APPENDIX D

BIOLOGICAL RESOURCES DATA AND TECHNICAL REPORTS

AGUA HEDIONDA AND CALAVERA CREEKS JURISDICTIONAL DELINEATION REPORT FOR WATERS OF THE U.S. AND STATE OF CALIFORNIA

AGUA HEDIONDA AND CALAVERA CREEKS JURISDICTIONAL DELINEATION REPORT FOR WATERS OF THE U.S. AND STATE OF CALIFORNIA

Prepared for:

City of Carlsbad
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February 2007

TABLE OF CONTENTS

Section **Page**

I. INTRODUCTION 1
Jurisdictional Unvegetated (Nonwetland) Waters of the U.S. 1
Jurisdictional Waters of the State 4

II. METHODS 5

III. RESULTS 6
Agua Hedionda Creek 6
Calavera Creek 6
Waters 8
Wetlands 8

IV. LITERATURE CITED 11

LIST OF FIGURES

Figure **Page**

1 Regional Location Map....2
2 Jurisdictional Reaches....7
3 Agua Hedionda Creek at the confluence with Calavera Creek. Looking upgradient (east) from the El Camino Real Bridge 9
4 Calavera Creek....9
5 Agua Hedionda Creek at El Camino Real Bridge looking downstream (west) to the Cannon Road Bridge....10
6 Calavera Creek....11

LIST OF TABLES

Table **Page**

1 USACE and CDFG Jurisdictional Area within Project Area 8

I. INTRODUCTION

On January 28, 2007, EDAW, Inc. (EDAW) performed a reconnaissance level jurisdictional delineation for Agua Hedionda and Calavera creeks in the City of Carlsbad (Figure 1). The purpose of this delineation was to facilitate the proper classification of jurisdictional features within the project area.

A reconnaissance level delineation is defined here as the identification of area(s) that meet the jurisdictional requirements under Section 404 of the Clean Water Act (Section 404), which is done at a local scale and covers regulated water bodies (including aquatic resources regulated under the California Department of Fish and Game Code [CFGC] Section 1600). The sampling protocols outlined in the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) and 33 CFR 328 were not applied or modified for use at the reconnaissance level due to absence of hydrophytic vegetation.

Calavera Creek encompasses 0.17 acre of jurisdictional "waters of the U.S." and "waters of the State" and 0.07 acre of waters of the State. The 0.24 acre of total jurisdictional waters is composed of 0.17 acre of unvegetated waters, 0.07 acre of ornamental/disturbed riparian forest, and no jurisdictional wetlands. Agua Hedionda Creek consists of 3.73 acres of jurisdictional waters of the U.S. and State and 1.44 acres of waters of the State. Of the 5.17 acres of total jurisdictional waters, 3.18 acres is unvegetated waters, 0.55 acre is jurisdictional wetland in the form of riparian scrub/forest, 0.01 is riparian scrub/forest, and 1.43 acres is ornamental/disturbed riparian forest. Unvegetated waters of the U.S. were mapped in keeping with U.S. Army Corps of Engineers (USACE) policy. The lateral limit of USACE jurisdiction for nontidal watercourses (without adjacent wetland areas) is defined below.

Jurisdictional Unvegetated (Nonwetland) Waters of the U.S.

The USACE defines wetlands as:

> "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (33 CFR 328.3[b]; 40 CFR 230.3[t]).

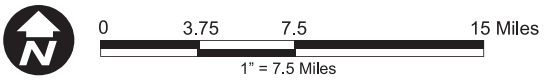


Figure 1
Regional Location Map

A wetland delineation (unlike a jurisdictional delineation) is based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. The USACE delineation manual uses primarily field-based indicators to determine whether the three parameters are present. The presence of positive indicators of all three parameters is necessary for a site to qualify as jurisdictional wetlands. Additionally, portions of the riparian habitat along a river, stream, or creek may be considered a wetland where the riparian vegetation is at or below the Ordinary High Water Mark (OHWM) and thus also meets the USACE wetland criteria. In the absence of wetlands, the limits of USACE jurisdiction in nontidal waters, such as rivers, streams, lakes, and ponds, extends to the OHWM, which is defined as:

> "…that line on the shore established by the fluctuation of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR 328.3[e]).

A Regulatory Guidance Letter (RGL) issued by the USACE on June 27, 1987, further clarified the definition:

> "The OHWM is the physical evidence (shelving, debris lines, etc.) established by normal fluctuations of water level. For rivers and streams, the OHWM is meant to mark the within-channel height flows, not the average annual flood elevation that generally extends beyond the channel" (RGL No. 88-6).

The OHWM can also be conceptualized as the lateral extent of the active channel, usually the area just below the first terrace. The criteria for frequency and duration for the OHWM, however, have not been defined under the Clean Water Act (CWA) or any guidance from the USACE for field delineators. Nonwetland waters of the U.S. have been defined as:

> "…(1) all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (2) all interstate waters including interstate wetlands; (3) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including such waters: (i) which are or could be used by interstate or foreign travelers for recreational or other purposes; or (ii) from which fish or shellfish are or could be

> taken and sold in interstate or foreign commerce; or (iii) which are used or could be used for industrial purposes by industries in interstate commerce; (4) all impoundments of waters otherwise defined as waters of the United States under the definition; (5) tributaries of waters identified in paragraphs (1) through (4) of this section; (6) the territorial seas; and (7) wetlands adjacent to waters identified in paragraphs (1) through (6) …" (33 CFR 328.3[b]; 40 CFR 230.3[t]).

The USACE takes jurisdiction under Section 404 of the CWA for traditionally navigable waters; all interstate waters, including interstate wetlands; all other waters, in addition to those mentioned above, the use, degradation, or destruction of which could affect interstate or foreign commerce; all impoundments of water that fit these definitions; territorial seas; and wetlands adjacent to waters, other than adjacent to other wetlands. All discharges of dredged or fill material that result in permanent or temporary losses of waters of the U.S. are regulated by the USACE under Section 404 of the CWA (33 CFR Part 328.3).

Jurisdictional Waters of the State

Under Sections 1600-1616 of the CFGC, the California Department of Fish and Game (CDFG) regulates activities that would alter the flow, bed, channel, or bank of streams and lakes. The limits of CDFG jurisdiction are defined in the code as the "bed, channel or bank of any river, stream or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit." The California Code of Regulations (14 CCR 1.72) defines a stream as:

> "[A] stream is a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation."

In practice, the CDFG usually extends its jurisdictional limit to the top of a stream, bank of a lake, or outer edge of the riparian vegetation, whichever is wider. Riparian habitats do not always have identifiable hydric soils or clear evidence of wetland hydrology as defined by the USACE. Therefore, CDFG wetland boundaries often extend beyond USACE wetland boundaries, which sometimes include only portions of the riparian habitat adjacent to a river, stream, or lake. Jurisdictional boundaries under CFGC Sections 1600-1616 may encompass an area that is greater than that under the jurisdiction of CWA Section 404. CDFG, however, does not normally have direct regulatory jurisdiction over wetlands unless they are subject to

jurisdiction under streambed alteration agreements or they support state-listed endangered species subject to the permitting requirements of the California Endangered Species Act.

II. METHODS

A jurisdictional delineation had previously been prepared in 2002 (RECON 2002) for a portion of Agua Hedionda Creek to the east of the El Camino Real Bridge. The 2002 delineation also included the confluence of Agua Hedionda and Calavera creeks. In 2006, the previous delineation in these areas was reviewed and a wetland verification was conducted (EDAW 2006). This verification consisted of a survey of the area delineated in 2002 to observe whether the existing conditions of Agua Hedionda Creek had substantially changed.

This jurisdictional delineation included a review of the previous reports (RECON 2002; EDAW 2006) and new delineations of Agua Hedionda Creek following emergency dredge activities and Calavera Creek. This report accurately classifies jurisdictional features within the project area.

The results of the delineation for Agua Hedionda Creek identified the jurisdictional extent and boundary related to hydric soil, hydrological parameters, and hydrophytic vegetation. Agua Hedionda Creek east of the El Camino Real Bridge remained predominantly unvegetated within the channel bottom and stream surface with ornamental vegetation along the creek banks. No hydrophytic vegetation was found within, at the toe, or on the banks within this length of the creek. Agua Hedionda Creek west of the El Camino Real Bridge and east of the Cannon Road Bridge was characterized as recovering southern willow scrub and willow riparian forest habitats and included hydrophic vegetation species; however, the area under the bridges was characterized as unvegetated channel.

The results of the delineation for Calavera Creek identified the jurisdictional extent and boundary primarily related to hydric soil and hydrological parameters. No hydrophytic vegetation was observed within, at the toe, or on the banks (composed of graded slope) of Calavera Creek.

Based on the observations of wetland parameters within the creeks and the more general lack of hydrophytic vegetation, a delineation of unvegetated waters (composed of OHWM) was conducted utilizing the sampling of three separate reaches in each creek. The reaches were established at the toe (interface of water and bank) of the bank. Placement of the reaches was chosen and recorded when changes in stream width occurred. Due to the homogeneity of Calavera Creek, the widths of the reaches were averaged to attain 4.25 feet. For Agua Hedionda Creek, the reaches were averaged over the representative lengths of the creek resulting in three distinct average widths within the channel of 82 feet for the areas downgradient (west) of the El Camino Real Bridge, 85 feet between the El Camino Real Bridge and the confluence with Calavera Creek, and 40 feet for the remainder of the upstream reach of the creek (Figure 2). Riparian vegetation communities were also noted and recorded to the extent of continuous riparian edge.

III. RESULTS

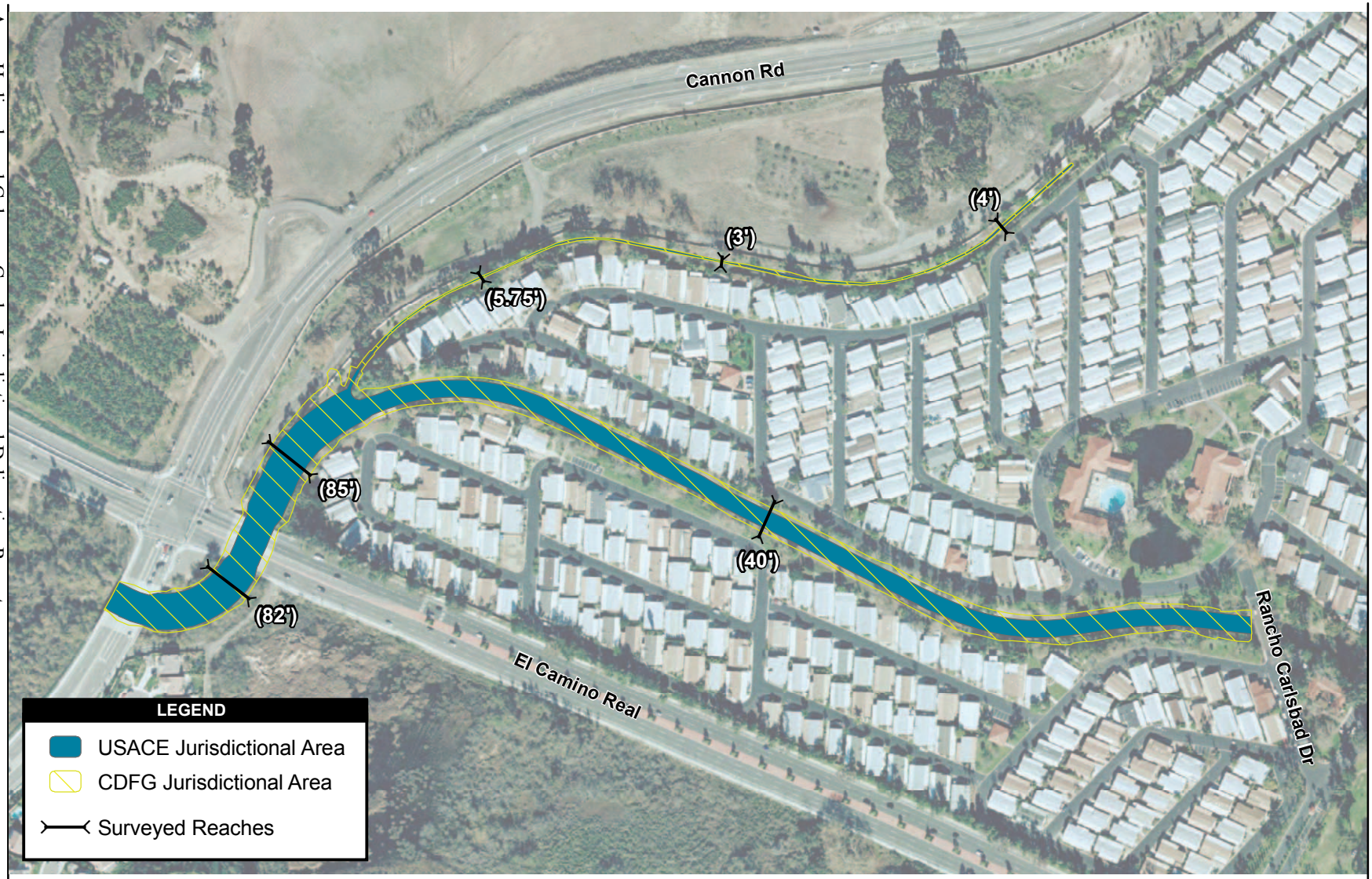
Agua Hedionda Creek

A total of 3.73 acres of jurisdictional waters of the U.S., in the form of 3.18 acres of unvegetated waters of the U.S. and 0.55 acre of jurisdictional wetlands in the form of southern willow scrub/willow riparian forest, exist for Agua Hedionda Creek. The creek encompasses 5.17 acres of jurisdictional waters of the State, in the form of 3.18 acres of unvegetated waters, 0.56 acre of southern willow scrub/willow riparian forest, and 1.43 acres of nonnative/ornamental riparian vegetation. These were delineated as defined by the extent of OHWM and vegetation types (Table 1).[1]

Calavera Creek

A total of 0.17 acre of jurisdictional waters of the U.S. exists for Calavera Creek in the form of unvegetated waters of the U.S. The creek encompasses 0.24 acre of jurisdictional waters of the State in the form of 0.17 acre of unvegetated channel and 0.07 acre of nonnative/ornamental riparian vegetation. These areas were delineated as defined by the extent of OHWM associated with the Calavera Creek (Table 1).[2]

[1] Unvegetated waters: (40 ft*2,150 ft + 85 ft*400 ft + 82 ft* 230 ft)/43,560 ft^2; Riparian: (82 ft*300 ft)/43,560 ft^2
[2] Unvegetated waters: (4.25ft*1,800 ft) / 43,560 ft^2



Source: AirPhotoUSA 2006; Brown and Caldwell 2006; SanGIS 2006

350 175 0 350 Feet

Scale: 1:4,200; 1 inch = 350 feet

Figure 2
Jurisdictional Reaches

Table 1
USACE and CDFG Jurisdictional Area within Project Area

Feature	USACE Jurisdictional Area (Area in Coastal Zone)	CDFG Jurisdictional Area[2] (Area in Coastal Zone)
Agua Hedionda Creek	3.73 (0.74)	5.17 (0.75)
Calavera Creek[1]	0.17	0.24
Total Area (Acres)	**3.90 (0.74)**	**5.41 (0.75)**

[1] Calavera Creek is not within the Coastal Zone.
[2] Encompasses USACE jurisdictional area.

Waters

Unvegetated Channel

Unvegetated channels are typically found within ephemeral drainages in southern California, where periodic high flows from seasonal storm events prevent the establishment of vegetation. Agua Hedionda Creek under the El Camino Real and Cannon Road bridges and east of the El Camino Real Bridge, and all of Calavera Creek consist of an unvegetated channel (Figures 3 and 4). Agua Hedionda Creek is characterized by a wide channel and steep banks. Calavera Creek is characterized by a very narrow channel and steep banks. Vegetation identified sparsely within the creeks includes nonnative herbaceous species such as water speedwell (*Veronica anagalis-aquatica*), dallies grass (*Paspalus dilatatum*), and green algae.

Wetlands

Wetlands are differentiated from waters at the site by the presence of hydrophytic vegetation within the creek.

Riparian Communities with Interspersed Marsh

Agua Hedionda Creek between the El Camino Real and Cannon Road bridges consists of recovering riparian habitat composed of vegetation species such as willows (*Salix* sp.) and small patches of cattails (*Typha* sp.) (Figure 5). Agua Hedionda Creek in this area is also characterized by a wide channel and steep banks.

Figure 3. Agua Hedionda Creek at the confluence with Calavera Creek. Looking upgradient (east) from the El Camino Real Bridge

Figure 4. Calavera Creek

Figure 5. Agua Hedionda Creek at El Camino Real Bridge looking downstream (west) to the Cannon Road Bridge

Nonnative/Ornamental Vegetation

Riparian vegetation, which has been installed on the graded banks of Calavera Creek, is primarily composed of an installed ornamental overstory of bottlebrush (*Callistemon* sp.), eucalyptus (*Eucalyptus* sp.), pine (*Pinus* sp.), and an understory composed of exotic invasive herbaceous species such as African daisies (*Dimorphotheca aurantiaca*), ice plant (*Carpobrotus* sp.), and brome (*Bromus* sp.). Characteristic forbs include red-stem filaree (*Erodium cicutarium*), mustard (*Brassica* spp.), and tarweed (*Hemizonia* spp.). The nonnative/ornamental vegetation community consists of nonnative plant species typically used in residential or commercial landscape settings. Ornamental vegetation dominates the banks of the creeks within the Rancho Carlsbad residential community upstream of the El Camino Real Bridge. Much of the vegetation on the slopes of the Creeks is nonnative ornamentals, though several mature sycamores are interspersed along the banks of Agua Hedionda Creek. Though the vegetation within the creeks is routinely cleared, it is assumed that even in the absence of this activity, the vegetation would still be dominated by nonnative species. This is due to the large amounts of ornamentals planted on the banks and the adjacent upland areas that are developed or support nonnative vegetation, and concrete slabs from previous channelization (Figure 6).

Figure 6. Calavera Creek

IV. LITERATURE CITED

EDAW, Inc. 2006 *Wetland Determination and Delineation Report for Agua Hedionda and Calavera Creeks*. Prepared for the City of Carlsbad. 05080162 Agua Hedionda Wetland Delineation February 1, 2006.

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual.* Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station. Vicksburg, Mississippi.

RECON. 2002. *Wetland Delineation Report for the Rancho Carlsbad Channel Maintenance Project.* Prepared for the City of Carlsbad. RECON Number 3001B August 12, 2002.

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RARE PLANT SURVEY FOR
AGUA HEDIONDA AND CALAVERA CREEKS
CHANNEL DREDGING AND IMPROVEMENT PROJECT

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October 6, 2005

Mr. David Hauser
City of Carlsbad
Department of Public Works-Engineering
1635 Faraday Avenue
Carlsbad, CA 92008-7314

Subject: Rare Plant Survey for Agua Hedionda and Calavera Creeks Channel Dredging and Improvement Project

Dear Mr. Hauser:

On August 25, 2005, EDAW botanist John Messina conducted a rare plant survey of the study area of the proposed Agua Hedionda and Calavera Creeks Channel Dredging and Improvement Project (Figure 1). The limits of the study area included the channel bed and banks of Agua Hedionda and Calavera creeks and the berms and bottom of the Detention Basin BJB. The study area is depicted in Figure 1. This survey was conducted on foot.

Much of the study area is disturbed. Both Agua Hedionda and Calavera creeks have been channelized. Sparse disturbed wetlands dominated by nonnative and native herbaceous species such as annual beard grass (*Polypogon monspeliensis*), water speedwell (*Veronica anagallis-aquatica*), Dallis grass (*Paspalum dilatatum*), umbrella sedge (*Cyperus* sp.), and salt heliotrope (*Heliotropium curassavicum*) occur in the channels of the two creeks within the Rancho Carlsbad Mobile Home Park (RCMHP). Ornamental vegetation with an occasional western sycamore (*Platanus racemosa*) occurs along the creek banks. The channels are periodically cleared of vegetation to reduce flooding threats, hence the sparse vegetation within the creeks. To the west of the RCMHP, Agua Hedionda Creek is vegetated with mature willow forest, dominated by several willow species including arroyo willow (*Salix lasiolepis*) and Goodding's black willow (*Salix gooddingii*). The Detention Basin BJB was constructed in prior agricultural land and supports southern willow scrub/freshwater marsh habitat at its southern end. Arroyo willow and cattails (*Typha latifolia*) are the two dominant species here. Disturbed vegetation dominated by horseweed (*Conyza canadensis*) and Indian sweetclover (*Melilotus indica*) occurs on the berms of the detention basin. Calavera Creek, where it is immediately adjacent to and east of the detention basin, is dominated by mature sycamore woodland. The limited native vegetation such as the willow forest to the east of the RCMHP or the wetland habitat in the creeks or detention basin has recolonized these areas after prior disturbances. As such, potential habitat for rare plants is minimal.

Though the rare plant survey was conducted late in the year and early ephemeral spring species would not have been detectable at the time of the survey, the potential for the occurrence of such species is considered very low. The rare plant survey

focused on San Diego ambrosia (*Ambrosia pumila*), a federal endangered species that occurs in mesic grasslands and sage scrub generally along the periphery of intermittent streams and river courses. This species has a traditional blooming period of May through September; therefore, if the species was present it would have been identified. However, San Diego ambrosia or other rare plant species were not observed during the survey. No rare plant species are expected to occur within the study area given its relatively disturbed condition and long history of periodic disturbances. Additionally, rare plant species within or along Agua Hedionda Creek were not detected during surveys in 2002 (RECON 2002).

If you have any questions please do not hesitate to contact me at 619.233.1454, ext. 347.

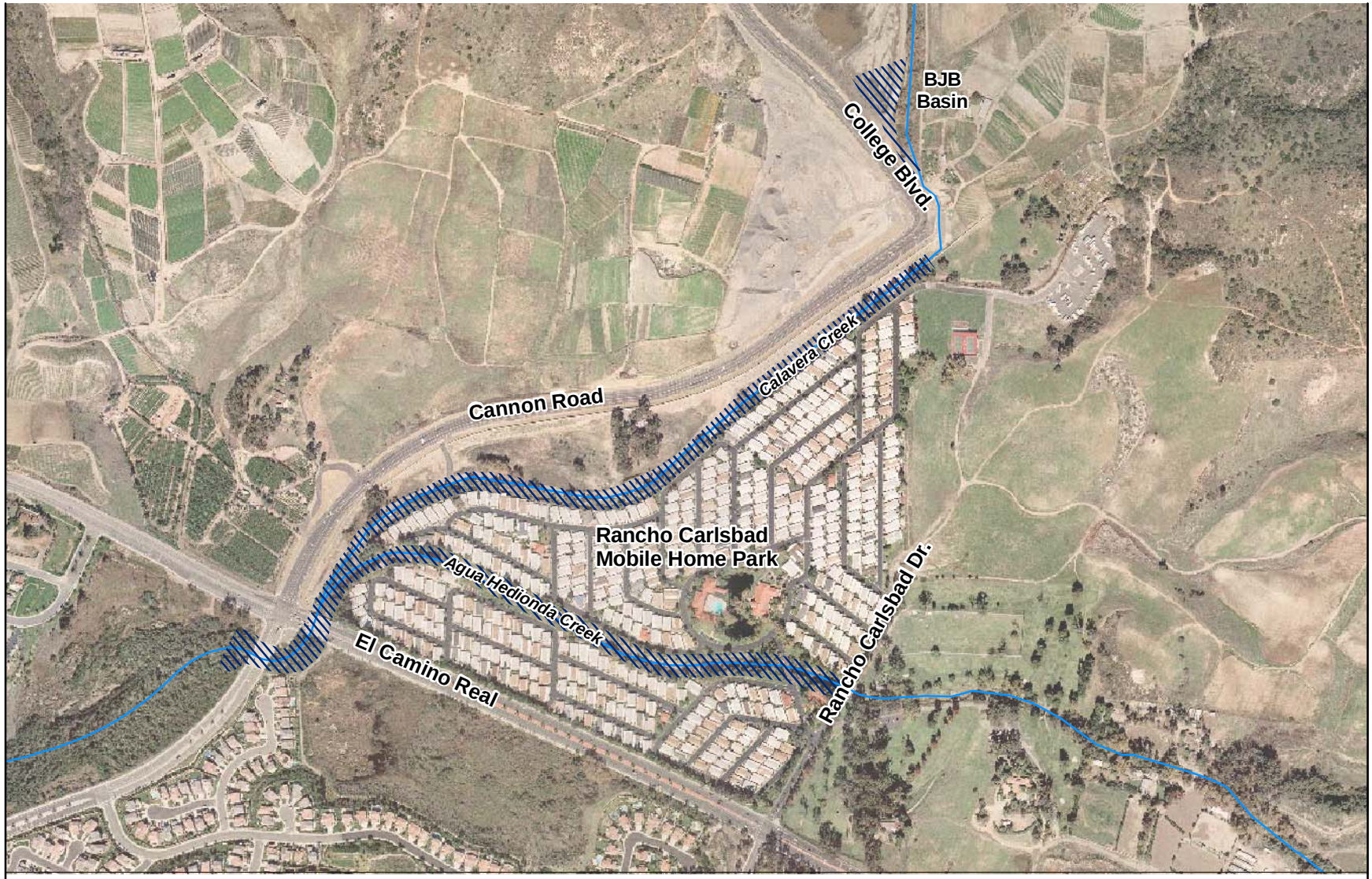
Sincerely,

John J. Messina
Botanist

Attachment: Figure 1 – Rare Plant Survey Area

cc: Jacqueline Dompe
Teresa Wilkinson

05080162 Rare Plant Ltr rpt.doc



Source: Eagle Aerial 2004; SanGIS.

750 0 750 Feet

Scale: 1 : 9000; 1 inch = 750 feet

Legend

EDAW Survey Area

Figure 1
Rare Plant Survey Area

POST-SURVEY NOTIFICATION
OF FOCUSED SURVEY RESULTS
FOR THE LEAST BELL'S VIREO
AND SOUTHWESTERN WILLOW FLYCATCHER
ON THE AGUA HEDIONDA SITE

September 20, 2005

Mr. Daniel Marquez
U.S. Fish and Wildlife Service
Carlsbad Field Office
6010 Hidden Valley Road
Carlsbad, CA 92009

Reference: Post-Survey Notification of Focused Survey Results for the Least Bell's Vireo and Southwestern Willow Flycatcher on the Agua Hedionda Site in the City of Carlsbad, California (RECON Number 4138B)

Dear Mr. Marquez:

This letter is to notify the U.S. Fish and Wildlife Service (USFWS) of the results of focused surveys for the least Bell's vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax traillii extimus*) conducted on the Agua Hedionda Site (site) in the City of Carlsbad, California. The site is west and east of El Camino Real, north and south of Cannon Road, and approximately four miles east of Interstate 5 (Figures 1, 2, and 3). Agua Hedionda Creek flows through the site, which is immediately bounded by residential development, roads, and undeveloped riparian and upland habitat (see Figure 3). The site is comprised of undeveloped upland and riparian habitat, and developed land (see Figure 3).

Methods

RECON biologist Cynthia Jones conducted the focused surveys for southwestern willow flycatcher under USFWS permit number TE-811615 according to USFWS survey guidelines (USFWS 2000), which requires five surveys. One survey is conducted in each of the two periods from May 15 through May 31 and from June 1 through June 21. Three surveys are conducted between June 22 and July 17, with at least five days separating consecutive surveys. Surveys were conducted by walking meandering transects throughout and adjacent to areas of suitable southwestern willow flycatcher habitat. A vocalization tape was played at approximately 200-foot intervals in an attempt to elicit a response from the birds. Approximately 3.16 acres of suitable habitat was surveyed on-site. All bird species observed during the surveys were noted. The specifics of survey dates, times, and weather conditions are provided in Table 1.

RECON biologists Darin Busby and Amy Clark conducted the focused surveys for least Bell's vireo according to USFWS survey guidelines (USFWS 2001), which requires eight surveys at least 10 days apart between April 1 and July 31. Surveys were conducted by walking meandering transects throughout and adjacent to areas of suitable least Bell's vireo habitat. Approximately 3.16 acres of suitable habitat was surveyed on-site. All bird species observed during the surveys were noted. The specifics of survey dates, times, and weather conditions are provided in Table 1.

Existing Conditions

Twelve vegetation communities and land cover types occur in the 19.24-acre study area: willow riparian forest, freshwater marsh, southern willow scrub, revegetated southern willow scrub, mule fat scrub, revegetated mule fat scrub, revegetated coastal sage scrub, disturbed coastal sage

scrub, revegetated coastal salt marsh, unvegetated channel, ornamental vegetation, and developed land. The surveys for southwestern willow flycatcher and least Bell's vireo were conducted in the suitable habitat within willow riparian forest, southern willow scrub, mule fat scrub, and freshwater marsh vegetation communities.

Willow riparian forest habitat, totaling approximately 2.22 acres, occurs along the main channel of Agua Hedionda Creek. The dominant tree species in this community is black willow (*Salix gooddingii*), although lesser quantities of arroyo willow (*S. lasiolepis*) and narrow-leaved willow (*S. exigua*) are also present. Willow riparian forest supports many native and non-native herbaceous species in the understory.

Approximately 0.86 acre of freshwater marsh occurs in the western portion of the study area. The dominant plants in this community include cattails (*Typha* spp.), spiny rush (*Juncus acutus* ssp. *leopoldii*), rush (*Juncus* sp.), California bulrush (*Scirpus californicus*), and yerba mansa (*Anemopsis californica*).

A total of approximately 0.62 acre of southern willow scrub and 0.06 acre of revegetated southern willow scrub occur along Agua Hedionda Creek in the portions of the study area to the west and to the south of the intersection of El Camino Real and Cannon Road. The vegetation community is dominated by arroyo willow, with some areas containing understory plant species such as spiny rush and saltgrass (*Distichlis spicata*).

Mule fat scrub is present on approximately 0.09 acre in the western portion of the study area. In addition, approximately 0.12 acre of revegetated mule fat scrub is present in the revegetated native habitat to the northwest of the intersection of El Camino Real and Cannon Road. This vegetation community is dominated by mule fat (*Baccharis salicifolia*).

Approximately 0.63 acre of revegetated coastal sage scrub and 0.39 acre of disturbed coastal sage scrub occur west of the intersection of El Camino Real and Cannon Road. The community is dominated by California sagebrush (*Artemisia californica*) and California buckwheat (*Eriogonum fasciculatum* var. *fasciculatum*). Black sage (*Salvia mellifera*), blue elderberry (*Sambucus mexicana*), laurel sumac (*Malosma laurina*), bladderpod (*Isomeris arborea*), and broom baccharis (*Baccharis sarothroides*) are also present. Understory species include both native and non-native species, such as slender stephanomeria (*Stephanomeria virgata*), coast goldenbush (*Isocoma menziesii*), filaree (*Erodium* sp.), wild oats (*Avena* sp.), and California broom (*Lotus scoparius*). Non-native plant species within the disturbed coastal sage scrub include filaree, ripgut grass (*Bromus diandrus*), tocolote (*Centaurea melitensis*), black mustard (*Brassica nigra*), fennel (*Foeniculum vulgare*), Russian thistle (*Salsola tragus*), and tree tobacco (*Nicotiana glauca*).

Revegetated coastal salt marsh is present in the northwestern portion of the project area. Totaling approximately 1.22 acres, this vegetation community is dominated by pickleweed (*Salicornia* spp.) and alkali-heath (*Frankenia salina*), with lesser amounts of other native halophytes.

Unvegetated channel occurs in Agua Hedionda Creek and Calaveras Creek with the residential development to the east of the intersection of El Camino Real and Cannon Road. Unvegetated channels are typically found within ephemeral drainages in southern California, where periodic high flows from seasonal storm events prevent the establishment of vegetation. In this case, however, approximately 2.78 acres of unvegetated channel occur in relatively wide, gently sloping, perennially flowing streambeds due to regular vegetation removal by the surrounding community.

A total of 9.77 acres of ornamental vegetation is present along Agua Hedionda Creek and Calaveras Creek within the community to the east of the intersection of El Camino Real and

Cannon Road. Although some native tree species such as western sycamore (*Platanus racemosa*) occur along these creeks, the highly disturbed and widely spaced nature of the vegetation precludes the development of functional riparian habitat in these regions. No shrub or herbaceous component exists within this vegetation community other than ornamental grass and other scattered non-native species.

Approximately 0.48 acre of developed land occurs in the study area. These areas are composed of dirt trails and roads.

Survey Results

Least Bell's vireo and a migratory willow flycatcher were observed on-site during the focused surveys conducted for these species. In addition, two California species of special concern, yellow warbler (*Dendroica petechia)* and yellow-breasted chat (*Icteria virens auricollis*), were detected on-site during the focused surveys.

One willow flycatcher and two least Bell's vireo were detected within the southern willow scrub along Agua Hedionda Creek west of the intersection of El Camino Real and Cannon Road. The willow flycatcher was detected during the first of the five focused surveys and was not seen during any of the subsequent surveys, indicating the individual was using the habitat as a stopping point during its migration north. One yellow warbler was detected within the southern willow scrub along Agua Hedionda Creek west of the intersection of El Camino Real and Cannon Road. One yellow-breasted chat was detected within the southern willow scrub along Agua Hedionda west of the intersection of El Camino Real and Cannon Road. The locations of these sensitive bird species are shown in Figure 4.

Birds commonly observed in the riparian areas during the surveys for least Bell's vireo and southwestern willow flycatcher included western scrub-jay (*Aphelocoma californica*), wrentit (*Chamaea fasciata henshawi*), lesser goldfinch (*Carduelis psaltria hesperophilus*), Pacific slope flycatcher (*Empidonax difficilis*), Anna's hummingbird (*Calypte anna*), bushtit (*Psaltriparus minimus*), orange-crowned warbler (*Vermivora celata*), common yellowthroat (*Geothlypis trichas*), spotted towhee (*Pipilo maculatus*), European starling (*Sturnus vulgaris*), and Nuttall's woodpecker (*Picoides nuttallii*). Two brown-headed cowbirds (*Molothrus ater*) were detected within the southern willow scrub along Agua Hedionda Creek south of Cannon Road and west of El Camino Real (see Figure 4).

If you have any questions concerning the focused surveys or the contents of this letter, please contact Wendy Loeffler at (619) 308-9333.

Sincerely,

Wendy Loeffler
Biologist

DAB:WEL:ash

cc: Glen Van Peski, GVP Consultants
Cynthia Jones

References Cited

U.S. Fish and Wildlife Service (USFWS)
2000 Survey Protocol for the Southwestern Willow Flycatcher, Revised. July 11.

2001 Least Bell's Vireo Survey Guidelines. January 19.

I certify that the information in this survey report and attached exhibits fully and accurately represents my work.

Amy Clark Date

Cindy Jones Date
Permit Number TE-811615

No longer employed at
RECON; signature not available.
Darin Busby Date

TABLE 1
SOUTHWESTERN WILLOW FLYCATCHER AND
LEAST BELL'S VIREO FOCUSED SURVEY DATES, TIMES, AND WEATHER CONDITIONS

Date	Personnel	Survey	Time	Weather Conditions
5/9/05	Darin Busby Amy Clark	LBV #1	10:00–11:00 A.M.	70°F; 20% cloud cover and haze; wind 2–3 mph
5/19/05	Darin Busby Cindy Jones	LBV #2 WIFL #1	10:00–11:00 A.M.	75–77°F; 0% cloud cover; wind 1–5 mph
6/2/05	Darin Busby Cindy Jones	LBV #3 WIFL #2	10:00–11:00 A.M.	70°F; 100% cloud cover and haze; wind 2–5 mph
6/13/05	Darin Busby	LBV #4	10:00–11:00 A.M.	72°F; 100% cloud cover and haze; wind 0–1 mph
6/23/05	Darin Busby Cindy Jones	LBV #5 WIFL #3	9:00–10:00 A.M.	65°F; 100% cloud cover and haze; wind 0–2 mph
6/29/05	Cindy Jones	WIFL #4	9:00–9:30 A.M.	66–68°F; 90% cloud cover, breaking up; wind 0–3 mph
7/12/05	Darin Busby Cindy Jones	LBV #6 WIFL #5	8:15–9:05 A.M.	69–70°F; 100–50% cloud cover and haze; wind 0–5 mph
7/25/05	Darin Busby	LBV #7	7:30–8:20 A.M.	69–70°F; 100% cloud cover and haze; wind 0 mph
8/5/05	Darin Busby	LBV #8	7:10–8:00 A.M.	64–65°F; 100% cloud cover and haze; wind 0–1 mph

°F = degrees Fahrenheit; % = percent; mph = miles per hour.

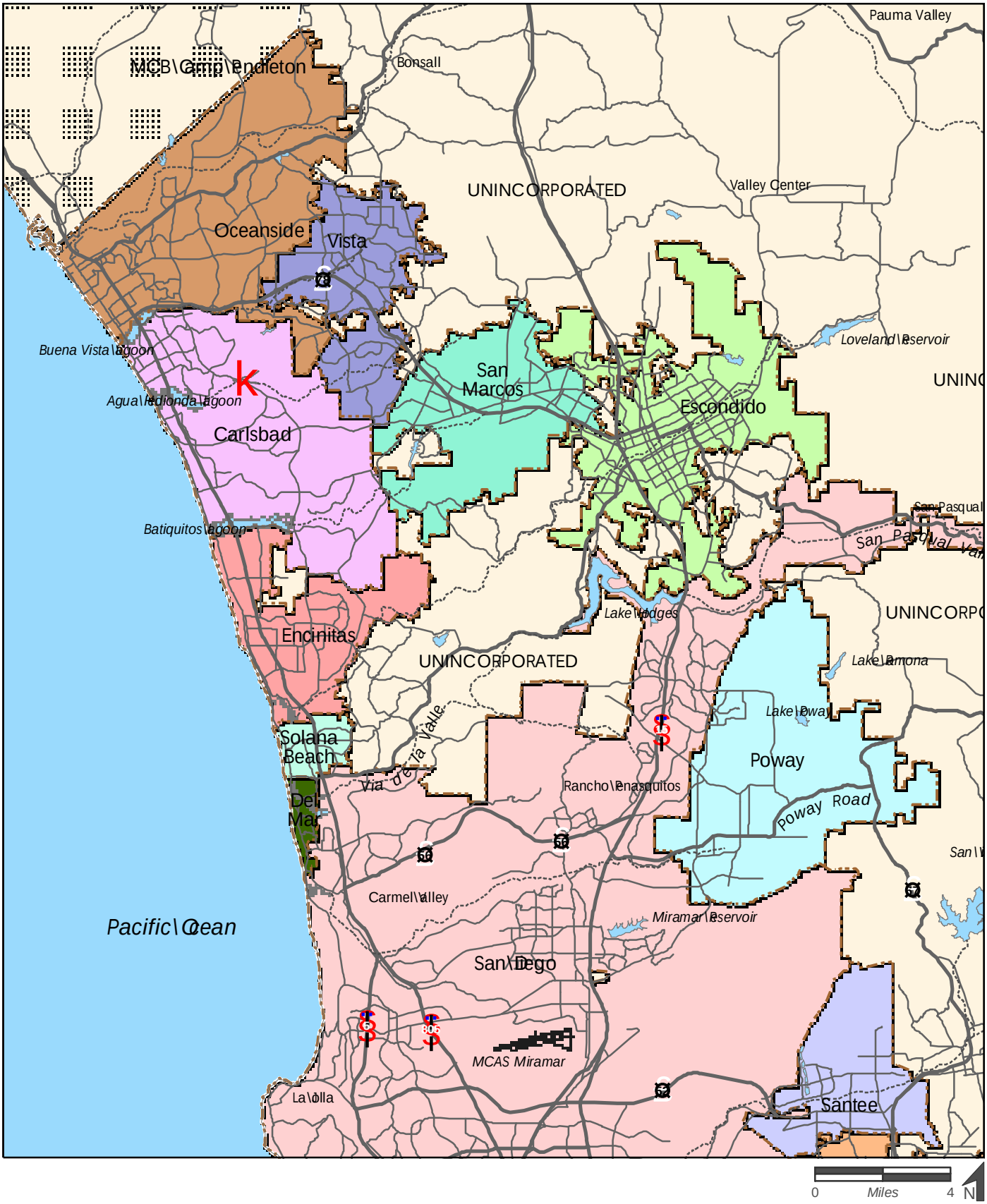


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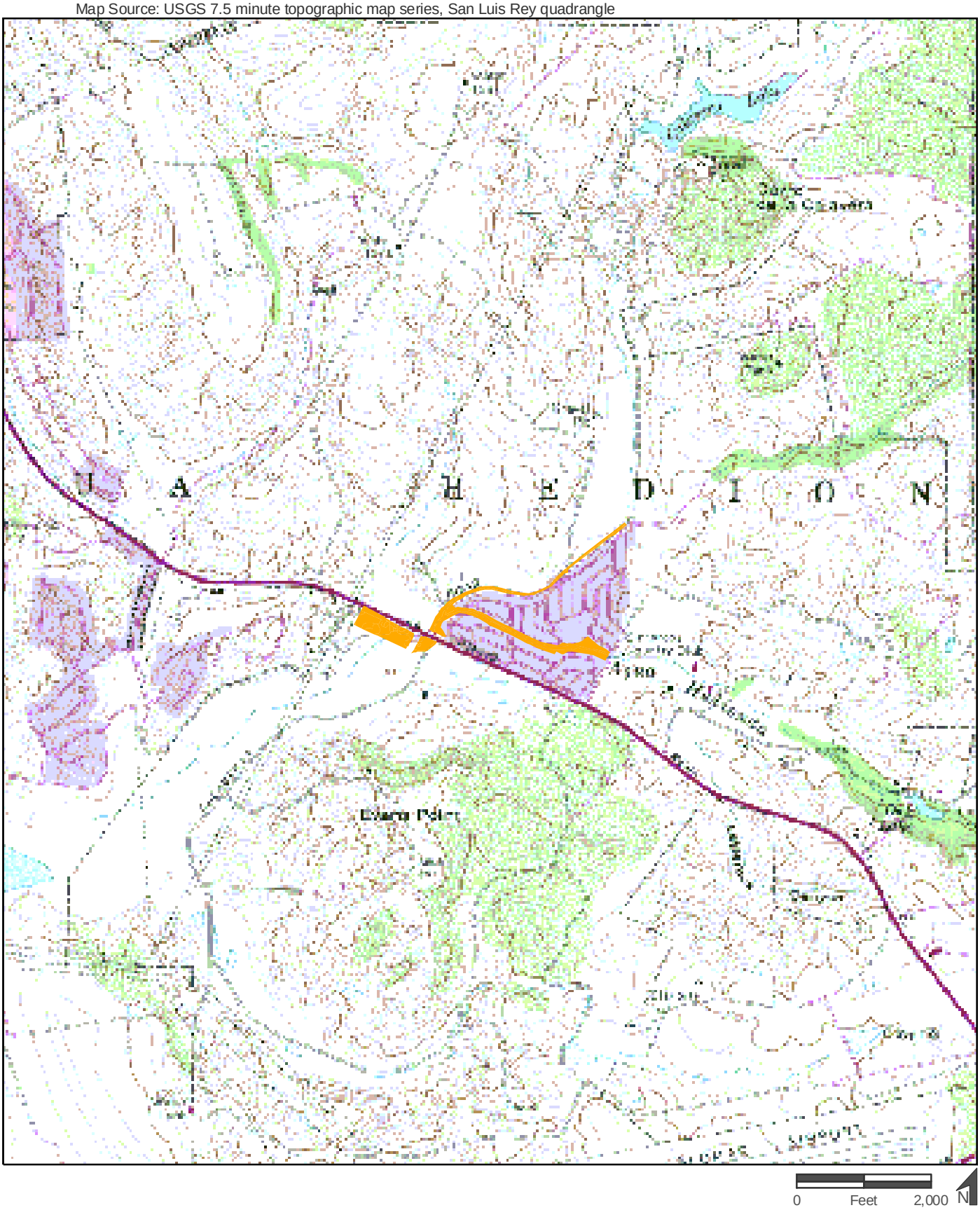
FIGURE 1
Regional Location

Map Source: USGS 7.5 minute topographic map series, San Luis Rey quadrangle



Project location

FIGURE 2

Project Location on USGS Map

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Image source: Copyright 2004 AirPhotoUSA, LLC, All Rights Reserved (flown April 2004)

0 Feet 300 N

Vegetation communities

- Developed
- Disturbed coastal sage scrub
- Freshwater marsh
- Mule fat scrub
- Ornamental vegetation
- Revegetated coastal sage scrub
- Revegetated coastal salt marsh
- Revegetated mule fat scrub
- Revegetated southern willow scrub
- Southern willow scrub
- Unvegetated channel
- Willow riparian forest

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FIGURE 3
Vegetation Communities

Image source: Copyright 2004 AirPhotoUSA, LLC, All Rights Reserved (flown April 2004)

- least Bell's vireo
- Southwestern willow flycatcher (05/19/05)
- Yellow-breasted chat
- Yellow warbler
- Brown-headed cowbird

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FIGURE 4
Sensitive Wildlife

RESULTS OF THE FOCUSED FIELD SURVEY FOR THE LIGHT-FOOTED CLAPPER RAIL FOR THE AGUA HEDIONDA AND CALAVERA CREEKS DREDGING AND IMPROVEMENTS PROJECT

Konecny Biological Services
Biological Consulting, Research, Conservation

May 11, 2006
06-01-A

EDAW, Inc.
1420 Kettner Blvd.
San Diego, California, 92101

Attn: Teresa Wilkinson, Senior Project Manager

Re: Results of a Focused Field Survey for the Light-footed Clapper Rail at the Agua Hedionda and Calavera Creek Dredging and Improvement Project, San Diego County, California, 2006.

Dear Ms. Wilkinson:

This letter report presents the results of focused field surveys for the light-footed clapper rail (*Rallus longirostris levipes*), for the Agua Hedionda and Calavera Creek Dredging and Improvement Project in coastal San Diego County, California. The light-footed clapper rail is listed as an endangered species by the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG).

Surveys for the light-footed clapper rail were conducted by wildlife biologist John Konecny, following methodology formulated by Konecny Biological Services (KBS) in consultation with light-footed clapper rail principal investigator Richard Zembal, and approved by the USFWS. This activity is authorized by KBS's USFWS section 10(a) permit number TE837308-3, and a CDFG Memorandum of Understanding.

INTRODUCTION

The light-footed clapper rail is a slender, tawny-breasted bird with grayish edges on brown centered back feathers, olive wing coverts, vertical white bars on the flanks, a white stripe over the eye, and a partially orange bill. Light-footed clapper rail occurred historically along the coast of southern California from Carpinteria Marsh in Santa Barbara County south to San Quintín, Baja California, Mexico (Grinnell and Miller 1944, USFWS 1994).

The light-footed clapper rail is a permanent resident of coastal salt marsh traversed by tidal sloughs, usually characterized by cordgrass (*Spartina foliosa*) and pickleweed (*Salicornia* spp.)(Grinnell and Miller 1944, USFWS 1994). Light-footed clapper rails have also nested in freshwater marsh characterized by cattails (*Typha* sp.) and bulrush (*Scirpus* sp.) at Buena Vista, Agua Hedionda, Batiquitos, San Elijo, and San Dieguito Lagoons in San Diego County (Zembal *et al* 2005); and in spiny rush (*Juncus acutus*) at Naval Air Station (NAS) Point Mugu. There is very limited evidence for inter-marsh movement by light-footed clapper rails.

Populations of light-footed clapper rails have undergone decline in the United States due to the rail's limited distribution and destruction and degradation of coastal salt marsh habitat. The statewide breeding rail population in 2005 was reported to be 360 pairs in 16 marshes (Zembal *et al* 2005), the largest number of rails in recent history since the statewide census began in 1980. Seventy-three percent of these pairs were found in two coastal salt marsh complexes at Upper Newport Bay and the Tijuana Marsh National Wildlife Refuge.

Zembal and Massey (1986) have shown that paired light-footed clapper rails can be detected "clappering" throughout the year, but have a bimodal peak in vocalizing during mid-February to mid-April and again in September to October. The initial peak in vocalizing corresponds to the onset of breeding season. In contrast to "clappering", single male and female "keking" is highly seasonal, almost exclusively occurring between February and June.

1501 East Grand Avenue #2403, Escondido, California, 92027
Tel (760) 489-5276 E-mail jkonecny@nethere.com

PROJECT LOCATION

The Agua Hedionda and Calavera Creek Dredging and Improvement Project site is located in Agua Hedionda Creek, approximately two miles (3.4 kilometers) east of Agua Hedionda Lagoon in the City of Carlsbad, coastal San Diego County, Californa (Figure 1). The project is located mostly upstream of El Camino Real and south of Cannon Road, extending approximately 3,000 feet (910 meters) eastward up Agua Hedionda Creek, and approximately 4,000 feet (1,212 meters) northward up Calavera Creek. During the March 2006 Emergency Dredge Project, no dredging was done along Agua Hedionda creek downstream of the Cannon Road Bridge and west of El Camino Real.

Specifically, the Agua Hedionda and Calavera Creek Improvement Project site is located within Township 12 South, Range 4 West, and in a numbered section of the U.S. Geological Survey San Luis Rey, CA. 7.5-minute quadrangle.

PROJECT SITE DESCRIPTION

The City of Carlsbad (City) proposes to conduct the channel dredging and other maintenance activities along Agua Hedionda and Calavera creeks to provide enhanced flood protection for the residential community of Rancho Carlsbad. Project components include:

- Dredging and improvements of Agua Hedionda and Calavera creeks
- Stabilization of Calavera Creek channel and bank
- Removal of the existing weir wall structure along the north side of Calavera Creek
- Modifying the outlet of the BJB Basin culvert
- Modifying existing piers under Cannon Road and El Camino Real bridges
- Long-term maintenance of Agua Hedionda and Calavera creeks

Rancho Carlsbad is an existing residential mobile home community located east of El Camino Real and south of Cannon Road, in the northeastern section of Carlsbad, California. Over 50 percent of the homes in Rancho Carlsbad occur within the existing limits of the 100-year floodplain and are currently subject to flood damage during a major storm event.

Agua Hedionda and Calavera creeks flow within constructed earthen channels throughout the entire extent of the project. Agua Hedionda Creek flows westerly through the southwestern portion of Rancho Carlsbad, bends southwesterly at the confluence with the Calavera Creek tributary, and exits the Rancho Carlsbad community as it passes beneath El Camino Real. West of El Camino Real, Agua Hedionda Creek bends into a westerly direction where it passes beneath Cannon Road and flows into a natural stream channel within an unimproved floodplain that drains into Agua Hedionda Lagoon. Two road crossings, Cannon Road Bridge and El Camino Real Bridge, are located within the downstream portion of the project boundary.

Calavera Creek flows south from a flood detention facility, known as Basin BJB, through a box culvert under the intersection of College Boulevard and Cannon Road and enters the Rancho Carlsbad community at the point of confluence with a tributary creek known as Little Encina Creek. Within the Rancho Carlsbad community, Calavera Creek flows southwesterly along the northwesterly boundary of Rancho Carlsbad community to a point of confluence with Agua Hedionda Creek located approximately 300 feet east of El Camino Real.

Much of the area of the Agua Hedionda Creek watershed in the Calavera Hills area, including the portion of the creek that extends through the Rancho Carlsbad residential community has been highly disturbed in

the recent past by channelization and converted to residential housing. Very little native vegetation exists upstream of the confluence of Agua Hedionda Creek and Calavera Creek, and between the confluence and El Camino Real in the project area. The creeks are basically a denuded sandy bottom with non-native ornamentals on the side slopes. No light-footed clapper rail habitat is present in these two reaches of the project site.

The area upstream of the existing weir wall on Calavera Creek near the intersection of College Boulevard and Cannon Road has been channelized and a detention basin is present to its immediate north. The vegetation present here is riparian woodland and a disturbed mule-fat scrub. No light-footed clapper rail habitat is present in this area.

The area west and downstream of El Camino Real consists of three distinct segments. The southern-most segment, southeast of the dirt access road is considered "open space" by the City of Carlsbad, and consists of freshwater marsh characterized by extensive cattails with emergent willows, mule-fat (*Baccharis salicifolia*), and Eucalyptus.

The middle and smallest segment, located between the access road and Cannon Road was dredged in March 2006. Vegetation removal within the creek channel occurred between the two bridge structures, resulting in the removal of mature overstory of willow riparian woodland, characterized by black willow (*Salix goodengii*), arroyo willow (*S. lasiolepis*), sandbar willow (*S. hindsiana*), and mule-fat. The understory was poorly developed. Light-footed clapper rail habitat was not present in this reach.

The third area, located outside the project work limits and downstream of the Cannon Road Bridge and west of El Camino Real is a mosaic of freshwater marsh and willow riparian woodland, with scattered Eucalyptus. This reach of habitat continues downstream and is continuous with Agua Hedionda Lagoon proper. Elevation of the project site is approximately 60 feet (18 meters) to 100 feet (30 meters) above mean sea level.

METHODS

At this time, the USFWS does not have a survey protocol for the light-footed clapper rail. Surveys were conducted following a methodology formulated by KBS in consultation with light-footed clapper rail principal investigator Richard Zembal, and approved by the USFWS.

Five focused light-footed clapper rail surveys were conducted at least seven days apart between February 13th and March 14th, 2006. Dusk surveys were conducted on February 13th, March 7th, and March 14th, 2006. Dawn surveys were conducted on February 20th and February 27th, 2006. Each dawn and dusk survey lasted approximately two-hours. Dawn surveys were conducted from pre-dawn to no later than two-hours after sunrise. Dusk surveys were conducted between sunset and no more than two-hours prior to sunset. A summary of the environmental conditions on the five survey dates is provided in Table 1.

The surveys were conducted by stopping at stations approximately 50-feet (17-meters) apart along the perimeter of the survey area and listening for vocalizing light-footed clapper rails. If rails were not detected passively, a call-prompt or tape-recorded vocalization of the light-footed clapper rail "dueting" was played at 15-second intervals alternating with 15 seconds of listening. A response was listened for in the final three minutes before proceeding to the next survey station.

RESULTS

Two pairs of light-footed clapper rails were detected in the freshwater marsh north of Cannon Road, and west and downstream of El Camino Real. No rails were detected in the freshwater marsh south of Cannon Road and west of El Camino Real. One rail was initially detected on February 13th, near the

Eucalyptus grove immediately west of El Camino Real and north of Cannon Road. No rails were detected on the morning of February 20th. Two pairs of "dueting" light-footed clapper rails were detected the morning of February 27th, and subsequently relocated during the dusk surveys of March 7th and 14th. The light-footed clapper rail locations are shown in Figure 2. No other endangered or threatened species were detected.

DISCUSSION

Described as "formerly common in all coastal marshes" by Grinnell and Miller (1944), the light-footed clapper rail has never been a common bird species at Agua Hedionda Lagoon in recent history. The rail population has vacillated between two and five pairs between 2000 and 2005, and has been at one or less from 1997 and before (Zembal *et al* 2005). During 2005, one pair of clapper rails was present in the freshwater marsh west of El Camino Real and a second pair was present farther downstream, well beyond the 500 foot buffer area.

During vegetation removal conducted as part of the 2006 Emergency Dredge project, no disturbance occurred to the light-footed clapper rails in the area, as rails were detected in the same areas after the emergency dredging, that they were present in before the activity. The following measures are recommended to avoid or minimize potential light footed clapper rails and their habitat.

1) To avoid potential downstream sedimentation/siltation within the freshwater marsh located downstream of Cannon Road Bridge, the City should include revegetation efforts consisting of willow woodland species present in the area (i.e., arroyo willow, black willow, sandbar willow, and mulefat).

2) Avoid construction impacts during the bird nesting season (March 1 through September 15 for the light-footed clapper rail).

2) Survey the area and surrounding 500 foot buffer area for light-footed clapper rails prior to implementation of dredging activities (there is no need to survey the area upstream of El Camino Real unless substantial freshwater marsh is allowed to grow back). If clapper rails are detected in the impact area, they should be flushed, prior to the onset of any vegetation removal

3) Install a physical barrier (construction fence) on the upstream side of Cannon Road before dredging or vegetation removal commences. The barrier may be removed once the construction activity has ceased on the south side of El Camino Real.

I certify that the information in this survey report and attached exhibits fully and accurately represent my work. The results of focused surveys for listed species are typically considered valid for one year by the USFWS and CDFG. If you have any questions or require additional information, please call me at (760) 489-5276.

Sincerely,

John K. Konecny
Wildlife Biologist
TE837308-4

REFERENCES CITED

Grinnell, J., and A.H. Miller. 1944. The Distribution of the Birds of California. Cooper Ornithological Club. Berkeley, California.

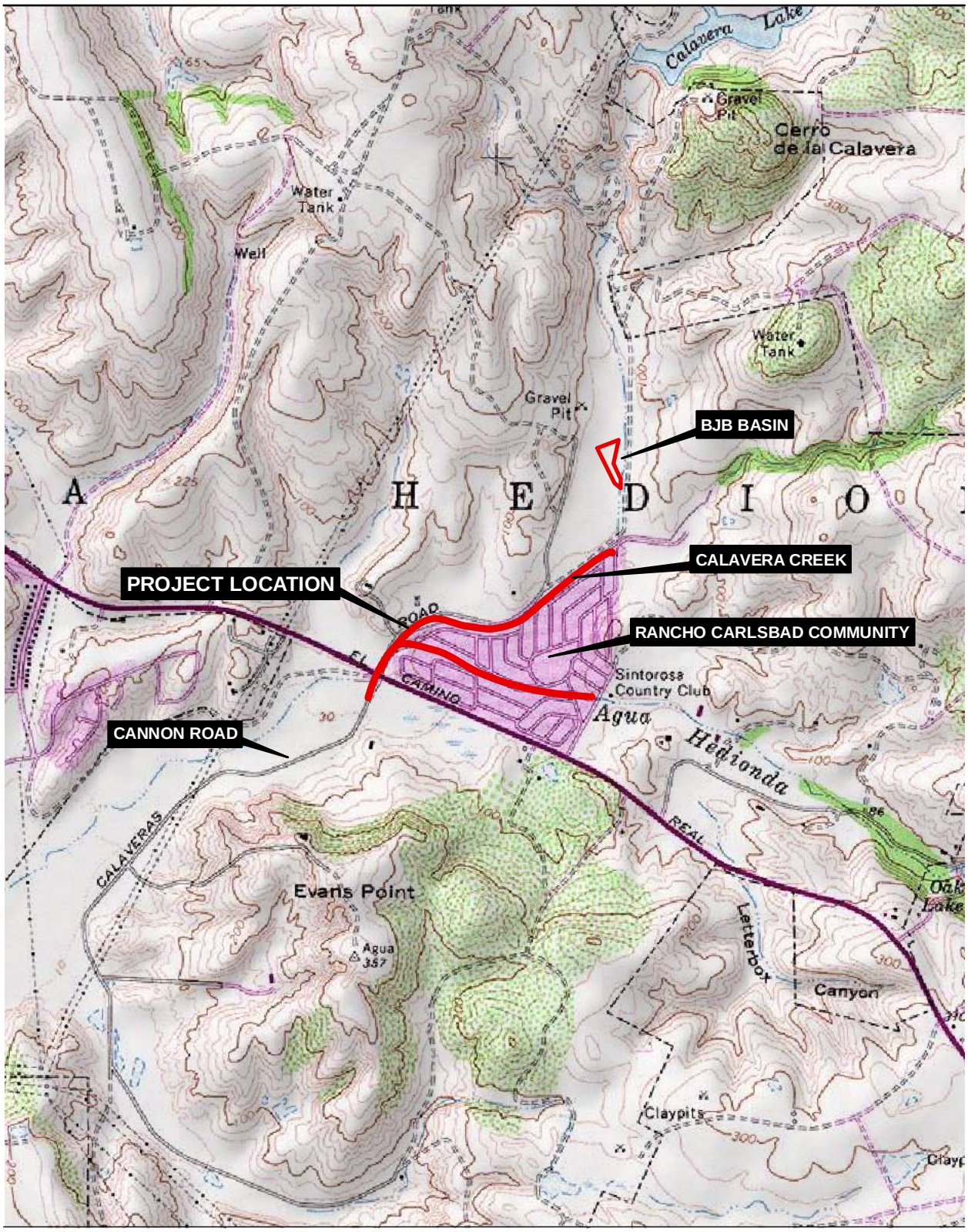
U.S. Fish and Wildlife Service. 1994. Light-footed Clapper Rail. Unpublished two-page pamphlet, prepared by R. Zembal.

Zembal, R., S. Hoffman, and J. Konecny. 2005. Light-footed Clapper Rail Management, Study, and Translocation, 2004. Report to Naval Base Ventura County, Point Mugu; U.S. Fish and Wildlife Service; and California Department of Fish and Game, for California State University, Long Beach Foundation and El Dorado Audubon Society.

Zembal, R. and B. W. Massey. 1986. Seasonality of Vocalizations by Light-footed Clapper Rails. J. Field Ornithol., 58(1):41-48.

Table 1. Summary of Weather Conditions During Five Light-footed Clapper Rail Surveys at the Agua Hedionda and Calavera Creek Improvement Site, 2006.

Survey #	Date	Surveyor (Species)	Time	Weather Conditions
1	02/13/06	JK (LFCR)	1310-1650	20% overcast, 60-58F, wind 4-7 mph
2	02/20/06	JK (LFCR)	0630-0845	100% overcast, 44-46F, wind 1-3 mph
3	02/27/06	JK (LFCR)	0640-0850	100% overcast, 52-55F, wind 1-3 mph
4	03/07/06	JK (LFCR)	1505-1700	70% overcast, 62-60F, wind 1-3mph
5	03/14/06	JK (LFCR)	1510-0715	60% overcast, 64-66F, wind 3-5 mph



Source: USGS, San Luis Rey Quadrangle

2000 1000 0 2000 Feet

Scale: 1 : 24,000; 1 inch = 2,000 feet

Figure 1
Project Location

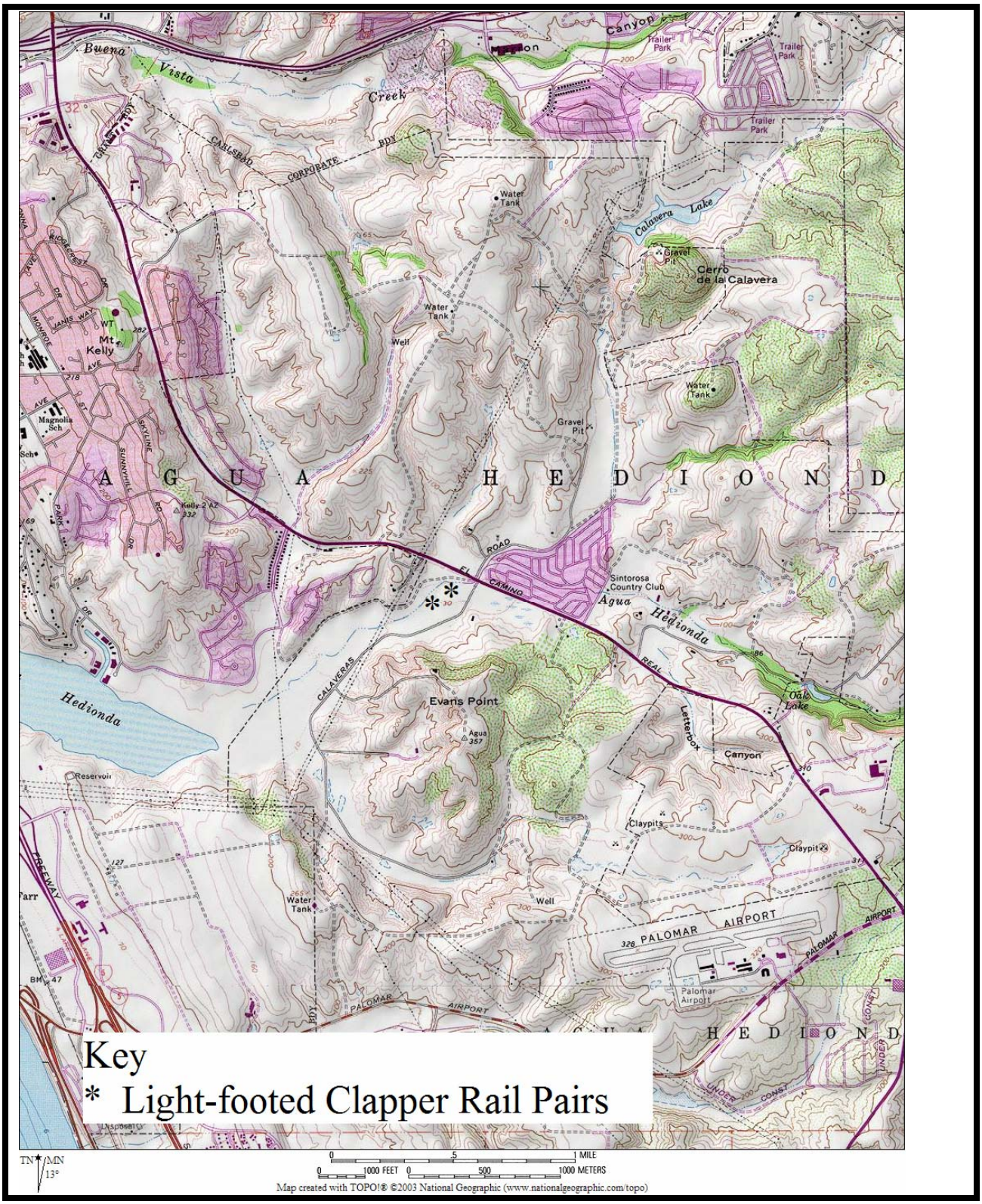


Figure 2. Location of Light-footed Clapper Rail Pairs at the Agua Hedionda Creek Emergency Dredge Work Site, San Diego County, California, 2006.

BIOLOGICAL TECHNICAL REPORT
FOR THE RANCHO CARLSBAD
CHANNEL MAINTENANCE PROJECT

BIOLOGICAL TECHNICAL REPORT FOR THE RANCHO CARLSBAD CHANNEL MAINTENANCE PROJECT

Prepared for

CITY OF CARLSBAD
1635 FARADAY AVENUE
CARLSBAD, CA 92008

Prepared by

GERALD A. SCHEID
SENIOR BIOLOGIST

RECON NUMBER 3001B
AUGUST 12, 2002

1927 Fifth Avenue
San Diego, CA 92101-2358

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TABLE OF CONTENTS

Summary of Findings 1

Introduction 1

Survey Methods 4

Results 4

A. Topography and Soils 4

B. Botany 6

C. Zoology 6

D. Sensitive Biological Resources 8

E. Multiple Habitat Conservation Program 13

Project Impacts 13

A. Plant Community Impacts 13

B. Non-Sensitive Wildlife Impacts 13

C. Sensitive Biological Resources Impacts 14

Mitigation Measures and Recommendations 14

References Cited 15

FIGURES

1: Regional Location 2
2: Project Location on USGS Map 3
3: Agua Hedionda Creek Vegetation Map 7

PHOTOGRAPHS

1: Agua Hedionda Creek within the RCMHP 5
2: Agua Hedionda Creek – View of El Camino Real Bridge 5

TABLE OF CONTENTS (cont.)

ATTACHMENTS

1: Plant Species Observed
2: Wildlife Species Observed/Detected on the Site

Summary of Findings

The proposed Rancho Carlsbad Channel Maintenance Project involves the removal of accumulated sediment from Agua Hedionda Creek within the Rancho Carlsbad Mobile Home Park. The sediment removal would temporarily impact 4.2 acres of Agua Hedionda Creek and 0.1 acre of developed land. Channel hydraulic capacity will be increased by the sediment removal and the flood prone area adjacent to the creek will be decreased, benefiting the local residents. A long-term maintenance program for this section of Agua Hedionda Creek will be developed to maintain sediment levels for maximum channel capacity.

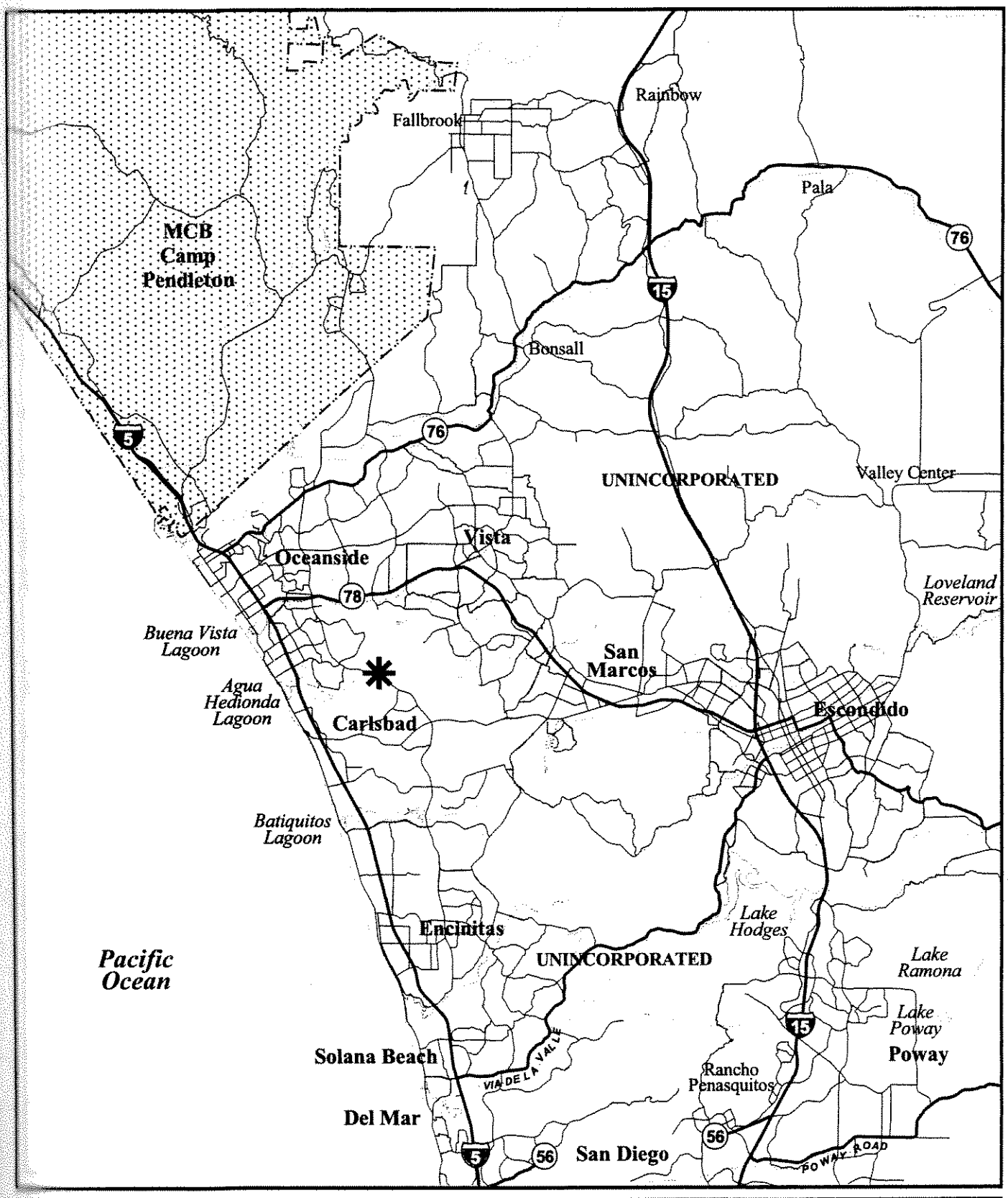
Introduction

The Rancho Carlsbad Channel Maintenance Project is intended to minimize the 100-year flood inundation area within the Rancho Carlsbad Mobile Home Park (RCMHP). RCMHP is located north and east of El Camino Real midway between College Boulevard and Tamarack Avenue in the city of Carlsbad (Figures 1 and 2). RCMHP contains portions of both Agua Hedionda Creek and Calavera Creek. Agua Hedionda Creek flows westerly through the southern portion of RCMHP. Calavera Creek flows southwesterly along the northern property boundary. Calavera Creek has its confluence with Agua Hedionda Creek within RCMHP approximately 300 feet upstream of the bridge at El Camino Real.

The original design configuration of the channelized section of Agua Hedionda Creek through RCMHP, approved in March 1971, consisted of a trapezoidal channel with 2:1 (horizontal: vertical) side slopes, a depth of approximately 11.5 feet and a bottom width that varied from 58 feet at the El Camino Real bridge to 44 feet upstream of the confluence.

The proposed channel maintenance project involves silt removal from Agua Hedionda Creek from the bridge at El Camino Real upstream for a distance of approximately 2,400 feet. No silt removal will occur within Calavera Creek as part of this project. The bottom of Agua Hedionda Creek has no woody perennial vegetation and has experienced a buildup of as much as seven feet of silt over the years. The creek has never been cleared of silt since it was constructed approximately 30 years ago. This has reduced its capacity to convey flood flows and increased the likelihood of inundation of areas adjacent to the creek.

It is estimated that approximately 30,000 cubic yards of silt material will be excavated from Agua Hedionda Creek within RCMHP. The disposition of the 30,000 cubic yards of



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✱ Project location

0 Miles 4

FIGURE 1
Regional Location

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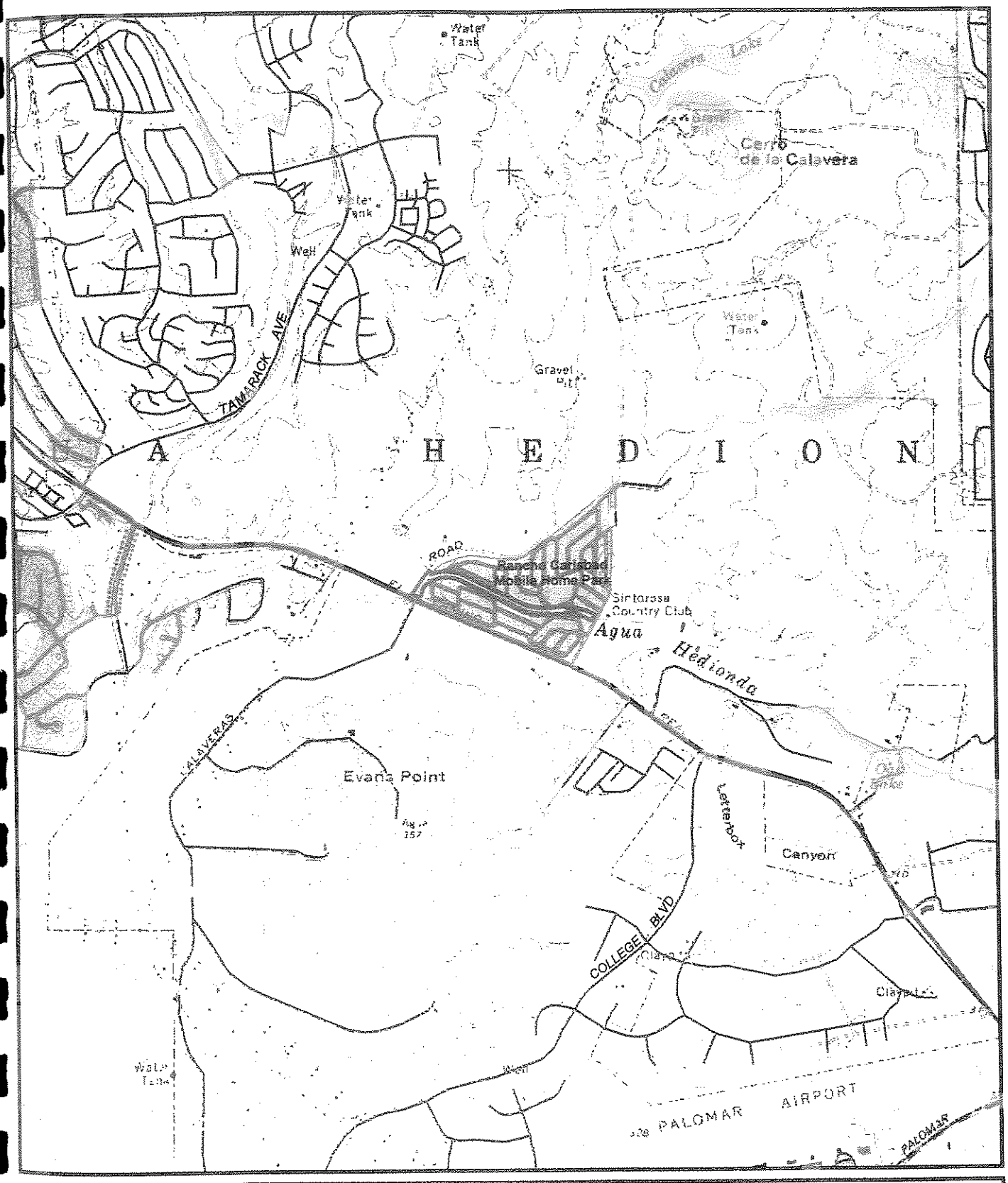

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Map Source: USGS 7.5 minute topographic map series, San Luis Rey quadrangle

Project location

0 Feet 2000

FIGURE 2

Project Location on USGS Map

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material will be accommodated within features of nearby projects (e.g., road beds, berms).

In addition to silt removal, channel widening of Agua Hedionda Creek is proposed between El Camino Real and the confluence with Calavera Creek. The widening will be up to approximately 25 feet. This will allow a further reduction in water surface elevation within the RCMHP.

This report provides biological data and background information required for environmental analysis by the Draft City of Carlsbad Multiple Habitat Conservation Plan (MHCP) Subarea Plan, the California Environmental Quality Act (CEQA), and the National Environmental Policy Act (NEPA).

Survey Methods

Surveys were conducted in the project area in the spring of 2002. RECON biologists walked along Agua Hedionda Creek, surveying the channel bed and banks. Animal species were either observed directly with the aid of binoculars or detected indirectly from call, tracks, scat, nests, or other sign. Plant species were identified in the field or in the laboratory.

Floral nomenclature follows Hickman (1993), while plant community classifications follow the California Natural Diversity Data Base (NDDB) (Holland 1986). Zoological nomenclature for birds is in accordance with the American Ornithologists' Union Checklist (1998); for mammals, Jones et al. (1988); and for amphibians and reptiles, Collins (1990). Assessments of the sensitivity of species and habitats are based primarily on the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (2001), State of California (2002a, 2002b), and Holland (1986).

Results

A. Topography and Soils

The topography is relatively flat along Agua Hedionda Creek. Elevations on-site range from approximately 70 to 100 feet above mean sea level (AMSL). Representative photographs of this reach of Agua Hedionda Creek are provided (Photographs 1 and 2).

Soils on-site consist of Tujunga sand along the banks of the creek and Riverwash in the bed of the creek (U.S. Department of Agriculture 1973). Tujunga sand consists of very deep, excessively drained sands derived from granitic alluvium. These soils are on

PHOTOGRAPH 1
Agua Hedionda Creek within RCMHP

PHOTOGRAPH 2
Agua Hedionda Creek - View of El Camino Real Bridge

RECON

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alluvial fans and floodplains and have slopes of zero to five percent. Riverwash is a soil classification that refers to a mixture of accumulated sediments in river, stream, creek, or other drainage channels.

B. Botany

This section of Agua Hedionda Creek does not support native perennial woody trees or shrubs, but does support some native annual and perennial herbaceous species in the channel bed on a seasonal basis, and non-native ornamental species on the banks (Figure 3). A complete list of plant species observed on-site at the time of the survey is given in Attachment 1.

Seasonal flood flows scour the creek channel frequently enough to prevent the establishment of native woody perennial species. The active movement of sediment on a yearly basis allows for the temporary establishment of some native annual and perennial herbaceous species. The distribution and size of the populations of these annual and perennial species depends on the magnitude, duration, and frequency of the seasonal storm events. In a typical or average year, these species would be more abundant during the low flow dry season and less abundant or temporarily gone during the wet season.

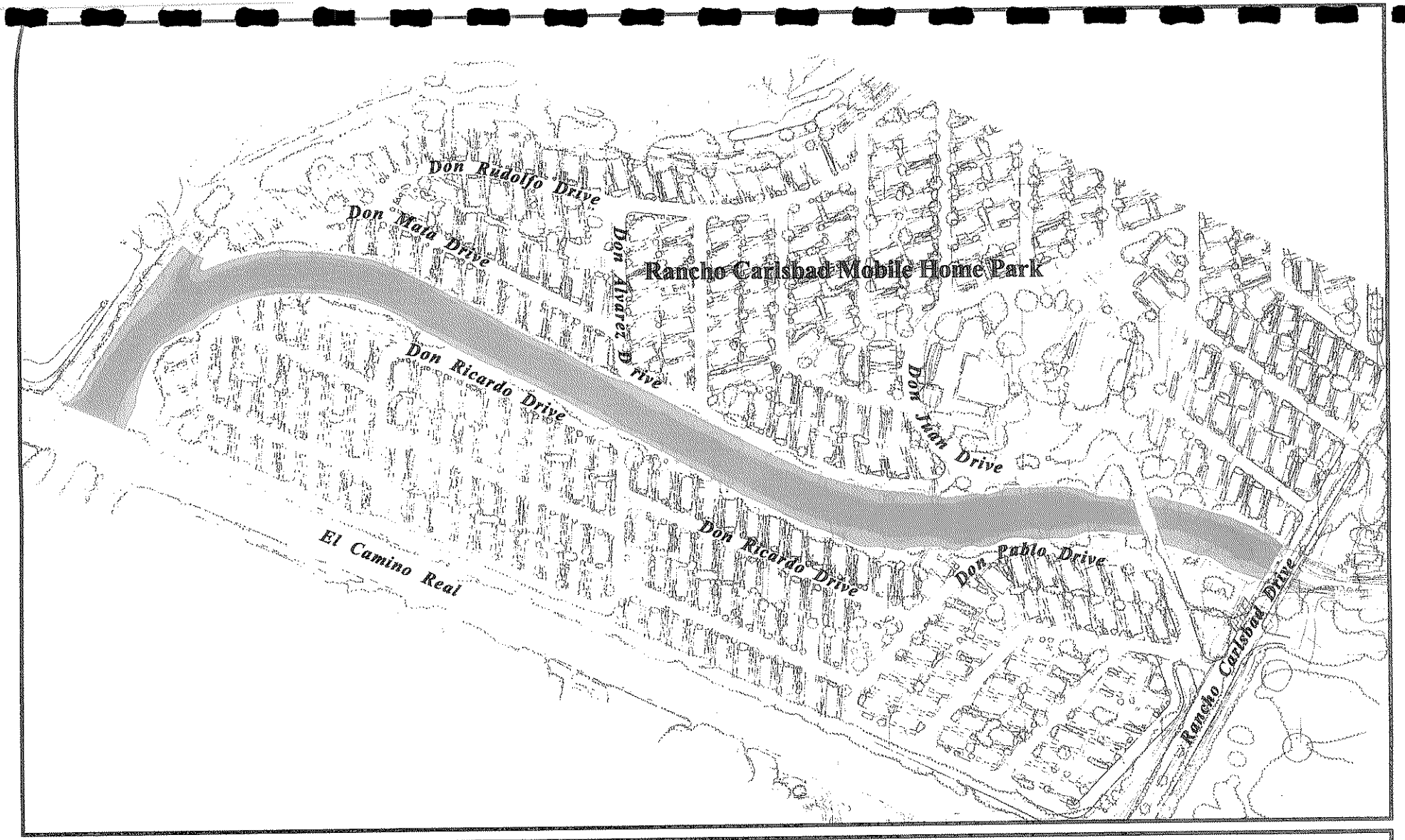
Annual and perennial herbaceous species commonly observed on the sandbars of the creek channel during the survey include water cress (*Rorripa nasturtium-Agua Aguaticum*), wild celery (*Apium graveolens*), umbrella sedge (*Cyperus* sp.), water speedwell (*Veronica anagallis-Agua Aguatica*), brass buttons (*Cotula coronopifolia*), common plantain (*Plantago major*), and annual beard grass (*Polypogon monspeliensis*). The manufactured banks of the creek channel are vegetated with primarily non-native ornamental species that include trees (e.g., eucalyptus, pine, London plane, Peruvian/Brazilian pepper, palm, and olive), shrubs (e.g., pyracantha, myoporum, snowberry), and ground cover plants (e.g., sea fig, wandering jew, gazania, and ivy).

C. Zoology

A complete list of wildlife species observed within the project area is provided in Attachment 2.

1. Amphibians

Pacific tree frogs (*Hyla regilla*) were observed in the creek. Other amphibian species with potential to occur include California frog (*Hyla cadaverina*) and bullfrog (*Rana catesbeiana*).



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Vegetation
Herbaceous vegetation
Riparian (ornamentals)

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FIGURE 3

Agua Hedionda Creek - Vegetation Map

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2. Reptiles

One reptile species, the side-blotched lizard (*Uta stansburiana*), was observed on the banks of the creek. Other reptiles expected to occur include western fence lizard (*Scelporus occidentalis*), alligator lizard (*Elgaria multicarinata webbi*), California kingsnake (*Lampropeltis getulus californiae*), and two-striped garter snake (*Thamnophis hammondii*).

3. Birds

Bird species observed along the creek include morning dove (*Zenaida macroura marginella*), Anna's hummingbird (*Calypte anna*), Nuttall's woodpecker (*Dendrocopos nuttallii*), black phoebe (*Sayornis nigricans semiatra*), and house finch (*Carpodacus mexicanus frontalis*). Families of mallard (*Anas platyrhynchos*) were observed swimming in the active channel and roosting on the sandbars. Three raptor species were observed. A sharp-shinned hawk (*Accipiter striatus velox*) was observed in the non-native vegetation along the banks of Agua Hedionda Creek. A white-tailed kite (*Elanus leucurus*) and a red-shouldered hawk (*Buteo lineatus elegans*) were observed flying over the project area. All three raptor species observed have the potential to nest in the trees located on the banks of the creek and within the RCMHP.

4. Mammals

Two species of mammal were observed, the California ground squirrel (*Spermophilus beecheyi*) and cottontail rabbit (*Sylvilagus audubonii*). Other species expected to occur include raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), and coyote (*Canis latrans*).

D. Sensitive Biological Resources

For purposes of this report, species will be considered to be sensitive if they are: (1) listed as a MHCP covered species or narrow endemic species in the Draft Subarea Plan, (2) listed by state or federal agencies as threatened or endangered or are proposed for listing; (3) on List 1B (considered endangered throughout its range) or List 2 (considered endangered in California but more common elsewhere) of the CNPS *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2001); or (4) considered rare, endangered, or threatened by the NDDB (State of California 2002), or local conservation organizations or specialists. Noteworthy plant species are considered to be those that are on List 3 (more information about the plant's distribution and rarity needed) and List 4 (plants of limited distribution) of the CNPS *Inventory*. Sensitive habitat types are those identified by the California Natural Diversity Data Base (Holland 1986) or identified by the City of Carlsbad's MHCP Subarea Plan (1999).

MHCP covered species are those species which will be included in the Incidental Take Authorization issued to the City of Carlsbad by the federal and state government as part of the City's MHCP Habitat Management Plan. The term "non-covered species" is sometimes used to identify species not included in the Incidental Take Authorization. Mitigation procedures and protection of covered species depends on the location of the project site (i.e., within or outside a core preserve area) and the nature of project impacts. State and federal agencies regulate non-covered sensitive species.

All jurisdictional waters, including wetlands and non-wetland waters, are considered sensitive by local, state, and federal agencies. Jurisdictional waters are regulated at the state and federal levels through the Fish and Game Code and the Clean Water Act, respectively. Avoidance of impacts to jurisdictional waters is recommended. Unavoidable impacts require mitigation to satisfy the no-net-loss policies of the resource agencies.

Raptors (birds of prey) and raptor nests are protected by the California Fish and Game code 3503.5, which states that it is "unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird" unless authorized.

Assessments for the potential occurrence of sensitive or noteworthy species are based upon known ranges and habitat preferences for the species and species occurrence records from the NDDB.

1. Wetlands/Jurisdictional Areas

A wetland delineation study was conducted on this segment of Agua Hedionda Creek (RECON 2002). The creek supports herbaceous wetlands on the low sandbars during the low flow dry season. These wetlands are temporarily disturbed each year during the wet season by flood flows from local storm events. The banks of the creek are considered riparian. A total of 3.8 acres of U.S. Army Corps of Engineers defined wetland and 0.4 acre of non-wetland jurisdictional waters occurs along this section of the creek. The California Department of Fish and Game jurisdiction on the site includes the 4.2 acres of wetland/non-wetland waters plus 2.5 acres of riparian creek bank.

2. Sensitive Plant Species Observed

No federal or state listed endangered or threatened plant species were observed or are expected to occur within the project limits.

3. Sensitive Habitats Observed

The herbaceous wetlands of the creek channel bed are considered a sensitive habitat type. However, the functional values of this habitat type is not considered high due to the lack of community structure (i.e., tree and shrub layers), limited species diversity, and frequency of disturbance (i.e., floods).

4. Sensitive Wildlife Species Detected On-Site

No federal and state listed wildlife species were observed within the project site. The white-tailed kite, a California fully protected species, and sharp-shinned hawk, a California species of special concern, were observed during the survey. These species are discussed below.

White-tailed kite (*Elanus leucurus*). White-tailed kites range throughout the coastal areas of Oregon, California, and northern Baja California, Mexico, and are known from further south in Mexico and South America. This species primarily breeds in riparian areas lined with willow, cottonwoods or sycamores, but also uses savannas, marsh, and grassy foothills. They are commonly observed foraging over grassland, sparse shrubs, or agricultural fields. The white-tailed kite is a California fully protected species.

A white-tailed kite was observed perching in a tree on the banks of the creek. This species likely forages in the nearby agricultural fields and nests in nearby native riparian habitats.

Sharp-shinned hawk (*Accipiter striatus*). Sharp-shinned hawks can be found throughout most of North America south to Central America. Their primary habitats are woodlands and mountainous coniferous and deciduous forests. Locally, they can be found foraging in woodland habitats associated with riparian areas, such as willow and sycamore woodlands. Although they have not been documented to nest in San Diego County, there is suitable habitat within the county (Unitt 1984). This species is a California species of special concern.

A sharp-shinned hawk was observed with a small bird in its talons along Agua Hedionda Creek. This species is likely to use the channel for foraging but not nesting.

5. Sensitive Wildlife Species with the Potential to Occur On-Site

Sensitive species not observed but with the potential to occur are described below. These species include least Bell's vireo, Cooper's hawk, southwestern willow flycatcher, and arroyo toad (*Bufo californicus*). These species are discussed below.

Least Bell's vireo (*Vireo bellii pusillus*). Least Bell's vireo is a small, migratory songbird which breeds in southern California and winters in Baja California. This species breeds in dense riparian habitats with willows (*Salix* spp.) or western sycamores forming a canopy and an understory comprised of mule fat (*Baccharis salicifolia*), wild rose (*Rosa californica*), and other riparian species. This species is a state and federally listed endangered species and a MSCP covered species.

Habitat for the least Bell's vireo does not occur along this section of Agua Hedionda Creek. Therefore, no directed surveys for the species were conducted. The least Bell's vireo has known locations downstream of the project within native riparian habitat where Agua Hedionda Creek merges with the upper Agua Hedionda Lagoon habitats.

Cooper's hawk (*Accipiter cooperii*). The Cooper's hawk is a medium-sized raptor that ranges throughout most of the United States. It is considered an uncommon resident during the breeding season in southern California, with numbers increasing in winter (Garrett and Dunn 1981). This hawk mainly breeds in oak and willow riparian woodlands but will also use eucalyptus trees (Unitt 1984). This hawk forages primarily on songbirds but is also known to eat small mammals. The decline of this species has been caused by urbanization and loss of habitat. The Cooper's hawk is a CDFG species of special concern and an MSCP covered species.

No Cooper's hawks were observed during surveys. This species has a moderate potential to forage and roost within the non-native trees of the RCMHP.

Southwestern willow flycatcher (*Empidonax traillii extimus*). The southwestern willow flycatcher is a federally listed endangered species. This species breeds in southern California, Arizona, New Mexico, southern Nevada, southern Utah, western Texas, northwestern Mexico, and possibly southwestern Colorado (50 CRF 17 July 23, 1993). Southwestern willow flycatchers are migrants, arriving on their breeding grounds in mid-May to early June (Garrett and Dunn 1981, Unitt 1984).

The southwestern willow flycatcher requires riparian habitat with dense willow (*Salix* spp.) thickets (Grinnell and Miller 1944). Understory species include *Baccharis* and *Pluchea*. Southwestern willow flycatchers also nest in areas with tamarisk (*Tamarix* spp.) and Russian olive (*Eleagnus angustifolia*) in areas where these species have replaced the native willow. Surface water is required at nesting sites (Tibbitts et al. 1994, 50 CRF 17 July 23, 1993).

Habitat suitable to support southwestern willow flycatchers was not observed within the project area; therefore, no directed surveys for this species were conducted. No locations of this flycatcher species are known in the vicinity of the project.

Arroyo toad (*Bufo californicus*). U.S. Fish and Wildlife Service (USFWS) listed the arroyo toad as an endangered species on December 16, 1994. On July 24, 1999, the USFWS issued a Recovery Plan describing strategies to achieve downlisting to threatened status (with 20 self-sustaining populations) and delisting (with 35 populations throughout its historical range). On June 8, 2000, the USFWS proposed the designation of critical habitat for the species. The arroyo toad ranges along the coast from San Luis Obispo County south into northwestern Baja California and is known from six drainages in the desert. Arroyo toads have been found in the basins formed by San Juan Creek

(Orange County), San Mateo Creek (Orange and San Diego Counties), San Onofre Creek, Santa Margarita River, San Luis Rey River, San Dieguito River, San Diego River, Sweetwater River, Otay River, San Felipe Creek, Vallecitos Creek, and the Tijuana River in San Diego County (USFWS 1999).

The arroyo toad has very specific habitat requirements. It inhabits sandy banks of washes, streams, and arroyos with low currents and large, deciduous trees. Arroyo toads breed in pools with the majority of the pool greater than one foot deep with a substrate of sand, gravel, or pebbles. The pools tend to lack vegetation (Sweet 1992). Arroyo toads are nocturnal and breed from March to June depending on local climate. Females lay between 2,000 and 10,000 eggs in strings in the breeding pools. Larvae metamorphose in 65 to 85 days. Adult toads estivate through during the summer in burrows that they dig on sandbars (Jennings and Hayes 1994).

This species is unlikely to occur because the site lacks suitable stream habitat and the level of disturbance is high.

Raptors. The mature trees along the banks of the creek provide habitat for roosting, nesting, and foraging for a variety of raptor species. Although no nests were observed during surveys, any of the following species have potential to nest within these areas: red-shouldered hawk, white-tailed kite, Cooper's hawk, sharp-shinned hawk, and red-tailed hawk.

6. Wildlife Movement Corridors

Wildlife movement corridors are defined as areas that connect suitable wildlife habitat areas in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Natural features such as canyon drainages, ridgelines, or areas with vegetation cover provide corridors for wildlife travel. Wildlife movement corridors are important because they provide access to mates, food, and water; allow the dispersal of individuals away from high population density areas; and facilitate the exchange of genetic traits between populations. Wildlife movement corridors are considered sensitive by the City of Carlsbad and resource and conservation agencies.

Agua Hedionda Creek functions as a moderate quality movement corridor for numerous wildlife species such as birds, coyotes, skunks, opossums, and raccoons. The creek links open space areas located upstream of the RCMHP to Agua Hedionda Lagoon located downstream of El Camino Real. There is a bridge overcrossing of Agua Hedionda Creek at El Camino Real that has sufficient height to allow mammal species to go under.

E. Multiple Habitat Conservation Program

The MHCP "core preserve areas" are those lands that have been included within the City of Carlsbad's Subarea Plan for habitat conservation. These areas have been determined to provide the necessary habitat quantity, quality, and connectivity to support the future viability of San Diego County's unique biodiversity and thus are considered to be a sensitive biological resource. The City of Carlsbad has prepared a draft Habitat Management Plan (HMP) as a subarea plan to the North County MHCP in San Diego County, California (City of Carlsbad 1999). The HMP describes conservation goals within the city, including preserve planning areas for cores, linkages, and special resource areas. The project site is not within the HMP core preserve area. However, local staff of the Natural Community Conservation Program (NCCP) of the California Department of Fish and Game are interested in maintaining the wildlife corridors along Agua Hedionda Creeks as much as possible.

Project Impacts

Direct, temporary impacts would occur on Agua Hedionda Creek from sediment removal within RCMHP. Anticipated biological impacts for this project were assessed according to guidelines set forth in the City of Carlsbad's HMP, CEQA, and NEPA. Mitigation would be required for impacts that are considered significant under these guidelines.

A. Plant Community Impacts

No native vegetation communities would be impacted by the channel maintenance. Channel maintenance within the RCMHP would remove up to 30,000 cubic yards of excess sediments from the creek. Approximately 3.7 acres of herbaceous wetlands, 0.5 acre of riparian creek bank, and 0.1 acre of developed land would be temporarily affected during the project. Once sediment removal is completed, it is anticipated that these herbaceous wetlands will re-colonize the new sandbars of the creek over time. The temporary impact to herbaceous wetlands and the riparian banks would, however, be considered significant.

B. Non-Sensitive Wildlife Impacts

Small mammals and reptiles with low mobility may be inadvertently killed during grading of the site. These potential impacts to general wildlife species would not be considered significant.

C. Sensitive Biological Resources Impacts

1. Wetlands/Jurisdictional Waters

The removal of accumulated sediment from Agua Hedionda Creek within the RCMHP would be considered a temporary impact to jurisdictional waters. Since the sediment removal from the creek would not permanently fill any jurisdictional waters, there would be a no net loss of channel or wetland. It is anticipated that a net gain in the jurisdictional area will result from the project due to channel widening at the confluence of Agua Hedionda and Calavera Creeks.

2. Sensitive Plants

No impacts to any sensitive plant species are anticipated from the proposed project.

3. Sensitive Wildlife

No impacts to any sensitive wildlife species are anticipated from the proposed project. If raptors nest in any of the trees along the banks of the creek, then impacts to these trees would be considered significant if the tree is removed during the breeding season.

4. Sensitive Plant Communities

Although no native plant communities occur on the site, temporary impacts to 4.2 acres of riparian habitat comprised of 3.8 acres of herbaceous wetlands and 0.4 acre of riparian creek bank would be considered significant.

5. Wildlife Movement Corridor

Construction activities within the creek channel will be temporary and will not permanently impact existing wildlife movement along the creek. Therefore, these impacts are not considered significant.

Mitigation Measures and Recommendations

The following mitigation measures are recommended to reduce impacts to a level below significance:

1. Mitigation for temporary impacts to herbaceous wetlands and the banks of Agua Hedionda Creek will be accomplished by the planting of native riparian trees along the newly manufactured banks of the creek. Plant species installed on the banks could include coast live oak (*Quercus agrifolia*), black willow (*Salix*

gooddingii), western sycamore (*Platanus racemosa*), and Fremont cottonwood (*Populus fremontii*).

2. Prior to the removal of any trees from the banks of the creek a survey should be conducted by a qualified biologist to ensure that active nests of any raptor species are not present. If an active raptor nest is present than the removal of that tree and trees within 100 feet cannot occur until the young have fledged.

3. Prior to impacts occurring to Agua Hedionda Creek, a 404 permit from the U.S. Army Corps of Engineers, a 401 State Water Quality Certification from the Regional Water Quality Control Board, and a 1601 Streambed Alteration Agreement must be obtained that authorizes impacts to jurisdictional waters on the site, including wetlands.

References Cited

American Ornithologists' Union

1998 *Check-list of North American Birds.* 6th ed. Washington, D.C., with Supplements in 1985, 1987, 1989, 1991, 1993, and 1995.

Brown, C.

1995 Drainages with Extant Arroyo Toad Populations. Unpublished data.

California Native Plant Society

2001 *Inventory of Rare and Endangered Plants of California* (6th ed.). Rare Plant Scientific Advisory Committee, David P. Tibor, Convening Editor. California Native Plant Society. Sacramento CA.

California, State of

2002a Special Animals. Natural Diversity Data Base. Department of Fish and Game. January.

2002b Special Plants List. Natural Diversity Data Base. Department of Fish and Game. January.

Carlsbad, City of

1999 Habitat Management plan for Natural Communities in the City of Carlsbad. December 1999.

Collins, Joseph T.

1990 *Standard Common and Current Scientific Names for North American Amphibians and Reptiles.* 3rd ed. Herpetological Circular No. 19. Society for

the Study of Amphibians and Reptiles, Department of Zoology, Miami University, Oxford, Ohio.

Garrett, Kimball, and J. Dunn
1981 *Birds of Southern California.* Artisan Press, Los Angeles.

Grinnell, J., and A. Miller
1944 The Distribution of the Birds of California. *Pacific Coast Avifauna* 26:608.

Hickman, James C. (editor)
1993 *The Jepson Manual: Higher Plants of California.* University of California Press, Berkeley and Los Angeles.

Holland, Robert F.
1986 Preliminary Descriptions of the Terrestrial Natural Communities of California. Nongame-Heritage Program, California Department of Fish and Game. October.

Jennings, M. R., and M. P. Hayes
1994 *Amphibian and Reptile Species of Special Concern in California.* California Department of Fish and Game. Rancho Cordova, California.

Jones, J. K., D. C. Carter, H. H. Gangways, R. S. Hoffman, and D. W. Rice
1982 Revised Checklist of North American Mammals North of Mexico. *Occasional Papers of the Museum, Texas Tech University* 80:1-22.

Skinner, Mark, and Bruce Pavlik
1994 *Inventory of Rare and Endangered Plants of California.* California Native Plant Society Special Publication No. 1, 5th ed. Sacramento.

Sloan, A. J.
1964 *Amphibians of San Diego County.* Occasional Papers of the San Diego Society of Natural History No. 13.

Sweet, S.
1992 Initial Report on the Ecology and Status of the Arroyo Toad (*Bufo microscaphus californicus*) on the Los Padres National Forest of Southern California, with Management Recommendations. Contract Report to U.S. Department of Agriculture, Forest Service, Los Padres National Forest, Goleta, California. Revised March.

Tibbitts, T. J., M. K. Sogge, and S. J. Sferra
1994 A Survey Protocol for the Southwestern Willow Flycatcher (*Empidonax traillii extimus*). Tech. Rep. NPS/NAUCPRS/NRTR-94/04. U.S. Dept. Int., National Park Service, Colorado Plateau Res. Sta., Flagstaff, Arizona.

Unitt, P. A.
1984 *Birds of San Diego County.* Memoir No. 13, San Diego Society of Natural History.

U.S. Department of Agriculture
1973 *Soil Survey, San Diego Area, California.* Soil Conservation Service and Forest Service. Roy H. Bowman, ed. San Diego. December.

ATTACHMENTS

ATTACHMENT 1

ATTACHMENT 1
PLANT SPECIES OBSERVED

Scientific Name	Common Name	Origin
Agave americana	Century plant	I
Anagallis arvensis L.	Scarlet pimpernel, poor-man's weatherglass	I
Apium graveolens L.	Celery	I
Artemisia douglasiana	Mugwort	N
Arundo donax L.	Giant reed	I
Atriplex triangularis Willd.	Spearscale	N
Anemopsis californica (Nutt.) Hook. & Arn.	Yerba mansa	N
Baccharis salicifolia (Ruiz Lopez & Pavón) Pers.	Mule fat, seep-willow	N
Brassica nigra (L.) Koch.	Black mustard	I
Carex spissa Bailey	San Diego sedge	N
Carpobrotus edulis (L.) Bolus.	Hottentot fig	I
Chenopodium ambrosioides L.	Mexican tea	I
Cotula coronopifolia L.	Brass-buttons	I
Cynodon dactylon (L.) Pers.	Bermuda grass	I
Cyperus sp.	Nutsedge	N
Eleocharis montevidensis Kunth	Slender creeping spikerush	N
Eucalyptus spp.	Eucalyptus	I
Foeniculum vulgare Mill.	Fennel	I
Gazania sp.	African daisy	I
Hedera helix L.	English ivy	I
Heliotropium curassavicum L.	Chinese pusley	N
Heteromeles arbutifolia (Lindley) Roemer	Toyon, Christmas berry	N
Juncus sp.	Rush	N
Juncus mexicanus Willd.	Mexican rush	N
Malosma laurina (Nutt.) Abrams	Laurel sumac	N
Melilotus indica (L.) All.	Sourclover	I
Myoporum laetum Forst.	Myoporum	I
Nerium oleander L.	Oleander	I
Olea europeae L.	Common olive	I
Phoenix canariensis Chabaud.	Canary Island date palm	I
Picris echioides L.	Bristly ox-tongue	I
Pinus sp.	Pine	I
Plantago major L.	Common plantain	I
Polypogon monspeliensis (L.) Desf.	Annual beard grass	I

ATTACHMENT 1
PLANT SPECIES OBSERVED
(continued)

Scientific Name	Common Name	Origin
Pyracantha sp.	Firethorn	I
Rorippa nasturtium-aquaticum (L.) Hayek	Water cress	I
Rumex crispus L.	Curly dock	I
Salix laevigata Bebb	Red willow	N
Salix lasiolepis Benth.	Arroyo willow	N
Schinus molle L.	Peruvian pepper tree	I
Schinus terebinthifolius Raddi	Brazilian pepper tree	I
Veronica anagallis-aquatica L.	Water speedwell	I
Vitis girdiana Munson	Desert wild grape	N
Washingtonia robusta Wendl.	Washington palm	I
Xanthium strumarium L.	Cocklebur	N

N = Native to locality
I = Introduced species from outside locality

ATTACHMENT 2

ATTACHMENT 2
WILDLIFE SPECIES OBSERVED/DETECTED ON THE SITE

Common Name	Scientific Name	Occupied Habitat	Status
Reptiles (Nomenclature from Collins 1997)			
Side-blotched lizard	*Uta stansburiana*	B	
Birds (Nomenclature from American Ornithologists' Union)			
White-tailed (= black-shouldered) kite	*Elanus leucurus*	B	CFP,*
Sharp-shinned hawk	*Accipiter striatus velox*	C	CSC
Red-shouldered hawk	*Buteo lineatus elegans*	O	
Mallard	*Anas platyrhynchos platyrhynchos*	C	
Mourning dove	*Zenaida macroura marginella*	B,C	
Anna's hummingbird	*Calypte anna*	B,C	
Nuttall's woodpecker	*Dendrocopos nuttallii*	B	
Black phoebe	*Sayornis nigricans semiatra*	B,C	
Common raven	*Corvus corax clarionensis*	B	
Northern mockingbird	*Mimus polyglottos polyglottos*	B,C	
Wrentit	*Chamaea fasciata henshawi*	B	
House finch	*Carpodacus mexicanus frontalis*	B,C	
Lazuli bunting	*Passerina amoena*	B	
California towhee	*Pipilo crissalis*	B	
Song sparrow	*Melospiza melodia*	B	
Mammals (Nomenclature from Jones et al. 1982)			
California ground squirrel	*Spermophilus beecheyi*	B,C	
Cottontail rabbit	*Sylvilagus audubonii*	B	

Habitats
C = Channel
B = Banks of creek
O = Open

Status

CFP = California fully protected species
FE = Listed as endangered by the federal government
MSCP = Multiple Species Conservation Program target species list
SE = Listed as endangered by the state of California
* = Taxa listed with an asterisk fall into one or more of the following categories:
- Taxa considered endangered or rare under Section 15380(d) of CEQA guidelines
- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range
- Population(s) in California that may be peripheral to the major portion of a taxon's range, but which are threatened with extirpation within California
- Taxa closely associated with a habitat that is declining in California at an alarming rate (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands)

SUPPLEMENTAL BIOLOGICAL RESOURCES INFORMATION

Definition of Terms
for Plants and Animals
Within the Carlsbad Study Area

Plants

Blochman's Dudleya (Dudleya blochmaniae ssp. *blochmaniae)* is a perennial herb that blooms between April and June. It is found in coast bluff scrub, chaparral, coastal scrub, valley and foothill grassland habitats and on rocky, often clay or serpentinite soils between 15 and 1500 feet elevation.

Cliff spurge (Euphorbia misera) is a shrub that blooms between December and August. It is found in rocky areas in coastal bluff scrub and coastal scrub habitats between 30-1650 feet elevation.

Nuttall's scrub oak (Quercus dumosa) is an evergreen shrub that blooms between February and April. It is found in closed cone coniferous forests, chaparral, and coastal scrub habitats on sandy and clay loam soils between 50-1300 feet elevation.

Orcutt's spineflower (*Chorizanthe orcuttiana*) is an annual herb that blooms between March and April. It is found in openings in coastal chaparral with undisturbed loose sandy soil.

Orcutt's hazardia (*Hazardia orcuttii*) is an evergreen shrub that is found in open chamise chaparral near Encinitas.

Animals

American peregrine falcon (Falco peregrinus anatum) nests on cliff edges, buildings, cranes, and nests. They feed along the coast, or inland near lakes and reservoirs.

Belding's savannah sparrow (Passerculus sandwichensis belding) is locally common in open grassy or weedy areas throughout San Diego County.

California brown pelican (Pelecanus occidentalis californicus) nesting colony nearest to San Diego County is on the Los Coronados Islands off Tijuana. These birds are common along the coast where they dive for fish. They are known to congregate in areas that provide secure roost sites such as coastal bluffs, or man-made structures near fertile fishing grounds.

California least tern (Sterna antillarum browni) is a ground nesting bird that requires undisturbed stretches of beach and coastline. Adults are highly philopatric to natal colonies, and forage in bays and estuaries near their colonies.

Coastal California gnatcatcher (Polioptila californica californica) can be found in Diegan coastal sage scrub dominated by California sagebrush (Artemisia californica) and flat-topped buckwheat (Eriogonum fasciculatum) below 1000 feet elevation along the coastal slope. It generally avoids steep slopes above 25 percent and prefers dense, tall vegetation for nesting.

Cooper's hawk (Accipiter cooperii) can usually be found in oak woodlands, but occasionally in willow or eucalyptus woodlands.

Elegant tern (Sterna elegans) is intensely gregarious. They nest in five known colonies in southern California. They feed on off shore fish, principally anchovies.

Least Bell's vireo (Vireo bellii pusillus) is found in riparian woodland habitat with an understory of dense young willows or mulefat and willow canopy. The nests are often placed along internal or external edges of riparian thickets.

Light-footed clapper rail (Rallus longirostris levipes) is found in southern California in coastal salt marshes, especially those dominated by cordgrass. The Tijuana River estuary is an especially important site.

Orange-throated whiptail (Cnemidophorus hyperythrus beldingi) is found in sage scrub habitat that covers about 50 percent of the ground without dense grasses in between. It can also be found in dense to extremely open stands of sage as well as chamise chaparral and floodplain areas.

Southern California rufous-crowned sparrow (Aimophila ruficeps) is found mainly in coastal sage scrub on grassy or rocky slopes with open scrub at elevations from sea level to 2000 feet.

Southwestern willow flycatcher (Empidonax traillii extimus) is restricted to a few colonies in riparian woodlands scattered throughout southern California. Riparian forests are integral to this species persistence.

Western snowy plover (Charadrius alexandrinus nivosus) nests on beaches, dunes, and salt flats. Outside the breeding season they are more widespread but not common along the county's coast.

White-faced ibis (Plegadis chihi) is found in shallow areas of freshwater marshes and wet grass. They are colonial nesters, with two known colonies in San Diego County, along Guajome Lake and near a pond in San Luis Rey River valley.

Yellow-breasted chat (Icteria virens) can be found in riparian woodland, with dense undergrowth.

Wildlife Species Observed during Surveys or have the Potential to Occur within the Project Vicinity for Project Components B, BN and BJB

Common Name	Scientific Name	Observed	Potential to Occur
Amphibians			
Pacific tree frog	*Hyla regilla*	√	
California frog	*Hyla cadaverina*		√
bullfrog	*Rana catesbeiana*		√
Arroyo toad	*Bufo californicus*		√
Reptiles			
side-blotched lizard	*Uta stanburiana*	√	
western fence lizard	*Scelporus occidentalis*		√
alligator lizard	*Elgaria multicarinata webbi*		√
California kingsnake	*Lampropeltis getulus californiae*		√
two-striped garter snake	*Tahmnophis hammondii*		√
Birds			
mourning dove	*Zenaida macroura marginella*	√	
Anna's hummingbird	*Calypte anna*	√	
Nuttall's woodpecker	*Dendrocopos nuttallii*	√	
black phoebe	*Sayornis nigricans semiatra*	√	
house finch	*Carpdacus mexicanus frontalis*	√	
mallard	*Anas platyrhynchos*	√	
sharp-shinned hawk	*Accipiter striatus velox*	√	
white-tailed kite	*Elanus leucurus*	√	
least Bell's vireo	*Vireo bellii pusillus*	√	
southwestern willow flycatcher	*Empidonax traillii extimus*	√	
yellow warbler	*Dendroica petechia*	√	
yellow-breasted chat	*Icteria virens auricollis*	√	
western scrub-jay	*Aphelocoma californica*	√	
wren-tit	*Chamaea fasciata henshawi*	√	
lesser goldfinch	*Carduelis psaltria hesperophilus*	√	
Pacific slope flycatcher	*Empidonax difficilis*	√	
bushtit	*Psaltriparus minimus*	√	
orange-crowned warbler	*Vermivora celata*	√	
common yellowthroat	*Geothlypis trichas*	√	
spotted towhee	*Pipilia maculates*	√	
European starling	*Sturnus vulagris*	√	
Cooper's hawk	*Accipiter cooperii*		√
brown-headed cowbird	*Molothrus ater*	√	
red-shouldered hawk	*Buteo lineatus*		√
red-tailed hawk	*Buteo jamaicensis*		√
Mammals			
California ground squirrel	*Spermophilus beecheyi*	√	
cottontail rabbit	*Sylvilagus audubonii*	√	
raccoon	*Procyon lotor*		√
striped skunk	*Mephitis mephitis*		√
San Diego black-tailed jackrabbit	*Lepus californicus bennettii*		√
coyote	*Canis latrans*		√