, one park ranger, and four seasonal park rangers are assigned to manage the Preserve and will patrol the Preserve four times a month. The law enforcement activities are assigned to the County's park rangers who will be enforcing San Diego County Code of Regulatory Ordinances Title 4, Division 1, Chapter 1 County Parks and Recreation. In addition, per County Code of Regulatory Ordinance Sec 41.111, 41.112, 41.113, all wildlife, plant, historical artifacts, and

geologic features are protected and are not to be damaged or removed. Any person who violates any provision of Sections 41.111, 41.112, 41.113 is guilty of a misdemeanor as provided in Sections 11.116, 11.117, and 11.118 of this Code, punishable by fines ranging from $1,000 to $50,000 and imprisonment up to one year, depending on the dollar value of the damage done.

It is expected that many of the management measures, especially the maintenance tasks, will be carried out by the rangers who are most familiar with the site and currently access the site. Park ranger patrol should include the following: monitor the condition of the trail, clean up trash, and check for off-trail use. If off-trail use is occurring in an area identified as having sensitive resources, the ranger shall work with the County Historian and/or County Biologist to assess the potential damage to the resource and develop an action plan to prohibit further damage and/or restore the resource integrity.

Note: The monitoring protocols/requirements for MSCP covered species and habitats will be revisited periodically by participants of the MSCP. This section is subject to change based on adoption of updated protocols.

5.3.1 Biological Element

All management and monitoring described below is subject to funding availability which is determined in the DPR Annual Budget.

Habitat Monitoring (Priority 1)

Goals:

Maintain at least the baseline acreages of native vegetation communities.

Maintain an updated vegetation community map to be used as a tool for adaptive management within the Preserve area. The purpose of the ongoing mapping effort should be to document changes in the vegetation communities within the Preserve that could affect quality and usage by wildlife. Vegetation mapping/monitoring should also address habitat value for target (i.e., MSCP-covered) species. The update should be consistent with recommendations for regional vegetation monitoring.

Meet the biological monitoring requirements of the MSCP.

Tasks:

- The County will prepare a habitat monitoring report every five years unless otherwise required due to temporary habitat changes (Ogden 1996). MSCP biological monitoring should also address habitat value. Vegetation monitoring for habitat value should be designed to identify adverse changes in the vegetation over time (Ogden 1996). The monitoring report will contain an updated vegetation map.

- The ASMD incorporates by reference the *Biological Monitoring Plan for the Multiple Species Conservation Program* (Ogden 1996) Sections 3.4.1.2 through 3.4.3. These sections address the following; Sampling Sites, Permanent Point Locations, Digital Orthophotography, Vegetation Map Refinements for Monitoring Plots, Photodocumentation for Monitoring Plots, Habitat Value Monitoring in the Field, Quantitative Monitoring, Qualitative Monitoring, Data Collection, Data Analysis, Schedule, and Products. Vegetation monitoring should, at a minimum meet the requirements set forth within these sections, but may exceed those requirements if there is a clear benefit to additional monitoring and funding is available.

- The habitat monitoring should be done by qualified professional personnel with experience assessing and/or monitoring local habitats particularly southern mixed chaparral, open coast live oak woodland, and non-native grassland communities.

Habitat Restoration (Priority 1)

Goals:

Restore degraded habitats and protect and enhance populations of rare plant species through stabilization of eroded lands and strategic revegetation. In addition, manage the Preserve for the benefit of sensitive species and MSCP covered species without substantive efforts to alter or restrict the natural course of habitat development and dynamics.

Tasks:

- Restoration could include passive revegetation of redundant roads and/or enhancement of potential vernal pool habitats through control of non-native grasses within existing non-native grassland areas. Although not natural, the manmade ponds on the Preserve provide valuable resources for a wide range of wildlife including rare bat species and waterbirds. Therefore, any modifications or management of the ponded areas on site should be considered with wildlife usage in mind.

Non-native Invasive Species Control (Priority 1)

Goals:

Reduce and control non-native invasive floral and fauna known to be detrimental to native species and/or the local ecosystem.

Tasks:

Invasive non-native plant species of concern within the Preserve include pampas grass, yellow star-thistle, salt cedar, Harding grass, Bermuda grass, Mexican fan palm, Italian thistle, and African fountain grass. These species have never been treated with herbicides.

- Annually treat all occurrences of invasive non-native plant species of concern within the Preserve. Treatment types and timing of removal should be recommended by a licensed weed removal specialist.

There is a high abundance of non-native aquatic species, such as bullfrog, that appear to be affecting the presence of native aquatic species in the main pond. The bullfrog population within the main pond is not currently known. In addition, the magnitude of the effect of bullfrogs on native aquatic species in the pond is unknown.

- Reduce or eliminate non-native aquatic species populations in the main pond of the Preserve. Bullfrogs are extremely abundant in the main pond. Bullfrog control techniques include trapping or draining the main pond to remove the bullfrogs. A reduction of permanent water sources could potentially impact the western spadefoot toad (this species has the potential to occur on the Preserve). A survey of the pond for this species should be conducted prior to drainage of the pond. Surveys for western spadefoot should be conducted during normal or high rainfall years. After removing the bullfrogs, the pond will be allowed to refill naturally.

Small numbers of cowbird and European starling were seen within the Preserve and shall be monitored for impacts to special-status species.

- Institute an equestrian education program regarding the potential negative impacts to native ecosystems from the accumulation of non-point source pollutants in staging areas and on frequently used trails. This could be accomplished through implantation of a signage program and interaction between rangers and trail users. Signage should state the following:

  > "Don't Plant a Pest! Feeding horses weed-free feed for at least 72 hours prior to park entry helps preserve our park."

- Institute volunteer trail patrols to keep trails and staging areas free of non-point source pollutants.

- If an increase in the population of cowbird and European starling is noted, DPR will consider implementing a cowbird and European starling trapping and removal program.

Wildlife Corridors (Priority2)

Goals:

Provide protection for local wildlife movement corridors to ensure corridor functionality and support of daily and seasonal wildlife movements.

Tasks:

- Because mammals are quite sensitive to the presence of humans and human-associated animals, use of the Preserve should be controlled to minimize such impacts. Preventing off-trail use by both the public and their pets and horses, should be a high priority. As funding becomes available, the County should install and maintain long-term camera stations to monitor the wildlife corridors within the Preserve.

- The ASMD incorporates by reference the *Biological Monitoring Plan for the Multiple Species Conservation Program* (Ogden 1996) Corridor Monitoring Sections 4.1 through 4.3. These sections address the following; Methodology, Schedule, and Products. Wildlife corridor monitoring should, at a minimum meet the requirements set forth within these sections, but may exceed those requirements if there is a clear benefit to additional monitoring and funding is available.

5.3.2 Species-specific Management (MSCP Covered)

Goals:

Provide for appropriate biological monitoring and research to determine, direct, and refine habitat or species-specific management activities as directed under the MSCP.

Tasks (Priority 1):

- As part of the MSCP monitoring, climatic data are to be collected throughout the County. These data should be used to analyze population trend data obtained from monitoring activities (Ogden 1996).

- Not all species occurring within the Preserve are expected to require species-specific management. It is expected, rather, that the other management recommendations under the Biological Element should be sufficient to protect and manage optimal habitat conditions for most, if not all, species to maintain and/or thrive within Preserve. There are some species, however, listed as MSCP covered species in the County's Subarea Plan which requires additional management measures, particularly if monitoring indicates that the general guidelines are not sufficient to maintain acceptable population levels.

- In order to determine whether specific management directives should be implemented, quantitative and qualitative monitoring must be performed to determine the status of the sensitive species and its habitat. The County is responsible for all monitoring required within the Preserve.

- Before conducting any of the species-specific management directives provided below, each action shall be evaluated to ensure that the proposed action would not result in adverse impacts to any MSCP-covered or listed species.

Management Directives for MSCP Covered Plant Species

Felt-leaved Monardella (*Monardella hypoleuca*)

Site Location
Found primarily on the Friant series soils along the western portion of the Preserve. Given the extensive amount of suitable habitat and the wide distribution of documented individuals, it is estimated that over 400 individuals occur within the Preserve.

Vegetation Community
Southern mixed chaparral

MSCP Monitoring Conditions
This species is considered a third priority species for monitoring under the MSCP. Photoplot monitoring every five years.

Orcutt's Brodiaea (*Brodiaea orcuttii*)

Site Location
Over 200 individuals were observed within the nonnative grassland, Engelmann oak woodland and coast live oak woodland within the eastern most portion of the Preserve.

Vegetation Community
Non-native grassland and oak woodland

MSCP Monitoring Conditions
This species is considered a second priority species for monitoring under the MSCP. Conduct focused surveys every two years.

San Miguel Savory (*Satureja chandleri*)

Site Location
The plant was observed within the understory of southern mixed chaparral on a north-facing slope of the Preserve. This slope contains soil mapped from the Friant series that is derived from metasedimentary rock.

Vegetation Community
Southern mixed chaparral

MSCP Monitoring Conditions
This species is considered a second priority species for monitoring under the MSCP. Photoplot monitoring every five years.

Lakeside Ceanothus (*Ceanothus cyaneus*)

Site Location
Found within the rocky chaparral located within the southern portion of the Preserve.

Vegetation Community
Southern mixed chaparral

MSCP Monitoring Conditions
This species is considered a second priority species for monitoring under the MSCP. Photoplot monitoring every five years.

Management Directives for MSCP Covered Wildlife Species

Coast Horned Lizard (*Phrynosoma coronatum*)

Site Location
Found on ranch roads throughout the Preserve.

Vegetation Community
Southern mixed chaparral

MSCP Monitoring Conditions (per *Biological Monitoring Plan for the Multiple Species Conservation Program* [Ogden 1996])

Pit-fall trap arrays shall be used as follows:

A minimum of five arrays will be installed at each monitoring site, covering at least 100 acres (maximum array density of 1 array per 20 acres of suitable habitat). Arrays will be constructed and installed per the protocol developed by USGS in association with the wildlife agencies.

Monitoring Frequency. Pit-fall trap arrays will be opened for a minimum 5-day interval and checked daily. One 10-day sampling period or two 5-day sampling periods will occur in May/June, and one 5-day sampling period will occur in August/September. Each site will be monitored every other year, with half of the sites monitored in a given monitoring year.

Data Collection and Analysis. One biologist and one wildlife technician will check and record all information from a monitoring site in 4 hours (including 1 hour travel time). All data will be collected on standardized forms (Appendix F) to facilitate data transfer to an electronic format. Field data will be analyzed and a report prepared that includes the following for each site: (1) list of all reptile species captured or observed within 100 ft of each pit-fall trap array; (2) relative abundance of each species; (3) species diversity index (e.g., Simpson index or Shannon-Weaver Index); and (4) an assessment of any changes to

the physical setting or immediate surroundings of each site (fires, development, obvious habitat disturbance, etc.).

Cooper's Hawk (*Accipiter cooperii*)

Site Location
Present and potential breeding in open Engelmann oak woodland located in the northeastern portion of the Preserve intermixed with the coast live oak woodland and non-native grassland.

Vegetation Community
Dense tree stands or patchy woodlands

MSCP Monitoring Conditions (per Table 3-5 of the MSCP)
Habitat based. The preservation of oak riparian forest and adjacent upland oak woodland habitats will provide adequate nesting and foraging habitat.

Western bluebird (*Sialia mexicana*)

Site Location
Present only at selected ecotones between oak woodlands and grasslands in the central portion of the Preserve.
Vegetation Community
Oak woodlands

MSCP Monitoring Conditions (per Table 3-5 of the MSCP)
Habitat based. The preservation of oak woodland habitat will provide adequate nesting and foraging habitat.

Rufous-crowned sparrow (*Aimophila ruficeps canescens*)

Site Location
Widespread in southern mixed chaparral on the Preserve.

Vegetation Community
Southern mixed chaparral

MSCP Monitoring Conditions (per Table 3-5 of the MSCP)
Habitat based. Management directives must include maintenance of dynamic processes, such as fire, to perpetuate some open phases of scrub vegetation communities.

Southern Mule Deer (*Odocoileus hemionus*)

Site Location
Throughout the Preserve

Vegetation Community
Southern mixed chaparral, oak woodland, freshwater marsh, non-native grassland, and disturbed areas

MSCP Monitoring Conditions (per Table 3-5 of the MSCP)
Monitor wildlife corridor within Preserve every three years.

5.3.3 Biological Management and Enhancement

The following management recommendations were derived from the baseline survey report for the Preserve (Jones & Stokes, 2007). These recommendations are not considered an MSCP requirement as the species are not covered under the Program. Below are a discussion of each management and monitoring goal and a description of how to achieve the goal. All management and monitoring described below is subject to funding availability which is determined in the DPR Annual Budget.

Goal: Preserve and manage lands to the benefit of the fauna reflected in the natural communities occurring within the Preserve.

Butterflies
Goal: Maintain high quality habitat for butterflies

Tasks: Priority 2

- Although no Quino checkerspot butterfly (Quino) or other special-status butterflies were observed on the Preserve, there is potential for their occurrence. In addition, other butterflies and invertebrates were observed. Quino as well as many other common butterflies are known to exhibit "hilltopping" behavior. This behavior was observed on the Preserve at various rock outcrops on hilltops at high points on the hills. Planned trails and public vistas should not be installed, or should be installed with minimal disturbance, on the highest points of hilltops.

- Monitoring shall be performed by park rangers during their weekly visits to confirm damage is not occurring due to rock climbing, collecting, or vandalism.

Aquatic Fauna
Goal: Maintain diverse, high quality, aquatic habitat for native aquatic species.

Western spadefoot (state species of concern) is expected to occur within the Preserve. This species has been observed in ponded areas of the grasslands on the eastern portion of the Preserve during wetter years.

Tasks: Priority 2

- Access to aquatic habitat within the Preserve should be restricted. To restrict access, trails should be signed stating that users are to stay on the trail and not impact the sensitive resources in and adjacent to the aquatic areas.

Herpetofauna
Goal: Maintain high quality habitat for herpetofauna.

Many of the reptiles, most notably granite night lizard, are dependent on the rock features of the Preserve. These features are vulnerable to disturbance and damage by rock climbing, as well as those who would damage the exfoliating rock, potentially resulting in loss of important microhabitat features.

Tasks: Priority 2

- Monitoring shall be performed by park rangers during their weekly visits to confirm damage is not occurring due to rock climbing, collecting, or vandalism.

The Preserve supports several special-status herpetofauna species that will likely be encountered by the public on the roads and trails and off trail in the natural communities.

Tasks: Priority 2

- Signs should be posted in a kiosk at the staging area to inform park users to stay on roads and trails and to avoid wildlife when encounters occur in order to reduce negative effects on special-status reptiles. It will also be made clear to park users that animal collecting is prohibited.

Avifauna
Goal: Maintain diverse and healthy populations of avifauna species.

A total of 108 bird species was documented on the Preserve. Although the most extensive vegetation community on the Preserve is chaparral, the most important features on the Preserve for birds include the ponds, oak woodlands (including existing cavities for nesting), and, to a lesser degree, the drainages present.

Tasks: Priority 2

- Both quantitative and qualitative monitoring of bird populations within the Preserve should be performed by qualified personnel. Quantitative monitoring shall include maintaining the avian point counts performed during the baseline surveys. Surveys should be performed at a minimum every three to five years for sensitive species to detect changes in bird communities.

Bats
Goal: Maintain diverse and healthy populations of bat species.

Tasks: Priority 2

- In order to maintain year round foraging for bats using the Preserve, the ponds on the Preserve should not be stocked. If possible, year round open water should be maintained in the ponds or creek.

- All live and dead/dying trees provide habitat for bats and should be kept on the Preserve to provide roosting habitat.

- As funding becomes available, bat boxes of various designs and colors should be installed, based on instruction of a bat expert, to allow for roosting habitat within the Preserve. In addition, an artificial cave-like structure for obligate, cave roosting bats (e.g. Townsend's big-eared bat) should also be constructed and installed on the Preserve. If possible, the local community should be involved in making and installing the bat boxes and artificial cave. Local schools and conservation groups should be contacted to determine the possibility for volunteers.

- Bats are dependent on the rock features of the Preserve for roosting habitat. These features are vulnerable to disturbance and damage by rock climbing. Monitoring shall be performed to confirm damage is not occurring due to rock climbing, collecting, or vandalism. Signage should also be installed on trails near rock features stating "Sensitive Resources Stay on Trail."

Small Mammals

Goal: Maintain diverse and healthy populations of small mammal species.

Tasks: Priority 2

- The Preserve lies within the range of the Dulzura subspecies of California pocket mouse and San Diego subspecies of desert woodrat; both subspecies are state Species of Special Concern. The Dulzura kangaroo rat is a state Species of Special Concern at the full species level. To maintain diverse and healthy populations of small mammal species found in the Preserve, small mammal trapping using a variety of methods including pitfall trap arrays and small and large Sherman live traps should be conducted every three years. This trapping should follow the methods used for the initial habitat assessment (Jones & Stokes, 2007). Trapping will confirm the presence of species detected during the baseline biological surveys.

Medium and Large Mammals

Goal: Maintain diverse and healthy populations of medium and large mammal species.

Tasks: Priority 2

- The diversity and species richness of mammals on the Preserve is high. A total of 30 species of mammals was documented on the Preserve, which includes one MSCP-covered species: southern mule deer. To maintain diverse and healthy populations of medium and large mammal species, access to the Preserve will be limited to between sunrise and sunset. This will allow large and medium size predators to move throughout the Preserve without user interaction during times of increased hunting/foraging. As funding (per Annual Budget) becomes available, the County should install and maintain long-term camera stations to monitor for wildlife use, especially for mountain lions.

5.3.4 Cultural Resources Element

Stewardship

DPR is charged with preserving, managing, and interpreting the archaeological and historic resources at the Preserve for the benefit of San Diego County residents. DPR will strive to meet the highest standards for preservation, access, interpretation and research established for sites of exceptional significance within the resources available. As part of the planning process, the following objectives were established to guide the goals and implementation of the ASMDs for the Preserve.

Preservation – DPR will preserve and maintain the cultural resources balancing the need for public access with the need to preserve cultural and natural resources.

Access – DPR will employ a wide range of methods and technologies to make the Preserves cultural resources more accessible to the public and make it more important to the various communities that the site serves.

Education – DPR will inform the public about the cultural resources found at the Preserve as a site of national significance and the accomplishments of the Kumeyaay Indians, Spanish, Californios, and American ranchers who lived and worked at these resources. DPR will also communicate the importance of preserving the cultural resources and will work to foster respect for the Native American cultures that built some of these resources and for the spiritual nature of the Preserve for many Native Americans.

Research – DPR will foster research at the Preserve in order to discover and disseminate knowledge about the cultures that have lived in this location.

Goal: Identify, record, and assess significance of all cultural resources within the Preserve

Objectives:

- Assess each known and recorded site for eligibility as an Historical Landmark for the County of San Diego
- Assess each site for eligibility to the CRHR/NRHP
- Evaluate Preserve for significance as a Cultural Landscape
- Conduct oral histories of the descendants of recent owners to better establish the American period history of the Preserve

Goal: Preserve and protect significant cultural resources and ensure they are available for appropriate uses by present and future generations

Objectives:

- No ground disturbing activities are allowed on or in any cultural resource site in Boulder Oaks Open Space Preserve until the impacts have been assessed and mitigation measures established.

- The ceremonial site should be preserved and avoided. If this is not feasible, consultation with the Mesa Grande Band of Mission Indians is required.
- Any person or agency conducting research of any kind within the Preserve shall obtain a Right of Entry Permit, which outlines the precautions to be taken to preserve and protect cultural resources.
- Educate the public regarding the importance of preservation of the significant cultural resources

Goal: Threats to the cultural resources from natural or human-caused events shall be identified and impact reduced, eliminated, or adverse effects mitigated.

Objectives:

- Signs shall be stationed at all trail heads that notify users that sensitive cultural resources cannot be damaged
- Signs shall be posted throughout the Preserve indicating removal of any archaeological material is prohibited by law.
- People suspected of vandalism to cultural resources shall be reported to the appropriate law enforcement authorities.
- Natural impacts to cultural resources (fire, erosion, floods, etc) shall be identified and impacts prevented or mitigated.
- All trails, staging areas, resident volunteer pads, ranger residences or offices, and roads in the Preserve shall avoid impacts to any cultural resources to the maximum extent practicable
- Safeguards against incompatible land and resource uses shall be identified to protect all cultural resources

Goal: Consultation with the Mesa Grande Tribe shall be conducted frequently in order to identify appropriate management of pre-contact and ethnographic cultural resources.

Objectives:

- Traditional uses by the Mesa Grande tribes shall be encouraged
- All activities by Native Americans in Boulder Oaks Open Space Preserve shall be conducted with a Right of Entry Permit specifically designed for Boulder Oaks Open Space Preserve
- The tribes shall be encouraged to participate in evaluation, recordation, protection and preservation of cultural resources
- The tribes shall be the conduit of information about Boulder Oaks Open Space Preserve to other Native American entities

5.3.5 Public Use/ Facility Maintenance Element

Goal: Provide appropriate recreational opportunities for the public in the northern portion of the Preserve in the least sensitive areas where it would not jeopardize natural resources. This plan has adopted a philosophy of allowing for these opportunities where

the type and magnitude of such recreation would not result in substantive short or long-term detriment to the biological or cultural resources.

Implement the ASMD in a coordinated manner, manageable within the fiscal resources of the County DPR, and conform to the requirements of the MSCP.

Objective:

- Develop recreational opportunities that are compatible with the preservation of the biological and cultural resources within the Preserve.
- Provide an overview of the property's operation and maintenance and establish the foundation for future application of management funding.
- Maintain sufficient access to the Preserve and provide staging areas for Emergency Service organizations in the event of a natural disaster to protect human lives.
- Activities allowed within the preserve must be consistent with this ASMD.
- Centipedes, scorpions, ants, wasps, honey bees, and other venomous invertebrates are common within the Preserve. Ticks are also likely to occur. In addition, rattlesnakes occur within the Preserve and can be found on or near roads and trails. Signs shall be posted to alert park users of their presence, recommending avoidance and providing information on what to do in case of a bite or sting.

Allowable activities within the Preserve include the following:

- Selective clearing of vegetation by hand to the extent required by the fire authorities for the express purpose of reducing an identified fire hazard.
- Activities required to be conducted pursuant to a revegetation, habitat management or landscaping plan approved by the Director of Planning and Land Use.
- Vegetation removal or application of chemicals for vector control purposes where expressly required by written order of the Department of Environmental Health of the County of San Diego, in a location and manner approved in writing by the Director of Planning and Land Use of the County of San Diego.
- Existing uses (e.g., annual clearing, maintenance and replacement of existing facilities, roads and structures) and Recreational Activities (e.g., public access and passive recreation) identified in the plans which generate the preserve areas.
- Policing by local, State and Federal law enforcement agencies and fire protection agencies as necessary.
- Scientific and biological uses (e.g., monitoring and tracking by authorized personnel, water quality sampling, invasive flora and fauna removal).
- Necessary infrastructure.

Activities typically precluded on land which is dedicated as an open space easement to the County include: grading, excavation, placement of soil, sand, rock, gravel or other material, clearing of vegetation, hunt, catch, chase, trap, kill, poison, wound, injure, mistreat or attempt to hunt, catch, chase, trap, kill, wound, injure or mistreat any wild or domesticated animal, construction, erection or placement of any building or structure,

damage to facilities, possession of weapons or fireworks, off-road vehicular activities, bringing an animal besides a pet onto the property, trash dumping or use for any purpose other than as open space, or planting of vegetation materials.

Unauthorized Uses
In order to protect the cultural and biological resources in the Preserve, the following are prohibited inside the Preserve:

- Off-road vehicles
- Domestic animals, except horses and leashed dogs
- Smoking
- Campfires
- Firearms (except authorities such as Sheriff)
- Air guns
- Archery devices
- Slingshots
- Fireworks
- Explosive devices
- Screens for sifting soils
- Metal detectors
- Littering
- Dumping
- Open flames
- Paintball activities

Roads

Goal:

Provide for public access where the type and magnitude of such access would not result in substantive short or long-term detriment to the natural or cultural resource environment.

Task:

Currently, a limited network of roads persists within the Preserve. The primary road, Foster Truck Trail provides access through the central portion of the site, originating at Mussey Grade Road. Several other graded roads traverse the Preserve including roads that provide access to the site from the northern, eastern and western Preserve boundaries. No staging areas are currently associated with any of these roads. A public access route has not been established within the Preserve.

Vehicular access within the Preserve shall be restricted to emergency vehicles, maintenance, monitoring, and patrol vehicles.

Trails

Goal:
Provide for public access where the type and magnitude of such access would not result in substantive short or long-term detriment to the natural or cultural resource environment.

Task:
Existing Conditions

There are approximately four miles of existing ranch roads in the northern portion of the Preserve. An interim multi-use trail (e.g. hiking, horseback riding, and mountain biking) is proposed to be constructed utilizing these ranch roads to the maximum extent possible. Eventually a permanent trail system will be constructed within the Preserve. The existing ranch roads within the Preserve have been surveyed for impacts to biological and cultural resources in 2007 (Jones & Stokes 2007). Appropriate mitigation measures will be implemented for the trail system per the reports.

Currently, there is no public access to the Preserve, so the proposed interim trail system has not been constructed. Once public access has been obtained the proposed interim trail system will be constructed.

Task:
Trail Closures

- Where closure of a trail is recommended for maintenance or remediation, closure actions will be accompanied by educational support. An implementation schedule should be written by DPR Operations staff when maintenance or remediation is deemed necessary.

Recommendations:
The trail should be posted with signage that indicates the closure and the primary reason for the closure (erosion issues, sensitive biological resource impacts, etc.). Whenever possible, postings should also include a suggested substitute route. Finally, signs should provide contact information for anyone wishing to provide input on trail use or gain additional information regarding closures.

Once posted, closed trails should be blocked with split rail fencing or rock borders. These blocks should be constructed in a manner that helps to prevent circumvention. Enforcement of these closures would require increased patrols of these areas and investigations to determine if the closures are effective.

Task:
Trail and Road Maintenance

- Provide for public access where the type and magnitude of such access would not result in substantive short or long-term detriment to the natural or cultural resource environment.

- Restore degraded habitats and reduce detrimental edge effects through stabilization of eroded trails and strategic revegetation when necessary.
- In addition, maintenance should minimize the need for corrective management actions or trail and road closures.

Recommendations:

DPR Operations Staff will have management responsibility for day to day activities. Funds for annual operation and maintenance expenses should be identified within the Parks and Recreation budget. Trail maintenance and road maintenance should be undertaken outside of the breeding season, to minimize disturbance.

Task:

Fencing and Gates

- Prohibit unauthorized access into sensitive areas within the Preserve.

Recommendations:

Fencing of the property in its entirety is not recommended due to expense and potential wildlife movement impacts. Barriers or signage should be installed adjacent to restoration areas to protect these areas from public use. If deemed unsuccessful then temporary split-rail fencing should be installed. In addition, permanent split rail fencing should be installed adjacent to sensitive cultural resources sites to protect these resources. Any unauthorized, access points to the Preserve used by off-road vehicles should be blocked-off with boulders or some other effective, natural material. All of the above fencing recommendations should be monitored for vandalism, breakage, or weathering by the rangers on a weekly basis. Problems should be reported to the appropriate maintenance staff and addressed on an as needed basis.

Task:

Trash and Litter Removal

- Provide a safe and healthy environment for Preserve users.

Recommendations:

Trash receptacles will be placed at the staging area. Trash receptacles will be designed to be secure from intrusion by wildlife species. DPR Operations Staff will regularly empty trash receptacles, at least twice a week or as deemed necessary.

Public Access

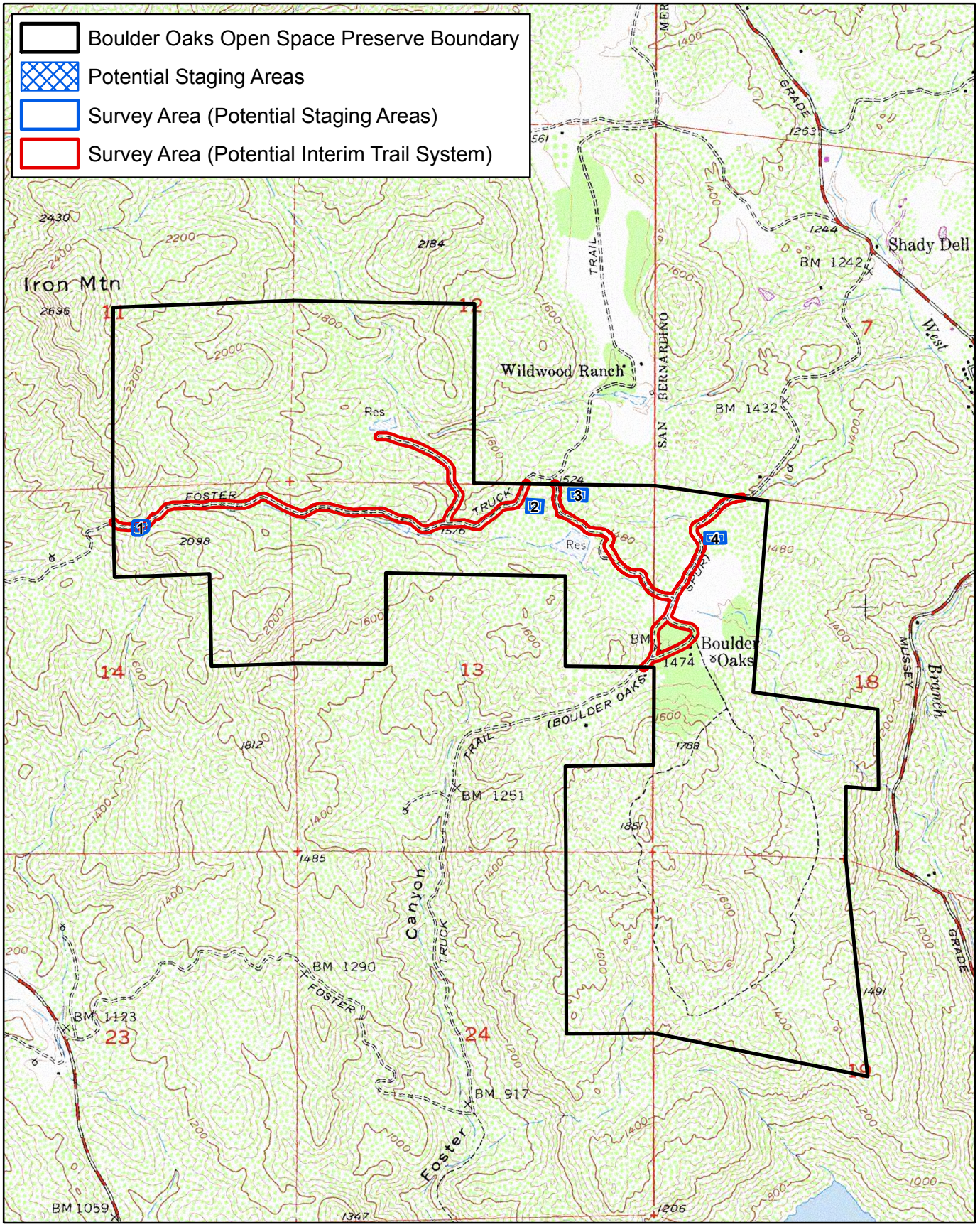
Goal:

Ensure that all members of the community have an opportunity to enjoy the Preserve and provide for daily access from sunrise to sunset and ensure access for emergency services.

Task:

Currently there is no public access to the Preserve. DPR is considering neighboring properties as potential options for access.

A portion of the existing four miles of ranch roads within the Preserve are proposed to serve as an interim trail system until a permanent system is established (Figure 8). The construction of the interim trail system will involve improvements to the existing ranch roads; however, the trail surface will remain native soil. The proposed staging area would likely be constructed using disintegrated granite (DG) and will include associated amenities.



Source: USGS 7.5' Quad., California: San Vicente Reservoir (1955; Photorevised 1971)

Jones & Stokes

0 1,000 2,000 Feet

Figure 8
Trails Plan
Boulder Oaks

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Public Education

Goal:

Develop and promote outreach, educational, and volunteer opportunities that advance the management, monitoring, and stewardship resources available and objectives of the ASMD.

Task:

Development of an internet site would support the Public Education objective. A web site could be an effective tool for conveying information on the rules and regulations, special events, special biological/seasonal happenings (*e.g.*, spring flowers in bloom and bird migration peaks), and volunteer opportunities. Opportunities for educational trail-side signage and educational kiosks should be identified. In addition, signage provided at access points and on trail maps provides a form of education. When possible, the ranger or volunteers should organize and conduct interpretative walks or programs within the Preserve.

Emergency Services Access/Response Planning

Goal:

Provide a safe recreational experience for the Preserve visitors.

Task:

In the event of a natural disaster such as fire or flood, the ranger and volunteer patrol shall evacuate the trail system within the Preserve. The ranger shall contact the district coordinate with the local agency in charge of responding to the emergency and, if possible, assist where necessary. Prepare and implement a Site Emergency Response Plan (SERP). The SERP should be attached to the ASMD as an appendix once finalized.

The following should be addressed in the SERP:

- Description of Preserve
- Site Contacts
- Plan Activation
- Evacuations
- Site Emergency Response Team
- Area Emergency Response
- Emergency Procedures (e.g., Africanized Honey Bees, Earthquake, Evacuation, Fire, Light Search and Rescue Guidelines, Medical and First Aid Emergencies)

5.3.6 Fire Management

San Diego County has perhaps the most severe fire weather in the nation, with huge shrubland wildfires sometimes driven by hot, dry Santa Ana winds during autumn (Keeley and Fotheringham 2001). Fire plays a strong role in shaping local vegetation

communities. Chaparral is the largest vegetation community within the Preserve and rarely burns at less than 20 years old. There are concerns that burning too frequently (three times in 20 years) could result in type conversion. However, chaparral less than 13 years old has been shown to resist even wind driven fires. The natural resistance to fire of young chaparral makes this frequency highly improbable.

The entire Preserve was burned in the 2003 Cedar fires (Figure 9). In addition, a majority of San Vicente Highlands Preserve located directly south of the Preserve has burned three times and some portions of the Preserve four to five times over the years. Potential actions to help reduce and manage fire risk within the Preserve include vegetation management, fuel modification, and infrastructure improvements. No residences are within 100 feet of the Preserve, so fuel breaks are not warranted.

Goal:

- Provide for necessary fire suppression activities that are sensitive to natural and cultural resources protection.

Task:

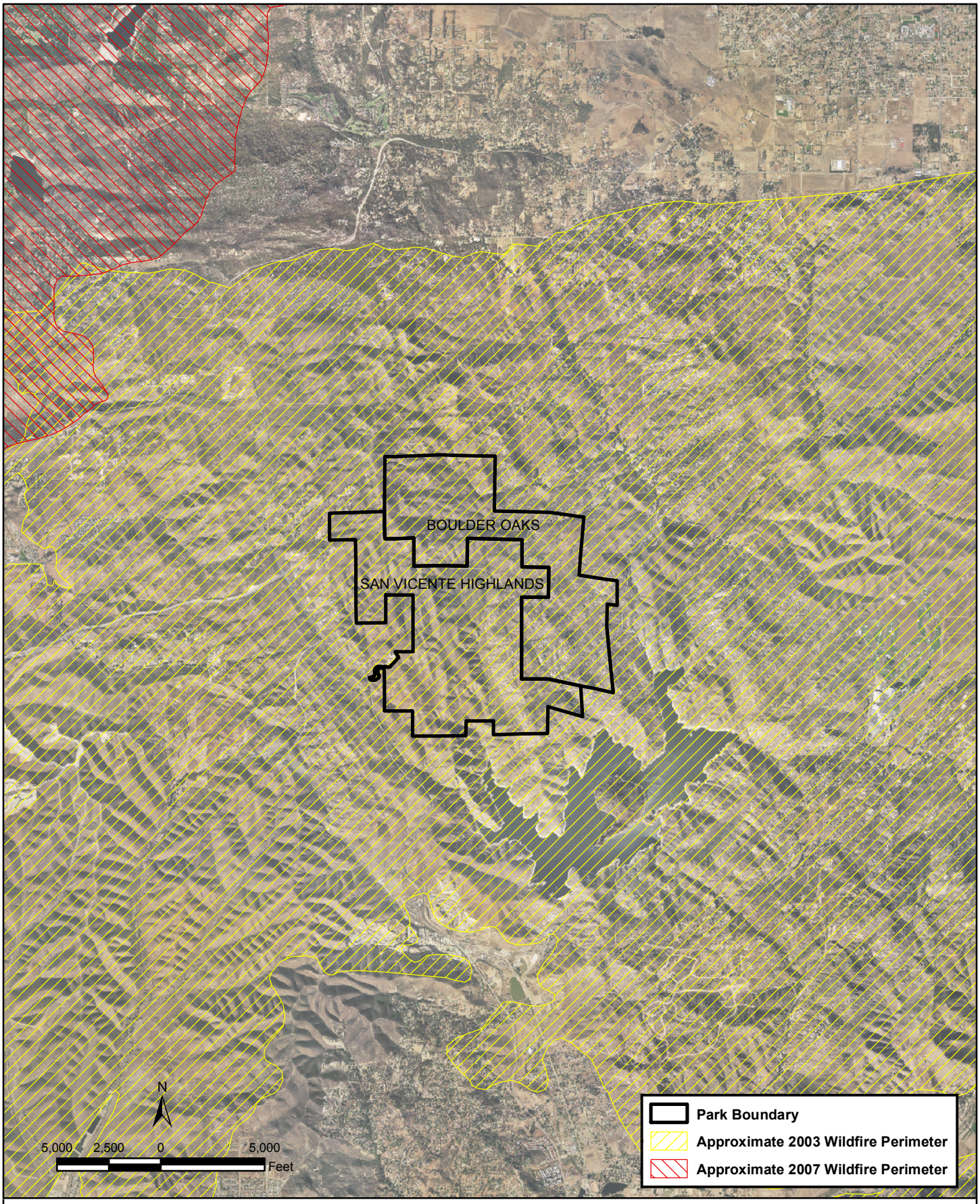
If wildland fires occur within the Preserve they must be managed to protect human lives and property in adjacent private properties, while minimizing potential impacts to biological and cultural resources from fire suppression activities.

- It is recommended to prune the lower dead branches from many of the oaks located in the open coast live oak woodland and open Engelmann oak woodland vegetation communities within the Preserve. The pruning or implementation of any other appropriate vegetation management will prevent the trees from becoming future ladder fuels.

- Prescribed burning is not a current need within the Preserve as vegetation is continuing to rebuild after the 2003 Cedar fire. However, it is recommended that further discussion with California Department of Forestry and Fire Protection (CAL FIRE) occur regarding the potential for future prescribed burns within the Preserve as the fuel loads do rebuild. Planning for them now will allow for the establishment and maintenance of fuel modification zones that could be used as containment lines as needed.

- Improving the service level of the primary routes within the Preserve should be done in coordination with CAL FIRE and other local Fire Agency personnel to determine what improvements need to be made to make fire response feasible throughout the Preserve.

- Information should be provided within a kiosk located in the planned staging area regarding wildfires. Information should include fire ecology of the vegetation within the Preserve, the probability of fires during various times of year, the likely



SanGIS

PARKS AND RECREATION COUNTY OF SAN DIEGO

Figure 9
2003 and 2007
Wildfire Burn Areas

Path: E:\MXDs\08\08_06_BoulderOaksWildfireBurnAreas.mxd, 06/24/08, ekochert

direction of fire spread during these time periods, and where users should proceed if a fire were to ignite.

- Work with CAL FIRE to develop a Vegetation Management Plan (VMP) that will allow environmental documentation for prescribed fires to be conducted when needed. The following will need to be addressed when developing a VMP with CAL FIRE or whether DPR writes its own prescription to put fire on the ground:

  1. General fire management plan for each vegetation type/climate zone.
  2. Biological and management specific objective plans as it relates to fire use and suppression in the ASMDs.
  3. A prescription/plan should be limited to items not in existing plans and reports.
  4. A prescription/plan should include specific management units and general prescriptions.
  5. A prescription/plan or plan should be a working document for personnel charged with implementing it.
  6. A prescription/plan must consider the adjacent public and private lands with a goal of treating watershed scale areas as a unit.
  7. A prescription/plan should have infrastructure specifics including road widths, types, fire hydrant and other water source locations, locked gates with access names, age of vegetation in adjacent watersheds, weather station locations, etc.
  8. DPR will need copies of an approved plan that can be utilized in response to a wildland fire as the owner/manager to provide fire agency's incident commanders to consult on resource values as affected by fire suppression tactics. Fire personnel familiar with the specific plan may not be always available to respond to that particular area in the event of a large scale event as such has been seen in the Pines Fire of 2002, the Cedar, Paradise and Otay fires of 2003, and the 2007 Harris, Witch-Guajito, Rice, and Poomacha Fires.
  9. Considerations in a prescription/plan should include future build out analysis for private lands adjacent to the Preserve.
  10. The following areas of discussion should be included in a prescription/plan:
      - Jurisdictional boundaries
      - Infrastructure
      - Emergency services
      - Local fire ecology
      - Frequency periods
      - Fire weather
      - Fire fuel distribution
      - Condition class
      - Natural fire/fuel breaks
      - Fire history
      - Ignitions

- Expected fire behavior
- Fire spread potential assessment
- Fire effects assessment
- Structures/density
- Wildlife, habitat, plants, ecosystem health, primitive areas
- Water and watersheds
- Risks
    - Fuels
    - Severe fire behavior analysis
    - Communities and concentrations of dwellings
    - Mitigation goals
    - Vegetation management/fuel modification projects

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