BASELINE BIOLOGICAL RESOURCES EVALUATION

SYCAMORE CANYON & GOODAN RANCH PRESERVES

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Executive Summary

ICF Jones & Stokes conducted baseline biodiversity surveys of the County of San Diego's (County's) Sycamore Canyon and Goodan Ranch Preserves (Preserves) to provide the Department of Parks and Recreation with biological data to develop a Resource Management Plan including Area Specific Management Directives (ASMDs). To provide a baseline evaluation of biological resources, the following studies were conducted by ICF Jones & Stokes: (1) vegetation mapping; (2) rare plant surveys; (3) pitfall trap arrays to sample amphibians, reptiles, and small mammals; (4) avian point counts; (5) nocturnal bird surveys; (6) acoustic sampling and roost surveys for bats; (7) small mammal trapping; (8) a track and sign survey for medium-to-large mammals; and (9) a camera station survey for medium-to-large mammals.

This report summarizes all survey methodologies and data collected during the 2008 survey period (February through September). This report also includes recommendations for adaptive management, including management and monitoring of vegetation communities and sensitive plants, control of invasive non-native plants, and management and monitoring of sensitive wildlife species, including species covered by the Multiple Species Conservation Program (MSCP).

The Preserves include approximately 2,272.3[1] acres of native and naturalized habitats including coast live oak woodland, open coast live oak woodland, southern coast live oak riparian forest, native grasslands, non-native grasslands, southern mixed chaparral, coastal sage-chaparral scrub, disturbed freshwater marsh, agricultural lands, and disturbed habitat as well as developed areas, all of which are within the adopted South County MSCP. The undeveloped portions of the Preserves are mapped as Pre-approved Mitigation Areas (PAMA) and are part of the MSCP Preserve.

The current surveys documented 10 land cover types and 483 species within the Preserves. The surveys detected 313 plant species, 73 bird species, 30 mammal species (11 bats, ten small mammals, and nine medium and large mammals), 18 herptiles (two amphibian and 16 reptiles), and 46 invertebrate species. This list includes 32 special-status

[1] The assessor's parcel data list the Preserves to be 2,364.7 acres; however, calculations generated from the GIS data show the Preserves as 2,272.3 acres. Therefore, this report references the property as 2,272.3 acres.

species of which 12 are MSCP-covered species (nine wildlife and three plants). Three additional reptile species and one additional mammal species were detected by Park Rangers in 2008. Of these four species, three are sensitive and one is an MSCP-covered Species (Mountain Lion).

1.0 Introduction

Baseline biological resources surveys were conducted within the County of San Diego's (County) Sycamore Canyon and Goodan Ranch Preserves (Preserves). The purpose of these surveys was to identify and map existing resources and to provide the Department of Parks and Recreation with information for the development of a Resource Management Plan including Area Specific Management Directives (ASMDs). These ASMDs will provide the management framework for monitoring and managing the Preserves' resources.

The Preserves are located just east of the Marine Corps Air Station (MCAS) Miramar and approximately two miles north of Santee. The 2,272.3-acre[1] Preserves are located in the lower San Diego River watershed, approximately 2.5 miles north of the San Diego River (Figures 1 and 2). The Preserves are accessed from the east via State Route 67 and accessed from the north via Sycamore Canyon Road. The Preserves are surrounded on all sides by open space lands (north, south, west and east). Elevations within the Preserves range from approximately 192 meters (m) [630 feet (ft)] above mean sea level (AMSL) in the southwest corner to nearly 466 m (1,530 ft) AMSL along the northeastern ridge tops.

To provide a baseline evaluation of biological resources, the following studies were conducted by ICF Jones & Stokes: (1) vegetation mapping; (2) rare plant surveys; (3) pitfall trap arrays to sample amphibians, reptiles, and small mammals; (4) avian point counts; (5) nocturnal bird surveys; (6) acoustic sampling and roost surveys for bats; (7) small mammal trapping; (8) a track and sign survey for medium-to-large mammals; and (9) a camera station survey for medium-to-large mammals.

In addition to methods and results for all the work conducted, this report provides brief recommendations and options to preserve and enhance the biological resources present within the Preserves.

[1] The assessor's parcel data list the Preserves to be 2,364.7 acres; however, calculations generated from the GIS data show the Preserves as 2,268.7 acres. Therefore, this report references the property as 2,268.7 acres.

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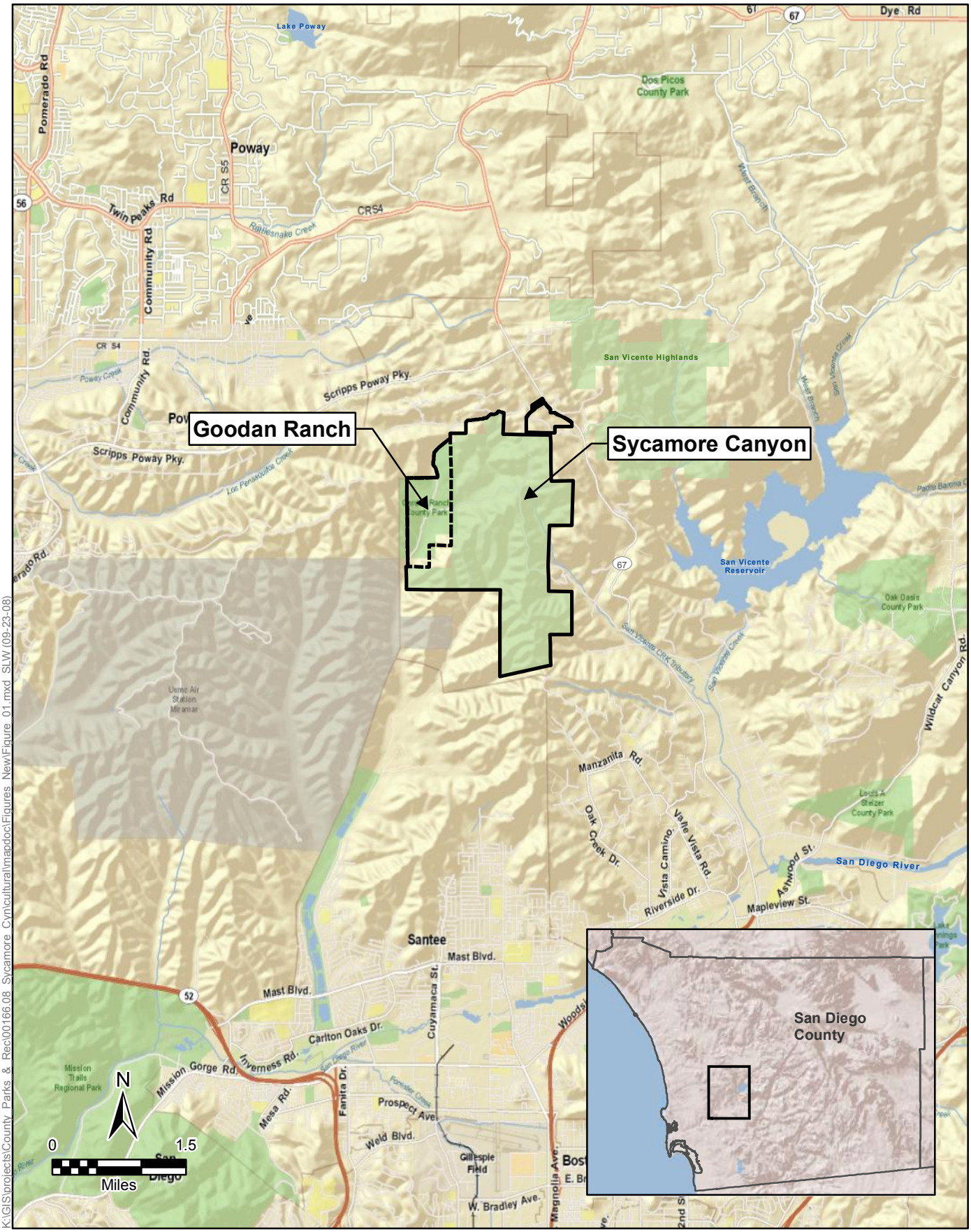

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SOURCE: ESRI Street Map (2008)

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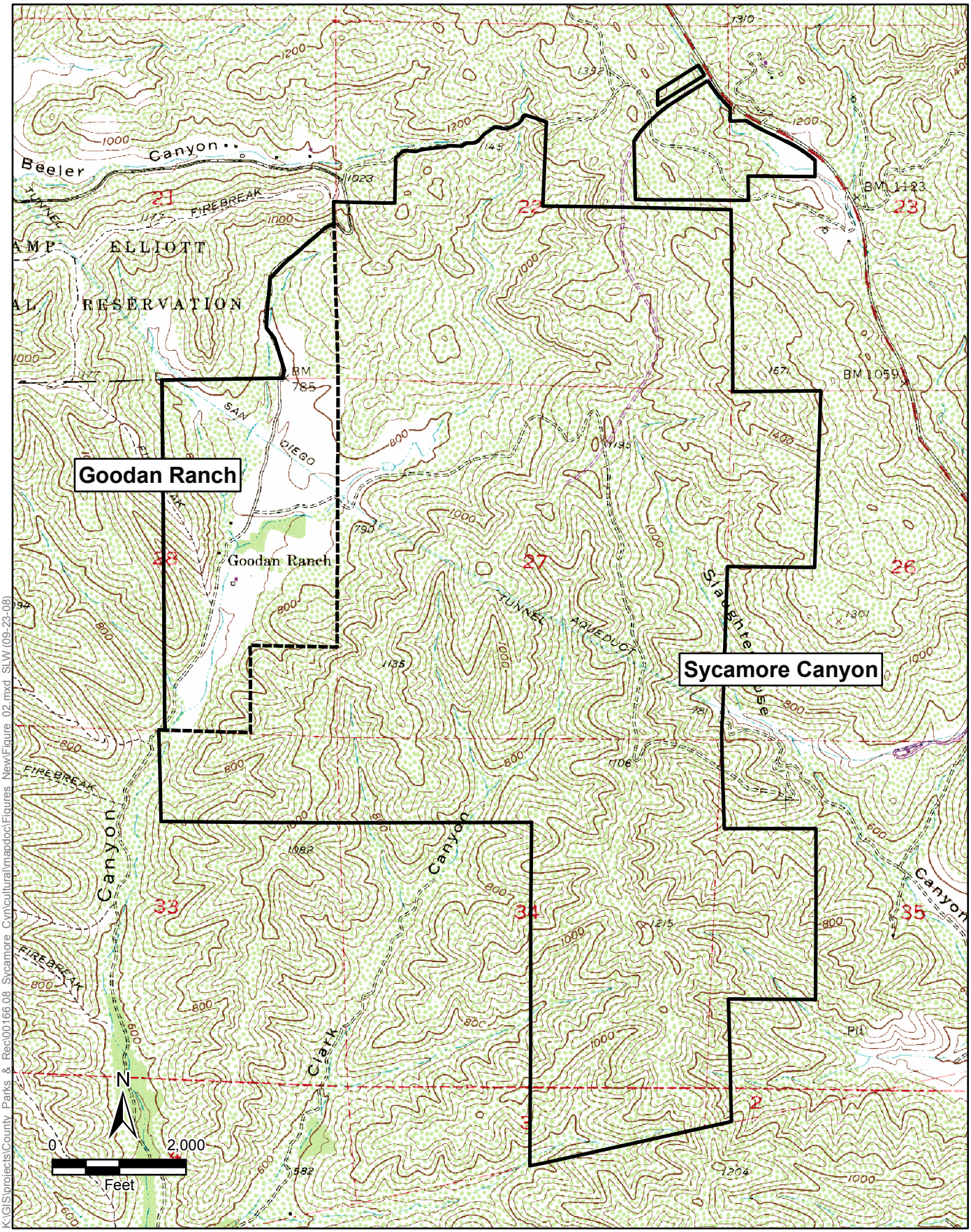
Figure 1
Regional Location Map
Sycamore Canyon and Goodan Ranch Preserves



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SOURCE: USSGS 7.5' Quadrangle: 1955 San Vicente Reservoir (Photorevised 1971)

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Figure 2
Project Vicinity Map
Sycamore Canyon and Goodan Ranch Preserves

2.0 Study Area

2.1 Physical and Climatic Conditions

2.1.1 Geography

The natural setting within the study area is characterized by foothill uplands with narrow ridgelines separated by numerous steep canyons, ravines, and drainages. Specifically, the western edge of the Goodan Ranch Preserve is bounded by the Sycamore Canyon drainage with the Sycamore Canyon Preserve extending east to across a ridgeline system to Slaughterhouse Canyon (Figure 2). Elevations range between approximately 466 m (1,530 ft) AMSL at the northeastern edge of the Sycamore Canyon Preserve to approximately 195 m (640 ft) AMSL in the southwestern corner of the study area along the southern portion of Sycamore Canyon in the Goodan Ranch Preserve. The closest sources of fresh water are San Vicente Creek approximately 3.4 miles to the southeast, and on the property, the likely spring-fed Sycamore Canyon drainage.

2.1.2 Geology and Soils

The Preserves are situated atop three distinct geologic categories of bedrock: pre-Cretaceous metamorphic rocks, Cretaceous granitic rocks, and Eocene sedimentary rocks. The pre-Cretaceous metamorphic and Cretaceous granitic bedrock is present mostly in the north and eastern areas of the Sycamore Canyon Preserve, while the Eocene, sedimentary Poway Conglomerate Formation is present in the central and southwestern area of the Sycamore Canyon Preserve, and over most of the Goodan Ranch Preserve property. The pre-Cretaceous rocks consist of various metamorphic types. The granitic rocks, consisting of granite, granodiorite, and gabbro, are part of the southern California batholith in the area. The Poway Conglomerate Formation, which overlies these granitic and/or metamorphic rocks is now recognized as consisting of several distinct formations including the Stadium Conglomerate, the Mission Valley Formation, and the Pomerado Conglomerate (Kennedy and Peterson 1975). Now referred to as the Poway Group, these

formations variously contain rounded-cobble conglomerate and sandstone with lesser occurrences of siltstone and mudstone. Also present in the broad valley along upper Sycamore Canyon within the Goodan Ranch Preserve area are more recent sediments of Pleistocene and/or Holocene age (Strand 1962; Weber 1963).

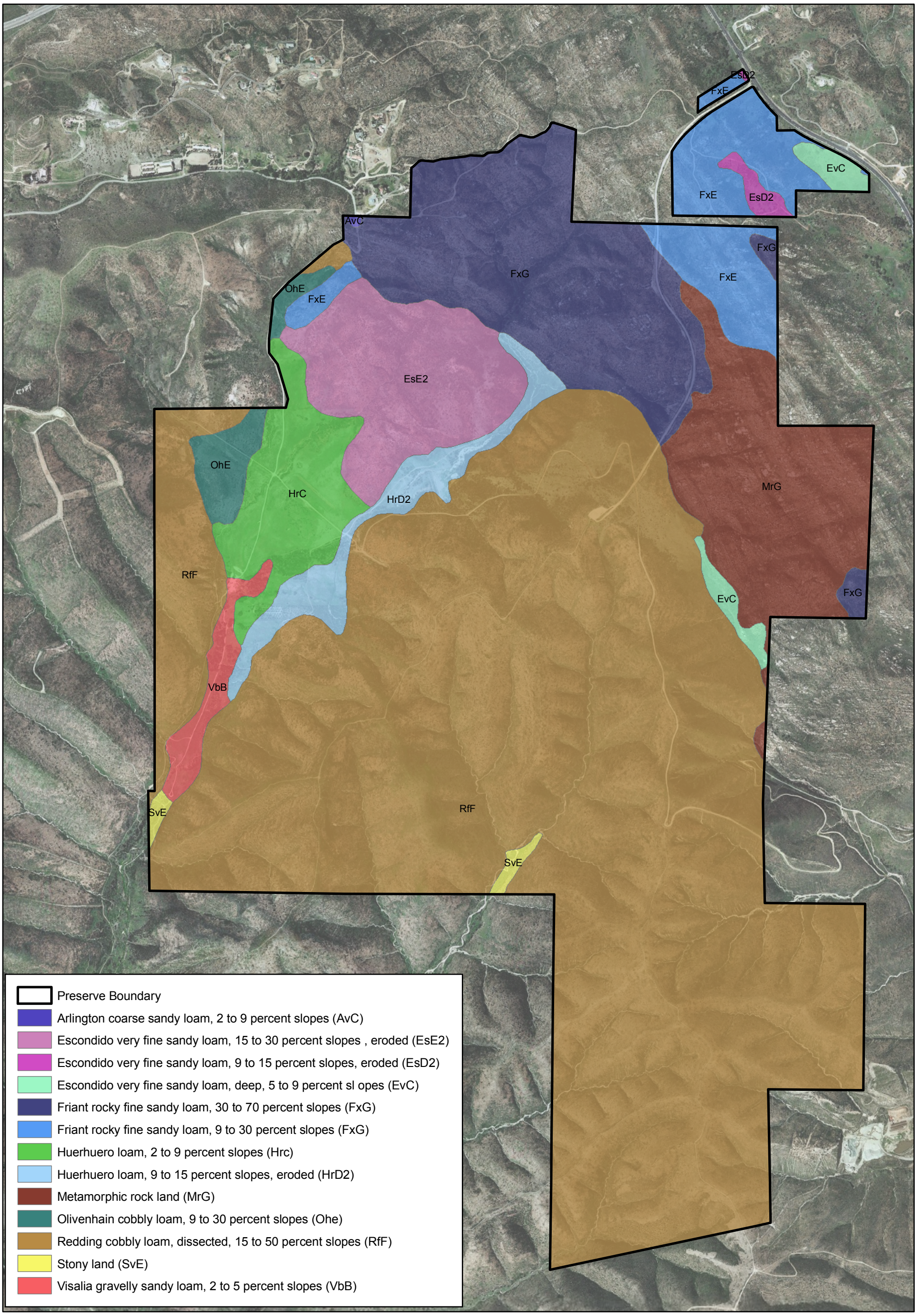
Several general soil associations are represented within the Preserves: Arlington, Escondido, Friant, Huerhuero, Metamorphic rock land, Olivenhain, Redding, Stony land and Visalia (Figure 3) (USDA 1973).

The ***Arlington*** soil series is characterized as moderately well drained moderately deep coarse sandy loams and is usually found on alluvial fans with slopes ranging from 2 to 9 percent. It is found at elevations ranging from 122–335 m (400–1,100 ft). The surface layer is brown in color and coarse sandy loam in texture. The subsoil is yellowish-brown, brown, and light yellowish-brown in color and slightly acidic. The substratum extends to a depth of 122 centimeters (cm) [48 inches (in)] and is weakly cemented, slightly acidic coarse sandy loam. The specific soil type found in the Preserves is Arlington coarse sandy loam (2 to 9 percent slopes). This soil type only occurs within the northeastern most portion of the Preserves and supports southern mixed chaparral.

The ***Escondido*** soil series is characterized by moderately deep to deep, well drained fine sandy loams and are usually found in uplands at elevations ranging from 122–853 m (400-2,800 ft). The surface layer is dark brown very fine sandy loam that is usually 15 cm (6 in) thick and slightly acidic. The subsoil is brown very fine sandy loam that is usually 58 cm (23 in) thick and neutral. The layer below this consists of metasedimentary rock. The specific soil type found in the Preserves is Escondido very fine sandy loam (5 to 9 percent slopes, 9 to 15 percent slopes and 15 to 30 percent slopes). Within the Preserves this soil type supports southern mixed chaparral and non-native grassland.

The ***Friant*** soil series is characterized by very shallow to shallow, fine sandy loams and are usually found on mountainous uplands at elevations ranging from 152–1,067 m (500-3,500 ft). The surface layer is usually 30 cm (12 in) thick and slightly acidic. The layer below this consists of metasedimentary rock. Boulders and rock outcrops are present. The specific soil type found in the Preserves is Friant rocky fine sandy loam (9 to 30 percent slopes and 30 to 70 percent slopes). Within the Preserves this soil type primarily supports southern mixed chaparral.

The ***Huerhuero*** soil series consists of moderately well drained loams that have a clay subsoil. These soils developed in sandy marine sediment and are typically found on slopes ranging from 2 to 30 percent with elevation ranging from 3 to 122 m (10 to 400 ft). In a representative profile the surface layer is brown and pale-brown, strongly acid and medium acid loam about 30.48 cm (12 in) thick. The upper part of the subsoil is brown, moderately alkaline clay and extends to a depth of about 104.14 cm (41 in). Below this, and extending to a depth of more



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0 1,000 2,000 Feet

Figure 3
Soils Map
Sycamore Canyon & Goodan Ranch Preserves

than 152.4 cm (60 in), is a brown, mildly alkaline clay loam and sandy loam. The specific soil type found in the Preserves is Huerhuero loam (2 to 9 percent slopes and 9 to 15 percent slopes). Within the Preserves, this soil type supports southern mixed chaparral, non-native grasslands, disturbed freshwater marsh and southern coast live oak riparian woodland.

Metamorphic rock land occurs at excessively drained hilly to mountainous areas. Fifty to 90 percent is exposed rock outcrops, angular stones and cobblestones. There is 25 cm (10 in) or less of soil material that consists of very fine sandy loam to silt loam. Within the Preserves, this soil type supports southern mixed chaparral.

The ***Olivenhain*** soil series is characterized by well drained, moderately deep to deep cobbly loams and is usually found on slopes ranging from 2 to 50 percent. It is found on dissected marine terraces at elevations ranging from 30–183 m (100–600 ft). The surface layer is usually 25 cm (10 in) thick and moderately acidic. The topsoil is brown and reddish-brown and cobbly loam in texture. The subsoil is reddish-brown, red, and pink in color, strongly acidic, very cobbly clay and clay loam and is about 81 cm (32 in) thick. The substratum is pinkish-white in color and strongly acidic. Runoff is medium to rapid and the erosion hazard is moderate to high. The specific soil type found in the Preserves is Olivenhain cobbly loam (9 to 30 percent slopes). Within the Preserves this soil type supports southern mixed chaparral.

The ***Redding*** soil series is characterized by well drained, undulating to steep gravelly loams and is usually found on slopes ranging from 2 to 20 percent. It is found on dissected terraces at elevations ranging from 61–152 m (200–500 ft). The surface layer is usually 38 cm (15 in) thick and medium to strongly acidic gravelly loam. The subsoil is yellowish-red and red in color, very strongly acidic, gravelly heavy clay loam and gravelly clay and is about 76 cm (30 in) thick. Below this is iron-silica cemented hardpan. The specific soil type found in the Preserves is Redding cobbly loam, dissected (15 to 50 percent slopes). Within the Preserves this soil type primarily supports southern mixed chaparral.

Stony land occurs at the base of cliffs or below steep rocky slopes. The material consists of many stones, in many places there are large boulders 0.9 to 1.8 m (3 to 6 ft) in diameter on the surface. This soil type is found within the southern portion of the Preserves and is associated with openings in southern mixed chaparral and southern coast live oak riparian woodland.

The ***Visalia*** soil series is characterized by moderately well drained, very deep sandy loams and is usually found on slopes ranging from 0 to 15 percent. It is found on alluvial fans and floodplains at elevations ranging from 122 – 610 m (400-2,000 ft). The surface layer is usually 30.5 cm (12 in) thick and slightly acidic. The topsoil is dark grayish-brown in color and sandy loam in texture. The subsoil is dark grayish-brown,

slightly acidic, sandy loam and loam and is more than 152.4 cm (60 in) thick. Runoff is very slow to medium and the erosion hazard is slight to moderate. The gravelly sandy loam consists of approximately 15 percent gravel. The specific soil type found in the Preserves is Visalia gravelly sandy loam (3 to 5 percent slopes). Within the Preserves this soil type occurs within the developed lands associated with the visitor center and within the southern coast live oak riparian woodland located in the southwestern most portion of the Preserves.

2.1.3 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 Preserves are typically warm and dry, while winters are mild with occasional rain (USDA 1973).

The Western Regional Climate Center, a collaborative project of the National Oceanic and Atmospheric Agency and the Desert Research Institute, maintains a climatic station in El Cajon – the closest such station to the Preserves. Data collected at the station indicate that the area experiences a normal mean temperature of approximately 65 degrees Fahrenheit (^{o}F), with a mean maximum temperature of 77.8^{o}F and a mean minimum of 52.4^{o}F. The El Cajon area tends to experience more sunshine than the coastal regions of southern California due to its inland location. In a normal year, precipitation on the Preserves averages 12 inches and falls mostly in the winter and spring (San Diego County Flood Control District 2007).

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. This cycle is also periodically affected by land airflow that dominates weather patterns. The most widely recognized of these are the Santa Ana conditions, during which strong, hot and dry easterly winds prevail for two- or three-day periods.

2.1.4 Fire Cycles

The Preserves are dominated by southern mixed chaparral which is naturally maintained by infrequent fires. If the natural fire cycle is suppressed, this habitat can become senescent, declining in both health and diversity. If the fire frequency is increased, vegetation could shift towards disturbed grasslands or opportunistic pioneering shrub communities. The fire cycles within the area are affected by actions within and adjacent to the Preserves. Surrounding development and brush management actions associated with urban development have altered the fire cycles throughout most of western San Diego County. According to the County fire burn data, the majority of the Preserves burned in the 2003 Cedar Fire; the northeastern portion of the Preserves also burned in 1985 (SanGIS 2008) (Figure 4).

2.1.5 Hydrology

The Preserves are situated within 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 habitat (California Regional Water Quality Control Board San Diego Region 2003). Several seasonal streams generally drain water from north to south towards the San Diego River (Figure 4).

2.1.6 Trails

The Preserves contain approximately 13 miles of trails. These trails traverse through non-native grassland, southern mixed chaparral and the understory of the oak woodland habitat (Figure 5). Trail users typically consist of hikers, mountain bikers and equestrian riders. In addition to the trails, two staging areas are located within the Preserves. One staging area is located at the southern end of Sycamore Canyon Road and the second staging area occurs within the eastern portion of the Preserves and is accessed from State Route 67. Roads located along the easternmost portion of the Preserves are maintained and used by the San Diego County Water Authority and San Diego Gas & Electric.

Sycamore Canyon

Slaughterhouse Canyon

Clark Canyon

Los Penasquitos Creek
Poway
Foster Canyon
Beeler Canyon
Sycamore Canyon
West Sycamore Canyon
Clark Canyon
San Vicente Creek
San Diego
San Diego
Usmc Air Station Miramar
Sycamore Canyon
San Vicente Creek
Quail Canyon
Spring Canyon
Santee
San Diego River
Lakeside
San Diego River
Winter Gardens

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Figure 4
Hydrology & Fire History Map
Sycamore Canyon & Goodan Ranch Preserves

3.0 Methods

Place names in this report follow both specific names and standards used for mapping by the U.S. Geological Survey (e.g., "Clarks Canyon" rather than Clark's Canyon). The following sources are followed for taxonomy and nomenclature, including both scientific and standardized English names: Rebman and Simpson (2006) for plants; Arnett (2000) for higher taxonomic categories of invertebrate animals; generally Opler and Wright (1999) or Hogue (1993) for invertebrate species; Collins and Taggart (2002) for amphibians and reptiles; American Ornithologist's Union (1998 and supplements) for birds; and Baker et al. (2003) for mammals. Where this information differs from MSCP names, we provide the MSCP information parenthetically. For clarity and to differentiate standardized, sourced, English names for species from descriptions (e.g., Yellow Warbler and not any other warbler that is yellow), we follow most published sources of standardized names by capitalizing them; we also include the scientific binomial from the cited reference with the first mention of a species in the body of this report.

3.1 Vegetation

Prior to conducting surveys for the project, searches of available literature and databases were conducted to determine special-status species previously detected or with potential to occur in the Preserves as well as the physical characteristics of the site and surrounding areas. Available data that were reviewed included the California Natural Diversity Database (CNDDB) (CDFG 2008), the U.S. Department of Agriculture (USDA) soil survey of the area (USDA 1973), and U.S. Geologic Survey (USGS) topographic maps to identify potential stream courses and other notable topographic features.

Surveys were conducted to categorize and map the plant communities within the Preserves, map special-status plants, and document all flora observed (Table 1). During each rare plant survey ICF Jones & Stokes botanists traversed the study area by meandering transects in an effort to accurately categorize vegetation communities and to identify the locations of any special-status species readily detectable. During these surveys, all plant species detected were recorded (Appendix A).

Vegetation communities were mapped on a "one-inch equals 200 feet" (1:2400) scale aerial photograph of the Preserves in the field and later digitized into a geographic information system (GIS) coverage using ArcGIS software. Mapping included the entire 2,268.7-acre Preserves and vegetation communities were categorized using standard County classifications (Holland 1986 as modified by Oberbauer 2005). All plant species observed were noted, and plants that could not be identified in the field were identified later using taxonomic keys including Beauchamp (1986) and Hickman (1993), or verified with herbarium specimens at the San Diego Natural History Museum.

Table 1. Vegetation Mapping and Floristic Inventory Surveys at the Preserves in 2008

Survey Personnel	Date
Korey Klutz, Andrew Borcher	02/26/2008
Korey Klutz, Brant Primrose, Cristian Singer	03/18/2008
Korey Klutz, Andrew Borcher	03/25/2008
Korey Klutz, Andrew Borcher	04/15/2008
Korey Klutz	04/24/2008
Phillip Richards, Ian Cain, Korey Klutz	05/22/2008
Phillip Richards, Ian Cain, Korey Klutz	06/8/2008
Phillip Richards, Ian Cain, Korey Klutz	06/9/2008
Korey Klutz	09/26/2008

Locations of special-status plant populations were mapped using either sub-meter accurate global positioning system (GPS) or recreational grade GPS receivers [accurate from 1 to 5m (3 to 16 ft)]. Groups of individuals were mapped as single points with attribute data including total individuals observed.

3.2 Invertebrates

3.2.1 Quino Checkerspot Butterfly

ICF Jones & Stokes biologists conducted focused surveys for the federally endangered Quino Checkerspot Butterfly (*Euphydryas editha quino*, Quino) from March 6 through April 23, 2008. All biologists involved in the Quino surveys possess U.S. Fish and Wildlife Service (USFWS) recovery permits for this species. Surveys were conducted on a roughly weekly basis under acceptable weather conditions as defined in the USFWS protocol (USFWS 2002). Approximately 69 acres of dense riparian or chaparral vegetation, active agriculture, developed areas including the ranger station and parking areas, as well as open water and

associated freshwater marsh were excluded from the survey area because they were determined to be too dense in cover or otherwise did not provide potentially suitable habitat for Quino. Each survey visit involved slowly walking transects throughout the area of the Preserves with highest potential for Quino detection. These were areas considered to have the highest potential for Quino larval host plant populations and/or are on ridgelines or hilltops. The survey visits were conducted at an average rate of 15 acres per hour. Surveyors stopped periodically to scan adjacent areas for moving butterflies. All butterfly species observed were identified and recorded in the wildlife table (Appendix B). Full details of the Quino survey are provided in the attached Quino Checkerspot Butterfly Survey Report (Appendix C).

3.2.2 Other Invertebrates

In addition to butterflies, several other invertebrates were either identified during active surveys or after being captured in the pitfall traps associated with the herptelogical arrays. All unidentifiable invertebrates were photographed, and those photographs were provided to a local entomologist for identification. All identified invertebrates are listed in the wildlife table (Appendix B).

3.3 Herpetofauna

ICF Jones & Stokes conducted surveys for herpetofauna (amphibians and reptiles) within the Preserves from March through July 2008. Terrestrial herpetological surveys were conducted using pitfall trap arrays as outlined in "Herpetological Monitoring Using a Pitfall Trapping Design in Southern California" (Stokes et al. 2001). This design uses a standardized array of pitfall traps, funnel traps, and drift fencing to perform long-term research over a wide geographic area with replicates among site localities, habitats, and environments.

The optimal design for drift fencing includes a three-arm array with seven pitfall traps and three funnel traps. This study's array design was consistent with this optimal design, and recommendations for array materials and trap construction were followed. As the site temperatures were not excessive during the trapping period, biologists constructed funnel traps with no pitfall trap retreat underneath, as described in the above referenced protocol.

Six sites were selected for the array construction and were scattered throughout the Preserves. Array locations were selected based on access, vegetation community, soils, and topography. Arrays were constructed in a variety of habitats including upland and valley bottom oak woodland, north- and south-facing slopes supporting coastal sage-

chaparral scrub, non-native grassland/chaparral interface, and a sandy wash (Figure 5). Locations were mapped using GIS technologies.

All areas immediately surrounding the arrays were actively searched for herptiles during the array monitoring. Active searching included looking under shrubs and logs. All herptiles captured or observed during active searches and other wildlife surveys were recorded and are included in the wildlife tables in Appendix B.

3.3.1 Monitoring Arrays

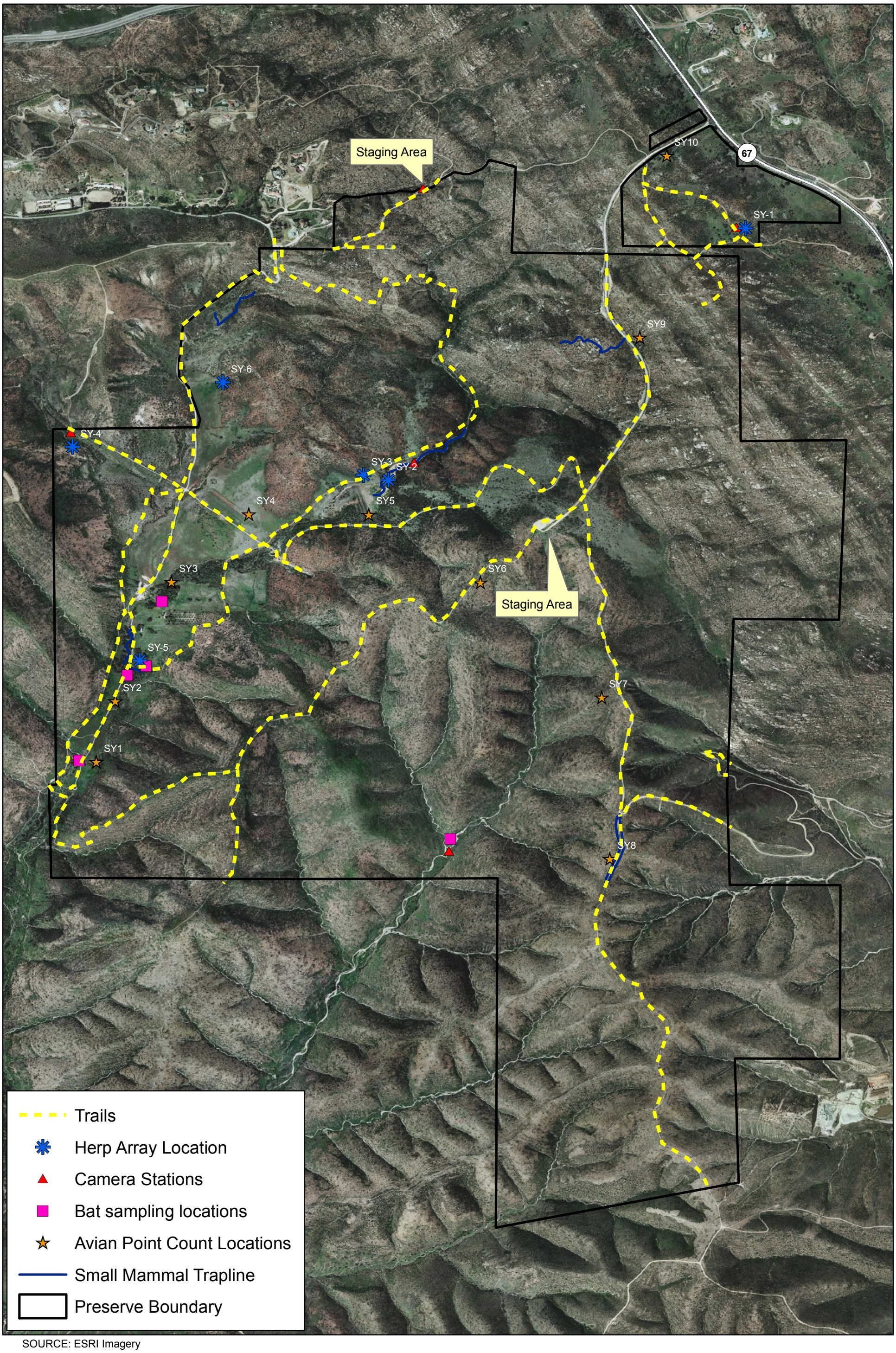
Array traps were sampled on four consecutive days once a month beginning in March and continuing through July. The traps were opened on a Monday afternoon, sampled Tuesday through Friday, and closed Friday.

Array traps were checked during early morning hours to ensure that animals were released before daytime temperatures reached levels that could result in mortality. All animals were identified to species and immediately released at the point of capture. Biologists did not handle animals other than to photograph and release them from traps. Because the trapping effort's purpose was to generate an inventory of species present within the Preserves (i.e., not to assess population sizes or dynamics), individuals were not marked, weighed, or otherwise measured. Data were recorded on paper and entered into an Excel spreadsheet. Recorded information included species and trap number.

3.3.2 Other Herpetofaunal Methods

Dip netting for the purpose of tadpole identification was performed in any pooled or slow-flowing waterways within the Preserves. A handheld net was pulled through the water to capture tadpoles, which were identified and released into the same pool or stream.

Based on site conditions of the Preserves, ICF Jones & Stokes concluded that focused breeding surveys for Arroyo Toad (*Bufo californicus*) would not be a productive use of survey effort, as there is no potentially suitable breeding habitat. This assessment was based on the lack of primary constituent elements of Arroyo Toad habitat such as sandy low-gradient open-wash habitat with slow moving or pooling water (USFWS 1999). Sandy low-gradient open-wash habitat is absent within the Preserves. Thus, the species is considered absent.



SOURCE: ESRI Imagery

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Figure 5
Trails & Bilogical Sampling Locations
Sycamore Canyon & Goodan Ranch Preserves

3.4 Birds

3.4.1 Diurnal Point Count Survey

Avian use of the study area was formally documented through the use of ten point count stations sampled once a month for six months beginning in April and concluding in September (Figure 5). Point counts provide a repeatable, quantitative sampling method for a broad spectrum of birds that is complementary to the general reconnaissance effort, strengthening the reference information developed on relative abundance of birds.

With sufficient sample size and accuracy, data generated can be evaluated against many hypotheses, even at some later time. At larger time and/or spatial scales the data produced on species richness and turnover can contribute to information on connectivity and response to disturbances. The data set may increase in value over time through its function as reference data contributing to investigation and calibration of both local and larger scale changes.

Point count methods followed recommendations provided in Ralph et al. (1995) for extensive (i.e., station independent) surveys. See that source for detailed discussion of the basis for, and further details on, the methods presented here. A summary of methods, including additions beyond the recommendations, is provided below.

Stations were placed non-randomly to maximize sampling of the study area and to minimize coverage of outside areas. No particular features (e.g., plant community, slope or aspect) were selected for or avoided, primarily due to the broad objectives of the study. Stations were generally located at or near existing trails to facilitate access. Prior to the first counts, all stations were mapped in the field, located using GPS, marked for later identification, and photographed. The viewshed from each point was also photographed in the four cardinal compass directions.

Counts were conducted at each station once a month (April through September). The following recommendations, drawn directly from Ralph et al. (1995), were followed:

- Stations were located at least 250 m (820 ft) apart to ensure independence (i.e., no or minimal overlapping of individual birds detected).
- Counts were conducted at each station for ten minutes (stratified into periods of 3, 2 and 5 minutes) and started quickly upon reaching the point.
- All detected birds were counted except for any judged to have been counted at a previous station.

- Both seen and heard individuals were recorded as long as clearly identified.
- Birds were recorded within each time stratum as: (1) within a 50 m (164 ft) radius from the station, (2) outside the 50 m (164 ft) radius, or (3) flying over. This will allow rudimentary density estimates (without weighting for detectability).
- Individuals were counted at the location where first detected and time of first detection, even when not identified until they have moved or a new time period has begun.
- Adverse weather was avoided (e.g., dense fog, strong winds, extended rain).
- Stations were counted in the same order each time, starting at approximately the same time relative to sunrise, and finishing within four hours after sunrise. Note that counting stations in the same order each time is recommended as the preferred method where the primary purpose of the data is for comparison with future data sets at the same study area. For the current work this was judged to be a higher priority than maximizing comparability with point counts investigating regional issues, which are best counted by randomizing the order of stations within sites and the order of sites within a day.

Additional point count methods used beyond those provided in Ralph et al. (1995) include:

- No attempts were made to attract birds, such as through use of taped vocalizations or "pishing" (imitating avian scold or alarm calls).
- Prior to the initial point counts, the observer practiced distance estimations by locating an object roughly 40 to 60 m (131 to 197 ft) away, assigning it as beyond or closer than 50 m (164 ft). This was done several times on several different days, in different directions, and on varied terrain, but always in open shrub lands similar to that in which the stations were located.
- Birds noted only in flight were additionally recorded as either utilizing the landscape (e.g., actively foraging swallows and raptors, and raptors using thermal updrafts) or not (e.g., birds commuting between distant habitat patches off-site, such as cormorants over an upland site, or birds migrating high overhead).
- Birds were only counted when they had clearly fledged and moved away from their nest. Thus young raptors, which often spend several transitional days immediately adjacent to the nest, were not counted until they were detected in a part of the tree or cliff where they were not expected to have reached by walking or climbing.
- Vocalization type was typically used to categorize birds that were heard only with regard to whether or not they were assumed to be flying over or perched. Thus flight calls for a particular species were

used to categorize a bird as in flight, making it important to separate calls accurately by type for species heard only.

- When a flock was only heard, only the number definitely heard was recorded, but when a flock was seen and individuals could not be precisely counted, a best estimate was used. Note that with or without this method, point count censusing assumes that at each station an observer has a good opportunity to see and hear birds and (for comparison among stations) that stations are comparable in this regard.
- No individual birds were 'discarded' (not counted) due to lack of identification, unless they were at the level of simply, "unidentified bird" (e.g., an unrecognized call). Instead they were retained at the highest level of identification supported (e.g., "hummingbird sp."). Variability among surveyors in such treatment can substantially affect estimates of abundance for some groups, or for overall avian abundance.

Numerous issues that may substantially affect how data are recorded or later interpreted from avian point counts are typically not addressed in published work on suggested methods, in published results, or both. To aid future comparability while also allowing current point counts to provide censusing of a broad spectrum of bird species and behaviors, the following additional discussion of methods is provided.

Birds recorded but not identified to the level of species are counted in the totals and other statistics for individuals but not the totals or statistics for species, except where they clearly represented species otherwise unrecorded. Thus, "raptor sp." would not add to the overall species total if raptors were also recorded to the species level. However, individual "raptor sp." would (1) be counted in the total species number for the particular counts on which they occurred, when no other raptors were recorded and identified to species on that count and (2) add to the total abundance of birds in any relevant totals.

"Fly-by" (also called "fly-over") birds were not generally added to the totals calculated for numbers of individuals or species. This is standard practice for point count analysis (Ralph et al. 1995). The rationale is that such birds are neither making any use of nor influencing the study area. However, totals here do include small numbers of birds judged to be foraging or hunting while in flight over the study area, as they are anticipated to be making use of the study area in the same way that a bird foraging from a perch at the same distance from the observer is making use of the study area. For the current work, most observations of swifts, swallows, and raptors (including Turkey Vultures) are included.

The point counts were designed as 'two-interval' counts (referring to distance, not time), using the terminology of Bibby et al. (2000; pp. 101-102). A radius of 50 m (164 ft) was set, and all birds recorded were

categorized as inside or outside of the resulting circle. This allows a calculation of density with an adjustment for detectability, but one must guess in applying the detectability adjustment, as this format does not allow testing of how detectability for a given species attenuates across distance (e.g., half normal to a fixed limit). Because the sample size is limited and fragmentation and disturbance make generalizations about distribution across the site tenuous, no density-based estimates of total abundance are provided for any species based on the current results.

3.4.2 Nocturnal Bird Survey

Nocturnal bird surveys were conducted for nighttime birds at the Preserves. Methods included a combination of walking and slowly driving roads, looking and listening for birds. A moderately powerful headlamp was used to aid identifications.

3.5 Small Mammal Trapping

On February 28, 2008, ICF Jones & Stokes biologists Phillip Richards and Korey Klutz assessed the physical conditions, vegetative community distribution, vegetative cover, and accessibility for planning the trapping program for small mammals. All portions of the Preserves were visually inspected to determine representative small mammal sampling locations. For the purposes of this project, "small mammals" include species in the shrew, squirrel, pocket gopher, heteromyid, mouse, rat, and vole families.

Small mammal trapping on the Preserves consisted of five traplines totaling 200 traps. Each trapline was set for four nights for a total of 800 trap nights. All five traplines were initially set and baited during the afternoon of July 7, 2008. Traps were systematically checked in the early morning between 0425 and 1000 from July 8 through July 11, 2008 (Table 2). Trapline 1 was located near the northwest corner of the Preserve and consisted of 25 traps (Table 3, Figure 5). Trapline 2 was located near the southwest corner of the Preserve and consisted of 25 traps (Table 3, Figure 5). Trapline 3 was located near the northern-central portion of the Preserve and consisted of 50 traps (Table 3, Figure 5). Trapline 4 was located near the southeast corner of the Preserve and consisted of 50 traps (Table 3, Figure 5). Trapline 5 was located near the northeast corner of the Preserve and consisted of 50 traps (Table 3, Figure 5).

Trapline locations were selected based on three criteria: 1) sampling of different vegetative communities, 2) geographic distribution across the Preserves, and 3) sampling of unique features (e.g., wash). Sequentially numbered 12-inch Sherman live traps were set at dusk, approximately 5 to 10 m (16 to 33 ft) apart. Traps were set and placed where potential

small rodent captures were judged to be most probable. Where rodent sign was not apparent, traps were placed near the base of shrubs. The location of each trap was recorded using a recreational grade GPS receiver (Garmin brand, WAAS enabled). Mixed birdseed was used as bait, and a few seeds were trailed out from the mouth of the trap, usually toward a game trail, burrow, or open area. All traps were checked and closed at dawn.

When animals were captured, each animal was transferred from the trap into a cloth bag. The animals were removed by their napes and identified to species. The sex and reproductive condition of each animal was recorded (i.e., testes scrotal, not scrotal, vagina perforate, not perforate). Any mites, ticks, or other parasites were noted. Digital photos were taken of some specimens (Appendix D). Once the data were recorded onto data sheets, each animal was released where captured. This whole process took several minutes for each capture. The released animals were observed until they moved to the safety of a burrow or clump of vegetation.

Table 2. Personnel, Date, Time, and Conditions of the Small Mammal Trapping Program at the Preserves in 2008

Trapline	Personnel	Date Checked	Time Checked	Conditions
1	Phillip Richards James Hickman	7/8/08	0735	Clear; 65°F; Wind 0-2; No Moon Visible; Moderate-High Humidity
		7/9/08	0727	Cloudy; 67°F; Wind 0-1; No Moon Visible; Moderate-High Humidity
	Phillip Richards Cindy Dunn	7/10/08	0811	Partly Cloudy; 69°F; Wind 0-1; No Moon Visible; Moderate-High Humidity
		7/11/08	0847	Partly Cloudy; 77°F; Wind 0-1; No Moon Visible; Moderate-High Humidity
2	Phillip Richards James Hickman	7/8/08	0800	Clear; 68°F; Wind 0-3; No Moon Visible; Moderate-High Humidity
		7/9/08	0753	Cloudy; 70°F; Wind 0-3; No Moon Visible; Moderate-High Humidity
	Phillip Richards Cindy Dunn	7/10/08	0851	Partly Cloudy; 72°F; Wind 0-1; No Moon Visible; Moderate-High Humidity
		7/11/08	0950	Cloudy; 80°F; Wind 0-1; No Moon Visible; Moderate-High Humidity
3	Phillip Richards James Hickman	7/8/08	0648	Partly Cloudy; 62°F; Wind 0-1; No Moon Visible; Moderate-High Humidity
		7/9/08	0647	Cloudy; 65°F; Wind 0-1; No Moon Visible; Moderate-High Humidity
	Phillip Richards Cindy Dunn	7/10/08	0703	Cloudy; 64°F; Wind 0-1; No Moon Visible; Moderate-High Humidity
		7/11/08	0730	Partly Cloudy; 71°F; Wind 0-1; No Moon Visible; Moderate-High Humidity
4	Phillip Richards James Hickman	7/8/08	0545	Partly Cloudy; 62°F; Wind 0-1; No Moon Visible; Moderate-High Humidity
		7/9/08	0547	Cloudy; 64°F; Wind 0-1; No Moon Visible; Moderate-High Humidity
	Phillip Richards Cindy Dunn	7/10/08	0609	Cloudy; 62°F; Wind 0-1; No Moon Visible; Moderate-High Humidity
		7/11/08	0615	Cloudy; 66°F; Wind 0; No Moon Visible; Moderate-High Humidity
5	Phillip Richards James Hickman	7/8/08	0430	Clear; 60°F; Wind 0-1; No Moon Visible; Moderate-High Humidity
		7/9/08	0425	Cloudy; 64°F; Wind 0; No Moon Visible; Moderate-High Humidity
	Phillip Richards Cindy Dunn	7/10/08	0426	Cloudy; 62°F; Wind 0-1; No Moon Visible; Moderate-High Humidity
		7/11/08	0433	Cloudy; 66°F; Wind 0-1; No Moon Visible; Moderate-High Humidity

Table 3. Trapline Description

Trapline	Trap Nights	Number of Traps	Trap Sequence	Physical Description	Vegetative Community
1	4	25	1 - 25	Along terraces of small drainage located at the base of a south facing slope; soils mostly loamy with mixed gravel and cobbles; moderate densities of shrubs	Southern mixed chaparral
2	4	25	26 - 50	Along terraces of intermittent creek; soils mostly loamy; under the canopy of oaks with mixed densities of herbaceous understory	Coast live oak woodland
3	4	50	51 - 100	Along terraces of drainage located at mouth of canyon; soils a mix of sand and loam with scattered densities of gravel and cobbles; moderate densities of shrubs with scattered oaks	Southern mixed chaparral and burned coast live oak woodland (west end dominated by ruderal vegetation).
4	4	50	101 - 150	Ridgeline; soils mostly loamy with gravel and cobbles; low growing shrubs	Southern mixed chaparral
5	4	50	151 - 200	Hilltop and ridgeline; soils mostly loamy with scattered rock outcrops; mixed densities of shrubs	Southern mixed chaparral

3.6 Medium and Large Mammals

For the purposes of this project, "medium and large mammals" include all mammals in the hare, rabbit, beaver, canid, procyonid, mustelid, skunk, cat, and cervid families.

3.6.1 Camera Tracking Stations

Remote camera stations were used to help document the presence of medium and large mammals within the Preserves. These stations allow for the detection of species that are rarely encountered because of their nocturnal or crepuscular activity patterns. Within the Preserves, five camera tracking stations were set up at locations that were judged to have a high potential for movement of medium and large mammals (e.g., along game trails, abandoned roadways, and existing trails; Figure 5).

Each station consisted of one Moultrie infrared digital game camera. These cameras were programmed to record an image every time the motion sensor was triggered. Each image includes an information tag that records the date, time, temperature, camera id, and moon phase. Once in place the cameras were periodically checked and all recorded

images were downloaded to a portable hard drive. This method allowed the cameras to continuously record images throughout the study period (June 16 – September 3, 2008). The digital images were then interpreted and all animals were identified to the species level (Appendix D).

3.6.2 Mammal Track and Sign Survey

Sections of existing trails and roads were carefully examined for tracks and sign (scat, scrapings, etc.) of medium and large mammals throughout the survey season. These surveys were primarily conducted during the day; however, periodic nighttime surveys were also performed. Daytime surveys involved hiking accessible roads and trail reaches and periodic inspections of hilltops, ridges, drainages, and game trails. Nighttime surveys involved a combination of driving, hiking and listening within the Preserves. When feasible, handheld lights were used to identify any wildlife, or wildlife sign observed during the survey. Finally, mammal tracks and sign were also carefully evaluated when detected during other fieldwork.

3.7 Bats

Two types of bat surveys were conducted in this study: passive and active, which consisted of a combination of techniques including acoustic surveys, mist-netting, and roost surveys.

3.7.1 Passive Surveys

Passive surveys using Anabat II bat detectors (Titley Electronics, New South Wales, Australia) were conducted within the Preserves. Anabat II bat detectors (Anabats) are utilized to detect and record bat echolocation signals (O'Farrell et al. 1999). These calls are then analyzed and most can be identified to the species level by a biologist experienced with bat vocalization identification. Passive Anabats are designed to automatically turn on and off at set times (i.e. sunset and sunrise), and automatically record bat echolocation signals to a compact flash card. Bat echolocation calls are then downloaded from the compact flash card to a computer and analyzed in the laboratory using specialized software designed for the Anabat system called 'Analook' (version 3.3q). An attempt was made to identify all recorded bat echolocation calls and an index of relative bat activity was generated by taking the number of batcall files recorded divided by the number of Anabat nights (number of Anabats times number of recording nights) multiplied by a factor of 10 to reduce use of fractional numbers.

Passive Anabats were used to survey for bats in the Preserves during three monitoring sessions: spring, summer, and fall 2008. During these monitoring sessions, a total of two passive Anabat units were placed in the Preserves to monitor bats for three consecutive nights.

Active Surveys

One active foraging bat survey was conducted using an Anabat bat detector, listening for audible bat echolocation calls, and using mist-nets in an attempt to document additional bat species foraging in the Preserves. The survey was conducted near a group of oaks located near the ranch house on August 5, 2008. This location was chosen because it was judged to have high potential for bat activity.

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4.0 Results and Discussion

4.1 Vegetation

Vegetation communities and land cover types present within the Preserves consist of southern mixed chaparral, coastal sage-chaparral scrub, non-native grassland, native grasslands, southern coast live oak riparian forest, coast live oak woodland, open coast live oak woodland, disturbed freshwater marsh, developed lands and disturbed habitat (Figure 6, Table 4). A description of the vegetation communities and the dominant plant species detected during the survey are found below. A complete list of plant species observed within the Preserves is provided as Appendix A.

Table 4. Vegetation Communities and Land Cover Types within the Preserves

Vegetation/Land Cover Type	Acreage
Southern Mixed Chaparral	1,830.3
Coastal Sage - Chaparral Scrub	126.5
Non-native Grassland	199.3
Native Grassland	55.8
Southern Coast Live Oak Riparian Forest	25.3
Coast Live Oak Woodland	3.0
Open Coast Live Oak Woodland	6.5
Disturbed Freshwater Marsh	1.9
Developed	3.5
Disturbed Habitat	20.2
Total	**2,272.3**

4.1.1 Southern Mixed Chaparral (31720)

Southern mixed chaparral is a broad-leaved sclerophyll shrub community forming dense often impenetrable vegetation dominated by Chamise (*Adenostoma fasciculatum*), Mission Manzanita (*Xylococcus bicolor*), Lilac (*Ceanothus oliganthus*), Scrub Oak (*Quercus berberidifolia*); and Manzanita (*Arctostaphylos glauca*). Other species observed during the field surveys included Ramona Lilac (*Ceanothus tomentosus*), Laurel Sumac (*Malosma luarina*), Mexican Elderberry (*Sambucus mexicanus*), Poison Oak (*Toxicodendron diverilobum*), Sugar Bush (*Rhus ovata*), Toyon (*Heteromeles arbutifolia*), Dwarf Plantain (*Plantago erecta*), Owl's Clover (*Castilleja exserta*); and Goldfields (*Lasthenia californica*). Southern mixed chaparral is the most abundant vegetation community within the Preserves.

4.1.2 Coastal Sage-Chaparral Scrub (37600)

Coastal sage-chaparral scrub consists of a mixture of herbaceous and shrubby species that forms a vegetation community with characteristics of both coastal sage scrub and chaparral. Within the Preserves this community appears to be a post-fire successional community. Dominant species within this vegetation community include Spiny Redberry (*Rhamnus crocea*), Chamise , Black Sage (*Salvia mellifera*), California Buckwheat (*Eriogonum fasciculatum*), California Sagebrush (*Artemisia californica*), Foxtail Chess (*Bromus madritensis*), Slender Wild Oat (*Avena barbata*), Deerweed (*Lotus scoparious*), Golden Bush (*Hazardia squarrosa*), White Sage (*Salvia apiana*), and Short-pod Mustard (*Hirchfeldia incana*). Coastal sage-chaparral scrub primarily occurs on south facing slopes within the Preserves.

4.1.3 Non-Native Grassland (42200)

Non-native 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). Non-native 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 plants observed within this vegetation community included Foxtail Chess, Slender Wild Oat, Rip Gut (*Bromus diandrus*), Common Tarweed (*Deinandra fasciculatum*), and Graceful Tarplant (*Holocarpha virgata* ssp. *elongata*). Non-native

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- Developed Lands (dev)
- Disturbed Habitat (dh)
- Disturbed Freshwater Marsh (dfwm)
- Open Coast Live Oak Woodland (oclow)
- Coast Live Oak Woodland (clow)
- Southern Coast Live Oak Riaparian Forest (sclorf)
- Disturbed Southern Coast Live Oak Riparian Forest (dsclorf)
- Native Grasslands (ng)
- Non-Native Grasslands (nng)
- Coastal Sage Chaparral Scrub (cc/css)
- Southern Mixed Chaparral (smc)
- Preserve Boundary

SOURCE: ESRI Imagery

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Feet

Figure 6
Vegetation Communities
Sycamore Canyon & Goodan Ranch Preserves

grasslands primarily occur north of the visitor center and within the southwestern corner of the Preserves.

4.1.4 Native Grassland (42110)

Within the Preserves native grasslands consist of midheight grasses dominated by perennial tussock forming Purple Needlegrass (*Nassella pulchra*). Characteristic species observed included Common Tarplant, Blue Eyed Grass (*Sisyrinchium bellum*), Wild Celery (*Apiastrum angustifolium*), Blue Dicks (*Dichelostemma capitata*), San Diego Thornmint (*Acanthomintha ilicifolia*), Palmer's Grappling Hook (*Harpagonella palmeri*), and Chocolate Lilies (*Fritillaria biflora* var. *biflora*). On the Preserves this community is strongly associated with heavy clay soils located along the ridge tops within the northern and eastern portions.

4.1.5 Southern Coast Live Oak Riparian Forest (61310)

Southern coast live oak riparian forest is a dense evergreen sclerophyllous riparian forest dominated by Coast Live Oak (*Quercus agrifolia*). According to Holland (1986), it is richer in herbs and poorer in understory shrubs than other riparian communities. It typically occurs in bottom lands and outer floodplains along larger streams, on fine-grained, rich alluvium. Characteristic species observed within the Preserves include San Diego Sedge (*Carex spissa*), Goldenrod (*Solidago californica*), Mule-fat (*Baccharis salicifolia*), Arroyo Willow (*Salix lasiolepis*), Gooding's Willow (*Salix goodingii*), Red Willow (*Salix laevigata*), Mexican Rush (*Juncus mexicanus*), Mexican Elderberry, Poison Oak, Stinging Nettle (*Urtica urens*), and Wild Rose (*Rosa californica*). Southern coast live oak riparian forest occurs within Sycamore Canyon Creek that drains the Preserves from the northeast to the southwest.

4.1.6 Coast Live Oak Woodland (71160)

Coast live oak woodland is typically dominated by Coast Live Oak trees that reach 9 to 24 m (30 to 80 ft) in height. The shrub layer within this habitat is usually poorly developed but may include Toyon, Laurel Sumac or Mexican Elderberry while the herb layer is continuous and typically dominated by non-native grasses. This community typically occurs on north-facing slopes and shaded ravines in southern California (Holland 1986). A small amount of this habitat is found south of the visitor center.

4.1.7 Open Coast Live Oak Woodland (71161)

Open coast live oak woodland consists of an open canopy of Coast Live Oak trees that reach 10-25 m (33-82 ft) in height. Other species observed within this community include Rip Gut, Slender Wild Oat and Toyon. Open coast live oak woodland is found in the northeastern most portions of the Preserves just west of State Route 67.

4.1.8 Disturbed Freshwater Marsh (52410)

Freshwater marsh communities are found in areas permanently inundated or flooded by fresh water and 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 m (4 to 5 ft) tall. Typically, species of the genera *Typha* (cat-tails) and *Scirpus* (bulrush) dominate this community.

Within the Preserves disturbed freshwater marsh occurs within and adjacent to Sycamore Canyon Creek. A small dam located near the center of the Preserve has historically supported freshwater marsh species but since the Cedar Fire in 2003 the dam has become a sediment trap. The increase in sediment has led to an increase in non-native grasses and overall decrease in the amount of wetland vegetation present. Plants observed within this community include Salt Heliotrope (*Heliotropium curassavicum*), Rip Gut, Foxtail, Amaranthus (*Amaranthus* sp.), and Goosefoot (*Chenopodium* sp.).

4.1.9 Developed Land (12000)

Developed land within the Preserves consists of existing roads, buildings, and other infrastructure. Associated with the recreational development and the historical uses within the Preserves is an ornamental Olive Tree grove. The Olive Tree grove is located just north of the visitor center and provides a shaded picnic area for the public.

4.1.10 Disturbed Habitat (11300)

Disturbed habitat within the Preserves consists primarily of dirt roads and trails. These roads and trails are primarily used for recreational acitivities including horseback riding, hiking and biking.

4.1.11 Special-Status Plant Species

The following section discusses special-status plant species observed within the Preserves. A special-status plant species is one listed by federal or state agencies as threatened or endangered; considered to be of special status by one or more special interest groups, such as the California Native Plant Society (e.g., CNPS List 1, 2, 3, and 4 Plant Species); or is included on the County's Sensitive Plant list (Group A, B, C, or D Listed Plants).

Special-status plant species detected within the Preserves include San Diego Thornmint, Variegated Dudleya (*Dudleya variegata*), Palmer's Grappling Hook, Small Flowered Morning Glory (*Convolvulus simulans*), Willowy Monardella (*Monardella linoides* ssp. *viminea*), Graceful Tarplant, California Adders Tongue (*Ophioglossum californicum*), and Palmer's Sagebrush (*Artemisia palmeri*).

Special-Status Plant Species Observed

San Diego Thornmint (*Acanthomintha ilicifolia)*

Federally Threatened, State Endangered, CNPS List 1B, San Diego County Group A, MSCP Covered Species

San Diego Thronmint is an annual wildflower typically found on friable clay soils in grassy openings within chaparral. This species occurs within the native grasslands found within the northeastern portion of the Preserves (Figure 7). These grasslands support a substantial population of San Diego Thornmint. It is estimated that over 10,000 plants occur within the Preserves.

Variegated Dudleya (*Dudleya variegata*)

CNPS List 1B, San Diego County Group A, MSCP Covered Species

Variegated Dudleya is associated with openings within chaparral and coastal sage scrub. This perennial from corm (or underground plant stem) prefers clay soils and is typically found within close proximity to vernal pools. On site, this species is found within the native grasslands that support friable clay soils and the federally endangered San Diego Thornmint (Figure 7).

Palmer's Grappling Hook (*Harpagonella palmeri*)

CNPS List 4, San Diego County Group D

Palmer's Grappling Hook is associated with clay soils within coastal sage scrub habitats. Within the Preserves this species is found within the heavy clay soils that support the San Diego Thornmint (Figure 7).

Small Flowered Morning Glory (*Convolvulus simulans*)

CNPS List 4, San Diego County Group D

Small Flowered Morning Glory is found on clay soils which are typically devoid of shrubs. Within the Preserves this species is found within the heavy clay soils that also support the federally endangered San Diego Thornmint (Figure 7).

Willowy Monardella (*Monardella linoides* ssp. *viminea*)

Federally Endangered, State Endangered, CNPS List 1B, San Diego County Group A, MSCP Covered Species

Willowy Monardella, a small subshrub, generally occurs in streams that contain cobbles and have limited cover by large shrubs and trees. Within the Preserves this species occurs in several drainages along the southern portion.

Graceful Tarplant (*Holocarpha virgata* ssp. *elongata*)

CNPS List 4, San Diego County Group D

Graceful Tarplant is an annual wildflower that is typically found within non-native grasslands. Within the Preserves this species is found in the middle portion adjacent to the southern coast live oak riparian forest.

California Adder's Tongue (*Ophioglossum californicum*)

CNPS List 4, San Diego County Group D

California Adder's Tongue is associated with chaparral, grasslands, and vernal pools at elevations ranging from 60–525 m (18-160 ft). Individuals of California Adder's Tongue were found within the native grassland located along the easternmost portions of the Preserves (Figure 7).

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- Variegated Dudleya
- San Diego Thornmint
- Graceful Tarplant
- Small Flowered Morning Glory
- Willowy Monardella
- California Adder's Tongue
- Palmer's Grappling Hook
- Palmer's Sagebrush

Invasive Species

- Fan Palm
- Pampas Grass
- Graceful Tarplant
- San Diego Thornmint
- California Adder's Tongue
- Preserve Boundary

SOURCE: ESRI Imagery, SDThornmint polygon from CNDDB 2008

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N

0 1,000 2,000 Feet

Figure 7
Special Status Plant Species
Sycamore Canyon & Goodan Ranch Preserves

Palmer's Sagebrush (also known as San Diego sagewort) (*Artemisia palmeri*)

CNPS List 4, San Diego County Group D

Palmer's Sagebrush is typically found along creeks and drainages near the coast and within inland chaparral. Palmer's Sagebrush was found within the northeastern portion of the Preserves (Figure 7).

Special-Status Plant Species not Observed but with a High Potential to Occur

Nuttall's Scrub Oak (*Quercus dumosa*)

CNPS List 1B, San Diego County Group A

Nuttall's Scrub Oak is a shrub that grows within coastal chaparral. This species has a potential to occur within the chaparral habitat located along the western most portion of the Preserves. This species is known to occur west of the Preserves on MCAS Miramar.

Del Mar Manzanita (*Arctostaphylos glandulosa ssp. glandulosa)*

Federally Endangered, CNPS List 1B, MSCP Covered Species, San Diego County Group A

Del Mar Manzanita occurs within coastally influenced chaparral in San Diego County. This species has a potential to occur within the chaparral habitat located along the western most portion of the Preserves. This species is known to occur southwest of the Preserves on MCAS Miramar and at Mission Trails Regional Park (MTRP).

San Diego Goldenstar *(Bloomeria (Muilla) clevelandii)*

CNPS List 1B, San Diego County Group A, MSCP Covered Species

San Diego Goldenstar is a perennial corm that is typically found on clay soils in valley grasslands near mima mound topography or in the vicinity of vernal pools. Recent taxonomic changes have moved this species from the genus *Muilla* to the genus *Bloomeria*. This species was not detected during focused surveys in 2008 but is considered to have a high potential to occur within the native grasslands near the eastern staging area. San Diego Goldenstar is also known to occur less than 0.5 mile east of the Preserves.

4.1.12 Invasive Plant Species

In general the upland areas within the Preserves are dominated primarily by native or naturalized plant species. However, several patches of Pampas Grass (*Cortaderia selloana*) and Fan Palms (*Washingtonia robusta*) occur within Sycamore Canyon Creek (Figure 7).

4.2 Invertebrates

All invertebrates identified on the Preserves below the level of family are included in the wildlife table in Appendix B. No special-status invertebrate species are reported for the Preserves by the CNNDB (CDFG 2008).

4.2.1 Butterflies

Twenty-four butterfly species were observed during the 2008 focused Quino survey and include Desert Orangetip (*Anthocharis cethura*), Sara's Orangetip (*Anthocaris sara*), Behr's Metalmark (*Apodemia mormo virgulti*), Perplexing Hairstreak (*Callophrys affinis perplexa*), Brown Elfin (*Callophyrys augustinus*), Gabb's Checkerspot (*Chlosyne gabbii*), Orange Sulfur (*Colias eurytheme*), Funereal Duskywing (*Erynnis funeralis*), Southern Blue (*Glaucopsyche lygdamus australis*), Northern White-skipper (*Heliopetes ericetorum*), Acmon Blue (*Icaricia acmon*),Common Buckeye (*Junonia coenia*), Dainty Sulfur (*Nathalis iole*), Mourning Cloak (*Nymphalis antiopa*), Pale Swallowtail (*Papillo eurymedon*),Western Tiger Swallowtail (*Papillo rutulus*), Anise Swallowtail (*Papillo zelicaon*), Cabbage White (*Pieris rapae*), Checkered/Common White (*Pontia protodice*), Spring White (*Pontia sisymbrii*), White Checkered Skipper (*Pyrgus albescens*),West Coast Lady (*Vanessa annabella*), Red Admiral (*Vanessa atalanta*), and Painted Lady (*Vanessa cardui*). No Quino or any other special-status butterfly species was observed on the Preserves. Full details of the Quino survey are provided in the attached Quino Checkerspot Survey Report (see Appendix C). Both Quino and Hermes Copper (*Lycaena hermes*) have moderate potential to occur based on the presence of their primary host plants, Dwarf Plantain and Spiny Redberry, respectively.

Both Quino and Hermes Copper have been documented on the Preserves within the last ten years. One Quino adult was observed by D. Falkner within the Sycamore Canyon Preserve in 2005 (CNNDB 2008). See the attached Quino Checkerspot Survey Report for details on this observation. Colonies of Hermes Copper were observed prior to the 2003 Cedar Fire on both the Goodan Ranch and Sycamore Canyon Preserves (Hogan 2004).

4.2.2 Other Invertebrates

Twenty-two other invertebrate species were detected during the herpetological array sampling and/or observed during other fieldwork (Appendix B). These species were identified in the field, or photographed and provided to a local entomologist to identify. No invertebrate species were collected.

4.2.3 Special-Status Invertebrate Species

Special-Status Invertebrate Species Observed

No special-status butterfly species or other invertebrate species were detected during any surveys.

Special-Status invertebrate Species not Observed but with a High Potential to Occur

No special-status invertebrate species have high potential to occur at the Preserve.

4.3 Amphibians

Two amphibian species were detected during the 2008 surveys (Appendix B): Western Spadefoot (*Spea hammondii*) and Pacific Chorus Frog (*Pseudacris regilla*). Western Spadefoot was captured in three of the arrays (#2, #3 and #6; Figure 8). This species was captured during every month of sampling except July. The majority of the captures occurred in Array #2, which was situated in a sandy dry wash, and Array #3, situated in coastal sage-chaparral scrub approximately 500 feet west of the same sandy wash. Tadpoles of this species were identified during dip netting of a small creek upstream and to the east of Array #2. This species is presumed to breed in areas that pool within the Preserves. Pacific Chorus Frog, was detected during active searches. It is presumed to be breeding in small pools along Sycamore Canyon Creek.

Other amphibians with potential to occur are limited to Western Toad (*Bufo boreas*), California Chorus Frog (*Pseudacris cadaverina*), Arboreal Salamander (*Aneides lugubris*), Garden Slender Salamander (*Batrachoseps major major*), and Common Ensatina (*Ensatina eschscholtzi*).

4.3.1 Special-Status Amphibian Species

One special-status amphibian species was detected during the surveys: Western Spadefoot.

Special-Status Amphibian Species Observed

Western Spadefoot *(Scaphiopus [=Spea] hammondii)*

State Species of Special Concern, San Diego County Group II

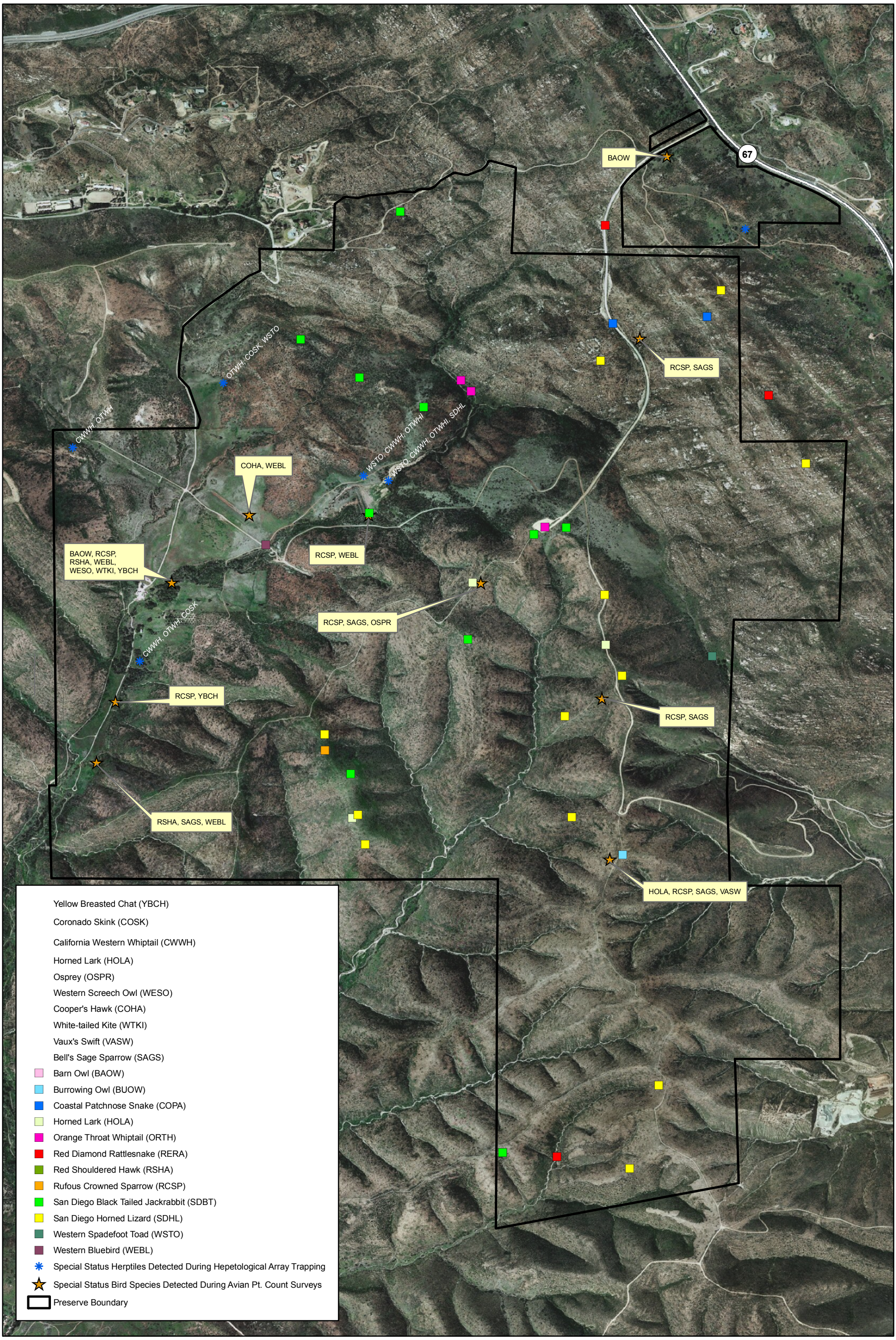
The Western Spadefoot range covers the central portion of northern California, the Great Valley, and Coast Ranges from San Francisco to Baja California (Lemm 2006). Although they spend the majority of their life outside water, they require temporary rain pools with water temperatures between 48° and 86°F (9° and 30° C) lasting upwards of three weeks. These pools must also lack predators of eggs and tadpoles such as introduced fishes, bullfrogs, and crayfishes (Jennings and Hayes 1994). Vernal pools are sometime occupied, but in all cases the species must have access to soils suitable for digging to allow estivation during the dry season. Tolerance of disturbance is high where conditions are otherwise suitable, and the species is sometimes found in pools resulting from landscape modification by man, even adjacent to roads. As detailed above, adults of this species were observed in several of the pitfall traps associated with Arrays #2 and #3, and tadpoles were observed in an intermittent stream in proximity. The large sandy wash surrounding Array #2 provides ideal burrowing habitat while the pools in the nearby streams are appropriate for breeding. Based on the number of pitfall captures in both the sandy wash and surrounding upland habitat this species appears to be abundant within the Preserves.

Special-Status Amphibian Species not Observed but with a High Potential to Occur

No additional sensitive amphibian species have high potential to occur.

4.4 Reptiles

During the 2008 sampling at the Preserves, 16 reptile species were detected (Table 5, Appendix B). Eleven reptile species were captured by arrays during the 2008 sampling periods at the Preserves: Southern Alligator Lizard (*Elgaria multicarinata*), San Diego Horned Lizard (*Phrynosoma coronatum blainvillii*), Western Fence Lizard (*Sceloporus occidentalis*), Granite Spiny Lizard (*Sceloporus orcutti*), Side-blotched Lizard (*Uta stansburiana*), Gilbert's Skink (*Eumeces gilberti*), Coronado



SOURCE: ESRI Imagery

ICF Jones & Stokes
an ICF International Company

N

0 1,000 2,000 Feet

Figure 8
Special Status Wildlife Species
Sycamore Canyon & Goodan Ranch Preserves

Skink (*Eumeces skiltonianus interparietalis*), Orange-throated Whiptail (*Cnemidophorus hyperythrus beldingi*), Coastal Western Whiptail (*Cnemidophorus tigris stejnegeri*), Western Rattlesnake (*Crotalus oregonus*), and Night Snake (*Hypsiglena torquata*). Five additional reptile species observed or detected but not captured in the arrays include Granite Night Lizard (*Xantusia henshawi*), Common Kingsnake (*Lampropeltis getula*), Gopher Snake (*Pituophis catenifer*), Coastal Patch-nosed Snake (*Salvadora hexalepis virgultea*), and Red Diamond Rattlesnake (*Crotalus ruber*).

Three additional species were observed by the Park Rangers. A Coastal Rosy Boa (*Lichanura trivirgata roseofusca*) and a Speckled Rattlesnake (*Crotalus mitchellii*) were captured by Park Rangers and kept in captivity at the Ranger Station on the Goodan Ranch Preserve. A Two-striped Garter Snake (*Thamnophis hammondii*) was observed by a Park Ranger within Sycamore Canyon Creek (Pers. Com B. Bogglen March 25, 2008).

Based on the presence of potentially suitable habitat, several additional reptile species may also occur onsite. Potential sensitive species are limited to California Legless Lizard (*Anniella pulchra*) and San Diego Ringneck Snake (*Diadophis punctatus similis*). Other potential species include Western Banded Gecko (*Coleonyx variegatus*), Western Racer (*Coluber mormon*), Coachwhip (*Masticophis flagellum*), Striped Racer (*Masticophis lateralis*), Longnose Snake (*Rhinocheilus lecontei*) , Western Blackhead Snake (*Tantilla planiceps*), Western Blind Snake (*Leptotyphlops humilis*), and Lyre Snake (*Trimorphodon biscutatus*).

Table 5. Reptiles Observed or Captured at the Preserves in 2008

Taxonomic Name	Common Name	Special Status
Elgaria multicarinata	Southern Alligator Lizard	
Phrynosoma coronatum blainvillii	San Diego Horned Lizard	CSC, MSCP, CSDS Group II
Sceloporus occidentalis	Western Fence Lizard	
Sceloporus orcutti	Granite Spiny Lizard	
Uta stansburiana	Side-blotched Lizard	
Eumeces gilberti	Gilbert's Skink	
Eumeces skiltonianusinterparietalis	Coronado Skink	CSC, CSDS Group II
Cnemidophorus hyperythrus beldingi	Orange-throated Whiptail	CSC, MSCP, CSDS Group II
Cnemidophorus tigris stejnegeri	Coastal Western Whiptail	CSDS Group II
Xantusia henshawi	Granite Night Lizard	
Lampropeltis getula	Common Kingsnake	
Pituophis catenifer	Gopher Snake	
Salvadora hexalepis vigultea	Coastal Patch-nosed Snake	CSC, CSDS Group II
Crotalus ruber	Red Diamond Rattlesnake	CSC, CSDS Group II
Crotalus oreganushelleri [*Crotalus viridis*]	Western Rattlesnake	
Hypsiglena torquata	Night Snake	

Legend:

CSC= California Species of Concern, MSCP= Multiple Species Conservation Program Covered Species, CSDS= County of San Diego Sensitive Animal

4.4.1 Special-Status Reptile Species

Six special-status reptile species were detected during the surveys: San Diego Horned lizard, Coronado Skink, Orange-throated Whiptail, Coastal Western Whiptail, Coast Patch-nosed Snake, and Red Diamond Rattlesnake.

Special-Status Reptile Species Observed

San Diego Horned Lizard *(Phyrnosoma coronatum blainvillii)*

State Species of Special Concern, San Diego County Group II, MSCP Covered Species

The San Diego Horned Lizard is a large lizard that historically was found in Kern, Los Angeles, Santa Barbara, and Ventura counties southward to Baja California, Mexico. Horned Lizards inhabit a variety of vegetation communities including coastal sage, annual grassland, chaparral, oak woodland, riparian woodland, and coniferous forest (Stebbins 2003). Loose, fine soils with a high sand content, an abundance of prey and open areas with limited overstory typify suitable habitat for this species (Jennings and Hayes 1994).

The San Diego Horned Lizard's insectivorous diet consists mostly of native Harvester Ants (*Pogonmyrmex* sp.) which make up over 90% of their prey items, but it is an opportunistic feeder that will take other insects including termites, beetles, flies, wasps, and grasshoppers (Stebbins 2003, Jennings and Hayes 1994).

This species has disappeared from about 45% of its former range and a number of factors have led to this decline including habitat fragmentation and degradation, loss of native prey to exotic species, and extensive collection for the curio trade (Jennings and Hayes 1994). The specialized diet of Harvester Ants has made Horned Lizards especially vulnerable to extirpation since the introduction of Argentine Ants (*Linepithema humile)*. The San Diego Horned Lizard was observed on numerous occasions in the more open scrub habitats within the Preserves. The majority of the Preserves supports appropriate habitat for this species.

Coronado Skink *(Eumeces skiltonianus interparietalis)*

State Species of Special Concern, San Diego County Group II

The Coronado Skink is a medium-sized secretive lizard that is typically found in the moister areas of coastal sage, chaparral, oak woodlands, pinon-juniper, riparian woodlands and pine forests (Jennings and Hayes 1994). Their prey includes small invertebrates found in leaf litter or dense vegetation at the edges of rocks and logs. The Coronado Skink is found along the coastal plain and Peninsular Ranges west of the deserts from approximately San Gorgonio Pass in Riverside County south to San Quentin, Mexico (Jennings and Hayes 1994). This species was captured in Array #5 under the oak woodland near Sycamore Canyon Creek. This species is presumed to inhabit the valleys that support oaks within the Preserves.

Orange-throated Whiptail (*Cnemidophorus hyperythrus beldingi*)

State Species of Special Concern, MSCP Covered Species, San Diego County Group II

The Orange-throated Whiptail is a medium-sized lizard that ranges from Southern California (specifically Corona del Mar in Orange County and

Colton in San Bernardino County) southward to the tip of Baja California, Mexico. Historically, most populations of the Orange-throated Whiptail were found on floodplains or terraces along streams in brushy areas with loose soil and rocks (McGurty 1980). Habitat types they are known to use include chaparral, non-native grassland, coastal sage scrub, juniper woodland, and oak woodland. California Buckwheat is an important indicator of appropriate habitat for Orange-throated Whiptails (Dudek 2000). This plant species is a colonizer of disturbed, sandy soils and usually indicates open shrub spacing that is required for foraging and thermoregulatory behavior. Orange-throated Whiptails appear to be dietary specialists with most (> 85%) of its prey being comprised of termites (Dudek 2000).

The decline of Orange-throated Whiptails is likely due to loss of habitat to agriculture and urban development. This species was captured at Arrays #2, #3, #4, #5 and #6, and observed on several occasions in the chaparral and scrub habitats within the Preserves. This species is presumed to be abundant within the Preserves.

Coastal Western Whiptail *(Cnemidophorus tigris multiscutatus)*

San Diego County Group II

Coastal Western Whiptail is a medium-sized slender lizard that is found in arid and semiarid desert to open woodlands where the vegetation is sparse so running is easy (Stebbins 2003). Its range includes coastal Southern California and western Baja California. The decline of Coastal Western Whiptails is likely due to loss of habitat to agriculture and urban development.

This species was captured at Arrays #2, #3, #4 and #6, and observed on several occasions in the chaparral and scrub habitats within the Preserves. This species is presumed to be abundant within the Preserves.

Coast Patch-nosed Snake *(Salvadora hexalepis virgutea)*

State Species of Special Concern, San Diego County Group II

The Coast Patch-nosed Snake is a medium-sized, slender snake that is a habitat generalist that makes use of whatever vegetative cover is available and thrives in most environments. It is also a generalist in its diet, opportunistically feeding on anything it can overpower including small mammals, lizards, and the eggs of lizards and snakes. The species ranges from Creston in San Luis Obispo County southward into Baja California (Stebbins 2003). This species' decline is likely due to conversion of habitat to development, agriculture or non-native plant species.

This species was observed on two occasions in the Preserves' dominant vegetation community, southern mixed chaparral. The Preserves support a large amount of appropriate habitat for this species.

Red Diamond Rattlesnake (*Crotalus ruber ruber*)

State Species of Special Concern, San Diego County Group II

The Red Diamond Rattlesnake is a large, heavy-bodied rattlesnake that has a wide tolerance for varying environments and can be found in a variety of vegetation types, but it is most commonly seen in areas with heavy brush and cactus, rocks or boulders (Stebbins 2003). The known range extends from San Bernardino County along the coastal and desert slopes southward to Baja California. Adult Red Diamond Rattlesnakes eat mostly squirrels and rabbits but lizards, specifically the Western Whiptail, are a significant food source for juveniles (Jennings and Hayes 1994). Urban development and the trend towards planting orchards on the steeper rocky hillsides have significantly decreased the amount of appropriate habitat for this species (Jennings and Hayes 1994).

This species was observed on the road in Goodan Ranch and in the steep rocky canyon on the southern edge of the Preserves. The majority of the Preserves supports appropriate habitat for this species.

Special-Status Reptile Species not Observed but with a High Potential to Occur

Coastal Rosy Boa *(Charina trivirgata roseofusca)*

San Diego County Group II

Coastal Rosy Boas are heavy-bodied snakes that inhabit arid scrublands, semi-arid and rocky shrublands, rocky deserts, canyons, and other rocky areas (Stebbins 2003). This species eats rodents, small birds, lizards, small snakes, and amphibians and kills its prey by constriction. Coastal Rosy Boas occur in southwestern California from the coastal slopes of the San Gabriel and San Bernardino mountains, and across the peninsular ranges into the desert in San Diego County (Stebbins 2003). Threats to this species include habitat degradation and fragmentation from urban development. Although this species was not observed by ICF Jones & Stokes biologists during the 2008 sampling it was observed by Park Rangers. This species has the potential to occur in any of the habitats found on the Preserves.

Two-striped Garter Snake *(Thamnophis hammondii hammondii)*

State Species of Special Concern, San Diego County Group I

Two-striped Garter Snake occurs west of the deserts and Central Valley from Salinas, Monterey County, south into Baja California, and at elevations from sea level up to about 2,438 m (8,000 ft) in the San Jacinto Mountains (Jennings and Hayes 1994). It is often in water and rarely found far from it, though it is also known to inhabit intermittent streams having rocky beds bordered by willow thickets or other dense vegetation (Jennings and Hayes 1994). They will also inhabit large riverbeds such as those of the Santa Ana and Santa Clara rivers if riparian vegetation is available, and even occur in artificial impoundments if both aquatic vegetation and suitable prey items (small amphibians and fish) are present (Jennings and Hayes 1994). Declines are attributable directly to loss of riparian habitats. Although this species was not observed by ICF Jones & Stokes biologists during the 2008 sampling it was observed by Park Rangers. This species is usually associated with a permanent or relatively permanent water source and would only likely be present in and near Sycamore Canyon Creek.

San Diego Ringneck Snake (*Diadophis punctatus similis*)

San Diego County Group II

The San Diego Ringneck Snake is a small, thin snake that prefers moist habitats, including wet meadows, rocky hillsides, gardens, farmland, grassland, chaparral, mixed coniferous forests, and woodlands (Stebbins 2003). It is secretive in its behavior, usually found under the cover of rocks, wood, bark, boards, and other surface debris. Ringneck snakes eat small salamanders, tadpoles, small frogs, small snakes, lizards, worms, slugs, and insects. This species' range includes San Diego County along the coast and into the Peninsular range, southwestern San Bernardino County, and barely south into northern Baja California (Stebbins 2003). Threats to this species include habitat degradation and fragmentation from urban development. This species has high potential to occur throughout the Preserves.

4.5 Birds

Avian species richness (total species detected) was found to be high at the Preserves. In total, 73 bird species were detected with 65 bird species during the point counts and eight during other fieldwork. These included year-round residents, winter-only species, breeding species that migrate to the Neotropics, and species that are strictly migratory through the Preserves, neither breeding nor wintering there.

The Preserves' avifauna is a mixture of species that are associated with the diverse habitat types found on site. These species include Red-tailed Hawk (*Buteo jamaicensis*), Anna's Hummingbird (*Calypte anna*), Costa's Hummingbird (*Calypte costae*), Nuttall's Woodpecker (*Picoides nuttallii*), Pacific-slope Flycatcher (*Empidonax difficilis*), Ash-throated Flycatcher (*Myiarchus cinerascens*), California Horned Lark (*Eremophila alpestris actia*), Bushtit (*Psaltriparus minimus*), White-breasted Nuthatch (*Sitta carolinensis*), Rock Wren (*Salpinctes obsoletus*), Bewick's Wren (*Thryomanes bewickii*), House Wren (*Troglodytes aedon*), Blue-gray Gnatcatcher (*Polioptila caerulea*), Western Bluebird (*Sialia mexicana)*, Common Yellowthroat (*Geothlypis trichas)*, Yellow-breasted Chat (*Icteria virens*), Spotted Towhee (*Pipilo maculates*), California Towhee (*Pipilo crissalis*), Southern California Rufous-crowned Sparrow (*Aimophila ruficeps canescens*), Lark Sparrow (*Chondestes grammacus*), Bell's Sage Sparrow (*Amphispiza belli belli*), Song Sparrow (*Melospiza melodia*), Black-headed Grosbeak (*Pheucticus melanocephalus*), Blue Grosbeak (*Passerina caerulea*), Lazuli Bunting (*Passerina amoena*), House Finch (*Carpodacus mexicanus*), and Lesser Goldfinch (*Carduelis psaltria*).

The Preserves have a very good diversity of raptors (birds of prey), including twelve observed raptor species: Turkey Vulture (*Cathartes aura)*, Osprey (*Pandion haliaetus*), White-tailed Kite (*Elanus leucurus*), Northern Harrier (*Circus cyaneus*), Cooper's Hawk (*Accipiter cooperii*), Red-shouldered Hawk (*Buteo lineatus)*, Red-tailed Hawk, Golden eagle (*Aquila chrysaetos*), American Kestrel (*Falco sparverius*), Barn Owl (*Tyto alba*), Western Screech-owl (*Megascops kennicottii*), Great Horned Owl (*Bubo virginianus*), and Burrowing Owl (*Athene cunicularia*). These birds are using the Preserves for foraging and some species have potential to breed on site. One raptor nest was detected during the surveys; a Red-shouldered Hawk nest was detected near the Ranger Station.

Historically, Coastal California Gnatcatchers (*Polioptila californica californica*) occurred at the Preserves; however, recovery from the 2003 Cedar Fire has been slow for coastal sage scrub and the habitat on site is not yet appropriate for the species to breed in. This species was not detected during the 2008 season.

There is low potential for Southwestern Willow Flycatcher (*Empidonax traillii extimus*) to occur at the Preserves beyond rare and brief visits, due to lack of suitable habitat. The riparian habitat on site is more of a secondary riparian system and this species is typically found in mature and extensive stands of riparian habitat. It is likely that other subspecies of Willow Flycatcher pass through the Preserves in spring and fall, though they were not recorded during the current work.

There is potential for Least Bell's Vireo (*Vireo bellii pusillus*) to occur at the Preserves. One area of riparian habitat has the dense understory and

upper canopy required by this species and pairs are known to occur south of the Preserves on MCAS Miramar near Santee Lakes.

Two non-native or invasive species were detected during the surveys: European Starling (*Sturnus vulgaris*) and Brown-headed Cowbird (*Molothrus ater*). There were 16 sightings of European Starling and these birds were at avian point count station 3 near the Ranger Station. This species does not currently pose a significant threat to the native avian species on the Preserve. Brown-headed Cowbird, an obligate brood parasite was apparently present only as a migrant and wanderer on the Preserves. Seven sightings of individuals, mainly males, were recorded on or over the Preserves. No juveniles were detected indicating that this species may not parasitize nests on the Preserves or if there is parasitism it is in low numbers.

4.5.1 Point Count Results

As detailed in Section 3.4, ten-minute avian point counts were conducted at ten stations monthly from April through September 2008 (Figure 5). ICF Jones & Stokes' Wildlife Biologist Kylie Fischer conducted all of the counts.

A total of 73 bird species were detected during the survey of the Preserves: 65 bird species were detected during the point counts and eight were detected during other fieldwork (Table 6). The most regularly encountered and/or most numerous bird species were Mourning Dove, Ash-throated Flycatcher, Common Raven, Bewick's Wren, House Wren, Wrentit, Common Yellowthroat, Spotted Towhee, California Towhee, Song Sparrow, Lazuli Bunting, House Finch, and Lesser Goldfinch.

Table 6. Avian Species Detected at the Preserves in 2008

Scientific Name	Common Name	Observed or Detected	Special Status	Breeding Status
Callipepla californica	California Quail	X		CO
Cathartes aura	Turkey Vulture	O	CSDS Group I	
Pandion haliaetus	Osprey	O	CSDS Group I	
Elanus leucurus	White-tailed Kite	X	CFP, CSDS Group I	
Circus cyaneus	Northern Harrier	X	CSC, MSCP, CSDS Group I	
Accipiter cooperii	Cooper's Hawk	X	MSCP, CSDS Group I	
Buteo lineatus	Red-shouldered Hawk	X	CSDS	CO
Buteo jamaicensis	Red-tailed Hawk	X		
Aquila chrysaetos	Golden Eagle	O	CFP, MSCP, CSDS Group I	
Falco sparverius	American Kestrel	X		pr
Zenaida macroura	Mourning Dove	X		CO
Geococcyx californianus	Greater Roadrunner	X		pr
Tyto alba	Barn Owl	X	CSDS Group II	pr
Megascops kennicottii	Western Screech-Owl	O		
Bubo virginianus	Great Horned Owl	X		?
Athene cunicularia	Burrowing Owl	O	CSC, MSCP, CSDS Group I	
Chordeiles acutipennis	Lesser Nighthawk	X		pr
Phalaenoptilus nuttallii	Common Poorwill	X		
Chaetura vauxi	Vaux's Swift	X	CSC	
Aeronautes saxatalis	White-throated Swift	X		
Archilochus alexandri	Black-chinned Hummingbird	X		pr
Calypte anna	Anna's Hummingbird	X		pr
Calypte costae	Costa's Hummingbird	X		pr
Melanerpes formicivorus	Acorn Woodpecker	X		pr
Picoides nuttallii	Nuttall's Woodpecker	X		pr
Colaptes auratus	Northern Flicker	X		?
Empidonax difficilis	Pacific-slope Flycatcher	X		pr
Sayornis nigricans	Black Phoebe	X		

Scientific Name	Common Name	Observed or Detected	Special Status	Breeding Status
Sayornis saya	Say's Phoebe	X		
Myiarchus cinerascens	Ash-throated Flycatcher	X		pr
Tyrannus vociferans	Cassin's Kingbird	X		pr
Vireo huttoni	Hutton's Vireo	O		
Aphelocoma californica	Western Scrub-Jay	X		pr
Corvus brachyrhynchos	American Crow	X		pr
Corvus corax	Common Raven	X		pr
Eremophila alpestris actia	California Horned Lark	X	CSDS Group II	CO
Stelgidopteryx serripennis	Northern Rough-winged Swallow	X		
Petrochelidon pyrrhonota	Cliff Swallow	X		
Hirundo rustica	Barn Swallow	X		
Psaltriparus minimus	Bushtit	X		CO
Sitta carolinensis	White-breasted Nuthatch	X		pr
Salpinctes obsoletus	Rock Wren	X		pr
Thryomanes bewickii	Bewick's Wren	X		pr
Troglodytes aedon	House Wren	X		CO
Polioptila caerulea	Blue-gray Gnatcatcher	X		pr
Sialia mexicana	Western Bluebird	X	MSCP, CSDS Group II	CO
Chamaea fasciata	Wrentit	X		pr
Mimus polyglottos	Northern Mockingbird	X		pr
Toxostoma redivivum	California Thrasher	X		pr
Sturnus vulgaris	European Starling	X		pr
Phainopepla nitens	Phainopepla	X		CO
Vermivora celata	Orange-crowned Warbler	X		pr
Dendroica coronata	Yellow-rumped Warbler	X		
Geothlypis trichas	Common Yellowthroat	X		pr
Wilsonia pusilla	Wilson's Warbler	X		
Icteria virens	Yellow-breasted Chat	X	CSC, CSDS Group I	?
Pipilo maculatus	Spotted Towhee	X		pr
Pipilo crissalis	California Towhee	X		CO
Aimophila ruficeps canescens	Southern California Rufous-crowned Sparrow (= California Rufous-	X	MSCP, CSDS Group I	pr

Scientific Name	Common Name	Observed or Detected	Special Status	Breeding Status
	crowned Sparrow)			
Spizella atrogularis	Black-chinned Sparrow	X		
Pooecetes gramineus	Vesper Sparrow	O		
Chondestes grammacus	Lark Sparrow	X		CO
Amphispiza belli belli	Bell's Sage Sparrow	X	CSDS Group I	CO
Melospiza melodia	Song Sparrow	X		pr
Pheucticus melanocephalus	Black-headed Grosbeak	X		
Passerina caerulea	Blue Grosbeak	X		?
Passerina amoena	Lazuli Bunting	X		pr
Agelaius phoeniceus	Red-winged Blackbird	X		
**Molothrus ater*	Brown-headed Cowbird	X		?
Icterus cucullatus	Hooded Oriole	O		
Icterus bullockii	Bullock's Oriole	X		?
Carpodacus mexicanus	House Finch	X		pr
Carduelis psaltria	Lesser Goldfinch	X		pr

Legend

*=Non-native or Invasive species

Observed or Detected: X = detected during point count, O = Observed during other fieldwork, FB = overhead or fly-by only

Special Status: FE= Federally Endangered, FT=Federally Threatened, SE= State Endangered, CSC= California Species of Special Concern, CFP= California Fully Protected, MSCP= Multiple Species Conservation Program Covered Species, CSDS=County of San Diego Sensitive Animal

Breeding Status: CO = Confirmed breeding, pr = Probable breeder,? = Possible breeder. Rating is based on number of observations and period of observation (i.e. was the species identified throughout the breeding season or only during certain times of the year)

Tables 7 and 8 provide quantitative summaries of the results for species and individuals. Station 3 shows the highest number of observations. This station is immediately adjacent to oak woodland, non-native grassland and chaparral. Station 7 has the lowest number of observations. This station is on a ridgeline surrounded by recovering coastal sage scrub and chaparral. Stations 1 through 5 have higher numbers of observations (range: 108 to 202) and higher species diversity (range: 30 to 41) than 6 through 10 (observations range: 49 to 76; species range: 17 to 20). This can be attributed to that fact that stations 1 though 5 occurr within the main valley of the Preserves and all have some kind of influence from riparian habitat.

One observation of an unknown sparrow species, an unknown swift, and an unknown oriole species were excluded from the calculation of total species. These birds were seen in flight and the lighting and circumstances did not allow the observer to see any identifying characteristics beyond the type of bird. Five observations of unknown hummingbird species were excluded from the calculation of total species. These were most likely female and/or juvenile black-chinned, Anna's or Costa's hummingbirds that were seen in flight and the lighting and circumstances did not allow the observer to see any identifying characteristics beyond the type of bird. Four observations of unknown species were excluded from the species data but were included as bird observations. The biologist was confident that these observations were not of a bird that had already been documented during the point count.

Table 7. Avian Point Counts–Totals for Individuals*

Month	Point Count Stations										Total # of Individuals	Mean # of Individuals
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**		
April	37	40	44	20	23	12	18	10	17	17	238	23.8
May	26	23	27	17	32	18	7	16	16	12	194	19.4
June	24	25	27	21	27	13	8	7	12	11	175	17.5
July	21	21	27	15	21	17	4	8	15	9	158	15.8
August	20	19	35	17	20	7	5	12	9	8	152	15.2
September	19	23	42	18	31	7	7	5	7	9	168	16.8
Total # of Individuals	**147**	**151**	**202**	**108**	**154**	**74**	**49**	**58**	**76**	**66**	**1085**	
Mean # of Individuals	*24.5*	*25.2*	*33.7*	*18.0*	*25.7*	*12.3*	*8.2*	*9.7*	*12.7*	*11.0*		*25.3*

* See Section 3.4.1 regarding the exclusion of individuals recorded as "fly-bys".

Table 8. Avian Point Counts–Totals for Species*

	Point Count Stations										Total # of Species	Mean # of Species
Month	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**		
April	18	21	22	14	13	6	6	8	9	8	41	12.5
May	12	13	16	14	18	9	7	11	11	6	40	11.7
June	12	17	17	16	17	8	9	5	10	6	42	11.7
July	11	13	16	7	12	8	6	8	9	8	33	9.8
August	12	11	17	11	12	6	4	5	6	5	30	8.9
September	13	12	14	12	13	8	8	7	5	6	37	9.8
Total # of Species	**32**	**34**	**41**	**30**	**33**	**18**	**17**	**19**	**19**	**20**		
Mean # of Species	*13.0*	*14.5*	*17.0*	*12.3*	*14.2*	*7.5*	*6.7*	*7.3*	*8.3*	*6.5*		*10.7*

* Birds not identified to species were excluded from the calculation. "Fly-by" species were included in the calculations.

4.5.2 Nocturnal Survey Results

The nocturnal bird surveys documented five nocturnal species using the Preserves: Barn Owl, Great Horned Owl, Western Screech-owl, Lesser Nighthawk (*Chordeiles acutipennis*), and Common Poorwill (*Phalaenoptilus nuttallii*). Several Barn Owls were detected on the Preserves. One Great Horned Owl was detected in the oak trees surrounding station 10 during a point count. One Western Screech-owl was detected once in Sycamore Canyon Creek. At least one Lesser Nighthawk pair was detected always near Sycamore Canyon Creek. Common Poorwills were detected throughout the Preserves. There is high potential for one additional nocturnal species to occur within the Preserves: Long-eared Owl (*Asio otus*). Prior to the 2003 Cedar Fire, this species was known to breed in Sycamore Canyon (Unitt 2004).

4.5.3 Special-Status Bird Species

Fifteen special-status species were detected during the point counts: Turkey Vulture, Osprey, White-tailed Kite, Northern Harrier, Cooper's Hawk, Red-shouldered Hawk, Golden Eagle, Barn Owl, Burrowing Owl, Vaux's Swift (*Chaetura vauxi*), California Horned Lark, Western Bluebird, Yellow-breasted Chat, Southern California Rufous-crowned Sparrow, and Bell's Sage Sparrow. See Figure 8 for locations of special-status birds detected during surveys of the Preserves.

Special-Status Bird Species Observed

Turkey Vulture (*Cathartes aura*)

San Diego County Group I

Turkey Vultures are often seen foraging over woodlands and nearby open country (Unitt 2004). They prefer dry, open country and ranch lands and often occur along roadsides where carrion is common. They nest in crevices among granite boulders (Unitt 2004). The Turkey Vulture's range has been retracting from the coast due to human disturbance, loss of foraging habitat and pesticide contamination (Unitt 2004). Turkey vultures were observed foraging over the Preserves. There is minimal suitable breeding habitat for this species. This species is still common in the undeveloped areas of east San Diego County thus the sighting at the Preserves is not regionally significant.

Osprey *(Pandion haliaetus)*

San Diego County Group I

Ospreys usually breed close to water sources such as lakes, rivers, estuaries and the coast. The nest site in a natural setting is typically on a tree-top or rocky

outcrop overlooking the water. This species has adapted to the urban environment to some extent in that they will build nests on man-made structures such as floodlights for sports fields, cell phone towers, and tall cranes. Distance from a water source to a nest site has been recorded as far as 10 miles (Unitt 2004). One Osprey was observed riding a thermal near station 6 in April. This species is often seen foraging at San Vicente Reservoir, which is southeast of the Preserves (K. Fischer personal observation); however, breeding has not been documented in the vicinity of the reservoir or the Preserves (Unitt 2004). This species is still common throughout its range thus the sighting at the Preserves is not regionally significant.

White-Tailed Kite (*Elanus caeruleus)*

State Fully Protected Species (nesting), San Diego County Group I

The White-tailed Kite is found in lower elevations in open grasslands, agricultural areas, wetlands, and oak woodlands. Their primary source of food is the California Vole (*Microtus californicus sanctidiegi*) (Unitt 2004). It typically forages in open undisturbed habitats and nests in the top of a dense oak, willow or other large tree (Unitt 2004). The White-tailed Kite population is on the decline mostly due to urban sprawl; however, this species is still considered fairly widespread throughout the foothills of San Diego County (Unitt 2004). One White-tailed Kite was seen perched and foraging near Sycamore Canyon Creek. This species could breed in the riparian habitat within the Preserves but no nests were observed during 2008. The sighting at the Preserves is not regionally significant as this species is still widespread.

Northern Harrier (*Circus cyaneus*)

State Species of Special Concern, San Diego County Group I, MSCP Covered Species

The Northern Harrier is associated with open grassland and marshes. This species typically forages in open, undisturbed habitat and nests on the ground in areas of dense low-growing vegetation to help conceal the nest. Nesting harriers are now considered rare and the known breeding population in San Diego County is estimated at 25 to 75 pairs (Unitt 2004). As with other ground nesting grassland birds, the Northern Harrier population is on the decline due to urban sprawl (Unitt 2004). A Northern Harrier was observed foraging over the Preserves. There is minimal suitable breeding habitat within the boundary of the Preserves and if this species was nesting on the Preserves, the location would have been identified during the surveys. This species most likely nests in the surrounding area and forages over the Preserves. If this species was to use the Preserves for breeding, it would be a regionally significant sighting.

Cooper's Hawk *(Accipiter cooperii)*

San Diego County Group I, MSCP Covered Species

The Cooper's Hawk is a resident of riparian deciduous habitats and oak woodlands but in recent times has become adapted to urban park environments (Unitt 2004). They hunt their primary source of food, passerines, in broken woodlands and forest margins and they are also known to take fish and mammals. The Cooper's Hawk population declined due to hunting and loss of habitat; however, this species is making a comeback through its adaptation to the urban environment (Unitt 2004).

One Cooper's Hawk was observed in August and one in September. This species may nest within the Preserves but there were no observations of this species during peak raptor nesting periods. The sightings at the Preserves are not regionally significant as this species is still widespread.

Red-shouldered Hawk (*Buteo lineatus*)

San Diego County Group I

The Red-shouldered Hawk was once an uncommon breeder of lowland riparian woodlands but has been thriving in urban environments with large trees such as gum (*Eucalyptus sp.*). On the west coast, this species is found in California and northern Baja California and is common throughout San Diego County. A Red-shouldered Hawk was detected building a nest near the Ranger Station; but the success of this nest was not determined during the surveys. This species was observed in April, July and August. The sightings at the Preserves are not regionally significant as this species is still widespread.

Golden Eagle *(Aquila chrysaetos)*

State Fully Protected Species, San Diego County Group I, MSCP Covered Species

Golden Eagles nest on cliff ledges or trees on steep slopes and forage in grasslands, sage scrub, or broken chaparral (Unitt 2004). Development of the grasslands they forage over has taken a toll on the numbers of this species present in San Diego County. A territory averages 36 square miles so removal of foraging habitat will have significant impacts on this species (Unitt 2004). A first year Golden Eagle was seen flying overhead and this species has historically been detected foraging at the Preserves. The Preserves do not provide nesting habitat for this species but foraging habitat is present. Regionally, the sighting is not significant as it does not represent a breeding location, but it does show that the Preserves are likely important to the continued success of this species.

Barn Owl *(Tyto alba)*

San Diego County Group II

The Barn Owl is the owl species that is most tolerant to urban development. It will nest in buildings, nest boxes, at the base of the leaves in palm trees, and in cavities in native trees. Even though this species is tolerant of human development, dense housing communities do not provide suitable nesting habitat

and increased traffic has had a negative effect on the species. Several Barn Owls were detected on the Preserves. The first use area is within Sycamore Canyon Creek. Barn Owls were detected in the riparian habitat and in the surrounding area, perched on powerlines. The second use area is near the eastern boundary of the Preserves. Barn Owls were detected in the oak trees near herpetological pitfall array 1 and then one individual was detected at point count station 10. These birds most likely breed on the Preserves. These sightings are not regionally significant as this species is still widespread.

Burrowing Owl *(Athene cunicularia)*

State Species of Special Concern, San Diego County Group I, MSCP Covered Species

Burrowing Owls are found in prairies, grasslands, lowland scrub, agricultural lands, coastal dunes, desert floors, and some artificial open areas (Unitt 2004). This species requires large open expanses of sparsely vegetated areas on gently rolling or level terrain with an abundance of active small mammal burrows. They use rodent or other burrows for roosting and nesting cover and also are known to use pipes, culverts, and nest boxes where burrows are scarce. As with other grassland species, the Burrowing Owl population in San Diego County is on the decline due to loss of habitat to development and habitat fragmentation (Unitt 2004). One Burrowing Owl was observed along a ridgetop road. The bird was flushed from the road and flew away. The species was not detected in the area again. This sighting is not regionally significant as this observation was of a migrant.

Vaux's Swift (*Chaetura vauxi*)

State Species of Special Concern

Vaux's Swift is a migrant and winter visitor to San Diego County (Unitt 2004). This species can be seen in low numbers flying across any habitat type in the County. Spring migration is typically between April and May and fall migration is typically September and October. This species breeds in old growth forests and changes in forest structure and fragmentation in its nesting range have led to the species decline (Dudek 2000). One Vaux's Swift was seen at point count station 8 during the September sampling periods. The bird flew overhead and did not stop to forage. This sighting is not regionally significant as this species is still common throughout its range.

California Horned Lark *(Eremophila alpestris actia)*

San Diego County Group II

The California Horned Lark is a resident of a variety of open habitats, usually where trees and large shrubs are absent (Zeiner *et al.* 1990). This species primarily breeds in open fields and grasslands and is found along the coastal slope of San Diego County east to Jacumba (Unitt 2004). Continuing threats to this species include habitat destruction and fragmentation. California Horned

Larks were observed at point count station 8 where an adult was observed with food for chicks. This sighting is not regionally significant as this species is still common throughout its range.

Western Bluebird (*Sialia mexicana*)

San Diego County Group II, MSCP Covered Species

The Western Bluebird is a stocky blue bird with a chestnut chest and is considered common in the foothills and mountains of San Diego County. This species can usually be found in montane coniferous and oak woodlands (Unitt 2004). It can also occur in areas with scattered trees, open forests, scrubs and during the winter in the desert.

Western Bluebirds breed in western North America from southern British Columbia south to central Mexico, east to western Montana and west Texas, but are absent from the Great Basin (Guinan *et al.* 2000). It can also winter outside its breeding range in central California and along the lower Colorado River (Guinan *et al*. 2000).

Western Bluebird numbers are declining due to loss of nesting cavities to logging, fire suppression, and competition with non-native species such as European Starling and House Sparrow (*Passer domesticus*) (Unitt 2004). A Western Bluebird pair was observed nesting in Sycamore Canyon Creek near point count station 3. As this species is still fairly common in San Diego County (Unitt 2004), the individuals detected do not represent a regionally significant population.

Yellow-breasted Chat (*Icteria virens*)

State Species of Special Concern, San Diego County Group I

The Yellow-breasted Chat is a common summer breeding visitor that prefers to nest in extensive dense thickets of riparian habitat (Unitt 2004). This species is very secretive so finding their nests is a challenge. The decline of this species is due to the loss of riparian woodlands in the coastal lowland as a result of development, agriculture, and channeling rivers (Dudek 2000). At least one Yellow-Breasted Chat was detected between point count stations 2 and 3. This bird was heard signing often in the early morning and prior to sunrise in April, May and June. The breeding status of this bird was unknown. This species is still considered a common species in San Diego County thus this sighting is not regionally significant.

Southern California Rufous-crowned Sparrow (*Aimophila ruficeps canescens*)

San Diego County Group I, MSCP Covered Species

The Southern California Rufous-crowned Sparrow is a resident species that is closely associated with coastal sage scrub, steep rocky hillsides, burned

chaparral, and openings in mature chaparral (Unitt 2004). Preferring open habitat with approximately 50 percent shrub cover, this species seeks cover in shrubs, rocks, grass, and forb patches (Dudek 2000, Unitt 2004). The Southern California subspecies is restricted to semiarid coastal sage scrub and sparse chaparral from Santa Barbara south to the northwestern corner of Baja California (Dudek 2000). Southern California Rufous-crowned Sparrows are declining due to loss of appropriate habitat and are sensitive to habitat fragmentation (Unitt 2004).

Southern California Rufous-crowned Sparrows were detected throughout the Preserves. As this species is still found throughout San Diego County in large numbers (Unitt 2004), the individuals detected do not represent a regionally significant population.

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

San Diego County Group I

The Bell's Sage Sparrow is a resident species that is usually found in chaparral and coastal sage scrub in southern California and Baja California. This mostly ground-dwelling species prefers open chaparral and sage scrub and is one of the first species to inhabit recently burned habitat (Unitt 2004). The subspecies Bell's Sage Sparrow, *A. b. belli*, occurs along the coastal lowlands, inland valleys, and in the lower foothills of the local mountains in southern California and south into Baja California (Dudek 2000). The decline of this species can be attributed to fire suppression, invasion by exotic plant species, loss of habitat to agriculture and urban development and population isolation due to habitat fragmentation (Unitt 2004, Dudek 2000).

Bell's Sage Sparrows were observed at stations 1, 6, 8 and 9. Successful breeding was observed near point count station 6. As this species is still found throughout San Diego County (Unitt 2004), the individuals detected do not represent a regionally significant population.

Special-Status Bird Species not Observed but with a High Potential to Occur

Sharp-shinned Hawk (*Accipiter striatus*)

San Diego County Group II

Sharp-shinned Hawks breed in young coniferous forests with high canopies. This species has not been documented breeding in San Diego; however, some summer sightings have been recorded (Unitt 2004). It is considered a fairly common migrant and winter resident, except in areas with deep snow (Dudek 2000). The known population breeding within California is very small and is vulnerable to impacts from falconry and logging. This species has high potential to occur as a migrant within the Preserves.

Prairie Falcon (*Falco mexicanus*)

State Species of Special Concern, San Diego County Group I

Prairie Falcons forage over open terrain and nest in canyons, cliffs, escarpments, and rock outcrops (Dudek 2000). They prefer annual grasslands, alpine meadows, perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas. The species requires sheltered cliff ledges for cover and nesting. In California, the Prairie Falcon is an uncommon permanent resident and migrant that ranges from southeastern deserts northwest along the inner Coast Ranges and Sierra Nevada. The largest threat to Prairie Falcons is disturbance at the nest site. This species is a rare breeder in San Diego County but the numbers have remained relatively stable (Unitt 2004). This species has high potential to occur within the Preserves due to the presence of suitable foraging habitat.

Merlin *(Falco columbarius)*

San Diego County Group II

The Merlin is most often seen in grasslands but has the potential to occur in any vegetation community except dense woodland (Unitt 2004). This species is a rare winter visitor to San Diego County that feeds mostly on small birds and can be found where small birds flock (Unitt 2004). This species has high potential to occur as a migrant within the Preserves as it was detected at the Preserves in 2007 (K. Fischer, personal observation).

Long-eared Owl *(Asio otus)*

State Species of Special Concern, San Diego County Group I

Long-eared Owls are rare residents of oak woodlands and broad riparian forests. Ideal nesting habitat has a closed canopy and open lands adjacent for foraging. The decline of this species is due to the loss of riparian woodlands as a result of development, agriculture, and channeling rivers.

Long-eared Owls have historically been detected in Sycamore Canyon (Unitt 2004) but this was prior to the 2003 Cedar Fire. The status of the species in Sycamore Canyon since the fire is unknown. None were detected during the 2008 nocturnal surveys; however, given the previous sightings and the presence of suitable habitat, their potential for occurrence is high.

Loggerhead Shrike (*Lanius ludovicianus*)

State Species of Special Concern, San Diego County Group I

Loggerhead Shrikes are found near grassland, open sage scrub and chaparral, and desert scrub (Unitt 2004). They nest in dense vegetation adjacent to their open foraging habitats. Shrikes prefer to sit on an exposed tree limb or utility line looking for prey. They attack their prey from either a hovering flight above, or

from their perch. The Loggerhead Shrike population in San Diego County is on the decline due to loss of habitat to development and habitat fragmentation (Unitt 2004). The species is still found throughout the County on the coastal plain and into the desert. Loggerhead Shrikes have been documented in the general vicinity (Unitt 2004) and have high potential to forage and nest at the Preserves.

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

Federally Endangered, State Endangered, San Diego County Group I, MSCP Covered Species

Historically, the Least Bell's Vireo was a common to locally abundant species found in lowland riparian habitats from northern California to coastal southern California. Loss of riparian habitats and the effects of Brown-headed Cowbird parasitism lead to a large decline in the population. The population was estimated at 300 pairs in 1986 when listed by the USFWS. Currently the population is limited to mid to southern California. The majority of the population is found in San Diego County. Since listing, Least Bell's Vireo numbers have increased 6-fold. In 1998, the population was estimated at 2000 pairs (Kus 2000). Nests are typically placed within one meter of the ground in dense shrubby riparian habitat.

Least Bell's Vireo has high potential to occur in the patch of southern willow scrub along Sycamore Canyon Creek. This species has been documented in Sycamore Canyon, south of the Preserves near Santee Lakes. There is high potential for this species to use the riparian habitat at the Preserves as the population's numbers increase.

Coastal California Gnatcatcher *(Polioptila californica californica)*

Federally Threatened, State Species of Special Concern, San Diego County Group I, MSCP Covered Species

The Coastal California Gnatcatcher is a small resident insectivorous species that's occurrence is strongly associated with sage scrub habitats found throughout southern California into northern Baja California, Mexico. Although California Gnatcatchers have a close association with sage scrub, this species has also been documented using coastal sage-chaparral scrub, chamise chaparral and other habitat types such as the ecotone between coastal sage scrub and grasslands (Campbell et al. 1998, Bontrager 1991, K. Fischer pers. obs.). Habitat destruction, fragmentation and modification have led to this species' decline (USFWS 1993). Loss resulting from agriculture and urban development were leading causes until 2003 when the Cedar Fire destroyed almost 28% of the remaining habitat that the USFWS believed to be suitable for the coastal California gnatcatcher (Bond and Bradley 2003). The fires throughout the County in October 2007 also decimated many acres of coastal sage scrub occupied by California Gnatcatchers. The extent of damage to the California Gnatcatcher population is unknown at this time.

Coastal California Gnatcatchers have historically been detected at the Preserves. Currently, most of the coastal sage scrub is not appropriate for this species and if

it is appropriate it is isolated from other patches. This species has high potential to occur as it previously inhabited the area but current conditions do not support high potential for the species to occur. As the coastal sage scrub recovers and California Gnatcatchers inhabit the nearby coastal sage scrub, this species will have high potential to occur at the Preserves.

Grasshopper Sparrow (*Ammodramus savannarum*)

State Species of Concern, San Diego County Group I, MSCP Covered Species

The Grasshopper Sparrow is endemic to native grasslands and only the subspecies *Ammodramus savannarum perpallidus* has been collected in California (Unitt 2004). Native grasslands are a quickly diminishing resource in San Diego County and a low number of individuals will continue to persist in areas with non-native grass species (Unitt 2004). Urban development is the leading threat to this species. Grasshopper Sparrows have been documented in the vicinity prior to the Cedar Fire (Unitt 2004). Within the Preserves this species has a high potential to occur in areas with native grasses.

4.6 Small Mammal Trapping

In total, ten small mammal species were recorded at the Preserves during small mammal trapping and other surveys (Tables 9 and 10). These species were detected through capture, direct observation or sign. The trapping results indicate that the Preserve has good abundance and species diversity of small mammals with 230 captures and seven species (Table 9). The species detected are commonly found in the habitats found on the Preserve.

Table 9. Trapline Capture Summary for 2008

Scientific Name	Common Name	Special Status	Trapline Number 1	2	3	4	5	Total
Chaetodipus californicus femoralis	Dulzura Pocket Mouse	CSC, CSDS Group II	9 ♂ 9 ♀ 2 esc		2 ♀	5 ♂ 3 ♀	4 ♂ 2 ♀	18 ♂ 16 ♀ 2 esc
Dipodomys simulans (=*Dipodomys agilis simulans*)	Dulzura Kangaroo Rat		6 ♀		17 ♂ 25 ♀	5 ♂ 10 ♀	25 ♂ 18 ♀	47 ♂ 59 ♀
Peromyscus californicus insignis	California Mouse			8 ♂			3 ♂ 3 ♀	11 ♂ 3 ♀
Peromyscus fraterculus (=*Peromyscus eremicus fraterculus*)	Northern Baja Mouse					17 ♂ 15 ♀	6 ♂ 6 ♀	23 ♂ 21 ♀
Peromyscus maniculatus gambelii	American Deer Mouse				1 ♀ 1 esc	7 ♂ 5 ♀	2 ♂ 1 ♀	9 ♂ 7 ♀ 1 esc
Neotoma fuscipe macrotis	Dusky-footed Woodrat				1 ♀			1 ♀
Neotoma lepida intermedia	San Diego Desert Woodrat	CSC, CSDS Group II			1 ♀		1 ♂ 10 ♀	1 ♂ 11 ♀
Total			**26**	**8**	**48**	**67**	**81**	**230**

Legend:

♂ = male, ♀ = female, and esc = escaped prior to determining sex

Special Status: CSC= California Species of Concern, CSDS= County of San Diego Sensitive Animal

Table 10. Small Mammals Detected through Other Survey Methods at the Preserves in 2008

Scientific Name	Common Name	Special Status	Vegetation Communities	Method of Detection
Notiosorex crawfordi	Desert Shrew		chaparral	captured in pitfall array
Spermophilus beecheyi nudipes	California Ground Squirrel		all communities	visual, sign, camera station
Microtus californicus	California Vole		chaparral	captured in pitfall array

4.6.1 Special-Status Small Mammals

Sensitive species captured consist of Dulzura Pocket Mouse (*Chaetodipus californicus femoralis*) and San Diego Desert Woodrat (*Neotoma lepida intermedia*). Sensitive species with potential to occur consist of Northwestern San Diego Pocket Mouse (*Chaetodipus fallax fallax*).

Special-Status Small Mammal Species Observed

Dulzura Pocket Mouse *(Chaetodipus californicus femoralis)*

State Species of Special Concern, San Diego County Group II

Dulzura Pocket Mouse is mainly active on the ground, but also climbs shrubs and small trees when feeding (CDFG 2005). This species can become torpid by day at any time of the year, and is inactive in cold wet weather. It breeds in spring to early summer and occurs from sea level to approximately 2,408 m (7,900 ft) AMSL (CDFG 2005). This species prefers dense chaparral and is less common in dry grassland and desert scrub. During the 2008 trapping program on the Preserve, 36 of the 230 animals captured were Dulzura Pocket Mouse.

San Diego Desert Woodrat (*Neotoma lepida intermedia*)

San Diego Desert Woodrat requires large amounts of water, which it obtains from fleshy plants such as *Yucca* species and Prickly Pear Cactus (*Opuntia* sp.). It usually makes a stick house under one of these food plants, or may den among rocks (CDFG 2005). House materials include cacti, sticks, bones and a variety of debris. Houses provide insulation against excessive heat as well as protection from predators. This species breeds in late winter or spring, occurs from sea level to approximately 2,591 m (8,500 ft) AMSL in deserts and coastal sage scrub, and prefers areas with rocky outcrops and plentiful succulents (CDFG 2005). During the 2008 trapping program on the Preserve, 12 of the 230 animals captured were San Diego Desert Woodrat.

Special-Status Small Mammal Species not Observed but a with High Potential to Occur

Northwestern San Diego Pocket Mouse (*Chaetodipus fallax fallax*)

State Species of Special Concern, San Diego County Group II

The Northwestern San Diego Pocket Mouse is typically found in coastal sage scrub, sage scrub/grassland ecotones, and chaparral (Dudek 2000). It inhabits open, sandy areas of both the Upper and Lower Sonoran areas of southwestern California and northern Baja California (Dudek 2000). This species is sensitive to habitat fragmentation and degradation, which has led to its decline. This species has potential to occur in sage scrub and chaparral habitats on the Preserves.

4.7 Medium and Large Mammals

4.7.1 Camera Tracking Stations

Evaluation of the images captured at the five camera stations resulted in the identification of the following five species of medium to large mammals: Desert Cottontail (*Sylvilagus audubonii*), Black-tailed Jackrabbit (*Lepus californicus*), Coyote (*Canis latrans*), Bobcat (*Felis rufus*), and Southern Mule Deer (*Odocoileus hemionus fuliginata*) (Table 11, Appendix B). See Figure 5 for camera station locations.

4.7.2 Track and Sign Surveys

A total of nine mammal species were detected in the Preserves through tracks, sign, and nocturnal surveys including: Desert Cottontail, Black-tailed Jackrabbit, Domestic Dog (*Canis familiaris*), Coyote, Common Raccoon (*Procyon lotor*), Common Gray Fox (*Urocyon cinereoargenteus*), Bobcat, Domestic Horse (*Equus caballus*), and Southern Mule Deer (Table 11, Appendix B). One additional species [Mountain Lion (*Puma concolor*)] was detected by Park Rangers in 2008. 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 was within natural communities with cover, especially chaparral.

Other species not detected but judged to have high potential to occur based on previously documented observations include Opossum (*Didelphis virginiana*) and Long-tailed Weasel (*Mustela frenata*) (CBI 2003). These species were recorded by the San Diego Tracking Team (SDTT) during a focused study of wildlife corridor movement conducted within the Preserves from 2000 to 2002.

Due to the proximity to large amounts of open space and the presence of potentially suitable habitat, the following species may also utilize the Preserves: Brush Rabbit (*Sylvilagus bachmani*), Striped Skunk (*Mephitis mephitis*), and Western Spotted Skunk (*Spilogale gracilis*).

Sycamore Canyon and Goodan Ranch Preserves serve as important connections to other large open space preserves including MCAS Miramar, MTRP, and Iron Mountain. SDTT has documented the use of a number of wildlife crossings that surround the Preserves including a few along State Route 67 to the east and underneath Scripps Poway Parkway to the north. Certainly it can be assumed that larger mammals regularly move on, off of, and across the Preserves, to and from adjacent open space.

Table 11. Medium and Large Mammals Detected at the Preserves in 2008

Scientific Name	Common Name	Special Status	Vegetation Communities	Method of Detection
Sylvilagus audubonii	Desert Cottontail		all communities	visual, sign, camera station
Lepus californicus	San Diego Black-tailed Jackrabbit	CSC, CSDS Group II	all communities	visual, sign, camera station
**Canis familiaris*	Domestic Dog		all communities	visual, sign
Canis latrans	Coyote		all communities	visual, sign, camera station
Urocyon cinereoargenteus	Common Gray Fox		all communities	visual, sign
Procyon lotor	Common Raccoon		riparian associated communities	visual, sign
Lynx rufus	Bobcat		all communities	visual, sign, camera station
**Equus caballus*	Domestic Horse		all communities	sign
Odocoileus hemionus	Southern Mule Deer	MSCP, CSDS Group II	all communities	visual, sign, camera station

Legend:

*=non-native species

Special Status: CSC= California Species of Special Concern, MSCP= Multiple Species Conservation Program Covered Species, CSDS= County of San Diego Sensitive Animal

4.7.3 Special-Status Medium and Large Mammal Species

Two special-status medium or large mammal species were detected during the surveys: San Diego Black-tailed Jackrabbit and Southern Mule Deer.

Special-Status Medium and Large Mammal Species Observed

San Diego Black-tailed Jackrabbit (*Lepus californicus*)

State Species of Special Concern, San Diego County Group I

The San Diego Black-tailed Jackrabbit is a large, long legged hare, with distinctive long ears and a blackish tail (Whitaker 1996). The Black-tailed Jackrabbit inhabits a wide range of habitats, including deserts, irrigated croplands, high mountains to 2,500 m (8,200 ft), and is commonly found in the western U.S. to Mexico and Baja California. The San Diego County population is found mostly on the coastal side of the local mountains in open habitats, usually avoiding dense stands of chaparral or woodlands (Stephenson and Calcarone 1999).

This species has been declining due to urban development, habitat loss, and fragmentation leading to population isolation (Dudek 2000). The Preserves support a healthy population of San Diego Black-tailed Jackrabbits. During the 2008 surveys this species was documented throughout the Preserves.

Southern Mule Deer *(Odocoileus hemionus fuliginata)*

San Diego County Group II, MSCP Covered Species

Southern Mule Deer are common across the western U.S. in a variety of habitats from forest edges to mountains and foothills (Whitaker 1996). Southern Mule Deer prefer edge habitats, rarely travel or forage far from water and are most active around dawn and dusk. Southern Mule Deer were documented throughout the Preserves and are known to use the wildlife corridors along State Route 67 to the east and beneath Scripps Poway Parkway to the north.

Special-Status Medium and Large Mammal Species not Observed but with a High Potential to Occur

Mountain Lion (*Puma concolor*)

San Diego County Group II, MSCP Covered Species

Mountain Lions prefer rocky areas, cliffs, and ledges that provide cover within open woodlands and chaparral (Dudek 2000). Riparian areas also provide protective habitat connections for movement between fragmented habitats. This species is widespread in North and South America and occupies a broad variety of habitats from the northern limit of the Canadian forests to Patagonia in South America. Populations of this species require large areas (at least 850 square miles) to sustain themselves (Dudek 2000).

Habitat fragmentation, loss of large areas of undeveloped land, road kills, indiscriminate shootings, animal control measures, and loss of natural prey base have led to the decline of this species. Mountain Lion was not detected during the baseline surveys performed by ICF Jones & Stokes during the 2008 survey season; however, this species was detected on two separate occasions by Park Rangers in 2008. The Preserves are part of a large contiguous tract of undeveloped land that provides suitable conditions for this wide-ranging species.

4.8 Bats

A total of 11 bat species were detected during the three seasons of bat monitoring (spring, summer, and fall of 2008) (Table 12). Ten species were detected using passive Anabats and one additional species was detected during an active survey. The most active bat species detected were the Yuma Myotis (*Myotis yumanensis*), Mexican Free-tailed Bat (*Tadarida brasiliensis*), and Pocketed Free-tailed Bat (*Nyctinomops femorosaccus*). Species detected infrequently consisted of Small-footed Myotis (*Myotis ciliolabrum*), Hoary Bat (*Lasiurus cinereus*), and Big Free-tailed Bat (*Nyctinomops macrotis*). One additional bat species, California Myotis (*Myotis californicus*), was detected with an Anabat during the single active foraging bat survey conducted on August 20, 2008. Three species were detected during all three seasons of monitoring: Yuma Myotis, Pocketed Free-tailed Bat, and Mexican Free-tailed Bat. Two species were detected only during the spring, Hoary Bat and Big Free-tailed Bat, suggesting they may be spring migrants to the area. Three species were detected only during the summer: Small-footed Myotis (*Myotis ciliolabrum*), Big Brown Bat (*Eptesicus fuscus*), and Western Mastiff Bat (*Eumops perotis*). Lastly, one species, the Western Red Bat (*Lasiurus blossevvillii*), was detected only during the fall.

A moderate number of bat species appear to be supported by the Sycamore Canyon and Goodan Ranch Preserves. The Preserves are fairly diverse and

contain habitat features important to bats in the southern California landscape such as riparian vegetation, oak woodland, and scrub vegetation (Krutzsch 1948, Stokes et al 2005).

Table 12. Bat Species detected at the Preserves in 2008

Bat Species			Relative Activity Index*			Average Activity Index**
Scientific Name	**Common Name**	**Special Status**	**Spring**	**Summer**	**Fall**	
Myotis californicus	California Myotis		Detected during active survey only			
Myotis ciliolabrum	Small-footed Myotis	CSDS Group II	nd	3.33	nd	1.11
Myotis yumanensis	Yuma Myotis	CSDS Group II	16.67	86.67	18.33	40.56
Lasiurus blossevillii	Western Red Bat	CSC, CSDS Group II	nd	nd	8.33	2.78
Lasiurus cinereus	Hoary Bat		3.33	nd	nd	1.11
Parastrellus hesperus	Canyon Bat		nd	10.00	26.67	12.22
Eptesicus fuscus	Big Brown Bat		nd	3.33	nd	1.11
Tadarida brasiliensis	Mexican Free-tailed Bat		60.00	53.33	15.00	42.78
Nyctinomops femorosaccus	Pocketed Free-tailed Bat	CSC, CSDS Group II	520.00	23.33	26.67	190.00
Nyctinomops macrotis	Big Free-tailed Bat	CSDS Group II	3.33	nd	nd	1.11
Eumops perotis	Western Mastiff Bat	CSC, CSDS Group II	nd	3.33	nd	1.11

Legend:

nd = not detected

* Number of bat passes per Anabat night X 10

** Average of seasonal measures of relative activity for each bat species detected

Special Status:

CSC= California Species of Special Concern, CSDS= County of San Diego Sensitive Animal

4.8.1 Special-Status Bat Species

The following six sensitive species were detected during the surveys: Small-footed Myotis, Yuma Myotis, Western Red Bat, Pocketed Free-tailed Bat, Big-free Tailed Bat, and Western Mastiff Bat. The Preserves provide suitable roosting and foraging opportunities for a number of sensitive bat species and appear to be extremely important for bats in the region.

Special-Status Bat Species Observed

Small-footed Myotis (*Myotis ciliolabrum*)

San Diego County Group II

The Small-footed Myotis is found throughout most of western North America, from southwestern Canada south into Mexico (BCI 2008). There is not much information on the habitat requirements of this species, but it has been documented under rock slabs and in crevices, mine tunnels, under loose tree bark, and in buildings (BCI 2008). This species hibernates in caves, typically in small groups. Reasons for decline are poorly understood as there has been little research conducted on this species. Both suitable roosting and foraging habitat for the Small-footed Myotis occur in the Preserves.

Yuma Myotis *(Myotis yumanensis)*

San Diego County Group II

The Yuma Myotis is found throughout much of the western U.S. and up into Canada (BCI 2008). The species is always found near lakes, creeks or ponds where the species forages over the water. Typically, individuals skim low over the water and snatch up flying insects but they can forage in other mesic areas. The species roosts by day usually in buildings or bridges but has also been documented using mines or caves (BCI 2008). Yuma Myotis are threatened by loss of riparian habitat and the decline in permanent water sources in the southwest. The Yuma Myotis is likely not roosting on the Preserves. The individuals detected are using the Preserves as a place to forage.

Western Red Bat *(Lasiurus blossevillii)*

State Species of Special Concern, San Diego County Group II

Western Red Bats are found from southern Canada, throughout the U.S., all the way down to South America (BCI 2008). Several species in the genus *Lasiurus* are commonly referred to as "tree bats" because they roost only in tree foliage. The Western Red Bat is a typical tree bat, with a close association with cottonwoods (*Populus* sp.) and riparian areas (BCI 2008). Like all tree bats, this species is solitary, coming together only to mate and to migrate. Western Red Bats typically forage along forest edges, in small clearings, or around street-lights where they prefer moths (BCI 2008). Although largely undocumented, this species' decline appears to be in part due to the loss of lowland riparian forests in the Southwest. Both suitable roosting and foraging habitat for the Western Red Bat occur in the Preserves.

Pocketed Free-tailed Bat (*Nyctinomops femorosaccus*)

State Species of Special Concern, San Diego County Group II

Pocketed Free-tailed Bats are rarely found in southwestern California. These bats live in arid desert areas and roost in crevices high on cliff faces in rugged canyons (BCI 2008). Nursery colonies are relatively small and usually include fewer than 100 individuals. This species primarily forages on large moths, especially over water. The regional status and species trends are unclear, but it is likely vulnerable to disturbance, especially at roosts, and perhaps also to threats to food supply from man-made toxins. The Pocketed Free-tailed Bat is likely not roosting on the Preserves as there are no cliffs. The individuals detected are using the Preserves for foraging.

Big Free-tailed Bat (*Nyctinomops macrotis*)

San Diego County Group II

Big Free-tailed Bats are typically found in desert and arid grasslands with rocky out-crops, canyons, or cliffs (BCI 2008). This species roosts on cliffs and occasionally in buildings. Isolated populations can be found throughout the southwestern U.S. into Mexico. The regional status and species trends are unclear, but it is likely vulnerable to disturbance, especially at roosts, and perhaps also to threats to food supply from man-made toxins. The Big Free-tailed Bat is likely not roosting on the Preserves as there are no cliffs. The individuals detected are using the Preserves to forage.

Western Mastiff Bat *(Eumops perotis)*

State Species of Special Concern, San Diego County Group II

Western Mastiff Bats are the largest native bats in the U.S. This subspecies occurs from the western foothills of the Sierra Nevada and the coastal ranges (south of San Francisco Bay) southward into Mexico (BCI 2008). In southern California, they are found throughout the coastal lowlands up to drier mid-elevation mountains, but avoid the Mohave and Colorado deserts (Zeiner et al. 1990). Habitats include dry woodlands, shrublands, grasslands, and occasionally even developed areas. This bat forages in flight and most prey species are relatively small, low to the ground, and weak-flying.

For roosting, Western Mastiff Bats appear to favor rocky, rugged areas in lowlands where abundant suitable crevices are available for day roosts (BCI 2008). Roost sites may be in natural rock or in tall buildings, large trees or elsewhere. The reasons for this species' decline are poorly understood but probably are related to disturbance, habitat loss, and perhaps widespread use of pesticides. The Western Mastiff Bat is likely not roosting on the Preserves as there are no cliffs. The individuals detected are using the Preserves for foraging.

Special-Status Bat Species not Observed but with a High Potential to Occur

Townsend's Big-eared Bat (*Corynorhinus townsendii*)

State Species of Special Concern, San Diego County Group II

Townsend's Big-eared Bat occurs throughout the drier portions of California (Zeiner et al. 1990). It is non-migratory and hibernates from approximately October through April. A wide variety of natural communities are occupied but mesic sites are preferred. They capture a variety of prey while in flight, which is slow and maneuverable, and they are capable of hovering (Zeiner et al. 1990). The species is known to roost predominantly in caves but will use lava tubes, mines, tunnels, buildings and other man-made structures (BCI 2008). They are extremely sensitive to disturbance at their roosting sites and have suffered severe population declines throughout much of the U.S. (BCI 2008). The Townsend's Big-eared Bat may forage over the Preserves.

Pallid Bat *(Antrozous pallidus)*

State Species of Special Concern, San Diego County Group II

Pallid bats are widely distributed in the southwestern U.S. and northern Mexico (BCI 2008). They are locally common across most of California except in the far northwest and in higher portions of the Sierra Nevada. Habitats utilized include a wide variety of grasslands, shrublands, woodlands, and forests, including mixed conifer forest (Zeiner et al. 1990). They appear to be most common in open, dry, rocky lowlands and they roost in caves, mines, as well as crevices in rocks, buildings and trees. This is a colonial species that forages low over open ground, often picking up beetles and other species of prey off the ground (Zeiner et al. 1990). Flight is slow and maneuverable, and they are able to take a wide variety of prey, including large, hard-shelled insects (Zeiner et al. 1990). They have separate night and day roosts, hibernate in winter, and the sexes segregate in summer. Both suitable roosting and foraging habitat for the Pallid Bat occurs in the Preserves.

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5.0 Conclusions and Management Recommendations

The current surveys documented 10 land cover types and 483 species within the Preserves. The surveys detected 313 plant species, 73 bird species, 30 mammal species (11 bats, ten small mammals, and nine medium and large bodied mammals), 18 herptiles (two amphibian and 16 reptiles), and 46 invertebrate species. This list includes 32 special-status species of which 12 are MSCP-covered species (9 wildlife and 3 plants). Three additional reptile species and one additional mammal species were detected by Park Rangers in 2008. Of these four species, three are sensitive and one is an MSCP-covered Species (Mountain Lion).

Specific management recommendations are provided for the various taxonomic groups assessed during this survey effort. In addition to these management recommendations we also recommend implementing the monitoring protocols addressed in the Biological Monitoring Plan for the MSCP (Monitoring Plan) (Ogden 1996) as appropriate within the Preserves. The Monitoring Plan identifies three types of MSCP biological monitoring including 1) habitat monitoring, 2) corridor monitoring, and 3) covered species monitoring.

Habitat monitoring is designed to focus on three areas including 1) permanent habitat loss as a result of development; 2) temporary habitat changes as a result of natural events (e.g., fires and flooding); and 3) loss of habitat value as a result of edge effects or other human related impacts.

Corridor monitoring within the Monitoring Plan is designed to assess utilization of key habitat linkages within the MSCP. Specifically the use of animal sign (track and scat) and visual sightings shall be used to determine presence of focal species.

Covered species monitoring within the Monitoring Plan is designed to identify 1) short term threats to species persistence and 2) longer-term trends that may suggest declining populations. Specifically, the covered species monitoring will 1) document protection of covered species; 2) document changes in preserved populations; 3) include collection of new biological data, 4) include evaluation of impacts of land uses; and 5) include evaluation of management activities within the Preserves.

Four MSCP monitoring locations are identified in the Monitoring Plan as occurring within Sycamore Canyon. This includes a grassland monitoring

location (H-14) and three covered plant species monitoring locations (P-13, P-14, P-15). In addition, the County is required to monitor the sttaus of MSCP-covered species that occur within the Preserves.

It should be noted that that the Monitoring Plan is in the process of being revised by the USFWS (Animal Monitoring Protocol) and the U.S. Geological Service (USGS) (Plant Monitoring Protocol). The revised Animal Monitoring Protocol covers the following species: California Gnatcatcher, Coastal Cactus Wren, Light-footed Clapper Rail, Tricolored Blackbird, Southwestern Willow Flycatcher, Burrowing Owl, California Least Tern, Thorne's Hairstreak, Wandering Skipper, and San Diego and Riverside Fairy Shrimp. The revised Plant Monitoring Protocol covers all of the MSCP-covered plant species.

5.1 Flora

It is recommended that the County maintain an updated vegetation community map to be used as a tool for adaptive management within the Preserves. The purpose of the ongoing mapping effort should be to document changes in the vegetation communities within the Preserves that could affect quality and usage by wildlife. Vegetation mapping/monitoring should also address habitat value for special-status plant species. Special-status plant species detected during the 2008 surveys consist of: San Diego Thornmint, Small Flowered Morning Glory, Palmer's Grappling Hook, Variegated Dudleya, Willowy Monardella, Graceful Tarplant, California Adder's Tongue and Palmer's Sagebrush. In addition, three of these special-status plant species are MSCP-covered species: San Diego Thornmint, Variegated Dudleya and Willowy Monardella. Periodic botanical surveys are recommended to monitor the special-status species detected in the Preserves. Such surveys would ideally occur during years of average or above-average rainfall in order to maximize detection.

MSCP monitoring requirements for San Diego Thornmint, Variegated Dudleya and Willowy Monardella include implementing site specific monitoring per the MSCP Monitoring Plan and in addition will adhere to the revised Plant Monitoring Protocol currently in preparation by USGS. The Monitoring Plan specifically identifies three monitoring sites within Sycamore Canyon including monitoring site P-13 for San Diego Thornmint, P-14 for Willowy Monardella and P-15 for Variegated Dudleya. The P-15 site is identified by the plan as occurring within Sycamore Canyon but it is unclear if this location is within the Preserve boundaries. Large populations of Variegated Dudleya are known to occur in Sycamore Canyon south of the Preserve.

Vegetation monitoring for habitat value should be focused to identify adverse changes and their effects on the vegetation over time. This includes dramatic changes such as fire, as well as slower but equally important effects such as invasion by non-natives or slow decline of existing species. The Preserves should be managed for the benefit of special-status species and MSCP-covered species without substantive efforts to alter or restrict the natural course of ecosystem development and dynamics.

Due to the Preserve's close proximity to rural residential development a fire management plan should be completed in order to establish appropriate limited building zones and fuel modification zones along the perimeter of the Preserves.

As detailed in Section 4.1.12 several patches of Pampas Grass and Fan Palms occur within Sycamore Canyon Creek and these are California Invasive Plant Council (Cal-IPC) priority species for control (Table 13). It is recommended that these patches of be removed from the Preserves. These enhancement efforts will increase habitat quality within Sycamore Canyon Creek.

Table 13. Non-native Plants with Highest Priority for Control on the Preserves

Species	Cal-IPC Status
Pampas Grass (*Cortaderia selloana*)	High
Mexican Fan Palm (*Washintonia robusta*)	Moderate

5.2 Invertebrates

Although no Quino Checkerspot or other special-status butterflies were observed on the Preserves in 2008, there is potential for their occurrence. Periodic surveys for Quino and Hermes Copper are recommended. In addition, other butterflies and invertebrates were observed. Quino as well as many common butterflies are known to exhibit "hilltopping" behavior. This behavior was observed on the Preserves at various rock outcrops at high points on the hills. Therefore, planned trails and public vistas should not be installed, or should be installed with minimal disturbance, on the highest points of hills.

Centipedes, tarantulas, scorpions, ants, wasps, bees, and other venomous invertebrates are common within the Preserves. Ticks are also likely to occur. Signs should be posted to alert Preserve users of their presence, recommending avoidance and providing information on what to do in case of a bite or sting.

5.3 Herpetofauna

The Preserves support several special-status herpetofauna species that will likely be encountered by the public on the roads and trails and off trails in the natural communities. These include Red Diamond Rattlesnake, Western Spadefoot, Orange-throated Whiptail and San Diego Horned Lizard, which are commonly found on roads and trails and may burrow within loose sand along the roads. Orange-throated Whiptail and San Diego Horned Lizard are both MSCP-covered species. Signs should be posted to inform Preserve users to stay on roads and trails and to avoid wildlife when encounters occur in order to reduce negative effects on the species listed above and other special-status herptiles. It should also be clear to Preserve users that animal collecting is prohibited.

MSCP monitoring requirements for the Orange-throated Whiptail and the San Diego Horned Lizard include implementing site specific trapping for presence/absence at 12 locations within the plan area. None of these trapping locations occur within the Preserves; although, the County will monitor for these lizard's using the pitfall trapping locations described in Section 3.3.1 that were used for the baseline surveys.

Western Spadefoots are presumed to inhabiting the large sandy wash near the middle of the Sycamore Canyon Preserve and may be present in other areas with loose soils within the Preserves. Disturbance or development of sandy or loose soil areas within the Preserves should be avoided.

Many of the reptiles, most notably Granite Night Lizard, are dependent on the rock features of the Preserves. These features are vulnerable to disturbance and damage by rock climbing, as well as those who would vandalize the exfoliating rock, potentially resulting in loss of important microhabitat features. Monitoring should be performed to confirm damage is not occurring due to rock climbing, collecting, or vandalism.

Rattlesnakes occur within the Preserves and were observed on or near roads and trails on several occasions during the 2008 fieldwork. Signs should be posted to alert Preserve users of rattlesnake presence, recommending avoidance and providing information on what to do in case of a bite.

5.4 Birds

Avian diversity on the Preserves reflects robust integrity. A total of 73 bird species was documented on the Preserves; these include fifteen sensitive species but only six are MSCP-covered species: Northern Harrier, Cooper's Hawk, Golden Eagle, Burrowing Owl, Western Bluebird, and Southern California Rufous-crowned Sparrow. MSCP monitoring requirements for Western Bluebird, Southern California Rufous-crowned Sparrow, Cooper's Hawk, Northern Harrier and Golden Eagle include implementing habitat-based monitoring for each species. The Monitoring Plan also requires site specific nest\territory monitoring for the Cooper's Hawk, Northern Harrier and Golden Eagle.

The MSCP has monitoring requirements for the Burrowing Owl. These include implementing site specific monitoring at 10 locations within the plan area and implementing ASMDs including protection of nesting sites from human disturbance during the reproductive season, predator control and specific measures to protect against detrimental edge effects. The Preserves do support approximately 254 acres of grassland (native and non-native), the preferred habitat of this species. As the 2008 observation was of a migrant owl and breeding was not documented in 2008 and has not been documented in the vicinity of the Preserves since before 1997 (Unitt 2004), there is low potential for this species to currently breed on the Preserves. During periodic avian surveys, attention should be paid to the grasslands and any large burrows that may be

found in the area to determine if Burrowing Owl is using the Preserve for breeding. If the species is found breeding, the MSCP site specific management directives should be implemented.

The natural resources found at Sycamore Canyon and Goodan Ranch Preserves, which provide habitat for numerous bird species, are vulnerable to alteration from invasive plants, from additional fires at short intervals, and from increased development in the surrounding areas. The latter is likely to lead to increased numbers of European Starlings, American Crows (*Corvus brachyrhynchos*), and Western Scrub-jays (*Aphelocoma californica*). Though the latter two species are native, artificially elevated populations of these aggressive nest predators can lead to high nest mortality rates among other native birds.

Coastal California Gnatcatchers have historically been observed at the Preserves. Protocol surveys should be conducted once the coastal sage scrub has recovered to a level that is suitable for this species.

Both quantitative and qualitative monitoring of bird populations by qualified personnel is recommended. Quantitative monitoring can consist, for example, of maintaining the avian point counts. If necessary for budgetary reasons, they could be conducted at less frequent intervals (e.g., every other month), or only periodically (e.g., every other year). The accumulation of data over time will prove extremely valuable to identify trends in bird populations both at the Preserve and across the region.

Qualitative monitoring can range from informal efforts, such as compiling a bird checklist for the Preserves and soliciting new or interesting observations, to intensive efforts such as encouraging research use of the Preserves. It is important to recognize that the avifauna of the Preserves will naturally change over time, due to regional effects, climate change, and natural turnover. Without monitoring, there is potential for the Preserves to be managed for resources no longer present, or in conflict with resources present but unrecognized.

5.5 Small Mammals

Habitat fragmentation is a leading cause in the decline of small mammal populations in species with low mobility (Vander Haegen et al. 2001). Patches of habitat occupied by sensitive species should be connected to wildlife corridors (such as riparian areas) to allow individuals to disperse and not become isolated and vulnerable. Future plans for the Preserves should address the potential isolation and genetic flow effects it may have on small mammal populations.

The small mammal species captured or observed at the Preserves are associated with shrub- and grass-dominated habitats. Habitat conservation is the primary way to protect small mammal populations from decline. Habitats found on the Preserves should not be degraded through activities such as off-road or off-trail use, conversion to other vegetation types, or the spraying of insecticides for insect control (i.e., ants or mosquitoes). Insectivorous mammal species are

sensitive to the use of insecticides and if these methods are proposed for use in control of pest insect species, other alternatives should be explored.

Small mammal trapping is recommended to occur within the Preserves once every five years or after any large scale disturbances (e.g. fire, flood).

5.6 Medium to Large Mammals

Sycamore Canyon and Goodan Ranch Preserves help connect large amounts of open space and serve as an important corridor for wildlife movement between MCAS Miramar, MTRP, and Iron Mountain. Maintaining/improving movement connections between these areas will be an important consideration over time, especially if traffic volumes increase along State Route 67 and Scripps Poway Parkway. Specific attention should be given to areas where wildlife crossings could be added or improved where they currently exist. Specific measures may include monitoring to ensure that crossings are free of debris, sediment build up, and are not so dense with vegetation that they inhibit animal movement. To compliment these efforts and to help maintain the habitat value, trash removal and programs/signage that help educate the local residents about the need to protect wildlife corridors should be put in place.

Southern Mule Deer was the only MSCP-covered mammal species detected during the field surveys by ICF Jones & Stokes biologists. MSCP monitoring requirements for Southern Mule Deer include monitoring suitable habitat and wildlife corridor sites within the MSCP. As detailed above, the Preserves have the potential to serve as an important corridor for wildlife movement between adjacent open space areas. Although the Preserves are not identified within the Monitoring Plan as either a habitat or corridor monitoring location, monitoring for medium and large mammals will include periodic sampling at the camera stations used during this study.

There were two sightings of Mountain Lion in the Preserves in 2008. If Mountain Lion is identified during corridor monitoring for Southern Mule Deer, population monitoring will include implementing habitat-based corridor monitoring.

Due to the proximity to residential development, species such as domestic dogs and cats are likely to be found utilizing the Preserves. Both of these species have the potential to negatively impact the native species by introducing disease, or simply causing the native species to avoid portions of the Preserves.

5.7 Bats

The following item is recommended to maintain and increase the habitat suitability for bats within the Preserves.

- Maintain riparian and oak woodland vegetation – these habitats are likely very important to both foraging and roosting bats.

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Appendix A

Vascular Plant Species Observed within the Sycamore Canyon & Goodan Ranch Preserves in 2008

Scientific Name	Common Name	Status
Selaginellaceae - Spike-Moss Family		
Selaginella bigelovii	Bigelow's spike-moss	
Selaginella cinerascens	Mesa spike-moss	
Ophioglossaceae - Adder's Tongue Family		
Ophioglossum californicum	California adder's tongue	CNPS List 4, CSDS Group D
Polypodiaceae - Polypody Family		
Polypodium californicum	California polypody	
Pteridaceae - Brake Family		
Pentagramma triangularis ssp. triangularis	California goldenback fern	
Aizoaceae - Fig-Marigold Family		
**Mesembryanthemum crystallinum*	Crystalline iceplant	
**Mesembryanthemum nodiflorum*	Slender-leaf iceplant	
Amaranthaceae - Amaranth Family		
**Amaranthus albus*	White tumbleweed	
Anacardiaceae - Sumac or Cashew Family		
Malosma laurina	Laurel sumac	
Rhus integrifolia	Lemonadeberry	
Rhus ovata	Sugar bush	
**Schinus molle*	Peruvian pepper tree	
**Schinus terebinthifolius*	Brazilian pepper tree	
Toxicodendron diversilobum	Western poison-oak	
Apiaceae (Umbelliferae) - Carrot Family		
Apiastrum angustifolium	Wild celery	
**Apium graveolens*	Common celery	
Daucus pusillus	Rattlesnake weed	
**Foeniculum vulgare*	Sweet fennel	
Lomatium dasycarpum ssp. dasycarpum	Woolly-fruit lomatium	
Lomatium lucidum	Shiny lomatium	
Sanicula arguta	Sharp-tooth sanicle	
Sanicula bipinnatifida	Purple sanicle	
Sanicula crassicaulis	Pacific sanicle	
Tauschia arguta	Southern tauschia	
Apocynaceae - Dogbane Family		
**Vinca major*	Greater periwinkle	
Asclepiadaceae - Milkweed Family		
Asclepias californica	California/round-hood milkweed	
Asclepias eriocarpa	Kotolo/indian milkweed	
Asteraceae (Compositae) - Sunflower Family		
Achillea millefolium	Yarrow, milfoil	
Acourtia microcephala	Sacapellote	
Ambrosia psilostachya	Western ragweed	
Artemisia californica	California sagebrush	
Artemisia douglasiana	Douglas mugwort	
Artemisia dracunculus	Tarragon, dragon sagewort	
Artemisia palmeri	Palmer's sagewort	CNPS List 4, CSDS Group D

Scientific Name	Common Name	Status
Baccharis salicifolia	Mule-fat, seep-willow	
Baccharis sarothroides	Broom baccharis	
Brickellia californica	California brickellbush	
**Centaurea melitensis*	Tocalote	
Chaenactis artemisiifolia	Artemisia pincushion	
**Chrysanthemum coronarium*	Garland/crown daisy	
**Cirsium vulgare*	Bull thistle	
**Conyza bonariensis*	Flax-leaf fleabane	
Conyza canadensis	Horseweed	
Deinandra fasciculata	Fascicled tarweed	
Encelia californica	California encelia	
Erigeron foliosus	Leafy daisy	
Eriophyllum confertiflorum var. confertiflorum	Long-stem golden-yarrow	
Filago californica	California filago	
**Filago gallica*	Narrow-leaf filago	
Gnaphalium bicolor	Bicolor cudweed	
Gnaphalium californicum	California everlasting	
Gnaphalium canescens ssp. beneolens	Fragrant everlasting	
Gutierrezia sarothrae	Broom matchweed/snakeweed	
Hazardia squarrosa var. grindelioides	Sawtooth goldenbush	
**Hedypnois cretica*	Crete hedypnois	
Helianthus gracilentus	Slender sunflower	
Heterotheca grandiflora	Telegraph weed	
Holocarpha virgata ssp.	Graceful tarplant	CNPS List 4, CSDS Group D
Isocoma menziesii var. menziesii	Spreading goldenbush	
Lasthenia californica	Common goldfields	
Lasthenia coronaria	Southern goldfields	
Lessingia filaginifolia var. filaginifolia	California-aster	
Osmadenia tenella	Osmadenia	
**Picris echioides*	Bristly ox-tongue	
Pluchea odorata	Salt marsh fleabane	
Rafinesquia californica	California chicory	
Rafinesquia neomexicana	Desert chicory	
Senecio californicus	California butterweed	
**Senecio vulgaris*	Common groundsel	
Solidago californica	California goldenrod	
Stephanomeria virgata ssp. virgata	Virgate wreath-plant	
**Taraxacum officinale*	Common dandelion	
Uropappus lindleyi	Silver puffs	
Xanthium strumarium	Cockelbur	
Boraginaceae - Borage Family		
Amsinckia menziesii var. intermedia	Rancher's fiddleneck	
Cryptantha intermedia	Nievitas cryptantha	
Harpagonella palmeri	Palmer's grappling-hook	CNPS List 4, CSDS Group D
Heliotropium curassavicum	Salt heliotrope	
Pectocarya linearis ssp. ferocula	Slender pectocarya	

Scientific Name	Common Name	Status
Brassicaceae (Cruciferae) - Mustard Family		
**Brassica nigra*	Black mustard	
Lepidium nitidum	Shining peppergrass	
**Hirschfeldia incana*	mustard	
**Raphanus sativus*	Wild radish	
**Sisymbrium irio*	London rocket	
Thysanocarpus curvipes [T. c. var. elegans]	Lacepod, fringepod	
Cactaceae - Cactus Family		
Cylindropuntia prolifera	Coast cholla	
Opuntia littoralis	Coast prickly-pear	
Caprifoliaceae [incl. Adoxaceae] - Honeysuckle Family		
Lonicera subspicata var. denudata	Southern honeysuckle	
Sambucus mexicanus	Blue elderberry	
Caryophyllaceae - Pink Family		
**Silene gallica*	Common catchfly	
Silene laciniata ssp. major	Southern pink	
**Spergula arvensis ssp. arvensis*	Stickwort, starwort	
**Spergularia bocconii*	Buccone's sand-spurry	
**Stellaria media*	Common chickweed	
Chenopodiaceae - Goosefoot Family		
**Atriplex semibaccata*	Australian saltbush	
Convolvulaceae - Morning-Glory Family		
Calystegia macrostegia	Morning-glory	
Convolvulus simulans	Small flowering morning glory	CNPS List 4, CSDS Group D
Crassulaceae - Stonecrop Family		
Crassula connata	Pygmy weed	
Dudleya edulis	Ladies' fingers	
Dudleya lanceolata	Dudleya	
Dudleya variegata	Variegated dudleya	CNPS List 1B, MSCP, CSDS Group A
Cuscutaceae - Dodder Family		
Cuscuta californica var. californica	Dodder	
Ericaceae - Heath Family		
Arctostaphylos glauca	Manzanita	
Xylococcus bicolor	Mission manzanita	
Fabaceae (Leguminosae) - Legume Family		
Lotus hamatus	Grab lotus	
Lotus scoparius var. scoparius	Coastal deerweed	
Lotus strigosus		
Lupinus bicolor	Miniature lupine	
Lupinus hirsutissimus	Stinging lupine	
Lupinus microcarpus var. densiflorus	Chick lupine	
Lupinus truncatus	Collar lupine	
**Medicago polymorpha*	California burclover	
**Melilotus alba*	White sweetclover	
**Melilotus indica*	Indian sweetclover	
Trifolium willdenovii	Valley clover	

Scientific Name	Common Name	Status
Fagaceae - Oak Family		
Quercus agrifolia var. agrifolia	Coast live oak, encina	
Quercus berberidifolia	Scrub oak	
Gentianaceae - Gentian Family		
Centaurium venustum	Canchalagua	
Geraniaceae - Geranium Family		
**Erodium botrys*	Long-beak filaree/storksbill	
**Erodium cicutarium*	Red-stem filaree/storksbill	
**Geranium carolinianum*	Carolina geranium	
Grossulariaceae - Gooseberry Family		
Ribes indecorum	White flower currant	
Ribes speciosum	Fuschia-flower gooseberry	
Hydrophyllaceae - Waterleaf Family		
Emmenanthe penduliflora	Whispering bells	
Phacelia cicutaria var. hispida	Caterpillar phacelia	
Phacelia distans	Wild-heliotrope	
Phacelia grandiflora		
Phacelia minor	Wild canterbury-bell	
Phacelia parryi		
Pholistoma auritum var. arizonicum	Fiesta flower	
Pholistoma membranaceum		
Lamiaceae (Labiatae) - Mint Family		
Acanthomintha ilicifolia	San Diego thornmint	FT, SE, CNPS List 1B, MSCP, CSDS Group A
**Marrubium vulgare*	Horehound	
Monardella linoides ssp. viminea	Willowy monardella	FE, SE, CNPS List 1B, MSCP, CSDS Group A
Salvia apiana	White sage	
Salvia columbariae	Chia	
Salvia mellifera	Black sage	
Scutellaria tuberosa	Danny's skullcap	
Stachys ajugoides var. rigida	Hedge-nettle	
Malvaceae - Mallow Family		
Malacothamnus fasciculatus	Chaparral bushmallow	
**Malva parviflora*	Cheeseweed	
Myrtaceae - Myrtle Family		
**Eucalyptus sp.*	Gum	
Nyctaginaceae - Four O'clock Family		
Mirabilis laevis var. crassifolia	Coastal wishbone plant	
**Olea europaea*	Olive	
Onagraceae - Evening-Primrose Family		
Camissonia bistorta	California sun cup	
Camissonia californica	False-mustard	
Clarkia purpurea	Four-spot clarkia	
Epilobium canum ssp. canum	California fuschia, zauschneria	
Oenothera elata ssp. hookeri	Great marsh evening-primrose	
Oxalidaceae - Oxalis Family		

Scientific Name	Common Name	Status
Oxalis albicans ssp. californica	California wood-sorrel	
**Oxalis pes caprae*	Bermuda-buttercup	
Paeoniaceae - Peony Family		
Paeonia californica	California peony	
Papaveraceae [incl. Fumariaceae] - Poppy Family		
Eschscholzia californica	California poppy	
Plantaginaceae - Plantain Family		
Plantago erecta	Dwarf plantain	
**Plantago lanceolata*	English plantain, rib-grass	
**Plantago major*	Common plantain	
**Plantago ovata*	Woolly plantain	
**Plumbago auriculata*	Cape leadwort	
Polemoniaceae - Phlox Family		
Gilia angelensis	Grassland gilia	
Linanthus dianthiflorus	Farinose ground pink	
Navarretia hamata ssp. hamata	Hooked skunkweed	
Polygonaceae - Buckwheat Family		
Chorizanthe fimbriata var. fimbriata	Fringed spineflower	
Eriogonum fasciculatum var. fasciculatum	California buckwheat	
**Rumex crispus*	Curly dock	
Portulacaceae - Purselane Family		
Calandrinia ciliata	Red maids	
Claytonia perfoliata ssp. perfoliata	Miner's-lettuce	
Ranunculaceae - Buttercup Family		
Clematis ligusticifolia	Yerba de chiva	
Delphinium cardinale	Cardinal/scarlet larkspur	
Delphinium parryi ssp. parryi	Parry's larkspur	
Rhamnaceae - Buckthorn Family		
Ceanothus leucodermis	Chaparral whitethorn	
Ceanothus oliganthus		
Ceanothus tomentosus	Ramona-lilac	
Rhamnus crocea	Spiny redberry	
Rhamnus ilicifolia	Holly-leaf redberry	
Rosaceae - Rose Family		
Adenostoma fasciculatum	Chamise	
Cercocarpus minutiflorus	San diego mountain-mahogany	
Heteromeles arbutifolia	Toyon, christmas berry	
Prunus ilicifolia ssp. ilicifolia	Islay, holly-leaf cherry	
Rosa californica	California rose	
Rubus ursinus	California blackberry	
Rubiaceae - Madder or Coffee Family		
Galium angustifolium ssp. angustifolium	Narrow-leaf bedstraw	
**Galium aparine*	Common bedstraw, goose grass	
Galium nuttallii ssp. nuttallii	San diego bedstraw	
Salicaceae - Willow Family		
Salix exigua	Narrow-leaf willow	

Scientific Name	Common Name	Status
Salix gooddingii	Goodding's black willow	
Salix laevigata	Red willow	
Salix lasiolepis	Arroyo willow	
Scrophulariaceae - Figwort Family		
Antirrhinum coulterianum	Coulter's snapdragon	
Antirrhinum nuttallianum ssp. nuttallianum	Nuttall's snapdragon	
Castilleja exserta ssp. exserta	Purple owl's-clover	
Keckiella antirrhinoides var. antirrhinoides	Yellow bush penstemon	
Linaria canadensis	Large blue toadflax	
Mimulus aurantiacus	Coast monkey flower	
Mimulus brevipes	Slope semiphore	
Mimulus cardinalis	Scarlet monkey flower	
Mimulus guttatus	Seep monkey flower	
Pedicularis densiflora	Indian warrior	
Penstemon spectabilis var. spectabilis	Showy penstemon	
**Veronica anagallis-aquatica*	Water speedwell	
Solanaceae - Nightshade Family		
**Solanum nigrum*	Black nightshade	
Solanum parishii	Parish's nightshade	
Tamaricaceae - Tamarisk Family		
**Tamarix ramosissima*	Tamarisk, salt-cedar	
Urticaceae - Nettle Family		
Urtica dioica ssp. holosericea	Hoary nettle	
**Urtica urens*	Stinging nettle	
Violaceae - Violet Family		
Viola pedunculata	Johnny jump-up	
Agavaceae - Agave Family		
Yucca schidigera	Mohave yucca	
Yucca whipplei Torrey	Our lord's candle	
Alliaceae - Onion Family		
Allium praecox	Early onion	
Arecaceae (Palmae) - Palm Family		
Washingtonia filifera	California fan palm	
Cyperaceae - Sedge Family		
Carex spissa	San diego sedge	
Cyperus esculentus	Yellow nutsedge	
Eleocharis macrostachya	Pale spike-sedge	
Eleocharis montevidensis	Dombey's spike-sedge	
Eleocharis parishii	Parish's spike-sedge	
Chlorogalum pomeridianum	Soap-plant, amole	
Iridaceae - Iris Family		
Sisyrinchium bellum	Blue-eyed-grass	
Juncaceae - Rush Family		
Juncus bufonius var. bufonius	Toad rush	
Juncus mexicanus	Mexican rush	
Juncus textilis	Basket rush	

Scientific Name	Common Name	Status
Liliaceae - Lily Family		
Calochortus splendens	Splendid mariposa lily	
Calochortus weedii var. weedii	Weed's mariposa lily	
Fritillaria biflora var. biflora	Chocolate lily	
Melanthiaceae - Bunch Flower or Camas Family		
Zigadenus fremontii	Fremont's camas	
Poaceae (Gramineae) - Grass Family		
Achnatherum coronatum	Giant stipa	
**Avena barbata*	Slender wild oat	
Bothriochloa barbinodis	Cane bluestem	
Bromus carinatus var. carinatus	California brome	
**Bromus diandrus*	Ripgut grass	
**Bromus hordeaceus*	Soft chess	
**Cortaderia selloana*	Selloa pampas grass	
**Cynodon dactylon*	Bermuda grass	
**Hordeum murinum ssp. leporinum*	Hare barley	
Leymus triticoides	Beardless wild ryegrass	
**Lolium multiflorum*	Italian ryegrass	
Melica imperfecta	Coast range melic	
Muhlenbergia microsperma	Littleseed muhly	
Muhlenbergia rigens	Deergrass	
Nassella lepida	Foothill needlegrass	
Nassella pulchra	Purple needlegrass	
**Pennisetum setaceum*	African fountain grass	
**Poa annua*	Annual bluegrass	
**Polypogon monspeliensis*	Annual beard grass	
**Schismus barbatus*	Mediterranean schismus	
**Vulpia myuros var. myuros*		
Themidaceae - Brodiaea Family		
Bloomeria crocea ssp. crocea	Common goldenstar	
Dichelostemma capitatum ssp. capitatum	Blue dicks	
Muilla maritima	Common muilla	
Typhaceae - Cattail Family		
Typha latifolia	Broad-leaf cattail	

Legend:

Status:

CNPS List – California Native Plant Society

1B – Rare, threatened or endangered in California and elsewhere

2 – Rare, threatened or endangered in California but more common elsewhere

3 – May be rare but more research needed to determine true status

4 – Limited distribution and are uncommon but not presently rare or endangered

MSCP = Multiple Species Conservation Program Covered Species

San Diego County Group

A – Rare, threatened or endangered in California and elsewhere

Scientific Name	Common Name	Status
B – Rare, threatened or endangered in California but more common elsewhere		
C – Maybe quite rare, but more information is needed to determine their status		
D – Limited distribution and are uncommon but not presently rare or endangered		
References		
Scientific and common names are from Hickman (1993) and Skinner and Pavlik (1994). Additional common plant names are taken from Abrams (1923, 1944), Abrams and Ferris (1960), Beauchamp (1986), McAuley (1996), Munz (1974), Skinner and Pavlik (1994) and Simpson and Rebman (2006).		

Appendix B

Wildlife Species Detected at Sycamore Canyon & Goodan Ranch Preserves in 2008

Scientific Name	Common Name	Method of Detection	Special Status
INVERTEBRATES			
Butterflies			
Anthocharis cethura	Desert Orangetip	X	
Anthocaris sara	Sara's Orangetip	X	
Apodemia mormo virgulti	Behr's Metalmark	X	
Callophrys affinis perplexa	Perplexing Hairstreak	X	
Callophyrys augustinus	Brown Elfin	X	
Chlosyne gabbii	Gabb's Checkerspot	X	
Colias eurytheme	Orange Sulfur	X	
Erynnis funeralis	Funereal Duskywing	X	
Glaucopsyche lygdamus australis	Southern Blue	X	
Heliopetes ericetorum	Northern White-skipper	X	
Icaricia acmon	Acmon Blue	X	
Junonia coenia	Common Buckeye	X	
Nathalis iole	Dainty sulfur	X	
Nymphalis antiopa	Mourning Cloak	X	
Papillo eurymedon	Pale Swallowtail	X	
Papillo rutulus	Western Tiger Swallowtail	X	
Papillo zelicaon	Anise Swallowtail	X	
**Pieris rapae*	Cabbage White	X	
Pontia protodice	Checkered/Common White	X	
Pontia sisymbrii	Spring White	X	
Pyrgus albescens	White Checkered Skipper	X	
Vanessa annabella	West Coast Lady	X	
Vanessa atalanta	Red Admiral	X	
Vanessa cardui	Painted Lady	X	
Other Invertebrates			
Anuroctonus sp.	Burrowing Scorpion	XT	
Aphonopelmus eutylenum	Tarantula	XT	
Apis mellifera	European Honey Bee	XT	
Armadillidium vulgare	Pill Bug	XT	
Calosoma pustulosis	Common Calosoma	XT	
Centhophilus californicus	Camel Cricket	XT	
Cratidus osculans	Wooly Darkling Beetle	XT	
Paruroctonus silvestrii	Common California Scorpion	XT	

Scientific Name	Common Name	Method of Detection	Special Status
Dasymutilla gloriosa	Ashy-Gray Velvet Ant	XT	
Dasymutilla sp.	Red Velvet-Ant	XT	
Eleodes sp.	Stink Beetle	XT	
Gryllus sp.	Field Cricket	XT	
Hemipepsis sp.	Tarantula Hawk	XT	
Hyles lineata	White-Lined Spinx Moth	XT	
Latrodectus hesperus	Black Widow	XT	
Okanagana sp.	Cicada	XT	
Pardosa sp.	Wolf Spider	XT	
Phloeodes pustulosis	Ironclad Beetle	XT	
Scolopendra polymorpha	Centipede	XT	
Stenopelmatus sp.	Jerusalem Cricket	XT	
Strigamia sp.	Soil Centipede	XT	
Trimerotropis pallidipennis	Pallid-Winged Grasshopper	XT	
HERPTILES			
Pseudacris regilla [*Hyla regilla*]	Pacific Chorus Frog	X	
Spea hammondii [*Scaphiopus hammondii*]	Western Spadefoot	XT	CSC, CSDS Group II
Elgaria multicarinata	Southern Alligator Lizard	XT	
Phrynosoma coronatum blainvillii	San Diego Horned Lizard	XT	CSC, MSCP, CSDS Group II
Sceloporus occidentalis	Western Fence Lizard	XT	
Sceloporus orcutti	Granite Spiny Lizard	XT	
Uta stansburiana	Side-blotched Lizard	XT	
Eumeces gilberti	Gilbert's Skink	XT	
Eumeces skiltonianusinterparietalis	Coronado Skink	XT	CSC, CSDS Group II
Cnemidophorus hyperythus	Orange-throated Whiptail	XT	CSC, MSCP, CSDS Group II
Cnemidophorus tigris stejnegeri	Coastal Western Whiptail	XT	CSDS Group II
Xantusia henshawi	Granite Night Lizard	X	
Charina trivirgata roseofusca	Coastal Rosy Boa	PC	CSDS Group II
Lampropeltis getula	Common Kingsnake	X	
Pituophis catenifer	Gopher Snake	X	
Salvadora hexalepis vigultea	Coastal Patch-nosed Snake	X	CSC, CSDS Group II

Scientific Name	Common Name	Method of Detection	Special Status
Thamnophis hammondii	Two-striped Garter Snake	PC	CSC, CSDS Group I
Crotalus mitchellii	Speckled Rattlesnake	PC	
Crotalus oreganus helleri	Western Rattlesnake	XT	
Crotalus ruber	Red Diamond Rattlesnake	X	CSC, CSDS Group II
Hypsiglena torquata	Night Snake	XT	
BIRDS			
Callipepla californica	California Quail	X	
Cathartes aura	Turkey Vulture	X	CSDS Group I
Pandion haliaetus	Osprey	X	CSDS Group I
Elanus leucurus	White-tailed Kite	X	CFP, CSDS Group I
Circus cyaneus	Northern Harrier	X	CSC, MSCP, CSDS Group I
Accipiter cooperii	Cooper's Hawk	X	MSCP, CSDS Group I
Buteo lineatus	Red-shouldered Hawk	X	CSDS Group I
Buteo jamaicensis	Red-tailed Hawk	X	
Aquila chrysaetos	Golden Eagle	X	CFP, MSCP, CSDS Group I
Falco sparverius	American Kestrel	X	
Zenaida macroura	Mourning Dove	X	
Geococcyx californianus	Greater Roadrunner	X	
Tyto alba	Barn Owl	X	CSDS Group II
Megascops kennicottii	Western Screech-Owl	X	
Bubo virginianus	Great Horned Owl	X	
Athene cunicularia	Burrowing Owl	X	CSC, MSCP, CSDS Group I
Chordeiles acutipennis	Lesser Nighthawk	X	
Phalaenoptilus nuttallii	Common Poorwill	X	
Chaetura vauxi	Vaux's Swift	X	CSC
Aeronautes saxatalis	White-throated Swift	X	
Archilochus alexandri	Black-chinned Hummingbird	X	
Calypte anna	Anna's Hummingbird	X	
Calypte costae	Costa's Hummingbird	X	
Melanerpes formicivorus	Acorn Woodpecker	X	
Picoides nuttallii	Nuttall's Woodpecker	X	

Scientific Name	Common Name	Method of Detection	Special Status
Colaptes auratus	Northern Flicker	X	
Empidonax difficilis	Pacific-slope Flycatcher	X	
Sayornis nigricans	Black Phoebe	X	
Sayornis saya	Say's Phoebe	X	
Myiarchus cinerascens	Ash-throated Flycatcher	X	
Tyrannus vociferans	Cassin's Kingbird	X	
Vireo huttoni	Hutton's Vireo	X	
Aphelocoma californica	Western Scrub-Jay	X	
Corvus brachyrhynchos	American Crow	X	
Corvus corax	Common Raven	X	
Eremophila alpestris actia	California Horned Lark	X	CSDS Group II
Stelgidopteryx serripennis	Northern Rough-winged Swallow	X	
Petrochelidon pyrrhonota	Cliff Swallow	X	
Hirundo rustica	Barn Swallow	X	
Psaltriparus minimus	Bushtit	X	
Sitta carolinensis	White-breasted Nuthatch	X	
Salpinctes obsoletus	Rock Wren	X	
Thryomanes bewickii	Bewick's Wren	X	
Troglodytes aedon	House Wren	X	
Polioptila caerulea	Blue-gray Gnatcatcher	X	
Sialia mexicana	Western Bluebird	X	MSCP, CSDS Group II
Chamaea fasciata	Wrentit	X	
Mimus polyglottos	Northern Mockingbird	X	
Toxostoma redivivum	California Thrasher	X	
**Sturnus vulgaris*	European Starling	X	
Phainopepla nitens	Phainopepla	X	
Vermivora celata	Orange-crowned Warbler	X	
Dendroica coronata	Yellow-rumped Warbler	X	
Geothlypis trichas	Common Yellowthroat	X	
Wilsonia pusilla	Wilson's Warbler	X	
Icteria virens	Yellow-breasted Chat	X	CSC, CSDS Group I
Pipilo maculatus	Spotted Towhee	X	
Pipilo crissalis	California Towhee	X	

Scientific Name	Common Name	Method of Detection	Special Status
Aimophila ruficeps canescens	Southern California Rufous-crowned Sparrow	X	MSCP, CSDS Group I
Spizella atrogularis	Black-chinned Sparrow	X	
Pooecetes gramineus	Vesper Sparrow	X	
Chondestes grammacus	Lark Sparrow	X	
Amphispiza belli	Sage Sparrow	X	CSDS Group I
Melospiza melodia	Song Sparrow	X	
Pheucticus melanocephalus	Black-headed Grosbeak	X	
Passerina caerulea	Blue Grosbeak	X	
Passerina amoena	Lazuli Bunting	X	
Agelaius phoeniceus	Red-winged Blackbird	X	
**Molothrus ater*	Brown-headed Cowbird	X	
Icterus cucullatus	Hooded Oriole	X	
Icterus bullockii	Bullock's Oriole	X	
Carpodacus mexicanus	House Finch	X	
Carduelis psaltria	Lesser Goldfinch	X	
MAMMALS			
Notiosorex crawfordii	Desert Shrew	XT	
Myotis californicus	California Myotis	X	
Myotis ciliolabrum	Small-footed Myotis	X	CSDS Group II
Myotis yumanensis	Yuma Myotis	X	CSDS Group II
Parastrellus hesperus	Canyon Bat	X	
Eptesicus fuscus	Big Brown Bat	X	
Lasiurus blossevillii	Western Red Bat	X	CSC, CSDS Group II
Lasiurus cinereus	Hoary Bat	X	
Tadarida brasiliensis	Mexican free-tailed bat	X	
Nyctinomops femorosaccus	Pocketed Free-tailed Bat	X	CSC, CSDS Group II
Nyctinomops macrotis	Big Free-tailed bat	X	CSDS Group II
Eumops perotis	Western Mastiff Bat	X	CSC, CSDS Group II
Sylvilagus audubonii	Desert Cottontail	XSC	
Lepus californicus	San Diego Black-tailed Jackrabbit	XSC	CSC, CSDS Group II
Spermophilus beecheyi	California Ground Squirrel	XSC	

Scientific Name	Common Name	Method of Detection	Special Status
Chaetodipus californicus femoralis	Dulzura Pocket Mouse	T	CSC, CSDS Group II
Dipodomys simulans	Dulzura Kangaroo Rat	T	
Peromyscus californicus	California Mouse	T	
Peromyscus fraterculus [Peromuscus eremicus]	Northern Baja Mouse	T	
Peromyscus maniculatus gambelii	American Deer Mouse	T	
Neotoma macrotis	Large-eared Woodrat	T	
Neotoma lepida intermedia	San Diego Desert Woodrat	T	CSC, CSDS Group II
Microtus californicus	California Vole	X	
**Canis familiaris*	Domestic Dog	X	
Canis latrans	Coyote	XSC	
Urocyon cinereoargenteus	Common Gray Fox	XS	
Procyon lotor	Common Raccoon	XS	
Puma concolor [*Felis concolor*]	Mountain Lion	PC	MSCP, CSDS Group I
Lynx rufus [*Felis rufus*]	Bobcat	XSC	
**Equus caballus*	Domestic Horse	XS	
Odocoileus hemionus fuliginata	Southern Mule Deer	XSC	MSCP, CSDS Group II

Legend:

*=invasive or non-native species

Observed or Detected: X = detected, T = trapped or captured, C = camera station, S = sign, PC = personal communication

Special Status: FE= Federally Endangered, FT=Federally Threatened, SE= State Endangered, CSC= California Species of Special Concern, CFP= California Fully Protected, MSCP= Multiple Species Conservation Program Covered Species, CSDS=County of San Diego Sensitive Animal

Appendix C

Focused Protocol Quino Checkerspot Report

QUINO CHECKERSPOT BUTTERFLY
SURVEY REPORT
FOR SYCAMORE CANYON/GOODAN RANCH PRESERVES
CALIFORNIA

Prepared for:

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

Prepared by:

ICF Jones & Stokes
9775 Businesspark Avenue
San Diego, CA 92131

July 2008

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I. SUMMARY

Surveys were conducted in the spring of 2008 for the Sycamore Canyon Preserve and Goodan Ranch Preserve in San Diego County, California. Surrounding land uses include residential and ranch land in southern Poway to the north, Miramar Camp Elliot to the west, Miramar and a concrete mine to the south, and undeveloped land and State Route 67 to the east.

Sycamore Canyon Preserve supports southern mixed chaparral, coastal sage chaparral scrub, southern coast live oak riparian woodland, native grasslands, open coast live oak woodland, and non-native grassland. Goodan Ranch borders Sycamore Canyon Preserve on the west and supports similar vegetation communities, but also includes a historic ranch house, ranger station, and maintained agricultural land. Both Preserves include several graded dirt roads and hiking trails. Both Preserves were evaluated and surveyed for Quino together and will be referred to collectively as the "Preserve". The entire Preserve burned in the 2003 Cedar Fire.

Due to the large size of the Preserve and budget constraints surveys were not conducted at the protocol level. Instead, the entire Preserve was evaluated, and more time and consideration was given to the areas with the highest probability of supporting Quino. All areas that supported appropriate habitat for Quino were rated according to probabilities and findings in order to maximize survey effort and support future surveys.

A total of five weekly surveys were conducted over the course of the flight season (March 6 - April 23, 2008). Quino checkerspot butterflies were not detected during the five focused surveys. Potential host plants observed on site include dwarf plantain (*Plantago erecta*) and purple owl's-clover (*Castilleja exserta ssp. exserta*). A total of twenty-four butterfly species, including Gabb's checkerspot, Behr's metalmark, Sara's orangetip, painted lady, brown elfin, pale swallowtail and perplexing hairstreak, were observed during the surveys.

II. INTRODUCTION

ICF Jones & Stokes conducted surveys to determine presence/absence of the Quino checkerspot butterfly (*Euphydryas editha quino*) (Quino) and to identify appropriate habitat within the Sycamore Canyon/Goodan Ranch Preserve (Preserve), located west of State Route 67 (SR-67) between the Cities of Poway and Santee in San Diego County (Figures 1 and 2). A total of five weekly surveys were conducted between March 6 and April 23, 2008 in accordance with the U.S. Fish and Wildlife Service Year 2002 Protocol (USFWS 2002).

A habitat assessment conducted on the Preserve on March 8, 2007, determined that non-excluded areas, as defined by the U.S. Fish and Wildlife Service (USFWS 2002), occur on the property. Excluded areas, not recommended for Quino surveys, are defined as:

- Orchards, developed areas or in-fill parcels largely dominated by non-native vegetation;
- Active/in-use agricultural fields without natural or remnant inclusions of native vegetation; or
- Closed-canopy forest or riparian area, dense chaparral and small openings completely enclosed within a closed-canopy or dense chaparral area.

The excluded areas on site (69 acres) consist of dense riparian or chaparral vegetation, active agriculture, developed areas including the ranger station and parking areas, as well as open water and associated fresh water marsh.

Areas with the highest priority (designated as "High" and shaded green on Figure 3) were hill tops and ridge lines with the presence of dense patches host plants. Areas with medium priority (shaded yellow) consisted of scattered or sparse host plants. Areas with low priority (shaded red) consisted of either open vegetation with no host plants or dense vegetation with only scattered host plants. This report documents the results of the 2008 focused surveys conducted in all the non-excluded areas comprising approximately 1956 acres.

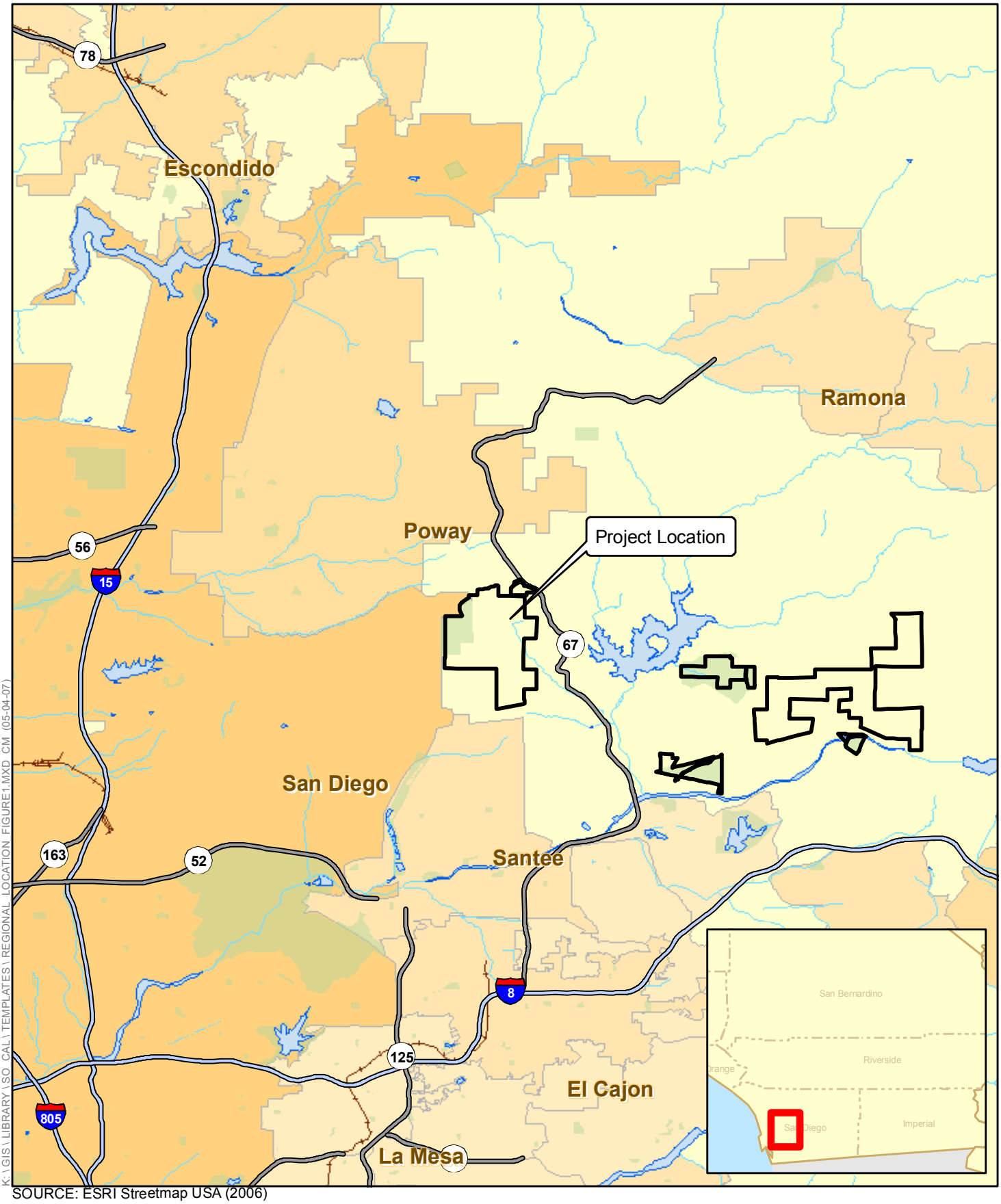
Physical Characteristics

The Preserve is located east of Miramar Camp Elliot between Poway to the north and Santee to the south. The Preserve consists of several hills, ridge lines and valleys on varying-grade slopes with scattered large granitic boulders. Vegetation communities present within the survey areas consist of coastal sage scrub, coastal sage chaparral scrub, southern mixed chaparral, and native and nonnative grassland. The Preserve also includes several graded dirt roads and trails, steel transmission towers, ranger station, historic ranch house and maintained agricultural land. The entire Preserve burned in the 2003 Cedar Fire.

Surrounding land uses include residential and ranch land in southern Poway to the north, Miramar Camp Elliot to the west, Miramar and a concrete mine to the south, and undeveloped land and State Route 67 to the east.

The Preserve is between 640 feet in elevation in the western valley to 1560 feet at the peak along the eastern border approximately 0.25 miles from SR-67. In general, the Preserve is characterized by north–south trending valleys, with moderately steep to very steep slopes on either side. The large valley on the western side of the Preserve serves as the headwaters for Sycamore Canyon Creek, draining to the south and supporting riparian vegetation. All other drainages within the Preserve eventually flow into Sycamore Canyon Creek either on site or to the south of the Preserve.

Twenty-four soil types from twelve soil series, as defined by the U.S. Department of Agriculture, are mapped within the Preserve (Bowman 1973). This includes Arlington coarse sandy loam (2 to 9 percent slopes), Cieneba coarse sandy loam (30 to 65 percent slopes), Cieneba rocky coarse sandy loam (9 to 30 percent slopes), Cieneba very rocky coarse sandy loam (30 to 75 percent slopes), Cieneba-Fallbrook rocky sandy loams (9 to 30 percent), Cieneba-Fallbrook rocky sandy loams (30 to 65 percent), Escondido very fine sandy loam (9 to 15 percent slopes), Escondido very fine sandy loam (15 to 30 percent slopes) , Escondido very fine sandy loam, (5 to 9 percent), Fallbrook sandy loam, (15 to 30 percent slopes), Friant rocky fine sandy loam (9 to 30 percent slopes), Friant rocky fine sandy loam (30 to 70 percent slopes), Huerhuero loam (2 to 9 percent slopes), Huerhuero loam (9 to 15 percent slopes), Las Posas fine sandy loam (15 to 30 percent slopes), Las Posas stony fine sandy loam (30 to 65 percent slopes), Olivenhain cobbly loam (9 to 30 percent slopes), Ramona sandy loam (9 to 15 percent slopes), Redding cobbly loam (15 to 50 percent slopes), Tujunga sand (0 to 5 percent slopes), Visalia sandy loam (0 to 2 percent slopes), Visalia sandy loam (2 to 5 percent slopes), Visalia gravelly sandy loam (2 to 5 percent slopes) and Vista rocky coarse sandy loam (15 to 30 percent slopes). In addition the U.S. Department of Agriculture mapped metamorphic rock land, riverwash, stony land, acid igneous rock land within the Preserve. (Bowman 1973)



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SOURCE: ESRI Streetmap USA (2006)

ICF Jones & Stokes
an ICF International Company

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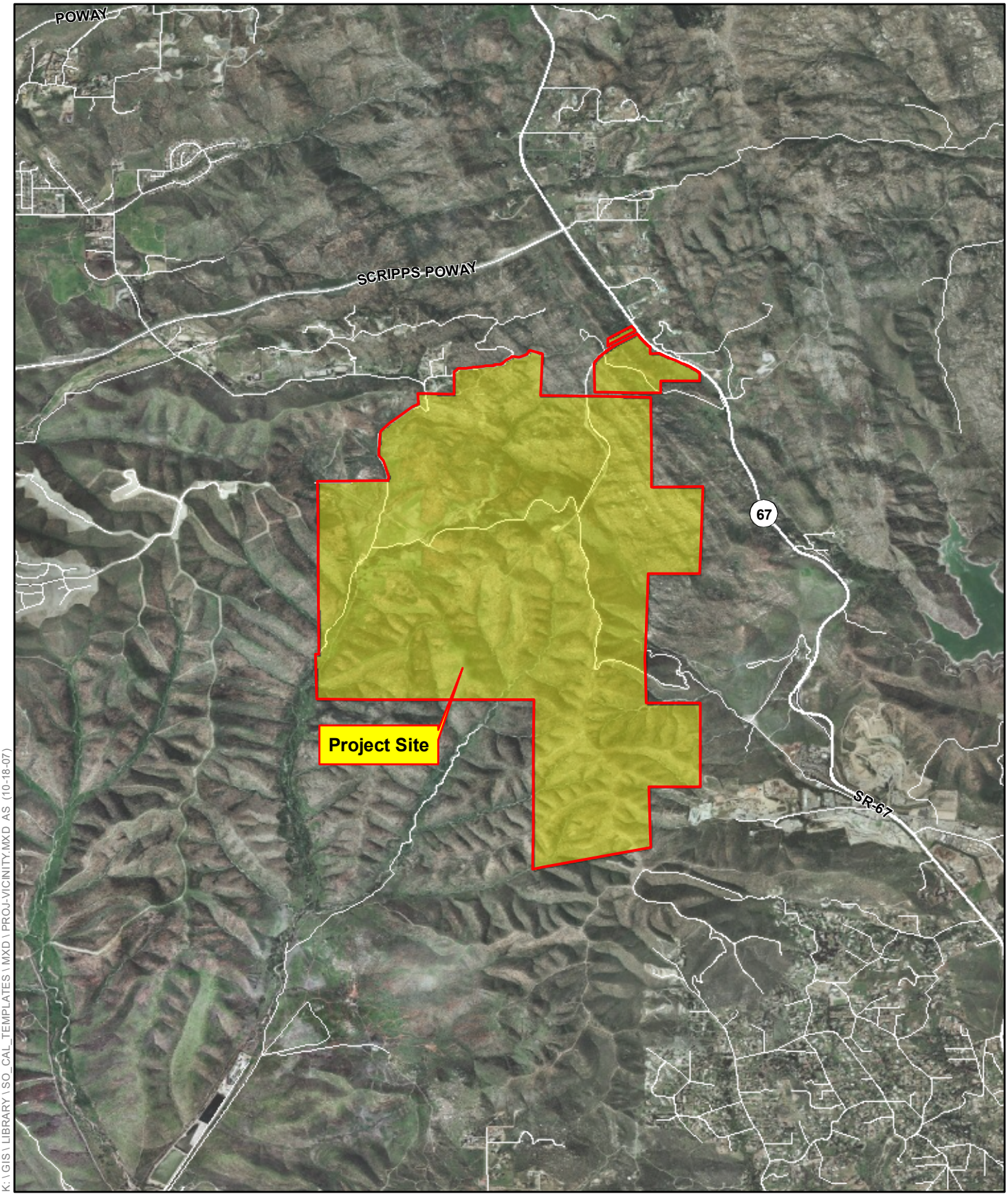
Figure 1
Regional Location
Sycamore Canyon/Goodan Ranch Preserve



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SOURCE: ESRI Imagery

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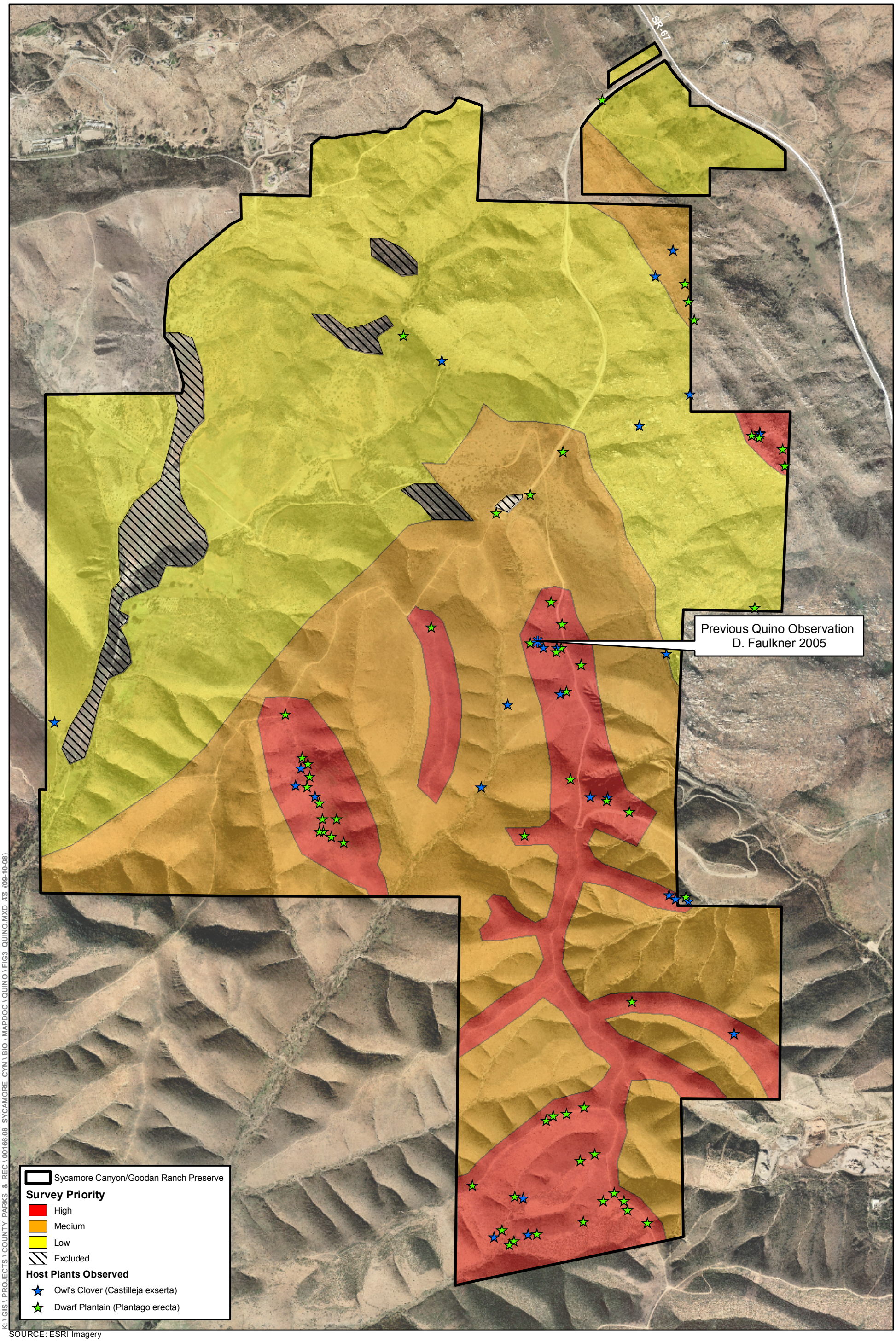
Figure 2
Project Vicinity
Sycamore Canyon/Goodan Ranch Preserve



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N

0 500 1,000 2,000 Feet

Figure 3
Quino Habitat Assessment
Sycamore Canyon/Goodan Ranch Preserve

III. METHODS

Andrew Borcher (Permit No. TE-092162-0), Korey Klutz (Permit No. TE-036065-0), Ted Lee (Permit No. TE-038109-0), Brant Primrose (Permit No. TE-134370-0), Kailash Mozumder (Permit No. TE-168926-0), Autumn Sartain (Permit No. TE-161486-0) and H. Heather (Permit No. TE-038109-0), of ICF Jones & Stokes conducted surveys for adult Quino between March 6 and April 23, 2008. These surveys were conducted on a roughly weekly basis under acceptable weather conditions as defined in the U.S. Fish and Wildlife Service protocol (Table 1) (USFWS 2002). Due to the large size of the survey area several of the surveys were conducted over the course of two days. Approximately 69 acres of dense vegetation, and developed land were excluded from the survey. Each survey involved slowly walking transects throughout non-excluded portions of the property focusing on the highest priority areas shown on Figure 3. The surveys were conducted at an average rate of 15 acres per hour. Surveyors stopped periodically to scan adjacent areas for moving butterflies. All twenty-four butterfly species observed were identified and recorded (Table 2). Copies of daily field notes are provided as an attachment to this report (Attachment 1).

Table 1. Survey Dates and Conditions

Date	Survey Number	Start-End Time	Temperature (Start/Stop, °F)	Wind Speed (mph)	% Cloud Cover	Name of Surveyor
2/19/08	Habitat Assessment	1000-1615	53/57°F	0	100	A. Borcher, K. Klutz, K. Mozumder
2/28/08	Habitat Assessment	0940-1430	63/72°F	0-3	0	A. Borcher, K. Klutz, K. Mozumder
3/6/08	1a	1130-1530	70°F	0-2	0	A. Borcher
3/10/08	1b	1030-1630	72°F	0	0	B. Primrose
3/18/08	2	1030-1630	68/74°F	0-2	0	A. Borcher, K. Klutz, K. Mozumder
3/21/08	3	1000-1545	70/74°F	0-3	0	A. Borcher, K. Klutz, K. Mozumder, T. Lee
3/26/08	4a	0800-1645	64/74°F	0-3	0	A. Borcher, K. Klutz, K. Mozumder
4/7/05	4b	1015-1630	61/68°F	0-8	0/50	A. Borcher, H. Haney, A. Sartain
4/14/08	5a	0930-1630	72/80°F	0-2	0	A. Borcher, K. Mozumder, H. Haney, A. Sartain
4/23/08	5b	1000-1530	68/72°F	0-4	0	A. Borcher

Table 2. Butterflies Observed at the Sycamore Canyon/Goodan Ranch Preserves

Scientific Name	Common Name
Anthocharis cethura	Desert Orangetip
Anthocaris sara	Sara's Orangetip
Apodemia mormo virgulti	Behr's Metalmark
Callophrys affinis perplexa	Perplexing Hairstreak
Callophyrys augustinus	Brown Elfin
Chlosyne gabbii	Gabb's Checkerspot
Colias eurytheme	Orange Sulfur
Erynnis funeralis	Funereal Duskywing
Glaucopsyche lygdamus australis	Southern Blue
Heliopetes ericetorum	Northern White-skipper
Icaricia acmon	Acmon Blue
Junonia coenia	Common Buckeye
Nathalis iole	Dainty Sulfur
Nymphalis antiopa	Mourning Cloak
Papillo eurymedon	Pale Swallowtail
Papillo rutulus	Western Tiger Swallowtail
Papillo zelicaon	Anise Swallowtail
Pieris rapae	Cabbage White
Pontia protodice	Checkered/Common White
Pontia sisymbrii	Spring White
Pyrgus albescens	White Checkered Skipper
Vanessa annabella	West Coast Lady
Vanessa atalanta	Red Admiral
Vanessa cardui	Painted Lady

Reference Site

ICF Jones & Stokes biologist's visited the USFWS Rancho Jamul Quino reference site on a regular basis throughout the 2008 flight season. These visits were part of a 2008 USFWS

previous observation site study throughout Quino's known range. Visits occurred on a weekly basis and included documented weather conditions, all flying adult Quino observed and general host plant and nectar source conditions. All information from the reference site collected during the 2008 season presented in this report was provided to USFWS throughout the season to assist in determining the adult flight season.

The Rancho Jamul reference site is located approximately 2.5 miles east of State Route 94 between Jamul and Dulzura in southern San Diego County. The site was burned during the Harris Ranch fire in the October 2007. The habitat currently supports coastal sage scrub with scattered burned individual shrubs that is traversed by a dirt road and trails.

The reference site was visited from January 30 through April 10, 2008. The majority of the surveys were conducted under acceptable weather conditions as defined in the USFWS protocol (USFWS 2002). Each visit involved slowly walking transects throughout the site. Surveyors stopped periodically to scan adjacent areas for moving butterflies. Adult and/or immature Quino were identified and recorded.

Table 3. Rancho Jamul Reference Site Dates, Conditions and Observations

Date	Start-End Time	Temperature (Start/Stop, °F)	Wind Speed (mph)	% Cloud Cover	Name of Surveyor	Quino Observations
1/30/08	1130-1330	53°F	0-2	50	A. Borcher, K. Mozumder, K. Klutz	1 larva
2/19/08	1000-1130	70°F	0-2	0	A. Borcher, K. Klutz, A. Anderson	1 larva
2/29/08	1015-1200	52/61°F	1-3	100-0	A. Borcher, K. Mozumder, K. Klutz, H. Haney	4 larvae
3/19/08	1245-1345	68°F	2-4	0	A. Borcher, K. Mozumder, K. Klutz	14 adults
3/28/08	0920-1030	64°F	0-1	15	A. Borcher	10 adults
4/4/08	0920-1015	66°F	0-1	0	A. Borcher	6 adults
4/10/08	0920-1020	68°F	0-1	0	A. Borcher	2 adults
4/11/08	1400-1600	77°F	0-1	0	K. Klutz	None

Quino larvae were first observed in late January, but long periods of cool weather in February and March likely prolonged development until the observation of flying adults in mid-March. Subsequently, adult Quino were observed flying at the reference site through March and the first half of April with the peak in abundance near the beginning of the flight season. By April 11, 2008, Quino were no longer observed at the site. The results of our reference site surveys are consistent with other reference sites in the area reported on the USFWS Quino monitoring website (USFWS 2008).

Although no Quino were observed during the surveys at the Preserve, the reference site visits confirmed Quino were actively flying during the majority of the survey dates. Surveys at the Preserve continued beyond the adult Quino flying season at the reference site due to the condition of the host plants.

IV. RESULTS

Twenty-four butterfly species were observed during the five protocol surveys including Gabb's checkerspot, Behr's metalmark, Sara's orangetip, painted lady, brown elfin, pale swallowtail and perplexing hairstreak (Table 2). No adult or immature Quino were detected. Potential host plants observed on site include dwarf plantain (*Plantago erecta*) and purple owl's-clover (*Castilleja exserta ssp. exserta*). Potential nectar sources present and in bloom during the surveys include popcorn flower (*Cryptantha* spp.), deerweed (*Lotus scoparius*), goldfields (*Lasthenia califonrica*), and ground pink (*Linathus dianthiflorus*).

Several areas that have potential to support Quino were identified within the Preserve. These areas were generally on hilltops or ridgelines that supported moderately sparse woody vegetation and dense stands of host plants and nectar flowers. These areas were mapped as high priority and should be focused on during future butterfly surveys.

Although no Quino were observed during the 2008 surveys, one Quino was observed by David Falkner in 2005 on a west-facing slope in the southeastern portion of the Preserve (D. Falkner, personal communication April 8, 2008) (Shown on Figure 3). This exact location and a 50-meter (164-feet) buffer area (plot) were surveyed by ICF Jones & Stokes biologist during each of the five weekly surveys of the Preserve as part of USFWS's 2008 volunteer survey effort. The USFWS 2008 surveys enlisted qualified volunteers to survey all locations with previous observations throughout Quino known range. No Quino were observed in the Preserve plot during any of the five weekly USFWS surveys or during the larger Preserve survey effort that included the plot and surrounding habitat.

The majority of the Preserve surveyed for Quino consists of coastal sage scrub or open coastal sage chaparral scrub. Some of these areas may return to a denser habitat community (chapparal) that will become less likely to support Quino as the woody vegetation continues to recover from the 2003 fires. Other areas support coastal sage scrub or open coastal sage chaparral scrub habitat that appears will stay fairly open and continue to provide habitat for host plants and nectar sources. Given the previous observation of Quino, the abundance of low density habitat within the Preserve, as well as the presence of Quino primary and secondary host plants, the Preserve has high potential for supporting Quino checkerspot butterflies.

V. CERTIFICATION

We certify that the information in this survey report and attached exhibits fully and accurately represent our work.



Korey Klutz (Permit No. TE036065-0)
Biologist
primary reviewer and field surveys



Andrew Borcher (Permit No. TE092162-0)
Biologist
author and field surveys



Brant Primrose (Permit No. TE134370-0)
Biologist
field surveys



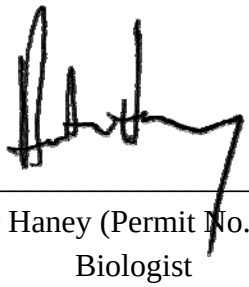
Autumn Sartain (Permit No TE-161486)
Biologist
field surveys



Ted Lee (Permit No. TE-038109)
Biologist
field surveys



Kailash Mozumder (Permit No TE-161486)
Biologist
field surveys



Heather Haney (Permit No. TE-038109)
Biologist

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ATTACHMENT 1

FIELD NOTES

RANCHO JAMUL

2/8/08
A. Borcher
w/ K. Lutz
A. Anderson
M. Klein
70°
Sunny
0-2 mph

LARVA SURVEY

- One larva 15mm on bare ground moving

Dulzura Fuel Break

1200
w/ Klein
70°
0-3 mph

- One 27mm larva feeding on plantago

30-32mm ready to pupate

End 1410

Flowers
Pedicularis
Clarkia

Sycamore Canyon

2/19/08
A. Borcher
w/ K. Klutz
K. Mozumder
Overcast
No wind
10:00
55°

HABITAT ASSESS

- Flowering plantago abundant in some areas.

End 11:15
54°

Other wildlife

BT Jrabb
Hrn lizs
RT Hk
* RC sp
Gr RR
Ca to
Sp to

Bc wr
Coast horn
No Mo

Lesky HH III
Bullseye HH
S. Blue 1
Small 1

Flowers
Cal cil
Lin canad
Eri arg
Chapt
One dom
Dun wil
Lot sco
Sil lac
Shoot stars
Sil carp
plant

Feb 19 2005

Sycamore Canyon / Granite Rock

Habitat assessment Quad

K. Mosander, K. Klute, A. Borden

Start	10:00	52°F	Bright
End	4:15	54°F	"

chocolate Lilly

Hand collected [illegible] pin flags. Many [illegible] SD thousand, weighed Lilly [illegible] Lilly.

Dominant AFDW, cpom sal med, hel sco, lot sco, Micrad CSCS

KDADP[illegible]

Fl[illegible]

Sarcocc vulgare

one dom - flowering

Silene

lot sco

hel sco

shrub, stems

Cal arl

Grid ag

Gre lem

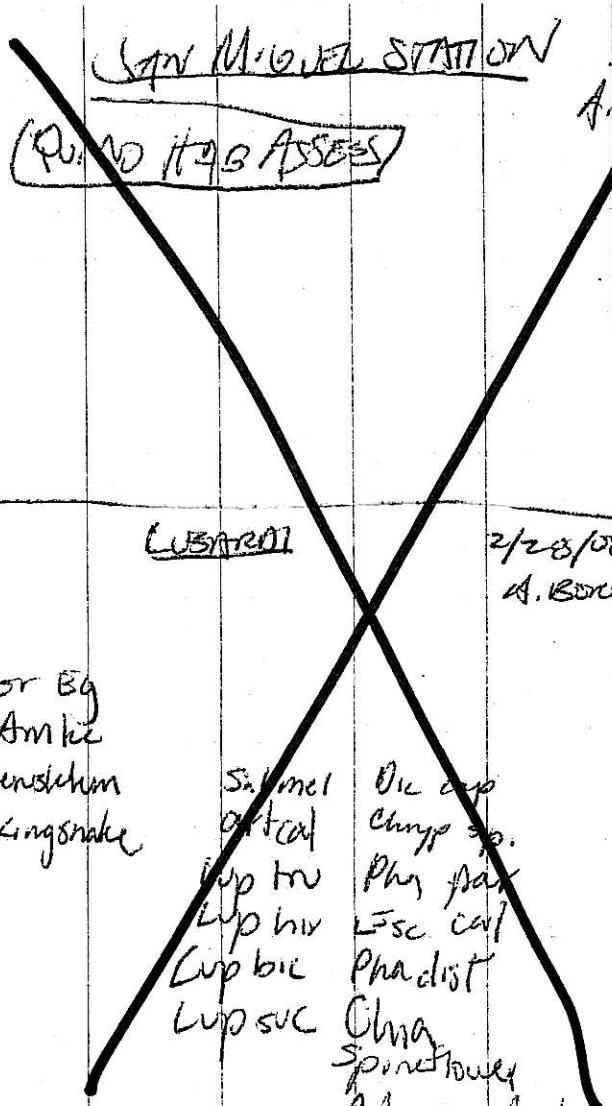
Feb 19th Gathered

B. Mollan

Lad, ~~THH~~

Bukaye III

Ela I



Syn Monitor Station 2/27/08 A. Boretter

(Qu. No Hab Assess)

Control 2/28/08 A. Boretter

Gr Bg
Anlz
Jerusalem
Kingsnake

Salmel
artcal
Lup tru
Lup hir
Lup bic
Lup suc

Dic cup
Chryp sp.
Phy pat
Esc cal
Pha dist
Chia
Spinetlower
Columbines
Sol par

Sycamore Canyon

Habitat Assess

4737

2/28/08
A. Boretter
w/ K. Klatz
w/ K. Metz
R. Richmond
63° Sunny
9:40
No wind

A. Lady HH 1
SD Blue III
Fin duskey 1
Brn elf 1
Purples LHI HHI
Swifts IIII

End 2130
72°
Sunny
Wind 0-3 mph

Other Wildlife
Island night

Flowers

Pha par	Mir lae	Lup hir
Chryp	Dic cup	dal
Phygio	Cam bol	Sol par
Esch cal	Ira dic	Iva pur
Pha dist	Cal cil	Iva cund

2-28-08 K. Mozenter w/
K Kidd, P. Richards, A Borchi
Sycamore Canyon Preserve - Assessment
@ area - Web assessment

Start	09:45	0 sxcc	63°F	0 mph
End	2:30	0 sxcc	72°F	1-3 mph

Brown Elfin V
Southern Blue III
Funereal Duskywing III
Lady III
Green Hairstreak III
Sara Orangetip II
Behrs 1

Flowering plants
pha pac
Fse cal
cryptantha sp
pha distans
rhibes indecorum
chamaesyce
Sperg
Lin dia
Ere con
Dos - Shoreocarpus
cal sil

granite right hand land use road extend from 67

Hooked Master side of preserve

Habitat assessment - race plant
2/25/07 - Sycamore Canyon

CAPP	Dic can
Int sca	Ant cal
mal fas	Ach mil
mar mac	Sal sal
Hel gra	cal mac
Rib ind	Oxa pes
Mal fas	fil gal
Sci tab	Euc cit
Str hey	Gal ver
Pla par	Dau pus
Ach mil	Ach mil
Mim aur	Bac pil
Sci tab	Sen cal
Car con	Ery sim
Tan cri	Euc chr
Xyl bic	Art cal
Ade fas	Gon bic
Hel sca	Gil pri
sch bar	Lup bic

Acaulia ?	lin can
lup bic	cha cap
Ach mil	Ach mil
cca tom	Sal sal
mic lac cca	Eri fas
Esc cal	Rha cat
Sal sal	Nas lep
Hel gra	cal mac
cha act	cli par
cal cil ?	sty bol
cle lig	Ach mil
cla per	Sca can
Euc ber	cer min
Eri fas	pon cla
Gut sca	Cre dum
Col hot	Rum cri
Pen cor	for dil
Per gra	Art cal
Tha fen	Sen vul
lom das	

SYCAMORE CANYON

3/6/08
A. Brenton
11:20
Sunny
70°
0-2 mph wind

QUIND SURVEY / HABAS

Butterflies

Painted Lady	LAT HH HH HH I
Sp blue	HH I
f. Duskywing	HH HH III
Sara's orp	HH HH I
Purplish	II
WC Lady	III
West Swal	I
Behrs	I

End 3:30
70°
Sunny

Flowers

Sweet pea	Platere	
Cam bells	Platora	
Lin chra	Dodicat	
Bish carl	Hopeud	
Col Het	Indian pink	
Chrysanth	Cas exs	
Cot-see	Gilia sp	
Chrea	Pha dis	
Cal cil	Ams mer	
Lin cand	Pha por	
Les carl	Cen tom	
	Rap sat	

Wildlife

Sp to	SB cre
Ho Ln	WF Hz
chuck	BT JACK
WeBl	
Howl	
YR WT	
Am Ke	
Mo Do	

SYC CNY

3/11/08
AB/P.

HERP ARRAY INSTALL

SY-1
OW/CSS INTERFACES

SY-2
Upland Floodplain Sparse SMC / Scrub

SY-3
CSCS South-facing

ST-1
open CSCS N-facing

ST-2
Boulder CSCS E-facing

OO-1 oak w/ CSCS

OO-2 NNE

EC-1 SMC

Sycamore Canyon

QCB 10:30 a.m. BCP 3/10/98

Clear
Sunny skies
72°
No wind

Plantago erecta
Castilleja exserta
Eastwoodia sp.
Lotus scoparius
Linanthus dianthus
Ceanothus tomentosus
Amsinckia sp.

~~IIII IIII~~ Painted lady
~~IIII~~ I Sara orangetip
III Blue
~~IIII~~ Dusky wing
II Pale Swallowtail
IIII Tiger swallowtail

Scatmere Cmn

3/18/08
A. Boettger
44 [illegible]
[illegible]
Sunny
68° 0-2mph

Grave survey

Located:

Ld-1 – NW6 Marsh
Ld-2 – NW6 Valley

Replace MH 11
Sand Chip MH
Tem closing MH 1 MH
Pt. Lesky MH MH MH MH MH MH
So lake MH 11
NE. Lesky MH
Bakers MH
Sorry MH
Anderson MH

End 4:30
2-5 mph
Sunny 70°

Flowers

Coastcos — Cos caud
Hecor — Chas
Chrys. — Nimrado
Cos mel — Lat spic
Lat-stry — Grim
Lat-stry — Ore cap
Solidago — Caesius
Cos cal — Scabiosa lute
Cos cal — Pen cor
Pen gen — Arkwr
Gen lut — Rubo

Chamaebatia

Cos DCO — Rosmar
Hy cal — Ses cus
PCSP
PT HA
G Pa

March 14 K. Mozumder

Black Canyon Bridge

Start	64°F	80%CC	18:40	0 mph	1/4-1/2
End	52°F	[illegible]	20:30	0-2 mph	[illegible]

Inspected crevices that previously had bats, 2-3 [illegible] small crevices. Small amount of droppings below.

Held Belfry instructor to expansion joint + did not detect any roosting bats.

Set detector up w/ light shining on bridge crack + observed

8:49

8:[illegible]

March 18 K. Mozumder w/ A. Burke, L. Klotz

Sycamore Canyon

Start	10:30	0 mph	0% CC	67	
End	4:30 p	2-5 mph		74	

1 towns	
cat scan	
Dic cap	
Chiru	
Cryptolu	
mix lac	
Aed cor	
coll civ	
Small p	
Rosd thy	
Lus. cal	
Pinnipe	

R. Hoffm	
Deltors	I
Peplotrop	IIII
Lady	IIII I
White	IIII
[illegible]	IIII
Sacra	I
Sulphu	I

Sycamore Survey Plot 3/18/08

50-100 plot type 13:30 - 15:45

0-Rock 50-100 0-Grass Forb

Dossing

cryptobiot
lichen
epiphytic
cal hut
dicranum
rhytidium
mnium
ceratodon
funaria
salt cedar

Comments
- Isthmian
Sulgal
hot str
low can
pho dis
cal sill
hd sco
Sc/b Fb

7-12-07 - 1030 : 4:30

Sycamore

67 - 74

Wind 2-5 gust 8mph

KK, AM, KM

Western blue ////

Scrub 11

W.K. White 11

W.K. lady ++++ ++++

Robins +++

Blackbird +++

Duskywing 1

Pale swallowtail

///

Anise swallowtail

11

Funereal Duskywing

////

Peppering 1

Virginia lady 1

7-12-07

wpt 2

#1 count

wpt 3

#2

wpt 4

#1

wpt 5

#2

wpt 6

#2

wpt 7

#1

wpt 8

#1

wpt 9

#1

2/25/08

Lakeside Linkage kick-off

- hist property
- old dairy
- Lakeside HS + society

Korey Ted L
Ted C
Kurt C.
Stacey J
Bill E.
Jennifer Haines
Lyn

El Monte kick-off

Sycamore Canyon Quino

3/21/08 Q2 Korey, Andrew, Kailash, Ted

Start 10 AM
temp: 69
wind: 0-3

end - 4pm
temp - 75°

F. Dusky	4
C. Mint	6
P. Lady	30
Sil Blue	6
Perplex	3
Sara	6
Anica Sval.	2
Checkered Skipper	1
Behris	4
W.C. Lady	12
Pale Swallow	1
Buckeye	3

GPS pts
delete - 1,2
Pl ure - 3,4
Cas ex - 5,7
Lathyrus splen - 6

T. Lee
Quinonte
Syc Can
3.21.08

Sycamore Creek

8/21/09

GROUND SURVEY

M. Bennett
W/ TL, KB, Carl
10:00
70°
Clear/Sunny
0-1 mph

Crabs
Spongeweed ||||
Rambur's beauty |||| |||| |||| |||| |||| |||| |||| ||||
Perlidae |||| |||| |||| |||| |||| ||
WC beauty |||| ||||
Baetis |
Caddis i
So Blue ||
Mayfly
Bivalve |||
Spongeweed |
Buckeye ||
Parkesia |
Sowbug otyp |||
Fish, Rusty |||| |||

End 3:45
74°
clear/sunny
1-3 mph

Flowers

Hydrocotyle	Chrysosplenium	Mimulus
Lobelia	Saxifraga	Castilleja
Dicentra	Heuchera	Solanum
Lotus	Rhamnus	Eschscholzia
Sanicula	Quercus	Lathyrus
Aquilegia	Phacelia	Platystemon
Linanthus	Nemophila	Linanthus
Asteraceae	Lupinus	Linum

March 21 K. Mozumder w / A. Bowles
T. Lee, K. Klotz

Sycamore canyon Oak Flat

10:00	30°F	0%	0-1
3:45	74°F	"	1-3 mph

Flowering Plants

Dic cap
Lot sco
Pla ere
Eroblon
Sal mel
Las cal
Cne dum
Lebra
Chica
Cea ton
Lin flo
Eus cal
nyktelo
Crypt
Pha pa
Sil gal
eam bis
mimpet
pap cal

Butterfly
Woodly
Dusky
Behrs
S Blue
Pygmy
Hoary Pok
Sara
Pale Swallo
Anise

Golden Eagle
Cooper's Hawk/Sharp

3-21-08 clear 67°F

Sycamore Canyon 10:00 -
0-2,

Anise swallowtail

1.1

PAINTED LADY

~~HHT~~ ~~HHT~~ ~~HH~~

Funereal

1.1

So blue

~~HH~~

Behr

~~HH~~ 11

Plants

Tax dir
Abu cool
Rib spic
Romb fis
Sha per
Bou sil
Pen spec

Que agr
Sal aqu
Ant cal
Lot sc
Cit fas
Mim lew
Hes wimp
Eup sco
Asc bor
Iso mar
Elym
Hop gla
Phi er
Lup lep
Ach fas
Dic ang
Cast ex
Cas ten
Esch cal
Lay plat
Las sil
Cal mic
Sil gn
Phacs
Phl pra
Gal mic
Comatra

Bro ten
Bro mad
Bro ca ort
Med pol
Les sti
Hi gal
Ero sp
Pse sti

Cal arg
Epi ill
Sal cle
Sal mel
Sal cal
Nei sp
Epi can
Mit mic
Mim mic
Chas ang
Sed lan
Alop ge
Trif mic
Lomatium
Pera gy
Eup hor
Sibb aqu
Mim mic
Eriodyc
Hesp gla
Gal cri
Sil ang
Ben bul
Rib inc
Rham cro
Rosa ill
Cast ill
Eue bar
Lon cil
Ten fer
Ceanothus
Lasthenia
Cal mat
Hel gra
Agoseris
Chimaphila
Sno cal
Ony enc
Phlox cur
Lup lep
Ivesia gor
Lup mon
Myo str
Collomia
Sed lan
Ple cal
Hymenopappus
Lon sub

Sye Animals cont.

3/26/03
Arboretum
Cl light
Sunny/clear
BY No wind
Start 9:00

End 4:45
74°
1-3 mph
Sunny/clear

Quad Survey

Paint lady LHT IIII IIII
Cab owlet LHT III
Buckeye LHT LHT IIII
Tan dusky LHT LHT
Behrs IIII
So Blue IIII
Anise Swal I
Perplex III
Dr Dusky I
Sara's Hyp I
Lab's I
Silver I

Other wildlife

Tarantula Ott LIZ
Ho La W Spade
Co Ra. WF LIZ
Ra Sp MM LIZ
No Ho SB LIZ
RT Ho Sp RAT
Ho Wr WST whip
Sp To CT Whip
TJ VJ Coyote
Mo do

Bit owl

3/2/18

10:00 sye cleaning skies

0-8 mph

270-

Backeye 1

rain 1 dry

mix white

"

Xylbie Seawul

Adefas Hasakis

Hypgla Silgal

latsco Sjergularia

ceatom Chaiti.

Melsco Rhacco

Ant mut? Eifel

Dic cap Can hat

Scu tub Cascxs

Calmel lat cor

Salcpi lat cal

Filgal Socie

Lincon calcil

Cracon lupbic

Porsca Sceeon

Rosmed Sal col

Arebur

Dud var

Acc fi

Placra

HAR-pol

All pra

Nasgal

Cuscha

Chlo pa

Sycamore Quarry 3/10/08

K. Mozley-Standridge w/ A Bunker

Stoic	8:00	64	0	0°/cc
Fen	4:45	29	1-3/4	0°/cc
Lot sco			Lat,	N M
Int sco			Ex. veg	IIII
dec cop			Dark	III
Ley pla	Tidy Hill		Sem	I IIII
Pec	Mountain		Robin	III
Min Ac			Gold	II
Ceanothus			South	IIII
carex				
Fescue sp				
Cryptantha				
Lupine				
Landsc				
pha per				
Lascal				
Sen cal				
Comb S			Mixed	Liz
			Graph	Smith

Sycamore Cyn

4/7/08
A. Berliner
Start 1:23
Sunny/Clear
70° 1-3 mph

Sycamore Plot
Start 1:45
69° Sunny
1-3 mph wind

End 2:00
No Quad

Flowers

Dic cap	Ama arv
Sal mel	Hyr ine
Mal fas	Bro cic
Vea vil	
All pra	
Cor sco	
Mimulus	
Ceanothus	
Sis bel	
Phacelia	
Chorispo	
Sal col	
Col het	
Phac dis	
Cal mac	
Sil gal	
Lupinus	
Cas int	
Cast exs	
Phacelia	
Del cal	
Encelia	
Mal mac	
Mim gut	
Pic [illegible]	
Pen [illegible]	
Hel sco	
Lia chr	
Cup ifor	
Lup bic	
Pen spe	

Quad Survey

Buckeye HHT HHT HHT HHT 4HH 1
Pt. Lady HHT HH
Sands hop HHT HHT II 1
Cab cht II
Fan dusky II
So blue 1
Lehtab's 1
Behr's 1
Purplex IIII
We Lady 1

End 4:30
68°
Partly Cloudy
2-5 mph

Other Wildlife

Co Rb	Resp	WFuz
Ca Rb		SBuz
Sp Rb		
Co Ra		
RT Hz		
No Hz		

4/7/08 Sycamore Canyon Quino

10:15	60	0-2mph	50% cc
4:20	60	4-8mph	50% cc

In Bloom:

Lotscop	IIII IIII IIII	Painted lady
blue dicks	III	fiveeldusky dang
owl's clover	II IIII	behr's metal
Plan ere	III	spring white
Black sage	IIII IIII	white sp
[redacted] Lamark	IIII IIII	sara orangetip
Silver puffs		anise swallow
Nemoles	II	jabb's check
Cryptanthe	I IIII	buckeye
Antirrhinum	II	southern blue
[redacted] Gutierrezia		
Hypo Slab		CALU SPTO
Red Cretica	MODO CATU	AMCR
Morning glory	CORA HOFI	LEGO
Silene gallica	HALA [redacted]	SOSP
Las cal grandif	BUTT ESP	WERR
Erodium Cicutaria		whptail
chia Phacelia		horned lizard
white sage bush Poppy		w fence lizard

4/7/08

10:15 am
~75°
wind 0-5mph
w/ H. Haney
clouds ~30%

Sycamore Canyon
survey site #1
Quino survey

white |||| |||| |||| |||| |||| |||| |||| ||||
funereal duskywing ||||
painted lady |||| |||| |||| |||| |||| |||| |||| |||| ||||
Sara's orange |||| |||| |||| |||| gabbs ||
Anise swallowtail | Behrs ||||
Pipevine swallowtail | Buckeye ||||
Gray blue ||| Pepperwood hairstreak ||||

wildlife

COHU ANPA
Sui aud. RTHA
CAQU MODO
SPTO GRRO
WREN CALT
CATH
BCSP
ufo stans.
med lizard!
BEWR
AOLA western
BUSH whiptail

flowers

* Cas exe
lot sco
blue dick
cero sic
ade fas
sal mel
* pla ere
mim aur
chaparral glory
hes yuc whi

Flowers

1 hr inc
Gut cal
Lot sp
Ade fas
Cal mac

Sycamore Canyon

Wind Survey

4/14/08
A. Bokhoff
Start 1:00
80°
Clear/Sunny
1-3 mph

End 4:30
76° Clear/Sunny

Behrs III
Brokeye Hff
Cab whf
Farris Ohio III
Pf. Lady II
Tyr dusky
Anise sucd II
Perplexo

Sycamore Pool
Start 2:14
8-12 mph

Ant mrp
Ade fas
lot sca
g. f cal
Dic cap
Sil gal
Cast lan
Pha dil

Bote II
Sanvas II

Other Wildlife
Co Ra
Antelope
Sq to
Ca to
RD Rat

4/14/08

Sycamore Canyon
w/ H. Haney
K. Mozumder
A. Borcher

Quino Survey

Start	end
9:30am	4:30pm
~70°	~80°
100% sun	100% sun
wind 0-10	wind 0-10

anise swallowtail |
white |||| |||| |||| ||
painted lady |||| ||
Sara's orange-tip |||
gabb's checkerspot |
Behr's |||| |||| |||| |||
Bucyeye |||
funereal duskywing |

ladybugs !!

flowers

lot sco
hes whi
morning glory
sal mel
manpasa lily
ade fas
blue dicks
gutierrsia
* pla ere
rhim aur
* cas exe

wildlife

NOMO
LEGO
HOLA
COHU
BLGR
SPTO
WREN
BEAR
CORA

4/14/08	Sycamore Canyon		Quail Hill
K. Mountain w/ A. Santana			A. Pacific Res
Start	9:50	72°F	1->2 mph	0% cc
	16:30	78	1-3 mph	"

Eric fas		Cabbie	TIII
Lot sco		A. Santabarbarid	I
Salmid		Behris	I
Ade fas		Socrates	VI
Hel sco		WC Lady	III
Ant	snapdragon		
Chia			
Mes cal			
Dic cap			
Cea fam			
Con arv			
Cas exs			
Red maids			
Upland Microlus			
Vig lac			

El Cap Quail Hill 4/15/08

w/ A. Barb K. Klotz

Start 9:00	63	0-1 mph	0% cc
End 4:00	76	1-5 mph	"

Butterflies

White	I
Dustyface	IIII
Zerby	IIII
W. Sand	I

Flowers

Nut- mc
Cal gal
V. lac
Escholz
Ade fas
Hel sco
Cal mac
Phacelia

7/14/08 Sycamore Canyon Quino

9:30	72°	0-2mph	0%
4:30	80°	0-2 mph	0%

Lotscop
Cryptantha
blue dicks
Pla ere
Camisonia
Sonchus
black sage
yellow pincushion
Erodium sp
Mariposa lily
morning glory
Marabatis
golden yarrow
goldfields
owl's clover
Chia
Phacelia per
Gilia tricolor
CA poppy
Ho inC

IIII IIII III Sara orangetip
IIII IIII painted lady
IIII IIII IIII behr's
II buckeye
I IIII white sp.
acmon blue

pitchmose snake
cottontail
ANCR BCSP
HOLA WCSP
CAJO BLGR
LEGO CORA

grand pink
silver puffs

Hoop arrays 4/23

LL-1
OT whip male 11
SB male
WFL male
Scorpion
cavel crochet
mouse

Bill Boggeln

SY-2 4/23
afternoon
WFLIZ male
OT whip

New Plants

Phragmites
San Diego gilia
Lenu Spinifex
Olayiica purp
Calif. native heter
Hoop palm

Sycamore Can

Quinney/Rare Plants

Bobcat III II
Pt. Lady III
Orange salter 1
Mini salter 4
Sara's Hop IIIII
Tundusky III
Pemon bover
Cabbs 1
Boral
Bobr's 1

Other Wildlife

AT Fly
Mo Wh
Mo DO
ATM EC
ATV ITI
Night Hunt E

CWES CWTTP

4/23/03
A. Boruttzer
START 10:00
68° Clear
Wind 0-2mph

End 3:30
720
2-4 mph
Clear

Appendix D
Photographs



Photo 1
Canyon looking south.



Photo 2
Goodan Ranch looking northeast.



Photo 3
Herpetological Array #4



Photo 4
Western Spadefoot



Photo 5
Red Diamond Rattlesnake



Photo 6
Mating Perplexing Hairstreak Butterflies



Photo 7
San Diego Thorn Mint



Photo 8
San Diego Horned Lizard



Photo 9
Kangaroo Rat



Photo 10
Indian Warrior



Photo 11
Bobcat traveling along a dry wash.



Photo 12
Two San Diego Black-tailed Jackrabbits on an access road along the western side of the Preserve.



Photo 13
Young Coyotes traveling along a wash in the central part of the Preserve

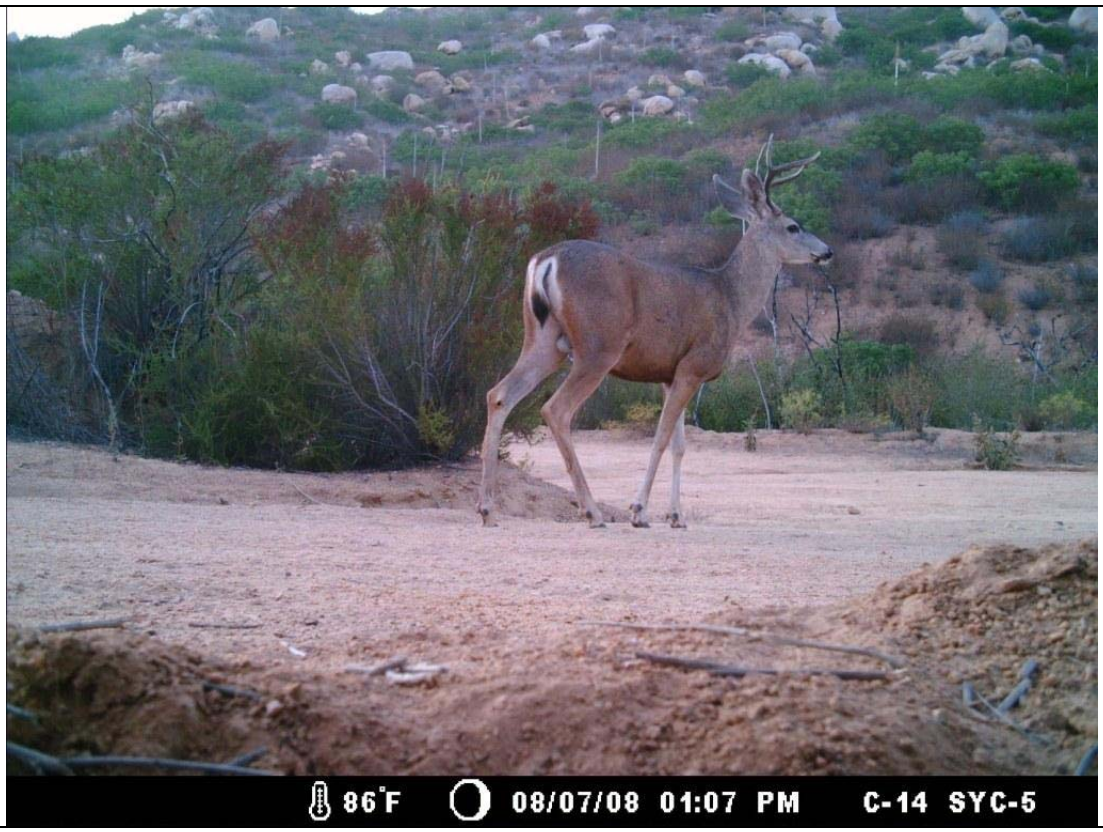


Photo 14
Southern Mule Deer buck detected in the north eastern corner of the Preserve