BASELINE BIOLOGICAL RESOURCES EVALUATION

STELZER COUNTY PARK

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Executive Summary

ICF Jones & Stokes conducted a baseline biodiversity study of the County of San Diego's Stelzer County Park (Park) to provide the Department of Parks and Recreation with biological data to develop a Resource Management Plan (RMP) 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 community 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) small mammal trapping; (7) acoustic sampling and roost surveys for bats; (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 October). This report also includes recommendations for adaptive management, including management and monitoring of vegetation communities and sensitive plants and habitats, control of invasive non-native plants, and management and monitoring of sensitive wildlife species, including species covered by the South County Multiple Species Conservation Program (MSCP).

The Park includes approximately 374.5[1] acres of native and naturalized habitats including coast live oak woodland, southern coast live oak riparian forest, non-native grasslands and coastal sage-chaparral scrub as well as developed Park areas all of which are within the MSCP. The undeveloped portion of the Park is mapped as Pre-approved Mitigation Area (PAMA) and is considered an MSCP Preserve.

The current surveys documented six land cover types and 308 species that were detected throughout the Park. Our surveys detected 192 plant species, 41 bird species, 23 mammal species (10 bats, six small mammals, and seven medium and large mammals), 13 herptiles (one amphibian and 12 reptiles), and 39 invertebrate species. This list includes 27 sensitive species of which five wildlife and two plants are MSCP-covered species.

[1] The assessor's parcel data list the Park to be 373 acres; however, calculations generated from the GIS data show the Park as 374.5. Therefore, this report references the property as 374.5 acres.

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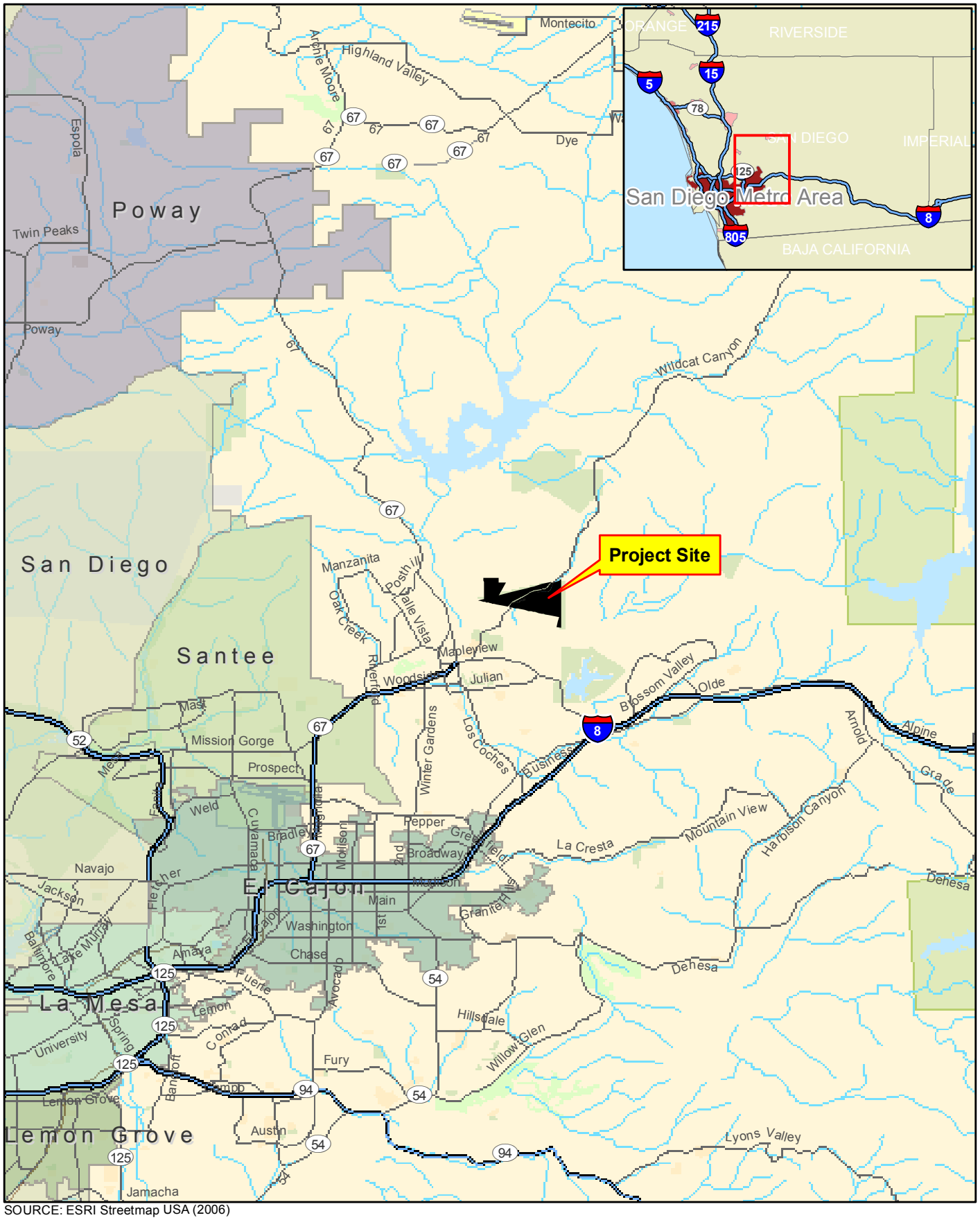

SOURCE: ESRI Streetmap USA (2006)

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Figure 1
Regional Location
Stelzer County Park

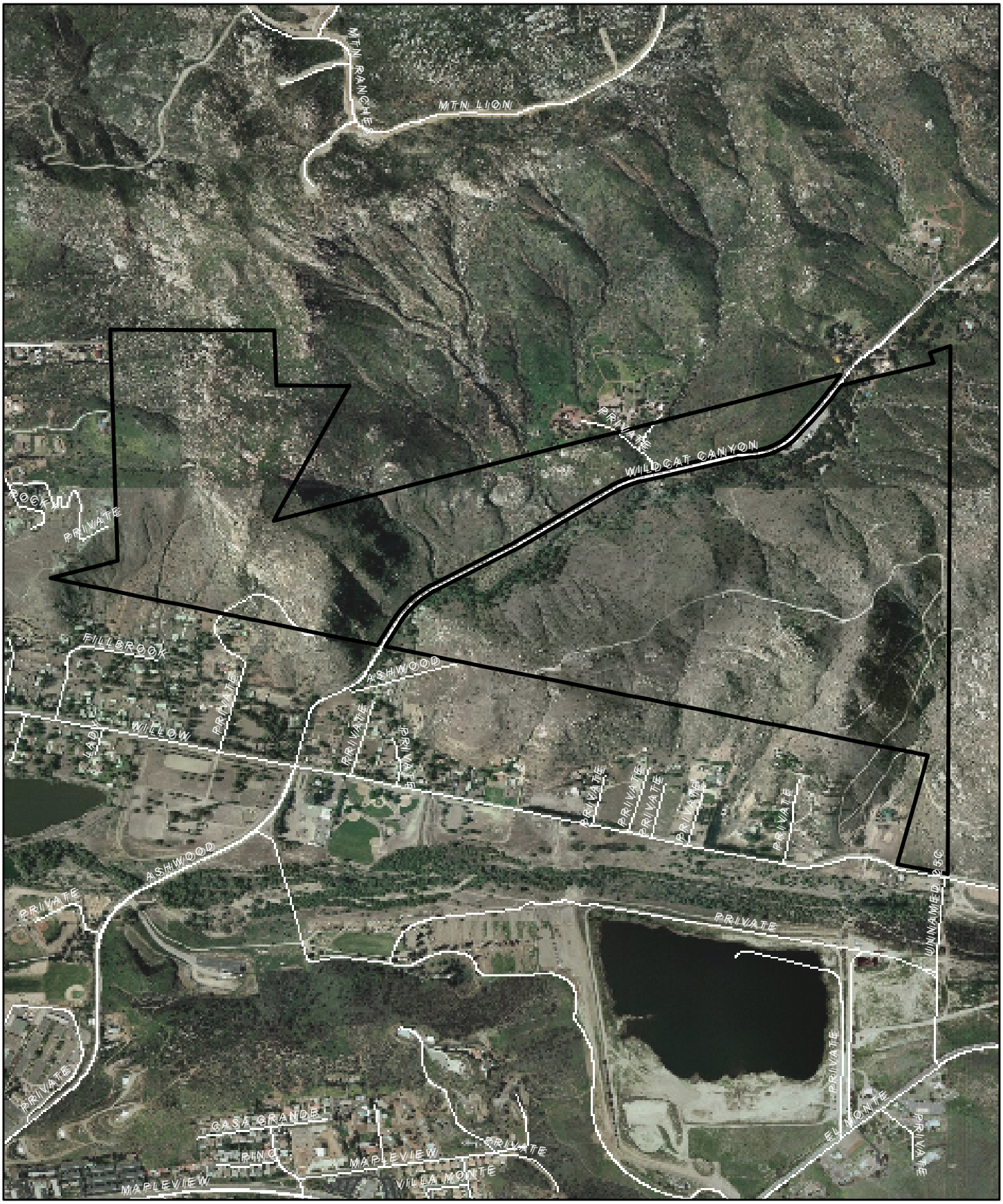

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Figure 2
Project Vicinity
Stelzer County Park

Chapter 1
Introduction

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

The Park is located approximately 1.5 miles northeast of Lakeside and 1.2 miles north of Lake Jennings Reservoir. The 374.5-acre[1] Park is located in the upper San Diego River watershed, approximately 1.2 miles north of the Lake Jennings Reservoir and 4.9 miles west of El Capitan Reservoir (Figures 1 and 2). The Park is accessed via Wildcat Canyon Road which cuts through the center of the property. In general, sparse residential and open space land surrounds the Park on each side (north, south, west, and east). Elevations within the Park ranges from approximately 440 feet (ft) (134 meters (m)) above mean sea level (AMSL) in the southeast corner to nearly 1,200 ft (366 m) AMSL along the ridge tops.

To provide a baseline evaluation of biological resources, the following studies were conducted by ICF Jones & Stokes: (1) vegetation community 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) small mammal trapping; (7) acoustic sampling and roost surveys for bats; (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 Park.

[1] The assessor's parcel data list the Park to be 373 acres; however, calculations generated from the GIS data show the Park as 374.5. Therefore, this report references the property as 374.5 acres.

Chapter 2
Study Area

2.1 Physical and Climatic Conditions

2.1.1 Geography

The natural setting within the Park is characterized by steep coastal foothills with ridgelines separated by drainages. The Park is situated north of the San Diego River and north of the Lake Jennings Reservoir. A blue-line stream occurs within the Park. Elevations range between approximately 1,200 ft (366 m) AMSL along the western and eastern ridgelines and approximately 440 ft (134 m) AMSL in the southeastern corner of the Park.

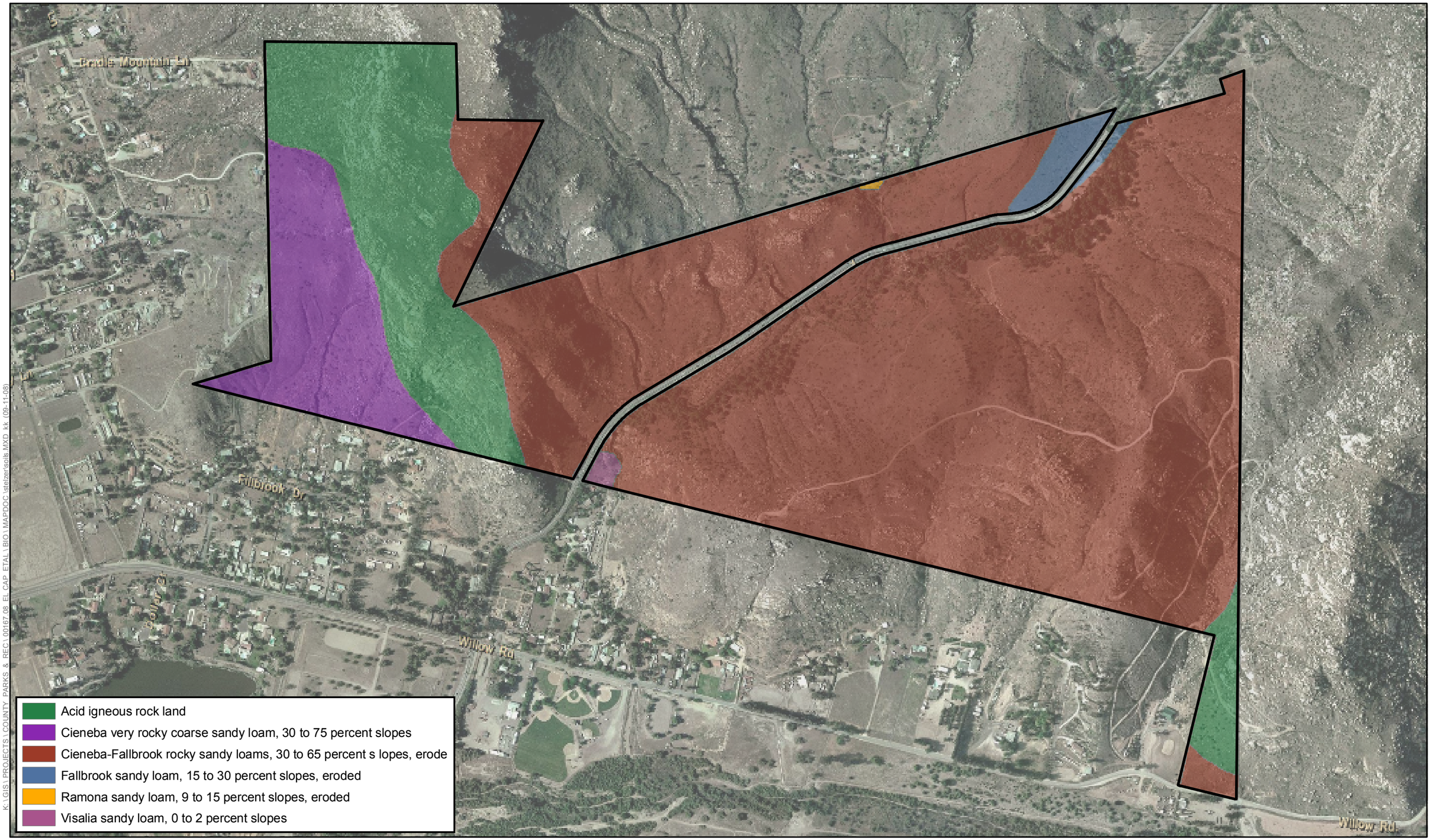
2.1.2 Geology and Soils

The Park is situated atop the southern California batholith consisting of Cretaceous granitic rocks. These rocks form the majority element of this massive feature that underlies roughly two-fifths of San Diego County. In the Park, this exposed granitic bedrock is comprised of either the Woodson Mountain Granodiorite or the Green Valley Tonalite Formations, which consist principally of granodiorite, tonalite (quartz diorite), and minor occurrences of granite (Strand 1962).

Several general soil associations are represented within the Park: Acid igneous rock land, the Cieneba series, Fallbrook series, Ramona series, and Visalia series (Figure 3; USDA 1973).

Acid igneous rock land is rough broken terrain. The topography ranges from low hills to very steep mountains. Large boulders and rock outcrops cover 50 to 90 percent of the total area. The soil material is loam to loamy coarse sand in texture and is very shallow over decomposed granite or basic igneous rock. Vegetation communities associated with this soil type within the Park include coastal sage/chaparral scrub.

The ***Cieneba*** soil series is characterized as excessively drained very shallow to shallow, coarse sandy loams and is usually found on slopes ranging from 5 to 75



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SOURCE: ESRI Imagery

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Figure 3
Soils Map
Stelzer County Park

percent. It is found on uplands at elevations ranging from 200-3,000 ft (61–914 m). It is usually 10 to 20 inches (in) (25.4 to 50.8 centimeters (cm)) thick and medium acidic. The topsoil ranges from brown to dark brown in color and coarse sandy loam to sandy loam in texture. The layer below this consists of weathered granodiorite. Runoff is high to very high and the erosion hazard is very high. Boulders and rock outcrops are present. Specific soil types found in the Park consist of Cieneba very rocky coarse sandy loam (30 to 75 percent) and Cieneba-Fallbrook rocky sandy loams (30 to 65 percent slopes, eroded). This soil complex is about 55 percent Cieneba coarse sandy loam and 40 percent Fallbrook sandy loam. Vegetation communities associated with this soils type within the Park include coastal sage/chaparral scrub and non-native grassland.

The ***Fallbrook*** soil series is characterized with moderately deep to deep, well-drained sandy loams and is usually found on slopes ranging from 2 to 30 percent. It is found on uplands at elevations ranging from 200-2500 ft (61 – 762 m). The surface layer is usually 6 in (15.3 cm) thick and slightly acidic. The topsoil is brown in color and sandy loam in texture. The subsoil is reddish-brown to light reddish-brown, slightly acidic and neutral, very sandy clay loam and loam, and is approximately 41 in (104.2 cm) thick. For the sandy loams, runoff is slow to medium and the erosion hazard is slight to moderate. The specific sandy loam soil type found in the Park is Fallbrook sandy loam (15 to 30 percent slopes, eroded). Vegetation communities associated with this soil type within the Park include coastal sage/chaparral scrub.

The ***Ramona*** soil series is characterized by moderately well drained, very deep sandy loams with sandy clay loam subsoil and is usually found on slopes ranging from 0 to 30 percent. It is found on terraces and alluvial fans at elevations ranging from 200-1800 ft (61 – 549 m). The surface layer is usually 17 in (43.2 cm) thick and slightly to medium acidic. The topsoil is yellowish-brown and brown in color and sandy loam in texture. The subsoil is brown and yellowish-brown, slightly acidic and neutral, sandy clay loam, and is more than 43 in (109.2 cm) thick. Below this layer the soil consists of yellowish-brown, neutral, light, coarse sandy clay loam. Runoff is slow to medium and the erosion hazard is slight to moderate. The specific soil type found on the Park is Ramona sandy loam (9 to 15 percent slopes, eroded). This soil type supports a small amount of coast live oak woodland habitat found in the northeastern portion of the Park.

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 400-2,000 ft (122 – 610 m). The surface layer is usually 12 in (30.5 cm) 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 60 in (152.4 cm) 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 Park is Visalia sandy loam (0 to 2 percent slopes). Southern coast live oak woodland habitat occurs on this soil type at the western most portion of the Park.

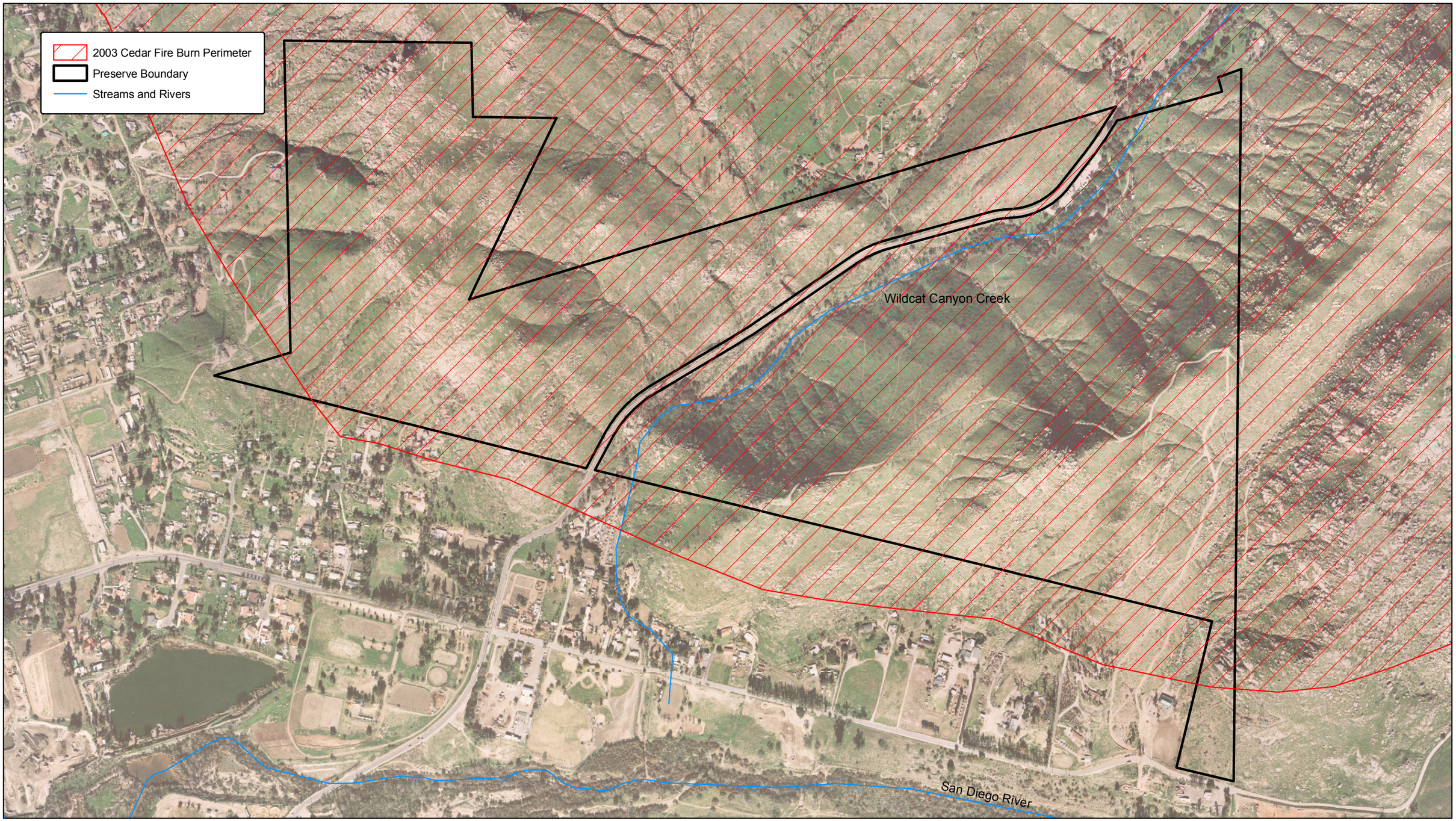

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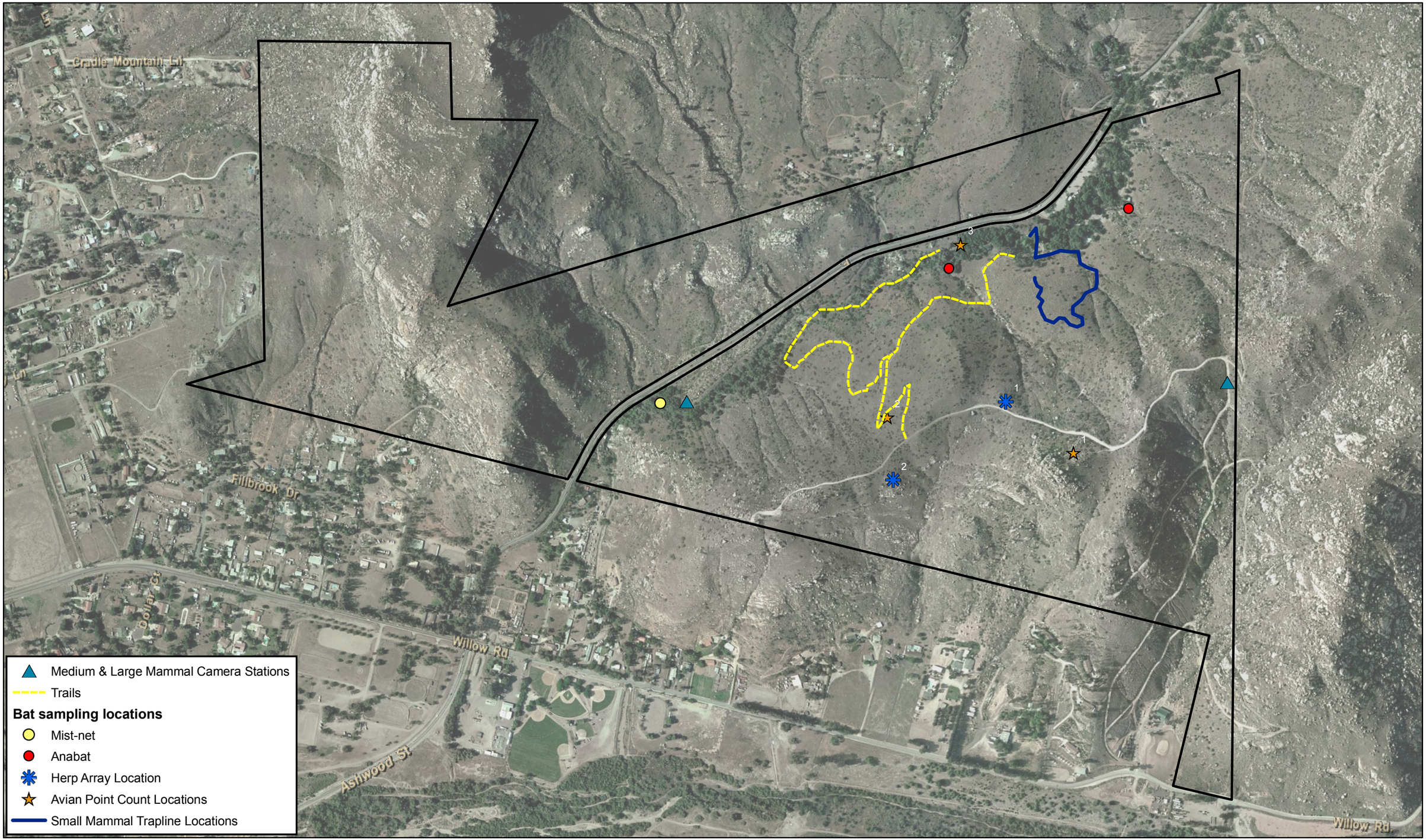
Figure 4
Watershed Map
Stelzer County Park



SOURCE: ESRI Imagery

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Figure 5
Trail & Biological Inventory Locations
Stelzer County Park

2.1.5 Hydrology

The Park is situated within the San Diego River Watershed area. 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). A single southwest-trending blue-line stream occurs along the central portion of the Park (Wildcat Canyon Creek) and is a tributary to the San Diego River (Figure 4).

2.1.6 Trails

The Park contains approximately 1.1 miles of trails. These trails traverse through the understory of the oak woodland habitat located just east of Wildcat Canyon Road (Figure 5). Several single track trails also connect the oak woodland areas to several roads located along the eastern most ridge tops. The roads located along these ridge tops are maintained by San Diego Gas & Electric (SDG&E) for the purpose of accessing their facilities within and immediately adjacent to the Park. With the exception of one small SDG&E road, no trails or roads occur within the Park west of Wildcat Canyon Road.

Chapter 3
Methods

Place names in this report follow both specific names and standards used for mapping by the U.S. Geological Survey (e.g., "Fosters Canyon" rather than Foster'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 Park and to assess the physical characteristics of the site and surrounding areas. Available data that were reviewed included the California Natural Diversity Database (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 Park, 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 plants species detected were recorded (Appendix A).

Vegetation communities were mapped on a "one-inch equals 200 feet" (1:2400) scale aerial photograph of the Park in the field and later digitized into a geographic information system (GIS) coverage using ArcGIS software. Mapping included the entire 374.5-acre Park 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 (Appendix A).

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

Survey Personnel	Date
Klutz, Korey	03/03/2008
Klutz, Korey	03/05/2008
Borcher, Andrew	03/20/2008
Borcher, Andrew	03/23/2008
Borcher, Andrew	04/24/2008
Klutz, Korey	05/8/2008

Locations of special-status plant populations were mapped using either sub-meter accurate global positioning system (GPS) or recreational grade GPS receivers (accurate from 3 to 16 ft (1m to 5m)). 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 surveys for the federally endangered Quino Checkerspot butterfly (*Euphydryas editha quino*, Quino) from March 5 through April 16, 2008. All biologists involved in the Quino surveys possessed U.S. Fish and Wildlife Service (USFWS) recovery permits. Surveys were conducted on a roughly weekly basis under acceptable weather conditions as defined in the USFWS protocol (USFWS 2002).

Approximately 12 acres of dense chaparral scrub, concrete parking lot, ranger station, playground, cabin and other related developed areas, dense riparian vegetation, and open water 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 Park with highest potential for Quino detection. These areas were 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 herpetological surveys. 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 in Appendix B.

3.3 Herpetofauna

ICF Jones & Stokes conducted surveys for herpetofauna (amphibians and reptiles) within the Park 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.

Two sites were selected for the array construction within the southern portion of the Park. Array location was selected based on access, vegetation community, soils, and topography. One array was constructed on a north-facing slope dominated non-native grassland and coastal sage/chaparral scrub. The second array was constructed on a south-facing slope dominated by coastal sage/chaparral scrub (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 Park (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.

3.4 Birds

3.4.1 Diurnal Point Count Survey

Avian use of the study area was formally documented through the use of three 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 bases 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 view-shed 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 820 ft (250 m) 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 a164-ft (50-m) radius from the station, (2) outside the 164-ft (50-m) 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) are:

- 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 131 to 197 ft (40 to 60 m) away, assigning it as beyond or closer than 164 ft (50 m). 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 are 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 are 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, would not be counted until at least located in a part of the tree or cliff they are not expected to have reached by walking or climbing.
- Vocalization type was typically used to categorize birds that are heard only with regard to whether or not they are 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 were 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 were 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 as 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 were 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 was 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 '2-interval' counts (referring to distance, not time), using the terminology of Bibby et al. (2000; pp. 101-102). A radius of 164 ft (50 m) 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 was limited and fragmentation and disturbance make generalizations about distribution across the site tenuous, no density-based estimates of total abundance were 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 Park. Methods include 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 March 3 and 5, 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 within the Park. For the purposes of this project, "small mammals" include species in the squirrel, pocket gopher, heteromyid, mouse, rat, and vole families.

The locations of trap lines and the number of traps planned during the sampling program were primarily based on the following variables: access constraints (e.g., roads and trails), drive time and the habitat diversity within the study area. The trapline at the Park was set for four nights for a total of 200 trap nights. The trapline was initially set and baited during the afternoon of July 14, 2008. Traps were systematically checked in the early morning between 0430 and 0845 from July 15 through July 18, 2008 (Table 2). The trapline was located near the center of the Park and consisted of 50 traps (Figure 5, Table 3).

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 Park in 2008

Trapline	Personnel	Date Checked	Time Checked	Conditions
1	Phillip Richards Cindy Dunn	7/15/08	0430	Partly Cloudy; 66°F; Wind 0-1; No Moon Visible; Moderate-High Humidity
		7/16/08	0428	Clear; 66°F; Wind 0-1; No Moon Visible; Moderate-High Humidity
	Phillip Richards James Hickman	7/17/08	0430	Clear; 64°F; Wind 0; No Moon Visible; Moderate-High Humidity
		7/18/08	0715	Cloudy; 65°F; Wind 0; No Moon Visible; Moderate-High Humidity

Table 3. Trapline Description

Trapline	Trap Nights	Number of Traps	Trap Sequence	Physical Description	Vegetative Community
1	4	50	1 - 50	Along ephemeral drainages and hillside; little sand in drainage but soils mostly loamy with few rocky outcrops; dense oak woodland (w/ little to no understory) and moderate densities of mostly low growing shrubs	Coast live oak woodland and coastal sage-chaparral scrub

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 Park. These stations allow for the detection of species that are rarely encountered because of their nocturnal or crepuscular activity patterns. Within the Park, two 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 hiking 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 us to keep the cameras running continuously throughout the study period (June 10 - September 4, 2008). The digital images were then interpreted and all animals were identified to the species level.

3.6.2 Mammal Track and Sign Survey

Sections of existing trails and roads were carefully examined for tracks and signs (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, trail reaches and periodic inspections of hilltops, ridges, drainages, and game trails. Nighttime surveys involved a combination of driving, hiking and listening within the Park, and when feasible, handheld lights were used to identify any wildlife, or wildlife sign observed during the survey. Finally, mammal tracks and signs 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 Park. 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 Park during three monitoring sessions: spring, summer, and fall 2008. During the three monitoring sessions, a total of two passive Anabat units were placed in the Park to monitor bats for three consecutive nights.

3.7.2 Active Surveys

One active foraging bat survey was conducted using an Anabat bat detector, listening for audible bat echolocation calls to document additional bat species foraging in the Park. The survey was conducted near a group of oaks located east of Wildcat Canyon Road in the southern portion of the Park on July 23, 2008.

Chapter 4
Results and Discussion

4.1 Vegetation

Vegetation communities and land cover types present within the Park consist of southern coast live oak riparian forest, coastal sage-chaparral scrub, coast live oak woodland, non-native grassland, disturbed habitats and developed lands (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 Park is provided as Appendix A.

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

Vegetation/Land Cover Type	Acreage
Southern Coast Live Oak Riparian Forest	19.7
Coastal Sage-Chaparral Scrub	317.5
Non-native Grassland	30.5
Coast Live Oak Woodland	0.7
Disturbed Habitat	0.5
Developed (Associated with Park structures and parking lot adjacent to Wildcat Canyon Road).	5.6
Total	**374.5**

4.1.1 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. Southern coast live oak riparian forest on the Park occurs just east of Wildcat Canyon Road. Characteristic species include Mule-fat (*Baccharis salicifolia*), Mexican Elderberry (*Sambucus mexicanus*), Poison Oak (*Toxicodendron diversilobum*), Stinging Nettle (*Urtica urens*) and Umbrella Sedge (*Cyperus involucratus*).

4.1.2 Coastal Sage-Chaparral Scrub (37600)

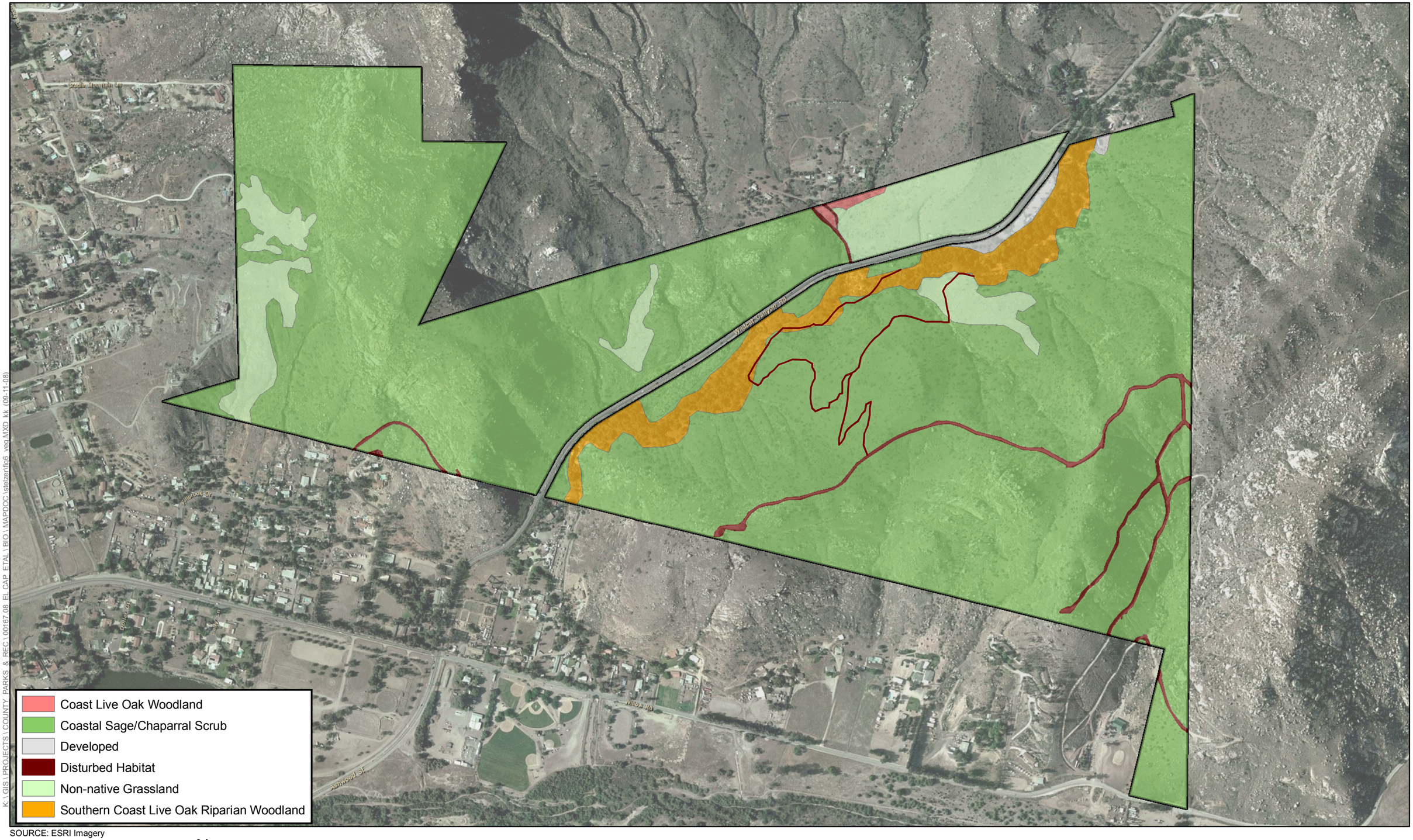
Coastal sage-chaparral scrub consists of a mixture of herbaceous, somewhat shrubby, and shrubby species that forms a vegetation community with features of both coastal sage scrub and chaparral. Within the Park this habitat appears to be a post-fire successional community. The abundance of non-native plant species, as well as the sparse distribution of typically dominant shrub species indicate disturbance within this community. Dominant species observed on site included Chamise (*Adenostoma fasciculatum*), California Buckwheat (*Eriogonum fasciculatum*), California Sagebrush (*Artemisia californica*), Foxtail Chess (*Bromus madritensis*), Slender Wild Oat (*Avena barbata*), White Sage (*Salvia apiana*), and Mustard (*Hirchfeldia incana*).

4.1.3 Non-Native Grassland (42200)

Non-native grassland is characterized by a dense to sparse cover of annual grasses reaching up to 3 ft (1 m), 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]). At the Park, this community has likely replaced Diegan coastal sage scrub. Most of the areas mapped as non-native grassland would typically be dominated by shrub species and it is likely that the 2003 Cedar Fire has converted these shrublands to annual grasslands. Non-native grassland primarily occurs within the western most area of the Park.

4.1.4 Coast Live Oak Woodland (71160)

Coast live oak woodland is typically dominated by Coast Live Oak trees that reach 30 to 80 ft (9 to 24 m) in height. The shrub layer within this habitat is usually poorly developed but may include Toyon (*Heteromoles arbutifolia*), Laurel Sumac (*Malosma laurina*) 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



SOURCE: ESRI Imagery

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Figure 6
Vegetation Communities
Stelzer County Park

(Holland 1986). Onsite this habitat is found within the northeastern most portion of the Park.

4.1.5 Disturbed Habitat (11300)

Disturbed habitat within the Park consists of existing trails and dirt roads.

4.1.6 Developed Land (12000)

Developed land within the Park consists of existing paved roads, buildings, and other Park related infrastructure.

4.1.7 Special-Status Plant Species

The following section discusses special-status plant species observed within the Park. 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 Park include Delicate Clarkia (also known as Campo Clarkia) (*Clarkia delicata*), Lakeside Ceanothus (*Ceanothus cyaneus*), San Diego Goldenstar (*Bloomeria [Muilla] clevelandii*), San Diego Sunflower (*Viguiera laciniata*), Palmer's Sage Brush (*Artemisia palmeri* var. *palmeri*), Engelmann Oak (*Quercus engelmannii*) and Southwestern Spiny Rush (*Juncus acutus* sp. l*eopoldii*).

Special-Status Plant Species Observed

Delicate Clarkia (also known as Campo Clarkia) (*Clarkia delicata*)

CNPS List 1B, San Diego County Group A

Delicate Clarkia is an annual wildflower that is typically found on the periphery of oak woodland habitats and within cismontane chaparral. This species occurs within and adjacent to the southern coast live oak riparian forest and within several smaller drainages (Figure 7).

Lakeside Ceanothus (*Ceanothus cyaneus*)

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

Lakeside Ceanothus is known from an extremely small range (southern Ramona to the foothills of Lakeside). Typically, this *Ceanothus* species occurs in dense,

almost impenetrable chaparral with a mix of Chamise and other shrubs such as Manzanita. Lakeside Ceanothus is found within the rocky chaparral located along the western most portion of the Park (Figure 7).

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*. San Diego Goldenstar is found on clay soils just east of the coast live oak riparian forest within the Park.

San Diego Sunflower (*Viguiera laciniata*)

CNPS List 4, San Diego County Group D

San Diego Sunflower is associated with arid Diegan coastal sage scrub at a variety of elevations. Its distribution is primarily south of Highway 78 to the international border. At the Park, this species occurs sporadically within the coastal sage-chaparral scrub (Figure 7).

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 is found within the southern coast live oak riparian forest associated with Wildcat Canyon Creek (Figure 7).

Engelmann Oak (*Quercus engelmannii*)

CNPS List 4, San Diego County Group D

Engelmann Oak is commonly found in the foothills between 500 and 4,000 ft (152 and 1,219 m). Growing to 40 ft tall (12 m), this tree has flat, grey-blue-green leaves and tolerates less water than coast live oak. Larger oaks are sometimes found growing in savannah grasslands but it may also occur as a shrubby element within chaparral. Engelmann Oaks are still relatively abundant throughout their range in southern California. One Engelmann Oak was observed within the coast live oak riparian forest.

Southwestern Spiny Rush (*Juncus acutus* ssp. *leopoldii*)

CNPS List 4, San Diego County Group D

Invasive Plant Species
- Castorbean
- Date Palm
- Fountain Grass
- Tamarisk
- Pampas Grass
- Tree Tobacco

Special Status Plant Species
- San Diego Goldenstar
- Delicate Clarkia
- Engelman's Oak
- Lakeside Ceanothus
- Palmer's Sagebrush
- San Diego Sunflower
- Southwestern Spiny Rush

SOURCE: ESRI Imagery

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Figure 7
Special Status Plant Species & Invasive Plant Species
Stelzer County Park

Southwestern Spiny Rush is associated with intermittent streambeds and seeps. This species was observed within the understory of the southern coast live oak riparian forest associated with Wildcat Canyon Creek.

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

Palmer's Goldenbush (*Ericameria palmeri* var. *palmeri*)

CNPS List 2, San Diego County Group B,

Palmer's Goldenbush is associated with coastal drainages, chaparral and rarely Diegan coastal sage scrub. This species has been reported as occurring within the Park but was not identified during focused botanical surveys in 2008. The blooming period for this species is September through November; a focused survey was performed for this species in October 2008 but results were negative.

4.1.8 Invasive Plants

Several patches of invasive plants were detected within the western most portions of Wildcat Canyon Creek. Invasive plants observed included Castor Bean (*Ricinus communis*), Canary Island Date Palm (*Phoenix canariensis*), African Fountain Grass (*Pennisetum setaceum*), Tamarisk (*Tamarix ramosissima*), Pampas Grass (*Cortaderia selloana*) and Tree Tobacco (*Nicotiana glauca*) (Figure 7).

4.2 Invertebrates

All invertebrates identified on the Park below the level of family are included in the wildlife table in Appendix B.

4.2.1 Butterflies

Butterfly species observed during the 2008 focused Quino Checkerspot Butterfly survey include Desert Orangetip (*Anthocharis cethura*), Sara's Orangetip (*Anthocaris sara*), Behr's Metalmark (*Apodemia mormo virgulti*), Perplexing Hairstreak (*Callophrys affinis perplexa*), Gabb's Checkerspot (*Chlosyne gabbii*), Monarch (*Danaus plexippus*), Funereal Duskywing (*Erynnis funeralis*), Southern Blue (*Glaucopsyche lygdamus australis*), Acmon Blue (*Icaricia acmon*),Common Buckeye (*Junonia coenia*), Mourning Cloak (*Nymphalis antiopa*), Pale Swallowtail (*Papillo eurymedon*),Western Tiger Swallowtail (*Papillo rutulus*), Cabbage White (*Pieris rapae*), Checkered/Common White (*Pontia protodice*), White Checkered Skipper (*Pyrgus albescens*),West Coast

Lady (*Vanessa annabella*), Red Admiral (*Vanessa atalanta*), and Painted Lady (*Vanessa cardui*).

4.2.2 Other Invertebrates

Other invertebrate species captured in the pitfall traps associated with the herpetological arrays or during other fieldwork were identified in the field, or photographed and provided to a local entomologist to identify. No invertebrate species were collected. Invertebrate species captured in the herpetological arrays or identified during active surveys are listed in the wildlife tables in Appendix B.

4.2.3 Special-Status Invertebrate Species

The Monarch was the only special status butterfly observed during the 2008 surveys (Figure 8). Focused surveys for Quino within the Park were negative. Full details of the Quino survey are provided in the attached Quino Checkerspot Survey Report (see Appendix C). However, both Quino and Hermes Copper (*Lycaena hermes*) have a moderate potential to occur based on the presence of their primary host plants, Dwarf Plantain (*Plantago erecta*) and Spiny Redberry (*Rhamnus crocea*), respectively. No special-status invertebrate species are reported for the Park by the CNNDB (CDFG 2008).

Special-Status Invertebrate Species Observed

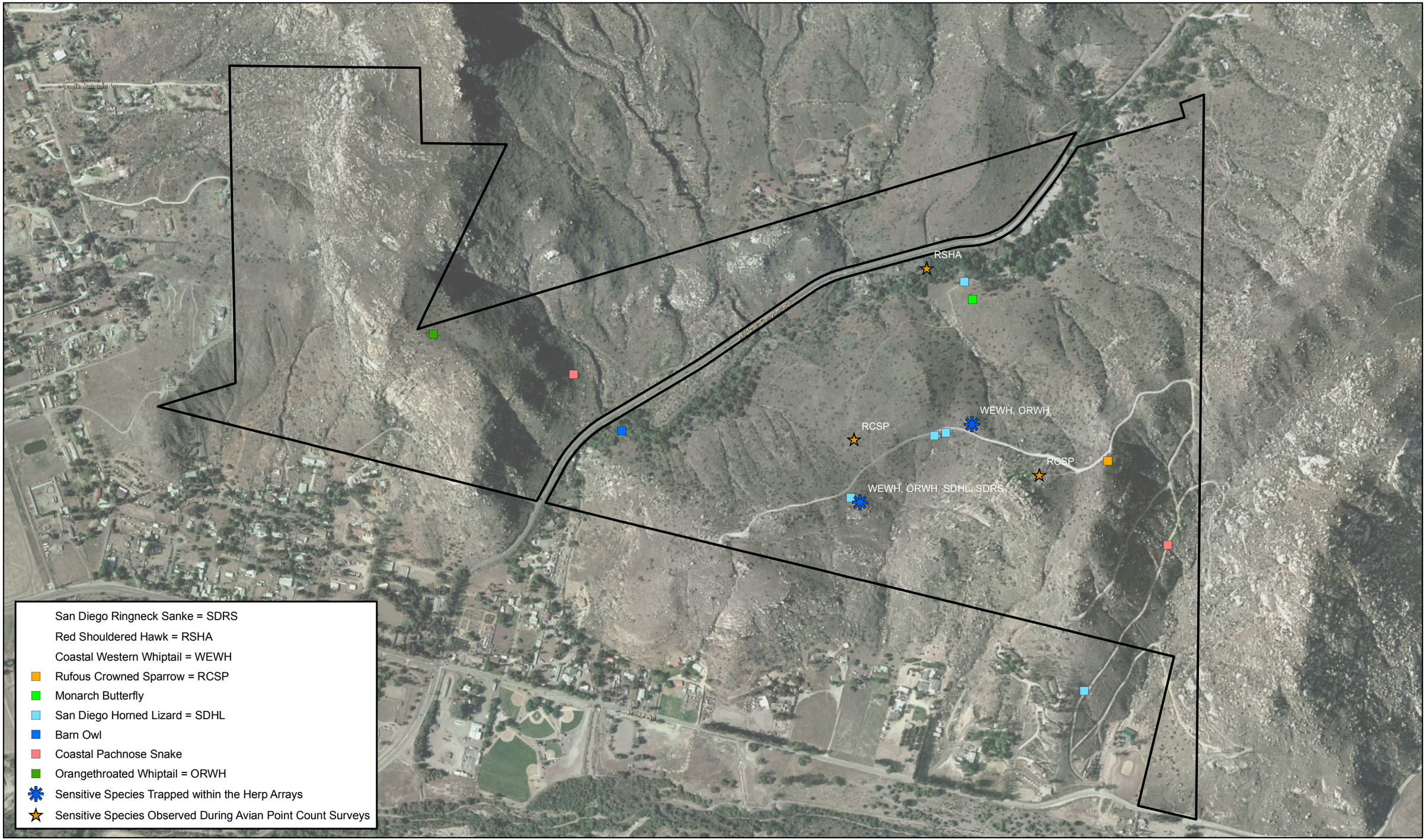
Monarch Butterfly (*Danaus plexippus*)

San Diego County Group II

The Monarch Butterfly is a milkweed butterfly (subfamily Danainae), in the family Nymphalidae. It is perhaps the best known of all butterflies. Monarch Butterflies migrate through San Diego County and are typically found in migratory concentrations on mature stands of trees (e.g., Eucalyptus). One Monarch Butterfly was observed in flight within the northeastern portion of the Park.

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 Park.



SOURCE: ESRI Imagery

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Figure 8
Special Status Wildife Species
Stelzer County Park

4.3 Amphibians

No amphibian species were captured in the pitfall traps during the 2008 sampling period at the Park.

One native amphibian species, Pacific Chorus Frog (*Pseudacris regilla*), was detected near Wildcat Canyon Creek during active searches. This species is presumed to be breeding in Wildcat Canyon Creek.

Other amphibians with potential to occur are limited to the sensitive Western Spadefoot (*Spea hammondii*), 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

Special-Status Amphibian Species Observed

No sensitive amphibian species were detected during the 2008 surveys.

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

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 great 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. This species has high potential to occur in pooled areas of the Wildcat Canyon Creek.

4.4 Reptiles

During the 2008 sampling at the Park, 12 reptile species were detected (Table 5, Appendix B). Eight of these were captured in the herptile arrays: San Diego Horned Lizard (*Phrynosoma coronatum blainvillii*)), Orange-throated Whiptail (*Cnemidophorus hyperythrus beldingi*), Coastal Western Whiptail (*Cnemidophorus tigris stejnegeri*) Western Fence Lizard (*Sceloporus occidentalis*), Granite Spiny Lizard (*Sceloporus orcutti*), Side-blotched Lizard (*Uta stansburiana*), Gilbert's Skink (*Eumeces gilberti*), and San Diego Ringneck Snake (*Diadophis punctatus similis*). Four reptile species were observed or detected but not captured in the arrays and include Southern Alligator Lizard (*Elgaria multicarinata*), Granite Night Lizard (*Xantusia henshawi*), Striped Racer (*Masticophis lateralis*), and Coast Patch-nosed Snake (*Salvadora hexalepis vigultea*). Two additional species, Coastal Rosy Boa (*Lichanura trivirgata roseofusca*) and Red Diamond Rattlesnake (*Crotalus ruber ruber*) were observed by Park Rangers (Pers. Com P. Hayden April 25, 2008).

Based on the presence of potentially suitable habitat, several species may also occur onsite. Potential sensitive species are limited to California Legless Lizard (*Anniella pulchra*), Coronado Skink (*Eumeces skiltonianus interparietalis*), and Two-striped Garter Snake (*Thamnophis hammondii*). Other potential species include Western Banded Gecko (*Coleonyx variegatus*), Western Racer (*Coluber mormon*), Common Kingsnake (*Lampropeltis getula*), Coachwhip (*Masticophis flagellum*), Gopher Snake (*Pituophis catenifer*), Longnose Snake (*Rhinocheilus lecontei*), Western Blackhead Snake (*Tantilla planiceps*), Western Blind Snake (*Leptotyphlops humilis*), Speckled Rattlesnake (*Crotalus mitchellii*), Southern Pacific Rattlesnake (*Crotalus oreganus*), Night Snake (*Hypsiglena torquata*), and Lyre Snake (*Trimorphodon biscutatus*).

Table 5. Reptile Species Observed or Captured within the Park in 2008

Scientific 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	
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	
Masticophis lateralis	Striped Racer	
Salvadora hexalepis vigultea	Coast Patch-nosed Snake	CSC, CSDS Group II
Diadophis punctatus similis	San Diego Ringneck Snake	CSDS Group II

Special Status:

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

4.4.1 Special-Status Reptile Species

Five special-status reptile species were detected during the surveys. These include San Diego Horned Lizard, Orange-throated Whiptail, Coastal Western Whiptail, Coast Patch-nosed Snake and San Diego Ringneck Snake. Two additional special-status species were observed by Park Rangers, Coastal Rosy Boa and Red Diamond Rattlesnake.

Special-Status Reptile Species Observed

San Diego Horned Lizard (*Phyrnosoma coronatum blainvillii*)

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

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 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)*. This species was captured in Array 2 in March 2008.

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 specialist 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 numerous times throughout the 2008 trapping program in Arrays 1 and 2.

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 numerous times throughout the 2008 trapping program in Arrays 1 and 2.

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. One San Diego Ringneck Snake was captured Array 2 in March 2008.

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 during surveys of the Park.

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

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 has high potential to occur in the coastal sage-chaparral scrub and native woodlands found at the Park.

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. This species was observed by Park Rangers in 2008 (Pers. Com P. Hayden April 25, 2008).

Two-striped Garter Snake (*Thamnophis 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 8,000 ft (2,438 m) 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. This species has high potential to occur in the creek found at the Park.

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 by Park Rangers in 2008 (Pers. Com P. Hayden April 25, 2008).

4.5 Birds

Avian species richness (total species detected) was found to be moderate at the Park. In total, 41 bird species were detected with 28 bird species detected during the point counts and 13 detected 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 Park, neither breeding nor wintering there.

The Park's avifauna is a mixture of species that are closely associated with the riparian habitat and the coastal sage scrub recovering from fire. These species include Red-shouldered Hawk (*Buteo lineatus*), Black-chinned Hummingbird (*Archilochus alexandri*), Costa's Hummingbird (*Calypte costae*), Anna's Hummingbird (*Calypte anna*), Ash-throated Flycatcher (*Myiarchus cinerascens*), Pacific Slope Flycatcher (*Empidonax difficilis*), Canyon Wren (*Catherpes mexicanus*), Bewick's Wren (*Thryomanes bewickii*), House Wren (*Troglodytes aedon*), Spotted Towhee (*Pipilo maculates*), California Towhee (*Pipilo crissalis*), Southern California Rufous-crowned Sparrow (*Aimophila ruficeps canescens*), Song Sparrow (*Melospiza melodia*), Lazuli Bunting (*Passerina amoena*), House Finch (*Carpodacus mexicanus*), and Lesser Goldfinch (*Carduelis psaltria*).

The Park has a good diversity of raptors (birds of prey), including seven raptor species observed: Turkey Vulture (*Cathartes aura*), Northern Harrier (*Circus cyaneus*), Red-shouldered Hawk, Red-tailed Hawk (*Buteo jamaicensis*), American Kestrel (*Falco sparverius*), Barn Owl (*Tyto alba*), and Great Horned Owl (*Bubo virginianus*). These birds are using the Park for foraging and some species have potential to breed on site; however, no active raptor nests were observed.

There is no reasonable potential for Southwestern Willow Flycatcher (*Empidonax traillii extimus*) or Least Bell's Vireo (*Vireo bellii pusillus*) to occur at the Park beyond rare and brief visits, due to lack of suitable habitat. It is likely that other subspecies of Willow Flycatcher pass through the Park in spring and fall, though they were not recorded during the current work.

Coastal California Gnatcatchers (CAGN) (*Polioptila californica californica*) occurred on the Park before the 2003 Cedar Fire (K. Fischer personal observation) (Figure 8). If the habitat recovers to its pre-fire condition, then CAGN may once again inhabit the Park.

4.5.1 Point Count Results

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

A total of 41 bird species were detected during the survey of the Park; 28 bird species were detected during the point counts and 13 were detected during other fieldwork (Table 6). The most regularly encountered and/or most numerous bird species were Anna's Hummingbird, Ash-throated Flycatcher, Bewick's Wren, House Wren, Spotted Towhee, California Towhee, Southern California Rufous-crowned Sparrow, House Finch, and Lesser Goldfinch.

Table 6: Avian Species Detected at the Park in 2008

Scientific Name	Common Name	Observed or Detected	Special Status	Breeding Status
Callipepla californica	California Quail	O		pr
Cathartes aura	Turkey Vulture	O	CSDS Group I	
Circus cyaneus	Northern Harrier	O	MSCP, CSDS Group I	
Buteo lineatus	Red-shouldered Hawk	X	CSDS Group I	?
Buteo jamaicensis	Red-tailed Hawk	X		?
Falco sparverius	American Kestrel	O		?
Zenaida macroura	Mourning Dove	X		pr
Tyto alba	Barn Owl	O	CSDS Group II	?
Bubo virginianus	Great Horned Owl	O		
Phalaenoptilus nuttallii	Common Poorwill	O		pr
Aeronautes saxatalis	White-throated Swift	OFB		
Archilochus alexandri	Black-chinned Hummingbird	X		pr
Calypte anna	Anna's Hummingbird	X		pr
Calypte costae	Costa's Hummingbird	X		CO
Picoides nuttallii	Nuttall's Woodpecker	X		?
Empidonax difficilis	Pacific-slope Flycatcher	X		?
Sayornis nigricans	Black Phoebe	X		
Myiarchus cinerascens	Ash-throated Flycatcher	X		pr
Tyrannus verticalis	Western Kingbird	O		
Vireo huttoni	Hutton's Vireo	X		
Corvus brachyrhynchos	American Crow	X		pr
Corvus corax	Common Raven	X		?
Petrochelidon pyrrhonota	Cliff Swallow	X		
Baeolophus inornatus	Oak Titmouse	O		
Psaltriparus minimus	Bushtit	X		pr
Salpinctes obsoletus	Rock Wren	O		
Catherpes mexicanus	Canyon Wren	X		pr

Scientific Name	Common Name	Observed or Detected	Special Status	Breeding Status
Thryomanes bewickii	Bewick's Wren	X		pr
Troglodytes aedon	House Wren	X		CB
Chamaea fasciata	Wrentit	X		pr
Mimus polyglottos	Northern Mockingbird	X		
Phainopepla nitens	Phainopepla	O		
Dendroica coronata	Yellow-rumped Warbler	O		
Pipilo maculatus	Spotted Towhee	X		pr
Pipilo crissalis	California Towhee	X		pr
Aimophila ruficeps canescens	Southern California Rufous-crowned Sparrow (=California Rufous-crowned Sparrow)	X	MSCP, CSDS Group I	pr
Melospiza melodia	Song Sparrow	X		pr
Passerina caerulea	Blue Grosbeak	X		
Passerina amoena	Lazuli Bunting	X		pr
Carpodacus mexicanus	House Finch	X		CO
Carduelis psaltria	Lesser Goldfinch	X		pr

Legend:

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. The abundance and species richness observed during the avian point counts appear to be similar at stations 1 and 3. The greatest number of species were detected at station 3 (21 species) and the lowest number was at stations 1 and 2 (18 species each). Two 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 type of bird. Five 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**		
April	19	19	30	68	22.7
May	16	24	23	63	21.0
June	20	15	21	56	18.7
July	15	11	18	44	14.7
August	10	7	12	29	9.7
September	12	9	12	33	11.0
Total # of Individuals	**92**	**85**	**116**	**293**	
Mean # of Individuals	*15.3*	*14.2*	*19.3*		*16.3*

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

Table 8. Avian Point Counts–Totals for Species

Month	Point Count Stations			Total # of Species	Mean # of Species
	1	**2**	**3**		
April	9	12	12	19	11.0
May	10	10	9	19	9.7
June	11	9	10	16	10.0
July	11	8	11	15	10.0
August	6	3	5	10	4.7
September	9	6	10	16	8.3
Total # of Species	**18**	**18**	**21**		
Mean # of Species	*9.3*	*8.0*	*9.5*		*8.9*

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 three nocturnal species using the Park: Barn Owl, Great Horned Owl, and Common Poorwill (*Phalaenoptilus nuttallii*). Barn Owls have historically been a regular sighting at the Park but this year the species has not been observed as regularly (P. Heyden, personal communication). A Barn Owl was heard during a nocturnal survey in April and then one was flushed in the riparian habitat on the Park during a diurnal site visit in September. There is evidence of an owl species using the dense woodland just south of the ranger office (white-wash and a recent pellet); however, no individuals were flushed during surveys of this area. A Great Horned Owl was detected aurally only one time during the surveys. This species may just be an occasional visitor to the Park. Common Poorwills were regularly detected during nocturnal surveys. The Park supports moderate to high potential for two additional nocturnal species: Western Screech-owl (*Megascops kennicottii*) and Lesser Nighthawk (*Chordeiles acutipennis*). These species could be present in small numbers, though were not detected during the 2008 surveys.

4.5.3 Special-Status Bird Species

Five special-status species were detected during the point counts: Turkey Vulture, Northern Harrier, Red-shouldered Hawk, Barn Owl; and Southern California Rufous-crowned Sparrow. See Figure 8 for locations of special-status birds detected during surveys of the Park.

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, ranch lands and along roadsides where carrion is common. They nest in crevices among granite boulders (Unitt 2004). The Turkey Vultures 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 Park. This species is still common in the undeveloped areas of east San Diego County thus the sighting at the Park is not regionally significant.

Northern Harrier (*Circus cyaneus*)

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

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 Park. A foraging Northern Harrier is not a regionally significant sighting; however, if the species used the Park for nesting, this would be a regionally significant.

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.*) (Unitt 2004). On the west coast, this species is found in California and northern Baja California and is common throughout San Diego County (Unitt 2004). A Red-shouldered Hawk was observed once during the point counts in June in the riparian forest south of the ranger office and most likely breeds somewhere in this riparian corridor. The canopy is fairly thick in some areas precluding observation of nests. The sighting at the Park is not regionally significant as this species is still widespread.

Barn Owl (*Tyto alba*)

San Diego County Group II

The Barn Owl is the owl species that is most tolerant to urban development (Unitt 2004). 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 loss of birds to increased traffic has a negative effect on the species (Unitt 2004). A Barn Owl was heard during a nocturnal survey in April and then one was flushed in the riparian forest during a diurnal site visit in September. This bird may breed nearby or in the oak trees found on the Park but no active nests were observed during the point counts. This sighting is not regionally significant as this species is still widespread.

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

MSCP Covered Species, San Diego County Group I

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% 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 are detected throughout the recovering coastal sage-chaparral scrub. 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.

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

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). There is high potential for White-tailed Kite to occur within the Park. There is suitable foraging and nesting habitat within and immediately adjacent to the boundaries of the Park.

Cooper's Hawk (*Accipiter cooperii*)

MSCP Covered Species, San Diego County Group I

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 habitat edges 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). Cooper's Hawk has high potential to occur as there is suitable foraging and nesting habitat on site.

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). Golden Eagles are known to occur at El Cajon Mountain. The Park may be used

for foraging but does not provide suitable nesting habitat for the species. Due to the known proximity of a pair, there is high potential for this species to sporadically occur at the Park.

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 Park.

Merlin (*Falco columbarius*)

San Diego County Group II

The Merlin is most often seen in grasslands but has the potential to occur in any habitat type 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 Park.

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. This species has high potential to occur as there is appropriate foraging and nesting habitat at the Park.

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. This species has been

documented in the general vicinity of the Park (Unitt 2004) and has a high potential to occur on site due to the presence of suitable habitat.

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 into 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). This subspecies occurs along the coastal lowlands, inland valleys, and in the lower foothills of the local mountains in southern California into Baja California (Dudek 2000). The decline in 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 Sparrow has high potential to occur as there is suitable nesting habitat for the species within the Park.

4.6 Small Mammal Trapping

In total, six small mammal species were recorded at the Park during small mammal trapping and other surveys (Table 9 and 10). These species were detected through capture, direct observation, or sign. The trapping results indicate that the Park has moderate diversity in small mammal species with 58 captures from five species (Table 9). The species detected are commonly found in the habitats on the Park.

Table 9. Trapline Capture Summary for 2008

Scientific Name	Common Name	Special Status	Captures
Spermophilus beecheyi nudipes	California Ground Squirrel		3 released
Chaetodipus californicus femoralis	Dulzura Pocket Mouse	CSC, CSDS Group II	15 ♂ 6 ♀
Peromyscus californicus insignis	California Mouse		7 ♂ 5 ♀
Peromyscus fraterculus *(=Peromyscus eremicus fraterculus)*	Northern Baja Mouse		7 ♂ 9 ♀
Peromyscus maniculatus gambelii	American Deer Mouse		2 ♂ 4 ♀
Total			**58**

Legend:

♂ = male, ♀ = female, released = released prior to determining sex, 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 Park in 2008

Scientific Name	Common Name	Special Status	Vegetation Communities	Method of Detection
Spermophilus beecheyi nudipes	California Ground Squirrel		all communities	visual, sign, camera station sign
Thomomys bottae	Botta's Pocket Gopher		chaparral	sign

4.6.1 Special-Status Small Mammal Species

Sensitive species captured was limited to Dulzura Pocket Mouse (*Chaetodipus californicus femoralis*). Other sensitive species with potential to occur are Northwestern San Diego Pocket Mouse (*Chaetodipus fallax fallax*) and San Diego Desert Woodrat (*Neotoma lepida intermedia*).

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 7,900 ft (2,408 m) (CDFG 2005). This species prefers dense chaparral and is less common in dry grassland and desert scrub. Twenty-one individuals were captured at Stelzer Park.

Special-Status Small Mammal Species not Observed but with a 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 high potential to occur at the Park as it was captured in adjacent Preserves/Parks during 2008 (ICF J&S 2008a).

San Diego Desert Woodrat (*Neotoma lepida intermedia*)

State Species of Special Concern, San Diego County Group II

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 trash. Houses provide insulation against heat as well as protection from predators. This species breeds in late winter or spring, occurs from sea level to approximately 8,500 ft (2,591 m) in deserts and coastal sage scrub, and prefers areas with rocky outcrops and plentiful succulents (CDFG 2005). This species has high potential to occur at the Park as it was captured in adjacent Preserves/Parks during 2008 (ICF J&S 2008b, ICF J&S 2008c).

4.7 Medium and Large Mammals

4.7.1 Camera Tracking Stations

After evaluating the images captured on the two camera stations, a total of six species of medium to large mammals were detected including Desert Cottontail (*Sylvilagus audubonii*), Coyote (*Canis latrans*), Striped Skunk (*Mephitis mephitis*), Bobcat (*Felis rufus*), Domestic Horse (*Equus caballus*), and Southern Mule Deer (*Odocoileus hemionus fuliginata*)) (Table 11, Appendix B). See Figure 5 for camera station locations.

4.7.2 Track & Sign Surveys

A total of seven medium to large mammal species were detected in the Park through tracks, sign, and nocturnal surveys including: Desert Cottontail, Coyote, Common Raccoon (*Procyon lotor*), Striped Skunk, Bobcat, Domestic Horse, and Southern Mule Deer (Table 11, Appendix B). Movement of larger animals appeared to be concentrated along easily traveled routes with good visibility such as roads and ridges. Most signs of smaller animals were within natural communities with cover, especially chaparral and oak woodlands.

Due to the proximity to large amounts of open space and the presence of potentially suitable habitat, the following species may also utilize the Park: Brush Rabbit (*Sylvilagus bachmani*), Common Gray Fox (*Urocyon cinereoargenteus*), Long-tailed Weasel (*Mustela frenata*), Black-tailed Jackrabbit (*Lepus californicus*), Western Spotted Skunk (*Spilogale gracilis*), Opossum (*Didelphis virginiana*), and Mountain Lion (*Puma concolor*).

No clear evidence of regular or important, larger-scale dispersal across the site was found, though such movement may well occur. Certainly it can be assumed that larger mammals regularly move on, off of, and across the Park, to and from adjacent open space.

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

Scientific Name	Common Name	Special Status	Vegetation Communities	Method of Detection
Sylvilagus audubonii	Desert Cottontail		all communities	sign, camera station
Canis latran	Coyote		all communities	sign, camera station
Mephitis mephitis	Striped Skunk		oak woodland	sign, camera station
Procyon lotor	Common Raccoon		oak woodland	sign
Lynx rufus	Bobcat		all communities	sign, camera station
**Equus caballus*	Domestic Horse		all communities	visual, sign, camera station
Odocoileus hemionus fuliginata	Southern Mule Deer	MSCP, CSDS Group II	all communities	visual, sign, camera station

Legend:

* = non-native species

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

4.7.3 Special-Status Medium and Large Mammal Species

One special-status medium or large mammal species was detected during the surveys: Southern Mule Deer.

Special-Status Medium and Large Mammal Species Observed

Southern Mule Deer (*Odocoileus hemionus fuliginata*)

MSCP Covered Species, San Diego County Group II

Mule Deer are common across the western U.S. in a variety of habitats from forest edges to mountains and foothills (Whitaker 1996). Mule Deer prefer edge habitats, rarely travel or forage far from water and are most active around dawn and dusk. Southern Mule Deer individuals were observed and were photographed by the camera stations within the Park.

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

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 8,202 ft (2,500 m) ASML, and is commonly found in the western United States to Mexico and Baja California. The San Diego population is found mostly on the coastal side of our 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). Suitable habitat for this species occurs within the Park.

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 to sustain themselves, requiring at least 850 square miles to remain stable (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. This Park and the surrounding open space provide habitat for Mountain Lion to use for foraging and cover. As there is a large amount of open space surrounding the Park, potential for this species to move through the Park is high.

4.8 Bats

A total of 10 bat species were detected using passive Anabats during the three seasons of bat monitoring (Table 12, Appendix B). The most active bat species detected were the Big Free-tailed Bat (*Nyctinomops macrotis*), Canyon Bat (*Parastrellus hesperus*), and Pocketed Free-tailed Bat (*Nyctinomops femorosaccus*). Species detected infrequently included the Small-footed Myotis (*Myotis ciliolabrum*), California Myotis (*Myotis californicus*), and Townsend's Big-eared Bat (*Corynorhinus townsendii*). There were several species detected during all three monitoring sessions including the Canyon Bat, Pocketed Free-

tailed Bat, and Mexican Free-tailed Bat (*Tadarida brasiliensis*). The Big Free-tailed Bat and Western Mastiff Bat (*Eumops perotis*) were detected only during the spring. Species detected only during the summer included the Big Brown Bat (*Eptesicus fuscus*), California Myotis, and Townsend's Big-eared Bat.

No new bat species was detected during the single active roost survey conducted on July 23, 2008. Only one bat species was detected during this roost survey; the Canyon Bat. This species was suspected to be roosting in the rocky outcrops located above the Park.

A moderate number of bat species appear to be supported by the Park. The Park is fairly diverse and contains habitat features important to bats in the southern California landscape such as riparian vegetation, oak woodland, scrub vegetation, and a fairly extensive amount of exposed rocky outcrops (Krutzsch 1948, Stokes et al 2005). The high levels of activity of rock crevice roosting species such as the Canyon Bat and Free-tailed Bats are likely attributed to the large amount of rocky habitats present in and adjacent to the Park.

Table 12. Bat Species Detected at the Park in 2008

Bat Species			Relative Activity Index*			
Scientific Name	**Common Name**	**Special Status**	**Spring**	**Summer**	**Fall**	**Average Activity Index****
Myotis californicus	California Myotis		nd	16.67	nd	5.56
Myotis ciliolabrum	Small-footed Myotis	CSDS Group II	nd	36.67	3.33	13.33
Myotis yumanensis	Yuma Myotis	CSDS Group II	nd	70.00	nd	23.33
Parastrellus hesperus	Canyon Bat		6.67	260.00	10.00	92.22
Eptesicus fuscus	Big Brown Bat		nd	36.67	nd	12.22
Corynorhinus townsendii	Townsend's Big-eared Bat	CSC, CSDS Group II	nd	3.33	nd	1.11
Tadarida brasiliensis	Mexican Free-tailed Bat		3.33	46.67	6.67	18.89
Nyctinomops femorosaccus	Pocketed Free-tailed Bat	CSC, CSDS Group II	190.00	40.00	23.33	84.44
Nyctinomops macrotis	Big Free-tailed Bat	CSDS Group II	290.00	nd	nd	96.67
Eumops perotis	Western Mastiff Bat	CSC, CSDS Group II	63.33	nd	nd	21.11

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 Concern, CSDS= County of San Diego Sensitive Animal

4.8.1 Special-Status Bat Species

There were six sensitive bat species detected during the 2008 surveys. These include Small-footed Myotis, Yuma Myotis, Townsend's Big-eared Bat, Pocketed Free-tailed Bat, Big Free-tailed Bat, and Western Mastiff Bat. This Park together with the adjacent El Capitan Preserve provides suitable roosting and foraging opportunities for a number of sensitive bat species. These two areas appear to be 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 through 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 is little research conducted on this species. There is minimal roosting habitat for this species available on site; therefore, the Park may just be used for foraging by this species.

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 have 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. Both suitable roosting and foraging habitat for the Yuma Myotis occurs in the Park.

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 is likely not roosting at the Park but instead using it for foraging. The mines located in the adjacent El Capitan Preserve provide roosting habitat for this species.

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 including 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 in the Park as there are no cliffs but the adjacent El Capitan Preserve provides suitable roosting habitat for this species. The individuals detected are likely using the Park as a place to forage.

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 in the Park as there are no cliffs but the adjacent El Capitan Preserve does provide suitable roosting habitat. The individuals detected are using the Park as a place 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 United States. 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 big 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 the 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 in the Park as there are no cliffs but the adjacent El Capitan Preserve does provide suitable roosting habitat. The individuals detected are using the Park as a place to forage.

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

Western Red Bat (*Lasiurus blossevillii*)

State Species of Special Concern, San Diego County Group II

Western Red Bats are found from southern Canada, throughout 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 occurs in the Park.

Pallid Bat (*Antrozous pallidus*)

State Species of Special Concern, San Diego County Group II

Pallid Bats are widely distributed in the southwestern United States 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 Park.

Chapter 5
Conclusions and Management Recommendations

The current surveys documented six land cover types and 308 species that were detected throughout the Park. Our surveys detected 192 plant species, 41 bird species, 23 mammal species (10 bats, six small mammals, and seven medium and large bodied mammals), 13 herptiles (one amphibian and 12 reptiles), and 39 invertebrate species. This list includes 27 special-status species of which seven (five wildlife and two plants) are MSCP-covered species.

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 Multiple Species Conservation Program (Monitoring Plan) (Ogden 1996) as appropriate within the Park. 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 document protection of covered species, changes in preserved populations, collecting of new biological data, evaluating impacts of land uses and evaluating management activities within the Park.

The MSCP Monitoring Plan identifies 29 monitoring sites throughout the plan area. None of these sites are located within the Park; however, monitoring of MSCP-covered species is required.

It should be noted that that the Monitoring Plan is in the process of being revised by the U.S. Fish and Wildlife Service (Animal Monitoring Protocol) and the United States 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 Park. Updates should occur once every three years or within the first growing season following an unforeseen disturbance (i.e., fire, rock fall, flood, or manmade disturbance). The purpose of the ongoing mapping effort should be to document changes in the vegetation communities within the Park that could affect quality and usage by wildlife. Vegetation monitoring for habitat value should also focus on identifying 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.

Periodic botanical surveys are recommended to monitor the special-status species detected within the Park. Special status plant species detected during the 2008 surveys include Delicate Clarkia, Lakeside Ceanothus, San Diego Goldenstar, San Diego Sunflower, Palmer's Sagebrush, Engelmann Oak and Southwestern Spiny Rush. Of these special status plant species only Lakeside Ceanothus and San Diego Goldenstar are considered covered species by the MSCP.

MSCP monitoring requirements for Lakeside Ceanothus include implementing habitat based monitoring and photo plot monitoring. The Monitoring Plan also requires area specific management directives to include specific management measures to address the autecology and natural history of this species and to reduce the risk of catastrophic fire. Management measures to accomplish this may include prescribed fire. Monitoring the Lakeside Ceanothus population within the Park will adhere to the revised Plant Monitoring Protocol currently in preparation by USGS.

MSCP monitoring requirements for San Diego Goldenstar include implementing site specific monitoring at four populations within the plan area. None of these site specific monitoring locations are located within the Park. The Monitoring Plan also requires area specific management directives to include monitoring of transplanted populations and specific measures to protect against detrimental edge effects. Monitoring the San Diego Goldenstar population within the Park

will adhere to the revised Plant Monitoring Protocol currently in preparation by USGS.

Due to the Park'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 Park.

As detailed in Section 4.1.8 several patches of invasive plants listed by Cal-IPC occur within the western most portion of Wildcat Canyon Creek (Table 13). It is recommended that these patches of Castor Bean, Canary Island Date Palm, African Fountain Grass, Tamarisk, Pampas Grass and Tree Tobacco be removed from the Park. These enhancement efforts will increase habitat quality within the southern coast live oak riparian woodland found on site.

Table 13. Nonnative Plants with Highest Priority for Control on the Park

Species	Cal-IPC Status
Castor Bean (*Ricinus communis*)	Limited
Canary Island Date Palm (*Phoenix canariensis*)	Limited
African Fountain Grass (*Pennisetum setaceum*)	Moderate
Tamarisk (*Tamarix ramosissima*)	High
Pampas Grass (*Cortaderia selloana*)	High
Tree Tobacco (*Nicotiana glauca*)	Moderate

5.2 Invertebrates

The Monarch Butterfly was the only special-status invertebrate detected during the 2008 surveys. Although no Quino Checkerspot Butterflies were observed on the Park in 2008, there is potential for their occurrence and other butterflies and invertebrates are using the Park. Quino as well as many other common butterflies are known to exhibit "hilltopping" behavior. This behavior was observed on the Park 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 Park. Ticks are also likely to occur. Signs should be posted to alert park users of their presence, recommending avoidance and providing information on what to do in case of a bite or sting.

5.3 Herpetofauna

The Park supports several special-status herpetofauna species that will likely be encountered by the public on the roads and trails and off trail in the natural communities. These include Orange-throated Whiptail, San Diego Horned Lizard and Coastal Patch-nosed Snake, 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 park 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 park 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. The herpetological pitfall arrays installed as a part of this study will be sampled periodically to monitor the Orange-throated Whiptail and San Diego Horned Lizard populations at the Park.

Many of the reptiles, most notably Granite Night Lizard, are dependent on the rock features of the Park. 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 Park and are often observed on or near roads and trails. Signs should be posted to alert park 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 Park reflects good integrity. A total of 40 bird species was documented on the Park; these include five sensitive species: Turkey Vulture, Northern Harrier, Red-shouldered Hawk, Barn Owl, and Southern California Rufous-crowned Sparrow. Northern Harrier and Southern California Rufous-crowned Sparrow are the only MSCP-covered avian species detected. MSCP monitoring requirements for Northern Harrier and the Southern California Rufous-crowned Sparrow include implementing habitat based monitoring for both species. The Monitoring Plan also requires site specific nest monitoring for the Northern Harrier.

The Park does not support a wide variety of habitat communities so in turn the avifauna is not particularly diverse. The natural resources found at the Park are vulnerable, as bird habitat, 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, and Western Scrub-jays. 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.

At longer time scales, it will be important to ensure the continued viability of the oak woodland. Oak woodland viability is based on recruitment of new trees. Thus the health of this community at the Park should be evaluated periodically to ensure that recruitment and lack of disease in the oaks can support a diversity of both plants and wildlife.

Historically, CAGNs were observed at the Park. After five years of regrowth from the 2003 Cedar Fire, the coastal sage scrub has not returned to a level that would be expected and is not appropriate for the CAGN. Severity and size of the fire and the proliferation of non-native grass species such as wild oat (*Avena* sp.) and bromes (*Bromus* sp.) have led to a potential type conversion of the coastal sage scrub. Adaptive management methods should be initiated that facilitate the recovery of the coastal sage scrub.

Both quantitative and qualitative monitoring of bird populations by qualified personnel is recommended. Quantitative monitoring can consist of maintaining the avian point counts for example. 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 Park and across the region.

Qualitative monitoring can range from informal efforts, such as compiling a bird checklist for the Park and soliciting new or interesting observations, to intensive efforts such as encouraging research use of the Park. It is important to recognize that the avifauna of the Park will naturally change over time, due to regional effects, climate change, and natural turnover. Without monitoring, there is potential for the Park 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 Park 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 Park 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 Park 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.

5.6 Medium to Large Mammals

The Park is surrounded by a large amount of open space, and has the potential to serve as an important corridor for wildlife movement. Maintaining/improving movement connections across Wildcat Canyon Road will be an important consideration over time, especially if traffic volumes increase. Some of the existing culverts that cross underneath the road may be improved to allow for increased wildlife movement.

Southern Mule Deer was the only MSCP-covered mammal species detected during the field surveys. MSCP monitoring requirements for Southern Mule Deer includes monitoring suitable habitat and wildlife corridor sites within the MSCP plan area. Monitoring for medium and large mammals will include periodic sampling at the camera stations used during this study.

Due to the proximity to residential development, species such as domestic dog and cats are likely to be found utilizing the Park. 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 Park.

Domestic dogs on leash are allowed on the Park. It is recommended that the County amend signage to state that dog owners should remove all feces in order to minimize potential vector born disease transmission to the local coyote population. In addition, feces bags and disposal bins should be provided at trailheads to encourage the public to remove feces.

Future surveys may include the use of the existing sampling locations. Increased sampling efforts within the northwest parcel is recommended in the future, as this portion of the Park will likely have increased pressures from the new residential developments that are currently being constructed along Muth Valley Road.

5.7 Bats

The following items are recommended to maintain and increase the habitat suitability for bats within the Park.

- Protect rocky habitats – Rocky outcrops are one of the most significant habitats on and adjacent to the Park. We recommend prohibiting recreational rock climbing activities on the Park unless focused roost surveys are conducted in areas designated as appropriate climbing areas.

- Maintain riparian forest and oak woodland vegetation – these habitats are likely very important to both foraging and roosting bats in the Park, and provide linear foraging habitat connectivity between the Ramona and Lakeside areas.
- Restore natural oak woodland understory – in most parts of the Park the oak woodland understory is fairly well-groomed and devoid of natural leaf litter. We recommend restoring the natural understory and allowing leaf litter to accumulate in at least some portions of the Park, providing foraging opportunities for the Pallid Bat (*Antrozous pallidus*), which often forages for terrestrial arthropods over natural understory vegetation and leaf litter under oak canopy.

Chapter 6
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Appendix A

Vascular Plant Species Observed at Stelzer County Park in 2008

Scientific Name	Common Name	Status
Selaginellaceae - Spike-Moss Family		
Selaginella bigelovii	Bigelow's spike-moss	
Selaginella cinerascens	Mesa spike-moss	
Pteridaceae - Brake Family		
Cheilanthes covillei	Coville's lip fern	
Pellaea mucronata var. mucronata	Bird's foot cliff-brake	
Pentagramma triangularis ssp. triangularis	California goldenback fern	
Amaranthaceae - Amaranth Family		
**Amaranthus albus*	White tumbleweed	
Anacardiaceae - Sumac or Cashew Family		
Malosma laurina	Laurel sumac	
Rhus ovata	Sugar bush	
**Schinus terebinthifolius*	Brazilian pepper tree	
Toxicodendron diversilobum	Western poison-oak	
Apiaceae (Umbelliferae) - Carrot Family		
Daucus pusillus	Rattlesnake weed	
Lomatium dasycarpum ssp. dasycarpum	Woolly-fruit lomatium	
Lomatium lucidum	Shiny lomatium	
Sanicula arguta	Sharp-tooth sanicle	
Sanicula bipinnatifida	Purple sanicle	
Tauschia arguta	Southern tauschia	
Asteraceae (Compositae) - Sunflower Family		
Acourtia microcephala	Sacapellote	
Ambrosia psilostachya	Western ragweed	

Scientific Name	Common Name	Status
Artemisia californica	Coastal sagebrush	
Artemisia douglasiana	Douglas mugwort	
Artemisia dracunculus	Tarragon, dragon sagewort	
Artemisia palmeri	Palmer's sagewort	CNPS List 4, CSDS Group D
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	
Conyza canadensis	Horseweed	
Deinandra fasciculata	Fascicled tarweed	
Eriophyllum confertiflorum var. confertiflorum	Long-stem golden-yarrow	
**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 squarossa	goldenbush	
Helianthus gracilentus	Slender sunflower	
Heterotheca grandiflora	Telegraph weed	
Isocoma menziesii	goldenbush	
**Lactuca serriola*	Prickly lettuce	
Lasthenia californica	Common goldfields	
Osmadenia tenella	Osmadenia	

Scientific Name	Common Name	Status
Solidago californica	California goldenrod	
**Sonchus sp.*	Sow-thistle	
Stephanomeria virgata	wreath-plant	
Viguiera laciniata	San Diego sunflower	CNPS List 4, CSDS Group D
Xanthium strumarium	Cockelbur	
Boraginaceae - Borage Family		
Amsinckia menziesii var. intermedia	Rancher's fiddleneck	
Cryptantha intermedia	Nievitas cryptantha	
Pectocarya linearis	Slender pectocarya	
Plagiobothrys sp	popcornflower	
Brassicaceae (Cruciferae) - Mustard Family		
**Brassica nigra*	Black mustard	
Caulanthus heterophyllus var. heterophyllus	San diego jewelflower	
Descurainia pinnata		
**Hirschfeldia incana*	Short-pod mustard	
**Sisymbrium officinale*	Hedge mustard	
Caprifoliaceae [incl. Adoxaceae] - Honeysuckle Family		
Lonicera subspicata var. denudata	Southern honeysuckle	
Sambucus mexicana	Blue elderberry	
Caryophyllaceae - Pink Family		
**Silene gallica*	Common catchfly	
**Spergularia bocconii*	Buccone's sand-spurry	
Chenopodiaceae - Goosefoot Family		
**Chenopodium album*	Lamb's quarters	

Scientific Name	Common Name	Status
Cistaceae - Rock-Rose Family		
Helianthemum scoparium	Peak rush-rose	
Convolvulaceae - Morning-Glory Family		
Calystegia macrostegia	Morning-glory	
Crassulaceae - Stonecrop Family		
Crassula connata	Pygmy weed	
Dudleya edulis	Ladies' fingers	
Dudleya lanceolata	Dudleya	
Dudleya pulverulenta	Dudleya	
Cucurbitaceae - Gourd Family		
Marah macrocarpus var. macrocarpus	Manroot, wild-cucumber	
Cuscutaceae - Dodder Family		
Cuscuta californica	Dodder	
Ericaceae - Heath Family		
Xylococcus bicolor	Mission manzanita	
Euphorbiaceae - Spurge Family		
Acalypha californica	California copperleaf	
Chamaesyce albomarginata	Rattlesnake spurge	
**Ricinus communis*	Castor bean	
Fabaceae (Leguminosae) - Legume Family		
Lotus hamatus	Grab lotus	
Lotus scoparius	Deerweed	
Lotus strigosus		
Lupinus bicolor	Miniature lupine	
Lupinus hirsutissimus	Stinging lupine	

Scientific Name	Common Name	Status
Lupinus microcarpus var. microcarpus	Red-flower lupine	
Lupinus succulentus	Arroyo lupine	
Lupinus truncatus	Collar lupine	
**Medicago polymorpha*	California burclover	
**Melilotus indica*	Indian sweetclover	
Trifolium willdenovii	Valley clover	
Fagaceae - Oak Family		
Quercus agrifolia var. agrifolia	Coast live oak, encina	
Quercus berberidifolia	Scrub oak	
Quercus engelmannii	Engelmann's/mesa blue oak	CNPS List 4, CSDS Group D
Gentianaceae - Gentian Family		
Centaurium venustum	Canchalagua	
Geraniaceae - Geranium Family		
**Erodium botrys*	Long-beak filaree/storksbill	
**Erodium cicutarium*	Red-stem filaree/storksbill	
Grossulariaceae - Gooseberry Family		
Ribes indecorum	White flower currant	
Hydrophyllaceae - Waterleaf Family		
Emmenanthe penduliflora	Whispering bells	
Eriodictyon crassifolium	Yerba santa	
Eucrypta chrysanthemifolia var. bipinnatifida		
Nemophila menziesii var. menziesii	Baby blue eyes	
Phacelia distans	Wild-heliotrope	
Phacelia grandiflora		
Phacelia parryi		

Scientific Name	Common Name	Status
Pholistoma auritum	Fiesta flower	
Lamiaceae (Labiatae) - Mint Family		
**Marrubium vulgare*	Horehound	
Salvia apiana	White sage	
Salvia columbariae	Chia	
Salvia mellifera	Black sage	
Scutellaria tuberosa	Danny's skullcap	
Malvaceae - Mallow Family		
Malacothamnus fasciculatus	Chaparral bushmallow	
Myrtaceae - Myrtle Family		
**Eucalyptus sp.*	Gum	
Nyctaginaceae - Four O'clock Family		
Mirabilis laevis var. crassifolia	Coastal wishbone plant	
Onagraceae - Evening-Primrose Family		
Camissonia bistorta	California sun cup	
Camissonia californica	False-mustard	
Clarkia delicata	Delicate/campo clarkia	CNPS List 1B, CSDS Group A
Clarkia epilobioides	Canyon godetia	
Clarkia purpurea	Four-spot clarkia	
Epilobium canum	California fuschia, zauschneria	
Oenothera elata ssp. hookeri	Great marsh evening-primrose	
Oxalidaceae - Oxalis Family		
**Oxalis pes caprae*	Bermuda-buttercup	
Paeoniaceae - Peony Family		
Paeonia californica	California peony	

Scientific Name	Common Name	Status
Papaveraceae [incl. Fumariaceae] - Poppy Family		
Dicentra chrysantha	Golden ear-drops	
Eschscholzia californica	California poppy	
Plantaginaceae - Plantain Family		
Plantago erecta	Plantain	
**Plantago lanceolata*	English plantain, rib-grass	
**Plantago major*	Common plantain	
Platanaceae - Plane Tree or Sycamore Family		
Platanus racemosa	Western sycamore	
Polemoniaceae - Phlox Family		
Gilia angelensis	Grassland gilia	
Linanthus dianthiflorus	Farinose ground pink	
Navarretia hamata ssp. hamata	Hooked skunkweed	
Polygonaceae - Buckwheat Family		
Eriogonum fasciculatum	California buckwheat	
**Rumex crispus*	Curly dock	
Portulacaceae - Purselane Family		
Calandrinia ciliata	Red maids	
Claytonia perfoliata ssp. perfoliata	Miner's-lettuce	
Primulaceae - Primrose Family		
**Anagallis arvensis*	Scarlet pimpernel, poor man's weatherglass	
Dodecatheon clevelandii ssp. clevelandii	Padre's shooting star	
Rhamnaceae - Buckthorn Family		

Scientific Name	Common Name	Status
Ceanothus cyaneus	Lakeside ceanothus	CNPS List 1B, MSCP, CSDS Group A
Ceanothus integerrimus	Deer brush	
Ceanothus leucodermis	Chaparral whitethorn	
Ceanothus oliganthus		
Ceanothus tomentosus	Ramona-lilac	
Rhamnus crocea	Spiny redberry	
Rhamnus ilicifolia	Holly-leaf redberry	
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	
Rutaceae - Rue or Citrus Family		
Cneoridium dumosum	Coast spice bush, bush-rue	
Salicaceae - Willow Family		
Salix exigua	Narrow-leaf willow	
Salix gooddingii	Goodding's black willow	
Salix laevigata	Red willow	
Salix lasiolepis	Arroyo willow	
Saururaceae - Lizard's Tail Family		
Anemopsis californica	Yerba mansa	
Scrophulariaceae - Figwort Family		
Antirrhinum nuttallianum ssp. nuttallianum	Nuttall's snapdragon	
Castilleja exserta ssp. exserta	Purple owl's-clover	
Keckiella cordifolia	Climbing bush penstemon	
Linaria canadensis	Large blue toadflax	

Scientific Name	Common Name	Status
Mimulus aurantiacus	Coast monkey flower	
Solanaceae - Nightshade Family		
**Nicotiana glauca*	Tree tobacco	
**Solanum nigrum*	Black nightshade	
Solanum parishii	Parish's nightshade	
Tamaricaceae - Tamarisk Family		
**Tamarix ramosissima*	Tamarisk, salt-cedar	
Vitaceae - Grape Family		
Vitis girdiana	Desert wild grape	
Agavaceae - Agave Family		
Yucca schidigera	Mohave yucca	
Yucca whipplei	Our lord's candle	
Arecaceae (Palmae) - Palm Family		
**Phoenix canariensis*	Canary island date palm	
Cyperaceae - Sedge Family		
Carex spissa	San diego sedge	
**Cyperus involucratus*	African umbrella plant	
Eleocharis macrostachya	Pale spike-sedge	
Juncaceae - Rush Family		
Juncus acutus ssp. leopoldii	Southwestern spiny rush	CNPS List 4, CSDS Group D
Juncus bufonius var. bufonius	Toad rush	
Juncus mexicanus	Mexican rush	
Liliaceae - Lily Family		
Calochortus albus	White globe lily, fairy lantern	
Calochortus splendens	Splendid mariposa lily	

Scientific Name	Common Name	Status
Calochortus weedii var. weedii	Weed's mariposa lily	
Poaceae (Gramineae) - Grass Family		
Achnatherum coronatum	Giant stipa	
**Avena barbata*	Slender wild oat	
Bromus carinatus var. carinatus	California brome	
**Bromus diandrus*	Ripgut grass	
**Bromus hordeaceus*	Soft chess	
**Bromus madritensis*	Foxtail chess	
Cortaderia selloana	Pampas Grass	
**Gastridium ventricosum*	Nit grass	
**Hordeum murinum*	Glaucous barley	
Leymus condensatus	Giant wild rye	
Leymus triticoides	Beardless wild ryegrass	
**Lolium multiflorum*	Italian ryegrass	
Melica imperfecta	Coast range melic	
Nassella lepida	Foothill needlegrass	
Nassella pulchra	Purple needlegrass	
**Pennisetum setaceum*	African fountain grass	
**Polypogon monspeliensis*	Annual beard grass	
**Schismus barbatus*	Mediterranean schismus	
**Vulpia myuros var. myuros*		
Themidaceae - Brodiaea Family		
Bloomeria crocea ssp. crocea	Common goldenstar	
Bloomeria (Muilla) clevelandii	San Diego goldenstar	CNPS List 1B, MSCP, CSDS Group A
Muilla maritima	Common muilla	

Scientific Name	Common Name	Status

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 (CSDS)

A – Rare, threatened or endangered in California and elsewhere

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 Stelzer County Park in 2008

Wildlife Species Detected at Stelzer County Park 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	
Chlosyne gabbii	Gabb's Checkerspot	X	
Danaus plexippus	Monarch	X	CSDS Group II
Erynnis funeralis	Funereal Duskywing	X	
Glaucopsyche lygdamus australis	Southern Blue	X	
Icaricia acmon	Acmon Blue	X	
Junonia coenia	Common Buckeye	X	
Nymphalis antiopa	Mourning Cloak	X	
Papillo eurymedon	Pale Swallowtail	X	
Papillo rutulus	Western Tiger Swallowtail	X	
Pieris rapae	Cabbage White	X	
Pontia protodice	Checkered/Common 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	T	
Aphonopelmus eutylenum	Tarantula	T	
Apis mellifera	European Honey Bee	X	
Armadillidium vulgare	Pill Bug	T	
Calosoma pustulosis	Common Calosoma	T	
Centhophilus californicus	Camel Cricket	T	
Cratidus osculans	Wooly Darkling Beetle	T	
Paruroctonus silvestrii	Common California Scorpion	XT	
Eleodes sp.	Stink Beetle	XT	
Gryllus sp.	Field Cricket	XT	
Hyles lineata	White-Lined Spinx Moth	X	
Okanagana sp.	Cicada	XT	
Pardosa sp.	Wolf Spider	XT	
Phidippus johnsoni	Jumping Spider	XT	

Scientific Name	Common Name	Method of Detection	Special Status
Phloeodes pustulosis	Ironclad Beetle	XT	
Schizocosa maxima	Giant Wolf Spider	T	
Stagmonantis californicus	California Mantid	XT	
Stenopelmatus sp.	Jerusalem Cricket	XT	
Trimerotropis pallidipennis	Pallid-Winged Grasshopper	XT	
Tylobolus sp.	Millipede	X	
HERPTILES			
Pseudacris regilla [*Hyla regilla*]	Pacific Chorus Frog	XT	
Elgaria multicarinata	Southern Alligator Lizard	X	
Phrynosoma coronatum blainvillii	San Diego Horned Lizard	X	CSC, MSCP, CSDS Group II
Sceloporus occidentalis	Western Fence Lizard	X	
Sceloporus orcutti	Granite Spiny Lizard	X	
Uta stansburiana	Side-blotched Lizard	X	
Eumeces gilberti	Gilbert's Skink	X	
Cnemidophorus hyperythus beldingi	Orange-throated Whiptail	X	CSC, MSCP, CSDS Group II
Cnemidophorus tigris stejnegeri	Coastal Western Whiptail	X	CSDS Group II
Xantusia henshawi	Granite Night Lizard	X	
Charina trivirgata roseofusca	Coastal Rosy Boa	PC	CSDS Group II
Masticophis lateralis	Striped Racer	X	
Salvadora hexalepis vigultea	Coastal Patch-nosed Snake	X	CSC, CSDS Group II
Crotalus ruber ruber	Red Diamond Rattlesnake	PC	CSC, CSDS Group II
Diadophis punctatus similis	San Diego Ringneck Snake	X	CSDS Group II
BIRDS			
Callipepla californica	California Quail	X	
Cathartes aura	Turkey Vulture	X	CSDS Group I
Circus cyaneus	Northern Harrier	X	CSC, MSCP, CSDS Group I
Buteo lineatus	Red-shouldered Hawk	X	CSDS Group I
Buteo jamaicensis	Red-tailed Hawk	X	
Falco sparverius	American Kestrel	X	
Zenaida macroura	Mourning Dove	X	
Tyto alba	Barn Owl	X	CSDS Group II
Bubo virginianus	Great Horned Owl	X	
Phalaenoptilus nuttallii	Common Poorwill	X	
Aeronautes saxatalis	White-throated Swift	X	
Archilochus alexandri	Black-chinned Hummingbird	X	
Calypte anna	Anna's Hummingbird	X	

Scientific Name	Common Name	Method of Detection	Special Status
Calypte costae	Costa's Hummingbird	X	
Picoides nuttallii	Nuttall's Woodpecker	X	
Empidonax difficilis	Pacific-slope Flycatcher	X	
Sayornis nigricans	Black Phoebe	X	
Myiarchus cinerascens	Ash-throated Flycatcher	X	
Tyrannus verticalis	Western Kingbird	X	
Vireo huttoni	Hutton's Vireo	X	
Corvus brachyrhynchos	American Crow	X	
Corvus corax	Common Raven	X	
Petrochelidon pyrrhonota	Cliff Swallow	X	
Baeolophus inornatus	Oak Titmouse	X	
Psaltriparus minimus	Bushtit	X	
Salpinctes obsoletus	Rock Wren	X	
Catherpes mexicanus	Canyon Wren	X	
Thryomanes bewickii	Bewick's Wren	X	
Troglodytes aedon	House Wren	X	
Chamaea fasciata	Wrentit	X	
Mimus polyglottos	Northern Mockingbird	X	
Phainopepla nitens	Phainopepla	X	
Dendroica coronata	Yellow-rumped Warbler	X	
Pipilo maculatus	Spotted Towhee	X	
Pipilo crissalis	California Towhee	X	
Aimophila ruficeps canscens	Southern California Rufous-crowned Sparrow (=California Rufous-crowned Sparrow)	X	MSCP, CSDS Group I
Melospiza melodia	Song Sparrow	X	
Passerina caerulea	Blue Grosbeak	X	
Passerina amoena	Lazuli Bunting	X	
Carpodacus mexicanus	House Finch	X	
Carduelis psaltria	Lesser Goldfinch	X	
MAMMALS			
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	
Corynorhinus townsendii	Townsend's Big-eared Bat	X	CSC, CSDS Group II
Tadarida brasiliensis	Mexican Free-tailed Bat	X	

Scientific Name	Common Name	Method of Detection	Special Status
Nyctinomops femorosaccus	Pocketed Free-tailed Bat	X	CSC, CSDS Group II
Nyctinomops macrotis	Big Free-tailed Bat	X	
Eumops perotis	Western Mastiff Bat	X	CSC, CSDS Group II
Sylvilagus audubonii	Desert Cottontail	SC	
Spermophilus beecheyi	California Ground Squirrel	XTSC	
Thomomys bottae	Botta's Pocket Gopher	S	
Chaetodipus californicus femoralis	Dulzura Pocket Mouse	T	CSC, CSDS Group II
Peromyscus californicus	California Mouse	T	
Peromyscus fraterculus	Northern Baja Mouse	T	
Peromyscus maniculatus gambelii	American Deer Mouse	T	
Canis latrans	Coyote	SC	
Procyon lotor	Common Raccoon	S	
Mephitis mephitis	Striped Skunk	SC	
Lynx rufus [*Felis rufus*]	Bobcat	SC	
**Equus caballus*	Domestic Horse	XSC	
Odocoileus hemionus fuliginata	Southern Mule Deer	XSC	MSCP, CSDS Group II

Legend:

*= Non-native or invasive 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

Quino Checkerspot Butterfly Focused Report

QUINO CHECKERSPOT BUTTERFLY SURVEY REPORT FOR LOUIS STELZER COUNTY PARK CALIFORNIA

Prepared for:

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Department of Parks and Recreation
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Prepared by:

ICF Jones & Stokes
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July 2008

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I. SUMMARY

Surveys were conducted in the spring of 2008 for the 370-acre Louis Stelzer County Park in San Diego County, California. The Park is bisected by Wildcat Canyon Road that runs in the southwest to northeast direction and Wildcat Canyon Creek that flows from the northeast to the southwest in the eastern portion of the Park. Surrounding land uses include residential and ranch land to the west and south, privately owned undeveloped land to the north, and undeveloped land owned by Helix Water District to the east.

The Park supports coastal sage scrub, coastal sage chaparral scrub, southern mixed chaparral, scrub oak chaparral, coast live oak woodland, and native and non-native grassland. In addition freshwater marsh and southern coast live oak riparian forest occur along Wildcat Canyon Creek. The Park includes dirt roads and hiking trails, steel lattice transmission line, concrete parking lot, ranger station, playground, cabin and other related developed areas.

Due to the large size of the Park and budget constraints surveys were not conducted at the protocol level. Instead, the entire Park was evaluated, and more time and consideration was given to the areas with the highest probability of supporting Quino.

A total of six weekly surveys were conducted over the course of the flight season (March 5 - April 16, 2008). Quino checkerspot butterflies were not detected during the six 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 nineteen butterfly species, including Gabb's checkerspot, Behr's metalmark, Sara's orangetip, western tiger swallowtail, red admiral 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 Louis Stelzer County Park (Stelzer), located approximately 0.5 miles east of Highway 67 along Wildcat Canyon Road in the City of Lakeside in San Diego County (Figures 1 and 2). A total of six weekly surveys were conducted between March 5 and April 16, 2008 in accordance with the U.S. Fish and Wildlife Service Year 2002 Protocol (USFWS 2002).

A habitat assessment conducted on the Park on March 5, 2007, determined that non-excluded areas, as defined by the U.S. Fish and Wildlife Service (USFWS 2002), occur on the Park. 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 consist of dense southern mixed chaparral, concrete parking lot, ranger station, playground, cabin and other related developed areas, as well as dense riparian vegetation, open water and associated fresh water marsh. Excluded areas comprised 12 acres and are depicted on Figure 3. This report documents the results of the 2008 focused surveys conducted in all the non-excluded areas comprising approximately 358 acres.

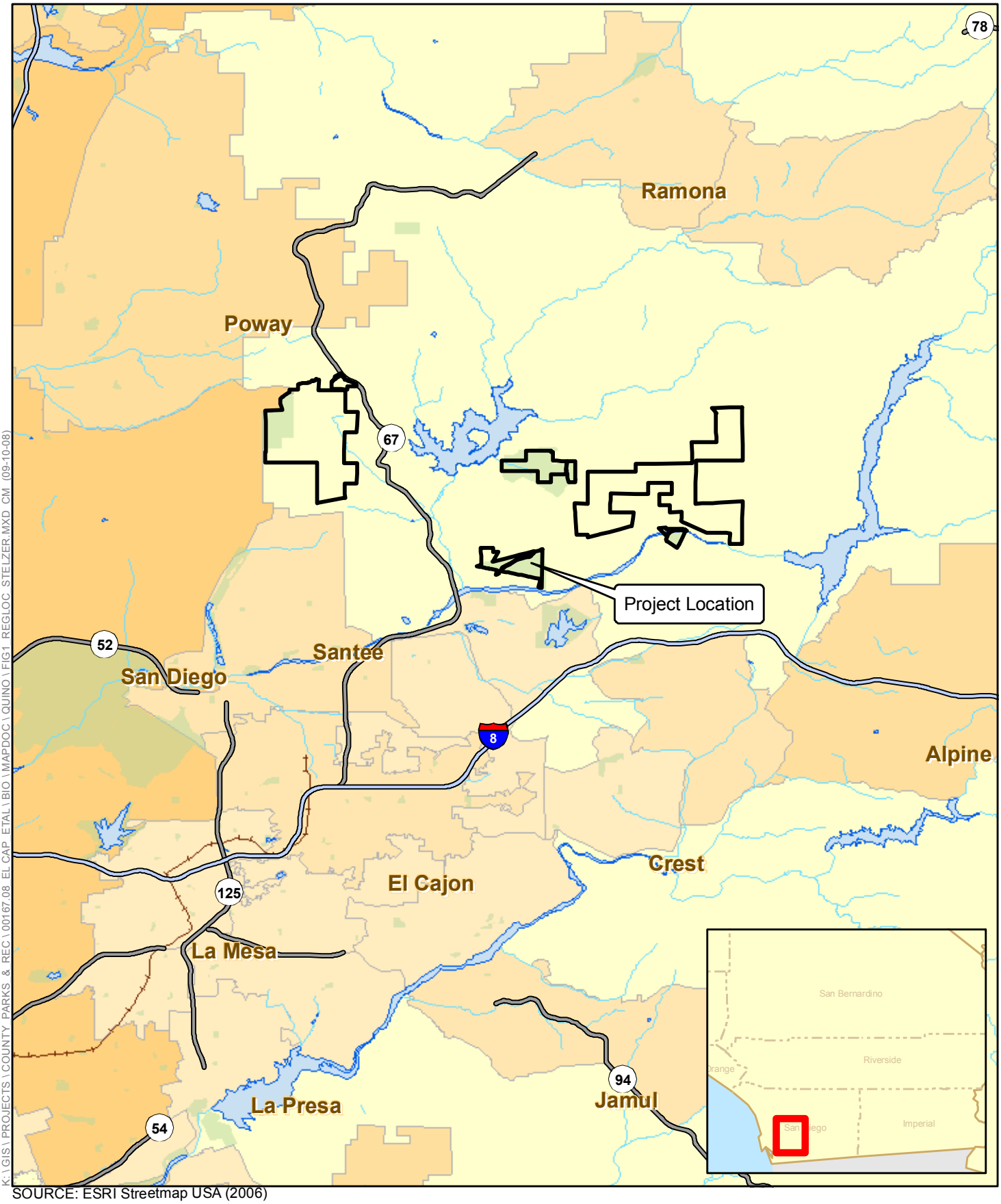
Physical Characteristics

Stelzer is centered on Wildcat Canyon with rocky steep slopes on either side of the creek and road. Stelzer consists of several small hills that eventually lead to step granitic boulders strown ridgelines on either side. Vegetation communities present within the survey areas consist of coastal sage scrub, coastal sage chaparral scrub, and southern mixed chaparral, oak woodland and native and nonnative grassland. The Park also includes roads and hiking trails, a concrete parking lot and ranger station, playground, cabin and other related developed areas on the eastern portion, and steel lattice transmission line on both sides of the canyon. The entire Preserve burned in the 2003 Cedar Fire.

Surrounding land uses include Wildcat Canyon Road bisecting the Park in two, residential and ranch land to the west and south, privately owned undeveloped land to the north, and undeveloped land owned by Helix Water District to the east.

Stelzer ranges between 640 feet in elevation at the bottom of the canyon, to 1160 feet on the ridgeline in the eastern portion and 1200 feet on the plateau in the northwestern portion. The Park is characterized by a north–south trending valley, with moderately steep to very steep slopes on either side. The valley supports Wildcat Canyon Creek that drains southwest eventually into the San Deigo river approximately 0.5 miles south of the Park boundary. All other drainages within the preserve drain into Wildcat Canyon Creek.

Four soil types from three soil series, as defined by the U.S. Department of Agriculture, are mapped within the Park (Bowman 1973). This includes Cieneba very rocky coarse sandy loam (30 to 75 percent slopes), Cieneba-Fallbrook rocky sandy loams (30 to 65 percent), Fallbrook sandy loam, (15 to 30 percent slopes), and Visalia sandy loam (0 to 2 percent slopes). In addition the U.S. Department of Agriculture mapped acid igneous rock land in the western portion and in the southeastern corner. (Bowman 1973)



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SOURCE: ESRI Streetmap USA (2006)

ICF Jones & Stokes
an ICF International Company

N 0 2 4 Miles

Figure 1
Regional Location
Louis Stelzer County Park

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 Park 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 Park. 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 Park averages 15 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 Park is dominated by oak woodlands and coastal sage-chaparral scrub vegetation, which is naturally maintained by infrequent fires. If the natural fire cycle is suppressed, the coastal sage-chaparral scrub can become senescent, declining in both health and diversity. If the fire frequency is increased, vegetation could shift towards disturbed grassland habitats or opportunistic pioneering shrub communities. The fire cycles within the area are affected by actions within and adjacent to the Park property. 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 of San Diego fire burn data, the majority of the property burned in the 2003 Cedar Fire; a relatively small area in the southwestern portion of the Park was not burned (Figure 4). The Park has not burned during any other recent fires (SanGIS 2008).

WILDCAT CANYON

ASHWOOD

EL MONTE

LAKE JENNINGS PARK

Louis Stelzer County Park
Surveyed
Excluded

Host Plants Observed

Owl's Clover (Castilleja exserta)
Dwarf Plantain (Plantago erecta)

K:\ GIS \ PROJECTS \ COUNTY PARKS & REC \ 00166.08 SYCAMORE CYN \ BIO \ MAPDOC \ QUINO \ FIG3 QUINO.MXD AS (09-10-08)

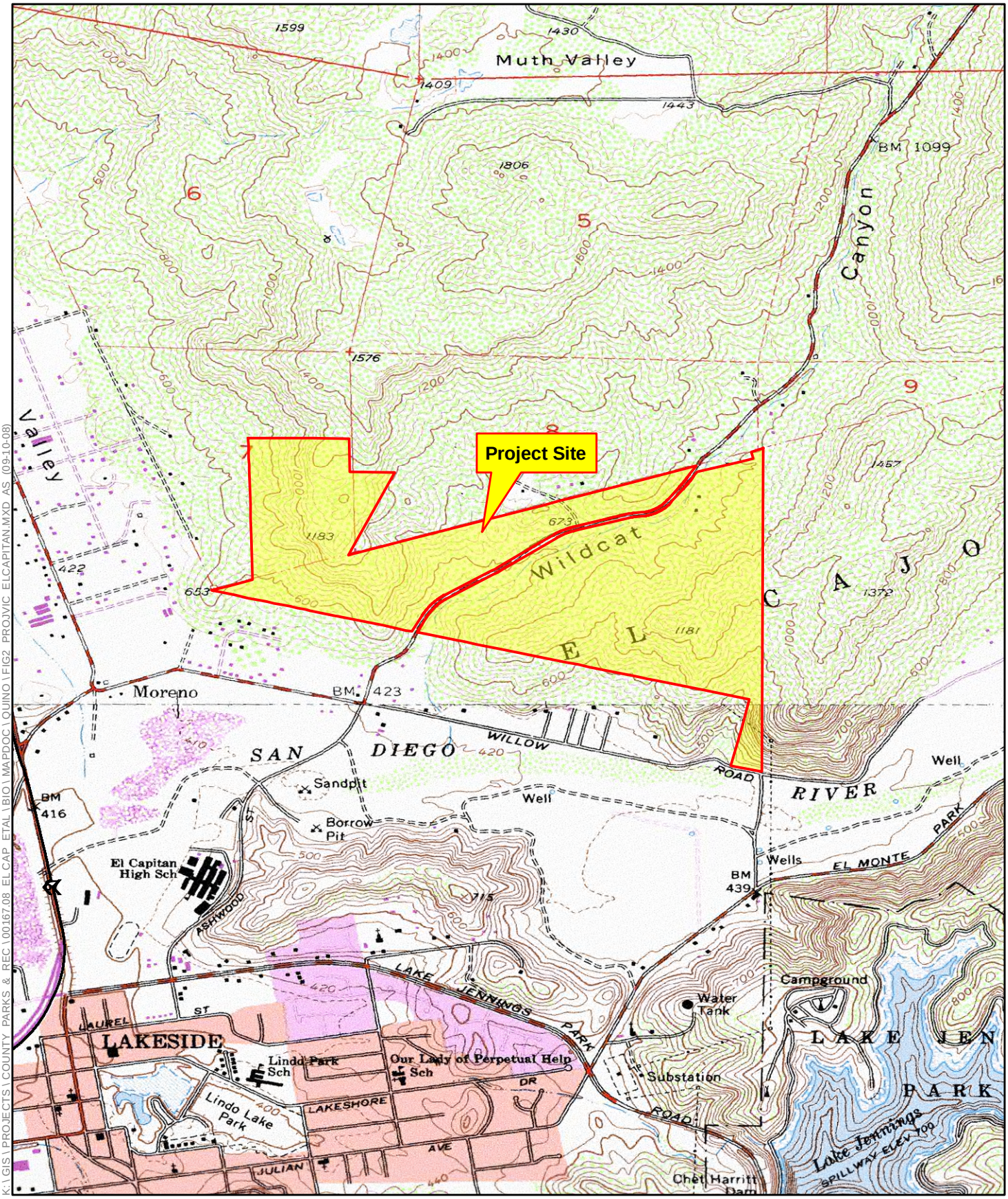
SOURCE: ESRI Imagery

ICF Jones & Stokes
an ICF International Company

N

0 500 1,000 2,000 Feet

Figure 3
Quino Habitat Assessment
Louis Stelzer County Park



K:\GIS\PROJECTS\COUNTY PARKS & REC\00167.08 EL CAP ETAL\BIO\MAPDOC\QUINO\FIG2 PROJVIC ELCAPITAN.MXD AS (09-10-08)

SOURCE: ESRI Imagery

ICF Jones & Stokes
an ICF International Company

Figure 2
Project Vicinity
Louis Stelzer County Park

III. METHODS

Andrew Borcher (Permit No. TE-092162-0), Korey Klutz (Permit No. TE-036065-0) and and Kailash Mozumder (Permit No. TE-168926-0) of ICF Jones & Stokes conducted surveys for adult Quino between March 5 and April 16, 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). Approximately 12 acres of developed and densely vegetated land were excluded from the survey. Each survey involved slowly walking transects throughout non-excluded portions of the Park with the highest potential for Quino detection. Areas considered to have the highest potential included the plateau in the northwest corner, the small hill north of Wildcat Canyon Road in the western portion of the Park, and near the middle of the north-facing slopes in the eastern portion within the native grassland. All of these areas consisted of moderate to high densities of host plants and were either on a hilltop, plateau or exposed slopes. This approach was used to collect the best information possible given budget constraints. The surveys were conducted at an average rate of 15 acres per hour. Surveyors stopped periodically to scan adjacent areas for moving butterflies. All nineteen 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
3/5/08	Habitat Assessment	1015-1245	58°F	0	100	A. Borcher, K. Klutz, K. Mozumder
3/20/08	1	1045-1315	68/73°F	0-4	0	K. Mozumder
3/25/08	2	0830-1630	64/72°F	0-4	0	A. Borcher
3/31/08	3	1300-1645	72°F	1-3	0	A. Borcher, K. Mozumder
4/8/08	4	1200-1700	65/66°F	1-4	0	A. Borcher
4/9/08	5	1000-1630	65/68°F	0-4	0	A. Borcher
4/16/08	6	0830-1530	60/70°F	0-3	0	A. Borcher, K. Mozumder

Table 2. Butterflies Observed at Stelzer Park

Scientific Name	Common Name
Anthocharis cethura	Desert Orangetip
Anthocaris sara	Sara's Orangetip
Apodemia mormo virgulti	Behr's Metalmark
Callophrys affinis perplexa	Perplexing Hairstreak
Chlosyne gabbii	Gabb's Checkerspot
Danaus plexippus	Monarch
Erynnis funeralis	Funereal Duskywing
Glaucopsyche lygdamus australis	Southern Blue
Icaricia acmon	Acmon Blue
Junonia coenia	Common Buckeye
Nymphalis antiopa	Mourning Cloak
Papillo eurymedon	Pale Swallowtail
Papillo rutulus	Western Tiger Swallowtail
Pieris rapae	Cabbage White
Pontia protodice	Checkered/Common 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 Otay Fire in October 2003 and again 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 12, 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 Stelzer, the reference site visits confirmed Quino were actively flying during the majority of the survey dates.

IV. RESULTS

Nineteen butterfly species were observed during the six protocol surveys including Gabb's checkerspot, Behr's metalmark, Sara's orangetip, western tiger swallowtail, red admiral 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.), chia (*Salvia columbariae*), blue dick (*Dichelostemma capitatum*), goldfields (*Lasthenia califonrica*), and ground pink (*Linathus dianthiflorus*).

There were three areas on the preserve that had dense patches of host plants including the plateau in the northwest corner, the small hill north of Wildcat Canyon Road in the western portion of the Park, and near the middle of the north-facing slopes in the eastern portion within the native grassland. All of these areas have potential to support Quino. The highest likelihood of occurrences would be on the plateau in the northwest corner due to the topology, large open areas between denser vegetation, and the abundance of host plants and nectar sources.

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

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

VI. REFERENCES

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Glassberg, Jeffrey. 2001. Butterflies Through Binoculars The West. Oxford University Press

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ATTACHMENT 1

FIELD NOTES

STELZER

3/5/08
A. Borcher
w/ K. Klotz
K. Mozum

Habitat Assess

10:15
58°
Mostly Sunny

Butterflies

Dusky wing	𝍸
Si blue	I
P. Lady	II
Perpha	II
Behrs	I
Wester Swal	I
Sara's Orip	III

Flowers

Each cal
chia
phu par
chupta
Mor lae
Col het
Lup tro
Lop hir
Lot stry
Cia dra
Nemo sp.
Sweet pea
calanthus

Wildlife

Rc SP
SB LIZ
WF LIZ
WREN
YR WA
BL PH
HO FI

Oak Oasis

3/6/08
A. Borcher
w/ K. Klotz
K. Moze
11:00

Habitat Assess

Butterflies

Sara's Orip

Flowers

Wildlife

No Fl
Ho Fi
Be Wr
We Sk
Ac Wo
Sc Ja

March 5, 2008 K. Moscowka
[illegible] A. Border, [illegible] E. Klotz
Stoltzer [illegible] Account @ [illegible]
Start 10:[illegible] 58°F [illegible]
End 11:00

Butterflies
Pipevine Swallowtail 1
[illegible] 11
[illegible] 11
[illegible] 1
[illegible] 11
S. Blue 1

Plants
Ero Sic
[illegible] Sunflower
Pha par
Lup hir
Calandrinia [illegible]
nama [illegible]
clematis [illegible]
Esch Cal
Chia
Mu [illegible]
[illegible]
Lupine

Road fairly used, but appears to have signs of bikers. Light [illegible] trails [illegible] Only [illegible] Eastern [illegible] around [illegible] SDPP road

March 5 2008 Oak oasis Account Quino
K. Moscowka w/ A. Border, E. Klotz

Accessed via road next to Lucy's newer ranger house.

Public road / [illegible] at western [illegible] egg [illegible] storage.

Well used trails for hikers. Most [illegible] structure [illegible] fire.

Possible [illegible] for [illegible]

Flowers

Butterflies
Sonoras 1

March 20 2008 K. Mozumder
Stelzer Park Butterfly survey

Start 10:45 68°F 0-4mph 0%CC
End 1:15 70°F " "
Began @ parking lot, hiked up Eastern ridge

Flowering Plants		Butterflies		
Mir lac		S Blue	|||	
Fiedum		C. White			
Dic cap		WC Lady	𝍸 |||	
Lat sco		Pergolethistle	𝍸		
Lup bic		Dusky	𝍸	
Cas exs		Behrs	|||	
Cryptantha		Sarahs	||	
Pha par		Gables			male
Primrose	Cal cil			
Plat cal	Pha dis			
Lup tru	Sierra pea			
Sil gal				
Eus cal				
Las cal				
Baby blue eyes				
Lin dia				
chia				
Dod cle				

Herpimays 3/25

CC-1
Gilbert's skinks

CC-2
WF LIZ
WE Toad ll
SB LIZ
Camel Cricket

ST-2
SB LIZ 𝍸 l
Hawkmoth

ST-1
SB LIZ
Jer cricket
Wolly bug

Plants

Am ven
Cal ed
Bsh cal
Pr [illegible]
Que [illegible]
Mul [illegible]
Lot [illegible]
[illegible]
Cro cal
Mar [illegible]
Art cal
[illegible]
Mul fas
Lup [illegible]
[illegible]
[illegible]
Pha dist
Hyp [illegible]
Lup bic
Sal col
Lup [illegible]
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Ave sp
Pop sal
Cup [illegible]
Mar Vul

Dandy
Ger [illegible]
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Pla mol
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Ror nas
Rol [illegible]
Sal las
Pop fre
[illegible]
Apo cal
Que [illegible]
Vit cal
[illegible]
[illegible]

STELZER

Rainbow Survey

Painted lady 𝍸 𝍸 𝍸
Fun dusky lll
Pepper ll
So blue 𝍸 l
Buckeye lll
Red Adm l
Monarch l
Cab wht 𝍸 lll
WC lady lll
Pale swal ll

Other wildlife

HO [illegible]
HoF
[illegible]
[illegible]
Sp to
Ca to
An hu
Co [illegible]
Rt [illegible]
No [illegible]

WF LIZ
SB LIZ
WE WTP
OT WTP

Sp sp
Le go

Brush sq
Grnd squirrel

3/25/08
A. Boelter
Sunny Clear
65° no wind
START 8:30

End 4:30
72°
2-4 mph
Sunny/Clear

Hir inc
Ero cic

Flower

PA Eve
Cast exs
~~C~~
Esch cal
Pha dis
Trifolium
Dic cap
Cal mac
Pha pur
Lup trun
Lup hir
Lasi cal
Chryp
Cal cil
Lot sco
Lot strig
Sil gal
Vig lac

STELZER

QUINO SURVEY

Buckeye HHT II
Sara's Orp HHT III
Che whit IIII
Desert Orp HHT II
Paint lady HHT HHT HHT IIII
WC Lady HHT
~~[illegible]~~
Red admiral I

Other wildlife

Str racer
Cyn wren
Rt Ha
CP NOSE

3/31/08
A. BORCHER
w/ KK
START 1:00
72° SUNNY
1-3 mph

End 4:45
72°
Clear/sunny

Stelzer 3/31/08 K Mozier Adulm
Owner.

Start 11:00 68°F Ovcl O-wind
Fin 16:40 70°F " "

Butterflies
Pale Swallowtail |||
Sarahs orangetip |||| ∞
Lady ~~||||~~
Behrs ||
Duskywing ||
Perplexing |
S Blue |||
Buckeye ||
Redadmiral |

N. Whiptail |
Striped racer
patchnose snake

Cream cups, datura
bree cup, [illegible] gal
[illegible], gilia
Nemo, lup [illegible]
mir lac, [illegible]
las cal, cha
pha dist, collinsia het
pha per, Amsinkia men
Lot sca, wooly weed
Vig [illegible], trifolium
crypto [illegible], Indian paintbrush
cusch cal
filltch
hes whi

STELZER

4/8/08
A. BORCHER
START 12:00
Mostly Sunny
65° 1-3mph

QUINO SURVEY

Buckeye HHT HHT ||
Pt. Lad HHT |
Pale swal |
Sara's Otip HHT |
WC Lady |
Desert Otip |||
Red admiral ||

End 5:00
Sunny
66°
2-4mph

Other wildlife

WF LIZ	CA TO
SB LIZ	SP TO
An hum	Bk st
Co hum	Co ra
Ho Fi	RT Ha
Ho Wr	No Ha
Le Gd	

STELZER

QUINO SURVEY

Morn cloak |
Buckeye ||
Pale Swal |
Desert OHp ||
Sara's OHp ||||
Gabb's |
Chk Wht ||

4/9/08
A. Borchert
Start 10:00
End 16:30

S: Temp 65
No wind
Mostly sunny

E: Temp 68°
Mostly sunny
wind 2-4 mph

KMZ's

QUINO REF

START 9:30

NE |
SE
SW
NW |

Dic cup

Anise swal |
Chalcedon |
Sara's OHp |
Pt. Lady ||
Behr's |

4/10/08
A. Borchert
68°
clear/sunny
0 mph wind

Flowers

ites whip
Clark pup
Delphinium
Eri conf
Ade fasc
Esch cal
Cast exs
Pla ere
Eve chry
Rhn dis
Cam cal
Eri can
Cast exs
*Clark del
Las cal
Dic cap
Lot sco
*Blo cle
Calc spi

STELZER

QUINO SURVEY

Qura's Chp ||||| ||||| ||
Pt. lady ||||
Des Chp ||
wc lady |
Chk wht |
Behr's ||
Buckeye ||||
Pale swal |
Myl Cres |
West Swal |

Other wildlife

RC SP
CO Ra
Le Go
Sp to
Tu Vu
So Sp
Oa Ti
Wren

West whip
Strip Rac
Gran Spry
All liz

4/11/08
A. Bonuter
w/ KK
START 8:30
Clear/Sunny
60°

End 3:30
70°
Sunny
1-3 mph

Stelzer
4/14/08

K. Mozumder + A. Bacher

			Q-No	
Start	60°F	8:30	0%CC	0-1
End	70°F	3:30	"	1-3 mph

Lat sca	Sarahs	~~IIII~~ II
Erypthica	Lady	~~IIII~~
Cea cya	Birds	II
Bush mallow	Duckeye	III
Con arv	W. Swd	I
Ade Fas		

Clarkia purpurea - looks like big red moths
Delphinium - purple orchid like
Eriophyllum confertiflorum - golden yarrow
Toothbrush grass -
Mil lne
Fountain grass
eucrypta
Pic cap
Camissonia California
California Figwort

Muth Valley f & Lock
0288

Bat Detector Set up

Down in Riparian
Free tail flying high over canopy
- Myotis - cal & small footed, long eared
- Townsends big eared bat
- probably not yuma or long eared
→ would get drinks from water
but more likely forging
in understory
Free tail • Big Brown Bat

Pallid & Big Brown have Similar
. Seasonality

Appendix D
Photographs

Photo 1. Lakeside Ceanothus observed in the northwestern portion of the Park

Photo 2. Delicate Clarkia observed scattered underneath the oaks along Wildcat Canyon Creek

Photo 3. Striped Racer found on the top of the hill on the western end of the Park

Photo 4. Juvenile San Diego Horned Lizard observed in the southern portion of the Park

Photo 5. Annual flowers blooming on top of the hill in the southern portion of the Park

Photo 6. Wolf Spider captured in herpetological Array #1

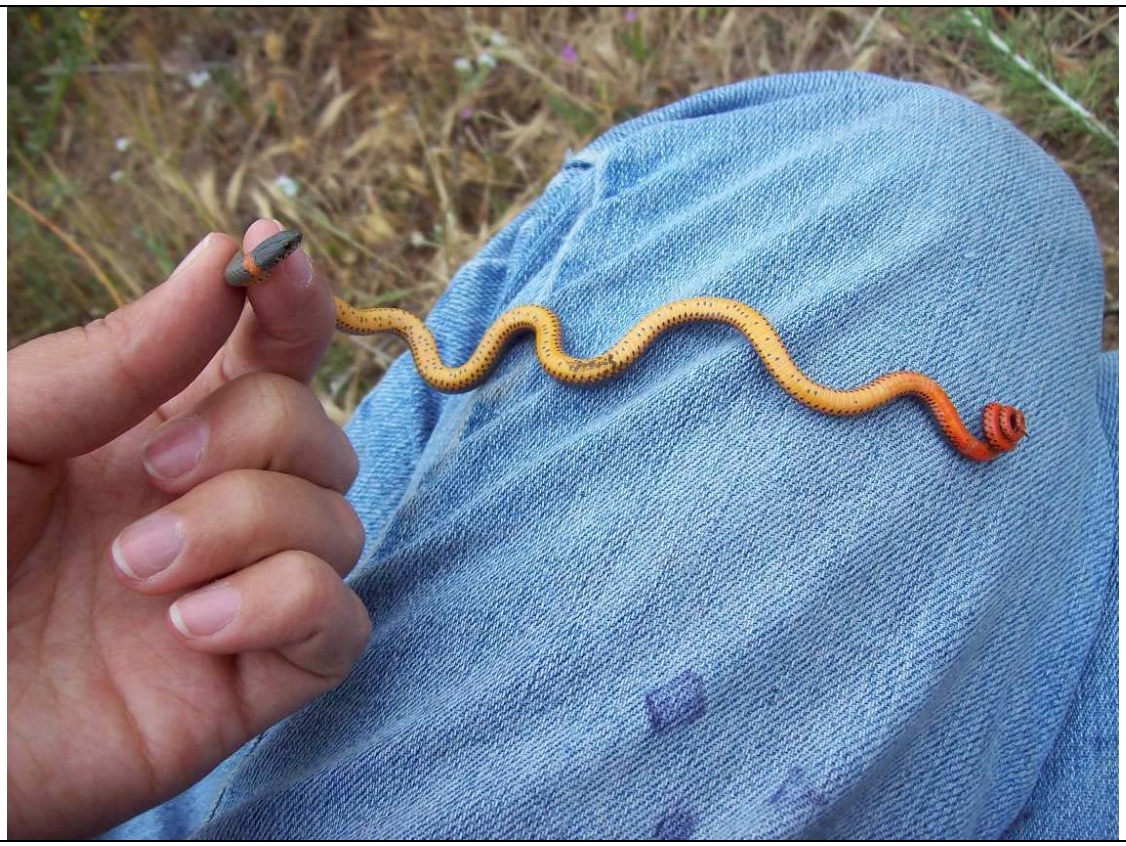

Photo 7. San Diego Ring-necked Snake captured in herpetological array

Photo 8. Young Southern Mule Deer detected in the oak woodland on the southern end of the Park

Photo 9. Coyote traveling along an access road on the eastern end of the Park