

— Natural Resources Assessment, Inc. —

**Administrative Draft
General Biological Resources Survey
University Hills Development
San Bernardino, California**

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**November 27, 2005
Revised February 5, 2008**

Project Number: ICC05-101

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CERTIFICATION

I hereby certify that the statements furnished below and in the attached exhibits present data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Karen Kirtland
Natural Resources Assessment, Inc.

Date

Table of Contents	Page
Executive Summary.....	S-1
1.0 Introduction.....	1
2.0 Site Location and Project Description.....	1
3.0 Methods.....	1
3.1 Data Review.....	1
3.2 General Biological Field Surveys.....	2
3.3 San Bernardino Kangaroo Rat Surveys.....	4
3.4 California Gnatcatcher.....	4
3.5 Jurisdictional Delineation and Wetland Assessment.....	4
4.0 Findings.....	5
4.1 Research Findings.....	5
4.2 Site Survey.....	9
4.3 Sensitive Species.....	18
4.4 Jurisdictional Drainages and Wetlands.....	19
4.5 Raptors, Migratory Birds and Habitat.....	22
4.6 Habitat Fragmentation and Wildlife Movement.....	22
5.0 Conclusions.....	23
6.0 References.....	24

List of Figures

1	Regional Vicinity and Project Site Map.....	2
2	Plant Communities	12
3	Potential Jurisdictional Waters and Wetlands.....	21

Site Photos

1	Dense chaparral plant community.....	14
2	Sparse chaparral plant community.....	14
3	Scattered walnut woodland.....	15
4	Drainage with walnut trees (in the distance) and herbaceous growth.....	15
5	Riparian willow woodland along Badger Creek.....	16
6	Fan palm grove.....	17

Appendices

- Appendix A - Floral and Faunal Compendia
- Appendix B - Sensitive Biological Resources
- Appendix C - Legislative Background
- Appendix D - San Bernardino Kangaroo Rat Trapping Report
- Appendix E - California Gnatcatcher Survey Report

Executive Summary

Natural Resources Assessment, Inc. (NRA, Inc.) conducted a general biological survey for the proposed University Hills development project in the city of San Bernardino. The purpose of this survey is to update the previous work done for the Paradise Hills Specific Plan Final Environmental Impact Report (FEIR).

The University Hills development is located in the Verdemont area of the city of San Bernardino. The property is on the foothills and alluvial fan area of the San Bernardino Mountains northeast of the California State University at San Bernardino.

The biological assessment for the FEIR was completed by Pacific Southwest Biological Services, Inc. in 1990. The FEIR was adopted in 1992. The biological assessment was subsequently supplemented with additional surveys in 1993 and 1994 by Tierra Madre Consultants, Inc.

Since 1990, the San Bernardino kangaroo rat has been listed and Critical Habitat designated, requiring a reevaluation of the Paradise Hills site. In addition, the property was extensively burned in 2003, resulting in a change in plant cover and the extent of some plant communities since 1994.

NRA, Inc. conducted a general biological survey of the site to update the original general biological assessment done by Tierra Madre Consultants. In response to the listing of the SBKR, we conducted a trapping study for this species. We also conducted protocol surveys for the California gnatcatcher and conducted a jurisdictional and wetland delineation.

The overall effects of the 2003 fires are the loss of shrub cover and subsequent weedy growth of ground cover. During our surveys, we found it difficult on occasion to identify the original extent of Riversidian coastal sage scrub, chaparral, and other upland habitats identified in previous studies since the fires had so completely destroyed the shrub cover. Riparian habitats were somewhat easier to identify, because most of the trees and shrubs along drainages are recovering from being burned.

We updated our general biological assessment and jurisdictional delineation in the fall of 2007. The update was necessary due to changes in the plant communities and general site conditions, as well as changes in delineation methods.

The California gnatcatcher was not identified during the breeding season surveys. The SBKR was not found during the protocol trapping. The Los Angeles pocket mouse, previously identified as sensitive by Tierra Madre Consultants, was successfully trapped in several areas.

Other sensitive resources previously identified in the FEIR and subsequent documents were reconfirmed or their potential presence was noted.

Some of the drainages on site come under the jurisdiction of the U.S. Army Corps of Engineers (Corps) and the California Department of Fish and Game (CDFG).

1.0 Introduction

Natural Resources Assessment, Inc. (NRA, Inc.) conducted a general biological survey for the proposed University Hills development project in the city of San Bernardino. The purpose of this survey is to update the previous work done for the Paradise Hills Specific Plan Final Environmental Impact Report (FEIR).

The original biological assessment was completed by Pacific Southwest Biological Services (PSBS) in 1990 (Pacific Southwest Biological Services 1990). The FEIR was adopted in 1992. The biological assessment was subsequently supplemented with additional surveys in 1993 and 1994 by Tierra Madre Consultants, Inc. (Tierra Madre Consultants, Inc. 1993 and 1994).

Since those studies, the San Bernardino kangaroo rat (*Dipodomys merriami parvus*) is the only new species requiring additional evaluation of the site. NRA, Inc. also reevaluated the property because of changes brought about by fires in 2003 and to more fully evaluate the jurisdictional drainages.

2.0 Site Location and Project Description

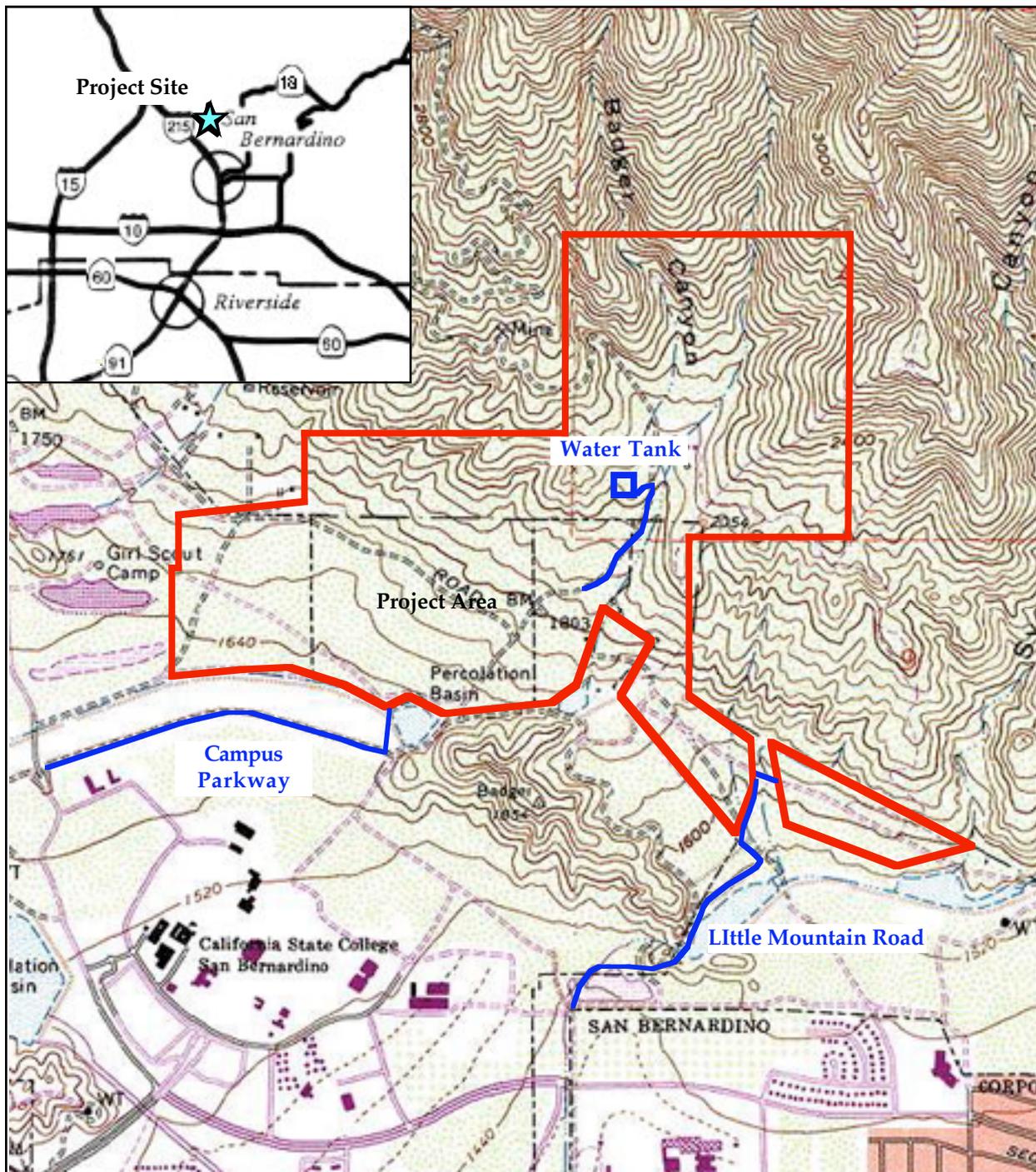
The University Hills development is located in the University District area of the city of San Bernardino (Figure 1) north of the California State University campus. The property is in the foothills and alluvial fan of the San Bernardino Mountains north of the California State University at San Bernardino.

The property is in Sections 4, 5, 8 and 9 (estimated), Township 1 north, Range 4 west, on the San Bernardino North (1996) 7.5' U.S. Geological Survey (USGS) topographic quadrangle, San Bernardino base and meridian (Figure 1).

The proposed development was formerly known as The Paradise Hills Specific Plan, approved in 1993. The project has been renamed to University Hills Specific Plan (UHSP) and consists of 404.2 total acres with 19.4 percent, or 78.4 net acres, devoted to residential uses.

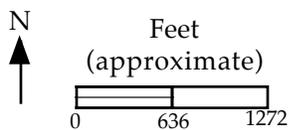
The UHSP also contains seven acres of parks; including a two acre community clubhouse with a pool and tennis courts and other active amenities, a five acre linear park along Badger Creek, an internal pedestrian/walking trails system that connect to a multi-purpose trail emulating the Chestnut Trail, and 245 acres of natural open space that is proposed to be used by the nearby California State University at San Bernardino as a "land laboratory". The UHSP project contains 20 Planning Areas plus roads, slopes, etc.

In order to reduce the development footprint, the extent of infrastructure and grading, preserve the natural drainage corridors, and maintain the higher elevations in their natural state, development is proposed to be clustered onto approximately 39 percent of the site, or 159 acres. Development is concentrated on the lower (southern) portion of the site where the slopes are generally below 15 percent grade. Offsite street improvements include drainage, water, sewer and dry utilities improvements; and a fuel modification zone will also be constructed.



Source: San Bernardino 1996 7.5' USGS topographic quadrangle

Figure 1. Regional Vicinity and Project Site Map



University Hills Development
General Biological Survey
San Bernardino, California

Improvements needed on San Bernardino County Flood Control properties will be constructed within a public easement. Access to the site is proposed from the west via Campus Parkway off of Northpark Blvd. and from the east via Little Mountain Road off of Northpark Blvd.

The project has been revised to cluster development south of the San Andreas Fault which crosses the property, eliminate development in Upper Badger Canyon and created a land plan that embraces the California State University at San Bernardino (CSUSB).

3.0 Methods

3.1 Data Review

A data review was conducted to provide information on plant and wildlife species known occurrences within the vicinity. This review included biological texts on general and specific biological resources, including those resources considered to be sensitive by various wildlife agencies, local governmental agencies and interest groups.

- List of sensitive biological resources provided by the California Natural Diversity Data Base (CNDDDB).
- *Inventory of Rare and Endangered Plants of California*, California Native Plant Society.
- Previous biological studies and review documents on the Paradise Hills Specific Plan (California Department of Fish and Game 1992, Pacific Southwest Biological Services, Inc. 1990, and Tierra Madre Consultants 1993 and 1994).
- *The Status and Known Distribution of the San Bernardino Kangaroo Rat (*Dipodomys merriami parvus*)*. Field surveys conducted between 1987 and 1996 (McKernan 1997).
- General texts and other documents identifying potential resources on the property.
- Previous work done by Natural Resources Assessment, Inc. on nearby properties.

NRA, Inc. also reviewed other available technical information on the biological resources of the site. We used the information to focus our survey efforts in the field.

3.2 General Biological Field Surveys

Ms. Karen Kirtland of NRA, Inc. and Ms. Stephanie Pacheco of Tetra Tech, Inc. conducted the general biological survey on July 18 and October 4, 2005. The general biological assessment field surveys were focused on both general and sensitive biological resources, and included observations of potential habitat for sensitive species. During the surveys, notes were made on the plant and animal species observed, the surface characteristics and topography of the project area, and the suitability of the habitat for the sensitive species.

Sensitive species potentially present include those listed, or candidates for listing by the U. S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG) and California Native Plant Society (CNPS).

Binoculars were used to aid in the identification of birds. All species identified by sight, call or sign (burrows, scat, tracks, etc.) were recorded. Site photographs were taken with a digital camera.

Ms. Kirtland and Ms. Pacheco updated the general biological assessment on March 4, 2007 as part of a reevaluation of the critical habitat for the SBKR. The proposed alignment for the Little Mountain Road, the tank site and the various waterlines were evaluated on

3.3 San Bernardino Kangaroo Rat Surveys

Wildlife biologists Ms. Karen Kirtland and Mr. Philippe Vergne (U. S. Fish and Wildlife Permit No. TE831207-2), inventoried and evaluated the condition of the soils and plant communities on site to assess the potential trapping locations for SBKR and other sensitive species. The work was conducted over a series of survey during April 2004 and June 2005.

An intensive search was conducted in all potential habitat areas for such diagnostic kangaroo rat sign as habitat, scat, tracks, dust bowls and burrows. All species identified by sight, call or sign (burrows, scat, tracks, etc.) and visual observation were recorded.

Trapping surveys for SBKR were conducted according to USFWS protocols established for SBKR. The current protocol calls for five nights of trapping, conducted when the species is active above ground at night and preferably during a new moon phase. One trapping session was conducted from July 13 to 18, 2005. The details of the trapping study are provided in Appendix D.

3.4 California Gnatcatcher

Ms. Kirtland and Mr. Michael Misenhelter of Thomas Olsen Associates, Inc. conducted a habitat evaluation for the California gnatcatcher (*Poliophtila californica*) on the property on August 31, 2005. Notes were taken on the species present and the condition of the habitats on site. Binoculars were used to aid in the identification of bird species.

The plant communities have changed substantially since 2005. Mr. Misenhelter reevaluated the habitat, and recommended we conduct protocol surveys. He conducted protocol breeding season surveys from May 23 to June 28, 2007. The full report is provided in Appendix E.

3.5 Jurisdictional Delineation and Wetland Assessment

Ms. Karen Kirtland and Ms. Stephanie Pacheco conducted the jurisdictional field assessment on October 4, 2005. An informal jurisdictional delineation of the project site was conducted to determine the limits of waters and wetlands subject to jurisdiction by the U. S. Army Corps of Engineers (Corps) under Section 404 of the Clean Water Act and CDFG under Sections 1600 et seq. of the California Fish and Game Code.

The same team conducted a formal jurisdictional delineation on October 29, 2007. The team evaluated the project area on foot and by car. Areas of potential jurisdiction were evaluated according to Corps and CDFG criteria. Potential jurisdictional areas were also evaluated for a potential federal nexus as required by the Corps, and potential wetland areas were identified. General site characteristics were also noted.

4.0 Findings

4.1 Research Findings

Appendix B contains a table of the sensitive resources identified for the project area, their habitat requirements, seasonal distribution, legal standing and the potential for their presence or absence on site. Listed species that are likely to be present, or species that are highly sensitive and likely to be present, are discussed in more detail below.

Appendix C provides a discussion of the various acts, regulations, and laws that are the basis for our evaluation of sensitive resources and impact analysis. These include state and federal legislation, as well as specific legislation addressing the interrelationships between federal and state law.

4.1.1 Plummer's Mariposa Lily

Plummer's mariposa (*Calochortus plummerae*) prefers dry, rocky areas in coastal sage scrub, chaparral, and yellow pine forest. It blooms from May through July, from elevations below 1700 meters (5,000) feet.

The historical distribution of Plummer's mariposa lily is from the Santa Monica Mountains in Los Angeles County to San Jacinto Mountains in Riverside County. It is not currently listed by the USFWS or the CDFG. It is on list 1B of the California Native Plant Society's inventory (Tibor 2001).

4.1.2 White-tailed Kite

The white-tailed kite (*Elanus leucurus*) is uncommon to fairly common in local areas of the coastal portion of southern California. It also occurs as a rare visitor and occasional nesting species in the western edge of the desert. It is only rarely found in the eastern parts of the desert (Garrett & Dunn 1981).

The white-tailed kite inhabits open country. It preferentially forages in grasslands, agricultural fields, marches and even roadside borders where rodent prey is abundant. Since it hunts on the wing, relying on visual observation of its prey, it prefers open, flat country. Nesting habitat is commonly large stands of woodland near open fields. A mix of marshy bottom lands with clumps of large trees is preferred for winter roosts (Garrett & Dunn 1981).

The historical species range of this species ranges from South America up to southern North America. After an early 20th increase in population, this species seems to have slowed in juvenile recruitment, and has experienced steep declines in local populations. The white-tailed kite is present in southern California year round.

The white-tailed kite is not listed by the USFWS, however, raptors and all migratory bird species, whether listed or not, receive protection under the Migratory Bird Treaty Act (MBTA) of 1918.

The white-tailed kite is listed as a species of special concern by the CDFG. Nesting habitat for the white-tailed kite are also protected by CDFG Section 355, which brings the state of California into agreement with the provisions of the MBTA.

4.1.3 Burrowing Owl

The burrowing owl (*Athene cunicularia*) is a resident species in lowland areas of southern California (Garrett & Dunn 1981). It prefers open areas for foraging and burrowing, and is found widely scattered in open desert scrub. This species is scarce in coastal areas, being found mainly in agricultural and grassland habitats. The largest remaining numbers are in the Imperial Valley, where it is common in the agricultural fields.

As a result of coastal development, the burrowing owl is declining in coastal habitats. The CDFG has designated the burrowing owl as a California Species of Special Concern (CSC). These species are so designated because declining population levels, limited ranges and/or continuing threats have made them vulnerable to extinction (California Department of Fish and Game 2005).

4.1.4 California Gnatcatcher

The California gnatcatcher (*Poliophtila californica*) is a small songbird that is a year round resident of sage scrub communities. Sage scrub communities preferred by this species are typically dominated by low-growing, drought deciduous and succulent shrubs, as well as sub-shrub species including California sage (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), brittlebush (*Encelia farinosa*), sage species (*Salvia* spp.), and cacti (*Opuntia* spp.).

The original range for this species included all of the coastal sage scrub communities of southern California, from Ventura County south to San Diego and on into Mexico. This species also occurred in extensive Riversidian coastal sage scrub habitat in Riverside County. Fragmentation or removal of sage scrub plant communities has reduced the known populations to scattered localities in Los Angeles, Orange, Riverside and San Diego counties. Even these populations are generally found only in the larger open space areas in and around development.

California gnatcatchers begin nesting in mid to late February. Re-nesting attempts may be made into August. Territory size ranges from 2 to 40 acres. They have a repetitive, kitten-like mewing call and appear to be most vocal in the early morning and evening. Detection is exceedingly difficult if the birds are not vocalizing.

On March 25, 1993, the California gnatcatcher was listed by the Service as a threatened species pursuant to the Federal Endangered Species Act (ESA). The ESA prohibits anyone from "taking" a listed species. Take includes, but is not limited to, harming, harassing or killing individuals of a listed species as well as destruction of habitat occupied by listed species.

Critical habitat for the gnatcatcher was designated by the USFWS in 2000, The San Bernardino Unit 11 includes the University Hills property. In 2003, the habitat line was proposed for revision and the University Hills property was excluded. The final rule published on December 19, 2007 on the revised habitat designation confirms the exclusion of this property (U.S. Fish and Wildlife Service 2007).

4.1.5 San Bernardino Kangaroo Rat

The San Bernardino kangaroo rat (*Dipodomys merriami parvus*) is described as being confined to primary and secondary alluvial fan scrub habitats, with sandy soils deposited by fluvial (water) rather than aeolian (wind) processes (McKernan 1997, U. S. Fish and Wildlife Service 1998a and 1998b). Burrows are dug in loose soil, usually near or beneath shrubs. In recent years, they have been found in highly disturbed habitats adjacent to otherwise suitable habitat. Burrows are dug in loose soil, usually near or beneath shrubs.

The San Bernardino kangaroo rat is one of three subspecies of the Merriam kangaroo rat (*Dipodomys merriami*). The Merriam kangaroo rat is a widespread species that can be found from the inland valleys to the deserts (Hall 1981 and Ingles 1965). The subspecies known as the San Bernardino kangaroo, however, is confined to inland valley scrub communities, and more particularly, to scrub communities occurring along rivers, streams and drainage.

Like all kangaroo rats, the San Bernardino kangaroo rat is primarily a seed eater, feeding on the seeds of both annual and shrub species. It also feeds on green vegetation and insects when these are available. Being primarily a desert species, the San Bernardino kangaroo rat obtains nearly all of its water from the food it eats, and can subsist indefinitely on water extracted from dry seeds. It forages in open ground and underneath shrubs. Burrows are dug in loose soil, usually near or beneath shrubs.

The breeding season extends primarily from January through late November, with peak reproduction occurring in late June. Usually, only one litter is produced per year with an average of only two to three young.

Most of the original drainages used by this species have been historically altered as a result of flood control efforts. The resulting increased use of river resources, including mining, off road vehicle use and road and housing development. This increased use of river resources has resulted in a reduction in both the amount and quality of habitat available for the San Bernardino kangaroo rat. The past habitat losses and potential future losses prompted the emergency listing of the San Bernardino kangaroo rat as an endangered species (U. S. Fish and Wildlife Service, 1998a).

The USFWS also designated critical habitat for the kangaroo rat in 2002. Approximately 74.77 acres occur on the property. The USFWS has proposed changes to the critical habitat in 2007. These changes include eliminated the 74.77 acres of critical habitat on the property.

4.1.6 Northwestern San Diego Pocket Mouse

The northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*) is one of five subspecies of the San Diego pocket mouse. The San Diego pocket mouse is a large species of pocket mouse, and is

characterized by long spine-like hairs on rump and hips. This characteristic differentiates this species from the silky pocket mice of the genus *Perognathus*.

The San Diego pocket mouse is a common resident of open, sandy herbaceous areas, usually in association with rocks or coarse gravel in southwestern California. It occurs mainly in arid coastal and desert border areas in San Diego, Riverside, and San Bernardino counties.

The subspecies designated as the northwestern San Diego pocket mouse occurs in open scrub, chamise-redshank chaparral, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon-juniper, and annual grassland in the valleys and foothills of southwestern California (Hall 1981; Lackey 1996). This species is reported in high numbers in rocky and gravelly areas (Zeiner, et al 1990). Burrows can be found in sandy or gravelly soils. Higher densities in rocky and graveled areas are attributed to the greater availability of cover from visually oriented predators (Lackey 1996).

The northwestern San Diego pocket mouse primarily is a granivore (seed eater). Like other pocket mice, this species possess external, fur-lined cheek pouches for collecting and caching seeds. They eat grass seeds from summer to early winter, switching to shrub seeds and annual weed seeds for the rest of the year. They are nocturnal, active all year round (although surface activity is reduced during cold spells) and tend to forage under shrub and tree canopies, or around rock crevices (Lackey 1996).

The range of the species extends from Orange County to San Diego County, and includes Riverside and San Bernardino counties out into the desert border areas. The northwestern San Diego pocket mouse subspecies is confined to Orange County and the coastal habitats of San Diego, Riverside and San Bernardino counties.

The northwestern San Diego pocket mouse appears to be sensitive to habitat fragmentation and degradation, and its historical range has been reduced by urban development and agriculture (California Department of Fish and Game 2004). As a result, the subspecies has been designated as a California Species of Special Concern by the California Department of Fish and Game (CDFG 2004; Lackey 1996).

4.1.7 Los Angeles Pocket Mouse

The Los Angeles pocket mouse occupies lower elevation grasslands and coastal sage scrub habitats, in areas with soils composed of fine sands (Williams 1986). This species prefers habitat similar to that of the SBKR. It occurs in open sandy areas in the valley and foothills of southwestern California (Hall 1981).

Los Angeles pocket mouse, like other subspecies of *Perognathus longimembris*, are granivorous rodents and specialize on grass and scrub seeds, but will take insects when available (French 1999; Meserve 1976). Pocket mice possess external, fur-lined cheek pouches used in collecting and caching of seeds. Seeds are cached for use during the colder months of the year.

They spend most of their foraging time in or near bushes, scrubs, rock crevices, or other sources of cover. The Los Angeles pocket mouse is primarily nocturnal and exhibits a distinct seasonal pattern in surface

activity. During colder months the pocket mouse may enter into torpor (dormancy) and not engage in surface activity. This species may enter torpor as early as the end of September; the exact date may depend on the nightly low temperatures, and the availability of food.

At some point when surface conditions are very cold and food is scarce, the animal cannot meet its energy needs by foraging and thus must shut down surface activity to survive the winter. Los Angeles pocket mouse must then survive on the food they have cached (Richman and Price 1993). Los Angeles pocket mice emerge in the spring when the surface ground temperatures are higher than the surrounding ground temperature in their burrows (French 1999).

The present known distribution of this species extends from the San Gabriel and San Bernardino mountains south to the Temecula and Aguanga areas, and from the east side of the Santa Ana Mountains east to Cabazon (Hall 1981).

4.2 Site Survey

4.2.1 Weather, Topography, and Soils

Weather during the general biological assessment conducted on October 4, 2005 was clear skies, temperatures in the eighties (Fahrenheit), and winds ranging from 10 to 20 miles per hour, with gusts up to 45 miles per hour. Weather during the California gnatcatcher habitat survey on August 31, 2005 had clear skies, winds seven to ten miles per hour, and temperatures in the low nineties (Fahrenheit).

The July trapping surveys were clear skies with temperatures in the mid nineties (Fahrenheit) and winds of two to five miles per hour from the west. Weather during the jurisdictional delineation work on October 31, 2005 was in the mid eighties (Fahrenheit), with winds from two to five miles per hour, and clear skies.

The weather during the March 4, 2007 SBKR habitat reevaluation survey was scattered clouds, temperatures in the high sixties and low seventies, and winds from four to five miles per hour.

The weather during the October 29, 2007 jurisdictional delineation was temperatures in the mid seventies to the low eighties, with winds from five to fifteen miles hour and cloudy skies.

The topography is mixed, ranging from flat roads and basins in the southwestern half to hilly and mountainous terrain in the northeastern half. The second access road crosses through the hills between the project site and the California State University at San Bernardino campus (Cal State San Bernardino).

The property can be divided by the presence of the southern branch of the San Andreas fault. The fault has resulted in a distinct change in topography and accompanying differences in plant communities. Southwest along the fault are two alluvial fans, one trending slightly southwest and one almost due south. The two fans divide at Badger Canyon, where a smaller alluvial fan created by flow along the drainage has almost disappeared under the flood control catchment basin that has been constructed to catch runoff.

Northwest of the fault is the foothills of the San Bernardino Mountains. These slopes are steeper, and more heavily eroded than the alluvial fan. Several small freshwater springs or seeps can be found above the fault line, and are probably the result of water being blocked and forced up by the fault.

The alluvial portion in the southwestern half is gentle, rising at less than ten degrees to the northeast. Shallow drainages occur in this area.

The foothill portion is steeper, with a mixed terrain of hills and drainages. Badger Canyon is a deeply incised canyon with several smaller drainages entering into the larger mainstem section.

The off-site basins are a stepped topography. One set flows to the northwest, and the other set flows to the southwest.

Soils on site are characterized as Tujunga gravelly loamy sand, occurring over most of the site. Hanford coarse loamy sand occurs in the northeastern corner. Soboba stony loamy sand occurs in the bottom of Badger Canyon and in the basins at the foot of the alluvial fan (Soil Conservation Service 1980).

4.2.2 Land Uses

The property is open space. Land uses encompassed by the property are maintained dirt access roads. The property is surrounded by open space on all four sides.

The campus of Cal State San Bernardino lies further to the southwest. Residential development occurs further to the southeast of the site. National Forest lands lie along the northeastern border, and other properties to the northwest.

4.2.3 Disturbances

Disturbances include unauthorized off-road vehicle use, wildfires, and trash dumping. In addition, San Bernardino County Flood Control District haul trucks carry dirt and debris from the Sycamore Debris Basin on the east side of the University Hills Property to their stockpile area on the west side of the property. The vehicles operate continuously and cause a significant amount of disturbance on the site in terms of dust and frequency of trips.

4.2.4 Plant Communities

NRA, Inc. identified different plant communities than were previously identified by PSBS (1990) or Tierra Madre (1993 and 1994). Those reports identified Riversidian coastal sage scrub as dominant on the lower alluvial fan area, with some disturbed areas also present on the fan. There was also one area of Riversidian sage scrub found on a broad open terrace in upper Badger Canyon.

In 1990, 1993 and 1994, northern mixed chaparral occurred on the steeper slopes above the fan. California walnut woodland occurred in isolated terraces in Badger Canyon and in a small area in the southeast corner, while southern sycamore-alder riparian woodland and southern willow scrub was mapped along the mainstem of Badger Canyon and in isolated patches along the fault line. Small

freshwater seeps were found scattered on the upper slopes above the southern branch of the San Andreas Fault, while other seeps appear to occur in conjunction with the northern branch of the fault.

The property was burned in October 2003. During site visits with agency representatives and city representatives in January 2005, the site was still mainly bare soil with very few stumps of shrubs surviving in the lower alluvial fan area. On the upper slopes, more of the chaparral species had survived as burned stumps, but none were showing recovery. Only a few scattered grass species and other annuals had begun to bloom.

During our surveys in July, August, and October, it appears that while the chaparral species were recovering, much of the Riversidian coastal sage scrub has not recovered and may be permanently converting to annual grasslands. We identified annual grasslands on the flatter, lower portions of the alluvial fan, Riversidian coastal sage scrub and soft or chamisal chaparral on the upper alluvial fan and lower hillsides, and a mix of riparian communities in the Badger Canyon drainage and other drainages.

The plant community was reevaluated in the latter half of October, 2007 by Mr. Andrew C. Sanders, University of California, Riverside. The shrub growth has changed sufficiently to require remapping of the onsite communities (Figure 2).

Mr. Sanders based his field assessment on existing conditions and his familiarity with the property from surveys in the past. Based on his experience, the dominant scrub community was chaparral in the past. Subsequent fires (especially in 2003) burned off the scrub cover and other disturbances have also altered scrub densities. Over time, scrub cover has slowly returned. During his surveys in 2007, Mr. Sanders noted the resprouting of chamise and similar chaparral shrubs, indicating that the chaparral plant community is still present and returning. Therefore, this area was mapped as chaparral.

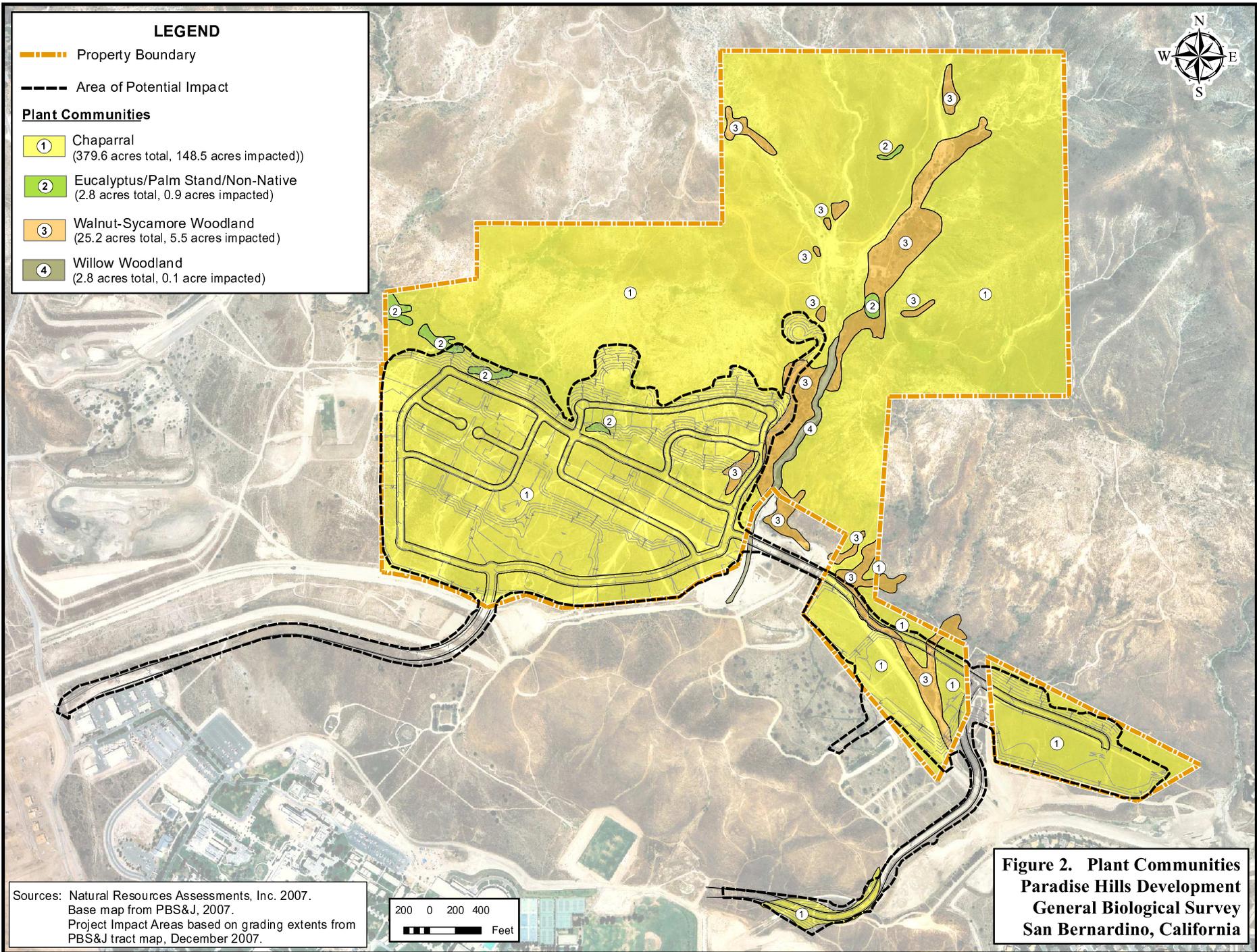
The variety of plant communities found in previous studies has decreased. There are now only three dominant native plant communities on site. These three communities are chaparral, which occupies nearly all the slopes and flat areas of the site, walnut-sycamore woodland, dominant along dry drainages, and willow woodland, a riparian plant community found only along the Badger Canyon drainage.

There are also two non-native plant communities. Eucalyptus groves occur in areas near former building sites, although some weedy species have extended into suitable habitat along the fault lines. A palm grove is still present at the former resort site.

4.2.4.1 Chaparral

The chaparral on the project site is dominated by chamise (*Adenostoma fasciculatum*) but also contains a substantial amount of black sage (*Salvia mellifera*) and numerous other shrubs associated with chaparral plant communities.

There are differences in the various chaparral plant stands, depending upon they occur and what has been burned. The steep slopes of the foothills are generally eroding and appeared to have shallow



Sources: Natural Resources Assessments, Inc. 2007.
Base map from PBS&J, 2007.
Project Impact Areas based on grading extents from
PBS&J tract map, December 2007.

**Figure 2. Plant Communities
Paradise Hills Development
General Biological Survey
San Bernardino, California**

soils. As a result, the chaparral stands in this area may be slightly drier than the stands on the alluvial slopes. This appears to be reflected in the fact that the shrubs in the upper slopes area were generally slightly shorter and sparser (less canopy cover) than on some of the other stands.

In addition, within the overall chaparral plant community, density and species composition currently ranges from dense stands of almost pure deerweed (*Lotus scoparius*) to open cover characterized by chamise, black sage and other species. Also included in this habitat are roads, off-road vehicles trails and other areas of disturbance that support little to no cover (Photos 1 and 2).

Mr. Sanders has previous experience working in this area. He reports that site visits made in the mid 1990s found that much of this parcel was formerly tall chamise-dominated chaparral, with locally substantial amounts of *Ceanothus* spp. and other chaparral shrubs. In general, chamise was more dominant on the lower alluvial slopes and the more exposed slopes of the mountains and canyons, while other shrubs were conspicuous in more sheltered locations.

4.2.4.2 Walnut-Sycamore Woodland

Walnut-sycamore woodland is strongly associated with the areas along the seeps, washes and other damp areas along the San Andreas Fault. There is a large patch of this community in the lower part of Badger Canyon mostly on benches above the wash proper.

There is a small dense stand of walnut woodland mapped on the east side of Badger Canyon adjacent to the palm grove. This stand is on a fairly steep north-facing slope. A large spring is present at the lower edge of this stand. This spring creates a substantial discharge into the palm grove just below that continues into Badger Creek.

Besides walnuts, there are varying numbers of sycamores (*Platanus* sp.) and elderberry (*Sambucus* sp.) present. The trees had almost everywhere been burned, but had mostly resprouted to heights of around 15 ft. Any *Platanus* present were generally taller.

There are also small scattered stands of walnut-sycamore woodland along the other drainages on the property (Photos 3 and 4).

4.2.4.3 Willow Riparian Woodland

There is a linear stand of willow riparian woodland along the mainstem of Badger Creek (Photo 5). This stand extends from the vicinity of the abandoned resort to the detention basin at the bottom. There was flowing water through out this stretch in October, 2007.

Among the species present here were willows (*Salix lasiolepis*, *S. gooddingii*), cattails (*Typha* spp.), wrinkled rush (*Juncus rugulosus*), yellow monkeyflower (*Mimulus guttatus*), red monkeyflower (*M. cardinalis*) and other herbaceous species.

The riparian habitat along the canyon has recently been subject to severe down-cutting. The canyon is now nearly impassable from east to west. Ten years ago there was much less erosion and downcutting



Photo 1. Dense chaparral plant community.



Photo 2. Sparse chaparral plant community.



Photo 3. Scattered walnut woodland.



S

Photo 4. Drainage with walnut trees (in the distance) and herbaceous growth.



Photo 5. Riparian willow woodland along Badger Creek.

along the stream and more riparian vegetation, especially a great many more tree willows. Presumably this cutting will eventually stabilize and vegetation will reestablish. Willows are not common in this stretch, but they are the most common woody vegetation in this zone.

4.2.4.4 Eucalyptus Grove

Eucalyptus trees are present as plantings around former house sites and buildings. Eucalyptus growing wild have also extended along the fault lines. Some of these trees may be naturalized and are self-propagating.

4.2.4.5 Fan Palm Grove

There is a grove of California fan palms (*Washingtonia filifera*) trees (probably planted) at what would otherwise be mapped as a seep in the vicinity of the abandoned resort on the floor of Badger Canyon (Photo 6) . This stand had been burned in the 2003 fires, but the palms were largely unaffected. The skirts of dried leaves were gone, but the current crop of leaves were green and the trees appeared healthy.

4.2.4.6 Seeps

Although technically not a plant community, seeps do provide water for plants as well as animals. Most seeps on the property are in the northwest, west of Badger Canyon and north of the access road, Many of the seeps are dominated at ground level by a dense cover of wild grape (*Vitis girdiana*).



Photo 6. Fan palm grove.

Walnuts also occur around seeps. One healthy stand occurs just east of the abandoned Badger Canyon resort. The walnuts were not dominant, but were conspicuous. In addition, there are a number of perennial herbs at this seep which Mr. Sanders not see at any other location on the property. Presumably these herbs are present because of a permanently high water table. Among this species identified are western ragweed (*Ambrosia psilostachya*), tarragon (*Artemisia dracuncululus*), Baltic rush (*Juncus balticus*) and branching phacelia (*Phacelia ramosissima*).

In an open area as the edge of the seep there was a large stand of pitseed goosefoot (*Chenopodium berlandieri*). This appears to be the only stand of this species.

4.2.5 Wildlife

The previous studies by PSBS and Tierra Madre provide a detailed listing of wildlife species observed during general and focused surveys, and we incorporate their findings by reference in this document. NRA, Inc. identified wildlife species independently of these studies to include the small mammals trapped as part of the SBKR trapping study, as well as larger mammal species such as coyote (*Canis latrans*), Audubon's cottontail (*Sylvilagus audubonii*), black-tailed jackrabbit (*Lepus californica*), and Botta's pocket gopher (*Thomomys bottae*).

Common bird species observed include mourning dove (*Zenaida macroura*) in the grasslands, California towhee (*Pipilo crissalis*) and wrentit (*Chamaea fasciata*) in the Riversidian coastal sage scrub and chaparral, and Anna's hummingbird (*Calypte anna*) and other bird species throughout the site.

No amphibian species were observed. Tierra Madre Consultants (1993) report collecting the California treefrog (*Hyla cadaverina*) and western toad (*Bufo boreas*), as well as identifying western spadefoot (*Scaphiopus hammondi*) as present on site.

Reptile species observed are limited to side-blotched lizard (*Uta stansburiana*). Tierra Madre Consultants (1993) found San Diego horned lizard (*Phrynosoma coronatum blainvillei*) and coastal whiptail (*Cnemidophorus tigris*). PSBS identified California whipsnake or striped racer (*Masticophis lateralis*) as present during their surveys. Red diamond rattlesnake (*Crotalus ruber*), western diamondback (*Crotalus atrox*), common kingsnake (*Lampropeltis getula*) may also be present.

4.3 Sensitive Resources

PSBS and Tierra Madre Consultants identified several sensitive resources as present or potentially present on site. In summary, PSBS identified sensitive biological resources as:

- Riparian woodland
- Freshwater seeps
- California walnut woodland
- Riversidian sage scrub
- Purple martin
- California gnatcatcher

Tierra Madre Consultants identified the following species as potentially or actually present:

- Plummer's mariposa lily
- Ramona spineflower
- Parry's spineflower
- California walnut
- Western spadefoot
- San Diego banded gecko
- San Diego horned lizard
- Coastal whiptail lizard
- Coastal rosy boa
- San Diego ringneck snake
- Coast patch-nosed snake
- Two-striped garter snake
- California red-sided garter snake
- Red diamond rattlesnake
- Turkey vulture
- White-tailed kite
- Cooper's hawk
- Ferruginous hawk
- Golden eagle
- Prairie falcon
- Mountain quail

- Long-eared owl
- California horned lark
- Purple martin
- Tree swallow
- Swainson's thrush
- Loggerhead shrike
- Yellow warbler
- Ashy rufous-crowned sparrow
- Bell's sage sparrow
- Pallid bat
- Townsend's big-eared bat
- California mastiff bat
- San Diego black-tailed jackrabbit
- Los Angeles pocket mouse
- San Diego pocket mouse
- San Diego desert woodrat

NRA, Inc. observed San Diego black-tailed jackrabbit (*Lepus californica bennettii*), Bell's sage sparrow (*Amphispiza belli belli*) and loggerhead shrike (*Lanius ludovicianus*), as well as the habitats mentioned above.

Los Angeles pocket mouse and northwestern San Diego pocket mouse were captured during our trapping surveys. Tierra Madre Consultants also captured the San Diego desert woodrat. No SBKR were trapped by us or by Tierra Madre Consultants, and no other sensitive species were trapped.

No California gnatcatchers were observed during the breeding season surveys.

Other sensitive species that were not seen but for which habitat exists on site are discussed in the sensitive species table.

Based on the probable past site conditions and current burned state, the site does not provide suitable habitat for most of the sensitive biological resources listed for this area.

4.4 Jurisdictional Drainages and Wetlands

4.4.1 Army Corps of Engineers

The Corps regulates discharges of dredged or fill material into waters of the United States. These watersheds include wetlands and non-wetland bodies of water that meet specific criteria. The lateral limit of Corps jurisdiction extends to the Ordinary High Water Mark (OHWM) and to any wetland areas extending beyond the OHWM; thus, the maximum jurisdictional area is represented by the OHWM or wetland limit, whichever is greater.

Corps regulatory jurisdiction pursuant to Section 404 of the Clean Water Act is founded on a connection or nexus between the water body in question and interstate (waterway) commerce. This connection may be

direct, through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce, or may be indirect, through a nexus identified in the Corps regulations.

4.4.2 California Department of Fish and Game

The California Department of Fish and Game (CDFG), through provisions of the State of California Administrative Code, is empowered to issue agreements for any alteration of a river, stream or lake where fish or wildlife resources may adversely be affected. Streams (and rivers) are defined by the presence of a channel bed and banks, and at least an intermittent flow of water. Lateral limits of jurisdiction are not clearly defined, but generally include any riparian resources associated with a stream or lake, CDFG regulates wetland areas only to the extent that those wetlands are part of a river, stream or lake as defined by CDFG.

4.4.3 State Water Quality Control Board

The Corps has delegated the authority for use of 404 permits to each individual state. The use of a 404 permit in California is regulated by the California Water Quality Control Board under Section 401 of the state regulations. The Board has authority to issue a 401 permit that allows the use of a 404 permit in the state, with the authority in the state being vested in regional offices.

4.4.4 Porter Cologne Act

The Regional Water Quality Control Board (RWQCB), under the California Water Quality Control Board, regulates actions that would involve “discharging waste, or proposing to discharge waste, with any region that could affect the water of the state”, pursuant to provisions of the Porter-Cologne Water Quality Act. “Waters of the State” are defined as “any surface water or groundwater, including saline waters, within the boundaries of the state”.

Project Site Findings

Badger Canyon and its tributaries form the main drainage on site (Figure 3). A few other drainages occur on the property, most of these starting on the steeper hillsides and dropping down to the alluvial fan.

Wildlife values along Badger Creek is good to moderate. Most of the plant cover is gone due to the fire, but is starting to recover. In addition to wildlife values, the Creek provide some recharge to groundwater resources as water flows across the alluvial fan.

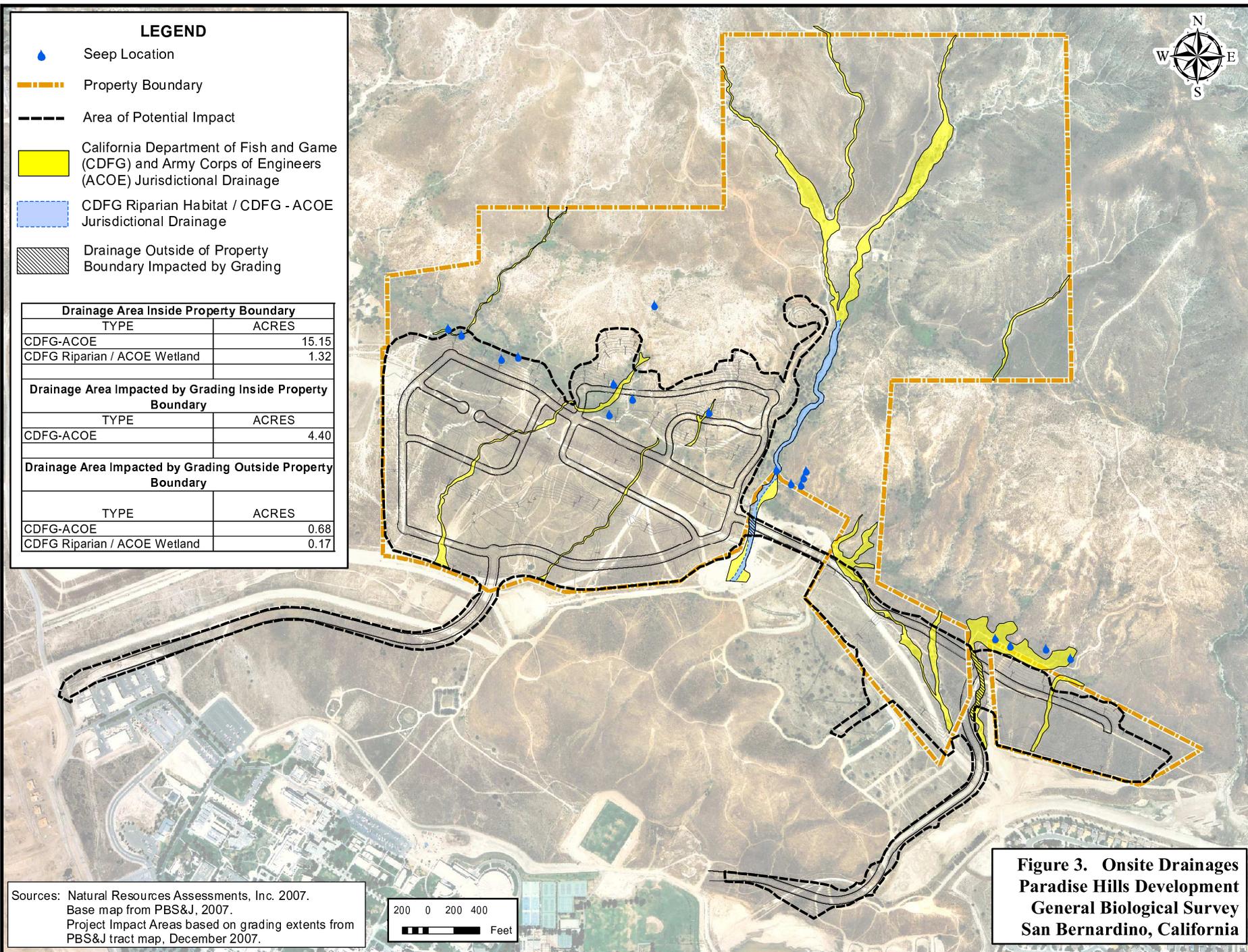
All of the drainages within the project area flow southwest or southeast, ultimately connecting with the Santa Ana River through a series of drainages, culverts and pipes. The Santa Ana River is a water body that comes under the jurisdiction of the Corps. Because of the connection with the Santa Ana River, Corps jurisdiction may extend to the drainages on site.

Any alteration to the drainages may result in the need for a 404 permit from the Corps. The 404 permit in turn will require application for a 401 certification from the RWQCB. Impacts to some, if not all the drainages, will require application for a 1602 Agreement from the CDFG.

LEGEND

-  Seep Location
-  Property Boundary
-  Area of Potential Impact
-  California Department of Fish and Game (CDFG) and Army Corps of Engineers (ACOE) Jurisdictional Drainage
-  CDFG Riparian Habitat / CDFG - ACOE Jurisdictional Drainage
-  Drainage Outside of Property Boundary Impacted by Grading

Drainage Area Inside Property Boundary	
TYPE	ACRES
CDFG-ACOE	15.15
CDFG Riparian / ACOE Wetland	1.32
Drainage Area Impacted by Grading Inside Property Boundary	
TYPE	ACRES
CDFG-ACOE	4.40
Drainage Area Impacted by Grading Outside Property Boundary	
TYPE	ACRES
CDFG-ACOE	0.68
CDFG Riparian / ACOE Wetland	0.17



Sources: Natural Resources Assessments, Inc. 2007.
 Base map from PBS&J, 2007.
 Project Impact Areas based on grading extents from
 PBS&J tract map, December 2007.

**Figure 3. Onsite Drainages
 Paradise Hills Development
 General Biological Survey
 San Bernardino, California**

Badger Canyon supports willow riparian woodland plant community that comes under the jurisdiction of the CDFG. In addition, the willow riparian woodland is a wetland habitat that comes under the jurisdiction of the Corps.

The freshwater seeps, while not drainages, are still of concern as potential water sources for wildlife.

4.5 Raptors, Migratory Birds and Habitat

Most of the raptor species (eagles, hawks, falcons and owls) are experiencing population declines as a result of habitat loss. Some, such as the peregrine falcon, have also experienced population losses as a result of environmental toxins affecting reproductive success, animals destroyed as pests or collected for falconry, and other direct impacts on individuals. Only a few species, such as the red-tailed hawk and barn owl, have expanded their range in spite of or a result of human modifications to the environment. As a group, raptors are of concern to state and federal agencies.

Raptors and all migratory bird species, whether listed or not, also receive protection under the Migratory Bird Treaty Act (MBTA) of 1918. The MBTA prohibits individuals to kill, take, possess or sell any migratory bird, bird parts (including nests and eggs) except in accordance with regulations prescribed by the Secretary of the Interior Department (16 U. S. Code 703).

Additional protection is provided to all bald and golden eagles under the Bald and Golden Eagle Protection Act of 1940, as amended. State protection is extended to all birds of prey by the CDFG Code, Section 2503.5. No take is allowed under these provision except through the approval of the agencies or their designated representatives.

Project Site Findings

Tierra Madre Consultants (1994) identified seven raptors present on the project site, but acknowledge that several other raptors may use the site as well. They identified extensive woodlands along Badger Canyon as high quality raptor nesting habitat. This habitat was severely affected by the 2003 fire but is recovering.

In addition to their findings, NRA, Inc. identified the alluvial fan as providing suitable foraging habitat, particularly for buteos (soaring raptors that hunt over open ground). Suitable habitat for non woodland migratory species is very limited due to the 2003 fires, but it is recovering. The burned out grassland and scrub habitat may provide foraging habitat for some migratory species.

4.6 Habitat Fragmentation and Wildlife Movement

Wildlife movement and the fragmentation of wildlife habitat have come to be recognized as important wildlife issues that must be considered in assessing impacts to wildlife. In summary, habitat fragmentation is the division or breaking up of larger habitat areas into smaller areas that may or may not be capable of independently sustaining wildlife and plant populations. Wildlife movement (more properly recognized as species movement) is the temporal movement of species along various types of corridors. Wildlife corridors are especially important for connecting fragmented wildlife habitat areas.

Project Site Findings

PSBS and Tierra Madre Consultants did not identify any significant wildlife corridors on site. NRA, Inc. agrees with their findings in general. Potential wildlife corridors on the site occur along the Badger Canyon, but this corridor is severely constricted at the southern end by both the flood control basins and the presence of the Cal State San Bernardino Campus and adjacent residential development. Off-road vehicle use has contributed to the decline of wildlife movement.

However, the upper sections of Badger Canyon still functions as a useful corridor for diurnal movement, confined mostly to local fauna from further up the mountainsides. With the loss of easy access to this canyon from floodwaters eroding roads, this area may recover sufficiently to increase wildlife movement more readily than before.

Habitat fragmentation has already occurred in the area surrounding the project site. This site will add less to habitat fragmentation (since it will mostly abut existing development) but it will add to the total loss of habitat in this area of San Bernardino.

5.0 Conclusions

The Paradise Hills property supports a representative sampling of inland scrub and riparian communities found in the San Bernardino County area. The 2003 Old Fire destroyed much of the original chaparral scrub on the lower alluvial slope, but the habitat appears to be making a complete recovery.

The SBKR is absent as of 2005. The California gnatcatcher is absent as of 2007.

Several sensitive but unlisted species are either recorded or are likely to be present.

Badger Canyon and the associated riparian plant communities represent the best quality wetland habitat on site. Other drainages, particularly in the southwest on the alluvial fan, have no wetland habitat.

The property is adjacent to undisturbed open space on the north and partially on the south. The southern open space is small and is bordered by development. The remaining sides are either adjacent to development or to otherwise disturbed habitat.

Unauthorized off-road highway use is frequent on the property, particularly in the lower alluvial fan area. There is some off-road use in Badger Canyon, but this is more limited to the existing roads.

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Appendix A - Plant and Animals Observed

Plants

* denotes non-native plant species

PTERIDOPHYTES

Pteridaceae

Pellaea andromedifolia
Pentagramma triangularis

Equisetaceae

Equisetum arvense

ANGIOSPERMAE: DICOTYLEDONES

Amaranthaceae

**Amaranthus albus*

Anacardiaceae

Rhus ovata
Rhus trilobata
**Schinus molle*
Toxicodendron diversilobum

Asteraceae

Ambrosia acanthicarpa
Ambrosia artemisifolia
Ambrosia psilostachya
Artemisia californica
Artemisia douglasiana
Artemisia dracuncululus
Artemisia ludoviciana
Baccharis salicifolia
Brickellia californica
**Centaurea melitensis*
**Centaurea solstitialis*
**Chamomilla suaveolens*
Chrysothamnus nauseosus
**Conyza bonariensis*
**Conyza canadensis*
Encelia farinosa
**Filago gallica*
Gnaphalium californicum

FERNS AND ALLIES

Brake family

Coffee fern
Goldenback fern

Horsetail family

Common horsetail

DICOT FLOWERING PLANTS

Amaranthus family

White tumbleweed

Sumac family

Sugar bush
Squaw bush
Peruvian pepper tree
Poison oak

Sunflower family

Annual bur-sage
Common ragweed
Western ragweed
California sagebrush
Mugwort
Tarragon
Silver wormwood
Mulefat
California bristlebush
Tocalote
Star-thistle
Pineapple weed
Rabbit brush
Mare's tails
Horseweed
Desert brittlebush
Brown filago
California everlasting

**Gnaphalium luteo-album*

Gnaphalium palustre

Hazardia squarrosa

Helianthus annuus

Hemizonia fasciculata

Heterotheca grandiflora

Heterotheca psammophila

**Lactuca serriola*

Lessingia filaginifolia

**Sonchus oleraceus*

Stephanomeria virgata

Xanthium strumarium

White everlasting

Lowland cudweed

Saw-toothed goldenbush

Annual sunflower

Fascicled tarweed

Telegraph weed

Camphor weed

Prickly lettuce

Cudweed aster

Common sow thistle

Twiggy wreath plant

Cocklebur

Boraginaceae

Amsinckia menziesii

Borage family

Fiddleneck

Brassicaceae

Descurainia pinnata

**Hirschfeldia incana*

Rorippa nasturtium-aquaticum

**Sisymbrium altissimum*

**Sisymbrium irio*

Mustard family

Tansy mustard

Short-podded mustard

Watercress

Tumble mustard

London rocket

Chenopodiaceae

Chenopodium album

Chenopodium berlandieri

**Salsola tragus*

Saltbush family

Lamb's quarters

Pitseed goosefoot

Russian thistle

Convolvulaceae

**Convolvulus arvensis*

Morning glory family

Bindweed

Cucurbitaceae

Cucurbita palmata

Gourd family

Coyote melon

Cuscutaceae

Cuscuta californica

Dodder family

California dodder

Euphorbiaceae

Chamaesyce albomarginata

Croton californica

Eremocarpus setigerus

**Ricinus communis*

Spurge family

Rattlesnake spurge

Croton

Doveweed

Castor bean

Fabaceae

Astragalus pomonensis
Cercidium floridum
Lotus hamatus
Lotus scoparius
Lotus strigosus
Lupinus hirsutissimus
**Melilotus indicus*

Geraniaceae

**Erodium cicutarium*
**Erodium moschatum*

Hydrophyllaceae

Eriodictyon trichocalyx
Phacelia ramosissima

Juglandaceae

Juglans californica
Juglans regia

Lamiaceae

**Marrubium vulgare*
Salvia apiana
Salvia mellifera
Stachys ajugoides

Malvaceae

**Malva parviflora*

Myrtaceae

**Eucalyptus sp.*
**Eucalyptus globulus*

Paeoniaceae

Paeonia californica

Papaveraceae

Argemone munita
Dicentra chrysantha

Platanaceae

Platanus racemosa

Pea family

Locoweed
Palo verde
Hooked beak lotus
Deer weed
String-stemmed lotus
Stinging lupine
Sourclover

Geranium family

Red-stemmed filaree
White-stemmed filaree

Waterleaf family

Yerba santa
Branching phacelia

Walnut family

California walnut
Cultivated walnut

Mint family

Horehound
White sage
Black sage
Water mint

Mallow family

Cheeseweed

Myrtle family

Eucalyptus
Blue gum

Peony family

California peony

Poppy family

Chicalote
Golden eardrops

Sycamore family

Western sycamore

Polygonaceae

Eriogonum fasciculatum
Eriogonum gracile
**Rumex crispus*

Rhamnaceae

Ceanothus crassifolius
Rhamnus crocea

Rosaceae

Adenostoma fasciculatum
Prunus ilicifolia

Rubiaceae

Galium aparine

Salicaceae

Populus fremontii
Salix goodingii
Salix laevigata
Salix lasiolepis

Saxifragaceae

Ribes cereum

Scrophulariaceae

Antirrhinum coulterianum
Keckiella antirrhinoides
Mimulus guttatus
Mimulus cardinalis
Penstemon centranthifolius
Penstemon spectabilis
**Veronica anagallis-aquaticus*

Solanaceae

Datura wrightii
Nicotiana attenuata
Nicotiana glauca
Solanum xanti

Tamaricaceae

**Tamarix aphylla*

Vitaceae

Vitis girdiana

Buckwheat family

California buckwheat
Graceful buckwheat
Curly dock

Buckthorn family

Hoaryleaf ceanothus
Spiny redberry

Rose family

Chamise
Holly-leaved cherry

Madder family

Weak stem bedstraw

Willow family

Fremont cottonwood
Black willow
Red willow
Arroyo willow

Saxifrage family

Squaw currant

Snapdragon family

White snapdragon
Keckiella
Yellow monkeyflower
Red monkeyflower
Scarlet bugler
Chaparral beard's tongue
Great water speedwell

Nightshade family

Jimson weed
White-flowered tobacco
Indian tobacco
Deadly nightshade

Tamarisk family

Athel

Grape family

Wild grape

Zygophyllaceae

Tribulus terrestris

ANGIOSPERMAE: MONOCOTYLEDONAE

Areaceae

Washingtonia filifera

**Washingtonia robusta*

Cyperaceae

Carex sp.

Cyperus eragrostis

Eleocharis obtuse var. *engelmannii*

Juncaceae

Juncus bufonius

Juncus mexicanus

Juncus rugulosus

Juncus triformis

Juncus balticus

Lemnaceae

Lemna minor

Liliaceae

Calochortus splendens

Yucca whipplei

Poaceae

Achnatherum sp.

**Arundo donax*

**Avena barbata*

**Bromus diandrus*

**Bromus madritensis*

**Bromus mollis*

**Bromus tectorum*

Hordeum leporinum

**Hordeum marinum*

**Lamarckia aurea*

Leymus condensatus

**Polypogon monspeliensis*

**Puccinellia distans*

**Schismus barbatus*

**Vulpia myuros*

Caltrop family

Puncture vine

MONOCOT FLOWERING PLANTS

Palm family

California fan palm

Mexican fan palm

Sedge family

Sedge

Umbrella sedge

Engelmann's spikerush

Rush family

Toad rush

Mexican spike rush

Wrinkled rush

Yosemite dwarf rush

Baltic rush

Duckweed family

Simple duckweed

Lily family

Mariposa lily

Whipple's yucca

Grass family

Needlegrass

Giant reed

Slender wild oats

Ripgut brome

Red brome

Soft chess

Cheatgrass

Hare barely

Mediterranean barley

Golden tops

Short-seeded ryegrass

Rabbit's foot grass

Alkali grass

Mediterranean grass

Foxtail

Typhaceae

Typha sp.

Cattails

Cattail

Taxonomy and nomenclature follow Hickman 1993, Munz 1974, and Roberts, et al. 2004.

Animals

INSECTA

Acrididae

Trimerotropis pallidipennis

Anthophoridae

Xylocopa varipuncta

Bombyliidae

Bombyliidae sp.

Apidae

Apis mellifera

Calliphoridae

Phaenicia sp.

Asilidae

Efferia sp.

Coccinellidae

Hippodamia convergens

Formicidae

Camponotus sp.

Hesperiidae

Pyrgus albsecens

Mutillidae

Dasymutilla sp.

Nymphalidae

Vanessa virginiensis

Pieridae

Artogeia rapae

Pieris protodice

INSECTS

Grasshoppers

Pallid-winged grasshopper

Digger bees

Valley carpenter bee

Bee flies

Bee fly

Bees

Honey bee

Blow fly

Green bottle fly

Robber flies

Robber fly

Ladybird beetles

Convergent ladybird beetle

Ants

Carpenter ant

Skippers (butterflies)

Western checkered skipper

Velvet ants

Velvet ant

Brush-footed butterflies

Virginia lady

Whites and sulfer butterflies

Cabbage white

Common white

AMPHIBIA

Hylidae

Pseudacris regilla

REPTILIA

Phrynosomatidae

Sceloporus occidentalis

Uta stansburiana

AVES

Cathartidae

Cathartes aura

Accipitridae

Buteo jamaicensis

Falconidae

Falco sparverius

Phasianidae

Callipepla californica

Columbidae

Zenaida macroura

Trochlidae

Calypte anna

Tyrannidae

Sayornis saya

Tyrannus verticillus

Hirundinidae

Stelgidopteryx ruficollis

Corvidae

Aphelocoma californica

Corvus brachyrhynchos

Corvus corax

Aegithalidae

Psaltriparus minimus

AMPHIBIANS

Tree Frogs and Relatives

Pacific chorus frog

REPTILES

Spiny lizards and their allies

Western fence lizard

Side-blotched lizard

BIRDS

Vultures

Turkey vulture

Kites, hawks and eagles

Red-tailed hawk

Caracaras and falcons

American kestrel

Quails and pheasants

California quail

Pigeons and doves

Mourning dove

Hummingbirds

Anna's hummingbird

Tyrant flycatchers

Say's phoebe

Western kingbird

Swallows

Northern rough-winged swallow

Crows and ravens

Western scrub jay

American crow

Common raven

Bushtits

Bushtit

Troglodytidae

Thryomanes bewickii

Sylviidae

Regulus calendula

Mimidae

Mimus polyglottos

Lanidae

Lanius ludovicianus

Sturnidae

Sturnus vulgaris

Emberizidae

Pipilo crissalis

Amphispiza bellii bellii

Zonotrichia leucophrys

Fringillidae

Carpodacus neomexicanus

Carduelis psaltria

Passeridae

Passer domesticus

MAMMALIA

Leporidae

Sylvilagus audubonii

Lepus californicus

Sciuridae

Spermophilus beecheyi

Geomyidae

Thomomys bottae

Heteromyidae

Perognathus longimembris brevinasus

Chaetodippus fallax fallax

Dipodomys simulans

Wrens

Bewick's wren

Old World warblers, gnatcatchers and allies

Ruby-crowned kinglet

Mimic thrushes

Northern mockingbird

Shrikes

Loggerhead shrike

Starlings

European starling

Sparrows

California towhee

Bell's sage sparrow

White-crowned sparrow

Finches

House finch

Lesser goldfinch

Old World sparrows

House sparrow

MAMMALS

Rabbits and hares

Audubon's cottontail

Black-tailed jackrabbit

Squirrels, chipmunks and marmots

California ground squirrel

Pocket gophers

Botta's pocket gopher

Pocket mice and kangaroo rats

Los Angeles pocket mouse

Northwestern San Diego pocket mouse

Dulzura kangaroo rat

Cricetidae

Reithrodontomys megalotis

Peromyscus maniculatus

Neotoma lepida

Cricetine mice and rats

Western harvest mouse

Deer mouse

Desert woodrat

Canidae

Canis latrans

Foxes, wolves and relatives

Coyote

Nomenclature follows Borror and White 1970, Hall 1981, Grenfell et al. 2003, and Stebbins 1966.

Appendix B - Sensitive Biological Resources

Appendix C - Legislative Background

This document is a general discussion of the Federal Endangered Species Act (FESA), the California Environmental Quality Act (CESA), and the wetlands and drainages regulations of both the federal government and California. In order to understand the various approvals involved and their potential effect on project schedules, we have provided a summary description of each regulation and their timing requirements where known.

In addition to these regulations that are concerned primarily with biological resources, there are broader environmental regulations that address all aspects of a project. These include the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). These two Acts are more thoroughly discussed in other documents.

Endangered Species Act Regulations

The potential presence of and possible project impacts to a listed species will need to be considered as part of the project processing schedule. Both federal and state law protect biological species covered by, respectively, the FESA and CESA.

Although these Acts are intended to function in tandem with NEPA and CEQA, there are certain procedures that are independent of the scheduling requirements of the latter two documents.

FESA protects all listed wildlife species on federal and non federal lands. Listed plant species are protected only on federal lands or on non-federal land if a proposed action is in violation of state regulations (such as in California). A listed species is designated as either threatened or endangered. The protection is also extended to candidate species being proposed for listing. These are several species currently under review for listing as threatened or endangered. FESA does not protect other categories of species.

CESA protects all listed species within the state of California. The ownership of the land makes no difference under CESA. Listed plant species are designated as rare, threatened or endangered. Listed wildlife species are designated as threatened or endangered. There are no wildlife species listed as rare. CESA also protects candidate species being proposed for listing.

The State of California considers an endangered species as one whose prospects of survival and reproduction are in immediate jeopardy. A threatened species is considered as one present in such small numbers throughout its range that it is likely to become an endangered species in the near future in the absence of special protection or management. A rare species is one that is considered present in such small numbers throughout its range that it may become endangered if its present environment worsens.

CESA does not directly protect other categories of species; however, under CEQA, species that are not yet listed but meet the criteria for listing should be considered in the environmental document. Impacts to these unlisted but qualified species need to be properly evaluated.

Impacts to FESA or CESA protected species are considered significant under federal and state law. The “take” of these species is regulated independently by the responsible federal and state agencies, depending upon the status of the species. Any incidental take requires approval under one or both of the Acts.

Take is primarily concerned with physical loss of or damage to the species. However, since the Palila case (Federal Endangered Species Act of 1973, Section 9, as modified by *Palila vs. the Hawaii Department of Land and Natural Resources, et al.*, and the *Sportsmen of Hawaii, et al.*, 1986), harm and harass at the federal level have come to mean a given action that causes significant habitat modification or degradation resulting in the disruption or impairment of essential behavioral patterns, without direct take of individuals. Similar considerations are used at the state level for state listed and candidate species.

In addition to individual species, FESA mandates the designation of Critical Habitat for listed species. Critical Habitat is that portion of the individuals species overall habitat area that meets the following criteria:

1. Occupation by the listed species.
2. The state of natural processes that rejuvenate and maintain suitable habitat.
3. The presence of lands that function as upland refugia.
4. The proximity of the areas to large tracts of undeveloped land that are important for population expansion, upland refugia, connectivity, providing buffers from development, perpetuation of ecosystem processes, and maintenance of a dynamic mosaic of vegetation.

The USFWS also identifies Constituent Elements necessary for the survival of a listed species. As an example, for the San Bernardino kangaroo rat (SBKR) these elements are:

1. Areas with dynamic geomorphological and hydrological processes typical of fluvial systems within the historical range of the SBKR. This includes active and historical flood regimes.
2. Historical and current alluvial processes within the historical range of the SBKR.
3. Alluvial sage scrub and associated vegetation, such as coastal sage scrub and chamise chaparral.
4. Sand, loam or sandy loam soils within the historical range of the SBKR.
5. Upland areas that may provide refugia.
6. Moderate to low degrees of human disturbance within this species’ historical range. These include agricultural lands that are not disked annually, out-of-production vineyards, margins of orchards, areas of active or inactive industrial or resource extraction activities and urban/wildland interface.

By definition, Critical Habitat is more valuable to the listed species, both because it is usually a subset of the overall habitat and because it is habitat considered essential to survival. The threshold of mitigation requirements is usually greater in areas of Critical Habitat, although no standard ratio or requirements have been developed. Each project is analyzed on a case by case basis, and includes the presence or absence of the species as a significant criterion in evaluating impacts and mitigation.

Federal Endangered Species Act Permit Requirements

FESA has two routes under which incidental take is allowed. If the project involves federal lands, moneys or actions, the issue of incidental take is normally evaluated under Section 7 of the Act. If the project has no federal "nexus" as described, then the issue of incidental take would be addressed under Section 10 of the Act.

The principal differences between the two sections are the project participants and the type of documents that are prepared. Section 7 requires consultation between the federal agency overseeing the federal lands, moneys or action and the U.S. Fish and Wildlife Service (USFWS). The federal agency must prepare a Biological survey and request consultation with the USFWS in written form. Our original understanding is that the USFWS must review the request to determine if the action "may affect" a federally listed species or designated Critical Habitat. However, we have recently heard that the "may affect" decision is prepared by the federal agency requesting the Section 7 consultation. We intend to follow up on this issue to clarify the matter.

If the USFWS [or federal agency] determines that the action may affect the species or Critical Habitat, then a Biological Opinion must be prepared. The Biological Opinion is the formal written response by the USFWS which determines whether jeopardy to the species will occur. Jeopardy is a formal finding, and indicates that the action being reviewed will have a negative effect on the survival of the species. In the Biological Opinion, the USFWS can recommend measures to minimize or eliminate the take.

Under Section 10, the USFWS is authorized to permit take for non-federal entities, provided the take is incidental to an otherwise lawful activity. Under this process, the two participants are the project proponent and the USFWS.

The project proponent must apply for an Incidental Take Permit and prepare a Habitat Conservation Plan (HCP). The HCP must address the take issue (usually identified as impact) and proposed measures to minimize or offset the loss due to take. These measures can include recommendations made by the USFWS in consultation with the project proponent.

The USFWS will review the application and the HCP, and then issue an Incidental Take Permit (if the application is successful). As part of their review, the USFWS must prepare an Environmental Assessment (EA), and, as necessary, a Finding of No Significant Impacts (FONSI) or an Environmental Impact Statement (EIS). These documents are required for the USFWS decision on Incidental Take and are not necessarily the same as the documents prepared for the project as a whole.

To further complicate matters, the USFWS, as a federal agency required to meet Section 7 regulations, must conduct an intra-agency Formal Consultation with the Office of Management Authority to determine whether the issuance of the permit is likely to jeopardize the continued existence of the species covered by the permit.

California Fish and Game Take Permit Requirements

CESA does not address incidental take permits. Instead, such actions are addressed under Section 2081 of the California Fish and Game Code. Under Section 2081, incidental take of a listed or candidate species is allowed for an otherwise lawful activity. In order to obtain a 2081 take permit, the project proponent must prepare a document that ensures that the impacts of the take are minimized and fully mitigated. The mitigation must be roughly proportional in extent to the impact, and capable of successful implementation and monitoring. Other requirements include adequate funding and compliance with other state regulations.

In response to a permit application, the CDFG must determine if the taking would jeopardize the continued existence of the species, including threats to the species from other related projects or activities. As part of their review, they must evaluate whether the issuance of the permit will have a negative effect on the natural environment. The evaluation includes consultation with other departments and compliance with other state regulations. If permit is authorized, a Memorandum of Understanding (MOU) is prepared by the CDFG in which measures are included to ensure the permit conditions will be met.

Endangered Species Acts Schedule

It appears that neither FESA nor the Fish and Game Code have an acknowledged schedule for issuance of take permits or MOUs. The only available schedule we could locate was for California, and is found in the Public Resources Code for California (commencing with Section 21000). This section sets a minimum 30 day limit on the application review process and an additional minimum 30 day notice of acceptance or denial of the permit application.

In our experience and in discussion with agency staff, both the federal and state take permits can take anywhere from six months to one year (or more) to complete.

The Fish and Game Code does provide a "shortcut" for state species that is also protected under federal law, such as the desert tortoise. In summary, this "shortcut" acknowledges that if an adequate take permit is issued by the federal government for a species also protected by the state, no further authorization or approval is necessary, provided that proper notification and documentation of the take permit is provided to the CDFG.

For this action, the CDFG reviews the federal permit information; if deemed adequate, a 30 day notice of review is posted. At the end of the 30 days, and assuming no dispute occurs, the taking is authorized.

U.S. Army Corps of Engineers 404 Regulations

The Corps regulates discharges of dredged or fill material into waters of the United States. These watersheds include wetlands and non-wetland bodies of water that meet specific criteria. The lateral limit of Corps jurisdiction extends to the Ordinary High Water Mark (OHWM) and to any wetland areas extending beyond the OHWM; thus, the maximum jurisdictional area is represented by the OHWM or wetland limit, whichever is greater.

State Water Quality Control Board

The Corps has delegated the authority for use of 404 permits to each individual state. The use of a 404 permit in California is regulated by the California Water Quality Control Board under Section 401 of the Clean Water Act regulations. The Board has authority to issue a 401 permit that allows the use of a 404 permit in the state, with the authority in the state being vested in regional offices. We recommend that the regional office should be contacted for their concerns regarding water quality affects and affects to groundwater drainage, as well as to obtain a 401 permit.

Porter Cologne Act

The Regional Water Quality Control Board (RWQCB), under the California Water Quality Control Board, regulates actions that would involve “discharging waste, or proposing to discharge waste, with any region that could affect the water of the state”, pursuant to provisions of the Porter-Cologne Water Quality Act. “Waters of the State” are defined as “any surface water or groundwater, including saline waters, within the boundaries of the state”.

California Department of Fish and Game

CDFG regulates any alteration of streambeds, ponds, or lakes through their Code 1600 et seq. program. Any channel area displaying bed and banks falls within CDFG's jurisdiction. Lateral limits of jurisdiction are not clearly defined, but generally include any riparian resources associated with a stream or lake.

Wetland and Drainage Schedule

Each of these actions has its own schedule and application requirements.

A 404 permit, if required, could take up to 180 days after the Corps has determined that the application is complete. Completeness of the application includes receipt of all required information and any additional information requested by the Corps. At a minimum, the Corps permit application must have a formal jurisdictional delineation of the affected drainages and the environmental documentation for the project, including mitigation measures to offset impacts to the affected drainages.

If a 404 is required, the local Regional Water Quality Control Board can require a 401 application for use of the 404 permit. After receipt of a complete 401 application, the Regional Board has between 60 days and 1 year in which to make a decision. Completeness of the application includes receipt of all

required information and any additional information requested by the Regional Board, but at minimum must include the same information as the Corps permit application.

The Porter-Cologne Act appears to have a 30 day limit on issuance of permits under the Act, however, we are following up on the particulars of the permits and will refine our discussion when we receive additional information.

The CDFG Agreement has the shortest time frame in that it must be resolved with a certain well defined period. Upon receipt and acceptance of a complete 1602 Notification, the CDFG must respond within 60 days with an Agreement. The project proponent has 30 days to review the CDFG requirements and respond. If the project proponent does not agree to the terms of the Agreement they must contact the CDFG within the 30 day period to request a meeting. The CDFG must hold the meeting within 14 days of the request. If no agreement can be reached on the issues, arbitration is required. An arbitration panel must be established within 14 days of agreeing to arbitration, and a decision must be rendered within 14 days of the establishment of the panel. All of these time frames can be extended by mutual agreement.

Although the CDFG has possibly the shortest time frame, it should be noted that the formal 1602 Notification cannot be filed until after the final environmental document is complete.

Summary of the Migratory Bird Treaty Act.

ADMINISTRATIVE DRAFT

Prepared by Kurt Campbell, Biologist, Jones & Stokes, August 12, 2003. Used with permission.

NOTE: This is a draft document intended to provide information and background information for internal use. It is not intended to cover all regulatory or biological circumstances. Underlined sections are preliminary only.

Summary and Advice:

Except as permitted under implementing regulations, the federal Migratory Bird Treaty Act ("MBTA") make is illegal to, "pursue, hunt, take, capture, or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not."

The Acts prohibitions have been extended to apply to nearly all birds, even nonnatives (under current case law) except as otherwise regulated (e.g., legal hunting). Prohibitions under this law have been interpreted in case law much more narrowly than under the more recently enacted Endangered Species Act ("ESA"). Under the MBTA, "take" as a general prohibition means only to directly injure or destroy individuals or eggs, or cause failure of a nesting effort. Precluding nesting before it starts by restricting access to a potential site is not normally a violation. Recent case law appears to indicate that federal actions are subject to MBTA, and that some level of incidental take under otherwise legal actions (e.g., road construction) is allowable without permitting [needs checking and citations].

MBTA misdemeanor violations do not require either intent or awareness of the law, and involve substantial fines, often on a "per body" basis. Felony violations require that the government prove that

the defendant acted "knowingly" against the law, and include greater fines as well as potential imprisonment.

Similar provisions within the California Fish and Game Code protect all native birds of prey (FGC §3503.5), and all non-game birds (other than those listed as Fully Protected) occurring naturally in the state (FGC §3800). Thus the state codes do not protect nonnatives. Other codes address game birds and Fully Protected species.

Permits under at least the MBTA are available, but are generally only given for repairs or other actions that cannot be delayed and where loss of human life or safety is imminent.

For pragmatic reasons and due to budgetary limitations, the relevant public agencies generally limit the application of these very broad proscriptions. The most common situations in which MBTA is applied are: (1) as an additional regulatory requirement in projects which hold the potential for substantial environmental degradation (e.g., part of Terms and Conditions in a Biological Opinion for an Incidental Take Permit under ESA); (2) as an additional tool when prosecuting willful violation of other biological resource regulations such as the ESA or hunting regulations; (3) to provide added protection to colonially nesting species, such as herons, terns, and swallows; and (4) to provide protection of nesting birds of prey.

The two basic approaches for compliance are: (1) to avoid the period when most individuals of most species of birds in the project area are expected to breed (agencies often use standard windows), and/or (2) to have biologists conduct nesting surveys, usually within 14 days prior to disturbance. Both approaches can have drawbacks and surveys in particular can result in great difficulties for a variety of reasons [this can be expanded upon in the future, for guidance]. The two can sometimes be combined, and individual situations are best addressed by consulting an experienced, consulting avian biologist given information about (or after examining) the individual site. Consultation with biologists unfamiliar with the relevant species, the site, or the regulations will often (usually?) provide little or no benefit.

[The above information can be expanded to explain pitfalls, and to introduce the concept of "confident avoidance" rather than "certain avoidance" (that is, 95% of all pairs of expected breeding species lacking special status and 99% of all pairs of non-listed species with special status).]

Issues of Applicability:

- Under current case law, act now covers natives and nonnatives (need citation)
- Question of raptor (& other?) nests between seasons
- How enforced (colonies, extra terms & conditions, safety issues such as open oil containers)
- Enforcement/Permitting options
- Distance issues (the "300-foot/500-foot" rule of thumb; specific distances based on scientific literature)

Avoidance Timing:

The following timing windows assume the site is below about 4000 feet elevation and in coastal southern California (Santa Barbara County to the Mexican Border). Mountain birds in particular tend to start later (with some notable exceptions) and extend later (again, with notable exceptions). When outside the assumed geographic window, it is best to make a formal determination for the site based on the species potentially present and the best available literature on breeding seasons in that area.

- For most birds, including herons and swallows, avoid the period from 01 Mar - 31 Aug.
- If the following raptorial birds are relevant*, the start should be 01 Feb: White-tailed Kite, Red-tailed Hawk, Golden Eagle, Barn Owl, Great Horned Owl, Long-eared Owl, and Loggerhead Shrike.
- If the following late breeders are relevant*, the end should be 15 Sep: Burrowing Owl, Willow Flycatcher, Cactus Wren, American Robin, and Hooded Oriole.
- If the following pigeons or doves are relevant*, the end should be at least 30 Sep: Rock Dove, Band tailed Pigeon, Mourning Dove, Inca Dove, and Common Ground Dove.

*In concept, "relevant" means if they have reasonable potential to breed sufficiently closely that project actions pose a substantial risk to that breeding effort. Pragmatically, the species in these additional groups are usually relevant only if, in addition to the reasonable potential, either agency personnel raise the issue or they are present in a conspicuous way (high public scrutiny, large numbers, etc.).

Additional Resources:

(to include biology and regulatory citations; Web sites; agency and consulting contacts)

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Appendix D - San Bernardino Kangaroo Rat Trapping Report