
C.5 Plant and Wildlife Descriptions

APPENDIX C-5 – PLANT AND WILDLIFE DESCRIPTIONS SPECIES ACCOUNTS

Plants With the Potential to Occur

California androsace (*Androsace elongata* ssp. *acuta*)

Status: California androsace has a CRPR 4.2, and is a U.S. Forest Service Watch List species. This species is not federally or State listed as threatened or endangered.

General Distribution: This species occurs from Oregon, throughout California, and into Baja California at elevations of 492 to 3,936 ft.

Distribution in the Study Area: There are several populations on the foothill desert slopes of the San Gabriel and Liebre Mountains. Suitable habitat is present.

Habitat and Habitat Associations: California androsace occurs in coastal scrub, chaparral, cismontane woodland, meadows and seeps, and valley and foothill grassland habitats.

Natural History: California androsace is an annual herb that is highly localized and often overlooked; many occurrences have been extirpated and it is very rare in Southern California. It flowers from March through June.

Threats: California androsace is possibly threatened by grazing, trampling, non-native plants, alteration of fire regimes, and recreational activities. It may also be threatened by wind energy development.

Slender silver moss (*Anomobryum julaceum*)

Status: Slender silver moss has a CRPR 2.2 This species is not federally or State listed as threatened or endangered.

General Distribution: This species occurs infrequently in California, but is abundant in Oregon. It can be found on road cuts at elevations of 300 to 3,000 feet.

Distribution in the Study Area: This species is represented in southern California from a single collection made from the high elevations of the San Gabriel Mountains. Suitable habitat is present in the project area.

Habitat and Habitat Associations: Slender silver moss grows on mesic soils and rocks along creeks in broadleaf and coniferous forests.

Natural History: Slender silver moss is a non-vascular moss.

Threats: This species may be threatened by human activities such as vehicle use, since it is often found along road cuts.

San Gabriel manzanita (*Arctostaphylos gabrielensis*)

Status: San Gabriel manzanita has a CRPR 1B.2, FSS This species is not federally or State listed as threatened or endangered.

General Distribution: This species is endemic to the San Gabriel Mountains near Mill Creek Summit, with an elevation range of 1900 to 5000 feet.

Distribution in the Study Area: This species is known from the upper watershed but the project area is below the elevation range for this species. It has a low potential to disperse into the project area from the upper watershed.

Habitat and Habitat Associations: San Gabriel manzanita is a large perennial evergreen shrub that grows on rocky chaparral habitats.

Natural History: San Gabriel manzanita blooms in March.

Threats: The primary threat to this species is development.

Palmer's mariposa lily (*Calochortus palmeri* var. *palmeri*)

Status: Palmer's mariposa lily has a CRPR 1B.2, and is designated a U.S. Forest Service Sensitive species. This species is not federally or State listed as threatened or endangered.

General Distribution: This species is endemic to California, and has been found in Kern, Los Angeles, Riverside, Santa Barbara, San Bernardino, San Luis Obispo, and Ventura counties. It occurs at elevations of 3,281-7,841 ft.

Distribution in the Study Area: This species was not observed during recent surveys but is known from the general area.

Habitat and Habitat Associations: Palmer's mariposa lily is found in wet meadows and seeps in lower montane coniferous forest and chaparral habitats.

Natural History: Palmer's mariposa lily is a perennial bulb that blooms from May through July.

Threats: This species is threatened by development, grazing, non-native plants, recreational activities and vehicles (CNPS, 2012).

Plummer's mariposa lily (*Calochortus plummerae*)

Status: Plummer's mariposa lily is a CRPR List 1B.2 species and is considered a U.S. Forest Service Sensitive species. This species is not federally or State listed as threatened or endangered.

General Distribution: Plummer's mariposa lily is known to occur in Riverside, San Bernardino, Orange, Los Angeles, and Ventura counties at elevations between 100 and 1,700 meters AMSL.

Distribution in the Study Area: This species was not documented within the Vegetation Study Area. The project is just outside of the known geographic range for this species but suitable habitat is present within the Vegetation Study Area.

Habitat and Habitat Associations: This bulbiferous herb is typically found in chaparral, coastal scrub, cismontane woodland, lower montane coniferous forest, and grassland, often on granitic and/or rocky soils, and blooms between May and July (CNPS, 2012).

Natural History: Perennial bulbs, including Plummer's mariposa lily, may persist below ground without producing flowers or even leaves during years of poor rainfall or other environmental causes. This species is identified by its (usually) toothed petal margins; petals covered with long yellow hairs inside; and its round, slightly depressed nectar gland at the base of each petal surrounded by hairs but without

hairs on the nectary surface itself (Hickman, 1993). Seed dispersal for *Calochortus* is limited, with no obvious adaptations for wind or animal dispersal; fruits are capsular and borne close to the ground, with relatively heavy, passively dispersed seeds that lack fleshiness, sticktights, or (except in one species) wings (Patterson and Givnish, 2003). Typically, *Calochortus* flowers are generalists in terms of their pollinators, although bees have been observed to be the primary pollinator in some *Calochortus* species, such as Lyall's mariposa lily (*C. lyallii*) (Dilley *et al.*, 2000; Miller, 2000).

Threats: In addition to the direct loss of individuals, Plummer's mariposa lily is vulnerable to several effects related to urbanization. Non-native plant species, which compete for light, water, and nutrients, have been found to invade native vegetation communities and become established after repeated burnings, changes in surface and subsurface hydrologic conditions (changes in irrigation and runoff), use of chemical pollutants, clearing of vegetation, trampling, or following periods of drought and overgrazing, all of which are possible side effects of nearby human habitation. The successful invasion of exotic plant species may alter habitats and displace native species over time, leading to extirpation of natives such as the Plummer's mariposa lily.

Alkali mariposa lily (*Calochortus striatus*)

Status: Alkali mariposa lily has a CRPR 1B.2 and is designated a U.S. Forest Service Sensitive species. This species is not federally or State listed as threatened or endangered.

General Distribution: The geographic range of Alkali mariposa lily includes the southern Sierra Nevada; the western, central and southern Mojave Desert; the north base of the San Bernardino Mountains; the southern San Joaquin Valley; and disjunctly in southern Nevada. It occurs at elevations between 230ft and 5,232 feet.

Distribution in the Study Area: The species is known from alkaline soils in the Mojave Desert. Poor quality habitat was observed at the northern end of the haul roads but it is not expected in the project area.

Habitat and Habitat Associations: Alkali mariposa lily occurs in seasonally moist alkaline areas of arid lands (alkali meadows, ephemeral washes, vernal moist depressions, seeps; Fiedler, 1985) in chaparral, chenopod scrub, and Mojavean desert scrub of southern California and southern Nevada.

Natural History: It is a perennial growing from a bulb; it has two or three slender, grass-like leaves that wither by the time the plant flowers (April through June). The flowers about 20-30 mm long, white to lavender with conspicuous purple veins. In dry years, the bulbs may remain dormant and no plants may be visible above-ground. It is threatened by the lowering of water tables, urbanization, trampling or grazing by cattle, and perhaps competition with native and non-native grasses (Greene and Sanders, no date).

Threats: Alkali mariposa lilies face threats from urbanization, grazing, trampling, road construction, hydrological alterations, and water diversions that result in the lowering of the water table (CNPS, 2012).

Peirson's morning-glory (*Calystegia peirsonii*)

Status: Peirson's morning glory has a CRPR 4.2. This species is not federally or State listed as threatened or endangered.

General Distribution: It is a rhizomatous perennial herb occurring in the San Gabriel and Liebre Mountains and the Antelope Valley of Los Angeles County (Allan et al., 1995), from about 100 ft. to 5000 feet elevation.

Distribution in the Study Area: This species was not observed during recent surveys but is known from the general area.

Habitat and Habitat Associations: It is a perennial vine found climbing over shrubs in coastal sage scrub, chaparral, and woodlands, often in the first few years following wildfire. It was known only from a few collections prior to 1970, but it is fairly common in the Newhall-Mint Canyon region (Boyd, 1999).

Natural History: This perennial vine blooms from April to June.

Threats: Primary threats to this species include grazing and development (CNPS, 2012).

Pygmy poppy (*Canbya candida*)

Status: Pygmy poppy has a CRPR 4.2 and is designated a U.S. Forest Service Sensitive species. This species is not federally or State listed as threatened or endangered.

General Distribution: Pygmy poppy is found in the foothills of the south-eastern Sierra Nevada range, the San Gabriel and San Bernardino Mountains, and in the Antelope Valley. It occurs at elevations of 1,968-4,790 feet.

Distribution in the Study Area: Suitable habitat is present within the Vegetation Study Area and numerous historic records are known from the area.

Habitat and Habitat Associations: Pygmy poppy occurs in Joshua tree woodland, Mojavean desert scrub, or pinyon and juniper woodland habitats with gravelly, granitic, or sandy soils.

Natural History: Pygmy poppy is an annual herb of desert shrublands, only one or a few centimeters wide and tall. It may flower between March and June, depending on rainfall, and may not germinate at all in dry years.

Threats: This species may be threatened by land use changes, vehicles, and invasive non-native plants (CNPS, 2012).

Mt. Gleason Indian paintbrush (*Castilleja gleasonii*)

Status: Mt. Gleason Indian paintbrush has a CRPR 1B.2, is State-listed as Rare, and is designated a U.S. Forest Service Sensitive species. This species is not federally or State listed as threatened or endangered.

General Distribution: Mt. Gleason Indian paintbrush is endemic to the San Gabriel Mountains of Los Angeles County.

Distribution in the Study Area: This species is known from higher elevation of the San Gabriel Mountains but several collections from lower elevations have been made. Suitable habitat is present.

Habitat and Habitat Associations: This species grows in rocky places within lower montane coniferous forest and pinyon and juniper woodland communities at elevations of 3800 to 7,120 feet (CNPS, 2007).

Natural History: Mt. Gleason Indian paintbrush is a perennial hemi-parasitic herb in the figwort family (Scrophulariaceae) that blooms from May to June.

Threats: Threats to this species include recreational activities such as fuel wood harvesting, off-highway vehicle activities, and close proximity to trails and campgrounds (CNPS, 2007).

Mojave Indian paintbrush (*Castilleja plagiotoma*)

Status: Mojave Indian paintbrush has a CRPR 4.3 and is designated a U.S. Forest Service Sensitive species. This species is not federally or State listed as threatened or endangered.

General Distribution: Mojave paintbrush is endemic to California, and is found in Kern, Los Angeles, San Bernardino, and San Luis Obispo counties at elevations between 984 and 8,200 feet.

Distribution in the Study Area: This species was not detected during recent surveys but suitable habitat is present within the Vegetation Study Area and it is known from the general vicinity.

Habitat and Habitat Associations: Mojave paintbrush is associated with Great Basin scrub, Joshua tree woodland, lower montane coniferous forest, and pinyon and juniper woodland habitats.

Natural History: Mojave paintbrush is a hemi-parasitic, perennial herb that blooms from April through June.

Threats: Threats to this species include recreational activities and road maintenance (CNPS, 2012).

San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*)

Status: San Fernando Valley spineflower has a CRPR 1B.1 and is designated a U.S. Forest Service Sensitive species. It is listed as Endangered under the California Endangered Species Act and is a Candidate for federal listing.

General Distribution: It was historically known from the foothills surrounding the San Fernando Valley in Los Angeles County and from one site in Orange County. It had been presumed extinct, but was rediscovered on the Ahmanson Ranch in 1999 (Ventura County) in 1999 (Boyd, 2001). Since then it has been discovered at Newhall Ranch (Los Angeles County; FWS, 2002) and there are historic records from Newhall and Castaic (Boyd, 1999). It occurs at elevations of 490 to 4,000 feet.

Distribution in the Study Area: The project area is outside of the historic range of the species; however, suitable habitat is present.

Habitat and Habitat Associations: This species is found in sandy places, generally in coastal or desert shrublands; historically from San Fernando Valley, adjacent foothills, and coastal Orange County; it is now known only in E Ventura and W Los Angeles Counties; its habitat is open shrubland, generally on mesas or moderate slopes, in fine, silty sedimentary soils. It may also occur on alluvial benches or as occasional waifs in washes.

Natural History: San Fernando Valley spineflower is a low-growing annual species, flowering between April and June. It persists as long as a year after flowering season due to its wiry structure, and can be identified by its characteristic long straight spines even in dried condition.

Threats: This species is seriously threatened by development and non-native plants; most of its historical habitat is heavily urbanized.

California satintail (*Imperata brevifolia*)

Status: California satintail has a CRPR 2.1. This species is not federally or State listed as threatened or endangered.

General Distribution: California satintail occurs throughout the southwest U.S. at elevations below 4,000 feet. In California, it is known from only four extant occurrences, in Ventura, Los Angeles, and San Bernardino counties.

Distribution in the Study Area: Suitable habitat is present within the Vegetation Study Area but it was not detected during recent surveys and is not known from the area.

Habitat and Habitat Associations: Meadows and seeps within chaparral, coastal scrub, and Mojavean desert scrub communities.

Natural History: California satintail is a perennial grass that blooms from September to May.

Threats: Agriculture and development are threats to this species (CNPS, 2012).

Ocellated Humboldt lily (*Lilium humboldtii* ssp. *ocellatum*)

Status: Ocellated Humboldt lily has a CRPR of 4.2 and is a U.S. Forest Service Watch List species. This species is not federally or State listed as threatened or endangered.

General Distribution: It grows in shaded riparian woodlands of the Coast Ranges, Peninsular Ranges, and Transverse Ranges, from San Luis Obispo County to San Diego County, and inland to the San Bernardino and San Jacinto Mountains. Its elevation range is from just above sea level to about 6000 feet.

Distribution in the Study Area: This species is known from deep shaded canyons throughout the San Gabriel Mountains but it was not detected during recent surveys and is not known from the area.

Habitat and Habitat Associations: Riparian woodland openings within chaparral, cismontane woodland, coastal scrub, and lower montane coniferous forest communities; generally on gravelly soils within gullies.

Natural History: Depending on elevation, it may flower as early as March, but generally flowers in early to mid-summer in montane habitats.

Threats: This species may be threatened by development and horticultural collecting.

Lemon lily (*Lilium parryi*)

Status: Mojave Indian paintbrush has a CRPR 1B.2 and is designated a U.S. Forest Service Sensitive species. This species is not federally or State listed as threatened or endangered.

General Distribution: Lemon lily can be found in suitable habitats with elevations of 4,000 to 9,000 feet.

Distribution in the Study Area: Known from the upper reaches of the drainage but the project area is below the elevation range for this species and the project area lacks suitable habitats.

Habitat and Habitat Associations: Lemon lily can be found in meadows and seeps within lower and upper montane coniferous forests communities.

Natural History: Lemon lily is a perennial bulb that blooms from July to August.

Threats: Threats to this species include horticultural collecting, water diversion, recreational activities, and grazing (CNPS, 2012).

San Gabriel linanthus (*Linanthus concinnus*)

Status: San Gabriel linanthus has a CRPR 1B.2 and is designated a U.S. Forest Service Sensitive species. This species is not federally or State listed as threatened or endangered.

General Distribution: This species is endemic to the San Gabriel Mountains of southern California, occurring at elevations of 5,000 to 9,200 feet.

Distribution in the Study Area: Known from higher elevation areas of the San Gabriel Mountains, the project area is well below the elevation range of the species.

Habitat and Habitat Associations: San Gabriel linanthus is associated with dry rocky slopes within chaparral and montane coniferous forest communities.

Natural History: San Gabriel linanthus is an annual herb that blooms from April to July.

Threats: This species is threatened by recreational activities and road maintenance.

Sagebrush loeflingia (*Loeflingia squarrosa* var. *artemisiarum*)

Status: Sagebrush loeflingia has a CRPR 2.2. This species is not federally or State listed as threatened or endangered.

General Distribution: Sagebrush loeflingia is widespread at scattered locations in California deserts and more common to the east (Nevada) at elevations of 2,200 to 5,300 feet.

Distribution in the Study Area: The species is known from very few locations in the vicinity of alkali flats to the north of the project area. Poor quality habitat was observed at the northern end of the haul roads but it is not expected in the project area.

Habitat and Habitat Associations: Sagebrush loeflingia is found in sandy soils (dunes) in Great Basin scrub and Sonoran desert scrub.

Natural History: It is an annual herb, flowering in April or May, depending on rainfall. Like most desert annuals, it may not germinate at all during drought years.

Threats: This species may be threatened by grazing and vehicles.

Peirson's lupine (*Lupinus peirsonii*)

Status: Peirson's lupine has a CRPR 1B.3 and is designated a U.S. Forest Service Sensitive species. This species is not federally or State listed as threatened or endangered.

General Distribution: This species is known only from the San Gabriel Mountains, at elevations of 3,200 to 8,200 feet.

Distribution in the Study Area: This species is not known from the project vicinity but it is known from the upper reaches of the watershed, could be present within the vegetation study area as a wash-down waif species.

Habitat and Habitat Associations: Peirson's lupine occurs on gravelly or rocky slopes within Joshua tree woodland, lower and upper montane coniferous forest, and pinyon and juniper woodland communities.

Natural History: This species is a perennial herb that blooms from April to May.

Threats: This species may be threatened by development in the San Gabriel Mountains.

Davidson's bush-mallow (*Malacothamnus davidsonii*)

Status: Davidson's bush-mallow has a CRPR 1B.2. This species is not federally or State listed as threatened or endangered.

General Distribution: Its geographic range is the western margin of the San Gabriel Mountains and San Fernando Valley (Allan et al., 1995) and reportedly from the central coast ranges (Monterey and San Luis Obispo Counties; Tibor, 2001); between about 600 and 2,800 feet elevation.

Distribution in the Study Area: There are very few records of this species within the general vicinity of the project area.

Habitat and Habitat Associations: Davidson's bush-mallow occurs in chaparral, coastal sage scrub, cismontane woodland, riparian woodland, and open sandy alluvial benches and washes.

Natural History: Davidson's bush-mallow is a shrub that flowers in summer (June - September) but can be identified without flowers, by characteristics of its stems and leaves.

Threats: In Los Angeles County, this species may be threatened by urbanization (CNPS, 2012).

Robbins' nemacladus (*Nemacladus secundiflorus* var. *robbinsonii*)

Status: Robbins' nemacladus has a CRPR 1B.2. This species is not federally or State listed as threatened or endangered.

General Distribution: Known occurrences of this species have been recorded as far north as San Benito Canyon, and as far south as the San Gabriel Mountains, at elevations of 875 to 4250 feet.

Distribution in the Study Area: The subspecies is known from a single location in the San Gabriel Mtns, east of the Project Area. No suitable habitat is present.

Habitat and Habitat Associations: This species can be found in openings in chaparral and foothill grasslands.

Natural History: Robbins' nemacladus is an annual herb that blooms from April through June.

Threats: Road maintenance and widening may be a threat to this species (CNPS, 2012).

Woolly mountain-parsley (*Oreonana vestitia*)

Status: Woolly mountain parsley has a CRPR 1B.3 and is designated a U.S. Forest Service Sensitive species. This species is not federally or State listed as threatened or endangered.

General Distribution: Woolly mountain-parsley occurs at elevations of 6,500 to 11,500 feet in the San Gabriel and San Bernardino mountains, as well as near Walker Pass.

Distribution in the Study Area: This species is not known from the project vicinity and the project area is well below the elevation range of this species.

Habitat and Habitat Associations: This species grows along ridge tops and on rocky soils such as dry gravel or talus in lower and upper montane coniferous forest and subalpine coniferous forest.

Natural History: Woolly mountain-parsley is a perennial herb that blooms from March to September.

Threats: Threats to this species include foot traffic and recreational activities within its habitat (CNPS, 2012).

Rock Creek broomrape (*Orobanche valida* ssp. *valida*)

Status: Rock Creek broomrape has a CRPR 1B.2 and is designated a U.S. Forest Service Sensitive species. This species is not federally or State listed as threatened or endangered.

General Distribution: In California, this species has occurs in the San Gabriel and the Topatopa Mountains, at elevations of 4,000 to 7,000 feet.

Distribution in the Study Area: This species is not known from the project vicinity and the project area is below the elevation range of this species.

Habitat and Habitat Associations: Rock Creek broomrape grows on granitic soils within chaparral and pinyon and juniper woodland communities.

Natural History: Rock Creek broomrape is a parasitic, perennial herb that blooms from May through July.

Threats: This species may possibly be threatened by non-native plants and recreational activities (CNPS, 2012).

Mason's neststraw (*Stylocline masonii*)

Status: Mason's neststraw is a federal species of concern and has a CRPR 1B.1.

General Distribution: Mason's neststraw is known only from the southern San Joaquin Valley and adjacent inner coastal ranges (Morefield, 1992) and the desert slopes of the Liebre Mountains in Los Angeles County (Ross and Boyd, 1996), between 300 and 1300 feet in elevation (and rarely to almost 4000 feet).

Distribution in the Study Area: This species is not known from the project vicinity but suitable habitat is present.

Habitat and Habitat Associations: Mason's neststraw occurs in open, dry sandy soils in juniper woodland or saltbush scrub vegetation.

Natural History: Mason's neststraw is a diminutive ephemeral annual herb that flowers between March and May.

Threats: A major threat to Mason's neststraw is disturbances from land use conversion.

Greata's aster (*Symphyotrichum greatae*)

Status: Greata's aster has a CRPR 1B.3. This species is not federally or State listed as threatened or endangered.

General Distribution: Its geographic range is the Liebre and San Gabriel Mountains, between about 1000 and 6600 feet elevation.

Distribution in the Study Area: Greata's aster is known from the upper watershed and although the habitat in the project area is not ideal, it has some potential to occur.

Habitat and Habitat Associations: Greata's aster generally occurs along streams, near springs, or where ground water nears the surface in chaparral, woodlands, and lower montane forests.

Natural History: This species is a tall, perennial herb with daisy-like flowers, which blooms from June through October.

Threats: Greata's aster is threatened by recreational activities, trail maintenance, and non-native plants (CNPS, 2012).

Wildlife With the Potential to Occur

Invertebrates

Trask shoulderband snail (*Helminthoglypta traskii*)

Status: The trask shoulderband snail is considered a CDFW Special Animal. This taxon is not federally or State listed as threatened or endangered.

General Distribution: This snail is a southern California endemic, known from Ventura, Los Angeles, Orange, and San Diego Counties (Magney, 2005).

Distribution in the Study Area: Although there are no known records from the Study Area, the Study Area is located within the known geographic distribution for this species. Suitable habitat occurs throughout the Study Area. All areas of suitable habitat should be considered potentially occupied.

Habitat and Habitat Associations: Trask shoulderband snails are terrestrial and occur in a variety of habitats, including coastal sage scrub, chaparral, oak woodland, and riparian woodland.

Natural History: Haplotrema is a genus of predatory, air-breathing terrestrial snails. The shells of these snails vary in size from relatively small to medium and usually consist of a low, flattened spire and very wide umbilicus. The structure of the radula, or teeth, is unusual in this genus. The haplotrematids have fewer cusps than most snails, but they are considerably elongated (hence the name "lancetooth"), suitable for predatory behavior. The known diet of these snails consists entirely of other terrestrial mollusks (Pilsbry, 1946).

Members of the genus *Helminthoglypta* are air-breathing, terrestrial snails. Shells are relatively medium to large in size, with no apertural teeth, but usually with a reflected apertural lip. These snails possess a single dart apparatus with one stylophore (dart sac) and two mucus glands which are utilized to create love darts. Love darts, shaped in many distinctive ways which vary considerably between species, are hard, sharp, calcareous or chitinous darts that are used as part of the sequence of events during courtship before actual mating takes place.

Threats: There are no identified threats to these species.

San Emigdio blue butterfly (*Plebulina emigdionis*)

Status: The San Emigdio blue butterfly is designated by CDFW as a California Special Animal. This taxa is not federally or State listed as threatened or endangered.

General Distribution: The San Emigdio blue butterfly is restricted to southern California in lower Sonoran and riparian habitats from the Owens Valley south to the Mojave River, and west to northern Ventura and Los Angeles Counties. The primary location where this species has been collected is along the Mojave River near Victorville, but isolated colonies have been reported in Bouquet and Mint canyons near Castaic, in canyons along the north side of the San Gabriel Mountains near the desert's edge, and in arid areas south of Mount Abel near San Emigdio Mesa (Emmel and Emmel, 1973; Murphy, 1990).

Distribution in the Study Area: There are no known recent records for this species in the Study Area. The Study Area is located within the known geographic distribution for this species. Suitable habitat occurs within limited portions of the Study Area.

Habitat and Habitat Associations: This butterfly can be locally abundant in association with its primary host plant, four-wing saltbush (*Atriplex canescens*), but has also been observed in association with quail brush (*A. lentiformis*).

Natural History: Although its primary host plant is widespread throughout the western United States, the distribution of the San Emigdio blue butterfly is much more localized, suggesting that other factors may determine habitat suitability (Murphy, 1990). For example, habitat suitability may, at least in part, be attributed to a suspected symbiotic relationship with at least one ant species, *Formica pilicornis* (Ballmer and Pratt, 1991). These ants presumably extract droplets containing glucose and amino acids from the nectary glands of San Emigdio blue butterfly larvae and provide the butterfly larvae protection from predators.

San Emigdio blue butterfly adults are active from late April to early September. The species can have up to three broods per year, with the first brood generally occurring in late April to May, the second brood in late June to early July, and the third brood in August to early September (Emmel and Emmel, 1973). Adults are generally observed perching on their host plant or other plants in the immediate vicinity, and nectaring on nearby flowers.

Threats: The San Emigdio blue butterfly has a limited distribution and often occurs in small, isolated colonies. These characteristics make colonies vulnerable to direct and indirect habitat disturbance, given the limited extent of occupied habitat and limited potential for recolonization. Many colonies in the Mojave Desert and Owens Valley are isolated from anthropogenic disturbances, but other colonies found closer to growing urban areas may be situated near major roads, railroad tracks, and other developments, which may contribute to further decline.

Amphibians

Arroyo Toad (*Anaxyrus californicus*)

Status: The arroyo toad is listed as federally endangered by the USFWS and is a CDFW Species of Special Concern. This species is considered a Forest Service Sensitive Species.

General Distribution: The distribution of arroyo toads historically extended from the upper Salinas River system in San Luis Obispo County south into coastal Baja California (Jennings and Hayes, 1994). Adults are primarily nocturnal and usually active between the first major rains in January and February to early August (Cunningham, 1962). After males emerge from stream terrace over-wintering sites, they precede females to breeding pools and call nightly from February or March through July (Holland and Goodman, 1998).

Distribution in the Study Area: Occurrences of this species is well documented within the Study Area. Most recently, arroyo toads were detected south of Rocky Point during focused surveys conducted in 2011. The Study Area is located within the known geographic distribution for this species (CDFG, 2008). Suitable habitat occurs in the southern extent of the Study Area within the confines of Littlerock Creek, areas of Littlerock Creek upstream of the Study Area, and within Santiago Creek. This species has the potential to move into the Reservoir area as the water level recedes. All areas of suitable habitat are considered potentially occupied however this species has not been detected below Rocky Point as of 2014.

Habitat and Habitat Associations: Arroyo toads have one of the most specialized breeding habitat requirements of any amphibian in California. Adults require overflow pools adjacent to the inflow channel of streams that are generally 3rd order or greater and generally free of predators. Normally, shallow pools with sandy or gravelly bottoms surrounded by little woody vegetation are preferred. However, Aspen has observed this species breeding in flooded pools and along the margins of the reservoir above Rocky Point. Regular disturbance in the form of flooding is required to maintain areas of sparsely vegetated, sandy stream channels and terraces, which are used by adults and subadults for foraging and burrowing (USFWS, 2001). Outside the breeding season, arroyo toads use a wide range of habitats in both upland (to a distance of at least 3,740 feet from the upland-riparian ecotone) and riparian areas (Holland and Sisk, 2001). Upland habitats used by arroyo toads include coastal sage scrub, chaparral, oak woodland, grassland, riparian, and agricultural habitats (Griffin, 1999; USFWS, 2001).

Natural History: The arroyo toad is a medium-sized toad, and adults range from 2.2 to 2.6 inches in length (USFWS, 1999). Dorsal coloration ranges from cream to light gray to light greenish-gray. Formerly considered a subspecies of the southwestern toad (*B. microscaphus*), the arroyo toad was elevated to full species status by Gergus (1998). Arroyo toads typically begin migrating to breeding sites in February or March, and migrations continue through July (Holland and Goodman, 1998). Males produce a trilling call from suitable breeding sites along the stream to attract females. When a female approaches, the male clasps the female across the abdomen (amplexus). The female arroyo toad then deposits 2,000 to 10,000 eggs in two long strands that are fertilized externally by the amplexic male (Sweet 1991 in Jennings and Hayes, 1994). Larvae require 65 to 85 days to complete metamorphosis (Jennings and Hayes, 1994; Holland and Goodman, 1998), at which time they are approximately 0.5 to 0.9 inches in length (Holland and Goodman, 1998). Even newly metamorphic individuals are able to burrow into loose sand. Juveniles initially remain near the natal pool until reaching a length of about 1.2 inches, when they may begin dispersing into adjacent riparian vegetation and become nocturnal (Jennings and Hayes, 1994; Holland and Goodman, 1998). Sexual maturity is typically attained in 2 years, though males can reach maturity in one year under favorable environmental conditions (Jennings and Hayes, 1994).

Jennings and Hayes (1994) stated that the arroyo toad has been extirpated from 76 percent of its total historic range in the United States (which is limited to California). They cite loss of habitat to agriculture and urbanization, changes to the hydrological regime in streams and rivers within their historic range, and predation from introduced aquatic species as significant factors in the decline of the arroyo toad. Those and other factors, such as human use and disturbance in and near aquatic habitats (e.g., campgrounds, off-road vehicle use), placer mining, and cattle grazing are threats to remaining populations (Jennings and Hayes, 1994). Additionally, fire and drought have produced severe declines in populations that are already stressed (Jennings and Hayes, 1994).

Threats: Major threats to this species include the direct loss of aquatic, riparian, and upland habitat, alteration of natural flow regimes, water pollution, and the introduction of exotic predators. Invasion of

exotic plant species can also degrade arroyo toad habitat by altering natural flow regimes (USACE and CDFG, 2010). In the project area threats include non-native fish and illegal OHV activity.

Mountain (foothill) yellow-legged frog (*Rana boylei*)

Status: Mountain yellow-legged frog is a CDFW Species of Special Concern. This species is not federally or State listed as threatened or endangered.

General Distribution: Range includes Pacific drainages from the upper reaches of the Willamette River system, Oregon (west of the Cascades crest), south to the upper San Gabriel River, Los Angeles County, California, including the Coast Ranges and Sierra Nevada foothills in the United States (Stebbins, 2003). The species occurred at least formerly in a disjunct location in northern Baja California. [Natureserve, 2012]

Distribution in the Study Area: Although suitable habitat occurs within portions of the Study Area, it is outside the known range of this subspecies.

Habitat and Habitat Associations: In the mountains of southern California, inhabits rocky streams in narrow canyons and in the chaparral belt from 984 ft. to over 12,000 ft. in elevation. [CaliforniaHerps, 2011]

Natural History: This small frog differs from the related red-legged frog in having yellow on its hind limbs and having no well-developed dorsolateral folds (Natureserve, 2012). Most often found in or close to water and preys on a variety of terrestrial and aquatic invertebrates with mating and egg laying activities taking place from March – May (CaliforniaHerps, 2011).

Threats: Primary threats to this species include predation by non-native amphibians and fish, cattle grazing, off highway vehicle use, excessive flooding and poor water quality.

Western spadefoot (*Spea hammondi*)

Status: The western spadefoot toad is a CDFW Species of Special Concern. This species is not federally or State listed as threatened or endangered.

General Distribution: The western spadefoot toad is endemic to California and northern Baja California. The species ranges from the north end of California's great Central Valley near Redding, south, east of the Sierras and the deserts, into northwest Baja California (Jennings and Hayes, 1994; Stebbins, 2003; all as cited in USACE and CDFG, 2010).

Distribution in the Study Area: There are no known records for this species in the Study Area within a 15 mile radius. The Study Area is located just outside the known geographic distribution for this species. Pockets of suitable habitat occur within the Study Area.

Habitat and Habitat Associations: Although the species primarily occurs in lowlands, it also occupies foothill and mountain habitats. Within its range, the western spadefoot toad occurs from sea level to 1,219 meters (4,000 feet) AMSL, but mostly at elevations below 910 meters (3,000 feet) AMSL (Stebbins, 2003; as cited in USACE and CDFG, 2010). Holland and Goodman (1998) report that riparian habitats with suitable water resources may also be used. The species is most common in grasslands with vernal pools or mixed grassland/coastal sage scrub areas (Holland and Goodman, 1998; as cited in USACE and CDFG, 2010).

Natural History: The western spadefoot toad is almost completely terrestrial, remaining underground eight to 10 months of the year and entering water only to breed (Jennings and Hayes, 1994; Holland and

Goodman, 1998; Storey *et al.*, 1999; all as cited in USACE and CDFG, 2010). The species aestivates in upland habitats near potential breeding sites in burrows approximately one meter in depth (Stebbins, 1972) and adults emerge from underground burrows during relatively warm rainfall events to breed. While adults typically emerge from burrows from January through March, they may also emerge in any month between October and April if rain thresholds are met (Stebbins, 1972; Morey and Guinn, 1992; Jennings and Hayes, 1994; Holland and Goodman, 1998; all as cited in USACE and CDFG, 2010).

Eggs are deposited in irregular small clusters attached to vegetation or debris (Storer, 1925; as cited in USACE and CDFG, 2010) in shallow temporary pools or sometimes ephemeral stream courses (Stebbins, 1985; Jennings and Hayes, 1994; all as cited in USACE and CDFG, 2010) and are usually hatched within six days. Complete metamorphosis can occur rapidly, within as little as three weeks (Holland and Goodman, 1998; as cited in USACE and CDFG, 2010), but may last up to 11 weeks (Burgess, 1950; Feaver, 1971; Jennings and Hayes, 1994; all as cited in USACE and CDFG, 2010).

Western spadefoot toads likely do not move far from their breeding pool during the year (Zeiner *et al.*, 1988; as cited in USACE and CDFG, 2010), and it is likely that their entire post-metamorphic home range is situated around a few pools. However, opportunistic field observations indicate that they readily move up to at least several hundred meters from breeding sites (NatureServe, 2012).

Threats: Loss of aquatic and adjacent upland habitats supporting the life cycle of the western spadefoot toad is a primary threat to this species, but other factors related to urban development probably are contributing to this species' decline.

Coast Range newt (*Taricha torosa torosa*)

Status: The Coast Range newt is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The Coast Range newt occurs along the coast ranges of California, from Mendocino County south to Los Angeles County and disjunctly south to the Cuyumaca Mountains in San Diego County (NatureServe, 2012). This subspecies has also been recorded along the southern Sierra Nevada from Tulare County to Kern County (Kuchta and Tan, 2006).

Distribution in the Study Area: Suitable habitat occurs onsite. Nearest recorded occurrence is approximately 14.5 miles southeast of the Study Area in the west fork of Bear Creek.

Habitat and Habitat Associations: This subspecies breeds in ponds, reservoirs, and streams. Terrestrial adults occupy various adjacent upland habitats, including grasslands, woodlands, and forests (NatureServe, 2012).

Natural History: The Coast Range newt belongs to the genus *Taricha*, whose members are readily distinguishable from all other western salamanders by a distinctive tooth pattern, lack of costal grooves, and rough skin (except in breeding males) (Stebbins, 2003). Migration towards suitable breeding grounds usually occurs at night following the first rains in the fall (CDFG, 2008). Upon arriving at breeding sites, adults become aquatic and may remain at these sites for several weeks. Breeding typically occurs between December and May with optimal peaks between February and April (NatureServe, 2012). Adults migrate back to subterranean refuges during the spring and remain at these aestivation sites through the summer. Larvae normally transform in the summer or fall, or when water dries up, of their first year (CDFG, 2008). Metamorphosed individuals feed on earthworms, snails, slugs, sow bugs, and various other invertebrates. Some adults, especially females may consume conspecific eggs. Larvae eat small aquatic organisms and decomposing organic material (Stebbins, 1951).

Threats: This subspecies has suffered marked population declines likely due to the introduction of exotic predators, including green sunfish (*Lepomis cyanellus*), mosquito fish, and crayfish (*Procambarus* sp.) (Stebbins, 2003).

San Gabriel Mountains slender salamander (*Batrachoseps gabrieli*)

Status: The San Gabriel Mountains slender salamander is a U.S. Forest Service Sensitive Species. This taxon is not federally or State listed as threatened or endangered.

General Distribution: This species is known from select localities in the San Gabriel Mountains and the Mt. Baldy area of Los Angeles County and the western end of the San Bernardino Mountains in San Bernardino Co., with an elevation range of 1,200 -5,085 feet (Stebbins, 2003).

Distribution in the Study Area: The San Gabriel slender salamander is not known to occur in Study Area but could potentially utilize Littlerock Creek and adjacent riparian areas. The Study Area is outside of the known range of this species but it is known from the portions of the San Gabriel Mountains to the south of the Study Area.

Habitat and Habitat Associations: This species occurs on talus slopes surrounded by a variety of conifer and montane hardwood species, including bigcone spruce, pine, white fir, incense cedar, canyon live oak, black oak, and California laurel (Wake, 1996; Stebbins, 2003).

Natural History: Known to seek cover in cavities below talus rocks and under logs. Because of the need for moisture, near-surface activity is probably limited to a few winter and early spring months (Wake, 1996). Summer and fall drought probably cause individuals to retreat deep into the talus slope (Wake, 1996).

Threats: Habitat degradation is the main threat to this species.

Reptiles

Coastal western whiptail (*Aspidoscelis tigris stejnegeri*)

Regulatory Status: The coastal western whiptail is a CDFW Special Animal.

Range and Distribution: This subspecies is found in coastal southern California, mostly west of the Peninsular Ranges and south of the Transverse Ranges. Its range extends north into Ventura County and south to Baja California.

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic distribution for this species (CDFG, 2008), and suitable habitat is present. This species was observed within a sandy drainage west of the Reservoir during surveys conducted in 2012.

Habitat Requirements and Natural History: The coastal western whiptail occurs in a variety of habitats, including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, mixed conifer, juniper, chamise-redshank chaparral, mixed chaparral, desert scrub, desert wash, alkali scrub, and annual grasslands. This species is most commonly associated with areas of dense vegetation, but are also found around sandy areas along gravelly arroyos or washes (Stebbins, 2003).

The coastal western whiptail is a subspecies of the western whiptail (*A. tigris*). It is characterized by a jerking gait and nearly constant movement when active. The reproductive season generally occurs between May and August; however, this may vary depending on local conditions. Generally, a single clutch of eggs is laid each year (Pianka, 1970). Coastal western whiptails forage actively, hunting a

wide variety of ground-dwelling invertebrates, including grasshoppers, ants, beetles, termites, and spiders (Stebbins, 2003). The diet may change seasonally to reflect prey abundance and availability (Vitt and Ohmart, 1977). This species is generally active in the morning, but may be active throughout the day under cloudy conditions (Vitt and Ohmart, 1977).

Threats: There are no identified threats to this species.

Silvery legless lizard (*Anniella pulchra*)

Regulatory Status: The silvery legless lizard is a CDFW Species of Special Concern and a Forest Service Sensitive Species.

Range and Distribution: The silvery legless lizard occurs from Contra Costa County, California, south through the Coast, Transverse, and Peninsular Ranges; through parts of the San Joaquin Valley; and, along the western edge of the southern Sierra Nevada and western edge of the Mojave Desert (Jennings and Hayes, 1994). Its reported elevation range extends from sea level to approximately 5,700 feet in the Sierra Nevada foothills, but most historic localities along the central and southern California coast are below 3,500 feet (Jennings and Hayes, 1994). This fossorial species is rarely seen and may be more abundant than it appears.

Potential for Occurrence within the Study Area: The Study Area is located within the known geographic range for this species (CDFG, 2008), and suitable habitat is present within limited portions of the Study Area. During surveys conducted in April 2012, one individual was observed, after a light rain, under a woodpile adjacent to the Reservoir.

Habitat Requirements and Natural History: The silvery legless lizard requires sandy or loose loamy soils under sparse vegetation for burrowing and is strongly associated with soils that contain high moisture content. It has been found in beach, chaparral, and pine-oak woodland habitat, and sycamore, cottonwood, or oak riparian habitat on stream terraces. It is most common in coastal dune, valley-foothill, chaparral, and coastal scrub habitats (Zeiner *et al.*, 1988).

The silvery legless lizard is a member of the family Anniellidae, commonly known as North American legless lizards. The silvery, gray, or beige dorsal side of this subspecies is separate from the yellow ventral side by a dark line (Stebbins, 2003). Little is known about specific habitat requirements for courtship and breeding (CDFG, 2008). Breeding occurs in early spring through July. The gestation period lasts for approximately four months (Jennings and Hayes, 1994). Live young are born in September, October, or occasionally as late as November, with litter size ranging from one to four, but two is most common (Stebbins, 1954). Soil moisture is essential for the subspecies; individuals will die if unable to reach a moist substrate (Stephenson and Calcarone, 1999). Silvery legless lizards have a relatively low thermal preference, allowing for active behavior on cool days, early morning, and even at night during warmer periods (Bury and Balgooyen, 1976). This subspecies typically forages at the base of shrubs or other vegetation either on the surface or just below the surface in leaf litter or sandy soils. The diet consists of insect larvae, small adult insects, and spiders (Stebbins, 1954).

Threats: The subspecies has been extirpated from approximately 20 percent of its known historical range (Lind, 1998a). Potential threats to local populations include wildfires that destroy desert shrub habitat.

Southwestern pond turtle (*Actinemys marmorata pallida*)

Status: The southwestern pond turtle is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: This subspecies occurs from northwestern Baja California north through western California to the central region of the state, where it intergrades with the northwestern pond turtle (*C. m. marmorata*) (Seeliger, 1945; Bury, 1970).

Distribution in the Study Area: This species was observed within the Study Area (above and below the Reservoir) during surveys conducted in 2012. The Study Area is located within the known geographic distribution for this species.

Habitat and Habitat Associations: Southwestern pond turtles inhabit permanent or nearly permanent bodies of water in a wide variety of habitat types. Suitable basking sites, such as partially submerged logs, vegetation mats, or open mud banks are a required element for this subspecies.

Natural History: The southwestern pond turtle is a subspecies of western pond turtle (*C. marmorata*) which represent the only abundant native turtles in California. This species is thoroughly aquatic and it possesses a low carapace typically olive, brown, or blackish in color (Stebbins, 2003). The subspecies usually lays a clutch of 3 to 14 eggs between April and August as females may move overland up to over 300 feet to find suitable nesting sites. Nests have been observed in many soil types from sandy to very hard and soils must be at least four inches deep for nesting (CDFG, 2008). Most activity is diurnal, but some crepuscular and nocturnal behavior has been observed (CDFG, 2008). Southwestern pond turtles feed on aquatic plants, insects, worms, fish, amphibian eggs and larvae, crayfish, and carrion (Stebbins, 2003).

Threats: Western pond turtles are estimated to be in decline across 75-80 percent of their range (Stebbins, 2003). The primary reason for this decline has been attributed to loss of suitable habitat associated with urbanization, agricultural activities, and flood control and water diversion projects (Jennings *et al.*, 1992).

Coast (San Diego) horned lizard (*Phrynosoma coronatum [blainvillii population]*)

Status: The coast (San Diego) horned lizard is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The coast (San Diego) horned lizard's historic range extended from the Transverse Ranges in Kern, Los Angeles, Santa Barbara, and Ventura Counties south through the Peninsular Ranges of southern California and into Baja California, Mexico as far south as San Vicente; however, the current range is much more fragmented (Jennings and Hayes, 1994).

Distribution in the Study Area: This species was documented within a sandy drainage, adjacent to the main access road through the Reservoir, during surveys conducted in 2012. The Study Area is located within the known geographic distribution for this species; suitable habitat occurs in portions of the Study Area.

Habitat and Habitat Associations: The coast (San Diego) horned lizard occurs in a wide variety of habitats throughout its range, though is found primarily in chaparral and mixed chaparral-coastal sage scrub, to stands of pure coastal sage scrub. It is also known to occur in riparian habitats, washes, and most desert habitats. They are occasionally locally abundant in conifer-hardwood and conifer forests.

This species is most common in open, sandy areas where abundant populations of native ant species (e.g., *Pogonomyrmex* and *Messor* spp.) are present.

Natural History: The coast (San Diego) horned lizard is a flat bodied lizard with a wide, oval-shaped body and scattered enlarged pointed scales on the upper body and tail. Coast (San Diego) horned lizards are oviparous and lay one clutch of 6-17 (average 11-12) eggs per year from May through early July (Jennings and Hayes, 1994). Incubation occurs for two months and hatchlings first appear in late July and early August. It is surface active primarily from April to July. This species spends a considerable amount of time basking, either with the body buried and head exposed, or with the entire body oriented to maximize exposure to the sun. Although little is known about longevity in the wild, adults are thought to live for at least eight years (Jennings and Hayes, 1994). They primarily eat native harvester ants (*Pogonomyrmex* spp.) and do not appear to eat invasive Argentine ants that have replaced native ants in much of central and southern California. This species is an opportunistic feeder, and while harvester ants can comprise upwards of 90% of their diet, they will feed on other insect species when those species are abundant (Jennings and Hayes, 1994). Defense tactics used by this species include remaining motionless to utilize its cryptic appearance, only running for the nearest cover when disturbed or touched. Captured lizards puff up with air to appear larger, and if roughly handled, will squirt blood from a sinus in each eyelid (Jennings and Hayes, 1994).

Threats: Though once common throughout much of coastal and cismontane southern California, coast (San Diego) horned lizards have disappeared from much of their former range. Their population decline is mainly attributed to habitat loss due to urbanization and agricultural conversion. The introduction of non-native Argentine ants (*Iridomyrmex humilis*), which are inedible to horned lizards and tend to displace native carpenter and harvester ants, is another factor in their decline.

Two-striped garter snake (*Thamnophis hammondi*)

Regulatory Status: The two-striped garter snake is a CDFW Species of Special Concern and Forest Service Sensitive Species.

Range and Distribution: This species occurs along a continuous range from northern Monterey County south through the South Coast and Peninsular Ranges to Baja California. Isolated populations also occur through southern Baja California, Catalina Island, and desert regions along the Mojave and Whitewater Rivers in San Bernardino and Riverside Counties, respectively (Jennings and Hayes, 1994). This species typically occurs at elevations ranging between sea level and approximately 8,000 feet (Jennings and Hayes, 1994).

Habitat Requirements and Natural History: This species is primarily associated with aquatic habitats that border riparian vegetation and provide nearby basking sites (Jennings and Hayes, 1994). These areas typically include perennial and intermittent streams and ponds in a variety of vegetation communities, including chaparral, oak woodland, and forest habitats (Jennings and Hayes, 1994). During the winter, two-striped garter snakes will seek refuge in upland areas, such as adjacent grassland and coastal sage scrub (Rossman et al., 1996).

After several taxonomic revisions, the two-striped garter snake has been recognized as a separate species where it had previously been considered a subspecies of the western aquatic garter snake (*T. couchii*) (Rossman and Stewart, 1987). This species is usually morphologically distinguished by the lack of a mid-dorsal stripe. The two-striped garter snake breeds from late March to early April and young are typically born between late July and August; however, young have been observed as late as November (Rossman et al., 1996; Jennings and Hayes, 1994). It hibernates during the winter months, but may be

active above ground on warm winter days (Jennings and Hayes, 1994). The mainly aquatic diet of this species consists primarily of fish, fish eggs, and tadpoles and metamorphs of toads and frogs. It will also consume worms and newt larvae (Jennings and Hayes, 1994).

Threats: Lind (1998b) noted that quantity and quality of habitat for the two-striped garter snake is declining throughout much of its range. More than 40 percent of its historic range has been lost (Jennings and Hayes, 1994). Primary factors for the decline of this species in southern California include habitat conversion and degradation resulting from urbanization, construction of reservoirs, and cement-lining of stream channels.

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic distribution for this species, and suitable habitat is present. Two-striped garter snake was documented within aquatic habitat upstream and downstream from the Reservoir during surveys conducted in 2012.

Coastal rosy boa (*Charina trivirgata roseofusca*)

Status: The rosy boa is designated by CDFW as a California Special Animal. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The rosy boa in California ranges from Los Angeles, eastern Kern, and southern Inyo counties, and south through San Bernardino, Riverside, Orange, and Diego counties (Spiteri, 1988; Stebbins, 2003; Zeiner *et al.*, 1988). The species occurs at elevations from sea level to 5,000 feet AMSL in the Peninsular and Transverse mountain ranges. Within its range in southern California, the rosy boa is absent only from the southeastern corner of California around the Salton Sea and the western and southern portions of Imperial County (Zeiner *et al.*, 1988).

Distribution in the Study Area: Suitable habitat is present within the Study Area outside the perimeter of the Reservoir. This species was reported approximately 6 miles west of the Study Area in June 2009 along a transmission line corridor.

Habitat and Habitat Associations: The rosy boa inhabits rocky shrubland and desert habitats and is attracted to oases and streams but does not require permanent water (Stebbins, 2003). In coastal areas, the rosy boa occurs in rocky chaparral-covered hillsides and canyons, while in the desert it occurs on scrub flats with good cover (Zeiner *et al.*, 1988).

Natural History: Rosy boas are primarily nocturnal but may be active at dusk and rarely in the daytime (Stebbins, 2003). Rosy boas are active between April and September (Holland and Goodman, 1998). The rosy boa may aestivate in the hottest months and hibernate in the coolest months of the year, remaining inactive in burrows or under surface debris (NatureServe, 2012). There is little information on the foraging habits or prey species for the rosy boa. Holland and Goodman (1998) and Stebbins (2003) indicate that this species preys upon small mammals (including pocket mice (*Chaetodipus* and *Perognathus* spp.) and young woodrats), reptiles, amphibians, and birds.

Threats: This species may be threatened with local extirpation in coastal regions of southern California resulting from development-related habitat fragmentation and isolation of populations. The species is noted to search black top roads for prey (Stebbins, 2003), making it vulnerable to road mortality. Other potential threats related to urban development include the use of rodenticides near open space, which could result in fewer mammal burrows that provide refugia and a reduced prey base, collecting of snakes (the rosy boa is popular in the pet trade (NatureServe, 2012)), and habitat degradation (*e.g.*, trampling of vegetation and introduction of exotic species).

San Bernardino ringneck snake (*Diadophis punctatus modestus*)

Status: The San Bernardino ringneck snake is designated by CDFW as a California Special Animal. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The ringneck snake is widespread in California and is absent only from large portions of the Central Valley, high mountains, desert, and areas east of the Sierra–Cascade crest (Zeiner *et al.*, 1988). Currently there are six recognized subspecies in California occurring at elevations ranging from sea level to 2,150 meters (7,050 feet) AMSL (Zeiner *et al.*, 1988). The San Bernardino ringneck snake subspecies is found along the southern California coast from the Santa Barbara area south to northern San Diego County, and inland into the San Bernardino Mountains.

Distribution in the Study Area: Suitable habitat occurs within the Study Area, and this species was detected during surveys.

Habitat and Habitat Associations: The ringneck snake is found in moist habitats, including woodlands, hardwood and conifer forest, grassland, sage scrub, chaparral, croplands/hedgerows, and gardens (NatureServe, 2012; Stebbins, 2003).

Natural History: A fair amount of information is available for the full species ringneck snake (*Diadophis punctatus*), while less information is available for the subspecies San Bernardino ringneck snake (*D. p. modestus*). Therefore, much of this discussion is based on the life history of the full species ringneck snake, with expected similarities occurring in behaviors and habitat associations with the San Bernardino ringneck snake subspecies.

During the day in the spring and summer, ringneck snakes are typically found under surface objects (Holland and Goodman, 1998; Zeiner *et al.*, 1988), with crepuscular (dawn and dusk) and some nocturnal activity observed during the summer (Holland and Goodman, 1998; Zeiner *et al.*, 1988). Ringneck snakes may aestivate during the heat of summer and are generally inactive and hibernate during the winter (NatureServe, 2012).

Threats: Habitat degradation is the main threat to San Bernardino ringneck snakes.

Desert Tortoise (*Gopherus agassizii*)

Status: The desert tortoise is a state and federally listed threatened species.

General Distribution: The Mojave desert tortoise occurs throughout most of the Mojave and Colorado Deserts in southern California, southern Nevada, and the southwestern tip of Utah from below sea-level to an elevation of 7,300ft (USFWS, 2011).

Distribution near Project site: While no nearby desert tortoise records were found during the literature review, tortoises may occur at low density in the desert habitats surrounding the City of Palmdale. This species is not expected to occur at the Reservoir or the 47th Street East sediment disposal site.

Habitat and Habitat Associations: Desert tortoise habitats include many landforms and vegetation types of the Mojave and Sonoran deserts, except the most precipitous slopes. Friable soils, such as sand and fine gravel, are important for burrow excavation and nesting, and the availability of suitable soils is a limiting factor to desert tortoise distribution.

Natural History: Desert tortoises spend much of their lives in burrows. Tortoises are long-lived and grow slowly. They require 13 to 20 years to reach sexual maturity. Their reproductive rates are low, though their reproductive lifespan is long. Mating may occur during spring and fall.

Identified Threats: Threats to the desert tortoise include degradation and loss of habitat (including through the spread of nonnative, invasive plants), disease, raven predation on juvenile tortoises, collection for the pet trade, and direct mortality and crushing of burrows by off-highway vehicles.

San Bernardino mountain kingsnake (*Lampropeltis zonata parvirubra*)

Status: The San Bernardino mountain kingsnake is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The San Bernardino mountain kingsnake is only known to occur within the San Bernardino Mountains and San Jacinto Mountains bioregions above 4,500 feet (Fisher and Case, 1997).

Distribution in the Study Area: While suitable habitat occurs within the Study Area it is outside of the known geographic distribution for this species.

Habitat and Habitat Associations: San Bernardino mountain kingsnakes are restricted to rock outcrops, talus, and steep shady canyons within coniferous and mixed coniferous, hardwood, or riparian woodlands and other edge habitats when associated with coniferous habitat.

Natural History: This species is normally diurnally and crepuscularly active from mid-March to mid-October at lower elevations with a reduced period at higher elevations (Newton and Smith 1975; Zeiner et al. 1988; Holland and Goodman, 1998). Their diet is known to include lizards, lizard eggs, smaller snakes, nestling birds and eggs, and small mammals.

Threats: Poaching is a major threat to this species. Firewood harvesting is another threat, as collection of fallen wood removes the ground debris that is a limiting habitat requirement for this species.

Birds

Swainson's hawk (*Buteo swainsoni*)

Status: The Swainson's hawk is state listed as threatened.

General Distribution: Swainson's hawk inhabits grasslands, sage-steppe plains, and agricultural regions of western North America during the breeding season, and winters in grassland and agricultural regions from Central Mexico to southern South America (Zeiner et al., 1990). The North American breeding range extends north from California to British Columbia east of the Sierra Nevada and Cascade Ranges, east to Saskatchewan, and south to northern Mexico. In California, the nesting range is primarily restricted to portions of the Sacramento and San Joaquin valleys, northeast California, and the Western Mojave, including the Antelope Valley (Bloom, 1980).

Distribution near the Project site: Swainson's hawk was reported in the CNDDDB 8 miles north of the Project site. This species is a known nester in the Antelope Valley.

Habitat and Habitat Associations: Swainson's hawk breeds primarily in arid interior valleys and high desert with scattered large trees or riparian woodland corridors surrounded by open fields, desert scrub, or agricultural land. It prefers large, flat, open, undeveloped landscapes that include suitable grassland or agricultural foraging habitat and sparsely distributed trees for nesting. In some areas of the Antelope Valley, urban nest sites have been recorded.

Natural History: Nesting Swainson hawk pairs in California are highly traditional in their use of nesting territories and nesting trees. One to four eggs are usually laid in early to mid-April, and incubation continues for 34-35 days until mid-May when young begin to hatch. The brooding period typically

continues through early to mid-July. Swainson's hawks feed primarily on small rodents and typically forage in large fields that support low vegetative cover (to provide access to the ground) and provide the highest densities of prey (Bechard et al., 1990). In agricultural regions, these habitats include fields of hay and grain crops; certain row crops, such as tomatoes and sugar beets; and lightly grazed pasturelands.

Identified Threats: Swainson hawk declines have been attributed to loss of suitable breeding habitat. These birds are also threatened by ingesting pesticide-covered insects.

Occurrence probability near the Project site: This species is known to nest in the Western Antelope Valley. In the region it nests in rural areas adjacent to crops and in Joshua tree woodland. This species has not been documented to nest in dense urban areas. While the Project is located within the Swainson hawk's known range, no suitable breeding and limited foraging habitat is located at the 47th Street East sediment disposal site.

Cooper's hawk (*Accipiter cooperii*)

Regulatory Status: Cooper's hawk is a CDFW Watch List Species that was removed from the Species of Special Concern list in 2008.

Range and Distribution: Cooper's hawk is widespread, occurring throughout much of the United States, southern Canada, and northern Mexico.

Habitat Requirements and Natural History: Cooper's hawk breeds in small and large deciduous, conifer, and mixed woodlands. It also nests in pine plantations and suburban and urban environments (Curtis et al., 2006). In California, this species nests predominately in oaks and pines. It utilizes a variety of habitat types with vegetative cover and often hunts on the edges of wooded areas (Palmer, 1988).

One of three accipiter species in California, the Cooper's hawk is a medium-sized bird adapted to woodlands. This species shows a high degree of sexual dimorphism, with females generally up to one-third larger than males. Eastern and western individuals also differ in size. It generally starts breeding at two years of age and lays one clutch of 3 to 6 eggs from early April to late May (Rosenfield and Bielefeldt, 1993). This species feeds primarily on birds (70 to 80 percent of the diet) (Zeiner et al., 1990a).

Threats: Habitat destruction (including logging and development), pesticide contamination, and shooting have been identified as the primary threats to the Cooper's hawk. In California, breeding populations have increased and expanded into urban areas, and populations are considered stable (Shuford and Gardali, 2008).

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic range for this species and suitable foraging and nesting habitat occurs within portions of the Study Area. A review of online eBird data reports observations of this species at the Reservoir.

Sharp-shinned hawk (*Accipiter striatus*)

Regulatory Status: The sharp-shinned hawk is a CDFW Watch List Species that was removed from the Species of Special Concern list in 2008.

Range and Distribution: This species breeds from central and western Alaska and the greater portion of Canada south to central and south-central California, central Arizona, New Mexico, Texas, northern parts of the Gulf states, and into Mexico (AOU, 1998). Wintering grounds extend from the southern portions of Canada south throughout the United States and Mexico into Central America. In

California, the sharp-shinned hawk breeds throughout the state, including the northern half of the state, and, to a lesser extent, the mountains of southern California (Small, 1994).

Habitat Requirements and Natural History: In California, this species typically nests in coniferous forests, often within riparian areas or on north-facing slopes (Stephenson and Calcarone, 1999). Where conifers are scarce, cottonwoods, poplars, and other tall riparian trees may be used for nest sites (Bent, 1937). Foraging habitat during the breeding season is essentially the same as that chosen for nesting. During the winter, however, males tend to hunt most frequently among hedgerows, field edges and other ecotonal habitats, while females typically hunt in extensive stands of forest or riparian areas (Meyer, 1987).

This species is a small hawk with a pronounced size difference among males and females. Although the sexes are alike in color and pattern, the male is often substantially smaller than the female. This size difference is more evident in this species than most other hawks. The sharp-shinned hawk, which is presumed to be serially monogamous, breeds from April through August with peak breeding activity occurring between late May and July. During this period, the male exhibits undulating courtship flights teamed with high bouts of soaring and calling. Once nesting begins, the male brings food to the female and nestlings until they fledge after roughly 60 days. Fledging is timed to coincide with fledging of prey birds, providing a food supply for young, inexperienced hunters (CDFG, 2008). Although small birds comprise the primary source of food, sharp-shinned hawks also take small mammals, reptiles, amphibians, and insects.

Threats: The primary threat to this species is the loss of suitable habitat as a result of large stand-replacing wildfires.

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic year-round range for this species (CDFG, 2008). Suitable nesting habitat occurs within limited portions of the Study Area; suitable foraging habitat occurs throughout the Study Area. Sharp-shinned hawk was observed in the Study Area during surveys conducted in 2010.

Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)

Regulatory Status: The southern California rufous-crowned sparrow is a CDFW Watch List Species that was removed from the Species of Special Concern list in 2008.

Range and Distribution: The rufous-crowned sparrow is a year-round resident throughout its range. Historically, four of the subspecies of rufous-crowned sparrow bred in coastal California from Mendocino County south through northwestern Baja California Norte (Thorngate and Parsons, 2005). Southern California rufous-crowned sparrow ranges from San Luis Obispo County south to San Diego County (Garrett and Dunn, 1981). This subspecies is increasingly restricted due to urbanization and agricultural development in Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties (Collins, 1999).

Habitat Requirements and Natural History: The southern California rufous-crowned sparrow typically breeds in sparsely vegetated scrubland on hillsides and canyons between 200 and 4,600 feet elevation. This subspecies is often found in coastal sage scrub dominated by California sagebrush, but will also utilize coastal bluff scrub, low-growing serpentine chaparral, and the edges of tall chaparral habitats (Thorngate and Parsons, 2005). It thrives in recently burned habitats, and can be found utilizing these open areas for years (Thorngate and Parsons, 2005).

Natural History: The southern California rufous-crowned sparrow is one of five subspecies of rufous-crowned sparrow that occur in the United States. Twelve additional subspecies occur in Mexico (Collins, 1999). This species nests on the ground and has a typical clutch size of three to four eggs (Thorngate and Parsons, 2005). Nests are well hidden at the base of bushes, grass tussocks, or overhanging rock concealed by vegetation or rock (Thorngate and Parsons, 2005). This species forages at or near the ground in areas of dense grass or herbaceous cover, and is rarely observed foraging in the open. It gleans insects from low shrubs, grasses, and herbaceous vegetation (Thorngate and Parsons, 2005).

Threats: This subspecies is extremely sensitive to edge effects and appears to avoid small fragments of habitat in favor of large tracts away from edges (Thorngate and Parsons, 2005). It is threatened by urbanization and agricultural conversion of habitat (Thorngate and Parsons, 2005).

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic year-round range for southern California rufous-crowned sparrow. Suitable breeding and foraging habitat occurs throughout the Study Area. It was observed within the Study Area during surveys conducted in 2012 and was documented breeding within areas upstream and downstream from the Reservoir.

Great blue heron (*Ardea herodias*)

Regulatory Status: The great blue heron is a CDFW Special Animal.

Range and Distribution: This species is fairly common year-round throughout most of California. Few rookeries are found in southern California, but many are scattered throughout northern California. Knowledge of specific rookery locations is incomplete (Malette, 1972; Belluomini, 1978; Garrett and Dunn, 1981).

Habitat Requirements and Natural History: The great blue heron is most commonly found in or near shallow estuaries and fresh or saline emergent wetlands. However, it can also occur along riverine and rocky marine shores, in croplands, pastures, and in mountains above foothills.

This species is the largest and most widespread heron in North America. It is a large, grayish bird with a long "S"-shaped neck, long legs, and a long, thick bill. It is typically distinguishable by a white crown stripe surrounded by a black plume, extending from behind the eye to the back of the neck. It usually arrives at breeding grounds in February and courtship and nest building begin shortly thereafter. Breeding territories are small, usually including only the nest site and immediately surrounding areas (Cottrille and Cottrille, 1958; Mock, 1976). Secluded groves of tall trees near shallow water are preferred for nesting sites. Feeding areas can occur as far as ten miles away and may be defended vigorously, especially during the non-breeding season (Palmer, 1962; Krebs, 1974; Kushlan, 1976). Although this species will occasionally eat small rodents, amphibians, reptiles, insects, and birds, 75 percent of its diet is fish (Cogswell, 1977). When hunting, the great blue heron stands motionless, or walks slowly, in shallow water, or less commonly, in open fields, and grasps prey with its bill, rarely impaling the intended target. This species typically roosts in secluded, tall trees.

Threats: This species is sensitive to human disturbance near nests, and probably to pesticides and herbicides in nesting and foraging areas (Jackman and Scott, 1975).

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic year-round range for this great blue heron (CDFG, 2008). Suitable rookery habitat occurs within portions of the Study Area and suitable foraging habitat occurs throughout the Study Area. This

species was documented within and downstream from the Reservoir during surveys conducted in 2012.

Costa's hummingbird (*Calypte costae*)

Regulatory Status: The Costa's hummingbird is a CDFW Special Animal. This taxon is not federally or state listed as threatened or endangered.

Range and Distribution: This species breeds in central California, southern Nevada, and southwestern Utah south to Santa Barbara Island, Baja California, and offshore islands, southern Arizona, west-central Mexico, and southwestern New Mexico. Wintering populations occur in southern California and southwestern Arizona south to Sinaloa, Mexico (Terres, 1980; AOU, 1998). Costa's hummingbird occurs as a permanent resident in Ventura County (CDFG, 2008).

Habitat Requirements and Natural History: Costa's hummingbird occurs in more arid habitats than other hummingbirds of California, including desert wash, desert riparian edges, coastal scrub, desert scrub, low-elevation chaparral, and palm oases. This species most commonly occurs along canyons and washes when nesting (NatureServe, 2011).

Costa's hummingbird is the second smallest bird in North America, displaying an iridescent violet crown and gorget down the side of the neck and greenish sides and flanks. This species breeds from March through May in the deserts, and from April through July along the coast (CDFG, 2008). As is usual in hummingbirds, all nesting activities are performed by the female. Nests are located in a wide variety of trees, cacti, shrubs, woody forbs, and sometimes vines, often in proximity to conspecific nests (Bent, 1940). Costa's hummingbird feeds on the flower nectar of various herbaceous and woody plants; however, small insects and spiders are also consumed. During the winter, non-native flowering shrubs may become an important food source (Garrett and Dunn, 1981).

Threats: No persistent threats have been identified for this species.

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic range for Costa's hummingbird and suitable breeding and foraging habitat occurs throughout the Study Area. This species was observed within the Study Area during surveys conducted in 2012 and breeding individuals were confirmed within areas downstream of the Reservoir. All areas of suitable habitat should be considered potentially occupied.

Lawrence's goldfinch (*Carduelis lawrencei*)

Regulatory Status: Lawrence's goldfinch is a CDFW Special Animal and a USFWS Bird of Conservation Concern. This taxon is not federally or state listed as threatened or endangered.

Range and Distribution: Lawrence's goldfinch breeds from the western foothills of the Sierra Nevada and the Coast Ranges in Shasta County south to northern Baja California. The wintering range for this species extends from the coastal slope of the Coast Ranges in southern California to northern Baja California, and from the Lower Colorado River Valley in Needles, California, and east to southern Texas, and south to Sonora, Mexico.

Habitat Requirements and Natural History: This species breeds in a variety of habitats throughout its range in southern California, including mixed conifer-oak forest, blue oak savannah, pinyon-juniper woodland, chaparral, riparian woodland, and desert oases (Garrett and Dunn, 1981; Lehman, 1994; Roberson and Tenney, 1993; Unitt, 1984). However, it prefers xeric open oak woodland bordering chaparral in the upper foothills. Arid, open woodlands with adjacent bushy areas, such as chaparral or

tall weedy fields, characterize typical nesting habitat. This species is often found nesting in proximity to foraging habitat and open water (Davis, 1999).

This small, conspicuous songbird reaches a height of four to five inches and possesses distinctly bright yellow coloration on its breast and wing bars; however, females are much less distinct. The breeding season for this species begins as early as late May and can last into September, with peak activity occurring between late April and August. Nests are typically constructed on the outer branches of trees, particularly oaks (Grinnell and Miller, 1944). Both parents continue to provision the young for five to seven days after fledging, at which time the young join the parents on foraging bouts. Lawrence's goldfinch feeds primarily on seeds of native plant species, particularly fiddleneck (*Amsinckia* spp.) during the spring months, and chamise (*Adenostoma fasciculatum*), mistletoe (*Phoradendron* spp.), coffee berry (*Rhamnus californica*), and annual grasses during other seasons (Davis, 1999). Lawrence's goldfinch often forms large flocks, particularly in winter. However, both males and females of this species will rigorously defend territories from conspecific intruders during the breeding season.

Threats: Recent survey data (1980 to 2000) indicates that there has been a substantial, but not significant, decline in populations of this species across its range. Populations in Arizona and California have been reported as significantly declining (Sauer et al., 1996). However, this species seems to be well adapted to a wide range of woodland habitats and may even thrive, to some extent, from non-intensive human disturbance that increases annual plant populations.

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic range for Lawrence's goldfinch and suitable foraging habitat occurs throughout the Study Area. Suitable breeding habitat is present within portions of the Study Area. This species was observed at the Reservoir and within the southern extent of the Study Area in 2012. All areas of suitable habitat should be considered potentially occupied.

Vaux's swift (*Chaetura vauxi vauxi*)

Regulatory Status: Vaux's swift is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

Range and Distribution: This species breeds from southwestern Canada through the western United States to Mexico, Central America, and northern Venezuela. (Cornell, 2012)

Habitat Requirements and Natural History: Hollow trees are this species' favored nesting and roosting sites (Cornell, 2012). Vaux's swift is the smallest swift in North America. This species constructs a nest of woven twigs held together by its own saliva (Cornell, 2012). Like most swifts, this species is predominantly insectivorous and makes up to 50 trips a day for food when feeding young.

Threats: The primary threat to Vaux's swift is habitat loss.

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic range for Vaux's swift and suitable foraging habitat occurs throughout the Study Area. Suitable breeding habitat is also present within the Study Area. This species was observed within the Study area during surveys conducted in 2012. All areas of suitable habitat should be considered potentially occupied.

Yellow warbler (*Dendroica petechia brewsteri*)

Regulatory Status: The yellow warbler is a CDFW Species of Special Concern. This taxon is not federally or state listed as threatened or endangered.

Range and Distribution: The breeding range for the yellow warbler includes the Pacific coast from the northern limits of the boreal forests in Alaska and Canada south to the southern United States and northern Baja California. The winter range extends from the coasts of northern Mexico to northern South America (Lowther et al., 1999). Although this species is primarily a summer resident in southern California, some small winter populations remain in the lowlands (Garrett and Dunn, 1981).

Habitat Requirements and Natural History: In southern California, this species breeds in riparian woodlands situated within lowlands and canyons (Garrett and Dunn, 1981; Lehman, 1994; Roberson and Tenney, 1993; Unitt, 1984). Suitable habitat typically consists of riparian forests containing sycamores, cottonwoods, willows, and alders (Stephenson and Calcarone, 1999).

There is a considerable morphological variation within the *D. petechia* species. Of the three recognized groups of subspecies, only the “yellow” group breeds in North America. The “yellow” group is further divided into nine subspecies, which are distinguished by slight differences in plumage color and patterns of breast streaking in males (Lowther et al., 1999). The yellow warbler migrates annually between breeding grounds in North America and wintering grounds in the neotropics, and is highly territorial on both breeding and wintering grounds (Lowther et al., 1999). During migration, yellow warblers form flocks and will often join with flocks of other species, including warblers, vireos, and flycatchers. The primary diet of the yellow warbler consists of arthropods, such as bees, wasps, caterpillars, flies, beetles, and true bugs, which are usually gleaned from leaf surfaces. However, this subspecies will occasionally sally to capture prey in flight. Males typically forage higher in trees than females (Lowther et al., 1999).

Threats: Nest parasitism by brown-headed cowbird (*Malothrus ater*) has been implicated as a major cause in population declines of yellow warblers in southern California (Garrett and Dunn, 1981; Stephenson and Calcarone, 1999; Unitt, 1984).

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic range for the yellow warbler and suitable breeding and foraging habitat occurs throughout the Study Area. This species was observed within the Study Area during surveys conducted in 2012 and breeding individuals were confirmed within areas upstream and downstream of the Reservoir. All areas of suitable habitat should be considered potentially occupied.

Bald Eagle (*Haliaeetus leucocephalus*)

Regulatory Status: The bald eagle is state listed as endangered and designated as a Forest Service Sensitive Species.

Range and Distribution: The bald eagle occurs throughout most of North America. Historically, it bred throughout the mountains of coastal California. Currently, breeding populations exist on the Los Padres and San Bernardino National Forests. This species has also been documented in Ventura County at Casitas Lake. The bald eagle has not nested within or adjacent to the Angeles National Forest in Los Angeles County for at least 30 years. However, a bald eagle was sighted in a riparian area on the Tejon Ranch on August 24, 1994 (Bautista and Brown, personal observation.). This species is occasionally seen on or near the Santa Clara/Mojave Rivers Ranger District during the winter, but apparently none are resident birds. The bald eagle is a fairly common winter migrant at a few inland waters in southern California (Zeiner et al., 1990a). The largest wintering population of bald eagles in southern California is at Big Bear Lake in the San Bernardino Mountains. The bald eagle has been successfully reintroduced as a breeding species on Santa Catalina Island after becoming extirpated from the Channel Islands in the 1950s.

Habitat Requirements and Natural History: This species requires large bodies of water, or free flowing rivers with abundant fish, and adjacent snags or other perches (Zeiner et al., 1990a). Perches must be high in large, stoutly limbed trees, on snags or broken-topped trees, or on rocks near water (Zeiner et al., 1990a). The bald eagle is primarily a fish eater; however, it will opportunistically utilize avian and mammalian prey and carrion if readily available, especially in the nonbreeding season (Evans, 1982; Zeiner et al., 1990a). It swoops from hunting perches, or soaring flight, to pluck fish from the water (Evans 1982; Zeiner et al., 1990a). This species roosts communally in winter in dense, sheltered, remote conifer stands (Zeiner et al., 1990a).

The bald eagle is monogamous and first breeds at four to five years of age (Zeiner et al., 1990a). Courtship flights consist of the pair soaring together for long periods at great heights, occasionally locking talons and somersaulting downward several hundred feet (Evans, 1982). Breeding season is February through July, but may start as early as November (Zeiner et al., 1990a). Nests are located 50 to 200 feet above ground, usually below tree crown (Zeiner et al., 1990a), and typically near a permanent water source (Zeiner et al., 1990a). Where suitable nest trees are scarce, nests are placed on ridges, cliffs, and on sea stacks (Evans, 1982). In southern California, nesting most often occurs in large trees near water, but occasionally nests are on cliffs or the ground. Eagle nests are characteristically large, ranging from a minimum of three feet in width and depth to 16 feet deep and 10 feet across; size and shape are determined partly by the supporting branches (Evans, 1982). Clutch size is one to three eggs and incubation usually lasts 34 to 36 days (Evans, 1982; Zeiner et al., 1990a). The semi-altricial young hatch asynchronously (Zeiner et al., 1990a). Fledging occurs at ten to 12 weeks (Evans, 1982).

Occasionally raccoons, bobcats, crows, and, sometimes gulls, prey on eggs and small young, forcing the adults away from the nest (Evans, 1982). Organochlorine (DDE) interferes with normal calcium metabolism, resulting in thin-shelled eggs, which cannot withstand normal incubation (Evans, 1982). Dieldrin, PCBs, and mercury have been linked to embryonic and early chick mortality (Evans, 1982). High concentrations of dieldrin and DDT are known to result in mortality of bald eagles (Evans, 1982).

Bald eagles are considered long-lived, with the oldest wild bird reported near Haines, Alaska at 28 years old (Schempf, 1997). In captivity, bald eagles may live 40 years or more (USFWS, 1999).

Threats: Illegal shooting remains the greatest single known cause of bald eagle mortality (Evans, 1982). Roughly half of all recorded bald eagle deaths are a direct result of shooting (Evans, 1982). Other causes of mortality include impact injuries (usually a result of collision with a power line or transmission tower), electrocution, trapping injuries (eagles caught in "sight bait" sets for fur bearers), automobile or train accidents, and poisoning from contaminated coyotes or other carcasses (Evans, 1982). Territories have been abandoned after disturbance from logging, recreational developments, and other human activities near nests (Zeiner et al., 1990a).

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic range for bald eagle and suitable foraging habitat occurs throughout the Study Area. This species was observed at Littlerock Reservoir in 2007 (L. Welch, District Biologist, personal communication), and within the Reservoir and the southern extent of the Study Area during surveys conducted in 2012.

Summer Tanager (*Piranga rubra*)

Regulatory Status: Summer tanager is a CDFW Species of Special Concern.

Range and Distribution: The summer tanager is found in the eastern and southwestern United States, Central America, and South America, and regularly occurs north of Mexico. It primarily breeds in the eastern United States from New Jersey south to Florida, west to southern Illinois, and south to Texas. It also breeds in portions of New Mexico, Arizona, California, and Baja California. It winters in Central Mexico, south through Central America, and as far south as Bolivia and Brazil.

Habitat Requirements and Natural History: Western populations of summer tanagers occupy riparian woodlands dominated by willows (*Salix* spp.) and cottonwoods (*Populus* spp.) at lower elevations (Robinson, 1996; Rosenberg et al., 1982, 1991), and mesquite (*Prosopis* spp.) and tamarisk (*Tamarix* spp.) habitats at higher elevations (Robinson, 1996). During the winter, this species occurs in open and second-growth habitats within its range, typically below 3,900 feet elevation (Robinson, 1996).

Males begin to arrive at the breeding grounds in April, slightly before the females. Nests are constructed on a large, horizontal limb of a tree, usually cottonwood or willow, within riparian vegetation approximately 10 to 20 feet above the ground (Zeiner et al., 1990a). The nest is constructed in an open-cup shape from dried herbaceous vegetation, and is usually placed among or under leaves (Robinson, 1996).

The summer tanager commonly feeds on bees and wasps, often foraging for larvae from hives and nests (Robinson, 1996). It also feeds on other insects, spiders, and small fruits and berries. It captures flying insects during short sallies from a perch and gleans insects and fruits from leaf and bark surfaces of trees and shrubs (Robinson, 1996).

Threats: There is little specific threat information for the summer tanager. Robinson (1996) describes habitat destruction as the largest effect of human activities on the summer tanager. In the southwest, particularly in southern California and the Colorado River valley, populations of summer tanagers have declined due the loss of riparian willow and cottonwood forest habitat. Nest parasitism by brown-headed cowbirds may also be a factor contributing to declining populations.

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic range for summer tanager and suitable foraging habitat occurs throughout the Study Area. Suitable breeding habitat is also present within the Study Area. This species was observed downstream of the Reservoir during surveys conducted in 2012.

Least Bell's vireo (*Vireo bellii pusillus*)

Status: The least Bell's vireo was listed as federally endangered by the USFWS on May 2, 1986 (51 FR 16474-16482). Critical habitat was designated on February 2, 1994 (59 FR 4845-4867). This taxon is listed as State endangered and considered a USFWS Bird of Conservation Concern.

General Distribution: The least Bell's vireo was historically widespread in riparian woodlands of the Central Valley and low-elevation riverine valleys of California and northern Baja California. However, over 95 percent of historic riparian habitat has been lost throughout its former range, which may have accounted for 60 to 80 percent of the original population throughout the state of California (USFWS, 1986). The current breeding distribution for this subspecies in California is restricted to Kern, San Diego, San Bernardino, Riverside, Ventura, Los Angeles, Santa Barbara, and Imperial Counties.

Distribution in the Study Area: This species was observed within the Study Area during surveys conducted from 2010 – 2012 and breeding individuals were confirmed below the Reservoir. The Study Area is located within the known geographic range for this species and suitable breeding and foraging habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: During the breeding season, least Bell's vireo is a low-elevation riparian obligate that inhabits dense, willow-dominated habitats with lush understory vegetation and in the immediate vicinity of water. Most areas that support viable populations are in early stages of succession where most woody vegetation is between five and ten years old (Franzeb, 1989; Gray and Greaves, 1984).

Natural History: The least Bell's vireo is one of four recognized subspecies of Bell's vireo (*V. bellii*) and is the western-most occurring subspecies, breeding entirely within California and northern Baja California. This subspecies is a small vireo with a short, straight bill and plumage varying from drab gray to green above and white to yellow below. The breeding season for least Bell's vireo begins with males arriving at breeding sites to establish territories, typically by late March. Females settle on male territories within two days of arriving to breeding sites and courtship begins immediately, lasting for 1-2 days before a nest site is selected and both birds construct the nest. Both sexes brood and feed the young. After the breeding season is complete, the least Bell's vireo leaves its breeding range to winter in Baja California. This subspecies typically forages in riparian habitat, feeding primarily on small insects and spiders (Chapin, 1925). Feeding will also occasionally occur in oak woodlands and adjacent chaparral habitats (Salata, 1983).

Threats: The primary threats that have been identified for this subspecies include the loss of lowland riparian habitat and nest parasitism by the brown-headed cowbird (USFWS, 1998). Surveys conducted in 2012 detected brown headed cowbirds at Littlerock creek.

Tricolored blackbird (*Agelaius tricolor*)

Status: The tricolored blackbird is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: This species is primarily a permanent resident across its range in California and occurs throughout the Central Valley and in coastal districts from Sonoma County south to Baja California.

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species; suitable breeding and foraging habitat occurs, depending on water levels, within the upper extents of the Reservoir (changes year to year). Nearest recorded occurrence is approximately seven miles northwest of the Study Area in Lake Palmdale.

Habitat and Habitat Associations: The tricolored blackbird breeds near fresh water, preferably in emergent wetland with tall dense cattails (*Typha* spp.) or tules, but also in thickets of willows, blackberry, wild rose, and tall herbs (CDFG, 2008). This species forages primarily in grassland and cropland habitats.

Natural History: The tricolored blackbird is distinguishable from similar species by dark red shoulder patches with broad white tips bordering the distal side. This highly gregarious species is highly colonial and nesting areas must be large enough to support a minimum colony of roughly fifty pairs (Grinnell and Miller, 1944). Tricolored blackbirds are polygynous and during the breeding season, which typically occurs from mid-April into late July, each male may claim several mates nesting in his small territory. Foraging generally occurs in the vicinity of colony sites; however, some breeding individuals have been documented leaving nest sites as far as four miles to feed (Orians, 1961).

Threats: Some of the threats that have been identified for this species include loss of habitat due to draining of freshwater marshes and cowbird parasitism.

Bell's sage sparrow (*Amphispiza belli bellie*)

Status: Bell's sage sparrow is a CDFW Watch List species. This taxon is not federally or State listed as threatened or endangered.

General Distribution: Five subspecies of sage sparrow are recognized, two of which are migratory (County of Riverside, 2008). The subspecies Bell's sage sparrow (formerly known as Bell's sparrow), *A. b. belli*, occurs as a non-migratory resident on the western slope of the central Sierra Nevada Range and in the coastal ranges of California southward from Marin County and Trinity County, extending into north-central Baja California (County of Riverside, 2008).

Distribution in the Study Area: There are no known records for this species in the Study Area; suitable habitat is present within the Study Area outside of the Reservoir footprint. Nearest recorded occurrence, from 2005, is approximately 13 miles northwest of the Study Area.

Habitat and Habitat Associations: Bell's sage sparrow is uncommon to fairly common in dry chaparral and coastal sage scrub along the coastal lowlands, inland valleys, and lower foothills of the mountains within its range. The Bell's sage sparrow often occupies chamise chaparral in the northern part of its range (Gaines, 1988; Unitt, 1984) and in coastal San Diego County (Bolger *et al.*, 1997). At higher elevations in southern California, Bell's sage sparrow often occurs in big sagebrush (County of Riverside, 2008).

Natural History: Sage sparrows primarily forage on the ground, usually near or under the edges of shrubs (Zeiner *et al.*, 1990a; County of Riverside, 2008). During the breeding season, the species consumes adult and larval insects, spiders, seeds, small fruits, and succulent vegetation (County of Riverside, 2008). Bell's sage sparrow usually nests in sagebrush or chaparral, and may have two broods per nesting season (Ehrlich *et al.*, 1988). In Riverside County, nests of Bell's sage sparrow have been found in brittlebush, black sage, California buckwheat, California sagebrush, and bush mallow. In other locations, chamise, white sage, cholla, ceanothus, and willows have been used by the species (County of Riverside, 2008). Sage sparrows also nest occasionally in bunchgrass or on the ground under shrubs (County of Riverside, 2008).

Threats: The largest threat to the sage sparrow is the loss and fragmentation of appropriate shrub habitat. Like other species, it has lost suitable habitat to urbanization and agricultural conversion, especially in southern California (County of Riverside, 2008). This species is also vulnerable to brown-headed cowbird nest parasitism (County of Riverside, 2008), which is increased near habitat edges. Grazing may result in habitat degradation and reduction of populations, such as on San Clemente Island where removal of grazing animals resulted in the recovery of native vegetation and sage sparrow populations (County of Riverside, 2008). Proximity to humans also increases the possibility of predation by domestic cats.

Golden eagle (*Aquila chrysaetos*)

Status: The golden eagle is on CDFW Watch List and a California Fully Protected species. This taxon is not federally or State listed as threatened or endangered.

General Distribution: In North America, this species breeds locally from northern Alaska eastward to Labrador and southward to northern Baja California and northern Mexico. The species winters from

southern Alaska and southern Canada southward through the breeding range. The golden eagle ranges from sea level up to 11,500 feet AMSL (Grinnell and Miller, 1944).

Distribution in the Study Area: There are no known records for this species within the Study Area; limited suitable nesting habitat for this species occurs within the Study Area but does occur on portions of the ANF. Suitable foraging habitat is present within Study Area.

Habitat and Habitat Associations: The golden eagle requires rolling foothills, mountain terrain, and wide arid plateaus deeply cut by streams and canyons, open mountain slopes and cliffs, and rock outcrops (Zeiner *et al.*, 1990a).

Natural History: The golden eagle requires rolling foothills, mountain terrain, and wide arid plateaus deeply cut by streams and canyons, open mountain slopes and cliffs, and rock outcrops (Zeiner *et al.*, 1990a). Nest construction in southern California occurs in fall and continues through winter (Dixon, 1937). This species nests on cliffs with canyons and escarpments and in large trees (generally occurring in open habitats) and is primarily restricted to rugged, mountainous country (Garrett and Dunn, 1981; Johnsgard, 1990). It is common for the golden eagle to use alternate nest sites, and old nests are reused. The nests are large platforms composed of sticks, twigs, and greenery that are often three meters (10 feet) across and one meter (three feet) high (Zeiner *et al.*, 1990a).

Threats: A major threat to this species is human disturbance in the form of habitat loss as well as human development and activity adjacent to golden eagle habitat. Accidental deaths attributed to increased development include collisions with vehicles, power lines, and other structures; electrocution; hunting; and poisoning (Franson *et al.*, 1995). Golden eagles avoid developed areas; the golden eagle population in California has undergone a decline within the past century due to a decrease in open habitats (Grinnell and Miller, 1944). If nests are disturbed by humans, abandonment of these nests in early incubation will typically occur (Thelander, 1974); thereby threatening the species' reproductive success.

Short-eared owl (*Asio flammeus*)

Status: The short-eared owl is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: This species is a widespread winter migrant in California, primarily occurring in the Central Valley, the western Sierra Nevada foothills, and along the coastline. Short-eared owls very irregularly breed along the southern California coast (Garrett and Dunn, 1981).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; suitable habitat is not present within the Study Area. Limited suitable habitat may be present along the proposed haul routes.

Habitat and Habitat Associations: The short-eared owl is usually found in open areas with few trees, including annual grasslands, prairies, dunes, meadows, agricultural fields, and emergent wetlands. Tall grasses, brush, ditches, and wetlands are used for resting and roosting cover (Grinnell and Miller, 1944).

Natural History: This species is a big-headed, short-necked owl with tawny to buff-brown plumage and whitish belly. Short-eared owls typically breed from early March through July (Bent, 1938; as cited in USACE and CDFG, 2010). Courtship activities consist of aerial displays and hooting (Pitelka *et al.*, 1955; as cited in USACE and CDFG, 2010). Clutches usually consist of 5-7 eggs, however, may be higher during periods of high prey abundance. Females incubate the eggs and care for the semialtricial young while males bring food to females at the nest. This species is primarily a crepuscular hunter and the great majority of their diet consists of small mammals (Holt and Leasure, 1993; Clark, 1975).

Threats: Numbers of this species have declined over much of its range due to the destruction and fragmentation of grassland habitats, grazing, and increased levels of predation (Remsen, 1978; Holt and Leasure, 1993).

Long-eared owl (*Asio otus*)

Status: The long-eared owl has been designated by CDFW as a California Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The long-eared owl (*Asio otus*) occurs in North America, Europe, Asia, and northern Africa between elevations from near sea level to over 2,000 meters (6,560 feet) AMSL (Zeiner *et al.*, 1990a). In North America, this species breeds from British Columbia east across Canada and the United States and south to southern California, southern Arizona, and northern Mexico. It also winters in most of its breeding range, except in the northernmost areas. The long-eared owl's wintering range extends from southern Canada and northern New England to the Gulf states and to the Jalisco, Michoacan, Guerrero, and Oaxaca states in Mexico (Marks *et al.*, 1994).

Distribution in the Study Area: Suitable habitat occurs within the Study Area; however, there are no known reports of this species within or adjacent to the Study Area. This species is known to occur on portions of the ANF to the southwest of the Study Area

Habitat and Habitat Associations: The long-eared owl primarily uses riparian habitat for roosting and nesting, but can also use live oak thickets and other dense stands of trees (Zeiner *et al.*, 1990a). It appears to be more associated with forest edge habitat than with open habitat or forest habitat (Holt, 1997). The long-eared owl usually does not hunt in the woodlands where it nests, but in open space areas such as fields, rangelands, and clearings. At higher elevations, the species is found in conifer stands that are usually adjacent to more open grasslands and shrublands (Marks *et al.*, 1994). In California, long-eared owls also nest in dense or brushy vegetation amid open habitat (Bloom, 1994). Long-eared owls have also been known to nest in caves, cracks in rock canyons, and in artificial wicker basket nests (Marks *et al.* 1994; Garner and Milne, 1997).

Natural History: The long-eared owl eats mostly voles and other rodents, though it also occasionally eats birds and other vertebrates (Armstrong, 1958). It typically begins hunting before sunset, especially during the nesting season and while feeding its young (Bayldon, 1978). The long-eared owl uses abandoned crow, magpie, hawk, heron, and squirrel nests in a variety of trees with dense canopy (Call, 1978; Marks, 1986). The nest is usually three to 15 meters (9.8 to 49.2 feet) above the ground; rarely is the nest on the ground or in a tree cavity (Karalus and Eckert, 1974). Breeding season extends from early March to late July (Call, 1978).

Threats: Resident populations of the long-eared owl in California have been declining since the 1940s, especially in southern California (Grinnell and Miller 1944; Remsen 1978; Bloom, 1994). Habitat destruction, including grasslands used for foraging, fragmentation of riparian nesting habitat and live oak groves, and proximity to urban development are cited as major factors in the decline of populations in California (Marks *et al.* 1994; Bloom 1994; Remsen, 1978). Nesting long-eared owls appear to be particularly sensitive to human activity. Human disturbance usually flushes females from active nests, and while females usually return within 10 minutes of the disturbance, eggs and hatchlings are vulnerable to predation while the nest is exposed (Marks, 1986). Other urban-related factors that could affect long-eared owls are nighttime lighting, which may disrupt activity patterns and expose nests to nocturnal predators; use of pesticides, which may cause secondary poisoning and reduction or loss of prey; and predation and harassment by pet, stray, and feral cats and dogs.

Burrowing owl (*Athene cunicularia*)

Status: The burrowing owl is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The burrowing owl breeds from southern interior British Columbia, southern Alberta, southern Saskatchewan, and southern Manitoba, south through eastern Washington, central Oregon, and California to Baja California, east to western Minnesota, northwestern Iowa, eastern Nebraska, central Kansas, Oklahoma, eastern Texas, and Louisiana, the southern portion of Florida, and south to central Mexico. The species is also locally distributed throughout suitable habitat in Central and South America to Tierra del Fuego, and in Cuba, Hispaniola, the northern Lesser Antilles, Bahama Islands, and in the Pacific Ocean off the west coast of Mexico (County of Riverside, 2008; as cited in USACE and CDFG, 2010). The western subspecies, western burrowing owl, occurs throughout North and Central America west of the eastern edge of the Great Plains south to Panama (County of Riverside, 2008; as cited in USACE and CDFG, 2010). The winter range of the western burrowing owl is much the same as the breeding range, except that most individuals apparently vacate the northern areas of the Great Plains and the Great Basin (County of Riverside, 2008; as cited in USACE and CDFG, 2010).

Distribution in the Study Area: There are no known records for this species in the Study Area; nearest CNDDDB record for this species occurs approximately 10 miles to the northwest. While suitable habitat for this species does not occur within the Study Area it does occur along portions of the proposed haul routes and at the sediment disposal site.

Habitat and Habitat Associations: In California, western burrowing owls are yearlong residents of flat, open, dry grassland and desert habitats at lower elevations (Bates, 2006; as cited in USACE and CDFG, 2010). They typically inhabit annual and perennial grasslands and scrublands characterized by low-growing vegetation and also may occur in areas that include trees and shrubs if the cover is less than 30% (Bates, 2006; as cited in USACE and CDFG, 2010); however, they prefer treeless grasslands. Although western burrowing owls prefer large, contiguous areas of treeless grasslands, they have also been observed in fallow agriculture fields, golf courses, cemeteries, road allowances, airports, vacant lots in residential areas and university campuses, and fairgrounds when nest burrows are present (Bates 2006; County of Riverside, 2008; as cited in USACE and CDFG, 2010). The availability of numerous small mammal burrows, such as those of California ground squirrel (*Spermophilus beecheyi*), is a major factor in determining whether an area with apparently suitable habitat supports western burrowing owls (Coulombe, 1971; as cited in USACE and CDFG, 2010).

Natural History: The majority of western burrowing owls that breed in Canada and the northern United States are believed to migrate south during September and October and north during March and April, and into the first week of May. These individuals winter within the breeding habitat of more southern-located populations. Thus, winter observations may include both the migrant individuals as well as the resident population (County of Riverside, 2008; as cited in USACE and CDFG, 2010). Western burrowing owls occurring in Florida are predominantly non-migratory, as are populations in southern California (Thomsen, 1971; as cited in USACE and CDFG, 2010). Western burrowing owls in northern California are believed to migrate (Coulombe, 1971; as cited in USACE and CDFG, 2010). In many parts of the United States, the western burrowing owl's breeding range has been reduced and it has been extirpated from certain areas, including western Minnesota, eastern North Dakota, Nebraska, and Oklahoma (Bates 2006; as cited in USACE and CDFG, 2010).

Western burrowing owls are opportunistic feeders, primarily feeding on arthropods, small mammals, and birds, and often need short grass, mowed pastures, or overgrazed pastures for foraging (County of

Riverside, 2008; as cited in USACE and CDFG, 2010). Western burrowing owls are primarily crepuscular in their foraging habits but hunting has been observed throughout the day (Thomsen 1971; Marti 1974; all as cited in USACE and CDFG, 2010). Insects are often taken during daylight, whereas small mammals are taken more often after dark (County of Riverside, 2008; as cited in USACE and CDFG, 2010).

Threats: Factors related to declines in western burrowing owl populations include the loss of natural habitat due to urban development and agriculture; other habitat destruction; predators, including domestic dogs; collisions with vehicles; and pesticides/poisoning of ground squirrels (Grinnell and Miller 1944; Zarn 1974; Remsen 1978; as cited in USACE and CDFG, 2010). A ranking of the most important threats to the species included loss of habitat, reduced burrow availability due to rodent control, and pesticides (James and Espie 1997; as cited in USACE and CDFG, 2010).

Ferruginous hawk (*Buteo regalis*)

Status: The California horned lark is designated a CDFW Watch List species. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The ferruginous hawk (*Buteo regalis*) occurs throughout western North America from southernmost Canada between the Great Plains and Rocky Mountains, south to northern Arizona and New Mexico. This species breeds from southeast Alberta and extreme southwest Manitoba south to the northwest corner of Texas, west to the Great Basin, Columbia River Basin regions of eastern Oregon and southeast Washington. It was more recently discovered breeding in California (Small, 1994). The ferruginous hawk most commonly winters from southern California, Colorado, Arizona, and New Mexico to northern Texas. Northern populations are completely migratory, while birds from southern breeding locations appear to migrate short distances or to be sedentary (Bechard and Schmutz, 1995). The ferruginous hawk is an uncommon winter resident and migrant at lower elevations and open grasslands in the Modoc Plateau, Central Valley, and Coast Ranges of California (Polite and Pratt, 1999).

Distribution in the Study Area: There are no known records for this species in the Study Area; nearest CNDDDB record for this species occurs approximately 10 miles to the northwest. This species is a known winter resident in the Antelope Valley. Limited foraging habitat is present within the Study Area.

Habitat and Habitat Associations: The ferruginous hawk forages in open grasslands, agriculture (primarily grazing lands), sagebrush flats, desert scrub, and fringes of pinyon–juniper habitats (Polite and Pratt, 1999). Birds seem to show a strong preference for elevated nest sites (boulders, creek banks, knolls, low cliffs, buttes, trees, large shrubs, utility structures, and haystacks), but will nest on nearly level ground when elevated sites are absent and when located far from human activities (Bechard and Schmutz, 1995). Their winter range consists of open terrain from grassland to desert.

Natural History: Nest-building generally occurs in March in southern to mid-latitudes and birds occur on breeding areas from late February through early October (NatureServe, 2012). In California, it has been reported that this species prefers native grassland and shrubland habitats over cropland, and areas with no perches for their nest sites (Janes, 1985). Clutch size for this species is usually two to four with an incubation period of about 32 to 33 days. Young fledge in 35 to 50 days (NatureServe, 2012).

Threats: The major threat to this species is the loss of breeding and wintering habitat. Local declines of ferruginous hawk have been noted (*e.g.*, Woffinden and Murphy, 1989); but a widespread decline was not evident as of the early 1990s (57 FR 37507–37513; Olendorff, 1993). Olendorff (1993) attributed population declines to the effects of cultivation, grazing, poisoning, and controlling small mammals, mining, and fire in nesting habitats, with cultivation being the most serious source of impact. Impacts

from collisions with stationary or moving structures or objects, pesticides and other contaminants, and shooting and trapping are not considered significant for this species.

Northern harrier (*Circus cyaneus*)

Status: The northern harrier is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The northern harrier is found throughout the northern hemisphere. In North America, this species breeds from Alaska and the southern Canadian provinces south to Baja California, New Mexico, Texas, Kansas, and North Carolina (Limas, 2001).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species; suitable breeding and foraging habitat occurs within the Study Area.

Habitat and Habitat Associations: Northern harriers use a wide variety of open habitats in California, including deserts, coastal sand dunes, pasturelands, croplands, dry plains, grasslands, estuaries, flood plains, and marshes (MacWhirter and Bildstein, 1996; as cited in USACE and CDFG, 2010). The species can also forage over coastal sage scrub or other open scrub communities.

Natural History: The northern harrier's owl-like facial disk and white rump patch, which is prominent in flight, distinguish this species from all other North American falconiformes (Alsop III, 2001). Many California populations, including those in Ventura County, are residents, and many migrating harriers winter in California (CPIF, 2000). The breeding season for this species typically occurs between mid-March to early April. During this period, males, and occasionally females, exhibit uniquely characteristic courtship flights consisting of a series of nose dives (Bent, 1937). The northern harrier is predominately monogamous, but polygyny occurs when prey abundance is high. Nests are built on the ground. Clutch size averages five, and incubation lasts 30-32 days with nestlings fledging at 30-35 days. Hatching occurs from April through June (CPIF, 2000). This bird relies on hearing as well as sight while hunting and primarily feeds on small mammals, but will also take reptiles, amphibians, birds, and invertebrates.

Threats: The primary threat to northern harriers is habitat loss through development and agricultural conversion (CPIF, 2000).

Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)

Status: The western yellow-billed cuckoo is state listed as endangered and is listed as a federal candidate for listing.

General Distribution: The yellow-billed cuckoo occurs as a breeding bird in temperate North America, south to Mexico, and the Greater Antilles. It possibly breeds in Central America and northwestern South America, although its breeding range may be confused by reports of non-breeding adult vagrants outside of known breeding areas during the breeding season. The northern limit of its distribution extends west from southern Maine through southern New Hampshire, Vermont, northern and central New York, extreme southwestern Quebec, southern Ontario, the Upper Peninsula of Michigan, northern Minnesota, and possibly into southeastern North Dakota and northeastern and western South Dakota (Hughes 1999; as cited in USACE and CDFG, 2010). Its breeding range extends southward along the Atlantic Coast to southern Florida, and west to the extreme eastern portion of Wyoming, the eastern plains of Colorado, and throughout Texas (Hughes 1999; as cited in USACE and CDFG, 2010).

Distribution in the Study Area: There are no known records for this species in the Study Area; there are no CNDDDB records for this species within a 15 mile radius of the Study Area; the Study Area is located within the known geographic distribution for this species; extremely limited breeding and foraging habitat occurs in the Study Area.

Habitat and Habitat Associations: Breeding habitat for the western yellow-billed cuckoo primarily consists of large blocks of riparian habitat, particularly cottonwood–willow riparian woodlands (66 FR 38611–38626; as cited in USACE and CDFG, 2010). Laymon and Halterman (1989; as cited in USACE and CDFG, 2010) proposed that the suitable habitat for the western yellow-billed cuckoo for California be defined as habitat classified as willow–cottonwood with a patch size greater than 80 hectares (198 acres) and width greater than 600 meters (1,270 feet). It prefers dense riparian thickets with dense low-level foliage near slow-moving water sources.

Natural History: The western yellow-billed cuckoo's range is considered to be where it formerly bred from southwestern British Columbia, western Washington, northern Utah, central Colorado, and western Texas south and west to southern Baja California, Sinaloa, and Chihuahua in Mexico (Hughes, 1999; as cited in USACE and CDFG, 2010). In California, the western yellow-billed cuckoo's breeding distribution is now thought to be restricted to isolated sites in the Sacramento, Amargosa, Kern, Santa Ana, and Colorado river valleys (Laymon and Halterman, 1987; as cited in USACE and CDFG, 2010). Nests are constructed in willows on horizontal branches in trees, shrubs, and vines, but cottonwoods (*Populus* spp.) are used extensively for foraging and humid lowland forests are used during migration (Hughes, 1999; as cited in USACE and CDFG, 2010).

The western yellow-billed cuckoo is a long-distance migrant, though details of its migration patterns are not well known (Hughes, 1999; as cited in USACE and CDFG, 2010). It is a relatively late spring migrant, arriving on the breeding grounds starting mid- to late May (Franzreb and Laymon, 1993; as cited in USACE and CDFG, 2010). The migratory route of western yellow-billed cuckoos is not well known because few specimens collected on wintering grounds have been ascribed to the western or eastern subspecies. The western yellow-billed cuckoo likely moves down the Pacific Slope of Mexico and Central America to northwestern South America (Hughes, 1999; as cited in USACE and CDFG, 2010).

Yellow-billed cuckoos generally forage for caterpillars and other large insects by gleaning (Hughes 1999; as cited in USACE and CDFG, 2010). They occasionally prey on small lizards, frogs, eggs, and young birds as well (Zeiner *et al.*, 1990a; as cited in USACE and CDFG, 2010). Foraging occurs extensively in cottonwood riparian habitat (Hughes, 1999).

Threats: The western yellow-billed cuckoo is sensitive to habitat fragmentation and degradation of riparian woodlands due to agricultural and residential development (Hughes, 1999; as cited in USACE and CDFG, 2010), and major declines among western populations reflect local extinctions and low colonization rates (Laymon and Halterman, 1989; as cited in USACE and CDFG, 2010).

White-tailed kite (*Elanus leucurus*)

Status: The white-tailed kite is a CDFW Fully Protected Species. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The white-tailed kite is a permanent resident in California, southern Texas, Washington, Oregon, and Florida. It also occurs as a resident from Mexico into parts of South America (Dunk, 1995). In California, this species inhabits coastal and valley lowlands and is typically found in agricultural areas. It has increased population numbers and range in recent decades (Zeiner *et al.*, 1990a).

Distribution in the Project Areas: There are no known records for this species in the Study Area or surrounding areas. The Study Area is located within the known geographic distribution for this species; limited breeding and foraging habitat occurs in the Study Area.

Habitat and Habitat Associations: The white-tailed kite inhabits savanna, open woodlands, marshes, desert grasslands, partially cleared lands, and cultivated fields (Dunk, 1995). This species roosts in trees with dense canopies as well as saltgrass and Bermuda grass (Zeiner *et al.*, 1990a).

Natural History: The white-tailed kite is a medium-sized, long-winged raptor with red eyes. This monogamous species breeds from February to October, with peak activity occurring between May and August. Incubation is solely performed by the female; however, during incubation and the nestling period, the male feeds the female and provides her with food to feed the young (CDFG, 2008). The white-tailed kite is the only North American kite that hovers while hunting, usually less than thirty meters above the ground before descending vertically upon prey (Alsop III, 2001; Zeiner *et al.*, 1990a). This species primarily feeds on voles and other small mammals but will also take birds, insects, reptiles, and amphibians. Although white-tailed kites are non-migratory, individuals may become nomadic in response to prey availability (Zeiner *et al.*, 1990a).

Threats: While the white-tailed kite is reported to have increased in numbers and range over the past several decades, it is still vulnerable to habitat loss due to development.

Willow flycatcher (*Empidonax traillii*), including Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

Status: The willow flycatcher is state-listed endangered at the species level, and the southwestern willow flycatcher subspecies is federally and state listed as endangered.

General Distribution: The southwestern willow flycatcher has a known United States breeding range in six states: Arizona, New Mexico, California, southwestern Colorado, extreme southern portions of Nevada and Utah, and, possibly, western Texas. In California, its breeding range extends from the Mexican border north and inland to the City of Independence in the Owens Valley east of the Sierra Nevada, to the South Fork Kern River in the San Joaquin Valley and coastally to the Santa Ynez River in Santa Barbara County (Craig and Williams 1998; as cited in USACE and CDFG, 2010). The southwestern willow flycatcher was formerly a common summer resident throughout California, but has been extirpated from most of its historic breeding range in California.

Distribution in the Study Area: Five willow flycatchers of unknown subspecies were identified below the Littlerock Dam and in Littlerock Creek during Project surveys in May 2012. No breeding activity was documented, and the individuals were determined to be migrants. The Study Area is located within the known geographic distribution for the southwestern willow flycatcher but is well south of the breeding range for other willow flycatcher subspecies. Suitable breeding habitat for southwestern willow flycatcher is not present within the Study Area as this species prefers riparian areas of greater density than are present. Suitable foraging habitat occurs throughout the Study Area.

Habitat and Habitat Associations: The southwestern willow flycatcher is a riparian-obligate species restricted to complex streamside vegetation. Four general habitat types are used by the southwestern willow flycatcher at its breeding sites: monotypic high-elevation willow; exotic monotypes (e.g., dense stands of tamarisk (*Tamarix* spp.) or Russian olive (*Elaeagnus angustifolius*)), especially in the desert southwest; native broadleaf-dominated riparian forest; and mixed native/exotic forests (Sogge *et al.*, 1997; as cited in USACE and CDFG, 2010). Of these, native broadleaf-dominated and mixed native/exotic are the primary habitats used by southwestern willow flycatcher in California. The native broadleaf-

dominated habitat is composed of a single species, such as Goodding's or other willow (*Salix* spp.) species,, or a mixture of broadleaf trees and shrubs, including cottonwood (*Populus* spp.), willow, box elder (*Acer negundo*), ash (*Fraxinus* spp.), and alder (*Alnus* spp.). Stands are usually three to 15 meters (10 to 50 feet) in height and are characterized by trees of different size classes, yielding multiple layers of canopy (Sogge *et al.*, 1997; as cited in USACE and CDFG, 2010).

Natural History: Willow flycatchers are late spring migrants and have a breeding season of three months or less (Sedgwick 2000; as cited in USACE and CDFG, 2010). The earliest spring arrival of the willow flycatcher in southern California is typically between late April and early May. When a willow flycatcher is observed in southern California after about June 22, or if nesting activity is observed, it can be concluded that the individual is *E. t. extimus* (southwestern willow flycatcher). By this date, most migrant willow flycatchers have passed through southern California; however, migrant willow flycatchers may again be observed—virtually always away from the coast—in late July as they pass through the region heading south to their wintering area (Sogge *et al.* 1997; as cited in USACE and CDFG, 2010).

Breeding territory sizes of the southwestern willow flycatcher vary greatly in relation to population density, habitat quality, and nesting stage (USFWS 2002c; as cited in USACE and CDFG, 2010). The observed range of territory sizes is 0.1 to 2.30 hectares (0.26 to 5.70 acres), with most in the range of 0.2 to 0.5 hectares (0.5 to 1.2 acres) (USFWS 2002c; as cited in USACE and CDFG, 2010). Clutches of two to four eggs are laid in the third week in June, with fledglings first appearing in mid-July (Sanders and Flett 1989; as cited in USACE and CDFG, 2010). Fledglings stay close to the nest and to each other for three to five days after leaving the nest and stay in the area for a minimum of 14 to 15 days (Sogge *et al.* 1997; as cited in USACE and CDFG, 2010).

Threats: The decline of southwestern willow flycatchers is primarily due to loss, fragmentation, and degradation of suitable riparian habitat resulting from urbanization, recreation, water diversion and impoundments, channelization, invasive plant species, overgrazing by livestock, and conversion of riparian habitat to agricultural land (USFWS, 2002; Sedgwick, 2000; all as cited in USACE and CDFG, 2010). Channelization, bank stabilization, levees, and other flow control structures, surface water diversions, and groundwater pumping for agricultural, industrial, and municipal uses are major factors in the deterioration of suitable southwestern willow flycatcher habitat.

California horned lark (*Eremophila alpestris actia*)

Status: The California horned lark is designated a CDFW Watch List species. This taxon is not federally or State listed as threatened or endangered.

General Distribution: Horned larks (*Eremophila alpestris*) have a holarctic distribution, ranging from the Arctic south to central Asia and Mexico. There are numerous regional subspecies representing the superspecies across this holarctic range, including the California horned lark (*Eremophila alpestris* ssp. *actia*). Horned larks are common and abundant residents in a variety of open habitats, usually where trees and shrubs are absent and can be found from sea level to elevations of 4,000 meters (13,123 feet) AMSL (Beason, 1995). In general, the northernmost populations of horned lark are migratory, moving south during the winter into remaining areas of the breeding range. There are also southward movements into areas south of the breeding range, particularly in the southeastern United States (Beason, 1995). The California horned lark breeds and resides in the coastal region of California from Sonoma County southeast to the United States–Mexico border, including most of the San Joaquin Valley, and eastward to the foothills of the Sierra Nevada (Grinnell and Miller, 1944; AOU, 1998).

Distribution in the Study Area: There are no known records for this species in the Study Area; there are no CNDDDB records for this species within a 15 mile radius of the Study Area. Limited breeding and foraging habitat occurs in the Study Area.

Habitat and Habitat Associations: It is found in grasslands along the coast and deserts near sea level and alpine dwarf-shrub habitat above the tree line. It is less common in mountain regions, on the north coast, and in coniferous or chaparral habitats (McCaskie *et al.*, 1979). The California horned lark uses predominantly agriculture, grassland, and disturbed areas for foraging, as well as sparse shrub and scrub habitats (Garrett and Dunn, 1981). In winter, flocks frequent roadsides, feedlots, and fields where manure from feedlots is spread.

Natural History: California horned larks breed from March through July, with a peak in activity in May and they frequently raise two broods in a season (Zeiner *et al.*, 1990a).

Threats: In addition to direct loss of habitat and fragmentation, California horned larks are vulnerable to several effects related to agriculture and urbanization. Increased use of pesticides, specifically Carbofuran and Fenthion, have been shown to poison and kill horned larks (Beason, 1995). The demonstrated deleterious effects of these pesticides illustrate that horned larks may be vulnerable to certain chemicals because of their ground-foraging habits and seasonally varying diet. Pesticides may also cause a decline in prey abundance. Mowing of grasslands occupied by nesting horned larks substantially increased nest failures (Kershner and Bollinger, 1996). Horned lark nests can also be parasitized by brown-headed cowbirds, especially after the first brood when there are multiple broods in a single season (Beason, 1995). Other development- and human-related impacts expected to affect this species include construction-related dust; noise and ground vibration; nighttime lighting, which may induce physiological stress and increase predation by nocturnal predators; and increased predation by pet, stray, and feral cats and dogs. Areas of increased moisture may attract Argentine ants that prey on nestlings.

Merlin (*Falco columbarius*)

Status: The merlin is a CDFW Watch List Species that was removed from the Species of Special Concern list in 2008. This taxon is not federally or State listed as threatened or endangered.

General Distribution: In North America, this species breeds from the northward tree limit in Alaska and Canada southward to southern Alaska, Oregon, Idaho, South Dakota, the northern Great Lakes region, New York, Maine, and Nova Scotia. Breeding does not occur in California; however, this species does occur in most of the western half of the state below roughly 4000 feet through the winter season (September to May) (CDFG, 2008).

Distribution in the Study Area: There are no known records for this species in the Study Area or surrounding areas; this species is a winter resident that does not breed in California; the Study Area is located within the known geographic winter distribution for this species; suitable foraging habitat occurs throughout the Study Area.

Habitat and Habitat Associations: The merlin occurs in a wide variety of habitats, including marshes, deserts, seacoasts, open woodlands, fields, and communities in early successional stages (Garrett and Dunn, 1981).

Natural History: The merlin is a small, averaging twelve inches in length, member of the falcon family (Falconidae) with a long tail and long, pointed wings. This species winters in California from September to May and wanders, but does not apparently defend, foraging territories throughout the winter range

(Becker and Sieg, 1987; Warkentin and Oliphant, 1990; Sodhi and Oliphant, 1992). Merlins primarily prey on small birds, which are captured on the ground or in the air, after direct pursuit (CDFG, 2008). Small mammals and insects are also consumed, the latter of which may be taken while young merlins are developing their predatory skills.

Threats: There are no persistent threats identified for this species; however, because merlins feed primarily on birds, numbers have been likely reduced due to pesticide use.

Prairie Falcon (*Falco mexicanus*)

Status: The prairie falcon is a CDFW Watch List Species that was removed from the Species of Special Concern list in 2008, and a USFWS Bird of Conservation Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: This species is an uncommon permanent resident that occurs throughout California with the exception of the humid northwest coastal belt (Small, 1994).

Distribution in the Study Area: There are no known records for this species in the Study Area. The CNDDDB reports one historic occurrence approximately 10 miles to the west of the Study Area. Marginal (at best) nesting habitat occurs within the Study Area; suitable foraging habitat occurs throughout the Study Area.

Habitat and Habitat Associations: The prairie falcon occurs in a wide variety of habitats from annual grasslands to alpine meadows, but is most commonly associated with perennial grasslands, savannahs, rangelands, some agricultural fields, and desert scrub areas (CDFG, 2008). This species usually nests on sheltered cliff ledges overlooking open areas.

Natural History: This species is a medium-sized falcon with a dark brown cap and cheek and distinct dark mustache markings. Prairie falcons breed in mid-April on cliff edges or rock outcrops in open areas. The male rarely takes an active role in the incubation process; however, may provide food to the female during this time (Stephenson and Calcarone, 1999). Hatchlings are tended by both adults until fledging at roughly forty days (Baicich and Harrison, 1997). Prairie falcons prey primarily on small passerine birds; however, lizards, ground squirrels, and other small mammals are also consumed (Steenhof, 1998). This species utilizes two hunting strategies, including flushing a prey item while flying along a concealed route until the last moment and patrolling along long distances close to the ground until surprising and attacking a prey item (Dunne *et al.*, 1988).

Threats: The loss of suitable foraging habitat to human development, particularly in coastal California, has been identified as a primary threat to this species.

American peregrine falcon (*Falco peregrinus anatum*)

Status: The peregrine falcon is a California Fully Protected species.

General Distribution: The peregrine falcon has a worldwide distribution that is more extensive than that of any other bird. In North America, the peregrine falcon breeds from Alaska to Labrador, southward to Baja California and other parts of northern Mexico, and east across central Arizona through Alabama. Its distribution is patchy in North America, and populations in the eastern United States are still chiefly in urban areas (AOU, 1998; White *et al.*, 2002; as cited in USACE and CDFG, 2010).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species; suitable breeding habitat does

not occur within but may be present in areas adjacent to the Study Area; foraging habitat occurs throughout the Study Area.

Habitat and Habitat Associations: Peregrine falcons in general use a large variety of open habitats for foraging, including tundra, marshes, seacoasts, savannahs, grasslands, meadows, open woodlands, and agricultural areas. Sites are often located near rivers or lakes (AOU, 1998; Brown, 1999; Snyder, 1991; all as cited in USACE and CDFG, 2010). Riparian areas, as well as coastal and inland wetlands, are also important habitats year-round for this species. The species breeds mostly in woodland, forest, and coastal habitats (Zeiner et al., 1990a; Brown, 1999; all as cited in USACE and CDFG, 2010).

Natural History: In California, the American peregrine falcon is an uncommon breeder or winter migrant throughout much of the state. It is absent from desert areas (Zeiner et al., 1990a; as cited in USACE and CDFG, 2010). Active nests have been documented along the coast north of Santa Barbara, in the Sierra Nevada, and in other mountains of northern California. As a transient species, the American peregrine falcon may occur almost anywhere that suitable habitat is present (Garrett and Dunn, 1981; as cited in USACE and CDFG, 2010).

The diet of the American peregrine falcon primarily consists of birds that, while most are pigeon-sized, can be as small as hummingbirds or as large as small geese (White et al., 2002; as cited in USACE and CDFG, 2010). Other prey species include jays, flickers, meadowlarks, starlings, woodpeckers, shorebirds, and other readily available birds. The American peregrine falcon may feed on large numbers of rodents when present (Brown, 1999; as cited in USACE and CDFG, 2010).

Breeding requires cliffs or suitable surrogates that are close to preferred foraging areas. Nests are typically located in cliffs between 50 and 200 meters (164 to 656 feet) tall that are prominent in the landscape. American peregrine falcons have also been known to nest in trees and on small outcrops. Tall buildings, bridges, or other tall man-made structures are also suitable for nesting (White et al., 2002; as cited in USACE and CDFG, 2010). The nest site usually provides a panoramic view of open country and often overlooks water. It is always associated with an abundance of avian prey, even in an urban setting. A cliff or building nest site may be used for many years (Brown, 1999; as cited in USACE and CDFG, 2010). The nest site itself usually consists of a rounded depression or scrape with accumulated debris that is occasionally lined with grass (Call, 1978; as cited in USACE and CDFG, 2010). Higher-quality nest sites confer greater protection from the elements and have greater breeding success (Olsen and Olsen, 1989; as cited in USACE and CDFG, 2010).

Threats: There are no persistent threats identified for this species.

California condor (*Gymnogyps californianus*)

Status: The California condor is listed as both state and federally endangered and is a California Fully Protected species.

General Distribution: The southern California population of the California condor is largely confined to the semi-arid, rugged mountain ranges surrounding the southern San Joaquin Valley, including the Coast Ranges from Santa Clara County south to Los Angeles County, the Transverse Ranges, Tehachapi Mountains, and southern Sierra Nevada (Zeiner et al., 1990a; as cited in USACE and CDFG, 2010). The California condor has also historically occurred in northern Baja California, Mexico; northern California; Oregon; Washington; and south British Columbia, Canada in the early nineteenth century (Harris, 1941; Koford, 1953; Wilbur, 1978; Kiff, 2000; Snyder and Snyder, 2000; all as cited in USACE and CDFG, 2010).

Distribution in the Study Area: There are no known records for this species in the Study Area although they have been observed flying over the San Gabriel Mountains. Suitable breeding habitat is not present within the Study Area but the animal may periodically forage in the region.

Habitat and Habitat Associations: California condors require vast expanses of open savannah, grasslands, and foothill chaparral, with cliffs, large trees, and snags for roosting and nesting (Zeiner *et al.*, 1990a; as cited in USACE and CDFG, 2010).

Natural History: Prior to all California condors being removed from the wild for captive breeding in the late 1980s, nonbreeding California condors often moved north to Kern and Tulare counties in April and returned south in September to winter in the Tehachapi Mountains, Mount Pinos, and Ventura and Santa Barbara counties (Zeiner *et al.*, 1990a; as cited in USACE and CDFG, 2010). Since that time, California condors have been reintroduced into suitable habitat in eastern Ventura County as well as in the Ventana Wilderness area along the coast south of San Francisco.

The California condor requires an adequate food supply, open habitat in which food can readily be found and accessed, and reliable air movements that allow extended soaring flight (Snyder and Schmitt, 2002; as cited in USACE and CDFG, 2010). Most foraging has been documented in grasslands and oak woodlands, where individuals can easily launch into flight from nearly any location by running downhill, and where winds deflected by topographic relief usually provide the uplift necessary for extended flight (Snyder and Schmitt, 2002; as cited in USACE and CDFG, 2010). Most California condors forage within 50 to 70 kilometers (31 to 43 miles) of nesting areas, with core foraging areas ranging around 2,500 to 2,800 square kilometers (1,553 to 1,740 miles). This wide-ranging foraging area appears to be an adaptation to unpredictable food supplies.

The California condor primarily feeds on mammalian carrion, although remains of reptiles and birds have been occasionally found within nests (Collins *et al.*, 2000; as cited in USACE and CDFG, 2010). California condors are scavengers of fresh medium- to large-sized carcasses, such as sheep, cattle, deer, and elk (Koford, 1953; Snyder and Snyder, 2000; Collins *et al.*, 2000; all as cited in USACE and CDFG, 2010). California condors are not known to feed on vehicle-killed animals, but in recent years, hunter-shot mule deer, shot or poisoned coyotes, and ground squirrels were consumed when available (Snyder and Schmitt, 2002; as cited in USACE and CDFG, 2010).

California condors typically breed annually but frequently breed less often. Observations of new pair formations have been observed in late fall and early winter (Snyder and Schmitt 2002; as cited in USACE and CDFG, 2010). Once pairs have been formed, the California condors stay together year round for multiple years. California condors lay only one egg; this can occur from the last week of January through the first week of April, with an incubation period averaging 57 days. The hatching of the eggs ranges between the last week of March and the first week of June. The chicks are tended by both parents until the chicks are fledged, which occurs five and a half to six months after hatching. The chicks are fully dependent on their parents for approximately another six months, ending roughly a year after hatching, from early March to mid-May (Snyder and Schmitt, 2002; as cited in USACE and CDFG, 2010).

Threats: Major threats to this species include lead poisoning, collisions, poisoning due to ingestion of antifreeze, drowning and shooting. An increase in power lines and utility poles, which can result in collisions and electrocution; microtrash (e.g., bottle caps, pull tabs, broken glass, cigarette butts, small plastic items, lead bullets, and shell casings, which condors can ingest); long-term habitat degradation; and contaminants other than lead and antifreeze also have the potential to affect individuals.

Yellow-breasted chat (*Icteria virens*)

Status: The yellow-breasted chat is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: Although this species is a widespread summer resident in eastern North America, its distribution is much more fragmented in the west. In California, yellow-breasted chat primarily occurs in the northern portion of the state and is considered scarce in the central and southern portions.

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species; limited breeding and foraging habitat occurs in the Study Area.

Habitat and Habitat Associations: In southern California, this species utilize dense riparian thickets and brushy tangles near watercourses for breeding (Garrett and Dunn, 1981). Similar habitat is used during migration (Dunn and Garrett, 1997).

Natural History: The yellow-breasted chat is the largest member of the warbler family (Parulidae). Its yellow throat and breast, olive underparts and white spectacles distinguish this species from other similar birds. The yellow-breasted chat breeds in April or May through August. Females initiate nest construction, which begins shortly after pair formation, above ground in dense shrubs along a river or stream. Both parents tend to nestlings until they fledge at roughly nine days (Stephenson and Calcarone, 1999). This species feeds primarily on insects and spiders that are gleaned from the foliage of low trees and shrubs; however, berries and other fruits are also consumed (CDFG, 2008).

Threats: The loss and degradation of riparian habitat have resulted in a marked decline of breeding populations of yellow-breasted chat in California. Nest parasitism by brown-headed cowbird (*Molothrus ater*) has also contributed to declines (Gaines, 1974; Remsen, 1978).

Loggerhead shrike (*Lanius ludovicianus*)

Status: The loggerhead shrike is a CDFW Species of Special Concern and a USFWS Bird of Conservation Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The breeding range of the loggerhead shrike includes Alberta, Saskatchewan, and Manitoba in Canada; the majority of the United States except the Pacific Northwest; and Mexico (Yosef, 1996). This species is a common resident and winter visitor in lowlands and foothills throughout California.

Distribution in the Study Area: Although not documented within the Study Area an occurrence of this species is reported from the CNDDDB approximately 2.5 miles east of the Study Area. Suitable foraging and breeding habitat occurs within the Study Area.

Habitat and Habitat Associations: The loggerhead shrike prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. This species most often occurs in open-canopied valley foothill hardwood forests, valley-foothill hardwood-conifer forests, valley foothill riparian, pinyon-juniper woodlands, desert riparian, and Joshua tree habitats.

Natural History: The loggerhead shrike is a large-headed bird with a hooked beak and whitish underparts. The breeding season for this species generally begins in late January or early February, earlier than those of other sympatric passerine species, and lasts through July (Stephenson and Calcarone, 1999). Nests are typically constructed in well-concealed microsites in densely foliated trees

or shrubs (Miller, 1931; Bent, 1950). Females typically feed nestlings until fledging occurs at 16 to 20 days; however, males will feed nestlings if females are absent from the nest for extended periods of time (Stephenson and Calcarone, 1999). This species preys primarily on large insects, but will also take small birds, mammals, amphibians, reptiles, fish, carrion, and various invertebrates. Loggerhead shrikes often impale their prey on barbed wire or other sharp objects.

Threats to Species: Breeding Bird Survey data indicate that loggerhead shrike populations are declining in most states (Sauer *et al.*, 1996). Threats include habitat loss and degradation, shooting, and pesticide and other toxic contamination.

Long-billed curlew (*Numenius americanus*)

Status: The long-billed curlew is a CDFW Watch List Species. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The breeding range of this migratory species extends from eastern New Mexico and the Texas panhandle, north through western Kansas, central Nebraska, central South Dakota, and western North Dakota and west to portions of Montana and southern Alberta, Saskatchewan, Manitoba, and British Columbia. In the Great Basin the curlew ranges from Utah west to California and north into eastern Washington and British Columbia. Winter distribution is scattered across the southern United States. Long-billed curlews winter from California, into western Nevada, Arizona, eastern New Mexico, western and southern Texas, and coastal Louisiana south to Baja, California, and Guatemala. Wintering curlews are found in small numbers along the Atlantic coast from South Carolina to Florida as well. [NRCS, 2010]

Distribution in the Study Area: There are no known recent records for this species in the Study Area; there are a variety of eBird records for this species approximately 20 miles to the north within the Lancaster Area. Suitable habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: Generally nest in short grasses including grass prairies or agricultural fields and move to denser grasslands after young have fledged. Long-billed curlews winter at the coast and in Mexico.

Natural History: The long-billed curlew is the largest nesting or regularly-occurring sandpiper in North America. The bird usually feeds in flocks. Using its long bill, it probes the mud near its habitat, foraging for suitable food. The usual food consists of crabs and various other small invertebrates. The species also feeds on grasshoppers, beetles and other insects. This bird has occasionally been known to eat the eggs of other birds. The long-billed curlew is a precocial bird, and the chicks leave the nest soon after hatching. Both parents look after the young.

Threats: Development and urbanization along the coastal habitats threaten this species.

Osprey (*Pandion haliaetus*)

Status: The osprey is a CDFW Watch List Species. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The osprey is one of only two wild bird species with a worldwide distribution (the other is peregrine falcon). In California, this species typically breeds in the northern part of the state from the Cascade Range south to Lake Tahoe and along the coast to Marin County (Stephenson and Calcarone, 1999). Osprey is an uncommon visitor along the coast of southern California (Zeiner *et al.*, 1990a).

Although this species is almost entirely migratory across its range, some areas of southern California, including Ventura County, support year-round residents (Ferguson-Lees and Christie, 2001).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; there are a variety of eBird records for this species approximately 20 miles to the north within the Lancaster Area. Suitable habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: This species most commonly occurs along rivers, lakes, reservoirs, and sea coasts, often crossing land between bodies of water (AOU, 1998). Nests are typically found in tree snags, on cliffs, and among various manmade structures, usually near or above water.

Natural History: The osprey is easily distinguished by its unmarked white belly, wing shape, and flight style. This species typically breeds between late March and early June as the male arrives to breeding sites first followed by the female a few days later (Johnsgard, 1990). Nests consist of a massive accumulation of sticks and other debris and may be added to and used in successive years (Stephenson and Calcarone, 1999). A single brood of three eggs is incubated by both sexes. Ospreys hunt by initially scanning water surfaces from an elevated perch, often followed by a period of hovering, and then diving from heights of roughly 16-23 feet above the water (Stephenson and Calcarone, 1999). Prey consists almost entirely of salt or freshwater surface feeding fish; however, reptiles, sick or injured birds, crustaceans, or small mammals are sometimes taken (Ferguson-Lees and Christie, 2001).

Threats: Threats that have been identified for this species include disturbance from recreation and other activities near nests, development near lakes and rivers, and removal of suitable nesting sites.

Vermilion flycatcher (*Pyrocephalus rubinus*)

Status: The vermilion flycatcher is designated by CDFW as a California Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: In California, the vermilion flycatcher was formerly considered a more common and widespread breeder along the lower Colorado River, Imperial Valley, Coachella Valley, upper Mojave River drainage, and San Diego County (Grinnell and Miller 1944; Garrett and Dunn, 1981); but its breeding range has declined throughout this area (Wolf and Jones, 2000). Currently, in California, there are some isolated breeding populations in the lowlands in the south central and southeast portions of the state, including San Bernardino, Riverside, San Diego, Santa Barbara, Ventura, and Kern counties (Wolf and Jones, 2000). Zeiner *et al.* (1990a) state that there are sporadic breeding populations in desert oases west and north of the Morongo Valley and Mojave Narrows in San Bernardino County. It has been recorded in summer along the Santa Clara River near Castaic and at Frazier Park, Kern County; however, there has been no evidence of breeding, and these observations are likely vagrants (Garrett and Dunn, 1981).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; there is a 2010 eBird record for this species approximately 7 miles to the northwest at Lake Palmdale. Suitable habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: This species is found in riparian thickets near open, mesic habitats. It breeds in cottonwood, willow, mesquite, oak, sycamore, and other vegetation in desert riparian communities that are located adjacent to irrigated fields, irrigated ditches, or pastures (Zeiner *et al.* 1990a; Wolf and Jones, 2000).

Natural History: Although the vermilion flycatcher is largely a resident species, where it does show migratory movements, the male arrives to the breeding locations in February or March and females

arrive afterwards, typically in March or April, depending on location (Wolf and Jones, 2000). Males play a large role in determining the nest site, which is built in a horizontal fork or branch under a canopy in an area free of leaves, about eight to 20 feet above ground (Wolf and Jones, 2000; Tinkham, 1949). The nest is a shallow open cup, loosely constructed out of small twigs, forbs, rootlets, grasses, fibers, or other similar materials and is lined with feathers and hair (Wolf and Jones, 2000).

Threats: This species primarily is threatened by the degradation and loss of habitat. The abundance and distribution of this species has been drastically reduced over the last 50 years in the lower Colorado River Valley. Water management, such as groundwater pumping and damming, can reduce and degrade riparian habitat and remove vegetation, such as cottonwoods and willows, that is critical to its breeding. Urbanization and human development have also degraded or reduced vermilion flycatcher habitat. Like other riparian bird species, however, several other potential human- or development-related factors may affect the vermilion flycatcher. Construction-related impacts include dust; noise and ground vibration; diminished water quality and altered hydrology; increased human activity in close proximity to foraging areas; and lighting, which may alter foraging behavior, induce physiological stress, and increase predation risk. Long-term effects related to development include increased human activity; noise; lighting; diminished water quality and altered hydrology; predation and harassment by pet, stray, and feral cats and dogs and other mesopredators; and pesticides, which may reduce insect prey or cause secondary poisoning.

Bank swallow (*Riparia riparia*)

Status: The bank swallow is state listed as threatened.

General Distribution: A neotropical migrant found primarily in riparian and other lowland habitats in California west of the deserts during the spring-fall period. A spring and fall migrant in the interior, less common on coast; an uncommon and very local summer resident. Casual in southern California in winter; a few winter records along central coast to San Mateo Co. (McCaskie *et al.*, 1988).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; There are numerous eBird records for this species approximately 20 miles to the northwest near the City of Lancaster. Suitable habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: This swallow requires fine-textured or sandy banks or cliffs to dig horizontal nesting tunnels/burrows (CDFG, 1999).

Natural History: Predominantly a colonial breeder; colonies range in size of 10 to 1,500 nesting pairs in California, although most colonies have 100-200 nesting pairs. Forages by hawking insects during long, gliding flights. Feeds predominantly over open riparian areas, but also over brushland, grassland, wetlands, water, and cropland. Feeds on a wide variety of aerial and terrestrial soft-bodied insects including flies, bees, and beetles. Uses holes dug in cliffs and river banks for cover. Will also roost on logs, shoreline vegetation, and telephone wires. [CDFG, 1999].

Threats: Channelization and stabilization of banks of nesting rivers, and other destruction and disturbance of nesting areas, are major factors causing the marked decline in numbers in recent decades (CDFG, 1999)

Allen's hummingbird (*Selasphorus sasin*)

Status: The Allen's hummingbird is a CDFW Special Animal. This taxon is not federally or State listed as threatened or endangered.

General Distribution: This species is a permanent resident in Ventura County. It also occurs as a common summer resident and migrant along much of the California coast.

Distribution in the Study Area: There are no known recent records for this species in the Study Area. There are several eBird records for this species approximately 5 miles to the northwest and 10 miles to the east. Suitable habitat occurs throughout the Study Area.

Habitat and Habitat Associations: Breeding for this species most commonly occurs in coastal scrub, valley and foothill hardwood forests, valley and foothill riparian forests, and urban habitats. Allen's hummingbird also occurs in a variety of woodland and scrub habitats as a migrant (CDFG, 2008).

Natural History: This species is a small hummingbird with a green back and crown and distinctive rufous markings on the flanks and tail. The Allen's hummingbird often attaches its nest to more than one lateral support on eucalyptus, juniper, willow, other trees, vines, shrubs, or ferns (CDFG, 2008). Breeding occurs from mid-February through early August with peak activity occurring in April. Large mating territories are rigorously defended as are smaller feeding territories (Legg and Pitelka, 1956). The primary diet of this species consists of nectar taken from a variety of herbaceous and woody flowering plants; however, small insects and spiders may also be consumed (CDFG, 2008).

Threats: No persistent threats have been identified for this species.

Le Conte's thrasher (*Toxostoma lecontei*)

Status: The Le Conte's thrasher is designated by CDFW as a California Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The Le Conte's thrasher is found throughout the Southwestern United States and Northwestern Mexico.

Distribution in the Study Area: There are no known records for this species in the Study Area. The CNDDDB reports occurrences of this species approximately 5 miles northeast of the Study Area. Suitable habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: Sparse desert scrub such as creosote bush, Joshua tree, and saltbush scrubs, or sandy-soiled cholla-dominated vegetation. Nests in dense, spiny shrubs or densely branched cactus in desert wash habitat.

Natural History: The Le Conte's thrasher forages on the ground for insects and spiders, as well as some seeds and berries.

Threats: In some parts of its range, the Le Conte's Thrasher has lost extensive habitat to development. Irrigated lawns, groves, and fields are not compatible with its need for desert vegetation.

Gray vireo (*Vireo vicinior*)

Status: The gray vireo is a Forest Service Sensitive Species, a CDFW Species of Special Concern, and a USFWS Bird of Conservation Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The gray vireo is rare west of the Colorado River and more common to the east. In California, this species is a summer resident at disjunct locations in the mountains of the eastern Mojave Desert, in the Transverse Ranges (San Gabriel, San Bernardino, and Little San Bernardino mountains), and in the Peninsular ranges (Unitt, 2008).

Distribution in the Study Area: There are no known records for this species in the Study Area. Disjunct localities occur both to the east and to the west. Suitable breeding and foraging habitat occurs in chaparral surrounding the Study Area on NFS lands. Depending on water levels and vegetation density, it could forage within the upper extents of the Reservoir (changes year to year). Nearest recorded occurrence is approximately eight miles east of the Study Area in the Valyermo area (Garrett, 1999).

Habitat and Habitat Associations: The gray vireo requires habitats with dense shrub cover between one and five feet from the ground. In the Transvers Ranges, it has been recorded in mixed chaparral and juniper woodlands (Unitt, 2008).

Natural History: The gray vireo is a summer visitor in most of its California range, typically occurring March to August or September. While data on breeding season is limited in California, available data suggest it extends at least from late April through July. Gray vireos feed mainly on insects, and its winter diet may also include some vegetation including the fruit of the elephant tree. (Unitt, 2008)

Threats: Some of the threats that have been identified for this species include loss or degradation of habitat from improper fire management and cowbird parasitism.

Mammals

Mohave ground squirrel (*Xerospermophilus mohavensis*)

Status: The Mohave ground squirrel is state listed as threatened.

General Distribution: Mohave ground squirrel has one of the smallest geographic ranges of the 28 ground squirrel species in North America (Hall, 1981). It occurs in the western Mojave Desert in portions of Inyo, Kern, San Bernardino, and Los Angeles counties.

Distribution near Project site: There have been no recent Mojave ground squirrel sightings near the Project site in over 20 years however it is possible remnant populations of this species still remain. This species is well known from core populations on Edwards Air Force base located north of the project site.

Habitat and Habitat Associations: The Mohave ground squirrel is found in many desert vegetation and soil types, mainly on deep, sandy to gravelly soils on flat to moderately sloping terrain (Best, 1995; MGSWG, 2011). Soil characteristics are particularly important because Mohave ground squirrels construct burrows to provide shelter, temperature regulation, and protection from predators (USFWS, 2010).

Natural History: Mohave ground squirrels are small brown squirrels around 1 ¼ to 1 ½ inches tall and approximately 8-9 inches in length. They feed on a variety of shrub and annual plant species, but the most common food plants include winterfat (*Krascheninnikovia lanata*), spiny hopsage (*Grayia spinosa*) and several saltbush (*Atriplex spp.*) species (Stewart, 2005).

Identified Threats: The decline of Mohave ground squirrels have been attributed to habitat loss from human development.

Occurrence probability at Project site: The Mohave ground squirrel is not expected to occur on the project site and has limited potential to occur at the sediment disposal site.

Nelson's bighorn sheep (*Ovis canadensis nelsoni*)

Regulatory Status: The Nelson's (San Gabriel Mountains) bighorn sheep is a Forest Service Sensitive Species and a California Fully Protected Species.

Range and Distribution: Historically, bighorn sheep were distributed from Baja California to Texas in the south and to the Canadian Rockies in the north, with the eastern boundary reaching western Nebraska and the western boundary in California extending from Mount Shasta in the north to the crest of the central and southern Sierra Nevada to the Transverse Ranges and the east side of the Peninsular Ranges in the south (Cowan, 1940). Traditional taxonomy dating back more than half a century (Cowan, 1940) broke bighorn sheep from the southwestern desert region into four subspecies, one of which, the Nelson bighorn, included bighorn from the Transverse Ranges through most of the desert mountain ranges of California, and adjacent Nevada and northern Arizona to Utah (Shackleton, 1985). Recent research (Ramey, 1993, 1995; Wehausen and Ramey, 1993) has found a lack of support for Cowan's (1940) desert subspecies and instead has found previously unrecognized north-south variation of the Nelson Bighorn (Wehausen and Ramey, 1993, 1999).

Habitat Requirements and Natural History: Basic to the biology of bighorn sheep is agility on steep rocky terrain, an adaptation used to escape predators. Consequently, within the desert, preferred habitat of bighorn is primarily on or near mountainous terrain above the desert floor. Also fundamental to the biology of bighorn sheep is the use of eyesight as the primary sense for detecting predators at sufficient distances to assure adequate time to reach safe terrain (Bleich et al., 1990b). Thus, preferred habitat of bighorn sheep is visually open, as well as steep and rocky. Because of scant rainfall and hot summer temperatures that limit most vegetation to low stature, most Mojave Desert mountain ranges satisfy these habitat requirements well. Surface water is another element of desert bighorn habitat considered important to population health (Turner and Weaver, 1980).

Bighorn sheep have a large rumen, relative to body size (Krausman et al., 1993), which allows digestion of grasses, even in a dry state (Hanly, 1982). This gives them flexibility to select diets that optimize nutrient content from available forage. Consequently, bighorn sheep feed on a large variety of plant species and diet composition varies seasonally and among locations. The nutritional quality of their diet depends on growth activity of forage species and varies greatly among seasons, years, and locations (Wehausen and Hansen, 1988; Wehausen, 1992a), and is influenced greatly by precipitation and temperature (Wehausen, 1992b). While diet quality in the Mojave Desert varies greatly among years, it is most predictably high in late winter and spring (Wehausen, 1992a), and this period coincides with the peak of lambing. Desert bighorn have a long lambing season that can begin in December and end in June in the Mojave Desert, and a small percentage of births commonly occur in summer as well (Thompson and Turner, 1982; Bunnell, 1982; Wehausen, 1991). The gestation period for bighorn sheep is about 174 days (Hass, 1995).

Threats: Potential threats must be approached from the standpoint of individual populations and metapopulations (BLM, no date A). Actions that impair the ability of bighorn sheep to move between mountain ranges (e.g. fencing along highways or other boundaries, canals, and high densities of human habitation) will limit the potential for natural colonization and gene exchange, both of which are key to metapopulation viability (BLM, no date A). Cattle grazing also poses a threat to this species, by creating competition for and reducing the availability of surface water sources for the bighorn sheep.

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic range for this species and suitable habitat occurs within portions of the Study Area. Nelson's bighorn sheep have been observed at the Reservoir by Forest Service staff (Chris Huntley, personal communication, 10 September 2012). This species appears to be a periodic visitor to the Reservoir.

Ringtail (*Bassariscus astutus*)

Status: The ringtail is a CDFW Fully Protected Species. This taxon is not federally or State listed as threatened or endangered.

General Distribution: This species is widely distributed throughout California with the exceptions of the northeastern deserts and the Central Valley.

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species and it is known to occur within sections of the San Gabriel Mountains. Suitable habitat is present within portions of the Study Area.

Habitat and Habitat Associations: Ringtails occur in a variety of habitats, including chaparral, coastal sage scrub, riparian scrub, oak woodlands, and riparian woodlands. This species prefers habitats in proximity to permanent water.

Natural History: Some authors consider ringtails a subfamily of the family Procyonidae, which includes the raccoons and coatis (Burt and Grossenheider, 1954). Ringtails are long, slender animals with large ears and eyes, semi-retractile claws, and distinct black and white bands on a bushy tail. This species nests in rock recesses, hollow trees, logs, snags, abandoned burrows, or woodrat nests and breeding typically occurs between February and May (NatureServe, 2012). Ringtails are opportunistic feeders, but primarily prey on rodents, rabbits, birds, bird eggs, reptiles, and invertebrates (Zeiner *et al.*, 1990b).

Threats: While no persistent threats have been identified for this species, the degradation of preferred riparian habitats has been suggested as a potential threat (Stephenson and Calcarone, 1999).

Pallid San Diego pocket mouse (*Chaetodipus fallax pallidus*)

Status: The pallid San Diego pocket mouse is designated by CDFW as a California Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The pallid San Diego pocket mouse occurs mainly in arid coastal and desert border areas in San Diego Co., in Riverside Co. southwest of Palm Springs, in San Bernardino Co. from Cactus Flat in the San Bernardino Mts. to Oro Grande and east to Twenty-nine Palms. Elevational range from sea level to 4500 feet (Santa Rosa Mts., Riverside Co.) and 6000 feet (Cactus Flat, north slope San Bernardino Mts.) (Zeiner, et al., 1990b).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species. Nearest CNDDDB for this record is approximately 7 miles to the southeast of the Study Area. Suitable habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: The pallid San Diego pocket mouse prefers to inhabit desert wash, desert scrub, desert succulent scrub and/or pinyon-juniper woodland.

Natural History: This is a nocturnal species that is active year-round, although surface activity may be reduced during cold periods (Zeiner, et al., 1990b). The primary diet consists of seeds of forbs, grasses and shrubs, which are transported in cheek pouches. Predators include foxes, coyotes, badgers, owls and snakes.

Threats: A potential threat to this species is urban expansion and development.

Pallid bat (*Antrozous pallidus*)

Regulatory Status: The pallid bat is a CDFW Species of Special Concern and a Forest Service Sensitive Species.

Range and Distribution: Pallid bats have a broad geographic range, extending from southern British Columbia to central Mexico and from California east to the Midwestern United States (Harvey et al., 1999). This species occurs most commonly below elevations of roughly 6,000 feet (Stephenson and Calcarone, 1999). Pallid bats are year-round residents in California (Philpott, 1997).

Habitat Requirements and Natural History: The pallid bat occurs in a variety of habitats, including grasslands, shrublands, woodlands, scattered desert scrub, agricultural fields, and mixed conifer forests (Barbour and Davis, 1969; Hermanson and O'Shea, 1983; Orr, 1954; Philpott, 1997). It appears to prefer edges and open areas without trees (SNFPA, 2001). Roosting sites include rock crevices, mines, caves, tree hollows, buildings, bridges, and culverts (Hermanson and O'Shea, 1983; Tactarian, 2001).

The pallid bat is a large, light-colored bat with prominent ears. It is a social species, communicating through a variety of vocalizations to indicate territorial boundaries, direct individuals to roosting sites, and facilitate mother-infant relations (Nagorsen and Brigham, 1993). Pallid bat maternity colonies form in early April and may contain from 12 to 100 individuals (Zeiner et al., 1990b). The diet primarily consists of large arthropods, including scorpions, crickets, moths, and praying mantids, which are gleaned from the ground or the surfaces of vegetation (Hermanson and O'Shea, 1983). Emergence from roosting sites typically begins 30 to 60 minutes after sunset, but can vary seasonally (Hermanson and O'Shea, 1983; Zeiner et al., 1990b). Foraging is usually concentrated into two periods, with the first activity peak occurring 90 to 190 minutes after sunset, and the second occurring just prior to dawn (Hermanson and O'Shea, 1983; Zeiner et al., 1990b). Nagorsen and Brigham (1993) report that the pallid bat will travel up to 2.5 miles between day roosts and foraging areas. Between activity periods, it may remain torpid for up to five hours (O'Shea and Vaughn, 1977). This species is known to hibernate, but will periodically rouse to forage for food and water (Philpott, 1997).

Threats: Some of the threats that have been associated to the decline of this species in southern California include the destruction of buildings that provide suitable roosting and maternal colony sites, eradication of roosting colonies due to public health concerns, and urban expansion (Brown-Berry, 2002). As bat species often exhibit high site fidelity to maternity roosts and are highly sensitive to disturbance at these sites, local extirpations may be attributed to roost disturbance (Hermanson and O'Shea, 1983; Orr, 1954; O'Shea and Vaughn, 1977; Philpott, 1997).

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic range for pallid bat (CDFG, 2008). Roosting habitat is present including old water tunnels and suitable foraging habitat occurs throughout the Study Area. This species was detected downstream of the dam during surveys conducted in May 2012.

Townsend's big-eared bat (*Corynorhinus townsendii*)

Status: The Townsend's big-eared bat is designated by CDFW as a California Species of Special Concern, and is a U.S. Forest Service Sensitive species. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The Townsend's big-eared bat ranges throughout the western United States, British Columbia, Canada, and Mexico (Kunz and Martin, 1982). In the United States, it occurs in a continuous distribution in all the western states and east into western South Dakota, northwestern

Nebraska, southwestern Kansas, western Oklahoma, and western Texas (Kunz and Martin, 1982). It also is known from isolated gypsum caves in northeast Texas, Oklahoma, and Kansas and from limestone areas in Arkansas, Missouri, Oklahoma, Kentucky, Virginia, and West Virginia (Kunz and Martin, 1982). These relict populations are thought to reflect post-Pleistocene climates (Kunz and Martin, 1982). In California, the CNDDDB (CDFG, 2007A) contains 212 records for this species, of which 52 are from four counties in southern California: San Bernardino (33 records), San Diego (10 records), Riverside (five records) and Imperial (four records). There are no records for Los Angeles, Orange, or Ventura counties.

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species. Roosting and foraging habitat occur within portions of the Study Area.

Habitat and Habitat Associations: The big-eared bat is primarily associated with mesic habitats characterized by coniferous and deciduous forests, although it also occurs in xeric areas (Kunz and Martin, 1982). In California, this species was historically associated with limestone caves and lava tubes located in coastal lowlands, agricultural valleys, and hillsides with mixed vegetation; it occurs in all parts of California, with the exception of alpine and subalpine areas of the Sierra Nevada (Zeiner et al., 1990b). The species also occurs in man-made structures and tunnels (Kunz and Martin, 1982); and it has been suggested that the big-eared bat has become more common in the western United States due to the availability of man-made structures (Kunz and Martin, 1982).

Natural History: Big-eared bats are relatively sedentary and are not known to disperse or migrate large distances.

Maternity roosts are established in the warm parts of caves, mines, and buildings, with one or more clusters of females numbering up to about 100 individuals. Summer roosts of males are solitary. Young are born from late spring to early summer and are fully weaned by 42 days of age. First flight occurs by about 18 to 21 days. Big-eared bats take a variety of prey on the wing from the edge of forested habitats but also glean prey from vegetation to forage, including small moths, beetles, flies, lacewings, wasps, bees, and ants.

Threats: Big-eared bats are very sensitive to human disturbances and a single disturbance of a maternity roost or hibernation site may cause abandonment (Zeiner et al., 1990b). All known limestone cave sites in California, for example, have been abandoned (Zeiner et al., 1990b). Other plausible threats to big-eared bats resulting from construction activities include disturbances of day roosts from human activity, noise, and dust, as well as effects of dust on insect prey. Potential long-term impacts from urban development also include human and pet, stray, and feral animals' disturbances of roost sites, roost site and foraging habitat degradation, such as trampling and invasive species, and pesticides that may cause secondary poisoning and affect prey abundance.

Spotted bat (*Euderma maculatum*)

Status: The spotted bat is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The spotted bat has been found at a small number of localities, mostly in the foothills, mountains and desert regions of southern California. [CDFG, 2000]

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species; potential breeding and suitable foraging habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: Habitats occupied include arid deserts, grasslands and mixed conifer forests. Elevational range extends from below sea level in California to above 3000 m (10000 ft) in New Mexico. [CDFG, 2000]

Natural History: This bat prefers to roost in rock crevices but is occasionally found in caves and buildings; cliffs provide optimal roosting habitat. Moths are the principal food source of this species (CDFG, 2000). This species feeds in flight, over water, and near the ground, using echolocation to find prey and prefers sites with adequate roosting habitat, such as cliffs.

Threats: Threats to the spotted bat may include loss of habitat to development and the use of insecticides.

Western mastiff bat (*Eumops perotis californicus*)

Status: The western mastiff bat is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The western mastiff bat occurs in two populations; one from the southwestern United States to central Mexico and the other from the northern and central portions of South America (Harvey *et al.*, 1999). The western or California mastiff bat subspecies primarily occurs from low to mid elevations in southern and central California southeast to Texas and south to central Mexico (Best *et al.*, 1996).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species; potential breeding and suitable foraging habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: The western mastiff bat utilizes a variety of habitat types including desert scrub, chaparral, mixed conifer forest, giant sequoia forests, and montane meadows (Philpott, 1997). In southern California this bat typically roosts in semiarid areas with low-growing chaparral that does not obstruct cliffs or rock outcrops (Best *et al.*, 1996). Because of its large wingspan, this bat requires roosts that have at least 2 m of free space to drop from to initiate flight. These bats utilize natural crevices in granitic and sandstone cliffs as well as crevices in buildings for roosting (Best *et al.*, 1996; NatureServe, 2012).

Natural History: The western mastiff bat is the largest bat in the United States with a total length of 15.7 to 18.5 cm (NatureServe, 2012). This bat breeds in early spring with most births likely occurring from June through July, and females usually give birth to one offspring (NatureServe, 2012). Colonies typically consist of less than 100 individuals (NatureServe, 2012). Western mastiff bats are primarily insectivorous, and the diet contains a high proportion of moths (Philpott, 1997). Predators include peregrine falcon, American kestrel, red-tailed hawk, and barn owl (Best *et al.*, 1996).

Threats: Threats to the western mastiff bat include loss of habitat to development and the use of insecticides (Williams, 1986). In the southwest, loss of large open ponds used for drinking water threaten this subspecies, and activities that disturb or destroy cliff habitat (such as water impoundments, highway construction, and quarry operations) pose a threat as well (Texas Parks and Wildlife, 2009).

Western red bat (*Lasiurus blossevillii*)

Status: The Western red bat is designated by CDFW as a California Species of Special Concern, and is a U.S. Forest Service Sensitive species. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The western red bat (*Lasiurus blossevillii*) occurs in California from Shasta County and Mendocino County in the north, and through the central coastal region and the Central Valley west of the Sierra Nevada/Cascade ranges to coastal southern California (Cryan, 2003; Zeiner *et al.*, 1990b), east into Arizona and New Mexico, and south into Baja California and mainland Mexico to South America (Cryan, 2003). The species inhabits California year-round but makes seasonal movements within the state and, possibly, to Arizona and New Mexico (Cryan, 2003).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species; potential breeding and suitable foraging habitat occurs within portions of the Study Area

Habitat and Habitat Associations: Red bats (*Lasiurus* spp.) typically roost in trees, occasionally in shrubs, and even on the ground (Shump and Shump, 1982). They are usually solitary, but different bats may use different roosts on different days, and they occasionally form nursery colonies. Day roosts are commonly located in edge habitats adjacent to streams, open fields, and urban areas (Shump and Shump, 1982).

Natural History: Red bats take a variety of prey, including moths, crickets, flies, true bugs, beetles, and cicadas (Shump and Shump, 1982). They generally forage in grasslands, shrublands, open woodlands, and croplands, but they also take advantage of congregations of insects attracted to streetlights and building floodlights. Births occur in about mid-June and young develop rapidly, with flight occurring by 21 to 42 days of age (Shump and Shump, 1982).

Threats: Like other bats, western red bats probably are generally vulnerable to human activity and related impacts. Unlike many other bat species, due to their use of day roosts in trees, shrubs, and sometimes on the ground, western red bats are especially vulnerable to predation by domestic cats, as well as opossums, great horned owls, kestrels, and roadrunners. Other plausible threats to western red bats resulting from construction activities include disturbances of day roosts from human activity, noise, and dust, as well as effects of dust on insect prey. Potential long-term impacts from urban development, in addition to pet, stray, and feral animals, include human disturbances of roost sites, roost site and foraging habitat degradation, such as trampling and invasive species, and pesticides that may cause secondary poisoning and affect prey abundance.

Hoary bat (*Lasiurus cinereus*)

Status: The hoary bat is a CDFW Special Animal. This taxon is not federally or State listed as threatened or endangered.

General Distribution: This species is the most widespread North American bat and occurs throughout California, although distribution is patchy in the southeastern deserts.

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species; potential breeding and suitable foraging habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: The hoary bat occurs in a wide variety of environments, but prefers open habitats or habitat mosaics with access to trees for cover. Open areas or habitat edges are also preferred for foraging.

Natural History: This species is distinguishable by its size and color, exhibiting distinct white markings on hair tips over most of the body (Burt and Grossenheider, 1954). Hoary bats breed in autumn and young are typically born between mid-May and early June (Zeiner *et al.*, 1990b). Females bear young while roosting in trees and may leave the young at the roosting site while foraging (Zeiner *et al.*, 1990b). Typically a solitary species, hoary bats are known to forage with many other bat species (CDFG, 2008). The primary diet of hoary bats consists of moths that are taken in flight; however, other flying insects are also consumed (Black, 1974, Whitaker *et al.*, 1977, 1981). There is a relatively high incidence of rabies in this species (Shump and Shump, 1982). No important predators are known, but owls likely prey on hoary bats (Zeiner *et al.*, 1990b).

Threats: No persistent threats have been identified for this species.

California leaf-nosed bat (*Macrotus californicus*)

Status: California leaf-nosed bat is listed as a CDFW Special Animal. This taxon is not federally or State listed as threatened or endangered.

General Distribution: This species has a limited distribution which extends from northwestern Mexico (Sonora and Sinaloa) and Baja California into Arizona, southern Nevada, and southern California (CDFG, 1998).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located outside the known geographic range for this species; potential breeding and suitable foraging habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: The California leaf-nosed bat appears to be confined to lowland Sonoran Desert habitat below 900 m. This species also appears to be totally dependent on either caves or mines for roosting. Although it has occasionally been found night roosting in buildings or bridges, its maternity, mating, and overwintering sites are all in mines or caves. [CDFG, 1998]

Natural History: This bat is colonial, forming large seasonal aggregations. Females congregate in the spring and summer in maternity colonies of typically 100 to 200 bats (Barbour and Davis, 1969; Vaughan, 1959), although colonies of only 6-20 bats are also found. Within the larger colonies, clusters of five to 25 females will be associated with a single "harem" male that defends the cluster against intruding males (Brown and Berry, 1991). Large male roosts may also form. Each female bears a single young between mid-May and early July. Maternity colonies disband once the young are independent in late summer. In September and October, males aggregate in "display" roosts, which may be separate from the maternity sites, where they are visited by females for mating (Pierson, 1998). Although pregnancy is initiated immediately, embryos undergo several months of "delayed development," remaining at a very early embryonic stage until development resumes in March (Bradshaw, 1962). The total gestation period is almost nine months. This species also forms larger, mixed sex aggregations of up to 2,000 bats in winter. Unlike vespertilionids, phyllostomids do not hibernate. *M. californicus* has a narrow thermal-neutral zone, and appears incapable of entering torpor (Pierson, 1998). [CDFG, 1998]

Threats: Potential threats to this species include renewed mining, abandoned mine closures, disturbance from the public, urban expansion, loss of foraging habitat, landfills and military activities.

Western small-footed myotis (*Myotis ciliolabrum*)

Regulatory Status: Western small-footed myotis is a CDFW Special Animal.

Range and Distribution: The western small-footed myotis is widespread throughout western North America, from western Canada south through the western United States to northern Baja California and central Mexico (Hall, 1981; as cited in USACE and CDFG, 2010). In the United States, the species occurs in all states west of, and including, North Dakota to the north and Texas to the south. The species is absent from the coastal regions of Washington, Oregon, and California south to about Ventura County (Zeiner et al., 1990b; as cited in USACE and CDFG, 2010).

Habitat Requirements and Natural History: The western small-footed myotis occurs in a wide variety of arid upland habitats at elevations ranging from sea level to 8,800 feet (Zeiner et al., 1990b; as cited in USACE and CDFG, 2010). Habitats used by this species include riparian areas, woodlands, and brushy uplands (Holloway and Barclay, 2001; Zeiner et al., 1990b; all as cited in USACE and CDFG, 2010). Western small-footed myotis day roosts include rock crevices, caves, tunnels and mines, and, sometimes buildings and abandoned swallow nests (Holloway and Barclay, 2001; as cited in USACE and CDFG, 2010). They also use day roosts as nocturnal roosts (i.e., they may return to the day roost during the night) or may use buildings and concrete underpasses strictly as nocturnal roosts (Holloway and Barclay, 2001; as cited in USACE and CDFG, 2010).

In California, this species occurs in coastal southern California, the foothills of the Sierra Nevada, and the Great Basin Desert, and is absent from the higher elevations in the mountains and from the lower elevations in the Mojave and Colorado deserts (Zeiner et al., 1990b; as cited in USACE and CDFG, 2010).

Western small-footed myotis forage for moths, true flies, gnats, midges, mosquitoes, true bugs, and beetles, often along the margins of trees and over water (Zeiner et al., 1990b; as cited in USACE and CDFG, 2010). Females establish maternity roosts, which may be solitary or colonial (with up to 20 individuals), where young are born and raised (Zeiner et al., 1990b; as cited in USACE and CDFG, 2010). Males appear to establish solitary roosts during the breeding season (Zeiner et al., 1990b; as cited in USACE and CDFG, 2010). Births generally occur in May and June, with a peak in late May (Zeiner et al., 1990b; as cited in USACE and CDFG, 2010), and first flight by young occurs by about one month of age (Wilson and Ruff, 1999; as cited in USACE and CDFG, 2010).

Threats: No documented threats to western small-footed myotis colonies have been reported in the scientific literature, but, like most bats, this species is likely to be very sensitive to human disturbance. Because it may roost in abandoned buildings and under bridges, it is vulnerable to vandalism, extermination, or inadvertent disturbance of roost sites.

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic range for western small-footed myotis (CDFG, 2008). Roosting habitat including old tunnels is present and suitable foraging habitat occurs throughout the Study Area. This species was detected while actively monitoring just upstream of the dam structure in July 2012.

Fringed myotis (*Myotis thysanodes*)

Status: The fringed myotis is designated by CDFW as a California Special Animal. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The fringed myotis is widespread throughout the western United States, southern British Columbia, Canada, Mexico, and Central America (O'Farrell and Studier, 1980).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species; potential breeding and suitable foraging habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: The fringed myotis typically occurs in a wide variety of desert, grass, and woodland habitats at middle elevations of 1,200 to 2,850 meters AMSL (3,937 to 9,350 feet) but is known from lower elevations along the west coast and may occur in pine–fir associations at higher elevations (O'Farrell and Studier, 1980). Individuals observed in desert/steppe habitats were within a one-hour flight of forest and riparian habitats (O'Farrell and Studier, 1980).

Natural History: During their most active season (April through September), fringed myotis leave their roosts at sundown and forage for small beetles, which comprise about 73% of their diet, in the vegetation canopy (O'Farrell and Studier, 1980). They return to the roost by daylight. Females establish maternity colonies in late April in caves, tunnels, mines, and buildings where young are born and raised. Males establish solitary roost areas during the breeding season. Females leave by late September and probably migrate or disperse to winter hibernacula (Wilson and Ruff, 1999). Young are born in late June to early July (O'Farrell and Studier, 1980). Young develop rapidly, with flight occurring by 16 days of age, and are fully developed by 20 to 21 days.

Threats: The fringed myotis is sensitive to disturbance of roost sites by humans, potentially resulting in abandonment (O'Farrell and Studier 1980; Wilson and Ruff, 1999). Such disturbances could also disrupt the interaction of females and young, such as females failing to retrieve young that have fallen from the neonate cluster, which can result in mortality of the young. Other plausible threats to fringed myotis resulting from construction activities include disturbances of day roosts from human activity, noise, and dust, as well as effects of dust on insect prey. Potential long-term impacts from urban development also include pet, stray, and feral animals' disturbances of roost sites; roost site and foraging habitat degradation, such as trampling and invasive species; and pesticides that may cause secondary poisoning and affect prey abundance.

Long-legged myotis (*Myotis volans*)

Status: The long-legged myotis is designated by CDFW as a California Special Animal. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The long-legged myotis (*Myotis volans*) is widespread throughout western North America, from extreme southeastern Alaska and western Canada (British Columbia and Alberta) south into Baja California and central Mexico (Hall, 1981). In California, it occurs throughout the state except for the Central Valley, eastern Lassen and Modoc counties, and the non-mountainous regions of the Mojave and Colorado deserts (Zeiner *et al.*, 1990b).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species; potential breeding and suitable foraging habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: The long-legged myotis is a yearlong resident of California and primarily occurs in coniferous forests, but it also uses riparian and oak woodland habitats for roosting and foraging (Warner and Czaplewski 1984; Wilson and Ruff 1999; Zeiner *et al.*, 1990b). Day roosts during warmer months typically are in hollow trees and under the bark of exfoliating trees (Zeiner *et al.*, 1990b) but also include abandoned buildings, cracks in the ground, and crevices in canyons and cliff faces (Warner and Czaplewski, 1984). Johnson *et al.* (2007) found that the long-legged myotis in a forested region of north-central Idaho used snags for roosts located mid-slope. This species uses caves

and tunnels as winter hibernation areas, indicating local seasonal migrations. In addition to using forests and woodlands, the long-legged myotis also forages in coastal scrub, chaparral, and desert habitat (Zeiner *et al.*, 1990b). Johnson *et al.* (2007) suggest that habitat selection is a function of preferred prey availability. Long-legged myotis occur at elevations ranging from 60 to 3,770 meters (197 to 12,370 feet) but are most commonly found at 2,000 to 3,000 meters (6,560 to 9,840 feet).

Natural History: Long-legged myotis appear to be opportunistic feeders, foraging both within and above the forest canopy and congregating with other bat species at areas of high insect concentrations (Zeiner *et al.*, 1990b). They may be moth specialists, but they also feed on a variety of insects, including true flies, gnats, midges, mosquitoes, termites, true bugs, leafhoppers, ants, bees, wasps, lacewings, and beetles. They are active throughout the night, with a peak of foraging activity three to four hours after dark (Warner and Czaplewski, 1984). Large maternity colonies of several hundred individuals are formed in day roosts (Zeiner *et al.*, 1990b). Timing of births is variable and occurs from May to August, possibly in relation to climate (Czaplewski, 1984). Young have been observed flying by mid-July (Zeiner *et al.*, 1990b).

Threats: No documented threats to long-legged myotis colonies have been reported in the scientific literature, but, like most bats, this species is likely very sensitive to human disturbance and because it may also roost in abandoned buildings, it is vulnerable to vandalism, extermination, or inadvertent disturbance of roost sites.

Yuma myotis (*Myotis yumanensis*)

Regulatory Status: The Yuma myotis is a CDFW Special Animal.

Range and Distribution: The Yuma myotis is widespread throughout western North America from British Columbia, Canada, south through the western United States to Baja California and central Mexico (Hall, 1981). In the United States, the species occurs in all of Washington and Oregon, most of California, western Idaho and Montana, the extreme western portion of Nevada, the southeastern half of Utah, all of Arizona and New Mexico, and western Texas. It occurs throughout California, except for the most arid parts of the Mojave and Colorado deserts (Zeiner *et al.*, 1990b).

Habitat Requirements and Natural History: Although the Yuma myotis occurs in a wide variety of life zones at elevations ranging from sea level to 10,820 feet, its actual distribution is closely associated with access to water (Zeiner *et al.*, 1990b). Forests and woodlands are primary habitats, and foraging usually occurs within open, uncluttered habitats. Foraging flights are low over water sources such as ponds, streams, and stock ponds (Brigham *et al.*, 1992; Zeiner *et al.*, 1990b). Yuma myotis day roosts include rock crevices, caves, mines, buildings, abandoned swallow nests, and large, live trees (Evelyn *et al.*, 2004; Zeiner *et al.*, 1990b).

Females establish colonial maternity roosts with up to several thousand individuals, and this is where young are born and raised (Zeiner *et al.*, 1990b). Males appear to establish solitary roosts during the breeding season or roost with other bat species (Wilson and Ruff, 1999; Zeiner *et al.*, 1990b). Births are variable, but generally occur in late May to mid-June, with a peak in early June in California (NatureServe, 2007; Zeiner *et al.*, 1990b). Time of first flight is unknown. The Yuma myotis typically forages over water sources for moths, true flies, gnats, midges, mosquitoes, termites, true bugs, caddis flies, ants, bees, and wasps (Brigham *et al.*, 1992).

Threats: No documented threats to Yuma myotis colonies have been reported in the scientific literature, but, like most bats, this species is likely to be very sensitive to human disturbance. Because it may roost in large trees, abandoned buildings, and under bridges, it is vulnerable to vandalism, extermination,

or inadvertent disturbance of roost sites. Other plausible threats to Yuma myotis resulting from construction activities include disturbances of day roosts from human activity, noise, and dust, as well as effects of dust on insect prey. Potential long-term impacts from urban development include disturbance of roost sites by humans and domestic animals; degradation of foraging habitat and roost sites; and introduction of pesticides that may cause secondary poisoning and affect prey abundance.

Potential for Occurrence in the Study Area: The Study Area is located within the known geographic range for Yuma myotis (CDFG, 2008). Roosting habitat including old tunnels is present and suitable foraging habitat occurs throughout the Study Area. This species was detected downstream of the dam structure during surveys conducted in May and July 2012.

Southern grasshopper mouse (*Onychomys torridus ramona*)

Status: The southern grasshopper mouse is designated by CDFW as a California Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The southern grasshopper mouse (*Onychomys torridus*) occurs throughout desert habitats in the southwestern United States and much of Mexico, including western Nevada; the southern portions of California, Arizona, and New Mexico; northern Baja California; western Texas; and south to central Mexico (Hall, 1981). The subspecies *O. t. ramona*, which is a California Species of Special Concern (CSC), is restricted to coastal southern California.

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located within the known geographic range for this species; Suitable habitat occurs within limited portions of the Study Area.

Habitat and Habitat Associations: The southern grasshopper mouse is found rangewide in low arid scrub and semi-scrub vegetation (Frank and Heske, 1992; McCarty, 1975), and the subspecies *O. t. ramona* (which is the subspecies designated as a California Species of Special Concern) occurs in grasslands and sparse coastal scrub habitats. Specific habitat requirements of the southern grasshopper mouse generally are unknown, but Stapp (1997) found that the southern grasshopper mouse uses open expanses and microhabitats dominated by gopher mounds and burrows, possibly because of greater prey availability (*e.g.*, arthropods using burrows for refuge), greater mobility in open expanses, and dust bathing sites in these microhabitats.

Natural History: The southern grasshopper mouse's diet consists mainly of arthropods (*e.g.*, crustaceans, insects, centipedes, millipedes, and arachnids), but may also include other insects and small rodents (Baily and Sperry 1929; Horner *et al.* 1965; McCarty 1975; Stapp, 1997). The southern grasshopper mouse is primarily nocturnal and appears to be active on the surface all year round (Baily and Sperry 1929; Frank and Heske 1992; McCarty, 1975). Because of its high population turnover, relatively early age of sexual maturity, and senescence after the first year, the southern grasshopper mouse probably is subject to "boom and bust" population cycles and is perhaps at high risk of local extirpation under poor conditions.

Threats: There are no identified threats to the southern grasshopper mouse other than loss and fragmentation of grassland and sparse sage scrub habitats in coastal southern California, which probably are the greatest threats to local southern grasshopper mouse populations.

Tehachapi pocket mouse (*Perognathus alticolus inexpectatus*)

Status: The Tehachapi pocket mouse is designated by CDFW as a California Species of Special Concern, and is a U.S. Forest Service Sensitive species. This taxon is not federally or State listed as threatened or endangered.

General Distribution: *P. a. inexpectatus* occupies the Tehachapi Mountains from Tehachapi Pass southwest towards Gorman, as far west as Cuddy Valley near Mount Pinos, and east along the lower slopes of the San Gabriel Mountains to Elizabeth Lake (Williams et al., 1993).

Distribution in the Study Area: There are no known recent records for this species in the Study Area; the Study Area is located outside the known geographic range for this species. This species is however known to occur on the east slopes of the San Gabriel Mountains. Suitable habitat is present within the Study Area.

Habitat and Habitat Associations: The Tehachapi pocket mouse typically occupies native and non-native grasslands, Joshua tree woodland, pinyon-juniper woodland, yellow pine woodland, and oak savannah (Williams et al., 1993). It has also been captured in open pine forests at higher elevations (Huey, 1926), in chaparral and coastal sage communities at lower elevations (Best, 1994), and on rangeland and fallow grain fields (Sulentich, 1983). It constructs burrows in loose, sandy soils (Zeiner et al., 1990b).

Natural History: Little information is available concerning the ecology of the Tehachapi pocket mouse. Other members of the species group are nocturnal granivores, foraging primarily on seeds of grasses, forbs and annuals, but also on leafy plant material and insects (Verts and Kirkland, 1988). Most other members of the genus exhibit seasonal hibernation (Verts and Kirkland, 1988), and it is expected that *P. a. inexpectatus* does as well.

Threats: Livestock grazing is the predominate land-use throughout much of its range. It is unclear how grazing and its subsequent effects on plant diversity and abundance affect the Tehachapi pocket mouse. Many areas within the range of the Tehachapi pocket mouse are used for wind-generated electricity production or have the potential to support wind farms. Such areas are typically crossed by a network of roads, which could lead to increased erosion in steeper terrain. Mineral extraction is another potential threat to the Tehachapi pocket mouse. In general, surface disturbing activities such as mineral extraction are incompatible with persistence of the native small mammal assemblage. Conversion of native habitats to urban use has occurred in the Elizabeth Lake area. If the subspecies persists in small, scattered populations, it is highly vulnerable to local extirpation resulting from natural or human-related events. [BLM, No Date B]

American badger (*Taxidea taxus*)

Status: The American badger is a CDFW Species of Special Concern. This taxon is not federally or State listed as threatened or endangered.

General Distribution: The vast geographic range of the American badger extends as far north as Alberta, Canada and as far south as central Mexico (Hall, 1981). This species occurs in suitable habitat throughout California with the exceptions of the humid coastal forests of Del Norte and Humboldt Counties in the northwest part of the state (Williams, 1986). The elevation range for this species occurs between below sea level at Death Valley to as high as the Arctic-Alpine Life Zone (Long, 1973).

Distribution in the Study Area: There are no known records for this species in the Study Area; the Study Area is located within the known geographic distribution for this species; suitable habitat occurs within portions of the Study Area.

Habitat and Habitat Associations: American badgers exploit a wide variety of open, arid habitats, but are most commonly found in grasslands, savannas, mountain meadows, and open areas of desert scrub (Stephenson and Calcarone, 1999). Basic requirements that have been identified for this species appear to be sufficient food (burrowing rodents), friable soils, and relatively open, uncultivated ground (Williams, 1986).

Natural History: American badgers are most often solitary animals that are primarily nocturnal, but have been reported occasionally foraging and dispersing during the daytime (Lindzey, 1978; Messick and Hornocker, 1981). This species is active year-round except at higher elevations and latitudes, where winter torpidity is common. During winter, individuals at lower elevations will exhibit reduced surface activity and may remain in a single burrow for days or even weeks (Long, 1973; Messick and Hornocker, 1981). This species is an opportunistic predator feeding on such prey resources as mice, chipmunks, ground squirrels, gophers, rabbits, and kangaroo rats. Reptiles, insects, birds, eggs, and carrion are also consumed (Williams, 1986; Zeiner *et al.*, 1990b). American badgers mate in the summer and early autumn with young born in March and early April (Long, 1973).

Threats: This species has experienced large population declines in many areas of southern California and has been steadily decreasing throughout the state over the last century (Williams, 1986). The major cause of mortality to adult badgers is vehicular accidents. Other common threats include habitat conversion to urban and agricultural uses, farming operations, shooting and trapping, poisoning, and reduction of prey base as a result of rodent control activities (Williams, 1986).