BIOLOGICAL RESOURCES TECHNICAL REPORT FOR THE PALA TRIBAL WASTEWATER SYSTEM REHABILITATION PROJECT SAN DIEGO COUNTY, CALIFORNIA

Prepared for:

U.S. Environmental Protection Agency, Region 9
75 Hawthorne Street
San Francisco, CA 94105

And:

Pala Band of Mission Indians
12196 Pala Mission Road
Pala, California 92059

Prepared by:

Tierra Environmental Services, Inc.
9915 Businesspark Avenue, Suite C
San Diego, California 92131-1120
(858) 578-9064

August 23, 2007

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1.0 INTRODUCTION

The Pala Band of Mission Indians has proposed the installation of several sections of wastewater pipeline within the Pala Indian Reservation (Reservation), located in northern San Diego County (Figure 1). The proposed project site occurs north of and along State Highway 76 (SH-76) in the vicinity of Pala Temecula Road (Rd.) and Pala Mission Rd. and would connect existing homes to the community sewer treatment plant (Figure 2). The northwestern portion of the proposed project area is located along Pala Temecula Rd. This portion would extend from Sycamore Rd. to the intersection of Pala Temecula Rd. and Moro Rd. and would also include Santiago Rd. The southern portion of the proposed project area is located along Pala Mission Rd. This portion would extend from the Tribal Administration Building to Cactus Rd. This portion of the project area would also include Cactus Rd. and three roads accessible from Cactus Rd (Figure 2).

The proposed wastewater pipeline project components include an eight-inch-diameter sewer pipe, a four-inch-diameter force main, pumps and lift stations. A work corridor approximately eight feet wide would be necessary for trenching, side-casting of material, and staging of equipment. The trench would be 3 ft. in width.

2.0 METHODS AND SURVEY LIMITATIONS

A general biological survey was conducted on December 22, 2005 between the hours of 1100 and 1230 by M. Alfaro of Tierra Environmental Services (Tierra). This survey focused on the northwestern portion of the project area. Weather conditions experienced during the survey consisted of air temperature ranging between 65° F and 68° F, no wind, and clear skies. A second biological survey was conducted on August 23, 2006 between the hours of 1300 and 1415 by E. Alfaro of Tierra. This survey focused on the southeastern portion of the project area. Weather conditions experienced during this survey consisted of air temperature ranging from 91° F to 96° F, clear skies, and no wind. An additional survey was conducted on September 6, 2006 between the hours of 1100 and 1120 by E. Alfaro. This survey focused on an area no longer included in the project area, which extended from Cactus Rd. east along SH-76 across Bombas Wash. Weather conditions experienced during this survey consisted of air temperature of 75° F, clear skies, and no wind.

All surveys were conducted during a time of year when spring annuals are not present. The surveys were conducted during the late morning and early afternoon when conditions for observing bird species are not optimal. Consequently, some potentially occurring species of birds may not have been observed. In addition, nocturnal animals were not observed as the survey was conducted during the day.

Nomenclature used in this report conforms to Holland (1986) for vegetation communities; Simpson and Rebman (2001) and Hickman (1993) for vegetation; Sibley (2000) for birds; Jameson and Peeters (1988) for mammals; and Behler and King (1979) for reptiles and amphibians.

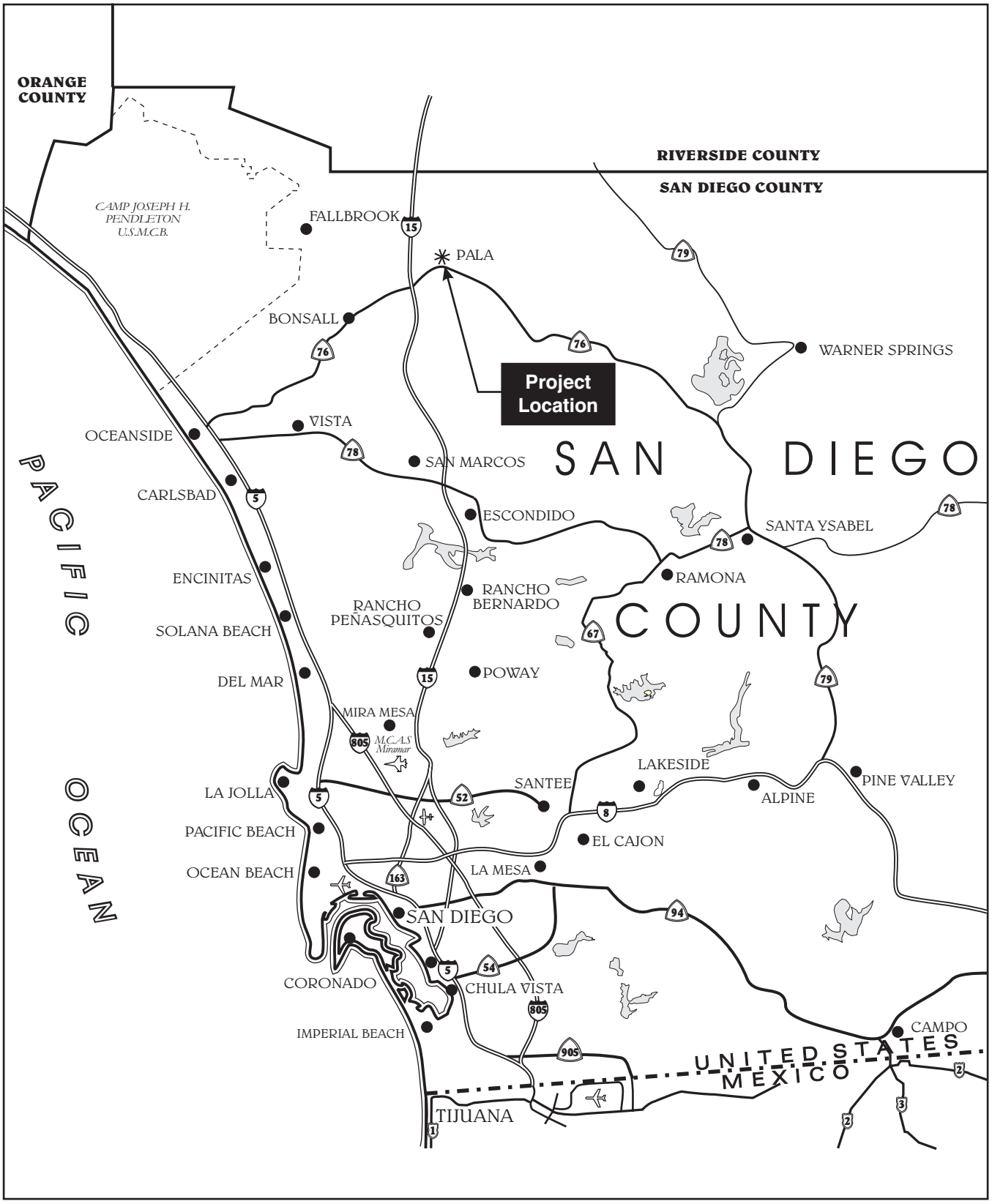

Figure 1
Regional Location Map

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SOURCE: USGS 7.5' Quad Maps - Pala and Pechanga

Figure 2
Project Location Map

3.0 PHYSICAL SETTING

The project area consists of a work corridor that is approximately 9,630 feet long and 8 feet wide or approximately 1.77 acres. As presented previously, the entire project area is located within the Pala Reservation and adjacent to existing paved and unpaved roads. The project site has an elevation ranging between 400 feet and 460 feet above mean sea level, and can be described as relatively flat with steep mountain uplands surrounding the area.

The northwestern portion of the proposed pipeline would cross Pala Creek at Sycamore Road where the creek is approximately 110 feet wide (Figure 3a). Although the creek supports wetland vegetation, areas immediately adjacent to Sycamore Road are unvegetated. At the time of the survey, the Creek did not contain flowing water.

The northwestern project alignment crosses two tributaries to Pala Creek (Figure 3a). At the time of the survey, both tributaries were dry and did not support wetland vegetation. Culverts are currently in place to convey flows under Pala Temecula Road and into Pala Creek.

The proposed work corridor includes the shoulders on Pala Temecula Road, Pala Mission Road, and SH-76, which range in width from three to five feet. The project area is comprised of native and non-native habitats, developed and undeveloped areas, ornamental, ruderal, and agricultural areas.

3.1 Soils

Seven soil series are reported from the project site including the Greenfield, Las Posas, Sosoba, Tujunga, Visalia, Wyman, and Riverwash series (Bowman 1973).

Greenfield series soils are well-drained, very deep, sandy loams derived from granitic alluvium. Greenfield sandy loam, occurring on 2 to 5 percent slopes (GrB), is reported as occurring on-site (Bowman 1973).

According to Bowman (1973), soils in the Las Posas soils series are well-drained, moderately deep, stony, fine, sandy loams that have a clay subsoil. Las Posas stony, fine, sandy loam, occurring on 9 to 30 percent slopes (LrE), is reported as occurring on-site. Las Posas stony, fine, sandy loam, occurring on 30 to 65 percent slopes(LrG), is also reported from the project area.

Soils in the Sosoba series consist of excessively drained, very deep, stony, loamy sands. These soils typically occur on alluvial fans on slopes ranging from 9 to 30 percent. Sosoba stony, loamy sand, occurring on 9 to 30 percent slopes (SsE), is reported as occurring on-site. These soils occur on strongly sloping to moderately steep slopes on alluvial fans (Bowman 1973).

Soils of the Tujunga series are very deep, excessively drained sands derived from granitic alluvium. Tujunga sand, occurring on 0 to 5 percent slopes (TuB), is reported as occurring on-site.

Visalia series soils are moderately well-drained, very deep, sandy loams derived from granitic alluvium. These soils occur on alluvial fans and flood plains with slopes ranging from 0 to 15

percent. Three soil types, including Visalia sandy loam occurring on 0 to 2 percent slopes (VaA), Visalia sandy loam occurring on 2 to 5 percent slopes(VaB), and Visalia gravelly, sandy loam occurring on 2 to 5 percent slopes (VbB), are reported as occurring on-site (Bowman 1973).

Soils in the Wyman series consist of well-drained, very deep loams that formed in alluvium derived from basic igneous rock. These soils are on alluvial fans with slopes ranging from 2 to 15 percent. Wyman loam, occurring on 5 to 9 percent slopes (WmC), is reported from the project area. These soils occur on moderate slopes.

Riverwash (Rm) is known to occur in intermittent stream channels and is typically composed of sandy, gravelly, or cobbly material.

4.0 RESULTS

4.1 Botany

Five vegetation communities were observed within and immediately adjacent to the project site, including Diegan coastal sage scrub, disturbed Diegan coastal sage scrub, sycamore alluvial woodland, coast live oak woodland, and non-native grassland (Figures 3a-3d). In addition, ruderal habitat, agricultural areas, ornamental areas, and developed areas also occur on-site (Figures 3a-3d). A complete list of all plant species observed on the project site is included in Appendix B.

Diegan coastal sage scrub can be described as low, soft to woody subshrubs that are most active in winter and early spring (Holland 1986). This vegetation community is typically dominated by coastal sagebrush (*Artemisia californica*) and California buckwheat (*Eriogonum fasciculatum*), together with laurel sumac (*Malosma laurina*) and white sage (*Salvia apiana*; Holland 1986). Plant species observed included coastal sagebrush, California buckwheat, laurel sumac, blue elderberry (*Sambucus mexicana*), climbing milkweed (*Sarcostemma cynanchoides* ssp. *hartwegii*), honeysuckle (*Lonicera* sp.), wishbone plant (*Mirabilis laevis*), California croton (*Croton californicus*), and deerweed (*Lotus scoparius*).

The abundance of non-native species, in addition to the sparse distribution of typically dominant shrub species, are the characteristics that distinguish disturbed Diegan coastal sage scrub from undisturbed Diegan coastal sage scrub. On-site, dominant species included coastal sagebrush, phacelia (*Phacelia* sp.), short-pod mustard (*Hirschfeldia incana*), thistle (*Centaurea* sp.) and telegraph weed (*Heterotheca grandiflora*).

Sycamore alluvial woodland is an open to moderately closed, winter-deciduous, broad-leafed riparian woodland overwhelmingly dominated by well-spaced western sycamore (*Platanus racemosa*; Holland 1986). Blue elderberry, is widely spaced in the subcanopy. Understories are usually introduced grasses. Plant species observed in this community included western sycamore, toyon (*Heteromeles arbutifolia*),

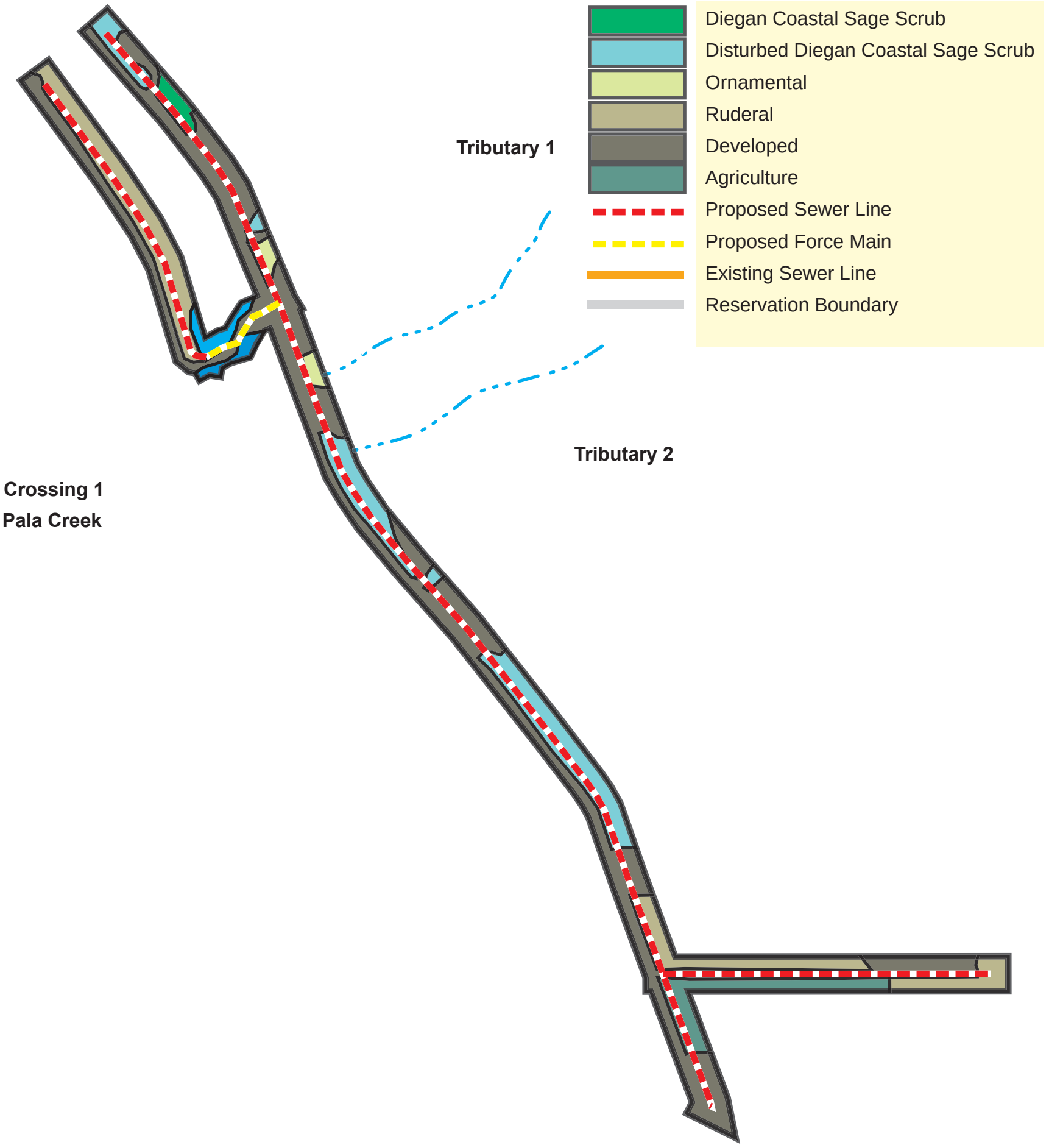

FIGURE 3a
Biological Resources Map
Pala-Temecula Road (Area 1)

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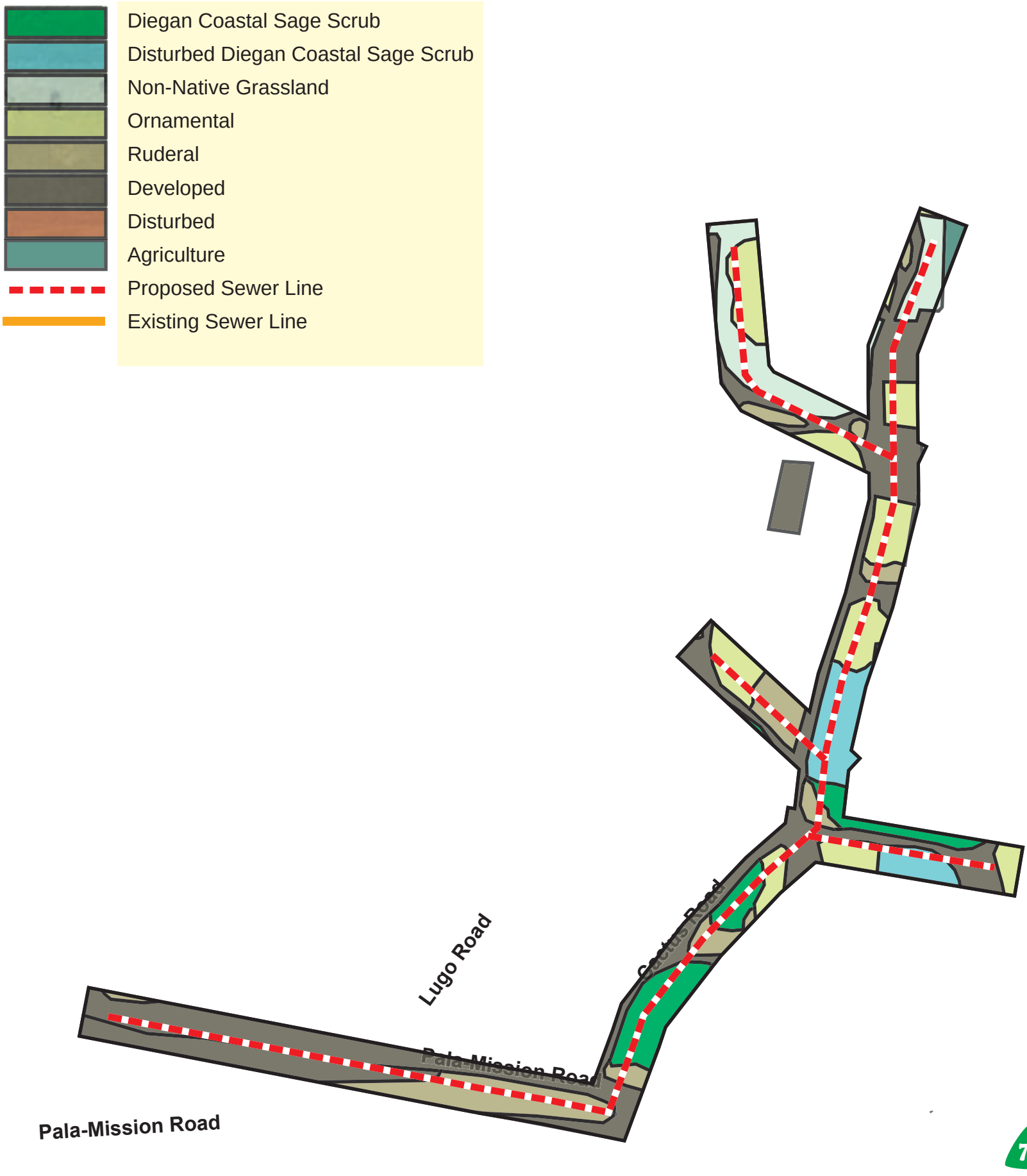

FIGURE 3b
Biological Resources Map
Cactus Road Area (Area 4)

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blue elderberry, annual bluegrass (*Poa annua*), scrub oak (*Quercus berberidifolia*) and coast live oak (*Quercus agrifolia* var. *agrifolia*).

Coast live oak woodland has only one dominant tree species, coast live oak, which is evergreen and reaches 10-25 meters in height (Holland 1986). The shrub layer is poorly developed, but may include toyon, gooseberry (*Ribes* spp.), laurel sumac, or blue elderberry (Holland 1986). The herb component is usually continuous and dominated by ripgut grass (*Bromus diandrus*) and several other introduced taxa. Plant species observed in association with this vegetation community included coast live oak, honeysuckle (*Lonicera* sp.), toyon, and coffeeberry (*Rhamnus* sp.).

Non-native grassland has a dense to sparse cover of annual grasses with flowering culms 0.2-0.5 meters high. Germination occurs with the onset of the late fall rains; growth, flowering, and seed-set occur from winter through spring (Holland 1986). Plant species occurring on-site included wild oat (*Avena fatua*), ripgut grass, short-pod mustard, telegraph weed, cryptantha (*Cryptantha* sp.), and Italian ryegrass (*Lolium multiflorum*).

Ruderal describes habitats that have been heavily disturbed in the past or are subject to continuous disturbances and, consequently, supports weedy, non-native species. Plants observed on-site included tree tobacco (*Nicotiana glauca*), short-pod mustard, Russian thistle (*Salsola tragus*), horehound (*Marrubium vulgare*), annual bluegrass, and telegraph weed.

Agricultural areas describes areas that are actively cultivated. At the time of the survey the agricultural fields were fallow and it appeared that they had been disced recently. Developed areas on-site include Pala Temecula Road, SH-76, Cactus Rd., residential areas and other roads.

Ornamental describes areas that have been landscaped by the Reservation and/or property owners and support non-native, cultivated vegetation. Plant species detected included queen palm (*Syagrus romanzoffiana*), sweet gum (*Liquidambar* sp.), oleander (*Nerium oleander*), Mexican fan palm (*Washingtonia robusta*), Hottentot fig (*Carpobrotus edulis*), and olive (*Olea europaea*).

Developed areas includes paved and unpaved roads, as well as residential areas.

4.2 Wildlife

This section discusses wildlife species observed in the project vicinity. Wildlife species were detected during the biological surveys with binoculars or by unaided visual observation. A complete list of all wildlife species observed is presented in Appendix B.

Bird species observed on-site included red-shouldered hawk (*Buteo lineatus*), Nuttall's woodpecker (*Picoides nuttallii*), western scrub jay (*Aphelocoma californica*), spotted towhee (*Pipilo maculatus*), and white-crowned sparrow (*Zonotrichia leucophrys*). Two mammals, Audubon's cottontail (*Sylvilagus audubonii*) and California ground squirrel (*Spermophilus beecheyi*) also were observed on-site.

4.3 Rare and/or Endangered and Sensitive Species

Plant and animal species are considered sensitive if they have been listed as such by a federal resource agency. The U.S. Fish and Wildlife Service provided a list of endangered and threatened wildlife and plant species potentially occurring on the Reservation (Appendix C). This letter is dated December 5 of 2002 and is currently being updated by the USFWS. Federally listed species reported as potentially occurring within the Reservation included Quino checkerspot butterfly (*Euphydryas editha quino*), arroyo toad (*Bufo californicus*), California red-legged frog (*Rana aurora draytonii*), mountain plover (*Charadrius montanus*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), southwestern willow flycatcher (*Empidonax traillii extimus*), coastal California gnatcatcher (*Polioptila californica californica*), least Bell's vireo (*Vireo bellii pusillus*), Stephen's kangaroo rat (*Dipodomys stephensi*), San Diego thornmint (*Acanthomintha ilicifolia*), San Diego ambrosia (*Ambrosia pumila*), Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*), and Nevin's barberry (*Berberis nevinii*).

The California Department of Fish and Game (CDFG) publishes the California Natural Diversity Database (CNDDB) RareFind, a computerized inventory of information on the location and condition of California's rare, threatened, endangered, and sensitive plants, animals, and natural communities (CDFG 2006). Additional species reported as occurring within the Pala and Pechanga Quadrangles (USGS) by the CNDDB included federally endangered slender-horned spineflower (*Dodecahema leptoceras*) and Riverside fairy shrimp (*Streptocephalus woottoni*); and federally threatened Vail Lake ceanothus (*Ceanothus ophiochilus*) and spreading navarretia (*Navarretia fossalis*).

Potentially appropriate habitat for arroyo toad, coastal California gnatcatcher, southwestern willow flycatcher, least Bell's vireo, Quino checkerspot butterfly, Stephen's kangaroo rat, mountain plover, San Diego thornmint, San Diego ambrosia, and Nevin's barberry occurs on-site. The ecology and potential occurrence on-site for these species is discussed below. The ecology and potential occurrence for all species reported as potentially occurring on or in the vicinity of the Reservation is summarized in Table 1.

<u>Arroyo Toad</u>
Federal status: Endangered

The arroyo toad (*Bufo californicus*) is an amphibian that resides in riparian habitats of the southwestern United States. The arroyo toad is small (5-8 cm), light greenish-gray or tan with warty skin and dark spots. Its underside is buff-colored and often without spots. Optimal habitat for the arroyo toad consists of rivers that have shallow, gravelly pools adjacent to sandy terraces suitable for foraging adults. Breeding for the arroyo toad takes place in large streams in shallow pools with silty gravel/sand substrate that are relatively undisturbed by currents and have little emergent vegetation (Federal Register 1994).

Sub-adult and adult toads may range widely into the surrounding uplands, commonly up to 0.5 kilometer (0.3 mile) and as much as 2 kilometers (1.2 miles) from the stream (USFWS 1999). The distance toads are found from the breeding sites depends on the topography and the extent of

Table 1. Threatened, Endangered or Rare Species
Potentially Occurring Within the Pala Wastewater Pipeline Project Site

Species	Status[1]	Habitat[2]	Presence/Description
Invertebrates			
Quino checkerspot butterfly (*Euphydryas editha quino*)	federally endangered	Foothills and coastal mesas; associated with larval hostplants dot-seeded plantain (*Plantago erecta*) and Chinese houses (*Collinsia* sp.)	Not observed. Not expected to occur; appropriate habitat does not occur on-site. Portions of project area occur within recommended survey areas.
Riverside fairy shrimp (*Streptocephalus woottoni*)	federally endangered	Vernal pools	Not observed. Not expected to occur; appropriate habitat does not occur on-site.
Amphibians			
Arroyo toad (*Bufo californicus*)	federally endangered	Rivers with slow-moving water and shallow, gravelly pools adjacent to gravelly terraces.	Not observed. Potentially appropriate habitat for burrowing adults occurs on-site.
California red-legged frog (*Rana aurora draytonii*)	federally threatened	Permanent water bodies of virtually still or slow-moving fresh water.	Not observed. Not expected to occur; appropriate habitat does not occur on-site.
Mountain yellow-legged frog (*Rana muscosa*)	federally endangered	Pools, undisturbed lake shores, and streams with open canopies and sloping gravely banks.	Not observed. Not expected to occur; appropriate habitat does not occur on-site.
Birds			
Mountain plover (*Charadrius montanus*)	federally proposed threatened	Bare plowed fields, sagebrush, and short-grass prairie habitat.	Not observed. Marginally appropriate habitat occurs on-site.
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	federal candidate species	Dense lowland riparian woodland	Not observed. Not expected to occur; appropriate habitat does not occur on-site.
Southwestern willow flycatcher (*Empidonax traillii extimus*)	federally endangered	Riparian habitats.	Not observed. Not expected to occur; appropriate habitat does not occur on-site.
Coastal California gnatcatcher (*Polioptila californica californica*)	federally threatened	Coastal sage scrub.	Not observed. Potentially appropriate habitat occurs on-site.
least Bell's vireo (*Vireo bellii pusillus*)	federally endangered	Dense willow woodland/scrub.	Not observed. Not expected to occur; appropriate habitat does not occur on-site.

Table 1. Threatened, Endangered or Rare Species
Potentially Occurring Within the Pala Wastewater Pipeline Project Site

Species	Status[1]	Habitat[2]	Presence/Description
Mammals			
Stephen's kangaroo rat (*Dypodomys stephensi*)	federally endangered	Open grasslands; areas with sparse (less than 30%) shrub cover.	Not observed. Not expected due to small size of areas dominated by filaree and non-native grasses.
Plants			
San Diego thornmint (*Acanthomintha ilicifolia*)	federally threatened	Grassy openings in coastal sage scrub or chaparral; associated with vernal pools and clay depressions on mesas.	Not observed. Not expected due to absence of clay soils and disturbed condition of potentially appropriate habitat.
San Diego ambrosia (*Ambrosia pumila*)	federally endangered	Chaparral, coastal scrub, valley and foothill grassland, non-native grassland, and vernal pools.	Not observed. Potentially appropriate habitat occurs on-site.
Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*)	federally endangered	Sandy mesas and bluffs in southern maritime chaparral.	Not observed. Not expected to occur; appropriate habitat does not occur on-site.
Nevin's barberry (*Berberis nevinii*)	federally endangered	Sandy or gravelly chaparral, cismontane woodland, coastal scrub and riparian scrub.	Not observed. If present, this shrub would have been detected during the general biological survey.
Slender-horned spineflower (*Dodecahema leptoceras*)	federally endangered	Sandy soils in chaparral, cismontane woodland, coastal scrub (alluvial fan); elevation 600-2,280ft.	Not observed. Project area outside of altitudinal range for this species.
Spreading navarretia (*Navarretia fossalis*)	federally threatened	Vernal pools and vernal swales.	Not observed. Not expected to occur; appropriate habitat does not occur on-site.

[1] Status taken from California Department of Fish and Game (2004)
[2] Habitat taken from Hickman (1993) and CNPS (2001) for plants, Ehrlich (1988) and Unitt (1984) for birds, USFWS (1998) for invertebrates.

suitable habitat. Upland habitats used by the arroyo toad include coastal sage scrub, chaparral, grassland, or oak woodland.

Substantial areas of fine sand, into which adult toads burrow, must be present, but can be interspersed with gravel or cobble deposits.

The arroyo toad was historically found along the length of drainages between San Luis Obispo to San Diego County but has been extirpated from 75% of its former range (Federal Register 1994). It is currently restricted to small, isolated populations in various parts of southern California and Baja California. Factors contributing to the decline of the arroyo toad include dam construction, artificial flow regulation and off-road vehicle activities.

The biological survey was conducted at time when arroyo toad would not be present above ground. A known breeding population occurs along the San Luis Rey River, which is located approximately 500 feet south of the southern alignment. Although creeks and washes occurring on-site did not support water at the time of the survey, these areas support appropriate sandy soils and could potentially support shallow pools of water. Furthermore, soils suitable for burrowing arroyo toads occur in the project area. This species has been documented to disperse into upland habitats more than 2 kilometers (1.2 miles) perpendicular to breeding pools (USFWS 1999). Potentially, adult arroyo toads could exist in burrows in the area of the proposed pipeline.

Coastal California Gnatcatcher
Federal Status: Threatened

The coastal California gnatcatcher (*Polioptila californica californica*) is a small gray songbird that resides in coastal sage scrub plant communities. It is a recognized subspecies of the California gnatcatcher (*Polioptila californica*) which has a greater geographical distribution. The coastal California gnatcatcher is endemic to coastal southern California and northwestern Baja California, Mexico. The present distribution of the subspecies includes Los Angeles, Orange, Riverside, and San Diego counties. The southern limit of the coastal California gnatcatcher coincides with the distributional limit of coastal sage scrub.

The gnatcatcher occupies coastal sage scrub plant communities dominated by California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), various species of sage (*Salvia* spp.), California encelia (*Encelia californica*), and various species of cactus as well as intermixed elements of chaparral communities such as laurel sumac (*Malosma laurina*) and common chamise (*Adenostoma fasciculatum*). Within the overall range of suitable habitat, patches dominated by California sagebrush and California buckwheat are preferred over communities with a greater percent composition of sage, chamise or other sage scrub elements. Gnatcatcher population declines have been attributed to coastal sage scrub habitat destruction, fragmentation and modification. Degradation of approximately 90% of suitable habitat has occurred as a result of urban and agricultural development prior to the early 1980's (Westman 1981, 1987; Barbour and Major 1977).

Coastal California gnatcatcher was not observed on-site during the general biological survey. Diegan coastal sage scrub on-site occurs as small areas of habitat located immediately adjacent to roads and/or and residential areas. Therefore, this species is not expected to occur within the proposed alignment.

Mountain Plover
Federal Status: Proposed Threatened

The mountain plover (*Charadrius montanus*) is an upland plover approximately 7 ½ inches in height and can be described as having sandy brown plumage on the head, back, and wings and a white belly (Sibley 2000). Distinguishing characteristics of this species include a dark patch on the tail and black primaries with a thin white line (Sibley 2000). The breeding plumage consists of a black crown patch and a black stripe that extends from the base of the beak to the eye and is offset by its white forehead and throat. The mountain plover can be found in bare plowed fields and short-grass prairie habitat (Unitt 1984). Although this species is a common winter visitor of San Diego County, few records of breeding pairs exist (Unitt 1984). The mountain plover winters from central California along the southern half of the border states and southward into Mexico.

Mountain plover was not observed during the biological survey. Open habitats, including non-native grassland, ruderal areas and recently plowed agricultural land occur on-site. However, the project area is located adjacent to roads and developed areas. Higher quality habitat occurs outside of the project area. Consequently, areas occurring within and adjacent to the project area would only provide marginal habitat for this species. Mountain plover is not expected to occur on-site.

Stephen's Kangaroo Rat
Federal Status: Endangered

The Stephen's kangaroo rat (*Dypodomys stephensi*) is a medium sized kangaroo rat with dark color, five toes on the hind feet, and a striped tail (Jameson and Peeters 1988). Preferred habitat occurs in non-native grasslands dominated by herbaceous annuals, predominately red-stemmed filaree (*Erodium cicutarium*). Some areas contain sparse elements of Riversidian sage scrub with aerial cover less than 30%. Soil type and topography occupied are variable. Long linear dirt roads at the base of hills serve as important refuges and movement corridors that has allowed many populations to persist (O'Farrel and Uptain 1989).

Non-native grassland typically provides potentially appropriate habitat for Stephen's kangaroo rat. However, non-native grassland on-site is subject to human disturbances, including discing. Furthermore, due to the small size of this habitat and its proximity to developed areas, it does not provide appropriate habitat for this species. Agricultural areas also exists on-site. At the time of the survey, it appeared that these areas had been disced recently, possibly as weed abatement. Sufficient time to allow for soil compaction of these cultivated areas has not passed. Therefore, these areas are currently unsuitable for Stephen's kangaroo rat.

Southwestern Willow Flycatcher
Federal Status: Endangered

The southwestern willow flycatcher (*Empidonax traillii extimus*) is a small (approximately 15 cm), insectivorous bird. The overall appearance of this species is greenish or brownish gray above, with a white throat that contrasts with a pale olive breast, and a pale yellow belly. It is one of four willow flycatcher subspecies and can be distinguished from other willow flycatchers by its distinct "fitz-bew" song (Yard and Brown 2000). It nests and forages in riparian habitats typically dominated by dense willow understory (Federal Register 1993). Other plant species characterizing appropriate flycatcher habitat include mule fat, arrow weed, coast live oak (*Quercus agrifolia*), and scattered cottonwoods. This species is a summer resident, arriving in San Diego County in May and migrating south in August.

The historic breeding range of the southwestern willow flycatcher includes southern California, Arizona, New Mexico, extreme southern portions of Nevada and Utah, and western Texas. Currently in San Diego County, this species primarily occurs within the Marine Corps Base Camp Pendleton and the upper San Luis Rey River (U.S. Forest Service 1999). However, a few pairs have been detected at the Sweetwater Reservoir, lower San Luis Rey River and San Felipe Creek (U.S. Forest Service 1999). Currently, the southwestern willow flycatcher is declining in most states where it was historically found. The species was proposed for federal endangered status in July 1993.

The biological survey was conducted during a time of year when southwestern willow flycatcher does not occur in San Diego County. This species is known to occur along the San Luis Rey River during their breeding season. Riparian habitats, including southern coast live oak riparian forest and sycamore alluvial woodland, occur adjacent to the project area. However, appropriate willow dominated riparian habitat does not occur on-site. Therefore, this species is not expected to occur on-site.

Least Bell's Vireo
Federal Status: Endangered

The least Bell's vireo (*Vireo bellii pusillus*) is a small, olive-gray songbird that nests and forages almost exclusively in riparian woodland habitats. Nesting habitat typically consists of riparian woodland with well-developed overstories, understories and low densities of aquatic and herbaceous cover. The understory often consists of dense thickets composed of narrow-leaved willow (*Salix exigua*), mule fat (*Baccharis salicifolia*), and saplings of arroyo willow (*Salix lasiolepis*), Goodding's black willow (*Salix gooddingii*) or one of several possible herbaceous species.

The biological survey was conducted during a time of year when least Bell's vireo does not occur in San Diego County. Riparian habitats, including southern coast live oak riparian forest and sycamore alluvial woodland, occur adjacent to the project area. This species is known to breed in the San Luis Rey River. Appropriate willow dominated riparian habitat does not occur on-site. Therefore, least Bell's vireo is not expected to occur on-site.

Western Yellow-Billed Cuckoo
Federal Status: Candidate

The western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) is the only cuckoo that occurs west of the Rockies. It belongs to the Cuculidae family which includes cuckoos and their allies. This species is slender, long-tailed, and inconspicuous; they move furtively through the dense foliage of trees (mature willows and cottonwoods) and bushes in search of caterpillars. They are found in woods and brush, especially during outbreaks of tent caterpillars. Its song is guttural and relatively toneless. Formerly summer residents, the yellow-billed cuckoo is now rare. Breeding cuckoos were restricted to dense lowland riparian woodland.

The biological survey was conducted at a time of year when western yellow-billed cuckoo does not occur in San Diego County. Riparian habitats, including southern coast live oak riparian forest and sycamore alluvial woodland, occur adjacent to the project area. Appropriate willow dominated riparian habitat does not occur on-site. Therefore, western yellow billed cuckoo is not expected to occur on-site.

Quino Checkerspot Butterfly
Federal Status: Endangered

The Quino checkerspot butterfly (*Euphydryas editha quino*) is known to occur in sunny openings within chaparral and coastal sage shrublands in portions of Riverside and San Diego counties, California, and northwestern Baja California, Mexico (Federal Register 1997). This species has been threatened by habitat loss and degradation as a result of grazing, urban development, fire management, excessive collection and general human disturbance (Federal Register 1997).

The checkerspot's primary larval hostplant, dot-seed plantain (*Plantago erecta*), is generally small, growing to between approximately 3 and 30 centimeters in height (Hickman 1993). It is easily displaced by non-native species that invade following disturbance from discing, grading or grazing (Federal Register 1997). Other known larval host plants include Chinese houses (*Collinsia concolor*), snapdragon (*Antirrhinum coulterianum*) and Indian paint brush (*Castilleja exserta*) (USFWS 1999).

In addition to specific larval host plant requirements, the Quino checkerspot is also associated with particular topographic features. It is known to prefer open or bare soils with moderate to heavy clay content or cryptogamic crusts (USFWS 1999). Ridges, rounded hilltops and generally, topographic diversity indicates suitable Quino habitat.

The biological survey was conducted during a time of year when Quino checkerspot butterfly and its larval host plants would not be present. Portions of the project area located east of Pala Temecula Road occur within the USFWS Recommended Survey Area for this species (USFWS 2005). Although the Reservation is topographically diverse, the project area is relatively flat. Open native habitats on-site occur as narrow strips and are located adjacent to existing roads. Non-native grassland and ruderal habitats provide open habitat for this species. However, these areas are also

located adjacent to roads and are associated with disturbed areas near residences. Thus, appropriate habitat does not occur on-site and Quino checkerspot butterfly is not expected to occur on-site.

San Diego Thornmint
Federal Status: Threatened

The San Diego thornmint (*Acanthomintha ilicifolia*), a member of the Lamiaceae or mint family, is a small annual herb, endemic to San Diego County and northwestern Baja California, Mexico. Its flowers are small and white, sometimes rose-tinged, and bloom between April and June (Hickman1993). This species is known to occur in grassy openings in coastal sage scrub or chaparral, and foothill and valley grassland. It has also been associated with clay soils, vernal pools, and clay depressions on mesas. The thornmint is commonly found on gentle slopes, between 15 and 20 percent, that are south to southwest-facing. The thornmint is commonly found in association with foothill needlegrass (*Nassella lepida*) and with native herbs such as mariposa lily (*Calochortus concolor* and *Calochortus splendens*), mock-parsley (*Apiastrum angustifolium*), osmadenia (*Osmadenia tenella*), California aster (*Lessingia filaginifolia* var. *filaginifolia*), fringed spineflower (*Chorizanthe fimbriata* var. *fimbriata*), tarweed (*Hemizonia fasciculata*), and Palmer's grappling hook (*Harpagonella palmeri*). Associated native shrub species include chamise (*Adenostoma fasciculatum*), California buckwheat, toyon, laurel sumac, spiny redberry (*Rhamnus crocea*) and various *Rhus* and *Salvia*.

The biological survey was conducted at time when San Diego thornmint is not present above ground. Areas dominated by non-native grasses and short-pod mustard occur in openings between native shrubs in disturbed Diegan coastal sage scrub. However, due to the small size of disturbed Diegan coastal sage scrub on-site, its disturbed condition, and the absence of clay soils, San Diego thornmint is not expected to occur on-site.

San Diego Ambrosia
Federal status: Endangered

San Diego ambrosia (*Ambrosia pumila*), a member of the Asteraceae, or sunflower family, is a perennial herb that expands by rhizomes and grows in height to approximately two feet. The stems are green to straw colored, with short, dense hairs. The leaves of this plant are softly gray-white and hairy. The flowers of San Diego ambrosia grow in staminate and pistillate heads that bloom between May and September. This species occurs in chaparral, coastal scrub, valley and foothill grassland, and vernal pools. It is also known to occur in disturbed sites. Many occurrences of this plant have been extirpated in San Diego, where it is threatened by continued development (CNPS 2001).

San Diego ambrosia was not observed during biological surveys, two of which were conducted within the blooming period for this species. Potentially appropriate habitat for this species occurs on-site; however, this species would have been detected if present. Therefore, this species is not expected to occur within the project alignment.

Nevin's Barberry
Federal Status: Endangered
State Status: Endangered

Nevin's barberry (*Berberis nevinii*), a member of the Berberidaceae or barberry family, is an erect evergreen shrub that ranges in height from one to four meters. Its leaves are crowded on short lateral stems and are composed of three to five leaflets. Leaflets are narrowly elliptic to lanceolate with flat to wavy margins. Flowers, when open, measure 3.5 to 6.5 centimeters (Hickman 1993). Nevin's barberry blooms from March to April. This species occurs in sandy or gravelly chaparral, cismontane woodland, coastal scrub and riparian scrub (CNPS 2001). In San Diego county, it may occur in the foothills of the Agua Tibia Wilderness Area closed to the Dripping Springs Trail (Reiser 1994).

Nevin's barberry was not observed in the project area. Although potentially appropriate habitat for this species occurs on-site, Nevin's barberry is not expected to occur on the project site. It should be noted that, if present, this shrub species would have been detected during the general surveys.

Vail Lake Ceanothus
Federal Status: Threatened
State Status: Endangered

Vail Lake Ceanothus is a small-leaved species of ceanothus that grows on a reddish-hued, pyroxenite outcrop at Oak Mountain, southern Riverside County, in Chamise Chaparral and it utilizes gabbroic soils near Woodchuck Campground. Shrub diversity is relatively limited and the Vail Lake Ceanothus is a very localized but common component of this chaparral.

A second site where this shrub is found in several dense concentrations is south of Highway 79 and south of Woodchuck Campground within the Agua Tibia Wilderness near the San Diego County line. Additional sites may occur nearby in the rugged and little explored Agua Tibia Wilderness Area of San Diego County.

Vail Lake ceanothus was not observed in the project area and is not expected to occur on the project site due to the lack of suitable soil and the distance from known populations. It should be noted that this species, if present, would have been detected during the general survey.

4.4 Sensitive Habitat

Sensitive habitats include those communities considered unique because they host many species of plants and animals that are rare or substantially depleted. Diegan coastal sage scrub is known to provide habitat for the coastal California gnatcatcher. However, Diegan coastal sage scrub occurring within the project area is small in size and is located adjacent to major roads and/or residential areas. Consequently, Diegan coastal sage scrub on-site provides poor habitat for this species. As stated earlier, sandy substrate associated with Pala Creek provide potentially suitable burrowing and/or breeding habitat for the arroyo toad.

Army Corps of Engineers jurisdiction under Section 404 of the Clean Water Act, includes wetlands and extends to “waters of the U.S.” Section 404 of the Clean Water Act requires that anyone interested in depositing dredged or fill material into "waters of the U.S., including wetlands," must receive authorization for such activities. The ACOE has been assigned responsibility for administering the Section 404 permitting process.

The Fish and Wildlife Coordination Act requires that the ACOE coordinate their actions with the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG). The final determination of whether an area is a wetland and whether the activity requires a permit must be made by the appropriate ACOE District office.

In the project area, Pala Creek, and two unnamed blue-line tributaries are considered waters of the U.S. by the ACOE. In addition, individual willows associated with the creek would be considered wetland habitats by the ACOE. In order to avoid impacts to waters of the U.S., the proposed project alignment should be confined to existing roads at Creek Crossing 1 and 2, at both drainages. However, if this is not possible, the proposed project may require a Section 404 (Clean Water Act) permit from the ACOE and may comply with ACOE Nationwide Permit (NWP) #12 which allows for the construction of utility lines. In order to comply with NWP # 12, project impacts to water of the U.S., including wetlands, must not exceed 0.5 acre.

5.0 IMPACTS

Installation of the proposed project would result in impacts to an area approximately 1.77 acres in size (8 feet by 9,630 feet). The installation of the pipeline would consist of a trench, an area for side casting soil, and staging areas. Three lift stations would be installed along the edge of the roadway for crossing Pala Creek and its two tributaries.

5.1 Sensitive Species

As presented previously, arroyo toads may potentially occur at Pala Creek and its tributaries. Project construction will be confined to existing crossings, therefore, direct impacts to this species are not anticipated. However, if avoidance is not feasible, protocol surveys for this species will be required. In addition, measures shall be taken to avoid “take” of dispersing arroyo toads during construction. Such measures shall include prohibition of construction during those times in which the arroyo toad is most active in upland areas (immediately following significant rainfall) and use of exclusion fencing around construction areas within or adjacent to potential arroyo toad habitat. No additional sensitive species are expected to occur on-site.

5.2 Sensitive Habitats

Impacts to the understories of coast live oak woodland and sycamore alluvial woodland are anticipated (Table 2). However, mature sycamore and oak trees will not be removed as part of the proposed project. It is recommended that trenching avoid the drip lines of existing oaks and western sycamores in order to avoid damaging the trees by impacting the root system. Thus, it is not

anticipated that impacts to 0.08 acre of sycamore alluvial woodland and 0.05 acre of coast live oak woodland would be significant.

Table 2. Anticipated Project Impacts

Habitat Type	Impacts (Acres)
Diegan coastal sage scrub	0.05
Disturbed Diegan coastal sage scrub	0.07
Coast live oak woodland	0.05
Sycamore alluvial woodland	0.08
Waters of the U.S.	0.02
Non-native grassland	0.05
Ornamental areas	0.07
Ruderal areas	0.19
Agricultural areas	0.18
Developed areas	1.01
Total	1.77

Impacts to waters of the U.S. or wetlands are not anticipated as pipeline installation will be restricted to existing roads crossing Pala Creek. In addition, impacts to two tributary drainages of Pala Creek are not anticipated as pipeline installation will be restricted to the shoulder of Pala Temecula Road. However, if this is not possible, the proposed project may require a Section 404 (Clean Water Act) permit from the ACOE and may comply with ACOE Nationwide Permit (NWP) #12 which allows for the construction of utility lines. In order to comply with NWP # 12, project impacts to water of the U.S. including wetlands must not exceed 0.5 acre.

6.0 Mitigation

Preconstruction surveys shall be conducted for the arroyo toad by a qualified biologist should avoidance of impacts to arroyo toad habitat not be feasible. In addition, measures shall be taken to avoid "take" of dispersing arroyo toads during construction. Such measures shall include prohibition of construction during those times in which the arroyo toad is most active in upland areas (immediately following significant rainfall) and use of exclusion fencing around construction areas within or adjacent to potential arroyo toad habitat.

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Appendix A. Correspondence with U.S. Fish and Wildlife Service

United States Department of the Interior
Fish and Wildlife Service
Ecological Services
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road
Carlsbad, California 92009

DEC 05 2002

In Reply Refer To:
FWS-SDG-2302.2

Virgil Townsend, Superintendent
Bureau of Indian Affairs
Southern California Agency
2038 Iowa Avenue, Suite 101
Riverside, California 92507-2471

Re: Request for Proposed, Threatened, or Endangered Species Potentially Occurring on Indian Trust Lands within the Jurisdiction of the Carlsbad Fish and Wildlife Office

Dear Mr. Townsend:

The U.S. Fish and Wildlife Service (Service) received your November 5, 2002, letter in which you requested an updated species list for all Indian Reservations located within the jurisdiction of our office to assist you in evaluating the potential effects of fire management activities on federally listed, proposed, or candidate species. In response, we are providing an updated list of species that may occur in the vicinity of the identified Indian Trust lands (see attached). We recommend that you seek assistance from a biologist familiar with the areas, activities, and with the listed species to more definitively assess the potential for direct, indirect and cumulative impacts likely to result from the proposed activity. Please contact the California Department of Fish and Game if you are interested in State-listed and sensitive species that may occur on Indian Reservations in southern California.

The primary concern and mandate of the Service is the protection of public fish and wildlife resources and their habitats. The Service has legal responsibility for the welfare of migratory birds, anadromous fish, and endangered animals and plants occurring in the United States. The Service is also responsible for administering the Endangered Species Act of 1973 as amended (Act). Section 7 of the Act requires Federal agencies to consult with the Service if their actions may affect a federally listed threatened or endangered species. Section 9 of the Act prohibits the "take" (e.g., harm, harassment, pursue, injure, kill) of federally listed wildlife species. Take can only be permitted pursuant to the pertinent language and provisions in Section 7 and Section 10(a) or through a special rule under Section 4(d) of the Act. Informal consultation may be used to exchange information and resolve conflicts with respect to listed species prior to a written request for formal consultation.

Should you have any questions regarding the species listed or your responsibilities under the Act, please contact Susan Wynn or Karen Evans of my staff at (760) 431-9440.

Sincerely,

Jim Bartel
Field Supervisor

Attachment

Attachment 1
Virgil Townsend (FWS-SDG-2302.2)

Endangered, Threatened, Proposed, and Candidate Species
that May Occur on Indian Trust Lands within the
Jurisdiction of the Carlsbad Fish and Wildlife Office

Pala Reservation

Common Name	Scientific Name	Status
San Diego thornmint	*Acanthomintha ilicifolia*	T
San Diego ambrosia	*Ambrosia pumila*	E
Del Mar manzanita	*Arctostaphylos glandulosa* spp. *crassifolia*	E
Nevin's barberry	*Berberis nevinii*	E
Quino checkerspot butterfly	*Euphydryas editha quino*	E
arroyo toad	*Bufo californicus*	E, CHRV
California red-legged frog	*Rana aurora draytonii*	T
mountain yellow-legged frog	*Rana muscosa*	E
mountain plover	*Charadrius montanus*	PT
western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	C
southwestern willow flycatcher	*Empidonax traillii extimus*	E
coastal California gnatcatcher	*Polioptila californica californica*	T
least Bell's vireo	*Vireo bellii pusillus*	E, CH
Stephens' kangaroo rat	*Dipodomys stephensi*	E

Pauma and Yuima Reservation

Common Name	Scientific Name	Status
San Diego thornmint	*Acanthomintha ilicifolia*	T
San Diego ambrosia	*Ambrosia pumila*	E
Del Mar manzanita	*Arctostaphylos glandulosa* spp. *crassifolia*	E
Nevin's barberry	*Berberis nevinii*	E
San Bernardino bluegrass	*Poa atropurpurea*	E
Quino checkerspot butterfly	*Euphydryas editha quino*	E
Laguna Mountains skipper	*Pyrgus ruralis lagunae*	E
arroyo toad	*Bufo californicus*	E
California red-legged frog	*Rana aurora draytonii*	T
mountain yellow-legged frog	*Rana muscosa*	E
mountain plover	*Charadrius montanus*	PT
southwestern willow flycatcher	*Empidonax traillii extimus*	E
coastal California gnatcatcher	*Polioptila californica californica*	T
least Bell's vireo	*Vireo bellii pusillus*	E
Stephens' kangaroo rat	*Dipodomys stephensi*	E

Status
E = Endangered; T = Threatened; PT = Proposed Threatened; PE = Proposed Endangered; C = Candidate; CH = Critical Habitat; PCH = Proposed Critical Habitat; CHRV = Critical Habitat Remanded and Vacated