

4.1.7 Special-Status Terrestrial Wildlife Species – California Wildlife Habitat Relationships Study

4.1.7.1 Project Nexus

Continued Project O&M and Project-related recreation activities have the potential to affect special-status terrestrial wildlife species. For the purpose of this *Special-Status Terrestrial Wildlife Species – CWHR Study*, a special-status terrestrial wildlife species is defined as a terrestrial species that meets one of the following criteria: (1) is listed under CESA as threatened, endangered or a candidate for listing; (2) is classified as Fully Protected by the State of California; (3) is designated by CDFW as SSC; (4) is designated as a USFS Sensitive Species and found on NFS lands; (5) is listed under the MBTA; or (6) is listed by the USFWS as a Bird of Conservation Concern or protected under the Bald and Golden Eagle Protection Act. Terrestrial wildlife species listed under the federal ESA as threatened or endangered, or as a candidate for listing are addressed in a separate study for this relicensing effort that is specific to those resources.

4.1.7.2 Existing Information and Need for Additional Information

Existing, relevant, and reasonably available information regarding special-status terrestrial wildlife species and their habitat within the proposed Project boundary is provided in Section 4.6 of the Licensees' PAD. As a summary, the Licensees found no recent special-status terrestrial wildlife species survey information. The CNDDDB is a statewide inventory of special-status species that is continually updated. However, the CNDDDB is limited to locations where surveys have been performed and contains only those records that have been submitted to CDFW. Based on available information, there were 56 special-status terrestrial wildlife species identified with the potential to occur on the Project. Of these, bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), and burrowing owl (*Athene cunicularia*), will be covered under the *Special-status Raptors Study*. The other 53 species are included in Table 4.1-5.

Table 4.1-5. Special-Status Terrestrial Wildlife Species with the Potential to Occur on the Project

Common Name/ Scientific Name	Status	Habitat Associations	Temporal and Spatial Distribution ¹	Occurrence in Project Area ²
Yellow-blotched ensatina (<i>Ensatina eschscholtzii croceator</i>)	SSC, FSS	Occurs mostly in oak and pine woodlands, chaparral, and talus in the Tehachapi Mountains south to south to Frazier and Alamo Mountains. Found under surface objects, in rodent burrows, and other subterranean retreats.	Yearlong – BOP, COW, CSC, MCH, MCP, MHW, MHC, MRI, SMC, VFR, VOR, WTM	Three records in CNDDDB from Project vicinity (LEB quadrangle) northwest to west of Quail Lake. However, no records in Project area, which is beyond this taxon's known range.
Desert night lizard (<i>Xantusia vigilis vigilis</i>)	SSC, FSS	Occurs in arid and semi-arid areas, closely associated with Joshua trees. Found in rotted stumps, under logs, leaf litter, and in rodent burrows.	Yearlong – AGS, BOP, BOW, DRI, DSW, JOT, PJN, SGR, VOW	No records.
Coast horned lizard (<i>Phrynosoma blainvillii</i>)	SSC	Occurs in scrubland, grassland, coniferous woods, and broadleaf woodlands where there are openings for basking; areas with loamy or sandy soil suitable for burrowing; scattered shrubs or clumps of grass for hiding cover; and ant colonies (a primary food source). Often found on edges of arroyo bottoms, dry washes, and along dirt roads.	Yearlong – AGS, BOP, CRC, COW, CSC, JUN, MCH, MHC, PGS, VFR, VOW	21 records in CNDDDB from the Project vicinity (BMT, GRV, LEB, LLR, MTC, NEW, PIR, and WTP quadrangles), one of which is within Project area at Pyramid Lake.
Sagebrush lizard (<i>Sceloporus graciosus</i>)	BLM	Occurs in areas dominated by sagebrush and other shrubs, and open forest. Favors open areas with low shrubs. May be confused with western fence lizard (<i>S. occidentalis</i>).	Yearlong – JUN, MCH, MCP, MHW, MHC, PJN, SGB, SMC	No records.
Southern California legless lizard (<i>Anniella stebbinsi</i>) and/or northern California legless lizard (<i>A. pulchra</i>)	SSC, FSS	Because the taxonomy of California legless lizards was only recently revised, information on distribution and habitats of each species is limited. <i>A. stebbinsi</i> occurs in coastal sand dunes, sandy washes, alluvial fans, desert scrub, and chaparral, and is mostly found within the coastal plain south of the Transverse Ranges into northern Baja California. Legless lizards in extreme northwestern Los Angeles County could be <i>A. pulchra</i> or intergrades of the two species.	Yearlong – BOP, BOW, CRC, COW, CSC, DSW, MCH, PGS, VFR, VOW	Two records in CNDDDB from Project vicinity (LEB and NEW quadrangles), including record within 2 miles of Quail Lake. No records in Project area.
Southern rubber boa (<i>Charina umbratica</i>)	ST, FSS	The species range is not well documented, but is known to include parts of the San Bernardino and San Jacinto Mountains. Rubber boas found in the Tehachapi Mountains south to Frazier and Alamo Mountains may represent northern rubber boa (<i>Charina bottae</i>) or intergrades of the two species. Found in open coniferous and oak-conifer forests.	Yearlong – MCP, MHW, MHC, MRI, SMC, VFR, WTM	No records and not included on lists for Los Padres and Angeles National Forests. See comments under 'Habitat Associations.'
Northern three-lined rosy boa (<i>Lichanura orcuttii [trivirgata]</i>)	FSS	Found in various arid and semi-arid habitats, including rocky deserts, canyons, and shrubby areas, particularly in riparian sites.	Yearlong – BAR, CRC, CSC, DRI, DSW, JOT, MCH, MCP, PJN	One record in CNDDDB from the Project vicinity (GRV quadrangle). No records in Project area.
San Bernardino ring-necked snake (<i>Diadophis punctatus modestus</i>)	FSS	The species occurs in a wide variety of moist habitats including woodland openings, rocky slopes, chaparral, wet meadows, and farmland, where there is suitable surface cover.	Yearlong – AGS, BOF, BOW, CRC, COW, CSC, FEW, MCH, MCP, MHC, MRI, PAS, PGS, SMC, URB, VFR, VOW	No records.
Coast patch-nosed snake (<i>Salvadora hexalepis virgultea</i>)	SSC	Occurs in coastal California from San Luis Obispo County to Baja California in coastal plain, canyons, rocky hillsides, and brushy areas. In Los Angeles County this burrowing snake occurs west of the desert.	Yearlong – AGS, BAR, BOP, BOW, CRC, COW, CSC, DRI, DSW, JOT, MCH, MCP, PJN, SGB, VFR, VOW	No records.
Common loon (<i>Gavia immer</i>)	SSC	Winters on lakes, reservoirs, rivers, estuaries, and coastlines. Nests on lakes and other open water areas where there is minimal disturbance. Does not nest in Los Angeles County.	Winter – LAC	No records in CNDDDB from Project vicinity (which only includes nesting records). Occasional winter observations near Project (Castaic Lagoon).

Table 4.1-5. Special-Status Terrestrial Wildlife Species with the Potential to Occur on the Project (continued)

Common Name/ Scientific Name	Status	Habitat Associations	Temporal and Spatial Distribution ¹	Occurrence in Project Area ²
American white pelican (<i>Pelecanus erythrorhynchos</i>)	SSC	Wintering and post-breeding pelicans occur (sometimes in large numbers) along the coast, and on lakes, reservoirs, rivers, estuaries, bays, and marshes. Rarely breeds in southern California, except along Colorado River	Summer – BAR Yearlong – LAC	No records.
Least bittern (<i>Ixobrychus exilis</i>)	SSC, BCC	Occurs in freshwater or brackish marshes with tall, dense emergent vegetation. A secretive species that can be difficult to document.	Yearlong – FEW Summer – LAC	No records.
Redhead (<i>Aythya americana</i>)	SSC	Winters and stops during migration in open water on lakes, ponds, and reservoirs. Nests in emergent wetlands, especially where dense cattails or tule are interspersed with open water.	Yearlong – FEW Winter – LAC	No records in CNDDDB from Project vicinity. Occasional nonbreeding observations near Project (Castaic Lagoon).
Northern goshawk (<i>Accipiter gentilis</i>)	FP, SSC, FSS, BCC, BLM	Year-round resident of forested habitats, particularly mature coniferous and mixed forests. Few recent records in the mountains of Southern California.	Winter – BOP, BOW, CRC, COW, MCH, SGB, VRI, VOW Yearlong – JUN, MCP, MHW, MHC, MRI, PPN, SMC	No records. Considered unlikely to occur in the Barren Ridge Renewable Transmission Project area, which substantially overlaps the Project area (USFS, BLM and LADWP 2012).
Northern harrier (<i>Circus cyaneus</i>)	SSC	Marshes, meadows, grasslands, open rangelands, emergent wetlands, and cultivated fields. Nests on the ground, often in brushy cover near water, but also in grassland, fields, and sagebrush flats.	Winter – CRC, DRI, DSW, MCH Summer – MCP, MHW Yearlong – AGS, BAR, BOP, BOW, COW, CSC, FEW, JUN, LAC, PGS, PJN, SGB, URB, VFR, VOW, WTM	No records.
Ferruginous hawk (<i>Buteo regalis</i>)	BCC	Occurs in grasslands, desert scrub, agricultural areas or other areas of sparse shrubs, where there also poles, trees, cliffs, or other elevated features for nesting.		One record in CNDDDB from Project vicinity (LEB quadrangle). No records in Project area.
White-tailed kite (<i>Elanus leucurus</i>)	FP, BLM	Savanna, open woodland, marshes, partially cleared lands and cultivated fields, mostly in lowland situations. Often near agricultural areas. Nests in groves of deciduous trees.	Yearlong – AGS, BAR, BOP, BOW, CRC, COW, CSC, FEW, MCH, PGS, URB, VRI, VOW, WTM	One record in CNDDDB from Project vicinity (NEW quadrangle). No records in Project area.
Prairie falcon (<i>Falco mexicanus</i>)	BCC	Savanna, perennial grasslands, rangeland, and desert scrub. Nests on cliff ledges.		Three records in CNDDDB from Project vicinity (BMT, LEB, and LIM quadrangles). No records in Project area.
American peregrine falcon (<i>Falco peregrinus anatum</i>)	FP, BCC	Breeds in open landscapes with cliffs. Winters in any open habitat, mudflats, coastlines, lake edges and mountain chains, especially in areas where potential prey (other birds) are numerous.	Yearlong – AGS, BAR, BOP, BOW, CRC, COW, CSC, DRI, FEW, JUN, LAC, MCH, MCP, MHW, MHC, MRI, PGS, PJN, SGB, SMC, URB, VRI, VOW, WTM	No records.
Long-eared owl (<i>Asio otus</i>)	SSC	Riparian bottomland forest with over story of willows and cottonwoods; riparian forest along stream corridors (often dominated by live oak trees). Wooded areas with dense vegetation needed for roosting and nesting, adjacent open areas needed for hunting.	Yearlong – AGS, BOP, BOW, CRC, COW, DRI, JUN, MCH, MCP, MHW, MWC, PAS, PGS, SGB, SMC, VRI, VOW, WTM Summer -MRI	No records.
California spotted owl (<i>Strix occidentalis occidentalis</i>)	SSC, FSS, BCC, BLM	Mixed forests dominated by black oak, lodgepole pine, red fir from 1,200 to 5,500 feet elevation	Yearlong – BOP, COW, MHW, MHC, SMC, VRI Summer – MRI	No records.
Olive-sided flycatcher (<i>Contopus cooperi</i>)	SSC, BCC	Non-breeding habitat includes a variety of forest, woodland, and open areas with scattered trees, especially where tall dead snags are present. Primary habitat is mature, evergreen montane forest. Breeds in various forest and woodland habitats.	Migrant – BOP Summer – CRC, MCH, MHW, MHC, MRI, SMC	No records.

Table 4.1-5. Special-Status Terrestrial Wildlife Species with the Potential to Occur on the Project (continued)

Common Name/ Scientific Name	Status	Habitat Associations	Temporal and Spatial Distribution ¹	Occurrence in Project Area ²
Vermilion flycatcher (<i>Pyrocephalus rubinus</i>)	SSC	Occurs in widely scattered locations of scrub desert, cultivated lands, riparian woodlands, usually near water, including ditches, ponds, and irrigation. Trees and tall shrubs used for nesting and roosting.	Yearlong – DRI	No records.
Purple martin (<i>Progne subis</i>)	SSC	Found in a wide variety of forest and woodland areas, where open and partly open sites occur, frequently near water or around towns, where dragonflies and other large, aerial insects are prey.	Summer – AGS, BOP, COW, FEW, LAC, MHW, MHC, PGS, MRI, SMC, URB, VRI, VOW, WTM	No records.
Le Conte’s thrasher (<i>Toxostoma leconteii</i>)	SSC, BCC	Closely associated with saltbrush and found in relatively open areas including desert scrub and dry washes.	Yearlong – DSW, JOT	No records.
Loggerhead shrike (<i>Lanius ludovicianus</i>)	SSC, BCC	Open country with scattered trees and shrubs, savanna, desert scrub, and, occasionally, open woodland; often perches on poles, wires or fence posts	Yearlong – AGS, BAR, BOP, BOW, CRC, COW, CSC, DRI, DSW, JOT, JUN, MCH, MHW, MHC, MRI, PGS, PJN, SGB, VRI, VOW, WTM Winter -URB	Six records in CNDDDB from the Project vicinity (LLR, MTC, NEW, WSM, and WTP quadrangles), some of which are within 2 miles of Project area. No records in Project area.
Gray vireo (<i>Vireo vicinior</i>)	SSC, FSS, BCC, BLM	Dry chaparral; in chamise-dominated habitat and mountains of Mojave Desert; associated with juniper and sagebrush. Requires closed to partly open layer of low shrub cover (1-5 feet tall)	Summer – CRC, JUN, MCH, PJN	No records.
Yellow warbler (<i>Setophaga petechia</i>)	SSC, BCC	Open scrub, second-growth woodland, thickets, farmlands, and gardens, especially near water; riparian woodlands, especially areas with willows.	Migrant – CRC, CSC, DSW, MCH Summer – BOP, BOW, COW, DRI, MCH, MHW, MHC, MRI, SMC, URB, VRI, VOW	Three records in CNDDDB from the Project vicinity (LEB and VAV quadrangles). Also reported from Pyramid reach downstream of Pyramid Lake, Liebre Gulch, and Gorman Creek (Jones and Stokes 2002).
Yellow-breasted chat (<i>Icteria virens</i>)	SSC	Second growth, shrubby old pastures, thickets, bushy areas, scrub, woodland undergrowth, and fence rows, including low wet places near streams, pond edges, or swamps; thickets with few tall trees; early successional stages of forest regeneration; commonly in sites close to human habitation.	Migrant – CSC, MRI Summer – VRI Yearlong – VRI	No records.
Grasshopper sparrow (<i>Ammodramus savannarum</i>)	SSC	Prefer grasslands of intermediate height for breeding and often associated with clumped vegetation interspersed with patches of bare ground.	Summer – AGS, PGS, WTM	No records.
Bell’s sage sparrow (<i>Artemisiospiza belli belli</i>)	BCC	Strongly associated with sagebrush for breeding. Also found in salt-bush brushland, shadscale, antelope brush, rabbitbrush, mesquite, and chaparral.	Yearlong – CRC, CSC, MCH, MCP, SGB Summer – JUN	Four records in CNDDDB from the Project vicinity (LEB and VAV quadrangles). No records in Project area.
Vesper sparrow (<i>Pooecetes gramineus affinis</i>)	SSC, BCC	Found in various open habitats with grass, including prairie, sagebrush steppe, meadows, pastures and roadsides.	Winter – AGS, MCH, PGS, Summer – JUN, MCP, PJN, SGB	No records.
Summer tanager (<i>Piranga rubra</i>)	SSC	Breed near gaps and edges of open forests (deciduous trees, mixed pine-oak woodlands). Found along streams with willows, cottonwoods, mesquite and saltcedar.	Summer – DRI, VRI Migrant – DSW	No records.
Tricolored blackbird (<i>Agelaius tricolor</i>)	SSC, BCC, BLM	Fresh-water marshes of cattails, tule, and sedges. Nests in vegetation of marshes or thickets, sometimes nests on the ground. Historically strongly tied to emergent marshes; in recent decades much nesting has shifted to non-native vegetation.	Yearlong – AGS, FEW, PGS, URB, VRI, WTM	Four records in CNDDDB from the Project vicinity (LEB and LLR quadrangles), including record at Quail Lake as recently as 2011, but not found in the 2014 survey.

Table 4.1-5. Special-Status Terrestrial Wildlife Species with the Potential to Occur on the Project (continued)

Common Name/ Scientific Name	Status	Habitat Associations	Temporal and Spatial Distribution ¹	Occurrence in Project Area ²
Yellow-headed blackbird (<i>Xanthocephalus xanthocephalus</i>)	SSC	Fresh-water marshes of cattail, tule, or bulrushes. Nests in wet grasses, reeds, cattails. Also in open cultivated lands, pastures and fields.	Summer – AGS, PGS, WTM Yearlong – FEW, LAC, PAS	No records.
Pallid bat (<i>Antrozous pallidus</i>)	SSC, FSS	Arid deserts and grasslands, often near rocky outcrops and water. Less abundant in evergreen and mixed conifer woodland. Usually roosts in rock crevice or building, less often in cave, tree hollow, mine, etc.	Yearlong – AGS, BAR, BOP, BOW, CRC, COW, CSC, DRI, DSW, JOT, JUN, MCH, MCP, MHW, MHC, MRI, PAS, PGS, PJN, SGB, SMC, VRI, VOW, WTM Summer -URB	Two records in CNDDDB from the Project vicinity (COB and NEW quadrangles) No records in Project area.
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	SSC, FSS	Maternity and hibernation colonies typically are in caves and mine tunnels. Prefers relatively cold places for hibernation, often near entrances and in well-ventilated areas.	Yearlong – AGS, BAR, BOP, BOW, CRC, COW, CSC, DRI, DSW, JOT, JUN, MCH, MCP, MHW, MHC, MRI, PAS, PGS, PJN, SGB, SMC, URB, VRI, VOW, WTM Summer – AGS,	Three records in CNDDDB from the Project vicinity (BUP, MTC, and LEB quadrangles). No records in Project area.
Spotted bat (<i>Euderma maculatum</i>)	SSC, BLM	Solitary bat found in arid deserts, grasslands, and conifer forests where there are suitable roosts, including crevices in cliffs, caves, and building. Possibly occupies coniferous stands in summer and migrates to lower elevations in late summer/early fall.	Yearlong – AGS, BOP, BOW, COW, CSC, DRI, DSW, JOT, JUN, MCP, MHC, MRI, PGS, PJN, SGB, SMC, URB, VRI, VOW, WTM	One record in CNDDDB from the Project vicinity (NEW quadrangle). No records in Project area.
Western mastiff bat (<i>Eumops perotis</i>)	SSC, BLM	Roosts in crevices and shallow caves on the sides of cliffs and rock walls, and occasionally buildings. Roosts usually high above ground with unobstructed approach. Most roosts are not used throughout the year. May alternate between different day roosts.	Yearlong – AGS, BAR, BOP, BOW, CRC, COW, CSC, DRI, DSW, FEW, JOT, JUN, MCH, MCP, MHW, MHC, MRI, PAS, PGS, PJN, URB, VRI, VOW, WTM	Two record in CNDDDB from the Project vicinity (COB quadrangle), in vicinity of Blue Point Campground north of Lake Piru. No records in Project area.
Western red bat (<i>Lasiurus blossevillii</i>)	SSC	Roosts in foliage (mostly in trees), forages in open areas (not including deserts) from sea level up through mixed conifer forests. Typically occurs near edges and in habitat mosaics. Migrates between summer and winter ranges.	Yearlong – AGS, BOP, BOW, CRC, COW, CSC, MCP, MHC, MRI, PAS, PGS, PJN, URB, VRI, VOW, WTM Summer – FEW, JUN, LAC, MCH, MHW, SMC	No records.
Western small-footed myotis (<i>Myotis ciliolabrum</i>)	BLM	Roosts in crevices and cracks in canyon walls, caves, mine tunnels, behind loose tree bark. Found in deserts, chaparral, riparian zones, and coniferous forests.	Yearlong – AGS, BAR, BOP, BOW, CRC, COW, CSC, DRI, FEW, JOT, JUN, LAC, MCH, MCP, MHW, MHC, MRI, PAS, PGS, PJN, SGB, SMC, URB, VRI, VOW, WTM	No records.
Long-eared myotis (<i>Myotis evotis</i>)	BLM	Mostly forested areas, especially those with broken rock outcrops; also shrubland, over meadows near tall timber, along wooded streams, over reservoirs. Often roosts in buildings, also in hollow trees, mines, caves, fissures, etc.	Yearlong – BAR, BOP, BOW, CRC, COW, CSC, FEW, JUN, LAC, MCH, MCP, MHW, MHC, MRI, PAS, PGS, PJN, SMC, VFR, VOW, WTM Migrant -DSW, JOT Summer –SGB	No records.
Fringed myotis (<i>Myotis thysanodes</i>)	BLM	Primarily at middle elevations in desert, grassland, and woodland habitats. Roosts in caves, mines, rock crevices, buildings, and other protected sites. Nursery colonies occur in caves, mines, and sometimes buildings.	Yearlong – AGS, BAR, BOP, BOW, CRC, COW, CSC, JOT, JUN, MCH, MCP, MHW, MHC, MRI, PAS, PGS, PJN, SGB, SMC, URB, VFR, VOW Summer – DRI, DSW, LAC,	One record in CNDDDB from the Project vicinity (LIM quadrangle). No records in Project area.
Yuma myotis (<i>Myotis yumaensis</i>)	BLM	Open forests and woodlands with nearby sources of water over which to forage. Nursery colonies occur in buildings, caves, mines, and under bridges. Hibernates in winter.	Yearlong – AGS, BOP, BOW, CRC, COW, CSC, FEW, JUN, MCH, MCP, MHW, MHC, MRI, PAS, PGS, PJN, SGB, SMC, URB, VRI, VOW, WTM Summer – DRI, DSW, JOT, LAC,	Two records in CNDDDB from the Project vicinity (LEB and LIM quadrangles). No records in Project area.
San Diego black-tailed jackrabbit (<i>Lepus californicus bennetti</i>)	SSC	The species occurs in open country with scattered thickets or patches of shrubs, including open plains, fields, and deserts. The sub-species is restricted to the South Coast bioregion.	Yearlong – AGS, BOP, BOW, CRC, COW, CSC, DRI, DSW, JOT, JUN, MCH, MCP, MHW, MHC, PAS, PGS, PJN, SGB, SMC, URB, VRI, VOW, WTM Summer -MRI	No records.
Tehachapi white-eared pocket mouse (<i>Perognathus alticolus inexpectatus</i>)	SSC, FSS	Documented in various open grassy or weedy habitats within sagebrush, coastal sage scrub, desert scrub, and open forests at elevations above 3,500 feet.	Yearlong – MCH, SB	11 records in CNDDDB from the Project vicinity (BMT, LEB), including record within 2 miles of Quail Lake. No records in Project area.

Table 4.1-5. Special-Status Terrestrial Wildlife Species with the Potential to Occur on the Project (continued)

Common Name/ Scientific Name	Status	Habitat Associations	Temporal and Spatial Distribution ¹	Occurrence in Project Area ²
San Joaquin pocket mouse (<i>Perognathus inornatus</i>)	SSC	Found in open sandy grasslands and scrub areas in the interior valleys at 1,100 to 2,000 feet elevation.	Yearlong – AGS, BAR, BOW, COW, MCH, PAS, PGS, VOW	One record in CNDDDB from the Project vicinity (BMT quadrangle). No records in Project area, which may be largely or entirely outside of this species' range.
Los Angeles pocket mouse (<i>Perognathus longimembris brevinasus</i>)	SSC	Occurs in low elevation grassland, alluvial sage scrub and coastal sage scrub within coastal basins of Southern California. Few records in Los Angeles County where much of its potential habitat may have been lost to development.	Yearlong – CRC, COW, CSC, DRI, DSW, JOT, MCH, MCP, SGB, VOW	No records. Project area may be outside of this taxon's range.
Southern grasshopper mouse (<i>Onychomys torridus</i>)	SSC	Most common in arid desert habitats, including desert scrub and alkali desert scrub, but also occurring in coastal scrub, sagebrush, chaparral, and other habitats.	Yearlong – AGS, CSC, DRI, DSW, MCH, MRI, PGS, SGB, VRI	No records in CNDDDB. Observed in Project area (Aspen Environmental Group 2007).
Monterey dusky-footed woodrat (<i>Neotoma macrotis luciana</i>)	SSC	The species is generally found in dense chaparral, coastal sage-scrub, pinyon-juniper, oak and riparian woodlands and mixed conifer forest habitats that have a well-developed understory. Distribution of subspecies is uncertain.	Yearlong – BOP, BOW, CRC, COW, CSC, MCH, MCP, MHW, MHC, MRI, PGS, SGB, SMC, VRI, VOW, WTM	No records in CNDDDB. Species reported in Project area (Aspen Consulting Group 2007); however, subspecies not indicated.
San Diego desert woodrat (<i>Neotoma lepida intermedia</i>)	SSC	The species occurs over a large part of the arid western U.S. and Mexico, whereas the sub-species is evidently limited to coastal areas from San Luis Obispo County south where populations have declined. The species is found in Joshua tree woodlands, pinyon-juniper woodlands, mixed chaparral, sagebrush, and desert habitats.	Yearlong – BOP, CRC, CSC, DRI, DSW, JOT, MCH, MCP, MHC, PJN, SGB	No records.
Ringtail (<i>Bassariscus astutus</i>)	FP	Associated with areas with a mixture of forest and shrub-dominated habitats, with rock recesses, hollows, and other sites suitable for nesting and cover and within 0.6-mile of water.	Yearlong – AGS, BAR, BOP, BOW, CRC, COW, CSC, DRI, DSW, JOT, JUN, MCH, MCP, MHW, MHC, MRI, PAS, PGS, PJN, SGB, SMC, VRI, VOW, WTM	No records.
American badger (<i>Taxidea taxus</i>)	SSC	Occurs in open or brushy habitats, including early successional stages of forests, with dry, friable, often sandy, soils for burrowing.	Yearlong – AGS, BAR, BOP, BOW, CRC, COW, CSC, DRI, DSW, JOT, JUN, MCH, MCP, MHW, MRI, PAS, PGS, PJN, SGB, VRI, VOW, WTM	No records.
Total	56			

¹Temporal and Spatial Distribution derived from WHR

²Records from CNDDDB and other sources.

Key:

- AGS = Annual Grassland
- BAR = Barren
- BCC = Bird of Conservation Concern
- BLM = Bureau of Land Management
- BMT = Black Mountain
- BOP = Blue Oak-Foothill Pine
- BOW = Blue Oak Woodland
- BUP = Burnt Peak
- CDFW FP = Fully Protected
- CESA = California Endangered Species Act
- CNDDDB = California Natural Diversity Database
- CRC = Chamise-redshank chaparral
- CT = Candidate Threatened
- COB = Cobblestone Mountain
- COW = Coastal Oak Woodland
- CSC = Coastal Scrub
- DRI = Desert Riparian
- DSW = Desert Wash
- FEW = fresh Emergent Wetland
- FSS = Forest Service Sensitive
- GRV = Green Valley

JOT = Joshua Tree
JUN = Juniper
LAC = Lacustrine
LLR = La Liebre Ranch
LEB = Lebec
LIM = Liebre Mountain
MCH = Mixed Chaparral
MCP = Montane Chaparral
MHC = Montane Hardwood-Conifer
MHW = Montane Hardwood
MRI = Montane Riparian
MTC = Mint Canyon
NEW = Newhall
PAS = Pasture
PGS = Perennial Grassland
PIR = Piru
PJN = Pinyon-Juniper
SE = State Endangered
SGB = Sagebrush
SMC = Sierran Mixed Conifer
ST = State Threatened,
SSC = Species of Special Concern
URB = Urban WHR = Wildlife Habitat Relationship System
VFR = Valley Foothill Riparian
VOW = Valley Oak Woodland
WSM = Warm Springs Mountain
WTM = Wet Meadow
WTP = Whittaker Peak
VAV = Val Verde

In order to meet the goals of the Study, the Licensees have identified the following additional information needs: (1) collection of further CWHR data that may occur in the proposed Project boundary; and (2) a list of Project O&M activities that includes location and duration of the activity.

4.1.7.3 Study Goals and Objectives

The goals of this *Special-Status Terrestrial Wildlife Species – CWHR Study* are to: (1) determine the quality and suitability of potential habitat for special-status terrestrial wildlife species within the proposed Project boundary; and (2) determine if either the Lower Quail Canal or Castaic Penstocks constitute barriers to wildlife movement.

The objective of this *Special-Status Terrestrial Wildlife Species – CWHR Study* is to gather sufficient data necessary to fill recognized gaps in existing information regarding the potential for special-status terrestrial wildlife species to occur within the proposed Project boundary and to determine if Project penstocks and canals are barriers to wildlife movement.

4.1.7.4 Study Methods

Study Area

The study area for the *Special-Status Terrestrial Wildlife Species – CWHR Study* consists of the area within the proposed Project boundary and a 1.5 mile buffer surrounding the proposed Project boundary. The lands overlying the Angeles Tunnel are not included, because the Licensees do not perform any Project-related maintenance activities nor allow any recreation there. The study area for the *Special-Status Terrestrial Wildlife Species – CWHR Study* is shown below in Figure 4.1-12.

General Concepts and Procedures

- Personal safety is the most important consideration of each fieldwork team. Fieldwork will only occur in safely accessible areas and under conditions deemed safe by the field crews. Locations within the study area that cannot be accessed in a safe manner (e.g., locations containing dense vegetation or unsafe slopes) and areas inundated when the surveys are performed, will not be surveyed; these areas will be identified in the data summary and an explanation for survey exclusion will be provided.
- The *Special-Status Terrestrial Wildlife Species – CWHR Study* will begin after FERC issues its Study Plan Determination.
- The *Special-Status Terrestrial Wildlife Species – CWHR Study* does not plan to include the development of requirements for the new license, which will be addressed outside the Study.

- The *Special-Status Terrestrial Wildlife Species – CWHR Study* focuses specifically on special-status terrestrial wildlife within the study area, but the study area for the *Special-Status Terrestrial Wildlife Species – CWHR Study* is specific to locations that can support that resource.
- If required for the performance of the *Special-Status Terrestrial Wildlife Species – CWHR Study*, the Licensees will make a good faith effort to obtain permission to access private property well in advance of initiating the study. The Licensees will only enter private property if permission has been provided by the landowner.
- The Licensees will acquire all necessary agency permits and approvals prior to beginning fieldwork for the *Special-Status Terrestrial Wildlife Species – CWHR Study*.
- Field crews may make variances to the *Special-Status Terrestrial Wildlife Species – CWHR Study* in the field to accommodate actual field conditions and unforeseen problems. Any variances from the *Special-Status Terrestrial Wildlife Species – CWHR Study* will be noted in the data resulting from the *Special-Status Terrestrial Wildlife Species – CWHR Study*.
- To prevent the introduction and transmittal of amphibian chytrid fungus and invasive aquatic species (e.g., quagga mussels, zebra mussel, and Asian clams), field crews will be trained on, provided with, and use materials (e.g., Quat) for decontaminating their boots, waders, and other equipment when leaving or traveling between water-based study sites. Field crews will follow DWR's Quagga and Zebra Mussel Rapid Response Plan and CDFW's Aquatic Invasive Species Decontamination Protocol which can be found at the following link: (<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=43333>). All boats used during the study will follow cleaning protocols, including inspections before and after use. All decontamination requirements in place at Project reservoirs including those of DWR's Quagga and Zebra Mussel Rapid Response Plan for the SWP will be strictly followed (DWR 2010).

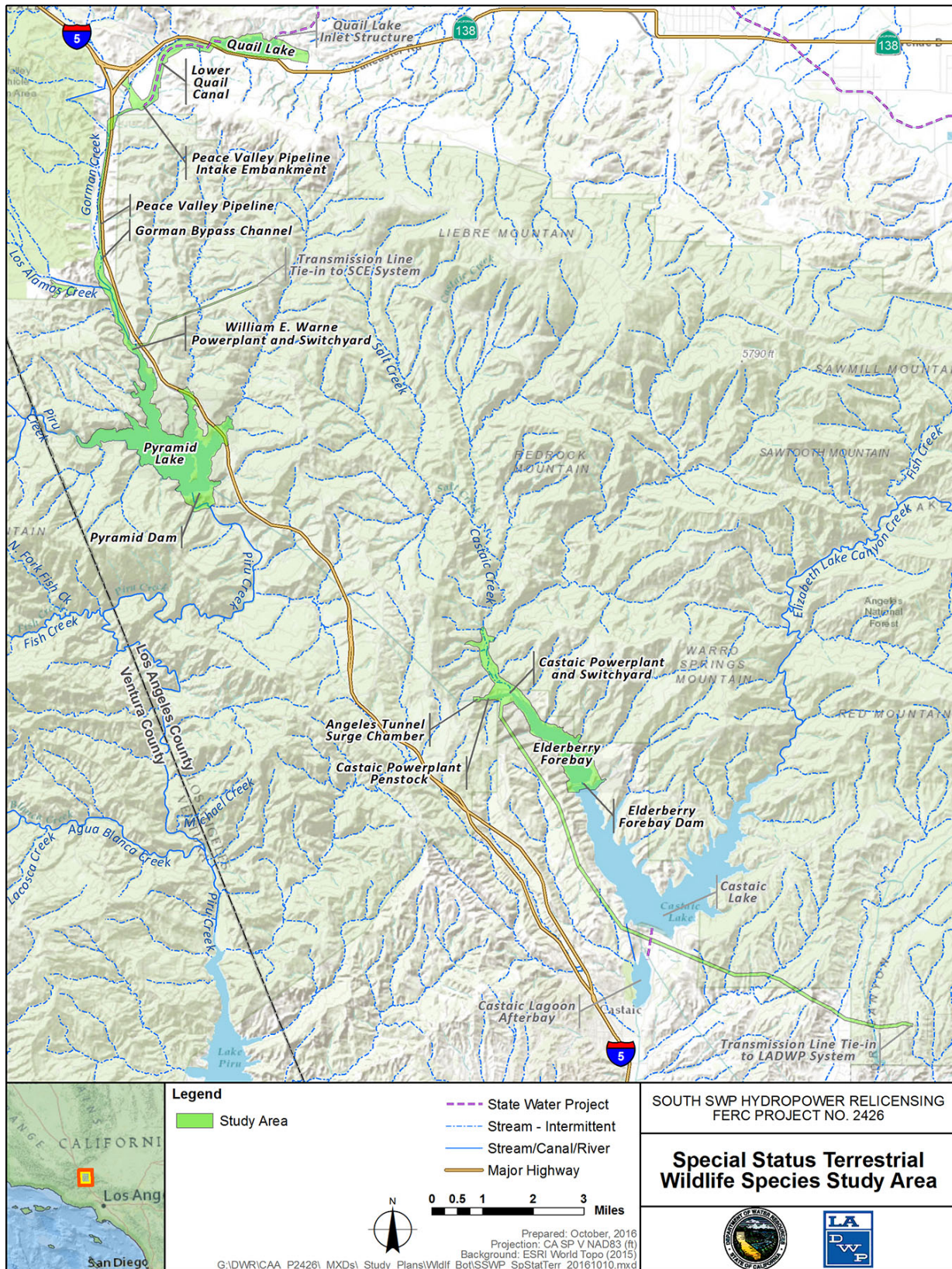


Figure 4.1-12. Special-Status Terrestrial Wildlife Species – CWHR Study Area

Methods

This *Special-Status Terrestrial Wildlife Species – CWHR Study* consists of two steps: (1) select sampling locations and create field study maps; and (2) conduct field habitat assessments to evaluate habitat, document potential movement barriers at the Lower Quail Canal and Castaic Penstocks, and incidentally document special-status terrestrial wildlife. These steps are described below.

Step 1 – Select Sampling Locations and Create Field Study Maps. There were 26 terrestrial CWHR vegetation types identified within the study area, as shown in Table 4.1-6 below. Of these, the most common are Mixed Chaparral (36,562 acres), Coastal Scrub (13,564 acres), Chamise-Redshank Chapparal (8,632 acres) and Sagebrush (4,107 acres). There are also four riparian and wetland vegetation types identified in the study area: Montane Riparian (151 acres), Valley Foothill Riparian (266 acres), Wet Meadow (60 acres), and Freshwater Emergent Wetland (86 acres) (CDFW 2014). Using GIS, the Licensees will select sampling points in representative habitats, with more points in areas with higher potential for special-status wildlife species or considered sensitive natural communities (e.g., Wet Meadow and Montane Riparian) and larger acreage inside the study area. Table 4.1-6 shows the 26 terrestrial vegetation types and the number of sampling points for each.

Table 4.1-6. California Wildlife Habitat Relationship Acreages in the Study Area and Sampling Points

California Wildlife Habitat Relationship Type	Acreage ¹	Percentage of Study Area	Number of Sampling Points ²
<i>Tree-Dominated Habitats</i>			
Blue Oak-Foothill Pine (BOP)	505	<1	3
Blue Oak Woodland (BOW)	406	<1	2
Coastal Oak Woodland (COW)	174	<1	2
Desert Riparian (DRI)	7	<1	1
Joshua Tree (JST)	0.85	<1	1
Montane Hardwood-Conifer (MHC)	19	<1	1
Montane Hardwood (MHW)	426	<1	2
Montane Riparian (MRI)	151	<1	2
Pinyon-Juniper (PJN)	602	<1	3
Sierran Mixed Conifer (SMC)	95	<1	1
Valley Oak Woodland (VOW)	290	<1	2
Valley Foothill Riparian (VRI)	266	<1	2
<i>Shrub-Dominated Habitats</i>			
Chamise-Redshank Chaparral (CRC)	8,633	11	5
Coastal Scrub (CSC)	13,564	17	5
Desert Wash (DSW)	228	<1	2
Juniper (JUN)	325	<1	2
Mixed Chaparral (MCH)	36,562	47	5
Montane Chaparral (MCP)	87	<1	1
Sagebrush (SGB)	4,107	5	4
<i>Herbaceous-Dominated Habitats</i>			
Annual Grassland (AGS)	7728	10	3
Freshwater Emergent Wetland (FEW)	86	<1	2
Pasture (PAS)	74	<1	1
Perennial Grassland (PGS)	23	<1	2
Wet Meadow (WTM)	60	<1	2
<i>Developed Habitats</i>			
Urban (URB)	2185	4	2
<i>Non-vegetated Habitats</i>			
Barren (BAR)	1142	1	2
TOTAL	76,745.85	100	60

Notes:

¹Acreages include underground features.²Sampling points are the same as those in the ESA-listed Terrestrial Wildlife Species – CWHR Study and information collected will be used for both studies.

The Licensees will produce field maps that will include CWHR habitat types, sampling points, CNDDDB occurrences or other known locations of special-status wildlife species, Protected Activity Centers and Home Range Areas, and all Project facilities, including the Lower Quail Canal and Castaic Penstocks.

Step 2 – Conduct Field Habitat Assessments to Evaluate Habitat, Document Potential Movement Barriers at the Lower Quail Canal and Castaic Penstocks, and Incidentally Document Special-Status Terrestrial Wildlife. Field habitat assessments and characterizations will be conducted at representative sampling points, using the CDFW's CWHR System data forms (CDFW 2016). Information collected on these forms

includes plant species composition, stages, structure, percent cover, and habitat elements, as well as diameter at breast height of wooded habitats. Evidence of Project O&M activities and Project-related recreation activities in the vicinity of the sampling points will also be documented. Photographs of all sampling points will be taken in each cardinal direction from the center point of the plot.

Two Project facilities will be surveyed for their potential to inhibit wildlife passage: (1) the two-mile-long Lower Quail Canal; and (2) the six 2,400-foot-long Castaic Penstocks. The length of these features will be walked and areas with at least a 2.5 foot clearance will be marked by GPS. (A 2.5 foot clearance is a height all known large mammals can pass under.) A photograph of each passage feature will also be collected. Other Project features that could potentially be barriers to wildlife movement (roads, fences, transmission line corridors, developed recreation sites, maintenance areas, parking lots, and proposed construction/staging areas) will be included on the updated map during analysis, as well.

If a special-status terrestrial wildlife species is incidentally identified, the survey team will prepare a California Native Species Field Survey Form, which records data for submittal to CDFW for addition to the CNDDDB.

Quality Assurance and Quality Control

Field data will be collected in a manner that promotes high quality results, and will be subject to appropriate QA/QC procedures, including spot-checks of transcription and comparison of GIS maps with field notes.

Analysis

Field data will be used in conjunction with CWHR to correct and update the map created in Step 1 and refine the list and habitats of special-status terrestrial wildlife potentially occurring in the study area for the *Special-Status Terrestrial Wildlife Species – CWHR Study*. The Licensees will then use the updated map to identify areas within the study area for the *Special-Status Terrestrial Wildlife Species – CWHR Study* in which special-status wildlife habitat and Project facilities, including potential barriers to wildlife movement, and O&M overlap.

For the Lower Quail Canal and Castaic Penstocks, a separate map will be developed showing any areas that would restrict large mammal passage for more than a 0.5-mile stretch along the facilities.¹

Reporting

The Licensees will compile and summarize results of this *Special-Status Terrestrial Wildlife Species – CWHR Study*, as well as other existing and relevant information, to

¹ Height and distance per 2016 Forest Service November 21, 2016 comment letter, Study request 14: Wildlife Study Plan: Large Mammal Movement, p. 184.

the extent completed and ready for incorporation, in the Licensees' ISR, USR, DLA, and FLA.

4.1.7.5 Consistency of Methodology with Generally Accepted Scientific Practices

This *Special-Status Terrestrial Wildlife Species – CWHR Study* is consistent with the goals, objectives, and methods outlined for the most recent FERC hydroelectric relicensing efforts in California, including the Yuba River Development Project (FERC Project No. 2246), French Meadows Transmission Line Project (FERC Project No. 2479), Camp Far West Transmission Line Project (FERC Project No. 10821), Drum-Spaulding Project (FERC Project No. 2310) and Yuba-Bear Hydroelectric Project (FERC Project No. 2266).

4.1.7.6 Schedule

The *Special-Status Terrestrial Wildlife Species – CWHR Study* will begin after FERC issues its Study Plan Determination. The Licensees anticipate the schedule below will be followed to complete the *Special-Status Terrestrial Wildlife Species – CWHR Study*.

Fieldwork Preparation	January 2018 – March 2018
Fieldwork	April 2018 – Sept 2018
Data QA/QC	October 2018
Data Analysis & Reporting	October 2018 – December 2018

4.1.7.7 Level of Effort and Cost

Based on the work effort described above, the Licensees estimate the current cost to complete this *Special-Status Terrestrial Wildlife Species – CWHR Study* will range between \$212,000 and \$318,000.

4.1.7.8 References

- CDFW. 2016. California Wildlife Habitat Relationships. Available online: <<https://www.wildlife.ca.gov/Data/CWHR>>. Accessed December 16, 2016. Last updated 2016. CDFW, Sacramento, CA.
- CDFW. 2014 California Interagency Wildlife Task Group. 2014. California Wildlife Habitat Relationships, version 9.0, personal computer program. Sacramento, CA.
- DWR. 2010. The Quagga and Zebra Mussel Rapid Response Plan for the State Water Project. 93 pp. CONFIDENTIAL/PRIVILEGED – Not for Public Distribution.