# TERR 2 – WILDLIFE RESOURCES TECHNICAL MEMORANDUM

**KERN RIVER NO. 1 HYDROELECTRIC PROJECT**
***FERC PROJECT NO. 1930***

***PREPARED FOR:***


**December 2025**

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## LIST OF ACRONYMS

| | |
|---|---|
| AGS | Annual Grassland |
| APLIC | Avian Power Line Interaction Committee |
| BAR | Barren |
| BCC | Birds of Conservation Concern |
| BOP | Blue Oak – Foothill Pine |
| BOW | Blue Oak Woodland |
| CALVEG | Classification and Assessment with Landsat of Visible Ecological Groupings |
| CC | California Candidate for Listing |
| CD | California Delisted |
| CDFW | California Department of Fish and Wildlife |
| CE | California Endangered |
| CFP | California Fully Protected |
| CNDDB | California Natural Diversity Database |
| CSC | California Species of Concern |
| CT | California Threatened |
| CWHR | California Wildlife Habitat Relationships |
| DNA | deoxyribonucleic acid |
| Eagle Act | Bald and Golden Eagle Protection Act |
| FD | Federal Delisted |
| FE | Federal Endangered |
| FERC | Federal Energy Regulatory Commission |
| Forest Service | United States Forest Service |
| FPE | Federal Proposed Endangered |
| FPT | Federal Proposed Threatened |
| FSCC | Forest Service Species of Conservation Concern |
| GIS | Geographic Information System |
| GPS | Global Positioning System |

| | |
|---|---|
| LAC | Lacustrine |
| MCH | Mixed Chaparral |
| MHW | Montane Hardwood |
| MRI | Montane Riparian |
| NRIS | Natural Resource Information System |
| PAD | Pre-Application Document |
| Project | Kern River No. 1 Hydroelectric Project |
| RIV | Riverine |
| SCE | Southern California Edison |
| SPD | Study Plan Determination |
| sq ft | square feet |
| TERR 2 TSP | TERR 2 – Wildlife Resources Technical Study Plan |
| TM | Technical Memorandum |
| TSP | Technical Study Plan |
| TWG | Technical Working Group |
| USFWS | United States Fish and Wildlife Service |
| USGS | United States Geological Survey |
| VES | visual encounter survey |
| VOW | Valley Oak Woodland |
| VRI | Valley Foothill Riparian |
| WL | Watch List |

## 1.0 INTRODUCTION

This TERR 2 – Wildlife Resources Technical Memorandum (TM) provides the methods and findings of field surveys associated with the TERR 2 – Wildlife Resources Technical Study Plan (TERR 2 TSP). The TERR 2 TSP was conducted in support of Southern California Edison's (SCE) Kern River No. 1 Hydroelectric Project (Project) relicensing, Federal Energy Regulatory Commission (FERC) Project No. 1930. The TERR 2 TSP was included in SCE's Revised Study Plan filed with FERC on February 13, 2024 (SCE 2024). In its March 14, 2024, Study Plan Determination (SPD), FERC approved the TERR 2 TSP without modifications (FERC 2024).

Data for the TERR 2 TM was collected from April 2024 through July 2025. Field sampling efforts and data analysis are complete and summarized below.

## 2.0 STUDY OBJECTIVES

The objectives of the wildlife studies, as outlined in the TERR 2 TSP (SCE 2024), include the following:

- Identify special-status wildlife species potentially occurring in California Wildlife Habitat Relationships (CWHR) habitats documented as part of the TERR 1 – Botanical Resources TSP.

- Identify potential habitat for special-status salamanders within the FERC Project boundary (excluding underground Project features) and 10 feet on either side of Project access trails located outside the FERC Project boundary, and conduct visual encounter surveys (VES) to document their presence.

- Determine whether Project powerline pole configurations are consistent with guidelines for the avoidance of avian mortalities.

- Determine the potential for open-air segments of Project water conveyance system to entrap wildlife.

- Document use of Project facilities by special-status bats during reproduction and other seasonal use.

## 3.0 STUDY AREA

The extent of the study area for each study component is as follows:

- For identification of special-status wildlife species potentially occurring in CWHR habitats, the study area is 1 mile around Project facilities (see Table 3-1).

- For wildlife reconnaissance surveys, the study area is the FERC Project boundary (excluding underground Project features) and 10 feet on either side of Project access trails located outside the FERC Project boundary.

- For the evaluation of consistency with guidelines for the avoidance of avian mortalities, the study area is Project powerlines.

- For the evaluation of potential wildlife entrapment, the study area is the sandbox and open-air segments of flumes and conduits along the water conveyance system.

- For special-status salamanders (Kern Canyon slender salamander, relictual slender salamander, and yellow-blotched salamander), the habitat assessment study area is the FERC Project boundary (excluding underground Project features) and 10 feet on either side of Project access trails located outside the FERC Project boundary. The VES study area is potential habitat identified during implementation of the habitat assessment. If habitats extend outside the habitat assessment study area, VES will include:

  – Potential habitat up to 100 feet outside the FERC Project boundary.

  – Potential habitat up to 100 feet outside of Project access trails located outside of the FERC Project boundary.

- For the special-status bat facility assessment, the study area is Project facilities (Table 3-1).

- For special-status bat reproductive and seasonal use surveys, the study area is the Project facilities potentially supporting bats.

Studies were not conducted at locations with no safe access (e.g., where there is very steep terrain) or on private property with no owner approval prior to implementation of the studies.

## 4.0 METHODS

Study implementation followed the methods described in the TERR 2 TSP (SCE 2024).

### 4.1 DOCUMENT SPECIAL-STATUS WILDLIFE AND ASSOCIATED HABITATS

The methods for identifying special-status wildlife and habitats within the study area included developing preliminary tables and maps of special-status species known to occur or potentially occurring in the study area, documenting the distribution of CWHR habitats, conducting field surveys, compiling other incidental wildlife data, and developing final tables and maps of special-status species known to occur or potentially occurring in the study area. The approach for each of these study elements is described below.

#### 4.1.1 Develop Preliminary Special-Status Wildlife Table and Maps

Existing information from the TERR 1 – Botanical Resources TM (SCE 2025) detailing the location and extent of Classification and Assessment with Landsat of Visible Ecological Groupings (CALVEG) vegetation alliances was used to update Table 3.6-1

included in Section 3.6, Botanical and Wildlife Resources of the Preliminary Application Document (PAD) (SCE 2023). The CALVEG–CWHR Crosswalk (United States Forest Service [Forest Service] 2014), developed by the Forest Service and the California Department of Fish and Wildlife (CDFW), was used to determine which wildlife habitats are likely to be present based on existing vegetation alliances and forest structural characteristics. A Geographic Information System (GIS) map of wildlife habitats within the study area, overlain with information on Project facilities, was created.

CDFW's CWHR database was reviewed to develop a list of special-status wildlife species potentially occurring in each CWHR habitat (CDFW 2024a). The CWHR database uses a predictive model to determine the likelihood of the occurrence of animal species in any given geographical location based on ecological data included in the model, such as the life history and known distribution of an animal, existing vegetation, percent canopy cover, presence of water, and a number of other elements including landscape features.

A table was then developed listing each CWHR habitat in the study area and special-status species known or potentially occurring in the study area that may occur in each habitat.

### 4.1.2 Conduct Wildlife Reconnaissance Survey

Wildlife reconnaissance surveys were conducted to characterize wildlife usage of the study area. The surveys were conducted during the avian nesting season (March–June) to allow for the identification of any nests within the study area. The surveyors conducted the surveys between sunrise and sunset. Surveys were not conducted during weather conditions that would affect detectability (i.e., snow, sleet, or rain; high winds; extreme heat, etc.).

A team of biologists covered the entire study area on foot and focused on habitats potentially supporting special-status species. The methods used included zigzag and linear patterns, dependent on the survey area and the terrain. Zigzag patterns were used to cover more ground and worked well in larger habitat areas (e.g., grassland), while linear patterns worked well in narrow habitats (e.g., riparian). Areas that could not be accessed safely or where surveyors did not have permission to access were instead surveyed using high vantage points (when possible) to survey the area using binoculars and/or a spotting scope to the greatest degree possible.

Wildlife taxonomy for recording species was based on California's Wildlife, Volumes I, II, and III (Zeiner et al. 1988, 1990a, 1990b). All species were recorded as present if they were observed, species-specific vocalizations were heard, or if diagnostic field signs were found (e.g., scat, tracks, pellets). The following data was collected for each observation as applicable: the global positioning system (GPS) coordinates or a map markup; the type of observation (i.e., visual, auditory, scat); photographs (when possible); and the surrounding habitat and habitat conditions.

For each special-status species observed, a California Native Species Field Survey Form was completed and submitted to the California Natural Diversity Database (CNDDB).

Finally, an electronic database (Excel spreadsheet) of special-status wildlife observed was created for sharing collected data with resource agencies and interested stakeholders.

### 4.1.3 Evaluate Suitable Habitat for Special-Status Wildlife

Within CWHR habitats that were identified as providing suitable habitat for special-status wildlife, surveyors searched for and recorded additional information on any unique habitat features and structures. The following sections describe the additional data collected based on the species or suitable habitat types.

#### 4.1.3.1 Monarch Butterfly

Breeding monarch butterflies (*Danaus plexippus;* Proposed for Listing as Federal Proposed Threatened [FPT]) require the presence of *Asclepias* (milkweed) species as a host plant. As part of the TERR 1 – Botanical Resources TSP, in order to document breeding habitat for monarch butterflies in the study area, botanists recorded the following data for each population of milkweed identified in the study area: GPS coordinates; the approximate size of population (in acres/square feet); and the estimated number of individuals.

#### 4.1.3.2 Western Spadefoot

The western spadefoot (*Spea hammondi;* FPT, California Species of Concern [CSC]) requires both aquatic breeding habitat and terrestrial habitat to fulfill its life history. The United States Fish and Wildlife Service (USFWS) defines aquatic breeding habitat for spadefoots as water features such as vernal pools, ponds, ditches, or other ponded surface waters with the appropriate temperature and hydroperiod for breeding and rearing young, and that do not support non-native predators. In addition, the western spadefoot requires upland habitat adjacent and accessible to the water features it uses. Upland habitat includes grassland or grassland/scrub vegetation on gently sloped landscapes with the appropriate soil makeup to allow for the species to create burrows and refugia to avoid desiccation and provide cover (USFWS 2023).

Prior to reconnaissance surveys, biologists reviewed available resources, including United States Geological Survey (USGS) quadrangle maps and aerial photography of the study area, to determine the location of any mapped aquatic features that may represent breeding habitat for western spadefoot. In addition, biologists also identified smaller, unmapped aquatic features during implementation of reconnaissance surveys. The following data were recorded for each aquatic feature identified: GPS coordinates; photographs; a description of the water body and its suitability as breeding habitat; and a description of suitable upland habitat adjacent to the water body.

#### 4.1.3.3 Terrestrial Reptiles

During reconnaissance surveys, biologists noted any small-scale features such as burrows or downed woody debris that may provide habitat for special-status terrestrial reptiles including, but not limited to, California legless lizard (*Anniella* spp.*;* CSC),

California glossy snake (*Arizona elegans occidentalis;* CSC), San Joaquin coachwhip (*Masticophis flagellum ruddocki;* CSC), and coast horned lizard (*Phrynosoma blainvillii;* CSC). The following data were collected for each special-status reptile observed in the study area: GPS coordinates; photographs; and a photograph of habitat where individual/population was observed.

#### 4.1.3.4 Cliff-Nesting Birds

Cliff habitat in and immediately surrounding the study area that may potentially provide habitat for special-status cliff-nesting birds including, but not limited to, golden eagle (*Aquila chrysaetos;* Bald and Golden Eagle Protection Act [Eagle Act], USFWS Bird of Conservation Concern [BCC], California Fully Protected [CFP] and CDFW Watch List [WL]), prairie falcon (*Falco mexicanus;* WL), American peregrine falcon (*Falco peregrinum anatum;* Federal Delisted [FD], California Delisted [CD]), and California condor (*Gymnogyps californianus;* Federal Endangered [FE], California Endangered [CE], CFP) was mapped as part of the reconnaissance survey. Nest searches were conducted by using binoculars and/or spotting scopes to systematically scan large trees and suitable crevices on cliffs for large aggregations of stick nest material, whitewash, and/or prey remains that indicate the presence of raptors. Data collected for each nest observed included: a GPS coordinates/map markup; a photograph; a description of nest; the status of nest (active or inactive); the number of adults present; and the number of eggs/young (if visible).

#### 4.1.3.5 Coniferous Forest Birds

During reconnaissance surveys, biologists documented habitat elements for special-status coniferous raptors and other birds including, but not limited to, American goshawk (*Astur atricapillus;* Forest Service Species of Conservation Concern [FSCC], CSC), Vaux's swift (*Chaetura vauxi;* CSC), bald eagle (*Haliaeetus leucocephalus;* FD, Eagle Act, FSCC, CE, CFP), and California spotted owl (*Strix occidentalis occidentalis;* FPT, BCC, FSCC, CSC). Habitat elements for these species include, but are not limited to, dense canopy cover, large trees, or snags with cavities; and substantial amounts of downed woody debris potentially supporting prey species (rodents) for goshawks and owls. Nest searches were conducted by using binoculars and/or spotting scopes to systematically scan large trees for aggregations of stick nest material, whitewash, and/or prey remains that indicate the presence of raptors. Data collected for each nest observation included: a GPS coordinates/map markup; a photograph; a description of nest; the status of nest (active or inactive); the number of adults present; the number of eggs/young (if visible).

#### 4.1.3.6 Grassland/Shrubland Birds

During reconnaissance surveys, grasslands and shrub habitats in the study area were inspected for the presence of nests of special-status birds such as grasshopper sparrow (*Ammodramus savannarium;* CSC), northern harrier (*Circus hudsonius;* BCC, CSC), and loggerhead shrike (*Lanius ludovicianus;* CSC). Nest searches for grassland birds were conducted by meandering in grassland habitats and searching for evidence of

reproductive behaviors (i.e., singing males; adults carrying nesting materials, food, or fecal sacs; etc.) and tracking the adult birds to the nest location with binoculars. Data collected for each nest observed included: a GPS coordinates/map markup; a photograph; a description of nest; the status of nest (active or inactive); the number of adults present; and the number of eggs/young (if visible).

#### 4.1.3.7 Riparian Birds

During reconnaissance surveys, riparian habitat in the study area was inspected for the presence of nests of special-status birds such as tricolored blackbird (*Agelaius tricolor;* BCC, FSCC, California Threatened [CT], CSC), southwestern willow flycatcher (*Empidonax traillii extimus;* FE, CE), yellow-breasted chat (*Icteria virens;* CSC), purple martin (*Progne subis;* CSC), and yellow warbler (*Setophaga petechia;* CSC). Evidence of reproductive behaviors (i.e., singing males; adults carrying nesting materials, food, or fecal sacs; etc.) was noted; and biologists followed the adult birds to the nest location with binoculars. Data collected for each nest observed included: a GPS coordinates/map markup; a photograph; a description of nest; the status of nest (active or inactive); the number of adults present; and the number of eggs/young (if visible).

#### 4.1.3.8 Fossorial Denning Mammals

During reconnaissance surveys, open grassland and shrubland habitats in the study area were inspected for the presence of suitable soils and burrows that may potentially provide habitat for special-status fossorial denning mammals, including Tulare grasshopper mouse (*Onychomys torridus tularensis;* CSC), American badger (*Taxidea taxus;* CSC), or San Joaquin kit fox (*Vulpes macrotis mutica;* FE, CT).

The Tulare grasshopper mouse nests in small burrows that it excavates, or in burrows that have been abandoned by other rodents (Zeiner et al. 1988, 1990a, 1990b). Note that, during reconnaissance surveys, it was observed that small burrows suitable for a variety of rodent species including, but not limited to, grasshopper mice, were common and plentiful throughout the study area. Biologists did not collect individual data for these burrows, but noted and took photographs in areas where they were prevalent.

San Joaquin kit foxes are semi-fossorial and use dens throughout the year for daytime resting, predator avoidance, shelter, and rearing young (Grinnell et al. 1937; Koopman et al. 1998, cited in Cypher et al. 2023). San Joaquin kit foxes co-occur throughout their range with the more common and abundant California ground squirrel *(Otospermophilus beecheyi*). As described by Cypher et al. (2023), while the mean height, width, and circumference of burrows used by San Joaquin kit foxes are larger than those used by California ground squirrels, there is significant overlap in the total range of dimensional values of burrows used by both species. As stated previously, smaller burrows potentially used by rodents such as California ground squirrels were abundant throughout the study area. Where present, biologists conducted additional analysis prior to recording these burrows as potentially suitable habitat for San Joaquin kit foxes. The following factors were considered:

- Physical presence of California ground squirrels in or around the burrows;
- Whether surrounding habitats were typical of those preferred by San Joaquin kit foxes (flat, open areas with limited tree cover and low/sparse vegetation);
- Whether burrows showed modifications, such as being triangular (taller than wide), rather than round, or having soil being expelled from the burrow in one direction (as opposed as opposed to the standard rodent “skirt” of soil around ground squirrel burrows); and
- Other signs such as scat, trash, or kills at the burrow location.

Where possible, biologists looked in the burrows to try and determine if the burrows ended or collapsed, went deeper into the ground, or seemed to have chambers.

American badger excavate burrows for birthing sites, safe resting areas, food storage, and protection from the elements, in areas with dry, friable soils. They may also enlarge burrows of gophers, ground squirrels, or other prey species. Burrows typically have a large oval or elliptical entrance (approximately 8 to 12 inches wide) and have a mound of loose, freshly dug soil mounded at the entrance.

Biologists recorded the following data for larger burrows that may potentially provide habitat for special-status mammals such as San Joaquin kit fox or American badger: GPS coordinates; photograph; approximate dimensions of burrow; substrate conditions; and animal sign in vicinity of burrow (e.g., scat).

### 4.1.4 Compile Incidental Observations

Incidental observations of any special-status species during all field surveys conducted in support of the relicensing were recorded by each field team. Data collected for each of the incidental observations included: the date/time of observation; GPS coordinates/map markup (when possible); the species name; and the type of observation (e.g., visual or auditory). These data were incorporated into CNDDB forms and entered into the electronic database of special-status wildlife species and were reviewed for accuracy and reliability. Follow-up contact with the original observer was made to obtain additional information or clarification, as necessary.

## 4.2 Evaluate Project Powerline Pole Configurations

Field inspections were conducted in conjunction with reconnaissance surveys to document the configuration of Project powerline poles and energized equipment within the Kern No. 1 Powerhouse Switchyard. Accessible portions of these facilities were visited on foot, and photographs were taken of pole and equipment configurations, which were then evaluated against Avian Power Line Interaction Committee (APLIC) raptor-safe configuration guidelines.

In general, electrocution can occur when birds perch on, nest on, or collide with structures having: (1) uninsulated phase conductors separated by less than the wrist-to-wrist or

head-to-foot measurement of a bird; or (2) distances between grounded hardware (e.g., grounded wires, equipment, or guy wires) and any energized phase conductors (or other energized equipment) less than the wrist-to-wrist or head-to-foot measurement of a bird. APLIC recommends a conductor-to-conductor or conductor-to-grounded hardware distance of about 60 inches to accommodate the body dimensions of large birds such as bald and golden eagles (APLIC 2012). Therefore, the configuration of poles/energized equipment was evaluated according to the following criteria:

- Whether power lines are underground and/or insulated (and, therefore, pose no risk of electrocution);
- Whether the distance between uncovered phase conductors is less than 60 inches with no perch guard;
- Whether the distance between uncovered energized parts and grounded equipment on equipment poles is less than 60 inches; and
- Whether the pole contains uninsulated or partially insulated metal guy wires, jumper, or transformer cables.

### 4.2.1 Document Avian Electrocutions and Bird-Caused Outages

SCE monitors avian electrocutions and mortalities, as well as avian-caused outages, along Project powerlines as part of its corporate Avian Protection Program. Reports of mortalities are provided to resource agencies (e.g., CDFW and USFWS), as appropriate. SCE reviewed its avian incident records to determine whether any avian electrocutions, outages, or mortalities had been reported since filing of the PAD for the Kern River No. 1 Project (SCE 2023).

## 4.3 Evaluate Open-Air Segments of the Water Conveyance System

Surveyors reviewed the existing information (e.g., design drawings, aerial images, photographs, or drone footage) to determine the location of open-air segments of the water conveyance system (i.e., the sandbox and open-air segments of flumes and conduits); and then visited each open-air water conveyance structure on foot, to the degree possible, during implementation of reconnaissance surveys. Accessible facilities were photographed and assessed for the following to determine whether the facility is potentially accessible to mid- to large-size animals (e.g., fox, coyote, or deer) that may potentially become entrapped:

- Whether structure is fenced;
- Whether structure is elevated or at ground level;
- Whether structure is covered; and
- General notes on condition and accessibility, as applicable.

## 4.4 CONDUCT SPECIAL-STATUS SALAMANDER HABITAT ASSESSMENT AND VISUAL ENCOUNTER SURVEY

Based on preliminary habitat and occurrence information collected as part of development of the PAD (SCE 2023), there are three special-status salamanders with potential to occur in the study area, including the relictual slender salamander (*Batrachoseps relictus*) (Federal Proposed Endangered [FPE], CSC), Kern Canyon slender salamander (*Batrachoseps simatus*) (FPT, CT), and the yellow-blotched salamander (*Ensatina eschscholtzii croceater*) (FSCC, WL). The methods and results of the habitat and VES for special-status salamanders are provided below.

### 4.4.1 Identify Suitable Habitat for Special-Status Salamanders

The habitat assessment for special-status salamanders consisted of three primary steps. First, resource agencies and recognized experts were contacted to obtain additional information on known occurrences of salamanders and habitat characteristics (including microsites). Second, preliminary GIS maps of potential special-status salamander habitat were prepared based on a desktop review of existing information. Lastly, a field evaluation was conducted to ground-truth the preliminary maps of habitat and identify suitable microsites for each species. Each step is described further below.

#### 4.4.1.1 Consult with Agencies and Recognized Salamander Experts

Prior to conducting the preliminary habitat mapping, the Terrestrial Technical Working Group (TWG) (which includes resource agencies and recognized experts) was contacted to obtain information on additional special-status salamander occurrences and habitat information (including microsites) in the study area.

#### 4.4.1.2 Develop Preliminary Habitat Maps

Preliminary maps of potential Kern Canyon slender salamander, relictual slender salamander, and yellow-blotched salamander habitat (i.e., physical and biological features necessary for the conservation of these special-status salamanders) were developed based on a review of existing literature of occurrences and habitat.

Specifically, the following references were reviewed:

- Resource agency websites and databases (e.g., CNDDB) were reviewed to obtain any new data on Kern Canyon slender salamanders, relictual slender salamanders, and yellow-blotched salamanders known to occur or potentially occurring in the study area (CDFW 2024b);

- Endangered and Threatened Wildlife and Plants; 12-Month Finding for the Kern Plateau Salamander; Threatened Species Status With Section 4(d) Rule for the Kern Canyon Slender Salamander and Endangered Species Status for the Relictual Slender Salamander; Designation of Critical Habitat (Federal Register, Volume 87, No. 200, Pages 63155–63189) (USFWS 2022a);

- Species Status Assessment for the Relictual Slender Salamander (*Batrachoseps relictus*), Kern Canyon Slender Salamander (*Batrachoseps simatus*), and Kern Plateau Salamander (*Batrachoseps robustus*) (USFWS 2022b);

- Distribution, Natural History, and Conservation Status of the Relictual Slender Salamander (*Batrachoseps relictus*) (Moss et al. 2024);

- Comment letter to USFWS in response to proposed listing of the Kern Canyon and relictual slender salamanders (Jockusch et al. 2022); and

- Habitat Characteristics of Sites with Yellow-Blotched Salamanders (*Ensatina eschscholtzii croceator*) (Germano 2006);

A combination of sources were reviewed to prepare preliminary maps of special-status salamander habitat, including the following:

- Recent Google Earth imagery (Google 2024);

- Maps of CWHR vegetation communities developed as part of the TERR 1 – Botanical Resources TM (SCE 2025);

- Endangered and Threatened Wildlife and Plants; 12-Month Finding for the Kern Plateau Salamander; Threatened Species Status With Section 4(d) Rule for the Kern Canyon Slender Salamander and Endangered Species Status for the Relictual Slender Salamander; Designation of Critical Habitat (Federal Register, Volume 87, No. 200, Pages 63155–63189) (USFWS 2022a); and

- Known occurrences of Kern Canyon slender salamanders, relictual slender salamanders, and yellow-blotched salamanders from resource agency websites and databases (CDFW 2024b; Forest Service 2022).

Once these resources were compiled, preliminary GIS maps were developed that showed the study area in relation to proposed Critical Habitat, vegetation communities, and known occurrences.

#### 4.4.1.3 Conduct Field Surveys and Develop Final Habitat Maps

Biologists ground-truthed the preliminary maps in the field to document potentially suitable habitat for each special-status salamander species, including the location of microsites not identified through existing information review or preliminary GIS habitat maps.

Biologists assessed the study area on foot, walking in a zig-zag pattern to identify the presence of microhabitats. In some areas, the biologists could not walk to the full extent of the study area due to the steep and dangerous terrain. In these areas, biologists used binoculars to scan the habitat to determine whether microsites suitable for special-status salamanders were present.

Special-status salamander habitat is defined at two scales. The first component of suitable habitat is the overall vegetation community types where special-status salamanders are known to occur (e.g., riparian woodland, annual grassland, etc.). The second component of suitable habitat is the presence of abundant microsites (e.g., cover objects, woody debris, rock outcroppings, etc.). Special-status salamanders are not likely to occur in vegetation community types unless these microsites are present. For example, Kern Canyon slender salamanders are known to occur in annual grasslands, but only when there are suitable rock outcroppings for cover elements. Therefore, annual grasslands without rock outcroppings were not considered suitable habitat.

When mapping habitat suitability within vegetation community types, the boundaries of suitable habitat were determined by using a 15-foot buffer around suitable microsites. The 15-foot buffer is a conservative estimate of the dispersal distances based on the physiology of the species and typical activity requirements (USFWS 2022b). Existing data on the dispersal distances of these special-status salamanders is not known due to their rarity and salamanders requiring specific conditions (i.e., suitable temperature, moist soil, and overcast or rainy weather) to be active because they are highly vulnerable to desiccation due to their permeable skin (USFWS 2022a).

Suitable habitat for special-status salamanders was documented on datasheets, map markups, and digitally through ArcGIS FieldMaps to collect GPS location information for each habitat. Habitats were given unique codes to denote the associated species and the habitat number.

Field data were processed and used to develop habitat maps for each species overlain on Project facilities. Tables developed to identify Project facilities located within the footprint of special-status salamander habitat and acreage of habitat present within the study area for each of the special-status salamander species was calculated.

During the ground-truthing, biologists followed decontamination guidelines consistent with the Declining Amphibian Task Force Fieldwork Code of Practice (USFWS 2005).

### 4.4.2 Visual Encounter Survey

A VES was conducted within suitable salamander habitat that was mapped as part of the habitat assessment. The VES was seasonally timed to maximize the potential for observing special-status slender salamanders based on the timeframes described in USFWS 2022a and as refined based on consultation with recognized salamander experts in the Kern River Canyon (E. Jockusch, pers. comm. 2023). The surveys were conducted within 2 days following a rain event when slender salamanders are generally easier to observe, and habitats are damp.

Surveys generally followed the methods described in Grover (2006) and included lifting, overturning, and carefully replacing objects such as rocks, boards, and debris; carefully searching leaf litter and under loose tree bark; and inspecting burrows and rock crevices. Aquatic habitat was surveyed by slowly walking the water’s edge, scanning for salamanders in water, and overturning cover objects in the water including woody debris

and leaf litter. Rock outcrops were searched with spotlights and shining lights into suitable crevices. Biologists took care to minimize disturbance to suitable habitat and animals during field surveys.

Slender salamanders were not handled but identified to species in the field to the extent possible based on Jockusch et al. (2012), Stebbins (2003), and other references. Individual salamanders were not collected for later identification, but photographs were taken to compare to known reference photographs. For each special-status salamander observed, the following data were obtained: GPS coordinates; a photograph of the individual and surrounding habitat; and a notation of diagnostics used in identification. A CNDDB form was developed to document all special-status species observations, and any observations were incorporated into the electronic database of special-status wildlife.

Biologists followed decontamination guidelines consistent with the Declining Amphibian Task Force Fieldwork Code of Practice (USFWS 2005).

Finally, a table was developed summarizing the results of surveys and a GIS map was developed to identify the location of any special-status species observed in relation to Project facilities.

## 4.5 Document Special-Status Bat Reproductive and Seasonal Use of Project Facilities

### 4.5.1 Identify Facilities Potentially Supporting Bat Roosts

An initial desktop assessment of potential bat roosting habitat at Project facilities was conducted through a desktop review of aerial imagery of the study area (Google Earth 2024), a review of existing photographs of the Project facilities, and descriptions of Project facilities from Section 2.0 of the PAD for the Kern River No. 1 Project (SCE 2023). Refer to Table 3-1 for a list of Project facilities reviewed. Potential bat roosting habitat criteria used for the initial assessment included the presence of vertical and roofed components, overhangs, crevices, and cave-like openings or features.

A preliminary visual field assessment was conducted in late May and early June 2024 at Project facilities identified as potentially supporting bat roosting habitat during the desktop review. The exterior of facility structures was visually inspected to assess the suitability of a structure for bat use. The interior of facilities was also inspected, where possible. Criteria used to assess suitability include the presence of appropriate crevice or cave-like features and appropriate thermal conditions. Bats prefer different thermal conditions for maternity roosting versus hibernacula.[1] Maternity roosts are usually found in microclimates with warmer thermal conditions and high solar exposure (Lausen and Barclay 2003), whereas hibernacula are usually found in areas with colder thermal conditions (Webb et al. 1996).

Both maternity roosts and hibernacula tend to be located in cracks, crevices, caves, or building interiors that offer more sheltered and protected conditions. Day and night roosts

[1] Hibernacula are defined as shelters used during the winter by hibernating or otherwise dormant animals.

may be placed in more open areas under overhangs (such as the eaves of rooftops). In addition, the facilities were examined to determine the accessibility of the structure to bats (e.g., presence of small cracks or openings for bats to enter the interior of the structure). Only those facilities having structures with vertical and roofed elements, abundant cracks and crevices, and/or appropriate thermal conditions were considered potential bat roosting habitat.

Data obtained for each of the evaluated Project facilities included, but was not limited to, the date and time of the survey; the name and location of facility; notation of features or structures that represent suitable habitat or reasons why facility is not considered suitable for roosting bats; photographs of the facility; and a description of surrounding environmental conditions.

### 4.5.2 Document Special-status Bat Reproductive Use of Project Facilities

Reproductive surveys include roost surveys, guano deoxyribonucleic acid (DNA) sampling, and acoustic sampling. Each of these surveys is described below.

#### 4.5.2.1 Conduct Roost Surveys

In August 2024, biologists surveyed the Project facilities previously identified as potentially supporting bat roosts. Surveys were conducted during the maternal roosting period (June–August) when colonies may still be present, but after the critical sensitive period (i.e., parturition and early nursing period). Facilities were inspected on the exterior and interior (when accessible for bat roost signs (e.g., skeletons, dead young, placentas, guano deposits, urine staining, and culled insect parts) and/or live bats. To fully assess the facilities biologists utilized binoculars, flashlights, and blacklights, as needed.

If bats or indications of bats were observed, the following data were collected: the species (if determinable by visual survey); the roost type (day roost/night roost/maternal roost); the number of adults and/or juveniles; the signs observed; and the location and prevalence of signs (e.g., number of guano at location and/or the size of urine stain).

#### 4.5.2.2 Sample Guano

Guano samples were collected at roost sites where fresh viable samples were present and bat species could not be identified visually during the roost survey. Biologists wore nitrate gloves collected samples with tweezers cleaned with a 70% isopropyl alcohol solution. The samples were stored in a stabilizing solution to prevent DNA degradation and submitted to the Genidaqs SM Molecular Biology and Genetics Lab (Cramer Fish Sciences) for DNA sequencing and species identification. DNA sequences were compared to species-specific genetic markers developed by Walker et al. (2016) and further verified by comparison to samples at the National Center for Biotechnology Information DNA sequence database.

A table and map were developed identifying the location of guano DNA sampling and sequencing results (i.e., species present).

#### 4.5.2.3 Conduct Acoustic Sampling

Acoustic sampling (i.e., sampling of echolocation calls) was conducted during the reproductive season at potential flight corridors between potential roosting habitat and foraging habitat, and any additional locations where bats were detected during roost surveys but were not identified to species. The acoustic units were operated at the selected sites for five nights from sunset until sunrise between June and August. Acoustic sampling was conducted using full-spectrum Wildlife Acoustics SM4BAT-FS detector units (acoustic units). Sonogram files were processed using Kaleidoscope Pro 4.5.5 (Wildlife Acoustics), which auto-classifies each sonogram into tentative species determinations with 70 to 80 percent accuracy. The Anabat Insight software program was then used to further classify files and reduce the amount of time required to manually inspect sonograms. Finally, a qualified bat biologist reviewed the auto-classified sonograms to confirm species designations.

### 4.5.3 Document Special-status Bat Seasonal Use of Project Facilities

Additional acoustic sampling was conducted in October 2024 at those locations where active roosts were identified and/or within flight corridors between roost sites and potential foraging habitat to determine seasonal patterns of use. Refer to Section 4.5.2.3 for a description of acoustic sampling methods.

For all special-status bats observed during reproductive use and seasonal use, a CNDDB form was completed, and observations were added to the electronic database of special-status wildlife survey data.

## 5.0 RESULTS SUMMARY

### 5.1 DOCUMENT SPECIAL-STATUS WILDLIFE AND ASSOCIATED HABITATS

Based on the updated CALVEG–CWHR crosswalk developed for the study area (refer to Table 5-1), the following CWHR habitats were identified in the study area:

- Annual Grassland (AGS)
- Barren (BAR)
- Blue Oak - Foothill Pine (BOP)
- Blue Oak Woodland (BOW)
- Lacustrine (LAC)
- Mixed Chaparral (MCH)
- Montane Hardwood (MHW)
- Montane Riparian (MRI)

- Riverine (RIV)
- Valley Foothill Riparian (VRI)
- Valley Oak Woodland (VOW)

Refer to Map 5-1a–c for the location and distribution of these habitats within the study area.

Refer to Table 5-2 for CWHR habitats used by special-status species known or potentially occurring in the study area. Refer to the TERR 1 – Botanical Resources TM for information on sensitive habitats in the study area.

### 5.1.1 Conduct Wildlife Reconnaissance Surveys and Compile Incidental Wildlife Observations

Eight special-status wildlife species were observed during wildlife reconnaissance surveys conducted in late May and early June 2024. This includes bumblebee (*Bombus* spp.; candidate for listing under the California ESA [CC]); Swainson's hawk (*Buteo swansoni*; CT); golden eagle; bald eagle; white-headed woodpecker (*Dryobates albolarvatus*; BCC); savannah sparrow (*Passerculus sandwichensis*, BCC); oak titmouse (*Baelophus inornatus*, BCC); and Bullock's oriole (*Icterus bullockii*, BCC). Several of these species were also observed incidentally during other studies. Additional information on these sightings is provided in Section 5.1.2.

In addition, four special-status bats were observed as part of special-status bat studies conducted: pallid bat (*Antrozous pallidus*, CSC); western mastiff bat (*Eumops perotis californicus*, CSC); western red bat (*Lasiurus frantzii*, CSC); and fringed myotis (*Myotis thysanodes*; FSCC). Refer to Section 5.5 for additional information on these species in the study area.

The following six additional special-status species were observed incidentally during other technical studies: monarch butterfly; northwestern pond turtle (*Actinemys marmorata*; FPT, CSC); American peregrine falcon; golden eagle; northern harrier; and Lawrence's goldfinch (*Spinus lawrencei*, BCC). Refer to the AQ 3 – Fish Population Interim TM for additional information on the sightings of northwestern pond turtle. The remainder of the incidental sightings are discussed further in Section 5.1.2.

Common species or their sign observed during reconnaissance surveys included terrestrial reptiles such as the western fence lizard (*Sceloporus occidentalis*), western side-blotched lizard (*Uta stansburiana elegans*), southern alligator lizard (*Elgaria multicarinata*), California whiptail (*Aspidoscelis tigris munda*); raptors such as the red-tailed hawk (*Buteo jamaicensis*); songbirds such as song sparrow (*Melospiza melodia*), black phoebe (*Sayornis nigricans*), house finch (*Haemorhous mexicanus*); and mammals such as California ground squirrel, desert cottontail (*Sylvilagus audubonii*), and coyote (*Canis latrans*).

Refer to Table 5-3 for a list of all special-status and common wildlife species observed in the study area during wildlife reconnaissance surveys and other technical studies. Refer to Map 5-2 for the location of special-status wildlife species observed.

All special-status species observations were submitted to the CNDDB, as appropriate, per CDFW's CNDDB reporting guidelines (CDFW 2018). All special-status species observations were compiled into an electronic database, which is available upon request.

### 5.1.2 Evaluate Habitat for Special-Status Wildlife

Provided below are the results of the evaluation of potentially suitable habitat for special-status wildlife in the study area conducted as part of wildlife reconnaissance surveys.

#### 5.1.2.1 Monarch Butterfly

Biologists documented ten populations of milkweed, including nine populations of California milkweed (*Asclepius californica*) and one population of narrowleaf milkweed (*Asclepias fascicularis*) in the study area that may provide breeding habitat for monarch butterflies. The largest population, located along the northwestern side of Willow Spring Creek Road (Democrat Dam Road), covered approximately 6,500 square feet, and included least 450 individuals. Additional smaller populations were documented along the Democrat Gage Trail (one individual), at the Democrat Dam Impoundment (one individual), along Stark Creek Trail (one individual), along Adit 17 & 18 Trail (one individual), along the Forebay Overflow Spillway (one individual), and along the Overflow Spillway Trail (four populations with a total of 11 individuals).

Two monarch butterflies were observed during TERR 1 botanical studies in the vicinity of the Democrat Dam impoundment. The first was observed in May 2024 on the island in the impoundment; and the second was observed during TERR 1 riparian studies conducted in October 2024 along the northern shore of the Kern River near the island. These observations were approximately 0.5 mile from the nearest milkweed population (along Willow Spring Creek Road).

Refer to Table 5-4 for location and population information for milkweed populations observed. Refer to Map 5-2 for the location of these milkweed populations. Refer to Appendix A (Photos 1–4) for representative photos of milkweed populations in the study area.

#### 5.1.2.2 Western Spadefoot

During the desktop evaluation and in the field, biologists identified 15 locations that potentially supported suitable aquatic habitat for western spadefoot. Further evaluation of these sites during reconnaissance surveys indicated that six of the water bodies were potentially suitable for breeding western spadefoot (i.e., supported water for sufficient time to support breeding and did not support non-native predators). Of these six aquatic habitats, only three were also located adjacent to suitable upland habitats, defined as gently sloping grasslands with burrows for refugia. These three areas therefore represent suitable habitat for western spadefoot:

- An unnamed seep located along Willow Spring Creek Road (Democrat Dam Road) (Photo 5 in Appendix A) (WSF-1);

- Dougherty Creek in the vicinity of Flume No. 5 (Photo 6 in Appendix A) (WSF-2); and

- Stark Creek in the vicinity of Flume No. 6 (Photo 7 in Appendix A) (WSF-3).

No western spadefoot individuals were observed in the study area.

Refer to Table 5-5 for a summary of the results of the evaluation of suitable aquatic and upland habitats for western spadefoot. Refer to Appendix A (Photos 5–7) for photos and to Map 5-2 for the location of the three suitable habitat areas.

#### 5.1.2.3 Terrestrial Reptiles

The soils of the study area are mostly composed of a coarse sandy loam with decomposed granite bedrock that is highly suitable for burrowing. Burrows are abundant throughout the study area, with a noticeable concentration of burrows along Stark Creek Trail, Dougherty Creek Trail, Lucas Creek Trail, and the beginning of Democrat Gage Trail. The shoulders along two roads, Stark Creek Road and Willow Spring Creek Road, also had large numbers of burrows.

Woody debris is common throughout the Project area where trees are present (i.e., in riparian areas), where deadfall is generally left in place.

Terrestrial reptiles were regularly seen sunning along the trails and roads before retreating into cracks in rocks or burrows. Ten common terrestrial reptile species were observed (in large numbers) in the study area, including western fence lizard, western side-blotched lizard, southern alligator lizard, California whiptail (*Aspidoscelis tigris munda*), , common garter snake (*Thamnophis sirtalis*), Sierra garter snake (*Thamnophis couchii*), Pacific gophersnake (*Pituophis catenifer catenifer*), California king snake (*Lampropeltis californiae*), and northern Pacific rattlesnake (*Crotalus oreganus oreganus*).

No special-status terrestrial reptile species were observed during wildlife reconnaissance surveys. One special-status reptile species, the California legless lizard (*Anniella* spp.), was observed during VES for special-status amphibians (refer to Section 5.4.2).

Refer to Appendix A, Photos 8–10, for photographs showing typical habitat for terrestrial reptile species in the study area.

#### 5.1.2.4 Cliff-Nesting Birds

Approximately 3.7 miles of cliff habitat were mapped in the study area, primarily along the Kern River, near Conduit No. 2, and surrounding the Powerhouse and the Forebay Operations Area.

Two special-status birds that may nest on cliffs, the golden eagle and peregrine falcon, were observed in the study area:

- Golden eagles were observed in May 2024 soaring over the Project area twice, once during reconnaissance surveys and once incidentally during TERR 1 riparian surveys. A golden eagle was also observed in March 2025 during special-status salamander VES. All observations were in the vicinity of Stark Creek.

- A peregrine falcon was observed soaring along the Kern River during TERR 1 botanical surveys in April 2024.

One cliff nest, an active nest of a common raven (*Corvus corax*), was documented during reconnaissance surveys. The nest was located approximately 1,000 feet high, in a crevice on a cliff east of the Kern River No. 1 Powerhouse parking area, outside of the Project area. Two adults were observed feeding young. No cliff nests of special-status birds were documented.

Refer to Appendix A (Photos 11–12) for representative photographs of cliff habitat, and a photograph of the raven nest. Refer to Map 5-2 for the location of cliff-nesting habitat, nest location, and the observations of golden eagle and peregrine falcon in the study area.

#### 5.1.2.5 Coniferous Forest Birds

No conifer-dominant CWHR wildlife habitats were mapped in the study area. One CWHR wildlife habitat, Blue Oak–Foothill Pine, which is present along Willow Spring Creek Road (Democrat Dam Road), Stark Creek Road and a portion of the Stark Creek Trail, includes conifers as a co-dominant (i.e., foothill pines [*Pinus sabiniana*]). However, this is an open woodland habitat type that does not provide suitable habitat for special-status forest-dwelling species such as California spotted owl or American goshawk, which typically select forest habitat with tall coniferous trees and dense canopy cover. Refer to Appendix A, Photo 13a and Photo 13b for representative photos of Blue Oak–Foothill Pine habitat in the study area.

Bald eagles typically select the largest available trees, typically conifers, within 1 mile of aquatic foraging habitats (USFWS 2007, Lehman 1980). Bald eagles are known to occur in the Project vicinity, and two observations were documented in the vicinity of the Democrat Dam impoundment during wildlife reconnaissance surveys in May 2024. However, while there are large conifer trees scattered along the Kern River in the study area, there are no known bald eagle nest territories and this species is not expected to nest in the study area.[2]

One special-status species, the white-headed woodpecker, which feeds heavily on pine seeds and is typically associated with old-growth conifer forests, was observed during the wildlife reconnaissance surveys along Willow Spring Creek Road. The area is dominated by annual grassland habitat, but also supports scattered large foothill pine trees that may provide a food source for this species.

[2] CDFW records indicate that there were no bald eagle nesting territories in Kern County during the period between 2000 to 2016 (CDFW 2016).

No other special-status coniferous forest birds, or their nests, were observed.

Refer to Map 5-2 for the location of the white-headed woodpecker observation in the study area.

#### 5.1.2.6 Grassland/Shrubland Birds

Grassland habitats (i.e., Annual Grassland) and shrubland habitats (i.e., Mixed Chaparral) are predominant throughout the study area and surround many of the Project facilities. Blue Oak–Foothill Pine, Blue Oak Woodlands, and Valley Oak Woodlands are open woodland communities that also typically include grasses and shrubs in the understory. Grassland and shrubland birds were found throughout the study area where their preferred habitat was present. Refer to Map 5-2 for the location and distribution of Annual Grassland and Mixed Chaparral, as well as open woodland habitats in the study area; and to Appendix A, Photo 14a and 14b for representative photos of grassland habitat in the study area.

Special-status raptors observed flying over grassland habitats in the study area include:

- Golden eagle (refer to Section 5.1.2.4 for details); and
- Swainson's hawk, which was observed in the vicinity of Stark Creek in May 2024 during wildlife reconnaissance surveys.

Several special-status passerines that use grassland and shrubland habitats were also observed:

- Savannah sparrow, observed along Stark Creek Road during reconnaissance surveys in May 2024;
- Oak titmouse, observed along Stark Creek Road during reconnaissance surveys in June 2024; and
- Lawrence's goldfinch, observed along Lucas Creek in the vicinity of Flume No. 4 during TERR 1 botanical surveys in May 2024.

Refer to Map 5-2 for the location of special-status grassland and shrubland birds species observations in the study area.

#### 5.1.2.7 Riparian Birds

CWHR riparian habitats in the study area include Montane Riparian and Valley Foothill Riparian. These habitats are concentrated along the Kern River and tributary streams—refer to Map 5-2 for the location and extent of these habitats in the study area. Fine-scale maps of riparian habitats are also provided in the TERR 1 – Botanical Resources TM. Streams that had observable active or seasonal water flow at the time of the surveys also had the largest and most robust riparian habitats. Additionally, riparian vegetation was observed in the vicinity of leaks in the water conveyance system (i.e., conduits or flumes).

Photographs of typical riparian habitat in the study area are provided in Appendix A (Photos 15–16).

Multiple incidences of one special-status riparian bird species, Bullock's oriole, were recorded, including evidence of breeding. During reconnaissance surveys in May 2024, the following observations were made of Bullock's oriole:

- One female was observed in the vicinity of Pechacho Creek along the (non-Project) trail to Adit 14 & 15. This bird was observed depositing nesting material into the cavity of a tree.

- A pair was seen in May 2024 along the vicinity of Pechacho Creek along the (non-Project) trail to Adit 14 & 15 displaying nesting behavior.

- Three mated pairs were seen in May 2024 along Dougherty Creek Trail showing territorial behavior and defending certain trees from other pairs. No nests were observed.

The following incidental Bullock's oriole observations were also recorded:

- One male was seen in May 2024 flying and foraging in oak trees along Stark Creek Trail near Conduit No. 8. No breeding behavior was exhibited.

- One female was seen in May 2024 flying and foraging in oak trees along Stark Creek Trail near Adit 12 and 13. No breeding behavior was exhibited.

- One male was observed flying in riparian vegetation and stopping to sing (precise location information is not available).

No other riparian bird species were observed in the study area.

Refer to Map 5-2 for the location of Bullock's oriole observations in the study area.

### 5.1.2.8 Fossorial Denning Mammals

As described in Section 5.1.2.3, soils in the study area are, in general, highly suitable for burrowing and small animal burrows are abundant, particularly along flat or less steeply sloped lands along Project access roads and trails. These burrows may provide suitable habitat for small rodents such as the Tulare grasshopper mouse. Refer to Appendix A (Photos 9–10), for photographs of typical habitat supporting small burrows in the study area.

Biologists identified seven larger burrows and dens in the Lucas Creek area that may potentially be used by other mammals in the study area. Several of these burrows had modifications that are typical of burrows used by San Joaquin kit fox. However, there were no signs of active use by this special-status species (e.g., presence of scat or prey remains). No American badger burrows were observed in the study area.

Refer to Table 5-6 for information on larger animal burrows observed in the study area. Refer to Map 5-2 for the locations of the large burrows, and to Appendix A, Photos 17–20 for representative photographs.

## 5.2 EVALUATE PROJECT POWERLINE CONFIGURATIONS

There are two powerlines in the study area, the Intake Gatehouse to Flume No. 1 Powerline and Kern River No. 1 Powerhouse to Forebay Communication/Powerline.

Sixteen different configurations were identified along the Intake Gatehouse to Flume No. 1 Powerline. Of these, 12 configurations had a distance between conductors of less than 60 inches, which may pose a potential risk for avian electrocution.

Twenty-five different configurations were identified along the Kern River No. 1 Powerhouse to Forebay Communication/Powerline. All of these configurations exhibited one or more of the following risks for potential avian electrocution:

- Distance between uncovered phase conductors is less than 60 inches with no perch guard;
- Distance between energized parts and grounded equipment of equipment towers/poles is less than 60 inches; and
- Tower/pole contains uninsulated or partially insulated metal guy wires, jumper, or transformer cables.

Finally, the Kern River No. 1 Switchyard has energized equipment at distances of less than 60 inches that may potentially be accessible to raptors. There are, however, crossbars over the equipment that may prohibit large raptors from entering and/or provide safe alternative perches for raptors.

Refer to Table 5-7 for details on the evaluation of pole configurations for consistency with APLIC guidelines, and to Appendix B for a photographic example of each configuration.

### 5.2.1 Document Avian Electrocutions and Bird-Caused Outages

SCE reviewed its avian incident records to determine whether any avian electrocutions, outages, or mortalities had been reported since publication of the PAD for the Kern River No. 1 Project (SCE 2023). There are no reports of avian electrocutions or mortalities, or of bird-caused outages, associated with the Project.

## 5.3 EVALUATE OPEN-AIR SEGMENTS OF THE WATER CONVEYANCE SYSTEM

During the desktop evaluation, biologists identified 12 open-air segments along Project water conveyance systems that may have some potential to entrap wildlife. Based on field examinations, of these 12 facilities, five flumes exhibited some potential for wildlife to become entrapped (Flume No. 2, Flume No. 3, Flume No. 4, Flume No. 5, and Flume No. 6). While all of these flumes are elevated and difficult to access from the ground level,

the flumes lack covers and may be accessible from the surrounding sloping landscape at the point where the flumes re-enter tunnels.

Refer to Table 5-8 for details on the evaluation of open-air segments of the water conveyance system, and to Appendix C for photographs of each open-air segment. The location of each segment is shown on Map 5-2.

## 5.4 CONDUCT SPECIAL-STATUS SALAMANDER HABITAT ASSESSMENT AND VISUAL ENCOUNTER SURVEY

### 5.4.1 Identify Suitable Habitat for Special-Status Salamanders

Based review of existing information, suitable habitat for relictual slender salamanders includes seeps, perennial springs, and streams in rocky habitat supporting limited tree cover of oaks, buckeyes, sycamores, pines, and firs (USFWS 2022b). This species is tightly associated with aquatic habitats compared to other slender salamanders, and is found in areas of reduced flow, such as side seeps and relatively flat terrain, but in contact with water or fully saturated soil (Jockusch et al. 2022).

Suitable habitat for Kern Canyon slender salamanders includes stream and seep margins within rocky narrow canyons supporting chapparal shrubs, sycamore, California buckeye, willow, Fremont cottonwood, interior live oak, canyon live oak, and foothill pine. The primary habitat of the species is associated with riparian habitats but the species may also utilize upland areas with moist microsite characteristics such as mesic rocky hillsides containing talus and scree with associated hydrophytic vegetation such as mosses, ferns, or herbaceous vegetation (Lannoo 2005, Jockusch 2021 pers. comm. in USFWS 2022b; Jockusch et al. 2022).

Suitable habitat for yellow-blotched salamander includes coniferous forest, deciduous forest, oak woodland, and chaparral under logs, bark, moss, leaf litter, talus, and animal burrows, often near streams and creeks (Forest Service 2019).

The results of consultation with agencies and recognized salamander experts, preliminary habitat mapping, and habitat ground-truthing surveys are provided below.

#### 5.4.1.1 Consult with Agencies and Recognized Salamander Experts

The Terrestrial TWG was contacted on October 28, 2024 via email to obtain information on additional special-status salamander occurrences and habitat (including microsites) for special-status salamanders in the study. No responses were received.

On February 15, 2024 SCE Herpetology Program Manager Jack Goldfarb sent an email notification that two Kern Canyon slender salamanders were identified in the vicinity of SCE transmission lines (not part of the Kern River No. 1 Project) (J. Goldfarb, pers. comm. 2024). In addition, an email was received from Dr. Elizabeth Jockusch on March 20, 2025 with the coordinates for three observations of Kern Canyon slender salamander newly discovered and documented within the Kern Canyon in February/March 2024 (E. Jockusch, pers. comm. 2025). Two of these observations had been noted previously

by Jack Goldfarb. All three observations are located outside of the study area for special-status salamanders as described in this report, at least 0.15 mile south of the FERC Project boundary towards the mouth of the Kern Canyon. Refer to Appendix D for documentation of this consultation.

#### 5.4.1.2 Develop Preliminary Habitat Maps, Conduct Field Surveys, and Develop Final Habitat Maps

This section provides the results of ground-truthing of preliminary habitat maps completed January 27–31, 2025.

**Kern Canyon Slender Salamander**

There are approximately 284 acres of Kern Canyon slender salamander habitat present in the study area (approximately 38 percent of the study area). Kern Canyon slender salamander habitat overlaps 57 Project facilities, including roads, trails, conduits, flumes, and many other facilities. Kern Canyon slender salamander habitat was also found in areas that lacked Project facilities such as along the Democrat Dam Impoundment.

Refer to Table 5-9 for a list of Project facilities that overlap Kern Canyon slender salamander habitat.

Refer to Map 5-3 for the location of Kern Canyon slender salamander habitat in relation to Project facilities and the Kern River No. 1 FERC Project boundary.

Refer to Appendix E for a photograph exhibit of representative Kern Canyon slender salamander habitat within the study area.

**Relictual Slender Salamander**

There are approximately 47 acres of relictual slender salamander habitat present in the study area (approximately 0.06 percent of study area), overlapping 32 Project facilities. Due to the relictual slender salamander's dependance on water, habitat for this species is restricted to areas where aquatic habitat is present. As such, habitat was typically found along creeks or where water conveyance system leaks were present.

Refer to Table 5-9 for a list of Project facilities within relictual slender salamander habitat.

Refer to Map 5-4 for the location of relictual slender salamander habitat in relation to Project facilities and the Kern River No. 1 FERC Project boundary.

Refer to Appendix E for a photograph exhibit of representative relictual slender salamander habitat within the study area.

**Yellow-blotched Salamander**

There are approximately 120 acres of yellow-blotched salamander habitat present in the study area (approximately 16 percent of study area) intersecting with 24 Project facilities.

Habitat for this species was found along roads, trails, conduits, flumes, and many other facilities.

Refer to Table 5-9 for a list of Project facilities within yellow-blotched salamander habitat.

Refer to Map 5-5 for the location of yellow-blotched salamander habitat in relation to Project facilities and the Kern River No. 1 FERC Project boundary.

Refer to Appendix E for a photograph exhibit of representative yellow-blotched salamander habitat within the study area.

### 5.4.2 Visual Encounter Survey Results

The VES for special-status salamanders was conducted March 3–6, 2025 in all accessible suitable habitats identified during the microhabitat assessment. Conditions were optimal for salamander surveys with a light consistent rain occurring the day before the survey began and during three of the four days of the survey.

Three special-status salamander individuals were observed during the survey, including:

- One observation of a Kern Canyon slender salamander[3] approximately 10 feet downslope of Stark Creek Trail on March 5, 2025. This salamander was found under a piece of wood near a talus slope approximately 52 feet downslope of Adit 13 &14 and the Stark Creek Trail. The location of this occurrence is shown on Map 5-3.

- One observation of a Kern Canyon slender salamander[3] on an un-named trail within the FERC Project boundary approximately 83 feet upslope of the Stark Creek Road on March 5, 2025. This salamander was found in a wooden stump on a steep rocky slope. The location of this occurrence is shown on Map 5-3.

- One observation of a yellow-blotched salamander adjacent to Flume No. 1 in the Democrat Dam area on March 3, 2025. This salamander was found under a piece of bark approximately 10 feet west of the flume in a wood pile. The location of this occurrence is shown on Map 5-5.

In addition, one special-status reptile, California legless lizard, was incidentally observed during special-status salamander surveys. Refer to Map 5-2 for the location of these observations.

[3] There is only potential for two slender salamander species in the area. Confirmation of the identification between Kern Canyon slender salamander and relictual slender salamander requires handling to count the number of costal grooves between adpressed limbs. Because these species require a handling permit, no salamanders were handled and the species identification cannot be confirmed. However, the habitat in which this individual was found (rocky, upland habitat) matches the description of Kern Canyon slender salamander rather than the relictual slender salamander (which are found in streams and riparian corridors), and therefore it is assumed this individual is a Kern Canyon slender salamander.

- Two California legless lizards were observed together under a metal sheet approximately 67 feet east of Flume No. 1.

- One California legless lizard was observed under a log approximately 60 feet east of Willow Spring Creek Road.

Refer to Table 5-10 for the results of the VES in each special-status species' microhabitat mapped during the habitat assessment, including location and microhabitat information for each special-status species observed.

Refer to Appendix F for photographs of each observation and photographs of the habitat where each salamander and lizard was found.

All special-status species observations were submitted to the CNDDB. All special-status species observations were compiled into an electronic database, which is available upon request.

## 5.5 DOCUMENT SPECIAL-STATUS BAT REPRODUCTIVE AND SEASONAL USE OF PROJECT FACILITIES

This section provides a discussion of the results of surveys conducted to provide information on bat reproductive and seasonal use of Project facilities. Fourteen bat species were detected during the surveys.

Four of these species were special status, including the pallid bat (detected on acoustic devices installed at Adit 13 &14); western mastiff bat (detected on acoustic units at Democrat Dam, Adit 13 & 14, and Kern River No. 1 Powerhouse; as well as day/night roosts along the Democrat Dam Access Walkway and at Stilling Well No. 2); western red bat (detected on acoustic devices installed at Democrat Dam, Adit 13 & 14, and the Kern River No. 1 Powerhouse); and fringed myotis (day/night roosts and acoustic detections at Adit 13 & 14).

Roosts of common bat species were identified at the Democrat Dam Access Walkway (night roosts); Stilling Well No. 2 (night roost); Lucas Creek Flume No. 4 (night roost); Adit 13 & 14 (day and night roosts); and the Kern River No. 1 Powerhouse (maternal, night, and day roosts). Refer below for additional details on bat roost and seasonal use surveys conducted in the study area.

### 5.5.1 Identify Facilities Potentially Supporting Bat Roosts

Provided below are the results of the initial desktop assessment and the visual assessment of Project facilities supporting potential bat roosting habitat.

During the initial desktop assessment of potential bat roosting habitat, it was determined that Democrat Dam, water conveyance facilities (i.e., flumes, conduits, and adits), the Kern River No. 1 Powerhouse, stilling wells, and ancillary and support facilities (e.g., buildings, walkways, water tanks) could potentially support bat roosts. Project facilities that were determined to lack structures that could be utilized by roosting bats

included impoundments, roads, trails, communication lines, and powerlines. Refer to Table 3-1 for facilities that were assessed during the initial desktop assessment as potentially supporting suitable habitat for roosting bats.

Following completion of the initial desktop assessment, biologists conducted a preliminary visual field assessment of 43 Project facilities to evaluate their suitability to provide habitat for roosting bats. Twenty-one facilities were determined to have elements that may support roosting bats. Four adits were unsafe to access by surveyors (Adit 2 & 3, Adit 4 & 5, Adit 9 & 10, and Adit 15 & 16) and were not inspected. In addition the interiors of several facilities (i.e., water tank, stilling wells, gage housing, and one additional adit) were inaccessible, and therefore only the exterior was inspected. Refer to Table 5-11 for a summary of the results of the visual assessment of accessible Project facilities identified during the desktop assessment as potentially supporting bat roosts. Appendix G provides photographs of the facilities evaluated during the preliminary visual field assessment.

### 5.5.2 Conduct Roost Surveys

Project facilities identified as potentially supporting roosting bats were surveyed July 7–16, 2024 to determine if signs of roosting were present. Of the 43 Project facilities evaluated, eight Project facilities were determined to support roosting bats (listed below from north to south).

- Democrat Dam Intake Gatehouse — Facility was determined to support a night roost[4] based on the quantity of guano present and the roosting features on the facility. Habitat to support the roost is present within the cracks between the building and the foundation. The foundation itself and the building also serve as night roosting habitat. No bats were present but guano was collected, analyzed, and determined to be Yuma myotis (*Myotis yumanensis*).

- Democrat Dam Access Walkway (and associated unnamed buildings) — Facility was determined to support one day roost[5] and three night roosts.

  – A large western mastiff bat day and night roost was observed in the rock cliff adjacent to the dam walkway. Guano was present and collected to confirm sight identification.

  – Two of the associated unnamed buildings contained guano in amounts that indicated they were utilized as night roosts. Guano was collected for analysis, which was identified as California myotis (*Myotis californicus*).

- Stilling Well No. 2 — Facility was determined to support a night roost based on the fresh guano present on exterior of the stilling well and surrounding walkway. The facility is likely used as a night roost while foraging nearby or after drinking from

[4] A night roost is a location where bats rest during the night in between excursions to forage for food or water.
[5] A day roost is a location where bats sleep or rest throughout the day when they are generally inactive.

the adjacent flume. Two guano samples were collected and identified two species, Yuma myotis and western mastiff bat.

- Flume No. 4 (Lucas Creek) — Facility was determined to support a night roost based on the large deposits of guano present on the flume under areas where mud nests (or mud buildup bats could utilize) were present on the flume. The surrounding riparian habitat and water from the flume makes the area suitable for bats and night roosting. Six samples of guano were collected. Three samples were identified as California myotis, two samples as Yuma myotis, and one sample as long-legged myotis (*Myotis volans*).

- Adit 13 & 14 — Facility was determined to support a day and night roost based on the amount of fresh guano found on the wooden door closing off the adit cave, the guano observed on the ground within the adit cave, and the adit cave itself being a location bats could roost during the heat of the day. Two samples of guano were collected but could not be genetically differentiated to identify the species. The three potential species identified are long-eared myotis (*Myotis evotis*), fringed myotis, and little brown bat (*Myotis lucifugus*).

- Kern River No. 1 Powerhouse — Facility was determined to support day, night, and maternity roosts[6]. Substantial amounts of guano and urine-staining were present in select areas on the exterior and interior of the Powerhouse indicating it is a primary multi-year roosting site throughout at least the spring and maternity season. The largest areas of urine staining and guano deposits were present in the Electrical Room with smaller, but still significant, concentrations in all four Transformer Bays and the Battery Room. One desiccated big brown bat (*Eptesicus fuscus*), a common bat, was found within the wet tunnel. Three guano samples were collected—one from the exterior and two from the interior—identified as Yuma myotis.

- Water Tank — Facility was determined to support a night roost. Suitable roosting habitat and guano was found in the area where the roof joins the wall. An additional larger roosting area was found within the narrow space between the building and the adjacent rock face where a large pile of guano was found on the ground. The later area could potentially be suitable for a day roost if the building and rocks do not get too hot. No bats were observed during the survey and the guano was too degraded for analysis.

- Garage No. 1 — Facility was determined to support a seasonal night roost based on the amount of guano present within the building where bats could gain access through a broken window. The age of the guano indicates that the facility is not extensively used so it is likely a seasonal roost before temperatures get too high.

[6] A maternity roost is a warm and safe location where female bats congregate together to birth and care for their young and stay until the pups are strong enough to leave their mothers. Maternity roost locations can also be used for day and night roosting outside the maternity season.

Refer to Table 5-12 for details on the roost survey results for all surveyed facilities.

#### 5.5.2.1 Conduct Acoustic Sampling

Based on the results of the roost surveys conducted in July 2024, a total of three acoustic devices were installed, including one acoustic detector at the Democrat Dam area (on the Walkway), one near Adit 13 & 14, and one at the Kern River No. 1 Powerhouse. Refer to Map 5-6 for the location of each device.

Analysis of the sonogram files yielded a total of 12 bat species during the roost survey:

- pallid bat
- big brown bat
- western mastiff bat
- western red bat
- hoary bat (*Lasiurus cinereus*)
- silver-haired bat (*Lasionycteris noctivagans*)
- California myotis
- small-footed myotis (*Myotis ciliolabrum*)
- long-eared myotis
- Yuma myotis
- canyon bat (*Parastrellus hesperus*)
- Mexican free-tailed bat (*Tadarida brasiliensis*)

Of the 12 species detected, three of the species, the pallid bat (detected at Adit 13 & 14), western mastiff bat (detected on all devices), and western red bat (detected on all devices), are special-status bat species.

Refer to Table 5-13 for a list of each bat species observed during roost surveys and associated method of detection (e.g., visual, guano identification, or acoustic detection). Map 5-6 provides the location of special-status and common bat species observed during the surveys.

### 5.5.3 Document Special-Status Bat Seasonal Use of Project Facilities

In October 2024, biologists replaced the three acoustic devices as described in Section 5.5.2.1 (i.e., one at the Democrat Dam area (on the Walkway), one near Adit 13 & 14, and one at the Kern River No. 1 Powerhouse) to determine the seasonal usage of facilities by bats. Analysis of the sonogram files yielded a total of nine bat species:

- pallid bat
- western mastiff bat
- western red bat
- hoary bat
- California myotis
- fringed myotis
- Yuma myotis
- canyon bat
- Mexican free-tailed bat

Of the nine detected species, four species, pallid bat (detected at Adit 13 & 14), western mastiff bat (detected on all devices), western red bat (detected on all devices), and fringed myotis (detected at Adit 13 & 14), are special-status bat species.

Refer to Table 5-13 for a list of each bat species observed during seasonal use surveys. Map 5-6 provides the location of special-status and common bat species observed during the surveys.

All special-status species observations were submitted to the CNDDB. All special-status species observations were compiled into an electronic database, which is available upon request.

## 6.0 STUDY SPECIFIC CONSULTATION

No specific consultation is required for this study, and no consultation has been conducted to date.

## 7.0 OUTSTANDING STUDY PLAN ELEMENTS

There are no outstanding study plan elements. The TERR 2 – Wildlife Resources Study is complete.

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# TABLES

## Table 3-1. Kern River No. 1 Hydroelectric Project – Project Facilities

| |
|---|
| **Diversion Dam** |
| Democrat Dam |
| **Impoundment** |
| Democrat Dam Impoundment |
| **Water Conveyance System** |
| Sandbox |
| Tunnels, Flumes, Conduits, and Adits |
| Forebay |
| Forebay Overflow Spillway |
| Penstock |
| **Powerhouse and Switchyard** |
| Kern River No. 1 Powerhouse and Switchyard |
| **Access Roads** |
| Willow Spring Creek Road (also referred to as Democrat Dam Road) |
| Powerline Road |
| Flume No. 1 Road |
| Dougherty Creek Road |
| Stark Creek Road |
| Forebay Operations Area Road |
| Lower Powerhouse Road |
| Upper Powerhouse Road |
| **Access Trails** |
| Democrat Gage Trail |
| Conduit No. 3 Trail |
| Cow Flat Creek Trail |
| Steel Flume Trail |
| Lucas Creek Trail |
| Dougherty Creek Trail |
| Stark Creek Trail |
| Adit 17 & 18 Trail |
| Overflow Spillway Trail |
| Skip Hoist / Forebay Trail |
| **Communication and Power Lines** |

| |
|---|
| Intake Gatehouse to Flume No. 1 Powerline |
| Powerhouse to Forebay Communication / Powerline |
| **Gages and Stilling Wells** |
| Kern River near Democrat Springs (USGS Gage No. 11192500 / SCE Gage No. 409) |
| Kern River No. 1 Conduit near Democrat Springs (USGS Gage No. 11192000 / SCE Gage No. 410) |
| Kern River near Democrat Springs (USGS Gage No. 11192501; calculated 11192500+11192000) |
| Stilling Well No. 1 |
| Stilling Well No. 2 |
| **Ancillary and Support Facilities** |
| ***Democrat Dam Area*** |
| Buoy Line in Democrat Dam Impoundment |
| Democrat Dam Intake Gatehouse |
| Democrat Dam Drainage Tower |
| Democrat Dam Drainage Tunnel |
| Democrat Dam Drainage Tunnel Outlet |
| Democrat Dam Access Walkway |
| Sandbox Drainage Channel |
| Gaging Cableway |
| ***Water Conveyance*** |
| Flume No. 6 Access Platform |
| ***Forebay Operations Area*** |
| Old Admin Building |
| Garage No. 1 |
| Garage No. 2 |
| Old Ice House |
| Water Tank |
| Aerial Cable Tower |
| Skip Hoist House and Lower Landing |
| Skip Hoist Cables and Cart |
| Skip Hoist Upper Landing |
| Skip Hoist Upper Landing to Forebay Catwalk |
| Communication Site |
| Forebay Operations Area Perimeter Fence |
| Forebay Perimeter Fence |

| ***Powerhouse Area*** |
|---|
| Machine Shop |
| Office / Lunchroom |
| Restroom |
| Powerhouse and Switchyard Perimeter Fence |

## Table 5-1. Vegetation Alliances and Wildlife Habitats Occurring within 1 Mile of the Kern River No. 1 Hydroelectric Project FERC Boundary

| CALVEG Vegetation Alliance[1] | CALVEG Code | CWHR Wildlife Habitat[2] | CWHR Code |
|---|---|---|---|
| **Herb-Dominated Alliances** | | | |
| Annual Grasses and Forbs Alliance | HG | Annual Grassland | AGS |
| **Shrub-Dominated Alliances** | | | |
| Ultramafic Mixed Shrub Alliance | C1 | Mixed Chaparral | MCH |
| Baccharis (Riparian) Alliance | ML | Montane Riparian | MRI |
| **Tree-Dominated Alliances** | | | |
| Interior Mixed Hardwoods Alliance | NX | Montane Hardwood | MHW |
| Gray Pine Alliance | PD | Blue Oak-Foothill Pine | BOP |
| Blue Oak Alliance | QD | Blue Oak Woodland | BOW |
| Valley Oak Alliance | QL | Valley Oak Woodland | VOW |
| California Sycamore | QP | Valley Foothill Riparian | VRI |
| Interior Live Oak | QW | Montane Hardwood | MHW |
| **Non-Vegetated Areas** | | | |
| Tilled Earth | A3 | Barren | BAR |
| Barren | BA | Barren | BAR |
| Urban-related Bare Soil | IB | Barren | BAR |
| **Aquatic Areas** | | | |
| Agriculture Pond or Water Feature | A7 | Lacustrine | LAC |
| River/Stream/Canal | W1 | Riverine | RIV |

Notes: [1] Source: Forest Service 2016.
[2] Source: Forest Service 2024.
[3] The *Baccharis* (riparian) alliance can be associated with desert riparian, montane riparian, and/or Valley foothill riparian CWHR wildlife habitat classifications.
Key: CALVEG = Classification and Assessment with Landsat of Visible Ecological Groupings
CWHR = California Wildlife Habitat Relationships

## Table 5-2. Special-Status Wildlife Species Known or Potentially Occurring in California Wildlife Habitats Relationships Wildlife Habitats

| Special-Status Wildlife | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Herb-dominated Habitats | Shrub-dominated Habitats | | Tree-dominated Habitats | | | | | Non-vegetated Areas | Aquatic Areas | |
| **Common Name** | **Scientific Name** | **Federal Status** | **Forest Service Status** | **State Status** | **Annual Grassland** | **Mixed Chaparral** | **Montane Riparian** | **Montane Hardwood** | **Blue Oak-Foothill Pine** | **Blue Oak Woodland** | **Valley Oak Woodland** | **Valley Foothill Riparian** | **Barren** | **Lacustrine** | **Riverine** |
| **Invertebrates[1]** | | | | | | | | | | | | | | | |
| monarch butterfly | *Danaus plexippus* | FPT | – | – | X | X | X | X | X | X | X | X | | | |
| bumblebee species | *Bombus* sp. | – | – | CC | X | X | X | X | X | X | X | X | | | |
| **Amphibians** | | | | | | | | | | | | | | | |
| Kern Canyon slender salamander | *Batrachoseps simatus* | FPT | – | CT | | X | X | X | X | X | X | X | | | |
| relictual slender salamander | *Batrachoseps relictus* | FPE | – | CSC | X | X | X | X | X | X | | X | | | X |
| yellow-blotched salamander | *Ensatina eschscholtzii croceator* | – | FSCC | WL | | X | X | X | X | X | X | X | | X | |
| western spadefoot | *Spea hammondii* | FPT | – | CSC | X | X | | | X | X | X | | | X | X |
| **Reptiles** | | | | | | | | | | | | | | | |
| northwestern pond turtle | *Actinemys marmorata* | FPT | – | CSC | X | X | X | X | X | X | X | X | | X | X |
| coast horned lizard | *Phrynosoma blainvillii* | – | – | CSC | X | X | | | X | X | X | X | | | |
| California legless lizard | *Anniella* spp. | – | – | CSC | | X | | | X | X | X | X | | | |
| California glossy snake | *Arizona elegans occidentalis* | – | – | CSC | X | X | | | | X | X | | | | |
| San Joaquin coachwhip | *Masticophis flagellum ruddocki* | – | – | CSC | X | X | | | X | X | X | X | | | |
| Sierra night lizard | *Xantusia vigilis* | – | – | CSC | X | | | | X | X | X | | | | |
| **Birds** | | | | | | | | | | | | | | | |
| American goshawk | *Accipiter atricapillus* | – | FSCC | CSC | | X | X | X | X | X | X | X | | | |
| northern harrier | *Circus hudsonius* | BCC | – | CSC | X | X | X | X | X | X | X | X | X | X | X |
| California condor | *Gymnogyps californianus* | FE | – | CE, CFP | X | X | X | X | X | X | X | | X | X | X |
| golden eagle | *Aquila chrysaetos* | Eagle Act | – | CFP | X | X | X | X | X | X | X | X | X | | |
| bald eagle | *Haliaeetus leucocephalus* | FD, Eagle Act | FSCC | CE, CFP | X | X | X | X | X | X | X | X | X | X | X |
| Swainson’s hawk | *Buteo swainsoni* | – | – | CT | X | X | | X | X | X | X | X | X | | |
| American peregrine falcon | *Falco peregrinum anatum* | FD | – | CD, WL | X | X | X | X | X | X | X | X | X | X | X |

| Special-Status Wildlife | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Herb-dominated Habitats | Shrub-dominated Habitats | | Tree-dominated Habitats | | | | | Non-vegetated Areas | Aquatic Areas | |
| **Common Name** | **Scientific Name** | **Federal Status** | **Forest Service Status** | **State Status** | **Annual Grassland** | **Mixed Chaparral** | **Montane Riparian** | **Montane Hardwood** | **Blue Oak-Foothill Pine** | **Blue Oak Woodland** | **Valley Oak Woodland** | **Valley Foothill Riparian** | **Barren** | **Lacustrine** | **Riverine** |
| prairie falcon | *Falco mexicanus* | – | – | WL | X | X | X | X | X | X | X | X | X | | |
| white-headed woodpecker | *Dryobates albolarvatus* | BCC | – | – | | | X | X | | | | | | | |
| savannah sparrow | *Passerculus sandwichensis* | BCC | – | – | X | X | | | X | X | X | X | | | |
| oak titmouse | *Baeolophus inornatus* | BCC | – | – | | X | X | X | X | X | X | X | | | |
| Bullock’s oriole | *Icterus bullockii* | BCC | – | – | | X | X | X | X | X | X | X | | | |
| Lawrence's goldfinch | *Spinus lawrencei* | BCC | – | – | X | X | X | X | X | X | X | | | | |
| tricolored blackbird | *Agelaius tricolor* | BCC | FSCC | CSC | X | | | | | | | X | | | |
| grasshopper sparrow | *Ammodramus savannarum* | – | – | CSC | X | | | | | | | | | | |
| Vaux’s swift | *Chaetura vauxi* | – | – | CSC | | X | X | X | X | | | X | | X | X |
| southwestern willow flycatcher | *Empidonax traillii extimus* | FE | FSCC | CFP | | | X | | | | | X | | | |
| yellow-breasted chat | *Icteria virens* | – | – | CSC | | | X | | | | | X | | | |
| loggerhead shrike | *Lanius ludovicianus* | – | – | CSC | X | X | X | X | X | X | X | X | X | | |
| purple martin | *Progne subis* | – | – | CSC | X | | X | X | X | X | X | X | | X | X |
| yellow warbler | *Setophaga petechica* | – | – | CSC | | X | X | X | X | X | X | X | | | |
| California spotted owl | *Strix occidentalis occidentalis* | BCC, FPT | FSCC | CSC | | | X | X | X | | | X | | | |
| **Mammals** | | | | | | | | | | | | | | | |
| pallid bat | *Antrozous pallidus* | – | – | CSC | X | X | X | X | X | X | X | X | X | | X |
| Townsend’s big-eared bat | *Corynorhinus townsendii* | – | FSCC | CSC | X | X | X | X | X | X | X | X | X | | X |
| western mastiff bat | *Eumops perotis californicus* | – | – | CSC | X | X | X | X | X | X | X | X | X | | |
| fringed myotis | *Myotis thysanodes* | – | FSCC | – | X | X | X | X | X | X | X | X | X | X | X |
| spotted bat | *Euderma maculatum* | – | – | CSC | X | X | X | | X | X | X | X | | | X |
| western red bat | *Lasiurus blossevillii* | – | – | CSC | X | X | X | X | X | X | X | X | | X | X |
| Tulare grasshopper mouse | *Onychomys torridus tularensis* | – | – | CSC | X | X | X | | | | | X | | | |

| Special-Status Wildlife | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common Name | Scientific Name | Federal Status | Forest Service Status | State Status | Herb-dominated Habitats | Shrub-dominated Habitats | | Tree-dominated Habitats | | | | | Non-vegetated Areas | Aquatic Areas | |
| | | | | | Annual Grassland | Mixed Chaparral | Montane Riparian | Montane Hardwood | Blue Oak-Foothill Pine | Blue Oak Woodland | Valley Oak Woodland | Valley Foothill Riparian | Barren | Lacustrine | Riverine |
| ringtail | *Bassariscus astutus* | – | – | CFP | X | X | X | X | X | X | X | X | X | | |
| American badger | *Taxidea taxus* | – | – | CSC | X | X | X | X | X | X | X | X | X | | |
| San Joaquin kit fox | *Vulpes macrotis mutica* | FE | – | CT | X | | | | X | X | X | X | X | | |

Notes: [1] Invertebrate preference for CWHR Wildlife Habitats was determined by reviewing existing literature on habitat preferences for each species and matching to CWHR descriptions. The CWHR system currently has no habitat associations for invertebrates.
Key: Federal Status
BCC = Bird of Conservation Concern
Eagle Act = Bald and Golden Eagle Protection Act
FC = Federal Candidate
FD = Federal Delisted
FE = Federal Endangered
FPT = Federal Proposed Threatened
FT = Federal Threatened
Forest Service Status
FSCC = Sequoia National Forest Service Species of Conservation Concern
State Status
CFP = California Fully Protected
CE = California Endangered
CD = California Delisted
CSC = California Species of Conservation Concern
CT = California Threatened
CC = California Candidate
WL = Watch List

## Table 5-3. Special-Status and Common Wildlife Species Observed in the Study Area during 2024 Technical Studies

| Common Name[1] | Scientific Name[1] | Status | | | Type of Detection | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Federal | State | Forest Service | Visual/Auditory | Scat | Den/Bedding Area | Tracks/Feathers | Remains |
| **Invertebrates – Butterflies** | | | | | | | | | |
| Western tiger swallowtail | *Papilio rutulus* | – | – | – | X | | | | |
| Common yellow swallowtail | *Papilio machaon* | – | – | – | X | | | | |
| Pale swallowtail | *Papilio eurymedon* | – | – | – | X | | | | |
| Cabbage white | *Pieris rapae* | – | – | – | X | | | | |
| **Monarch butterfly** | ***Danaus plexippus*** | **FPT** | – | – | **X** | | | | |
| Western white | *Pontia occidentalis* | – | – | – | X | | | | |
| California sister | *Adelpha californica* | – | – | – | X | | | | |
| Painted lady | *Vanessa cardui* | – | – | – | X | | | | |
| Trapdoor spider species | *Ctenizidae* sp. | – | – | – | X | | | | |
| Goldenrod crab spider | *Misumena vatia* | – | – | – | X | | | | |
| Johnsons jumping spider | *Phidippus johnsoni* | – | – | – | X | | | | |
| False tarantula species | *Theraphosidae* sp. | – | – | – | X | | | | |
| Tarantula species | *Theraphosidae* sp. | – | – | – | X | | | | |
| Scorpion species | *Scorpionidae* sp. | – | – | – | X | | | | |
| Western honeybee | *Apis mellifera* | – | – | – | X | | | | |
| Tarantula hawk species | *Pepsis* sp. | – | – | – | X | | | | |
| Water strider species | *Gerridae* | – | – | – | X | | | | |
| Yellowjacket | *Vespinae species* | – | – | – | X | | | | |
| **Bumblebee species[2]** | ***Bombus* sp.** | – | **CC** | – | **X** | | | | |
| American ruby-spotted damsel | *Hetaerina americana* | – | – | – | X | | | | |
| American bluet damsel | *Enallagma cyathigerum* | – | – | – | X | | | | |
| Desert firetail | *Telebasis salva* | – | – | – | X | | | | |
| Flame skimmer | *Libellula saturata* | – | – | – | X | | | | |
| Widow skimmer | *Libellula luctuosa* | – | – | – | X | | | | |
| Boxelder bug | *Boisea trivittata* | – | – | – | X | | | | |
| **Amphibians** | | | | | | | | | |
| Sierran tree frog | *Pseudacris sierrae* | – | – | – | X | | | | |
| American bullfrog | *Lithobates catesbeianus* | – | – | – | X | | | | |
| **Yellow-blotched salamander** | ***Ensatina eschscholtzii croceater*** | – | **WL** | **FSCC** | **X** | | | | |
| **Kern Canyon slender salamander** | ***Batrachoseps simatus*** | **FPT** | **CT** | – | **X** | | | | |
| **Reptiles** | | | | | | | | | |

| Common Name[1] | Scientific Name[1] | Status | | | Type of Detection | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Federal | State | Forest Service | Visual/Auditory | Scat | Den/Bedding Area | Tracks/Feathers | Remains |
| **California legless lizard** | ***Anniella* spp.** | – | **CSC** | – | **X** | | | | |
| **Northwestern pond turtle[4]** | ***Actinemys marmorata*** | **FPT** | **CSC** | – | | | | | **X** |
| Western fence lizard | *Sceloporus occidentalis* | – | – | – | X | | | | |
| Western side-blotched lizard | *Uta stansburiana elegans* | – | – | – | X | | | | |
| Southern alligator lizard | *Elgaria multicarinata* | – | – | – | X | | | | |
| California whiptail | *Aspidoscelis tigris munda* | – | – | – | X | | | | |
| Common garter snake | *Thamnophis sirtalis* | – | – | – | X | | | | |
| Sierra garter snake | *Thamnophis couchii* | – | – | – | X | | | | |
| Pacific gophersnake | *Pituophis catenifer catenifer* | – | – | – | X | | | | |
| California king snake | *Lampropeltis californiae* | – | – | – | X | | | | |
| Northern Pacific rattlesnake | *Crotalus oreganus oreganus* | – | – | – | X | | | | |
| **Birds** | | | | | | | | | |
| Mallard | *Anas platyrhynchos* | – | – | – | X | | | | |
| Common goldeneye | *Bucephala clangula* | – | – | – | X | | | | |
| American coot | *Fulica americana* | – | – | – | X | | | | |
| Double-crested cormorant | *Nannopterum auritum* | – | – | – | X | | | | |
| Great blue heron | *Ardea herodias* | – | – | – | X | | | | |
| Black-crowned night heron | *Nycticorax nycticorax* | – | – | – | X | | | | |
| Greater yellowlegs | *Tringa melanoleuca* | – | – | – | X | | | | |
| Turkey vulture | *Cathartes aura* | – | – | – | X | | | | |
| Red-shouldered hawk | *Buteo lineatus* | – | – | – | X | | | | |
| Red-tailed hawk | *Buteo jamaicensis* | – | – | – | X | | | | |
| **Swainson’s Hawk** | ***Buteo swainsoni*** | – | **CT** | – | **X** | | | | |
| Sharp-shinned hawk | *Accipiter striatus* | – | WL | – | **X** | | | | |
| **Northern harrier** | ***Circus hudsonius*** | **BCC** | **CSC** | – | **X** | | | | |
| **Golden eagle** | ***Aquila chrysaetos*** | **Eagle Act** | **CFP** | – | **X** | | | | |
| **Bald eagle** | ***Haliaeetus leucocephalus*** | **FD, Eagle Act** | **CE, CFP** | **FSCC** | **X** | | | | |
| **Peregrine falcon** | ***Falco peregrinus*** | **FD** | **CD, WL** | – | **X** | | | | |
| American kestrel | *Falco sparverius* | – | – | – | X | | | | |
| Anna’s hummingbird | *Calypte anna* | – | – | – | X | | | | |
| Black-chinned hummingbird | *Archilochus alexandri* | – | – | – | X | | | | |
| Ruby-throated hummingbird | *Archilochus colubris* | – | – | – | X | | | | |
| Hairy woodpecker | *Picoides villosus* | – | – | – | X | | | | |
| Northern flicker | *Colaptes auratus* | – | – | – | X | | | | |
| **White-headed woodpecker** | ***Dryobates albolarvatus*** | **BCC** | – | – | **X** | | | | |

| Common Name[1] | Scientific Name[1] | Status | | | Type of Detection | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Federal | State | Forest Service | Visual/Auditory | Scat | Den/Bedding Area | Tracks/Feathers | Remains |
| Acorn woodpecker | *Melanerpes formicivorus* | – | – | – | X | | | | |
| Red-breasted sapsucker | *Sphyrapicus ruber* | – | – | – | X | | | | |
| California scrub-jay | *Aphelocoma californica* | – | – | – | X | | | | |
| Common raven | *Corvus corax* | – | – | – | X | | | | |
| American crow | *Corvus brachyrhynchos* | – | – | – | X | | | | |
| Northern mockingbird | *Mimus polyglottos* | – | – | – | X | | | | |
| Sage thrasher | *Oreoscoptes montanus* | – | – | – | X | | | | |
| Western meadowlark | *Sturnella neglecta* | – | – | – | X | | | | |
| Cliff swallow | *Petrochelidon pyrrhonota* | – | – | – | X | | | | |
| Barn swallow | *Hirundo rustica* | – | – | – | X | | | | |
| Tree swallow | *Tachycineta bicolor* | – | – | – | X | | | | |
| Northern-rough winged swallow | *Stelgidopteryx serripennis* | – | – | – | X | | | | |
| White-throated swift | *Aeronautes saxatalis* | – | – | – | X | | | | |
| Canyon wren | *Catherpes mexicanus* | – | – | – | X | | | | |
| Bewick’s wren | *Thryomanes bewickii* | – | – | – | X | | | | |
| House wren | *Troglodytes aedon* | – | – | – | X | | | | |
| Marsh wren | *Cistothorus palustris* | – | – | – | X | | | | |
| Rock wren | *Salpinctes obsoletus* | – | – | – | X | | | | |
| Orange-crowned warbler | *Leiothlypis celata* | – | – | – | X | | | | |
| Yellow-rumped warbler | *Dendroica coronata* | – | – | – | X | | | | |
| California towhee | *Melozone crissalis* | – | – | – | X | | | | |
| Song sparrow | *Melospiza melodia* | – | – | – | X | | | | |
| Rufous-crowned sparrow | *Aimophila ruficeps* | – | – | – | X | | | | |
| White-crowned sparrow | *Zonotrichia leucophrys* | – | – | – | X | | | | |
| **Savannah sparrow** | ***Passerculus sandwichensis*** | **BCC** | – | – | **X** | | | | |
| **Oak titmouse** | ***Baeolophus inornatus*** | **BCC** | – | – | **X** | | | | |
| Phainopepla | *Phainopepla nitens* | – | – | – | X | | | | |
| European starling | *Sturnus vulgaris* | – | – | – | X | | | | |
| Black phoebe | *Sayornis nigricans* | – | – | – | X | | | | |
| Ash-throated flycatcher | *Myiarchus cinerascens* | – | – | – | X | | | | |
| Western kingbird | *Tyrannus verticalis* | – | – | – | X | | | | |
| Say’s phoebe | *Sayornis saya* | – | – | – | X | | | | |
| Western tanager | *Piranga ludoviciana* | – | – | – | X | | | | |
| Scott’s oriole | *Icterus parisorum* | – | – | – | X | | | | |
| **Bullock’s oriole** | ***Icterus bullockii*** | **BCC** | – | – | **X** | | | | |

| Common Name[1] | Scientific Name[1] | Status | | | Type of Detection | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Federal | State | Forest Service | Visual/Auditory | Scat | Den/Bedding Area | Tracks/Feathers | Remains |
| California quail | *Callipepla californica* | – | – | – | X | | | | |
| Mountain quail | *Oreortyx pictus* | – | – | – | X | | | | |
| Mourning dove | *Zenaida macroura* | – | – | – | X | | | | |
| **Lawrence's goldfinch** | ***Spinus lawrencei*** | **BCC** | – | – | **X** | | | | |
| House finch | *Haemorhous mexicanus* | – | – | – | X | | | | |
| Bushtit | *Psaltriparus minimus* | – | – | – | X | | | | |
| Hermit thrush | *Catharus guttatus* | – | – | – | X | | | | |
| Ruby-crowned kinglet | *Corthylio calendula* | – | – | – | X | | | | |
| Dark-eyed junco | *Junco hyemalis* | – | – | – | X | | | | |
| Hutton’s vireo | *Vireo huttoni* | – | – | – | X | | | | |
| **Mammals** | | | | | | | | | |
| California ground squirrel | *Otospermophilus beecheyi* | – | – | – | X | | | | |
| Chipmunk | *Neotamias* spp. | – | – | – | X | | | | |
| Woodrat species | *Neotama* spp. | – | – | – | | X | | | |
| Deer mouse species | *Peromyscus* spp. | – | – | – | X | | | | |
| American beaver | *Castor canadensis* | – | – | – | X | | | | |
| **Pallid bat** | ***Antrozous pallidus*** | – | **CSC** | – | **X** | | | | |
| Big brown bat | *Eptesicus fuscus* | – | – | – | | | | | X |
| **Western mastiff bat** | ***Eumops perotis*** | – | **CSC** | – | **X** | **X[5]** | | | |
| **Western red bat** | ***Lasiurus blossevillii*** | – | **CSC** | – | **X** | | | | |
| Hoary bat | *Lasiurus cinereus* | – | – | – | X | | | | |
| Silver-haired bat | *Lasionycteris noctivagans* | – | – | – | X | | | | |
| California myotis | *Myotis californicus* | – | – | – | X | X[5] | | | |
| Western small-footed myotis | *Myotis ciliolabrum* | – | – | – | X | | | | |
| Long-eared myotis | *Myotis evotis* | – | – | – | X | X[5] | | | |
| Little brown bat | *Myotis lucifugus* | – | | | | X[5] | | | |
| **Fringed myotis** | ***Myotis thysanodes*** | – | – | **FSCC** | **X** | **X[5]** | | | |
| Long-legged myotis | *Myotis volans* | – | – | – | | X[5] | | | |
| Yuma myotis | *Myotis yumanensis* | – | – | – | X | X[5] | | | |
| Canyon bat | *Parastrellus hesperus* | – | – | – | X | | | | |
| Mexican free-tailed bat | *Tadarida brasiliensis* | – | – | – | X | | | | |
| Desert cottontail | *Sylvilagus audubonii* | – | – | – | X | | | | |

| Common Name[1] | Scientific Name[1] | Status | | | Type of Detection | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Federal | State | Forest Service | Visual/Auditory | Scat | Den/Bedding Area | Tracks/Feathers | Remains |
| Brush rabbit | *Sylvilagus bachmani* | – | – | – | X | | | | |
| Coyote | *Canis latrans* | – | – | – | X | X | | | |
| Mule deer | *Odocoileus hemionus* | – | – | – | X | | | | |

Notes: [1]Special-status wildlife species are indicated in bold text.
[2] The bumblebees observed could not be identified to species. As some *Bombus* species are special-status, the observation in the table was noted to be CC.
[3] Confirmation of the identification between Kern Canyon slender salamander and relictual slender salamander requires handling to count the number of costal grooves between adpressed limbs. Because these species require a handling permit, no salamanders were handled and the species identification cannot be confirmed. However, the habitat in which this individual was found (rocky, upland habitat) matches the description of Kern Canyon slender salamander rather than the relictual slender salamander (which are found in streams and riparian corridors), and therefore it is assumed this individual is a Kern Canyon slender salamander.
[4] Refer to the AQ 3 TM for information on the incidental sighting of northwestern pond turtle in the study area.
[5] DNA sequence analysis, conducted by Genidaqs, could not confirm a guano sample to species but indicated this species as a possible result of origin of one or more guano sample collected in from a Project facility.

Key: Federal Status
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FE = Federal Endangered
FPT = Federal Proposed Threatened
FT = Federal Threatened
State Status
CC = California Candidate
CD = California Delisted
CE = California Endangered
CFP = California Fully Protected
CSC = California Species of Conservation Concern
CT = California Threatened
WL = Watch List
Forest Service Status
FSCC = Sequoia National Forest Species of Conservation Concern

## Table 5-4. Milkweed Populations Identified in the Study Area

| Photo/ Map ID | Nearest Facility | Coordinates | Milkweed Species | Number of Individuals | Population Size (sq ft) |
|---|---|---|---|---|---|
| ASC-1[1] | Willow Spring Creek Road (Democrat Dam Road) | 35.5261228 -118.6687727 | California milkweed (*Asclepias californica*) | 450 | 6,500 |
| ASC-2[1] | Democrat Gage Trail | 35.519992556947, -118.679922563914 | California milkweed (*Asclepias californica*) | 4 | 20 |
| ASC-3[1] | Overflow Spillway Trail | 35.4600773 -118.7781727 | California milkweed (*Asclepias californica*) | 2 | 4 |
| ASC-4[1] | Overflow Spillway Trail | 35.4602382387254, -118.777604338439 | California milkweed (*Asclepias californica*) | 6 | 50 |
| ASC-5[1] | Overflow Spillway Trail | 35.4602208170834, -118.777577196741 | California milkweed (*Asclepias californica*) | 1 | 1 |
| ASC-6[1] | Overflow Spillway Trail | 35.470658436 -118.71213836 | California milkweed (*Asclepias californica*) | 1 | 1 |
| ASC-7[1] | Stark Creek Trail | 35.471236, -118.725959 | California milkweed (*Asclepias californica*) | 1 | 9 |
| ASC-8[1] | Adit 17 & 18 Trail | 35.458430, -118.774926 | California milkweed (*Asclepias californica*) | 4 | 2 |
| ASC-9[1] | Forebay Overflow Spillway | 35.458369, -118.775688 | California milkweed (*Asclepias californica*) | 1 | 2 |
| ASF-10[2] | Democrat Dam Impoundment | 35.530669, -118.665109 | Narrow leaf milkweed (*Asclepias fascicularis*) | 1 | 2 |

Notes: [1]ASC populations have been identified as California milkweed (Asclepias californica)
[2]ASF populations have been identified as Narrow leaf milkweed (*Asclepias fascicularis*)
Key: sq ft = square feet

## Table 5-5. Evaluation of Potentially Suitable Habitat for Western Spadefoot

| General Location and Aquatic Habitat | Coordinates | Aquatic Breeding Habitat Present[1] | Adjacent Upland Habitat Present[2] | | | Determination |
|---|---|---|---|---|---|---|
| | | | Grassland | Burrows | Terrain | |
| Willow Spring Creek Road (Democrat Dam Road)<br>Unnamed Seep | 35.522997<br>-118.673169 | X | X | X | X | The location has potential to meet life history requirements.<br>This location is marked as WSF-1 on Map 5-2a. |
| Democrat Gage Trail<br>Conduit Leak | 35.5209513<br>-118.6760348 | — | X | X | X | The location does not meet life history requirements.<br>Both suitable aquatic habitat and upland habitat are absent. |
| Conduit No. 3 Trail<br>Democrat Spring | 35.5052841<br>-118.6909485 | — | X | — | — | The location does not meet life history requirements.<br>Both suitable aquatic habitat and upland habitat are absent. |
| Conduit No. 3<br>Democrat Spring | 35.5050696<br>-118.6901358 | — | X | — | X | The location does not meet life history requirements.<br>Both suitable aquatic habitat and upland habitat are absent. |
| Cow Flat Creek Trail<br>Cow Flat Creek | 35.5000945<br>-118.6939338 | — | — | X | — | The location does not meet life history requirements.<br>Both suitable aquatic habitat and upland habitat are absent. |
| Flume No. 2<br>Cow Flat Creek | 35.4998639<br>-118.6932129 | — | — | — | — | The location does not meet life history requirements.<br>Both suitable aquatic habitat and upland habitat are absent. |

| General Location and Aquatic Habitat | Coordinates | Aquatic Breeding Habitat Present[1] | Adjacent Upland Habitat Present[2] | | | Determination |
|---|---|---|---|---|---|---|
| | | | Grassland | Burrows | Terrain | |
| Flume No. 3<br>Flume Leak | 35.4951871<br>-118.6960911 | – | X | X | X | The location does not meet life history requirements.<br>Suitable aquatic habitat is absent. |
| Lucas Creek Trail<br>Lucas Creek | 35.4837308<br>-118.7110152 | – | – | X | X | The location does not meet life history requirements.<br>Both suitable aquatic habitat and upland habitat are absent. |
| Flume No. 4<br>Lucas Creek | 35.4836757<br>-118.7039398 | X | – | – | – | The location does not meet life history requirements.<br>Suitable upland habitat is absent. |
| Flume No. 5<br>Dougherty Creek | 35.4702765<br>-118.7110418 | X | X | X | X | The location has potential to meet life history requirements.<br>Suitable aquatic breeding habitat may be present in a wet year.<br>This location is marked as WSF-2 on Map 5-2d. |
| Stark Creek Road<br>Stark Creek | 35.4709413<br>-118.7183867 | X | X | X | – | The location does not meet life history requirements.<br>Suitable upland habitat is absent. |
| Flume No. 6<br>Stark Creek | 35.4682469<br>-118.7196902 | X | X | X | X | The location has potential to meet life history requirements.<br>This location is marked as WSF-3 on Map 5-2d. |
| Adit 12 & 13<br>Unnamed Stream | 35.4704176<br>-118.7265810 | – | X | X | – | The location does not meet life history requirements.<br>Both suitable aquatic habitat and upland habitat are absent. |

| General Location and Aquatic Habitat | Coordinates | Aquatic Breeding Habitat Present[1] | Adjacent Upland Habitat Present[2] | | | Determination |
|---|---|---|---|---|---|---|
| | | | Grassland | Burrows | Terrain | |
| Adit 14 & 15<br>Pechacho Creek | 35.4690601<br>-118.7469687 | X | X | X | – | The location does not meet life history requirements.<br>Suitable upland habitat is absent. |
| Conduit No. 9<br>Unnamed Stream | 35.4570861<br>-118.7657255 | – | X | X | – | The location does not meet life history requirements.<br>Both suitable aquatic habitat and upland habitat are absent. |

Notes: Refer to Appendix A for photographs of each of the surveyed locations.

[1] Breeding habitat consists of ponded water in open flat or gently sloped areas without aquatic predators or vegetative cover where water is likely to be present long enough to allow for tadpole metamorphosis; and that does not support non-native predatory species. Water was not present in all locations at the time of the survey. However, indicator features were used to determine if the area could support aquatic breeding habitat in a wet year. If one or more of these indicators were present, the area was marked as containing suitable aquatic breeding habitat as such areas have potential to provide breeding habitat but it could not be confirmed or ruled out during the 2024 technical studies.

Indicator features included:

- Change in substrate (e.g. rock or gravel creek bed showing the path of water)
- Signs of water presence (e.g. staining on the rocks)
- Riparian or remnants of wetland vegetation present along the creek

[2] The suitability of upland habitat was only evaluated in areas adjacent to potential breeding habitat.

## Table 5-6. Larger Animal Burrows Identified in the Study Area

| Photo/ Map ID | Nearest Facility | Coordinates | Approximate Dimensions | | Substrate Conditions | Animal Sign | Notes |
|---|---|---|---|---|---|---|---|
| | | | Entrance (inches; height x width) | Interior Depth (inches) | | | |
| BUR-1 | Lucas Creek Trail | 35.4832639 -118.7105667 | 4 x 3 | 7 | Coarse sandy loam mixed with decomposed granite bedrock | None | The burrow tunnel turns and no chamber was seen. |
| BUR-2 | Lucas Creek Trail | 35.4832722 -118.7105639 | 3.5 x 4 | 3 | Coarse sandy loam mixed with decomposed granite bedrock | None | The burrow is collapsed. |
| BUR-3 | Lucas Creek Trail | 35.4832667 -118.7105583 | 4 x 3.5 | 9 | Coarse sandy loam mixed with decomposed granite bedrock | Soil disturbance and flattened grasses. | Wildlife may be moving to/from the burrow and possibly laying down around the entrance. |
| BUR-4 | Lucas Creek Trail | 35.4830333 -118.7103389 | 5.5 x 6 | 24 | Coarse sandy loam mixed with decomposed granite bedrock | None | The burrow tunnel turns and no chamber was seen. |
| BUR-5 | Lucas Creek Trail | 35.4830778 -118.7101444 | 4.5 x 4.5 | 18 | Coarse sandy loam mixed with decomposed granite bedrock | Soil disturbance and potential excavations. | The soil disturbance may be from unstable soils and not excavations. There are no other signs of occupancy. |
| BUR-6 | Lucas Creek Trail | 35.4831111 -118.7100444 | 4 X 3.5 | 24 | Coarse sandy loam mixed with decomposed granite bedrock | None | The burrow does not exhibit signs of being occupied and is likely covered by grasses in the spring and summer. |
| BUR-7 | Lucas Creek Trail | 35.4832167 -118.7098028 | 6.5 x 5.5 | 36–48 | Coarse sandy loam mixed with decomposed granite bedrock | None | The burrow does not exhibit signs of being occupied and is likely covered by grasses in the spring and summer. |

**Table 5-7. Evaluation of Project Powerline Pole Configurations for Consistency with Avian Powerline Interaction Committee Guidelines**

| Powerline Name | Example Pole ID | Pole Configuration Type[a] | Evaluation Criteria | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | No Avian Electrocution Risk | | | Potential Risk for Avian Electrocution | | |
| | | | Communication Lines are Insulated | Powerlines are Insulated | Communication / Powerlines are Underground | Distance Between Conductors Is Less than 60 Inches | Distance Between Energized and Grounded Equipment on Equipment Poles Is Less than 60 Inches | Metal Guy Wires in Close Proximity to Energized Wires |
| Intake Gatehouse to Flume No. 1 Powerline | DPP – 1 | Configuration 1: Single-Phase Single Circuit with Side-Mounting Configuration and Box – End Pole<br>• Lines run from box near the base to pole top, loose wires twined into one line.<br>• Pole top perch available<br>• No crossarms<br>• No phase cover | X | X | – | – | – | – |
| Intake Gatehouse to Flume No. 1 Powerline | DPP – 2 | Configuration 2: Single-Phase to Three-Phase with Transformer and Underbuild Construction<br>• Two wooden crossarms<br>• Phase cover<br>• No perch guard. | – | – | – | X | – | – |
| Intake Gatehouse to Flume No. 1 Powerline | DPP – 3 | Configuration 3: Three-Phase Single-Circuit with Two Transformers and Underbuild Construction<br>• Pole top perch available<br>• Two wooden crossarms<br>• No phase cover | – | – | – | X | – | – |
| Intake Gatehouse to Flume No. 1 Powerline | DPP – 4 | Configuration 4: Three-Phase Single-Circuit Overmount<br>• Single wooden crossarms<br>• No phase covers<br>• No perch guard | – | – | – | X | – | – |
| Intake Gatehouse to Flume No. 1 Powerline | DPP – 5 | Configuration 5: Single-Phase Single-Circuit With Top Line<br>• Single pole with single-phase line connected on the top.<br>• Side mount<br>• No loose wires. | X | X | – | – | – | – |
| Intake Gatehouse to Flume No. 1 Powerline | DPP – 6 | Configuration 6: Three-Phase Single-Circuit Overmount with Two Close Crossbars<br>• Two wooden crossarms<br>• Phase cover on central line<br>• No phase covers on end caps<br>• No perch guard | – | – | – | X | – | – |

| Powerline Name | Example Pole ID | Pole Configuration Type[a] | Evaluation Criteria | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | No Avian Electrocution Risk | | | Potential Risk for Avian Electrocution | | |
| | | | Communication Lines are Insulated | Powerlines are Insulated | Communication / Powerlines are Underground | Distance Between Conductors Is Less than 60 Inches | Distance Between Energized and Grounded Equipment on Equipment Poles Is Less than 60 Inches | Metal Guy Wires in Close Proximity to Energized Wires |
| Intake Gatehouse to Flume No. 1 Powerline | DPP – 7 (+ 9 & 11) | Configuration 7: Three-Phase Single-Circuit Crossarm<br>• One wooden crossarm<br>• Phase cover on center line<br>• No phase covers on end caps<br>• No loose wires | – | – | – | X | – | – |
| Intake Gatehouse to Flume No. 1 Powerline | DPP – 8 | Configuration 8: Three-Phase Single-Circuit Underline<br>• Dual wooden crossarms<br>• Pole top perch available<br>• Wires undermount<br>• No phase cover<br>• No loose wires | – | – | – | X | – | – |
| Intake Gatehouse to Flume No. 1 Powerline | DPP – 10 | Configuration 9: Three-Phase Single-Circuit Crossarm<br>• Single wooden crossarm<br>• Triangle deterrent between two close wires<br>• No phase cover<br>• No loose wires | – | – | – | X | – | – |
| Intake Gatehouse to Flume No. 1 Powerline | DPP – 12 | Configuration 10: Three-Phase Distribution Corner<br>• Two dual wooden crossarms allowing 90-degree directional turn<br>• Phase covers<br>• No loose wires | – | – | – | X | – | – |
| Intake Gatehouse to Flume No. 1 Powerline | DPP – 13 | Configuration 11: Three-Phase Transformer Bank<br>• Wooden crossarms<br>• Transformers present<br>• Phase covers<br>• No loose wires | – | – | – | X | X | – |
| Intake Gatehouse to Flume No. 1 Powerline | DPP – 14 | Configuration 12: Single-Phase Single-Circuit with Side-Mount<br>• Pole top perch available<br>• Side mount<br>• No loose wires | X | X | – | – | – | – |
| Intake Gatehouse to Flume No. 1 Powerline | DPP – 16 (+ 17) | Configuration 13: Dual-Phase Single-Pole Side Mount<br>• Pole top perch available<br>• Loose wires<br>• Insulated twined with uninsulated wires<br>• Loose or looped wires | – | – | – | – | – | – |

| Powerline Name | Example Pole ID | Pole Configuration Type[a] | Evaluation Criteria | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | No Avian Electrocution Risk | | | Potential Risk for Avian Electrocution | | |
| | | | Communication Lines are Insulated | Powerlines are Insulated | Communication / Powerlines are Underground | Distance Between Conductors Is Less than 60 Inches | Distance Between Energized and Grounded Equipment on Equipment Poles Is Less than 60 Inches | Metal Guy Wires in Close Proximity to Energized Wires |
| Powerhouse to Forebay Communication / Powerline | PC – 1 | Configuration 1: Two-Phase Transformer Bank<br>• Dual wooden crossarms.<br>• Some phase covers<br>• Some wires insulated | – | – | – | X | X | X |
| Powerhouse to Forebay Communication / Powerline | PC – 2<br>(+ 3, 5, & 6) | Configuration 2: Three-Phase Single-Circuit Crossarm<br>• One wooden crossarm<br>• Phase cover on center line<br>• No phase cover on endcaps<br>• No loose wires | – | – | – | X | – | – |
| Powerhouse to Forebay Communication / Powerline | PC – 4 | Configuration 3: Single-Phase Three-Circuit to Single-Circuit Crossarm<br>• Two wooden crossarms in 90 degree relation<br>• No phase covers<br>• Secondary pole and lines next to main overhead line | – | – | – | X | – | X |
| Powerhouse to Forebay Communication / Powerline | PC – 7 | Configuration 4: Three-Phase Single-Circuit Dual Crossarm<br>• Dual crossarms (unconfirmed material)<br>• Wires overmounted on uphill side and undermounted on downhill side<br>• Phases covered on center line | – | – | – | X | X | – |
| Powerhouse to Forebay Communication / Powerline | PC – 9<br>(+ 10, 11, 12, 14, 16, 17, 18, & 20) | Configuration 5: Three-Phase Single-Circuit Low Crossarm<br>• Pole top perch available but close to energized wire due to slope<br>• One wooden crossarm or material undetermined crossarm<br>• Phase cover on center line<br>• No phase cover on endcaps | – | – | – | X | – | – |
| Powerhouse to Forebay Communication / Powerline | PC – 11<br>(+ 13 & 15) | Configuration 6: Three-Phase Single-Circuit High Crossarm<br>• Pole top perch available but close to energized wire due to slope<br>• One wooden crossarm<br>• No phase covers | – | – | – | X | – | – |
| Powerhouse to Forebay Communication / Powerline | PC – 19 | Configuration 7: Three-Phase Single-Circuit Distribution Corner with Multi-Directional Distribution<br>• Dual wooden crossarms and single crossarm (material unconfirmed)<br>• Jumper wires<br>• One phase cover and nine uncovered phases | – | – | – | X | X | X |

| Powerline Name | Example Pole ID | Pole Configuration Type[a] | Evaluation Criteria | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | No Avian Electrocution Risk | | | Potential Risk for Avian Electrocution | | |
| | | | Communication Lines are Insulated | Powerlines are Insulated | Communication / Powerlines are Underground | Distance Between Conductors Is Less than 60 Inches | Distance Between Energized and Grounded Equipment on Equipment Poles Is Less than 60 Inches | Metal Guy Wires in Close Proximity to Energized Wires |
| Powerhouse to Forebay Communication / Powerline | PC – 21 | Configuration 8: Three-Phase Single-Circuit Undermount<br>• Two wooden crossarms<br>• No phase covers<br>• Some uninsulated.<br>• Insulated lines running through piping along pole | – | – | – | X | X | – |
| Powerhouse to Forebay Communication / Powerline | PC – 23 | Configuration 9: Single-Circuit Three-Phase Corner Distribution with Three Crossarms<br>• Three wooden crossarms<br>• Upper crossarm contains circuits connecting to additional poles<br>• Middle crossarm connects to the line from the adjacent pole and leads to the top crossarm<br>• Lower crossarm contains lines connecting from the middle line to the insulated lines leading to the piping along the pole to the ground.<br>• Insulated lines leading to the ground all other lines uninsulated | – | – | – | X | – | X |
| Powerhouse to Forebay Communication / Powerline | PC – 24 | Configuration 10:Three-Phase Single-Circuit with Two Transformers<br>• Dual wooden crossarms on top of pole<br>• Two transformers<br>• Some phase covers | – | – | – | X | – | – |
| Powerhouse to Forebay Communication / Powerline | PC – 25 | Configuration 11: Three-Phase Single-Circuit with Transformer<br>• Single wooden crossarm on top of pole<br>• One transformer<br>• Some phase covers | – | – | – | X | – | – |
| Kern River No. 1 Switchyard | SY – 1 | Configuration 1: Switchyard<br>• Live high-voltage electrical current<br>• No phase covers<br>• Crossbars over switchyard may prohibit larger raptors from entering or serve as safe perches | – | – | – | X | – | – |

## Table 5-8. Evaluation of Open-Air Segments of the Project Water Conveyance System

| Project Facility | Photo No. | Evaluation (X = Feature is Present) | | | Notes |
|---|---|---|---|---|---|
| | | Fenced | Elevated | Covered | |
| **Democrat Dam Area – Map 2-3a** | | | | | |
| Sandbox | | X | X | | Not accessible to wildlife<br>• The sandbox is a concrete structure, approximate xx feet long and xx feet wide.<br>• It is elevated above the ground by approximately xx feet.<br>• Portions of the facility are fenced.<br>• Facility may be accessible by mid-size wildlife. |
| Conduit No. 1 | | | | X | Not accessible to wildlife<br>• The majority of the xx-foot long conduit is underground.<br>• One above-ground concrete section (approximately xx feet) is covered with metal grating. |
| Flume No. 1/Conduit No. 2 | | X | X | X | Not accessible to wildlife<br>• The entirety of the flume (approximately xx feet long) is elevated and inaccessible.<br>• Small section of conduit at ground-level has been covered and fenced to prevent access. |
| **Democrat Spring Area – Map 2-3b** | | | | | |
| Conduit No. 3 | | | | X | Not accessible to wildlife<br>• The open portion of this flume is covered with a metal plate. |

| Project Facility | Photo No. | Evaluation (X = Feature is Present) | | | Notes |
|---|---|---|---|---|---|
| | | Fenced | Elevated | Covered | |
| **Cow Flat Creek Area – Map 2-3c** | | | | | |
| Flume No. 2 Cow Flat Creek | | | X | | Potentially accessible to wildlife<br>• The open portion of this flume is elevated approximately xx feet above ground level.<br>• However, facility is not covered and could potentially be accessed from surrounding landscape at exit/entry points into tunnel |
| Flume No. 3 | | | X | | Potentially accessible to wildlife<br>• The open portion of this flume is elevated approximately xx feet above ground level.<br>• However, facility is not covered and could potentially be accessed from surrounding landscape at exit/entry points into tunnel |
| Conduit No. 6 | | | | X | Not accessible to wildlife<br>• Facility is completely covered/underground. |
| **Lucas Creek Area – Map 2-3d** | | | | | |
| Flume No. 4 Lucas Creek | | | X | | Potentially accessible to wildlife<br>• The open portion of this flume spans a small canyon and is elevated a minimum of approximately 8 feet above ground level.<br>• However, facility is not covered and could potentially be accessed from surrounding landscape at exit/entry points into tunnel. |

| Project Facility | Photo No. | Evaluation (X = Feature is Present) | | | Notes |
|---|---|---|---|---|---|
| | | Fenced | Elevated | Covered | |
| **Stark Creek Area – Map 2-3e** | | | | | |
| Flume No. 5 Dougherty Creek | | | X | | Potentially accessible to wildlife<br>• The open portion of this flume is elevated approximately 8 feet above ground level.<br>• Facility is not covered and could potentially be accessed from surrounding landscape at exit/entry points into tunnel. |
| Flume No. 6 Stark Creek | | | X | | Potentially accessible to wildlife<br>• The open portion of this flume is elevated approximately 10 feet above ground level.<br>• Facility is not covered and could potentially be accessed from surrounding landscape at entry point into tunnel. |
| **Kern River No. 1 Powerhouse Area – Map 2-3g** | | | | | |
| Conduit No. 9 | | | | X | Not accessible to wildlife<br>• The majority of the conduit is underground.<br>• One above-ground concrete section (approximately xx feet) is covered with metal plate to prevent access. |
| Forebay | | X | | | Not accessible to wildlife<br>• Facility has a perimeter fence and is not accessible to mid to large wildlife. |

## Table 5-9. Project Facilities within Special-Status Salamander Habitat

| Project Facility | Habitat Present | | |
|---|---|---|---|
| | Kern Canyon Slender Salamander | Relictual Slender Salamander | Yellow-blotched Salamander |
| **Democrat Dam Area – Map 2-3a** | | | |
| Intake Gatehouse to Flume No. 1 Powerline | X | X | X |
| Willow Spring Creek Road | X | X | X |
| Democrat Dam Access Walkway | X | X | X |
| Sandbox | X | X | X |
| Sandbox Drainage Channel | X | X | X |
| Flume No. 1 | X | X | X |
| Flume No. 1 Road | X | X | X |
| Democrat Gage Trail | X | X | X |
| Conduit No. 2 | X | X | X |
| Stilling Well No. 1 | X | | X |
| Gaging Cableway | X | | X |
| Kern River near Democrat Springs (USGS Gate No. 11192500/SCE Gage No. 409) | X | | X |
| **Democrat Spring Area – Map 2-3b** | | | |
| Conduit No. 3 | X | X | X |
| Conduit No. 3 Trail | X | X | X |
| **Cow Flat Creek Area – Map 2-3c** | | | |
| Cow Flat Creek Trail | X | X | X |
| Flume No. 2 Cow Flat Creek | X | X | X |
| Stilling Well No. 2 | X | X | X |
| Kern River No. 1 Conduit Near Democrat Springs (USGS Gage No. 1119200/SCE Gage No. 410) | X | X | X |
| Powerhouse Trail | X | X | X |
| Steel Flume Trail | X | X | X |
| Conduit No. 4 | X | X | X |
| Conduit No. 5 | X | X | X |
| Flume No. 3 | X | X | X |
| Conduit No. 6 | X | | X |

| Project Facility | Habitat Present | | |
|---|---|---|---|
| | **Kern Canyon Slender Salamander** | **Relictual Slender Salamander** | **Yellow-blotched Salamander** |
| **Lucas Creek Area – Map 2-3d** | | | |
| Lucas Creek Trail | X | X | |
| Flume No. 4 Lucas Creek | X | X | |
| **Stark Creek Area – Map 2-3e** | | | |
| Stark Creek Road | X | X | |
| Dougherty Creek Road | X | X | |
| Dougherty Creek Trail | X | X | |
| Conduit No. 7 | X | X | |
| Flume No. 5 Dougherty Creek | X | X | |
| Flume No. 6 Stark Creek | X | X | |
| Conduit No. 8 | X | X | |
| Flume No. 6 Access Platform | X | X | |
| Unnamed FERC Trail | X | | |
| Stark Creek Trail | X | X | |
| Adit 12 & 13 | X | X | |
| Adit 13 & 14 | X | | |
| **Pechacho Creek Area – Map 2-3f** | | | |
| Adit 14 & 15 | X | | |
| **Kern River No. 1 Powerhouse Area – Map 2-3g** | | | |
| Forebay Operations Area Road | X | | |
| Skip Hoist / Forebay Trail | X | | |
| Aerial Cable Tower | X | | |
| Skip Hoist Cable | X | | |
| Forebay Overflow Spillway | X | | |
| Overflow Spillway Trail | X | | |
| Water Tank | X | | |
| Penstock | X | | |
| Powerhouse to Forebay Communication / Powerline | X | | |
| Forebay | X | | |
| Skip Hoist Upper Landing | X | | |
| Skip Hoist Upper Landing to Forebay Catwalk | X | | |
| Communication Site | X | | |

| Project Facility | Habitat Present | | |
|---|---|---|---|
| | **Kern Canyon Slender Salamander** | **Relictual Slender Salamander** | **Yellow-blotched Salamander** |
| Adit 18 & 19 | X | | |
| Adit 17 & 18 Trail | X | X | |
| Conduit No. 9 | X | X | |
| Forebay Operations Area Perimeter Fence | X | | |
| Forebay Perimeter Fence | X | | |
| Powerhouse and Switchyard Perimeter Fence | X | | |

## Table 5-10. Salamander Visual Encounter Survey Results

| Habitat Survey ID[1] | Date Surveyed | Time Surveyed[2] | Weather Conditions | Species Observation ID | Special-Status Species Observed | Species Status | Nearest Project Facility | Coordinates | Cover / Substrate | Incidental Observations | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Democrat Dam Area – Map 2-3a** | | | | | | | | | | | |
| KCSS_H_01 | 3/3/2025 | Afternoon | Sunny/Cloudy | – | None | – | – | – | – | – | |
| KCSS_H_02 | 3/3/2025 | Afternoon | Sunny/Cloudy | – | None | – | – | – | – | – | |
| KCSS_H_12 | 3/3/2025 | Afternoon | Sunny | – | None | – | – | – | – | – | |
| KCSS_H_13 | 3/3/2025 | Afternoon | Sunny | – | None | – | – | – | – | – | |
| KCSS_YBS_H_01 | 3/3/2025 | Afternoon | Sunny | – | None | – | – | – | – | – | |
| KCSS_YBS_H_02 | 3/3/2025 | 1015 | Overcast | YBS_01 | Yellow-blotched salamander (*Ensatina eschscholtzii croceater*) | FSCC, WL | Flume No. 1 | 35.522296, -118.675376 | Tree bark. Soil and leaf litter. | – | |
| | | 1145 | | CLL_01 | California legless lizard (*Anniella* spp.) | CSC | Flume No. 1 | 35.522496, -118.675165 | Sheet metal. Soft moist soil. | | Both California legless lizards were found under the same cover. |
| | | | | CLL_02 | California legless lizard (*Anniella* spp.) | | | | | | |
| KCSS_YBS_H_03 | 3/3/2025 | Afternoon | Sunny | – | None | – | – | – | – | – | |
| KCSS_YBS_H_04 | 3/3/2025 | Afternoon | Sunny | – | None | – | – | – | – | – | |
| KCSS_YBS_H_05 | 3/3/2025 | Afternoon | Sunny | – | None | – | – | – | – | – | |
| KCSS_YBS_H_06 | 3/3/2025 | Afternoon | Sunny | – | None | – | – | – | – | – | |
| RSS_H_01 | 3/3/2025 | Afternoon | Overcast / Sunny | – | None | – | – | – | – | – | |
| RSS_H_02 | 3/3/2025 | Afternoon | Overcast / Sunny | – | None | – | – | – | – | – | |
| RSS_H_03 | 3/3/2025 | Afternoon | Overcast / Sunny | – | None | – | – | – | – | – | |
| RSS_H_10 | 3/3/2025 | Morning | Overcast / Light Rain | – | None | – | – | – | – | – | |
| RSS_H_11 | 3/3/2025 | Morning | Overcast / Light Rain | – | None | – | – | – | – | – | |
| RSS_H_12 | 3/3/2025 | Morning | Overcast | – | None | – | – | – | – | – | |
| RSS_H_13 | 3/3/2025 | Morning | Overcast | – | None | – | – | – | – | – | |
| RSS_H_14 | 3/3/2025 | Morning | Overcast | CLL_03 | California legless lizard (*Anniella* spp.) | CSC | Willow Spring Creek Road | 35.523036, -118.673336 | Bark shed from decomposing log. Soft moist soil. | | |
| RSS_H_15 | 3/3/2025 | Morning | Overcast | – | None | – | – | – | – | – | |
| YBS_H_01 | 3/3/2025 | Afternoon | Sunny/Cloudy | – | None | – | – | – | – | Sierran tree frog (*Pseudacris sierra*) | |
| YBS_H_02 | 3/3/2025 | Afternoon | Sunny/Cloudy | – | None | – | – | – | – | Sierran tree frog (*Pseudacris sierra*) | |
| YBS_H_03 | 3/3/2025 | Afternoon | Sunny/Cloudy | – | None | – | – | – | – | – | |

| Habitat Survey ID[1] | Date Surveyed | Time Surveyed[2] | Weather Conditions | Species Observation ID | Special-Status Species Observed | Species Status | Nearest Project Facility | Coordinates | Cover / Substrate | Incidental Observations | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Democrat Spring Area – Map 2-3b** | | | | | | | | | | | |
| KCSS_RSS_YBS_H_01 | 3/4/2025 | Morning | Sunny | – | None | – | – | – | – | – | |
| **Cow Flat Creek Area – Map 2-3c** | | | | | | | | | | | |
| KCSS_YBS_H_07 | 3/4/2025 | Morning | Sunny | – | None | – | – | – | – | – | |
| RSS_H_16 | 3/4/2025 | Morning | Sunny | – | None | – | – | – | – | – | |
| RSS_H_17 | 3/4/2025 | Morning | Sunny | – | None | – | – | – | – | – | |
| **Lucas Creek Area – Map 2-3d** | | | | | | | | | | | |
| KCSS_H_10 | 3/5/2025 | Morning | Overcast / Light Rain | – | None | – | – | – | – | – | |
| KCSS_H_11 | 3/5/2025 | Morning | Sunny | – | None | – | – | – | – | – | |
| RSS_H_08 | 3/5/2025 | Morning | Sunny | – | None | – | – | – | – | Sierran tree frog (*Pseudacris sierra*) | |
| RSS_H_09 | 3/5/2025 | Morning | Sunny / Overcast | – | None | – | – | – | – | – | |
| **Stark Creek Area – Map 2-3e** | | | | | | | | | | | |
| KCSS_H_03 | 3/5/2025 | 1602 | Overcast / Light Rain | KCSS_02 | Kern Canyon Slender Salamander[3] *(Batrachoseps simatus)* | FPT, FSCC, CT | Unnamed FERC Trail, Stark Creek Road | 35.468818, -118.718528 | Log / Stump. Found within the decomposing bark of the stump when flipped. | – | |
| KCSS_H_04 | 3/5/2025 | Morning | Overcast / Light Rain | – | None | – | – | – | – | – | |
| KCSS_H_05 | 3/5/2025 | Morning | Overcast / Light Rain | – | None | – | – | – | – | – | |
| KCSS_H_06 | 3/5/2025 | Morning | Overcast / Light Rain | – | None | – | – | – | – | – | |
| KCSS_H_07 | 3/5/2025 | 1235 | Overcast / Light Rain | KCSS_01 | Kern Canyon Slender Salamander[3] *(Batrachoseps simatus)* | FPT, CT | Adit 13 & 14 | 35.473858, -118.733081 | Wooden board. Gravel and leaf litter. | Southern alligator lizard (*Elgaria multicarinata*) | |
| KCSS_H_08 | 3/5/2025 | Afternoon | Overcast / Light Rain | – | None | – | – | – | – | – | |
| KCSS_H_09 | 3/6/2025 | Afternoon | Sunny/Cloudy | – | None | – | – | – | – | – | |
| KCSS_RSS_H_01 | 3/5/2025 | Afternoon | Light Rain | – | None | – | – | – | – | – | |
| RSS_H_04 | 3/5/2025 | Morning | Overcast / Light Rain | – | None | – | – | – | – | – | |
| RSS_H_05 | 3/5/2025 | Morning | Overcast / Light Rain | – | None | – | – | – | – | – | |
| RSS_H_06 | 3/5/2025 | Afternoon | Overcast / Light Rain | – | None | – | – | – | – | – | |
| RSS_H_07 | 3/6/2025 | Afternoon | Sunny | – | None | – | – | – | – | – | |

| Habitat Survey ID[1] | Date Surveyed | Time Surveyed[2] | Weather Conditions | Species Observation ID | Special-Status Species Observed | Species Status | Nearest Project Facility | Coordinates | Cover / Substrate | Incidental Observations | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Pechacho Creek Area – Map 2-3f** | | | | | | | | | | | |
| KCSS_H_15 | 3/4/2025 | Afternoon | Sunny | – | None | – | – | – | – | – | |
| **Kern River No. 1 Powerhouse Area – Map 2-3g** | | | | | | | | | | | |
| KCSS_H_14 | 3/6/2025 | Morning | Overcast / Light Rain | – | None | – | – | – | – | – | |
| KCSS_H_16 | 3/6/2025 | Morning | Overcast | – | None | – | – | – | – | – | |
| KCSS_H_17 | 3/6/2025 | Afternoon | Overcast / Sunny | – | None | – | – | – | – | – | |
| KCSS_H_18 | 3/6/2025 | Morning | Overcast / Light Rain | – | None | – | – | – | – | – | |
| KCSS_H_19 | 3/6/2025 | Morning | Overcast / Light Rain | – | None | – | – | – | – | Southern alligator lizard , Western fence lizard (*Sceloporus occidentalis*) , Bumblebee species (*Bombus* spp.) | |
| KCSS_H_20 | 3/6/2025 | Morning / Afternoon | Overcast / Light Rain | – | None | – | – | – | – | Southern alligator lizard , Western fence lizard | |
| RSS_H_18 | 3/6/2025 | Morning | Overcast / Rain | – | None | – | – | – | – | – | |

Notes: [1] Habitats for each species were denoted with codes.
[2] Exact times were only recorded during the data collection for special-status species observations.
[3] Confirmation of the identification between Kern Canyon slender salamander and relictual slender salamander requires handling to count the number of costal grooves between adpressed limbs. Because these species require a handling permit, no salamanders were handled and the species identification cannot be confirmed. However, the habitat in which this individual was found (rocky, upland habitat) matches the description of Kern Canyon slender salamander rather than the relictual slender salamander (which are found in streams and riparian corridors), and therefore it is assumed this individual is a Kern Canyon slender salamander.

Key: KCSS = Kern Canyon slender salamander
RSS = Relictual slender salamander
YBS = Yellow-blotched salamander
Federal Status
FPT = Federal Proposed Threatened
State Status
CSC = California Species of Conservation Concern
CT = California Threatened
WL = Watch List
Forest Service Status
FSCC = Sequoia National Forest Species of Conservation Concern

**Table 5-11. Results of Preliminary Visual Field Assessment of Project Facilities with Potential to Support Bat Roosting Habitat**

| Project Facility | Potential Roost Habitat | | | Potential Roosting Habitat Present? | Notes | Surrounding Environmental Conditions | Photo ID[1] |
|---|---|---|---|---|---|---|---|
| | Vertical or Roofed Elements | Cracks/ Crevices | Appropriate Solar Exposure | | | | |
| **Democrat Dam Area – Map 2-3a** | | | | | | | |
| Democrat Dam | X | – | – | No | The dam is regularly submerged by released water, so bats would likely avoid roosting on the face of the dam. While there are cracks and crevices on the face of them, water often flows from the cracks making them unusable for bats. The support buildings connected to the dam contain roofed elements; however these structures are too exposed to wind or rain making these areas unsuitable for roosting. | Riverine, Rockface/Cliffs | 1 |
| Democrat Dam Drainage Tower | X | – | – | No | The drainage tower is constructed of vertical steel, some roofed elements, with a concrete material base. However, this structure lacks cracks and crevices allowing entry to the interior. Existing roofed elements are too exposed to wind and rain and therefore lack appropriate thermal conditions for bat use. | Riverine, Rockface/Cliffs | 2 |
| Democrat Dam Intake Gatehouse | X | – | X | Yes | The intake gatehouse has some roofed and vertical elements and is constructed of textured concrete which could provide suitable roosting habitat. | Riverine, Rockface/Cliffs, Scattered Oak Trees | 3 |
| Democrat Dam Drainage Tunnel Outlet | X | – | X | Yes | The drainage tunnel outlet is a textured concrete structure with some vertical steel, and roofed elements. This structure could act as a potential night roost. | Riverine | 4 |
| Democrat Dam Access Walkway (& Unnamed Buildings) | X | – | X | Yes | The grated walkway is composed of steel and has high exposure to wind and rain that would likely prevent long-term use. It is connected to the surrounding rock face that is good habitat for night and day roosting because the rocks contain several cracks and crevices. The roofed elements and vertical structures on the associated buildings could potentially support night roosts. | Grassland, Riverine, Riparian, Oak Woodland, Rockface/Cliffs | 5 |
| Sandbox | – | – | X | No | The sandbox structure is an open water conveyance system. It is a concrete structure with no cracks or roofed elements that could support bat roosting. | Grassland, Riverine, Riparian, Oak Woodland, Rockface/Cliffs | 6 |
| Flume No. 1 | X | – | – | No | This Project facility supports vertical structures and roofed elements but the vibration from the flow of water and cold metal would deter bats from roosting in the structure; therefore, this facility is not suitable for roosting. | Grassland, Riverine, Riparian, Oak Woodland, Rockface/Cliffs | 7 |
| Conduit No. 2 | X | – | – | No | This conduit has vertical steel segments and a roofed metal crossbeam. However, the metal is not suitable for bats because it does not provide a surface for gripping and has no thermal insultation. Also, the high-water levels and fast flow within the facility would deter bats from roosting in the structure. | Grassland, Riverine, Riparian, Oak Woodland, Rockface/Cliffs | 8 |
| Stilling Well No. 1 | X | – | – | No | The stilling well has some vertical and few roofed elements that may potentially be utilized by bats. However, the roofed elements are composed of smooth steel which do not provide a suitable gripping surface for roosting. Although the facility has solar exposure, the lack of insulation on the metal would make this structure too hot/cold for roosting. | Grassland, Riverine, Riparian, Oak Woodland, Rockface/Cliffs | 9 |
| **Democrat Spring Area – Map 2-3b** | | | | | | | |
| Conduit No. 3 | – | – | X | No | This conduit is composed of concrete with no appropriately sized cracks and crevices and lacks roofed elements which bats could utilize for roosting. | Grassland, Shrubs, Oak Woodland, Rocky Outcrops | 10 |

| Project Facility | Potential Roost Habitat | | | Potential Roosting Habitat Present? | Notes | Surrounding Environmental Conditions | Photo ID[1] |
|---|---|---|---|---|---|---|---|
| | Vertical or Roofed Elements | Cracks/ Crevices | Appropriate Solar Exposure | | | | |
| **Cow Flat Creek Area – Map 2-3c** | | | | | | | |
| Stilling Well No. 2 | X | – | X | Yes | The stilling well has vertical and roofed elements and swallow nests on the structure and the nests contained appropriate thermal conditions for bat roosting. This facility could be used as a night roost. | Grassland, Shrubs, Riparian, Oak Woodland, Rocky Outcrops | 11 |
| Flume No. 2 Cow Flat Creek | X | – | X | Yes | The flume has vertical steel structures and roofed elements that could be suitable for roosting. Although the metal structure does not contain cracks or crevices and the metal is uninsulated, swallows nests that were constructed on the exterior indicate appropriate thermal conditions for bat roosting. | Grassland, Shrubs, Riparian, Oak Woodland, Rocky Outcrops | 12 |
| Conduit No. 4 | X | – | – | No | Although the conduit has vertical structures, it lacks roofed elements or cracks and crevices that bats could use for roosting cover. | Grassland, Shrubs, Riparian, Oak Woodland, Rocky Outcrops | 13 |
| Conduit No. 5 | X | – | – | No | Although the conduit has vertical structures, it lacks roofed elements or cracks and crevices that bats could use for roosting cover. | Grassland, Shrubs, Riparian, Oak Woodland, Rocky Outcrops | 13 |
| Flume No. 3 | X | – | X | Yes | The flume is made of steel but has roofed elements (e.g., overhangs). Although the metal structure does not contain cracks or crevices and the metal is uninsulated, swallows nests that were constructed on the exterior indicate appropriate thermal conditions for bat roosting. | Grassland, Shrubs, Riparian, Oak Woodland Rocky Outcroppings | 14 |
| Conduit No. 6 | X | – | – | No | Although the conduit has vertical structures, it lacks roofed elements or cracks and crevices that bats could use for roosting cover. | Grassland, Shrubs, Oak Woodland | 15 |
| **Lucas Creek Area – Map 2-3d** | | | | | | | |
| Flume No. 4 (Lucas Creek) | X | – | X | Yes | The flume has concrete bases and steel roofed elements that may be used by roosting bats, as well as appropriate thermal conditions. | Grassland, Shrubs, Riparian, Oak Woodland, Rocky Outcrops | 16 |
| **Stark Creek Area – Map 2-3e** | | | | | | | |
| Flume No. 5 Dougherty Creek | X | – | X | Yes | The flume has concrete bases, vertical roofed elements, and suitable thermal conditions for roosting bats | Grassland, Shrubs, Riparian, Oak Woodland, Rocky Outcrops | 17 |
| Conduit No. 7 | X | X | X | Yes | The conduit is constructed of granite rocks with crevices that may be used by roosting bats. | Grassland, Shrubs, Riparian, Oak Woodland, Rocky Outcrops | 17 |
| Access Platform | X | – | – | No | The access platform has many wooden roofed elements but lacks cracks and crevices and has unsuitable thermal conditions. | Grassland, Chaparral, Riparian, Oak Woodland, Rocky Outcrops | 18 |
| Conduit No. 8 | X | – | – | No | It contains vertical elements but lacks any crevices or roofed elements that could be used for bat roosting. | Grassland, Chaparral, Riparian, Oak Woodland, Rocky Outcrops | 19 |
| Flume No. 6 Stark Creek | X | – | X | Yes | The flume has vertical steel structures and roofed elements, as well as suitable thermal conditions for roosting bats. | Grassland, Chaparral, Riparian, Oak Woodland, Rocky Outcrops | 19 |
| Adit 12 & 13 | X | X | – | No | The adit has a wooden door/covering with slats that are too tight for bats to enter the adit. The exterior of the adit door contains a small roofed element. However, this location is too exposed to rain and does not contain cracks/crevices suitable for roosting. | Grassland, Chaparral, Riparian, Oak Woodland, Rocky Outcrops | 20 |
| Adit 13 & 14 | X | X | – | Yes | The interior of this adit was not accessible, therefore the exterior was inspected, and interior was viewed through cracks to the degree possible. The adit supports a cavern and crevices as well as vertical and roofed elements that may provide bats roosting sites. | Grassland, Chaparral, Montane Hardwood, Oak Woodland, Foothill Pine, Rocky Outcrops | 21 |

| Project Facility | Potential Roost Habitat | | | Potential Roosting Habitat Present? | Notes | Surrounding Environmental Conditions | Photo ID[1] |
|---|---|---|---|---|---|---|---|
| | Vertical or Roofed Elements | Cracks/ Crevices | Appropriate Solar Exposure | | | | |
| **Pechacho Creek Area – Map 2-3f** | | | | | | | |
| Adit 14 & 15 | – | X | X | No | The adit is constructed of granite rocks and supports crevices. However, the adit is flush to the ground. Therefore, any crevices are too low to the ground and exposed to predators for roosting. | Grassland, Shrubs, Rocky Outcrops | 22 |
| **Kern River No. 1 Powerhouse Area – Map 2-3g** | | | | | | | |
| Conduit No. 9 | – | – | X | No | The conduit is a concrete structure that is relatively low to the ground and is covered with a corrugated metal sheet. The exterior of the concrete has no cracks or crevices; therefore, the facility is not suitable for roosting. | Grassland, Shrubs, Rocky Outcrops | 23 |
| Adit 18 & 19 | – | X | X | No | The adit is constructed of granite rocks and supports crevices. However, the adit is flush to the ground. Therefore, any crevices are too low to the ground and exposed to predators for roosting. | Grassland, Shrubs, Rocky Outcrops | 24 |
| Forebay | X | – | – | No | The forebay is an open water conveyance system supported at the base with concrete and containing steel grates and structures over the top. The metal portions of the structure are uninsulated and would heat/cool to temperature ranges unfavorable to bats. Concrete lacked cracks and crevices and the face of the concrete would be too exposed to high winds. Therefore, the facility is unsuitable for roosting. | Grassland, Shrubs, Rocky Outcrops | 25 |
| Communication Site | X | – | – | No | The communication site is a uninsulated metal structure that is frequently exposed to wind and rain and lacks suitable structures for roosting. | Grassland, Shrubs, Decomposed Granite | 26 |
| Skip Hoist Upper Landing | X | – | – | No | The skip hoist upper landing has vertical metal structures and a grated walkway. The uninsulated metal structure is exposed to the elements and would heat/cool to temperature ranges unfavorable to bats. Therefore, it is not suitable for roosting. | Grassland, Shrubs, Decomposed Granite, Rockface/Cliffs | 27 |
| Water Tank | X | – | X | Yes | The water tank has vertical structures and a textured concrete base that could act as suitable bat roost habitat. | Grassland, Shrubs, Rocky Outcrops, Rockface/Cliffs | 28 |
| Tailrace | – | – | – | No | The tailrace does not support suitable bat roost habitat because it does contain vertical elements, roofed elements, or cracks and crevices. The structure is too exposed to wind/rain to contain appropriate thermal conditions. | Developed, Grassland, Shrubs Rocky Outcrops, Rockface/Cliffs | 29 |
| Kern River No. 1 Powerhouse | X | X | X | Yes | The powerhouse contains exterior and interior roofed elements and appropriate thermal conditions. Bat roosting evidence (urine, feces) was observed during the facility evaluation. | Developed, Grassland, Shrubs Riverine, Rocky Outcrops, Rockface/Cliffs | 30 |
| Kern River No. 1 Switchyard | X | – | X | No | Although the switchyard structures contain vertical/roofed elements and solar exposure, the switchyard is comprised of energized metal components with extremely high voltage that would deter bats from roosting on the structures. | Developed, Grassland, Shrubs Riverine, Rocky Outcrops, Rockface/Cliffs | 31 |
| Aerial Cable Tower | – | – | X | No | The aerial cable tower does not represent appropriate bat roost habitat because it lacks vertical/roofed elements, cracks and crevices, and the uninsulated metal structure is exposed to the elements and would heat/cool to temperature ranges unfavorable to bats. | Developed, Grassland | 32 |
| Skip Hoist House and Lower Landing | X | – | X | Yes | The exterior of structure has roofed elements and vertical portions that could be suitable for bat roosts. | Developed, Grassland | 33 |
| Old Icehouse | X | – | X | Yes | The exterior of the structure has roofed elements and vertical portions that could be suitable for bat roosts. The interior of the structure is inaccessible to bats because there are no cracks/crevices that allow access. | Developed, Grassland | 34 |
| Garage No. 1 | X | X | X | Yes | The external and interior portion of the garage has roofed elements and crevices where bats could roost. | Developed, Grassland | 35 |

| Project Facility | Potential Roost Habitat | | | Potential Roosting Habitat Present? | Notes | Surrounding Environmental Conditions | Photo ID[1] |
|---|---|---|---|---|---|---|---|
| | Vertical or Roofed Elements | Cracks/ Crevices | Appropriate Solar Exposure | | | | |
| Garage No. 2 | X | X | X | Yes | The external portion of the garage has roofed elements and crevices where bats could roost. A broken window would also allow bats access to the interior of the facility. | Developed, Grassland | 36 |
| Old Admin Building | X | – | X | Yes | While there were broken windows on the building, the openings were not large enough for bats to safely enter. Therefore, the interior of the building would not be utilized by bats. The exterior contains roofed/vertical elements that could support bat roosts. | Developed, Grassland | 37 |
| Machine Shop | X | X | X | Yes | The machine shop has roofed elements, small crevices, and openings where bats could access the interior. | Developed | 38 |
| Restroom | X | – | X | Yes | The building is well-sealed building that would prevent access to the interior. The exterior of the structure contains roofed/vertical elements that could support night roosting. | Developed | 39 |
| Office/Lunchroom | X | – | X | Yes | The building is well-sealed building that would prevent access to the interior. The exterior of the structure contains roofed/vertical elements that could support night roosting. | Developed | 40 |

Notes: [1] Refer to Appendix G. Photo Exhibit of Project Facilities Assessed for Supporting Bat Roosting Habitat.

## Table 5-12. Results of Bat Roost Surveys, by Geographic Area

| Project Facilities | Interior Accessible for Survey? | Survey Results | | | | Conclusion |
|---|---|---|---|---|---|---|
| | | Visual Inspection | Guano Sampling | Roost Present | Species Utilizing Roost | |
| **Democrat Dam Area** | | | | | | |
| **Democrat Dam Intake Gatehouse** | Yes | Guano present.<br>No bats observed.<br>Building well sealed. | Two samples collected and successfully analyzed to species. | Yes | **Yuma myotis** | • **Night roost present.**<br>• Guano present near a gap between the building and the base indicating a roosting location. |
| Democrat Dam Drainage Tunnel Outlet | NA | No guano present.<br>No bats observed. | – | No | – | • The exterior of the facility could be used for night roosting. |
| **Democrat Dam Access Walkway** | NA | Guano present.<br>Bats observed. | Three samples collected and successfully analyzed to species. | Yes | **California myotis and western mastiff bat*** | • **Active day and night roosts present.**<br>• A day/night roost of least 40 **western mastiff bats** is in the cliff adjacent/connected to the walkway.<br>• Unnamed buildings on the walkway support California myotis night **roosts**. |
| **Cow Flat Creek Area** | | | | | | |
| **Stilling Well No. 2** | No | Guano present.<br>No bats observed. | Two samples collected and successfully analyzed to species. | Yes | **Western mastiff bat* and Yuma myotis** | • **Night roost present.**<br>• The facility may be used by bats after drinking from the adjacent flume or foraging in the riparian habitat. |
| Flume No. 2 Cow Flat Creek | NA | Guano present.<br>No bats observed. | Incidental old guano found was not suitable for DNA analysis. | No | – | • The facility could be utilized for night roosting when swallow mud nests are present for bats to utilize, as was observed on Flume No. 4.<br>• Guano was found on the walkway between Stilling Well No. 2 and Flume No. 2.<br>• Flume No. 2 may be used as a water source for bats. |
| Flume No. 3 | NA | No guano present.<br>No bats observed. | – | No | – | • The facility could be utilized for night roosting when swallow mud nests are present for bats to utilize, as was observed on Flume No. 4. |
| **Lucas Creek Area** | | | | | | |
| **Flume No. 4 (Lucas Creek)** | NA | Guano present.<br>No bats observed. | Six samples were collected and successfully analyzed to species. | **Yes** | **California myotis, long-legged myotis, and Yuma myotis** | • **Night roost present.**<br>• Roosts and guano are present in areas where old/failed swallow nests were on the flume. Bats are likely utilizing the mud areas, where they can grip, to roost at night while foraging. |
| **Stark Creek Area** | | | | | | |
| Flume No. 5 (Dougherty Creek) | NA | No guano present.<br>No bats observed. | – | No | – | • The facility could be utilized for night roosting when swallow mud nests are present for bats to utilize, as was observed on Flume No. 4. |
| Conduit No. 7 | NA | No guano present.<br>No bats observed. | – | No | – | • The exterior of the facility could be used for night roosting. |
| Flume No. 6 (Stark Creek) | NA | No guano present.<br>No bats observed. | – | No | – | • The facility could be utilized for night roosting when swallow mud nests are present for bats to utilize, as was observed on Flume No. 4. |
| Conduit No. 8 | NA | No guano present.<br>No bats observed. | – | No | – | • The facility could be utilized for night roosting when swallow mud nests are present for bats to utilize, as was observed on Flume No. 4. |
| **Adit 13 & 14** | No | Guano present.<br>No bats observed.<br>Entry access for bats. | Two samples collected and DNA analysis indicated three potential species. | **Yes** | Guano analysis indicated three potential species: **long-eared myotis, fringed myotis***, or **little brown bat**. | • **Day and night roost present.**<br>• The facility has potential to be utilized as a maternity roost but this could not be confirmed due to accessibility issues.<br>• Guano present on adit door and within the cave interior. |

| Project Facilities | Interior Accessible for Survey? | Survey Results | | | | Conclusion |
|---|---|---|---|---|---|---|
| | | Visual Inspection | Guano Sampling | Roost Present | Species Utilizing Roost | |
| **Kern River No. 1 Powerhouse Area** | | | | | | |
| **Kern River No. 1 Powerhouse** | Yes | Guano present.<br>One (dead) bat observed.<br>Entry access for bats. | Three guano samples collected and successfully analyzed to species. | **Yes** | **Big brown bat** and **Yuma myotis**. | • **Night roost present. Seasonal day and maternity roost.**<br>• Bat roosts are present inside and outside of the building.<br>• Guano is present in rooms, hallways, stairwells, and corners.<br>• Urine staining is also present. |
| **Water Tank** | No | Old guano present.<br>No bats observed.<br>Well-sealed building. | Guano pile too old for DNA analysis. | **Yes** | Undetermined | • **Night roost present.**<br>• A roost is located on the exterior between the building and the rock cliff.<br>• The interior is likely not utilized. |
| Skip Hoist House and Lower Landing | Yes | No guano present.<br>No bats observed.<br>Well-sealed building. | – | No | – | • The exterior of the facility could be used for night roosting.<br>• Bats are not currently utilizing this facility as they likely prefer the Powerhouse. |
| Old Ice House | Yes | No guano present.<br>No bats observed.<br>Well-sealed building. | – | No | – | • The exterior of the facility could be used for night roosting.<br>• Bats are not currently utilizing this facility as they likely prefer the Powerhouse. |
| **Garage No. 1** | Yes | Guano present.<br>No bats observed.<br>Entry access for bats. | Guano too old for analysis. | **Yes** | Undetermined | • **Night roost present (seasonal).**<br>• The amount and condition of guano present indicates a small amount of intermittent use. The facility is likely used while bats are while foraging in the spring and early summer. |
| Garage No. 2 | Yes | No guano present.<br>No bats observed.<br>Well-sealed building. | – | No | – | • The exterior of the facility could be used for night roosting.<br>• Bats are not currently utilizing this facility as they likely prefer the Powerhouse. |
| Old Admin Building | Yes | No guano present.<br>No bats observed.<br>Entry access for bats. | – | No | – | • The exterior of the facility could be used for night roosting.<br>• Bats are not currently utilizing this facility as they likely prefer the Powerhouse. |
| Machine Shop | Yes | No guano present.<br>No bats observed.<br>Well-sealed building. | – | No | – | • The exterior of the facility could be used for night roosting.<br>• Bats are not currently utilizing this facility as they likely prefer the Powerhouse. |
| Restroom | Yes | No guano present.<br>No bats observed.<br>Well-sealed building. | – | No | – | • The exterior of the facility could be used for night roosting.<br>• Bats are not currently utilizing this facility as they likely prefer the Powerhouse. |
| Office/Lunch Room | Yes | No guano present.<br>No bats observed.<br>Well-sealed building. | – | No | – | • The exterior of the facility could be used for night roosting.<br>• Bats are not currently utilizing this facility as they likely prefer the Powerhouse. |

Notes: Facilities in **bold** indicate the presence of a roost.
Key: * = Indicates a special-status bat species.

## Table 5-13. Summary of Special-Status and Common Bat Species and Associated Detection Methods

| Common Name | Scientific Name | Status | Facility Where Bat was Detected[1] | Survey Method/Detection Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Roost Type | | | Reproductive Acoustic Detection(s) | Guano Detection(s) | Seasonal Acoustic Detection(s) |
| | | | | Maternal | Day | Night | | | |
| **Special-Status Bat Species** | | | | | | | | | |
| Pallid bat (ANPA) | *Antrozous pallidus* | CSC | Stark Creek Area Acoustic Device | | | | X | | X |
| Western mastiff bat (EUPE) | *Eumops perotis* | CSC | Democrat Dam Area Acoustic Device | | | | X | | X |
| | | | Democrat Dam Access Walkway | | X | X | | | |
| | | | Cow Creek - Stilling Well No. 2 | | | X | | X | |
| | | | Stark Creek Area Acoustic Device | | | | X | | X |
| | | | Kern River No. 1 Powerhouse Area Acoustic Device | | | | X | | X |
| Western red bat (LAFR) | *Lasiurus frantzii* – (formerly *blossevillii*) | CSC | Democrat Dam Area Acoustic Device | | | | X | | |
| | | | Stark Creek Area Acoustic Device | | | | X | | X |
| | | | Kern River No. 1 Powerhouse Area Acoustic Device | | | | X | | X |
| Fringed myotis (MYTH) | *Myotis thysanodes* | FSCC | Stark Creek Area Acoustic Device | | | | | | X |
| | | | Stark Creek - Adit 13 & 14 | | X* | X* | | X* | X |
| **Common Bat Species** | | | | | | | | | |
| Big brown bat (EPFU) | *Eptesicus fuscus* | – | Democrat Dam Area Acoustic Device | | | | X | | |
| | | | Kern River No. 1 Powerhouse Area Acoustic Device | | | | X | | |
| | | | Kern River No. 1 Powerhouse | X | X | X | | | |
| Hoary bat (LACI) | *Lasiurus cinereus* | – | Democrat Dam Area Acoustic Device | | | | X | | |
| Hoary bat (LACI) | *Lasiurus cinereus* | – | Stark Creek Area Acoustic Device | | | | X | | X |
| | | – | Kern River No. 1 Powerhouse Area Acoustic Device | | | | | | X |
| Silver-haired Bat (LANO) | *Lasionycteris noctivagans* | – | Kern River No. 1 Powerhouse Area Acoustic Device | | | | X | | |
| California myotis (MYCA) | *Myotis californicus* | – | Democrat Dam Area Acoustic Device | | | | X | | |
| | | | Democrat Dam Access Walkway | | | X | | X | |
| | | | Lucas Creek - Flume No. 4 Lucas Creek | | | X | | X | |
| | | | Stark Creek Area Acoustic Device | | | | X | | X |
| | | | Kern River No. 1 Powerhouse Area Acoustic Device | | | | X | | X |
| Small-footed Myotis (MYCI) | *Myotis ciliolabrum* | – | Democrat Dam Area Acoustic Device | | | | X | | |
| | | | Stark Creek Area Acoustic Device | | | | X | | |
| Long-eared Myotis (MYEV) | *Myotis evotis* | – | Stark Creek Area Acoustic Device | | | | X | | |
| | | | Stark Creek - Adit 13 & 14 | | X* | X* | | X* | |

| Common Name | Scientific Name | Status | Facility Where Bat was Detected[1] | Survey Method/Detection Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Roost Type | | | Reproductive Acoustic Detection(s) | Guano Detection(s) | Seasonal Acoustic Detection(s) |
| | | | | Maternal | Day | Night | | | |
| Little brown bat (MYLU) | *Myotis lucifugus* | – | Stark Creek - Adit 13 & 14 | | X* | X* | | X* | |
| Long-legged myotis (MYVO) | *Myotis volans* | – | Lucas Creek - Flume No. 4 | | | X | | X | |
| Yuma myotis (MYYU) | *Myotis yumanensis* | – | Democrat Dam Area Acoustic Device | | | | X | | |
| | | | Democrat Dam – Intake Gatehouse | | | X | | X | |
| | | | Cow Flat Creek - Stilling Well No. 2 | | | X | | X | |
| | | | Lucas Creek - Flume No. 4 | | | X | | X | |
| | | | Stark Creek Area Acoustic Device | | | | X | | X |
| | | | Kern River No. 1 Powerhouse Area Acoustic Device | | | | X | | X |
| | | | Kern River No. 1 Powerhouse | X | X | X | | X | |
| Canyon bat (PAHE) | *Parastrellus hesperus* | – | Democrat Dam Area Acoustic Device | | | | X | | |
| | | | Stark Creek Area Acoustic Device | | | | X | | X |
| | | | Kern River No. 1 Powerhouse Area Acoustic Device | | | | X | | X |
| Mexican free-tailed bat (TABR) | *Tadarida brasiliensis* | – | Democrat Dam Area Acoustic Device | | | | X | | |
| | | | Stark Creek Area Acoustic Device | | | | X | | X |
| | | | Kern River No. 1 Powerhouse Area Acoustic Device | | | | | | X |

Notes: [1] The acoustic devices at the Powerhouse and Democrat Dam covered multiple Project facilities.
Key: * = Indicates that the guano analysis indicated more than one potential species.

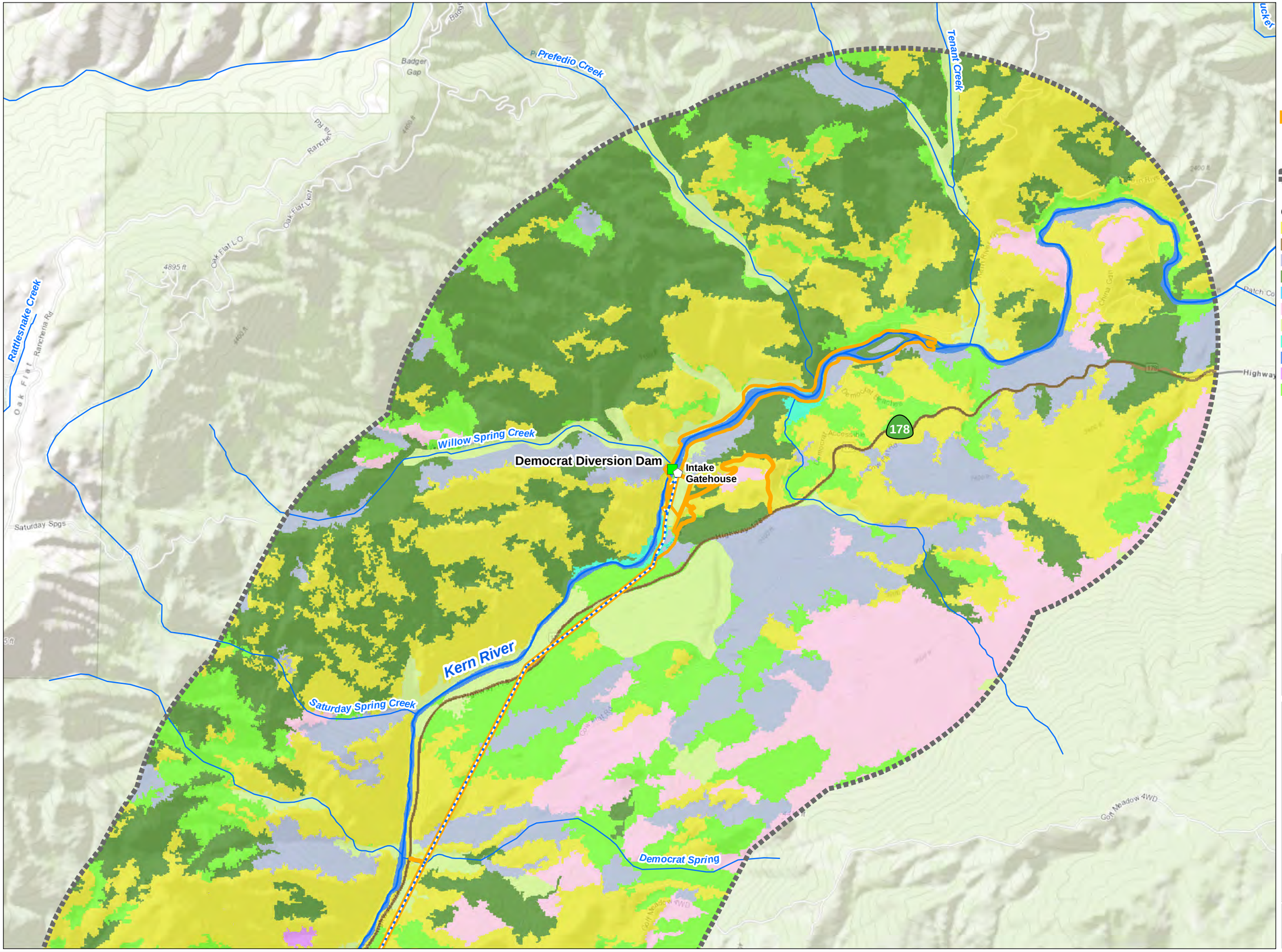
Democrat Dam Area Acoustic Device
- Democrat Dam (partial)
- Intake Gatehouse
- Drainage Tower
- Conduit No. 1
- Drainage Tunnel Outlet
- Democrat Dam Access Walkway
- Flume No. 1 (partial)

Kern River No. 1 Powerhouse Area Acoustic Device
- Kern River No. 1 Powerhouse
- Kern River No. 1 Switchyard
- Machine Shop
- Restroom
- Garage No. 1
- Garage No. 2
- Old Admin Building
- Old Ice House
- Skip Hoist House and Lower Landing

State Status
- CSC = California Species of Concern

Forest Service Status
- FSCC = Sequoia National Forest Species of Conservation Concern

# MAPS




**Facilities**

- Dam
- Powerhouse
- Water Conveyence Feature
- Flowline
- Penstock
- FERC Boundary

**Other Features**

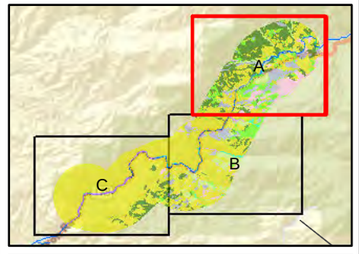
- Watercourse
- 1 Mile Buffer of FERC Boundary

**CWHR Alliances***

- Annual Grassland (AGS)
- Barren (BAR)
- Blue Oak - Foothill Pine (BOP)
- Blue Oak Woodland (BOW)
- Lacustrine (LAC)
- Mixed Chaparral (MCH)
- Montane Hardwood (MHW)
- Montane Riparian (MRI)
- Riverine (RIV)
- Valley Foothill Riparian (VRI)
- Valley Oak Woodland (VOW)

NOTE: Where terrain was visible with binoculars, biologists identified most VOW polygons as being dominated by MHW. We have changed polygons we were able to visually confirm, but it is quite likely remaining VOW polygons are actually MHW.

*SOURCE: Adapted from Existing Vegetation - CALVEG, USDA - FS, Region 5 - Central Valley, 2019




SOUTHERN CALIFORNIA EDISON
Energy for What's Ahead™

Kern River No. 1 Hydroelectric Project
FERC Project No. 1930

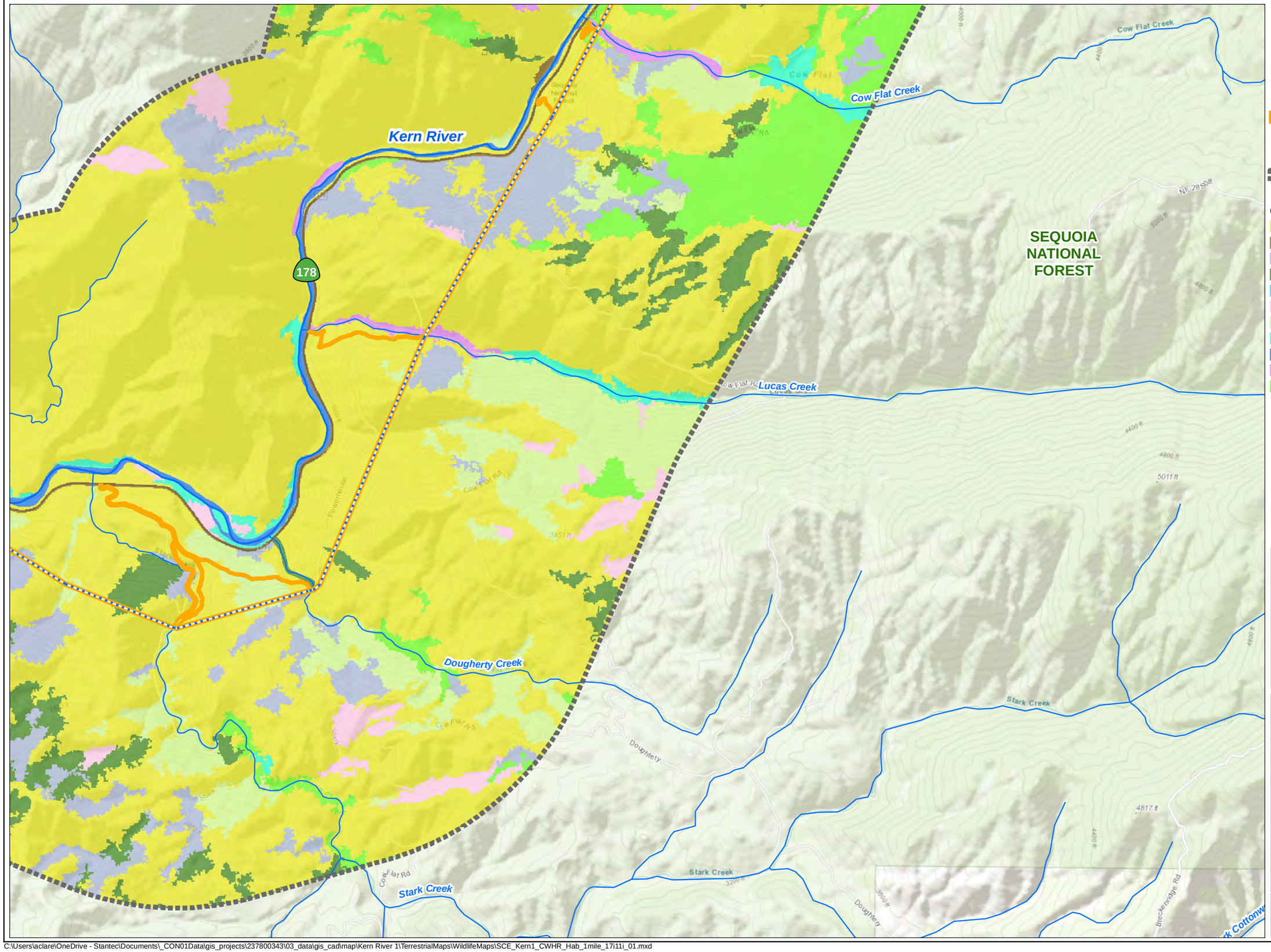
**Map 5-1A**

**CWHR Habitats within 1 Mile of the Kern River Project**

Date: 3/4/2025

0 0.125 0.25 Miles

**Projection: UTM Zone 11**
**Datum: NAD 83**




**Facilities**

- Dam
- Powerhouse
- Water Conveyence Feature
- Flowline
- Penstock
- FERC Boundary

**Other Features**

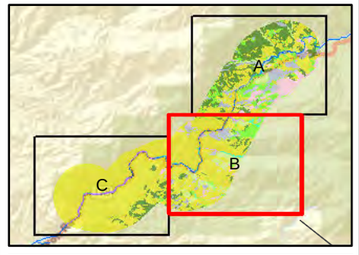
- Watercourse
- 1 Mile Buffer of FERC Boundary

**CWHR Alliances***

- Annual Grassland (AGS)
- Barren (BAR)
- Blue Oak - Foothill Pine (BOP)
- Blue Oak Woodland (BOW)
- Lacustrine (LAC)
- Mixed Chaparral (MCH)
- Montane Hardwood (MHW)
- Montane Riparian (MRI)
- Riverine (RIV)
- Valley Foothill Riparian (VRI)
- Valley Oak Woodland (VOW)

NOTE: Where terrain was visible with binoculars, biologists identified most VOW polygons as being dominated by MHW. We have changed polygons we were able to visually confirm, but it is quite likely remaining VOW polygons are actually MHW.

*SOURCE: Adapted from Existing Vegetation - CALVEG, USDA - FS, Region 5 - Central Valley, 2019




SOUTHERN CALIFORNIA EDISON
Energy for What's Ahead℠

Kern River No. 1 Hydroelectric Project
FERC Project No. 1930

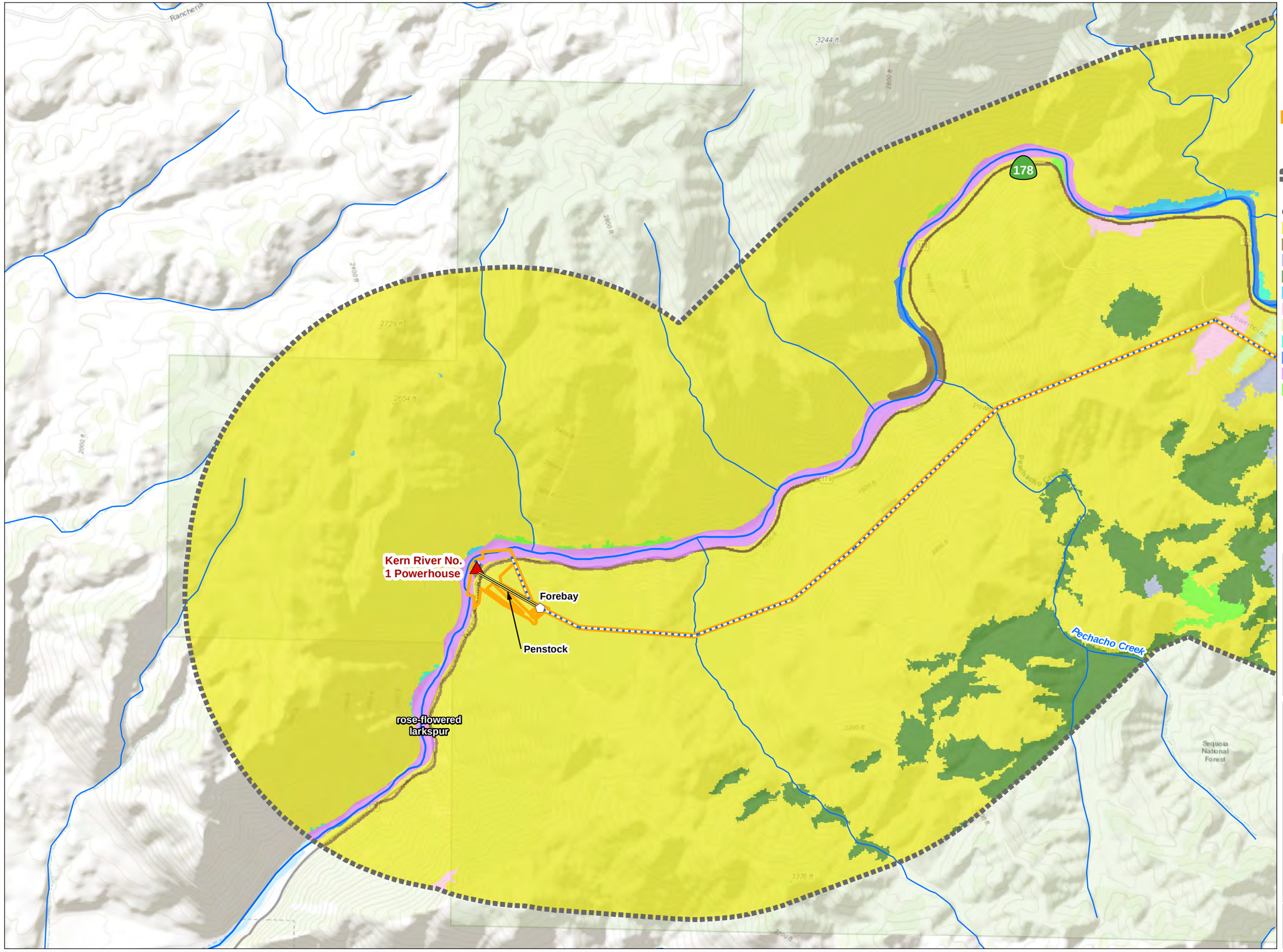
**Map 5-1B**

**CWHR Habitats within 1 Mile of the Kern River Project**

Date: 3/4/2025

0 0.125 0.25 Miles

**Projection: UTM Zone 11**
**Datum: NAD 83**




## Facilities

- Dam
- Powerhouse
- Water Conveyence Feature
- Flowline
- Penstock
- FERC Boundary

## Other Features

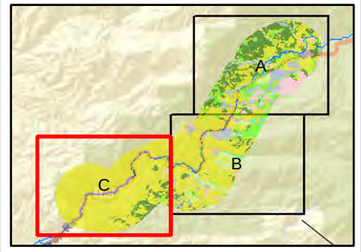
- Watercourse
- 1 Mile Buffer of FERC Boundary

## CWHR Alliances*

- Annual Grassland (AGS)
- Barren (BAR)
- Blue Oak - Foothill Pine (BOP)
- Blue Oak Woodland (BOW)
- Lacustrine (LAC)
- Mixed Chaparral (MCH)
- Montane Hardwood (MHW)
- Montane Riparian (MRI)
- Riverine (RIV)
- Valley Foothill Riparian (VRI)
- Valley Oak Woodland (VOW)

NOTE: Where terrain was visible with binoculars, biologists identified most VOW polygons as being dominated by MHW. We have changed polygons we were able to visually confirm, but it is quite likely remaining VOW polygons are actually MHW.

*SOURCE: Adapted from Existing Vegetation - CALVEG, USDA - FS, Region 5 - Central Valley, 2019




SOUTHERN CALIFORNIA EDISON
Energy for What's Ahead℠

Kern River No. 1 Hydroelectric Project
FERC Project No. 1930

**Map 5-1C**

**CWHR Habitats within 1 Mile of the Kern River Project**

Date: 3/4/2025

0 0.125 0.25 Miles

**Projection: UTM Zone 11**
**Datum: NAD 83**

# CONFIDENTIAL INFORMATION

The following map is being withheld from public disclosure in accordance with applicable regulations. It contains details on the locations of special-status biological resources and qualifies as Confidential Information (18 Code of Federal Regulations § 385.1112). Disclosure of such information could be harmful to these resources. To further understand FERC's regulations regarding confidential filings, visit: https://www.ferc.gov/foia.

**Map 5-2a–g Suitable Habitat and Observations of Special-Status Species within the Study Area (CONFIDENTIAL)**

Map 5-2a–g will not be distributed to the general public. Documents containing Confidential Information may be requested by entities and organizations with jurisdiction over these resources. To request copies, please contact Meg Richardson, SCE Relicensing Project Manager at (626) 238-2902 / mary.m.richardson@sce.com; or Kadi Whiteside, SCE Relicensing Deputy Project Manager at (626) 807-3641 / karen.whiteside@sce.com.

# CONFIDENTIAL INFORMATION

The following map is being withheld from public disclosure in accordance with applicable regulations. It contains details on the locations of special-status biological resources and qualifies as Confidential Information (18 Code of Federal Regulations § 385.1112). Disclosure of such information could be harmful to these resources. To further understand FERC's regulations regarding confidential filings, visit: https://www.ferc.gov/foia.

**Map 5-3a–g Kern Canyon Slender Salamander Habitat within the Study Area and Observations During the 2025 Visual Encounter Survey (CONFIDENTIAL)**

Map 5-3a–g will not be distributed to the general public. Documents containing Confidential Information may be requested by entities and organizations with jurisdiction over these resources. To request copies, please contact Meg Richardson, SCE Relicensing Project Manager at (626) 238-2902 / mary.m.richardson@sce.com; or Kadi Whiteside, SCE Relicensing Deputy Project Manager at (626) 807-3641 / karen.whiteside@sce.com.

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**Map 5-4a–g Relictual Slender Salamander Habitat within the Study Area (CONFIDENTIAL)**

Map 5-4a–g will not be distributed to the general public. Documents containing Confidential Information may be requested by entities and organizations with jurisdiction over these resources. To request copies, please contact Meg Richardson, SCE Relicensing Project Manager at (626) 238-2902 / mary.m.richardson@sce.com; or Kadi Whiteside, SCE Relicensing Deputy Project Manager at (626) 807-3641 / karen.whiteside@sce.com.

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**Map 5-5a–g Yellow-Blotched Salamander Habitat within the Study Area and Observations During the 2025 Visual Encounter Survey (CONFIDENTIAL)**

Map 5-5a–g will not be distributed to the general public. Documents containing Confidential Information may be requested by entities and organizations with jurisdiction over these resources. To request copies, please contact Meg Richardson, SCE Relicensing Project Manager at (626) 238-2902 / mary.m.richardson@sce.com; or Kadi Whiteside, SCE Relicensing Deputy Project Manager at (626) 807-3641 / karen.whiteside@sce.com.

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The following map is being withheld from public disclosure in accordance with applicable regulations. It contains details on the locations of special-status biological resources and qualifies as Confidential Information (18 Code of Federal Regulations § 385.1112). Disclosure of such information could be harmful to these resources. To further understand FERC's regulations regarding confidential filings, visit: https://www.ferc.gov/foia.

**Map 5-6 Results of Special-Status Bat Reproductive and Seasonal Use Surveys (CONFIDENTIAL)**

Map 5-6 will not be distributed to the general public. Documents containing Confidential Information may be requested by entities and organizations with jurisdiction over these resources. To request copies, please contact Meg Richardson, SCE Relicensing Project Manager at (626) 238-2902 / mary.m.richardson@sce.com; or Kadi Whiteside, SCE Relicensing Deputy Project Manager at (626) 807-3641 / karen.whiteside@sce.com.

# APPENDIX A

## Representative Photographs of Potentially Suitable Habitat and Habitat Features for Special-Status Wildlife

**Photo A-1a, b. A large population of California milkweed (*Asclepias californica*) (Map ID ASC-1) found along Democrat Dam Road. This population is estimated to contain at least 70 individuals within approximately 6,500 square feet.**

**Photo A-2. A California milkweed identified along the Overflow Spillway Trail (Map ID ASC-3). This small population consists of two individuals within approximately 4 square feet.**

**Photo A-3. A small population of California milkweed individuals found along the Overflow Spillway Trail (Map ID ASC-4). This population consists of seven individuals within approximately 40 square feet.**

**Photo A-4. A California milkweed plant observed along the Overflow Spillway Trail (Map ID ASC-6). This population consists of only one individual and is approximately 1 square foot.**

**Photo A-5. Unnamed Seep along Willow Spring Creek Road: This location potentially meets the life history requirements for western spadefoot toad. Aquatic breeding habitat was present at the time of the survey and there is suitable upland habitat for adults.**

**Photo A-6. Dougherty Creek in the vicinity of Flume No. 5: This location has potential to meet the life history requirements for western spadefoot toad. Suitable upland habitat is present but there was not suitable aquatic habitat at the time of the survey. Dougherty Creek historically runs through the area so there potential that the area could support aquatic habitat in wetter years.**

**Photo A-7. Stark Creek in the vicinity of Flume No. 6: This location potentially meets the life history requirements for western spadefoot toad. Aquatic breeding habitat was present at the time of the survey and there is suitable upland habitat for adults.**

**Photo A-8. Habitat for terrestrial reptiles was found throughout the Project area. Reptiles were most often seen on or along roads and trails where rock or vegetative cover was nearby. Both snakes and lizards were observed in areas with features similar to this photo (i.e. warm sunny areas, cracks in/between rocks, burrows, and vegetative cover).**

**Photo A-9. This photograph of Lucas Creek Trail shows another typical trail and the surrounding terrestrial reptile habitat within the Project area. This photo was taken after SCE mowing maintenance in July 2024. Burrows of varying size were found along the length of the trail.**

**Photo A-10. Example of a typical variety of burrow sizes seen throughout the Project area. These burrows were observed along Lucas Creek Trail and provide habitat for terrestrial reptiles.**

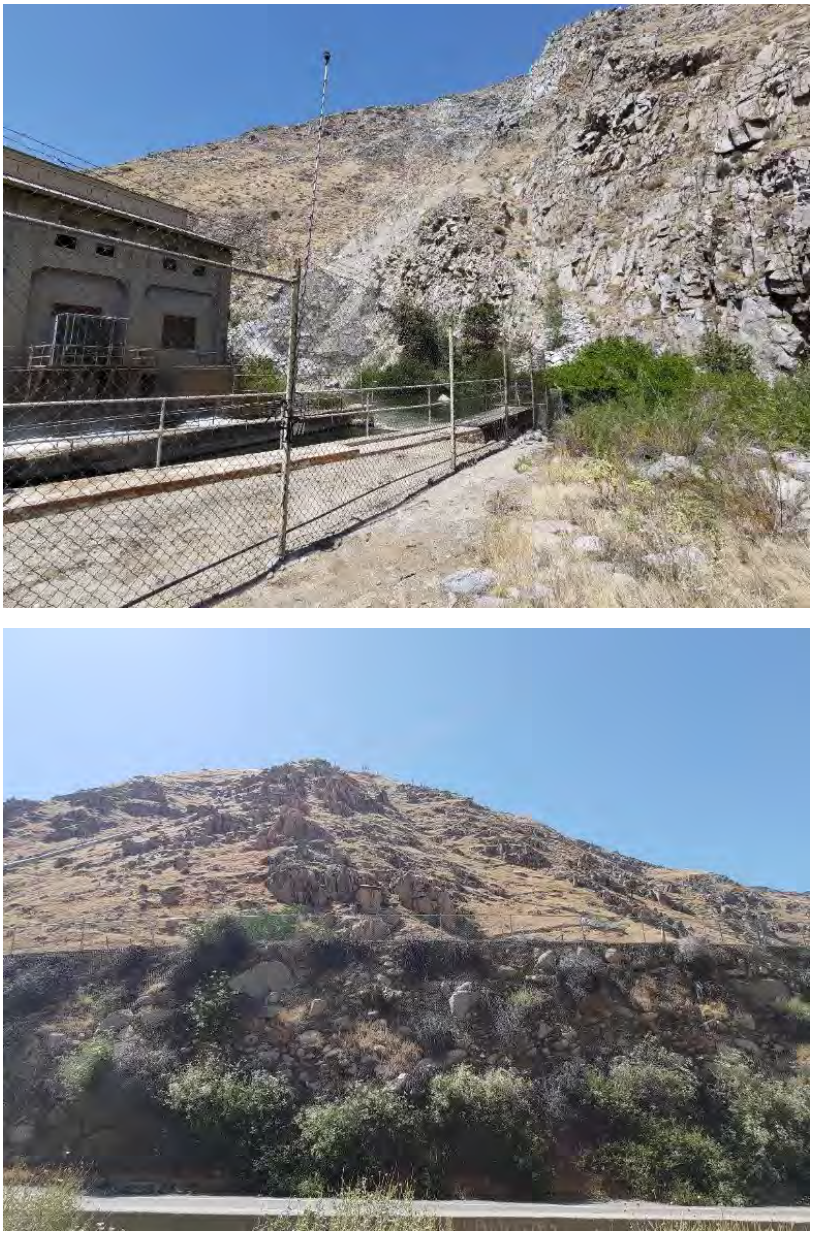


**Photo A-11a, b. Examples of cliff habitat in the study area (near the Kern River Powerhouse and Skip Hoist/Forebay Trail, respectively).**

**Photo A-12. The common raven nest is located to the west of Upper Powerhouse Road on the cliff bordering the Kern River outside the FERC boundary. Two adults were observed feeding two young within the nest.**

**Photo A-13a, b. Photographs of typical Blue Oak–Foothill Pine CWHR habitat in the study area.**

**Photo A-14a, b. Photographs of typical Annual Grass CWHR habitat in the study area.**

**Photo A-15. Example of the Riverine and Valley Foothill Riparian habitats along the shores of the Kern River.**

**Photo A-16. Example of valley foothill riparian habitat within the Project area taken along Lucas Creek near Flume No. 4.**

**Photo A-17. This burrow complex (Map ID BUR-1, BUR-2, BUR-3) was found on Lucas Creek Trail. All the burrow entrances are approximately the same size ranging from three and a half to four inches tall and three to four inches wide. BUR-2 is collapsed and is only three inches deep. BUR-1 goes back approximately seven inches before turning while BUR-3 goes down approximately nine inches before turning. BUR-3 had some soil disturbance leading from the burrow and grass that was flattened around it indicating it may be active. No signs of kit fox habitation were observed.**

**Photo A-18. This burrow (Map ID Bur-4) was found along Lucas Creek Trail. The entrance is five and a half inches tall and six inches wide. The burrow goes back approximately two feet before turning and no chamber was visible. There were no indications the burrow is active.**

**Photo A-19. This burrow (Map ID BUR-5) was found on Lucas Creek Trail. The entrance is four and a half inches tall and four and a half inches wide. The burrow goes back approximately one and a half feet before turning so the den chamber size could not be determined. The soil disturbance may be from unstable soils and not excavations. There are no other signs of occupancy.**

**Photo A-20. This burrow (Map ID BUR-7) was found along Lucas Creek trail. The entrance is six and a half inches wide and five and a half inches tall. It is three to four feet deep with a visible chamber of approximately one foot by one foot. The burrow seems to have a second chamber that goes further and is part of a turn. There were no signs of occupation but the burrow is suitable size for kit fox. It is likely overgrown with grasses in the spring/summer.**

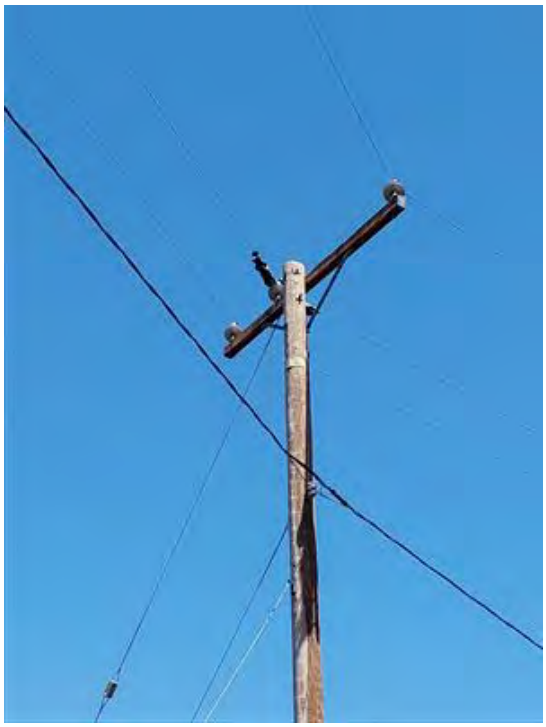
# APPENDIX B

## Photographs of Project Power Pole and Switchyard Energized Equipment Configurations

**DPP-1. Configuration 1: Single-Phase Single Circuit with Side-Mounting Configuration and Box – End Pole**

**DPP-2. Configuration 2: Single-Phase to Three-Phase with Transformer and Underbuild Construction**

**DPP-3. Configuration 3: Three-Phase Single-Circuit with Two Transformers and Underbuild Construction**



**DPP-4. Configuration 4: Three-Phase Single-Circuit Overmount**

## DPP-5. Configuration 5: Single-Phase Single-Circuit With Top Line

## DPP-6. Configuration 6: Three-Phase Single-Circuit Overmount with Two Close Crossbars

## DPP-7. Configuration 7: Three-Phase Single-Circuit Crossarm

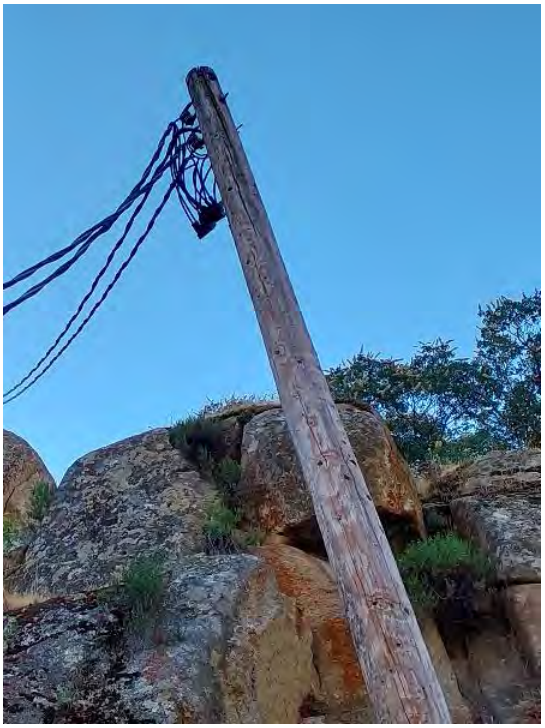

**DPP-8. Configuration 8: Three-Phase Single-Circuit Underline**


**DPP-10. Configuration 9: Three-Phase Single-Circuit Crossarm**

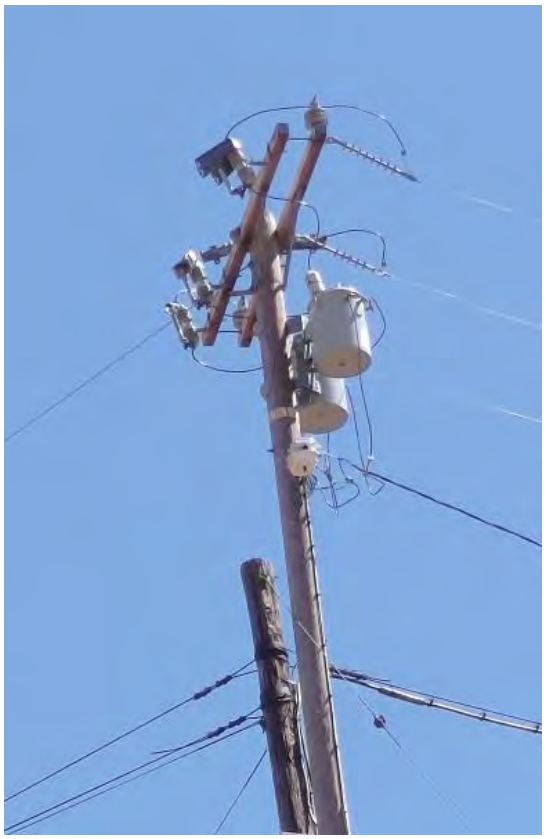
**DPP-12. Configuration 10: Three-Phase Distribution Corner**


**DPP-13. Configuration 11: Three-Phase Transformer Bank**

**DPP-14. Configuration 12: Single-Phase Single-Circuit with Side-Mount**

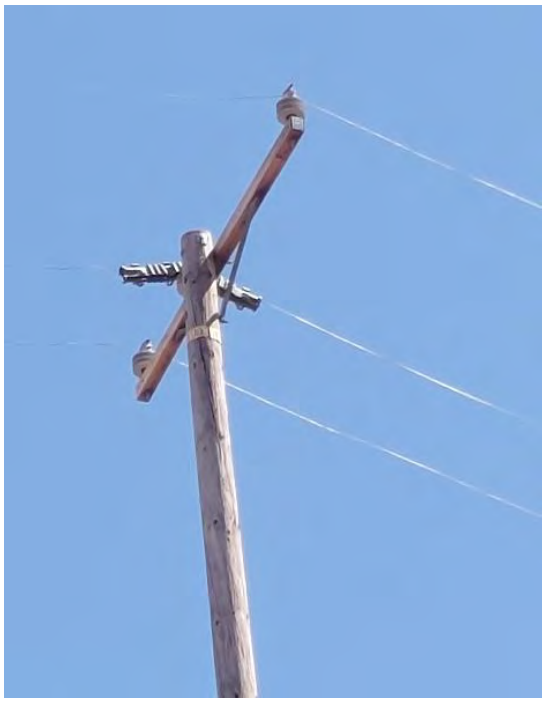


**DPP-16. Configuration 13: Dual-Phase Single-Pole Side Mount**



**PC-1. Configuration 1: Two-Phase Transformer Bank**

**PC-2. Configuration 2: Three-Phase Single-Circuit Crossarm**



**PC-4. Configuration 3: Single-Phase Three-Circuit to Single-Circuit Crossarm**

**PC-7. Configuration 4: Three-Phase Single-Circuit Dual Crossarm**

## PC-9. Configuration 5: Three-Phase Single-Circuit Low Crossarm

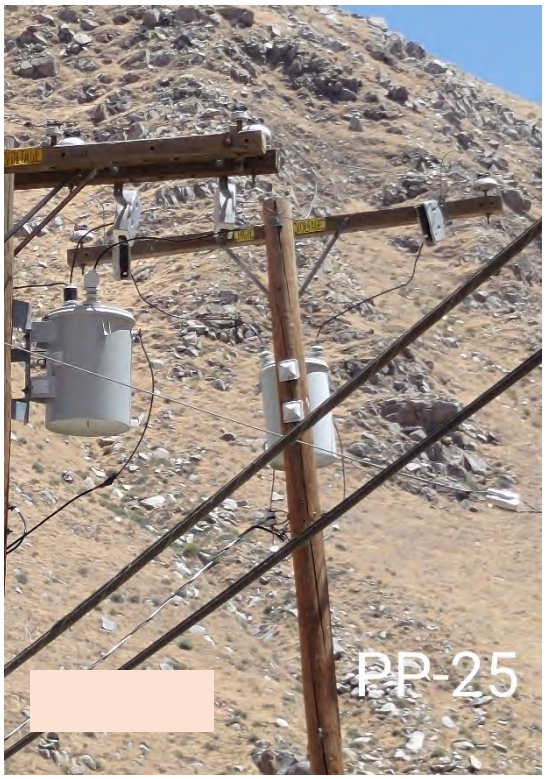
## PC-11. Configuration 6: Three-Phase Single-Circuit High Crossarm


**PC-19. Configuration 7: Three-Phase Single-Circuit Distribution Corner with Multi-Directional Distribution**


**PC-21. Configuration 8: Three-Phase Single-Circuit Undermount**


**PC-23. Configuration 9: Single-Circuit Three-Phase Corner Distribution with Three Crossarms**


**PC-24. Configuration 10: Three-Phase Single-Circuit with Two Transformers**




**PC-25. Configuration 11: Three-Phase Single-Circuit with Transformer**

**SY-1. Configuration 1: Switchyard**

# APPENDIX C

## Photographs of Open-Air Segments of the Project Water Conveyance System

## Democrat Dam Area – Map 5-2a

**Photo C-1. Sandbox: Not accessible to wildlife. Access to the sandbox is limited by the height of the structure and the existing precautions (i.e., fencing).**

**Photo C-2. Conduit No. 1: Not accessible to wildlife. The majority of the facility is underground with one raised grate covered concrete section.**

**Photo C-3. Flume No. 1: Not accessible to wildlife. Access to the sandbox is limited by the height of the structure and the existing precautions (i.e., fencing).**

**Photo C-4. Conduit No. 2: Not accessible to wildlife. The small segment of conduit adjacent to Flume No. 1 is covered/fenced to prevent access.**

## Democrat Spring Area – Map 5-2b

**Photo C-5. Conduit No. 3: Not accessible to wildlife. Access to the facility is prevented by existing precautions (i.e., metal covering).**

## Cow Flat Creek Area – Map 5-2c



**Photo C-6. Flume No. 2 Cow Flat Creek: Potentially Accessible to Wildlife. Access to the facility is limited due to the structure's height and metal grate covered walkway. However, open portion of the flume is potentially accessible from the surrounding landscape.**

**Photo C-7. Flume No. 3: Potentially Accessible to Wildlife. Access to the facility is limited due to the structure's height and metal grate covered walkway. However, open portion of the flume is potentially accessible from the surrounding landscape.**

**Photo C-8. Conduit No. 6: Not Accessible to Wildlife. The conduit is entirely contained and is not a wildlife risk.**

## Lucas Creek Area – Map 5-2d

**Photo C-9. Flume No. 4 Lucas Creek: Potentially Accessible to Wildlife. Access to the facility is limited due to the structure's height and metal grate covered walkway. However, open portion of the flume is potentially accessible from the surrounding landscape.**

## Stark Creek Area – Map 5-2e

**Photo C-10. Stark Creek Area, Flume No. 5 Dougherty Creek: Potentially Accessible to Wildlife. Access to the facility is limited due to the structure's height and metal grate covered walkway. However, open portion of the flume is potentially accessible from the surrounding landscape.**


**Photo C-11. Flume No. 6 Stark Creek: Potentially Accessible to Wildlife. Access to the facility is limited due to the structure's height and metal grate covered walkway. However, open portion of the flume is potentially accessible from the surrounding landscape.**

## Kern River No. 1 Powerhouse Area – Map 5-2g

**Photo C-12. Conduit No. 9: Not accessible to wildlife. Access to the facility is prevented by existing precautions (i.e., metal covering).**

**Photo C-13. Forebay: Not accessible to wildlife. Access to the facility is prevented by existing precautions (i.e., perimeter fencing).**

# APPENDIX D

## Special-Status Salamander Agency Consultation Record

**From:** Sara Reece
**To:** alyssa_l_walker@nps.gov; alyssa_wethy@nps.gov; bdunn1@csub.edu; brettduxbury@mac.com; carlos_flores@nps.gov; catherine_brown@nps.gov; dawn.alvarez@usda.gov; elizabeth_menchace@fws.gov; eric.lundgren@usda.gov; james.noss@waterboards.ca.gov; karen.miller@usda.gov; lariverbeach@gmail.com; lcarterrd@gmail.com; lifeplantatree555@hotmail.com; lilian_jones@contractor.nps.gov; monique.sanchez@usda.gov; Nicole.Holland@usda.gov; rgomez@tubatulabal.org; victor.aquirreorozco@usda.gov; William.Brown2@usda.gov; Barbara.Johnston@usda.gov; anna.bonnette@usda.gov; Abimael.Leon@wildlife.ca.gov; Abdulrahim.Chafi@usda.gov; richard_kuyper@fws.gov; anthony.edwards@usda.gov; brian.block@usda.gov; marie.attencio@usda.gov; elizabeth.jockusch@uconn.edu
**Cc:** mary.m.richardson@sce.com; cornelio.artienda@sce.com; martin.ostendorf@sce.com; audry.williams@sce.com; Marcus.D.Jones@sce.com; Daniel.Keverline@sce.com; Ramon.Anzaldo@sce.com; Janelle Nolan; Robyn Smith; kendra.ryan@stantec.com; Julie.Smith@stantec.com
**Subject:** Kern River No. 1 FERC Project P-1930 Terrestrial Working Group - Special-Status Salamanders
**Date:** Monday, October 28, 2024 12:47:00 PM

---

**Greetings Kern River No. 1 FERC Project P-1930 Terrestrial Working Group, Agency Representatives, and Recognized Special-status Salamander Experts:**

**On behalf of the Southern California Edison (SCE) Project Team,** the purpose of this e-mail is to consult with resource agencies and recognized experts on the special-status salamander survey as described in the TERR 2 – Wildlife Resources Technical Study Plan (TSP) for SCE's Kern River No. 1 Hydroelectric Project FERC Project No. 1930 (Project).

SCE is planning to conduct the special-status salamander habitat assessment in January 2025 and visual encounter surveys between February and March 2025 for three special-status salamanders that are known to occur in the vicinity of the Project, including Kern Canyon slender salamander (*Batrachoseps simatus*), relictual slender salamander (*Batrachoseps relictus*), and yellow-blotched salamander (*Ensatina eschscholtzii croceater*).

As required by the TERR 2 – Wildlife Resources TSP, SCE is to consult with resource agencies and recognized experts to obtain additional information on known occurrences and habitat (including microsites) for special-status salamanders in the study area. This information will supplement the information contained in Section 3.6, Botanical and Wildlife Resources of the Project's Preliminary Application Document (PAD). SCE is requesting any additional information be e-mailed to Meg Richardson, SCE Project Lead at mary.m.richardson@sce.com and to me, Sara Reece at Sara@JNA-Consulting.com by November 27, 2024.

Information and documents pertinent to the Project, including the PAD and TERR 2 – Wildlife Resources TSP, may be found on the Project's relicensing website located at https://www.sce.com/regulatory/hydro-licensing/kr1.

Thank you for your continued coordination and collaboration. We look forward to continuing to work with you on the implementation of the TERR – 2 Wildlife Resources TSP.

Sara Reece
Senior Consultant
(530) 802-3391
sara@jna-consulting.com

**From:** Sara Reece
**To:** elizabeth.jockusch@uconn.edu
**Cc:** Robyn Smith; Meg Richardson; Ryan, Kendra; Smith, Julie; Joshua Lowy
**Subject:** Southern California Edison Hydroelectric Project (FERC Project No. 1930) - TERR 2 Salamander Surveys
**Date:** Monday, January 6, 2025 10:20:00 AM
**Attachments:** SCE_Kern1_SS_SalamanderCriticalHab.pdf
SCE_Kern1_SS_SalamanderOcc.pdf

Hello Dr. Jockusch,

The purpose of this e-mail is to follow up with you regarding upcoming slender salamander surveys to be implemented for the Southern California Edison Company's (SCE) Kern River No. 1 Hydroelectric Project (FERC Project No. 1930). My colleague Robyn Smith communicated with you previously regarding *Batrachoseps simatus* and *B. relictus* habitat and appropriate survey timing/methods.

SCE is preparing to conduct habitat assessment surveys for *Batrachoseps simatus* and *B. relictus* in January 2025 and visual encounter surveys in either February or March 2025 (dependent on appropriate precipitation conditions). We are hoping to obtain any additional input on the following:

- Recent sightings or documented occurrences within this study area (see attached)
- Additional information on microhabitats where occurrences were identified (including photos)
- Daytime survey methods that can be employed in areas that are unsafe to survey at night (i.e., steep terrain, etc.)

We appreciate your help and communication!

Sara Reece
Senior Consultant
(530) 802-3391
sara@jna-consulting.com

**From:** Jockusch, Elizabeth
**To:** Sara Reece
**Cc:** Robyn Smith; Meg Richardson; Ryan, Kendra; Smith, Julie; Joshua Lowy
**Subject:** Re: Southern California Edison Hydroelectric Project (FERC Project No. 1930) - TERR 2 Salamander Surveys
**Date:** Thursday, March 20, 2025 10:20:56 AM
**Attachments:** SCE_Kern1_SS_SalamanderCriticalHab.pdf, SCE_Kern1_SS_SalamanderOcc.pdf

Hi Sara and Robyn,
Here's the additional information about findings of *Batrachoseps simatus* that I mentioned yesterday that I just assumed had reached your team, since I got it via folks hired by SCE. These animals were found Feb. 12-March 1, 2024, all under cover objects during daytime surveys (and, exciting to me, in the kind of open habitat that *B. simatus* was found in when it was first discovered).

35.44177, -118.78932

35.45652, -118.78033

35.44327, -118.78806

As you noted at yesterday's hearing, the early winter weather was not at all good for salamander hunting. I'm hopeful that the recent rains will improve the outlook, at least for a little bit.
Regards,
Elizabeth

Elizabeth Jockusch
Ecology and Evolutionary Biology
University of Connecticut

On Jan 6, 2025, at 1:20 PM, Sara Reece <Sara@JNA-Consulting.com> wrote:

*Message sent from a system outside of UConn.*

Hello Dr. Jockusch,

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We appreciate your help and communication!

Sara Reece
Senior Consultant
(530) 802-3391
sara@jna-consulting.com

Janelle Nolan

# APPENDIX E

## Photographs of Representative Special-Status Salamander Habitat

**Photo E-1. An example of potential relictual slender salamander (*Batrachoseps relictus*) (FPE, CSC) habitat, dry during the assessment, observed within the Democrat Dam Impoundment area on January 27, 2025. This habitat was wet with slow flowing water and small pools at the time of the visual encounter survey. This photo shows that potential habitat can be dry during non-breeding periods.**

**Photo E-2. An example of potential relictual slender salamander habitat with water present observed along Willow Spring Creek Road during the visual encounter survey on March 3, 2025.**

**Photo E-3. An example of potential relictual slender salamander habitat observed at Flume No. 5 intersecting with Dougherty Creek observed during the habitat assessment on January 28, 2025.**

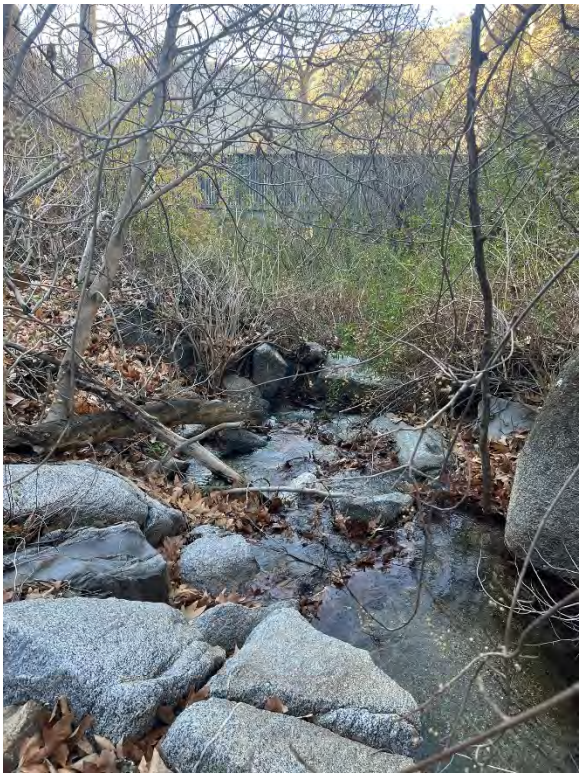

**Photo E-4. Potential relictual slender salamander habitat with water present observed along Lucas Creek near Flume No. 4 during the visual encounter survey on January 28, 2025.**

**Photo E-5. An example of Kern Canyon slender salamander (*Batrachoseps simatus*) (FPT, CT) habitat observed east of the Kern River Powerhouse during the habitat assessment conducted on January 29, 2025.**

**Photo E-6. An example of potential Kern Canyon slender salamander habitat observed at Adit 14 & 15 during the habitat assessment on January 30, 2025.**

**Photo E-7. An example of potential Kern Canyon slender salamander habitat observed at Conduit No. 6 during the habitat assessment on January 29, 2025.**

**Photo E-8. An example of potential Kern Canyon slender salamander habitat observed along the Democrat Impoundment during the habitat assessment on January 27, 2025.**

**Photo E-9. An example of potential yellow-blotched salamander (*Ensatina eschscholtzii croceater*) (FSCC, WL) habitat found along the Democrat Dam Impoundment during the habitat assessment on January 27, 2025.**

**Photo E-10. Another example of potential yellow-blotched salamander habitat, found on the island within the Democrat Dam Impoundment during the habitat assessment on January 27, 2025.**

**Photo E-11. Potential yellow-blotched salamander habitat found along the Democrat Dam Impoundment during the habitat assessment on January 27, 2025.**

**Photo E-12. Potential yellow-blotched salamander habitat found along the Intake Gatehouse to Flume No. 1 Powerline boarding Willow Spring Creek Road, dry during the habitat assessment on January 27, 2025.**

# APPENDIX F

## Photographs of Special-Status Salamander VES Results (CONFIDENTIAL)

# CONFIDENTIAL INFORMATION

The following appendix is being withheld from public disclosure in accordance with applicable regulations. It contains details on the locations of special-status biological resources and qualifies as Confidential Information (18 Code of Federal Regulations § 385.1112). Disclosure of such information could be harmful to these resources. To further understand FERC's regulations regarding confidential filings, visit: https://www.ferc.gov/foia.

**Appendix F Photographs of Special-Status Salamander VES Results (CONFIDENTIAL)**

Appendix F will not be distributed to the general public. Documents containing Confidential Information may be requested by entities and organizations with jurisdiction over these resources. To request copies, please contact Meg Richardson, SCE Relicensing Project Manager at (626) 238-2902 / mary.m.richardson@sce.com; or Kadi Whiteside, SCE Relicensing Deputy Project Manager at (626) 807-3641 / karen.whiteside@sce.com.

# APPENDIX G

## Photographs of Project Facilities Evaluated for the Potential to Support Bat Roosts

This appendix includes photos of all the Project facilities taken during the 2024 technical studies. Knowledge of bat habitat preferences and behavior were compared with the features of the Project facilities to determine if bats could use a facility for roosting. Active roosts or signs of roosts being present (e.g., guano or urine staining) during the field surveys further informed bat usage at each facility.

## Democrat Dam Area – Map 5-2a

**Photo G-1. Democrat Dam: The Democrat Dam is regularly submerged in the water and is not suitable habitat for roosting bats. The support buildings contain roofed elements but the wind exposure is too high for bat roosting and there are limited area bats can grasp for roosting.**

**Photo G-2. Drainage Tower: The drainage tower is constructed of vertical steel, some roofed elements, with a concrete material base. However, the structure is too exposed and there are no ways for bats to enter the interior. It is not suitable for roosting.**

**Photo G-3. Intake Gatehouse: This facility has roofed elements, vertical segments, and a base constructed of textured concrete. Guano was present on the concrete near a gap between the building and the base. This facility is utilized as a night roost.**

**Photo G-4. Drainage Tunnel Outlet: The drainage tunnel outlet is a textured concrete structure with some vertical steel, and roofed elements. This structure could act as a potential night roost. No guano or signs of roosting were observed. This facility is not currently being utilized by bats.**


**Photo G-5: Democrat Dam Access Walkway: The grated walkway is composed of steel and is exposed. It is not suitable habitat for maternity or day roosting. The roofed elements and vertical structures could potentially support bat roosts at night. The unnamed buildings on the walkway were found to have guano and are suitable night roosting habitat. An active western mastif bat colony is present adjacent to the walkway on a connected rock crevasse.**

**Photo G-6. Sandbox: This Project facility is an open water conveyance system. It is a concrete structure with no cracks or roofed elements that could support bat roosting. This facility is not suitable for roosting.**

**Photo G-7. Flume No. 1: This Project facility supports vertical structures and roofed elements but the vibration from the flow of water and cold metal makes utilization unlikely. This facility is not suitable for roosting.**

**Photo G-8. Conduit No. 2: This conduit has vertical steel segments and roofed a metal crossbeam. However, the metal is not suitable for bats and the high water levels and fast flow within the facility is not suitable for bat roosting.**

**Photo G-9. Stilling Well No. 1: Stilling well has some vertical and roofed elements but is composed of cold, slick steel. This facility is not suitable for roosting.**

## Democrat Spring Area – Map 5-2b

**Photo G-10. Conduit No. 3: This facility is composed of solid concrete with no appropriate entry points. This facility is not suitable for roosting.**

## Cow Flat Creek Area – Map 2-3c

**Photo G-11. Stilling Well No. 2: This facility has vertical and roofed elements. Two guano samples were collected from the exterior but there were no signs of interior use. The facility may be used by bats after drinking from the adjacent flume or foraging in the riparian habitat nearby. This facility is utilized as a night roost.**


**Photo G-12. Flume No. 2 Cow Flat Creek and Gauge 11192000 (SCE 410): The flume consists of metal with no point of attachment for bats and is filled with flowing water. Old guano was present along the walkway between the facility and Stilling Well No. 2. The facility is likely used as a water source but is not currently being used for roosting. The flume could be utilized for roosting if mud nests are present as observed on Flume No. 4 (Lucas Creek).**

**Photo G-13. Conduit No. 4/Conduit No. 5: The conduits are directly up and downstream of the flume have vertical structures but lack roofed elements or entry points for cover during roosting. These facilities are not suitable for roosting.**

**Photo G-14. Flume No. 3: The facility is an exposed steel structure with rapidly flowing water. This facility is not currently being used for roosting but is a potential water source. The flume could be utilized for roosting if swallow mud nests are present as was observed on Flume No. 4 (Lucas Creek). Bats are not currently utilizing this facility.**

**Photo G-15. Conduit No. 6: The conduit is entirely enclosed with concrete and eroded granite. The conduit has some crevices bats could utilize. However, the conduit is too close to the ground and potential predators. This facility is not suitable for roosting.**

## Lucas Creek Area – Map 2-3d

**Photo G-16. Flume No. 4 Lucas Creek: The flume is made of metal and has steel roofed elements that bats could utilize for roosting under appropriate conditions. Large amounts of guano were found on the flume under old/failed swallow mud nests. Bats are likely utilizing the mud areas, where they can grip, to roost at night while foraging. This facility supports a night roost.**

## Stark Creek Area – Map 2-3e

**Photo G-17. Flume No. 5 Dougherty Creek/Conduit No. 7: The flume is made of metal and has steel roofed elements that bats could utilize for roosting under appropriate conditions. It also has concrete in some areas which could be used for roosting. The flume could be utilized for roosting if swallow mud nests are present as was observed on Flume No. 4 (Lucas Creek). Bats are not currently utilizing this facility.**

**Photo G-18. Access Platform: The underside of the platform is very open with no good roosting locations on metal girders and wooden planks where bats could be sheltered. Cattle also often disturb this area passing under this location. This facility is not suitable for roosting.**

**Photo G-19. Flume No. 6 Stark Creek/Conduit No. 8: The flume is made of metal and largely not suitable habitat for roosting bats. The conduit is made of concrete with no cracks or areas that bats could utilize. The flume could be utilized for roosting if swallow mud nests are present as was observed on Flume No. 4 (Lucas Creek).**

**Photo G-20. Adit 12 & 13: The adit has a wooden door/covering and a small roofed element. However, it is too exposed to unfavorable weather conditions and does not contain areas with cover suitable for roosting. The riparian area surrounding adit could be suitable for tree roosting bats.**

**Photo G-21. Adit 13 & 14: The adit has an opening through a door into a cavern which has dark crevices where bats could roost. Guano present on adit door and within the interior. The interior could not be accessed to confirm interior roost status. This facility supports a night roost and a potential day and maternity roost.**

## Pechacho Creek Area – Map 2-3f

**Photo G-22. Adit 14 & 15: This adit is a pile of granite rocks with some crevices and places that small bat species could potentially roost. Rocks flush to the ground without suitable entry points. The facility is not suitable for roosting**

## Kern River No. 1 Powerhouse Area – Map 2-3g

**Photo G-23. Conduit No. 9: The concrete structure has a metal covering that bats could enter but it contains flowing water and is not suitable roosting habitat. The exterior has no cracks or crevices. The facility is not suitable for roosting.**

**Photo G-24. Adit 18 & 19: This adit is composed of a pile of granite rocks on a steep slope. Rocks too close to the ground and does not have suitable entry points for bats. The facility is not suitable for roosting.**

**Photo G-25. Forebay: The forebay is an open water conveyance system with steel grates and structures over the top. The structure is fully exposed to the sun and there are high winds. The facility is not suitable roosting habitat but could be used for foraging or hydration.**

**Photo G-26. Communication Site: The metal structure is highly exposed to the elements and lacks suitable roosting areas.**

**Photo G-27. Skip Hoist Upper Landing and Hoist Cable: The facility has vertical metal structures and a grated walkway. However, it is fully exposed to sun and high winds. The facility is not suitable for roosting.**

**Photo G-28. Water Tank: The water tank has vertical structures, overhangs, and a textured concrete base. The area where the roof joins the wall provides suitable night roosting habitat. A guano pile was found between water tank and rock wall. This facility supports a night roost and a potential day roost.**

**Photo G-29. Trailrace: The tailrace does not support suitable bat roost habitat. It is an open waterway and does not contain roosting elements though bats may drink from it.**

**Photo G-30. Kern River No. 1 Powerhouse: Bat roosts are present inside and outside of the building. There are rooms, hallways, stairwells, and corners where bat urine and feces were observed. The operations manager stated that bat activity is seen often. Big brown bat observed (dead). This facility supports an active night roost. It also supports a seasonal day and maternity roost.**

**Photo G-31. Kern River No. 1 Switchyard: The facility consists of active electrical equipment and potential roosting areas are highly exposed to the elements or electrical current. Facility is not suitable for roosting but bats may pass through to enter the Powerhouse.**

**Photo G-32. Aerial Cable Tower and Aerial Cable: The aerial cable tower does not represent appropriate bat roost habitat.**

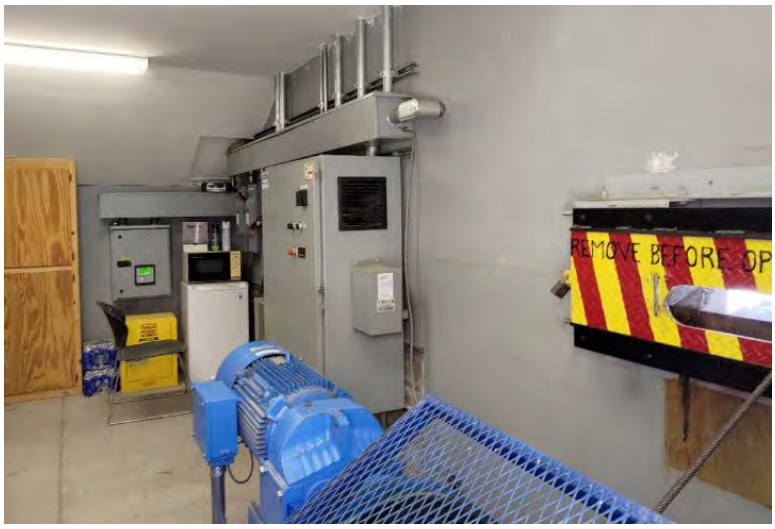


**Photo G-33. Skip Hoist House and Lower Landing: The exterior of structure has roofed elements and vertical portions that could be suitable for bat roosts. There are no good entry points for bats. Bats are not currently utilizing this facility.**

**Photo G-34. Old Icehouse: The exterior of structure has roofed elements and vertical portions that could be suitable for bat roosts. There are no good entry points for bats. Bats are not currently utilizing this facility.**

**Photo G-35. Garage No. 1: The external portion of this building has roofed elements and some crevices where bats could roost. Not enough guano is present to indicate regular usage but it is likely seasonal night usage while foraging. This facility supports a potential night roost.**

**Photo G-36. Garage No. 2: The external portion of this building has roofed elements and some crevices where bats could roost. The interior also contains suitable roosting elements. Bats are not currently utilizing this facility**

**Photo G-37. Old Admin Building: The building contains suitable roosting elements but there are no good entry points to the interior. No roost is present. Bats are not currently utilizing this facility.**

**Photo G-38. Machine Shop: The machine shop has roofed elements, small crevices, and places where bats could get in and roost. No roost is present. Bats are not currently utilizing this facility.**

**Photo G-39. Restroom: The building contains suitable roosting elements but is well-sealed. No roost is present. Bats are not currently utilizing this facility.**

**Photo G-40. Office/Lunchroom: The inside of the structure is well-sealed and likely not utilized by bats. The external roofed/vertical portions may have potential for bats to roost overnight. No roost is present. Bats are not currently utilizing this facility.**