

# **BIO-2 SPECIAL-STATUS SALAMANDERS STUDY PLAN**

**KERN RIVER NO. 3 HYDROELECTRIC PROJECT  
*FERC PROJECT No. 2290***

***PREPARED FOR:***



July 2022

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## 1.0 POTENTIAL RESOURCE ISSUE

- Special-status salamanders—Fairview salamander (*Batrachoseps bramei*), which is a Forest Sensitive Species; Kern Canyon salamander (*Batrachoseps simatus*), which is a state-listed threatened species; Kern Plateau salamander (*Batrachoseps robustus*); and Greenhorn mountains slender salamander (*Batrachoseps altasierrae*)—may be affected by Project operations and maintenance.

## 2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED

- One U.S. Forest Service (USFS) Sensitive Species salamander (Fairview slender salamander) has been documented as occurring in the study area.
- Determine direct and/or indirect effects on special-status salamanders and their habitat from continued Project operations and maintenance activities in the context of applicable regulatory requirements, including the most recent federal and state land management and conservations plans, the USFS Management Plan, the federal and state Endangered Species Acts (ESAs), the National Environmental Policy Act (NEPA), and the California Environmental Quality Act (CEQA).

## 3.0 STUDY GOALS AND OBJECTIVES

- Obtain additional information to supplement the existing information regarding Fairview slender salamander, and other potentially occurring special-status salamanders in the study area including:
  - Identify and map potentially suitable habitat.
  - Document presence, if found.

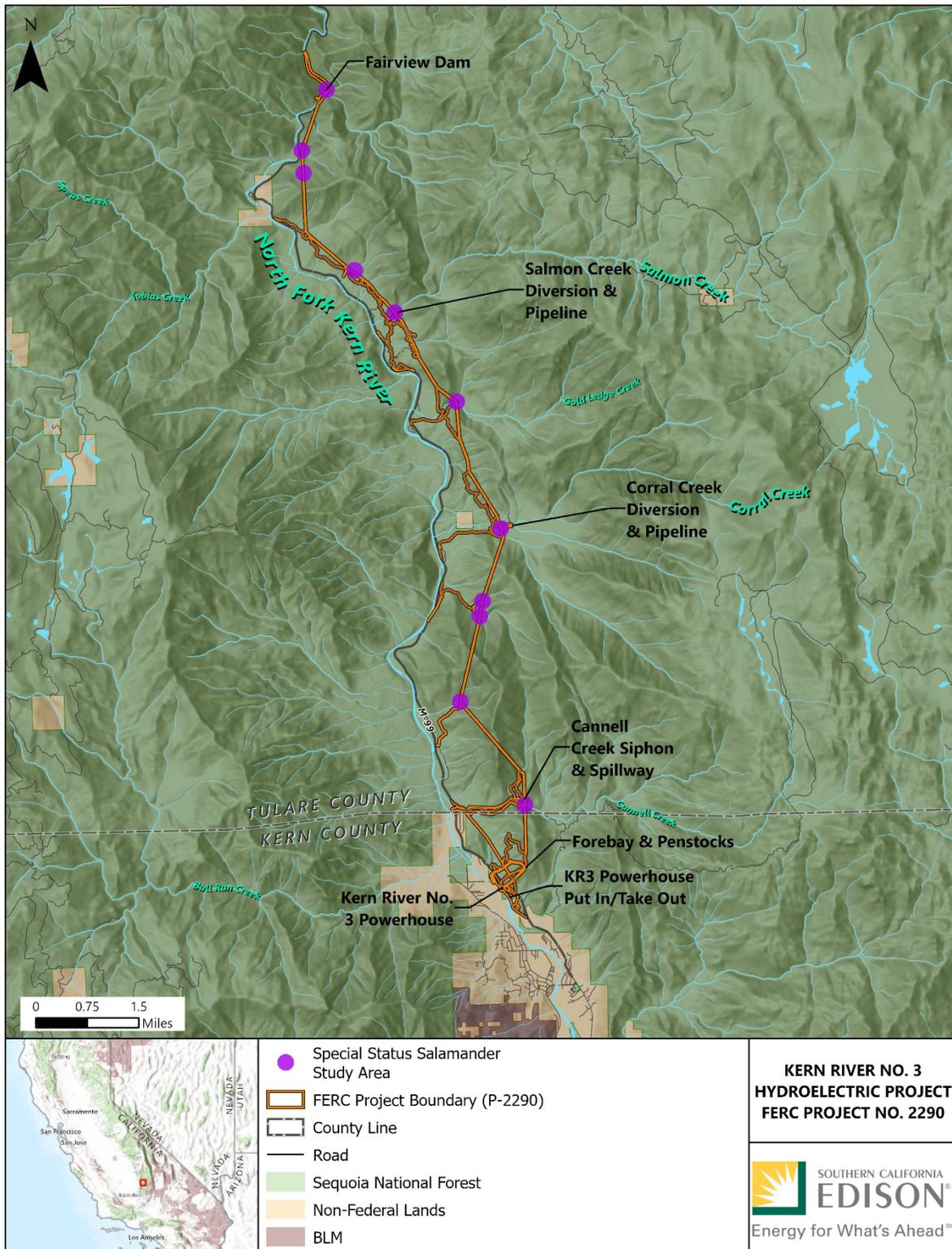
## 4.0 STUDY AREA AND STUDY SITES

The special-status salamander study area is shown on Figure 4-1.

- The study area includes:
  - Perennial streams, ephemeral creeks, dry ravines, and other areas matching the habitat description provided by Jockusch et al. (2012) for *B. bramei* and *B. altasierrae* and provided by Morey and Basey (1988) for *B. simatus* located within the FERC Project Boundary, including a 50-foot buffer. Target survey locations include, but are not limited to the following Project facilities:
    - Fairview Dam
    - Salmon Creek Diversion, Open Flume, Adit 8B-9A, and adjacent access roads
    - Gold Ledge Creek Open Flume, Adit 13-14, and adjacent access road

- Corral Creek Diversion, Open Flume, and access road
- Cannell Creek, Siphon, and access road
- North Fork Kern River junction with Salmon Creek, Gold Ledge Creek, Corral Creek, and Cannell Creek

The type locality for *B. bramei* is located in an upland gully adjacent to Fairview Dam and will be surveyed to provide the model for *B. bramei* habitat.



**Figure 4-1. Special-status Salamander Study Area.**

## 5.0 EXISTING INFORMATION

Special-status amphibians in the Project Vicinity<sup>1</sup> have been documented in the California Natural Diversity Database (CNDDDB) (CDFW 2020), iNaturalist (2020), as well as literature by Jockusch et al. (2012 and 2020). Three other special-status salamanders (Kern Plateau salamander, Greenhorn Mountains slender salamander, and Kern Canyon slender salamander) are known to be in the Project Vicinity but have not been identified as being present in the FERC Project Boundary.

## 6.0 STUDY APPROACH

### 6.1. LITERATURE REVIEW AND MAPPING

A new literature review will be conducted to determine if the regulatory status of the species has changed and if there are new reported occurrences in the vicinity of the Project.

### 6.2. FIELD SURVEYS

- Phase 1: Habitat Assessment
  - Utilizing online database queries (i.e., CNDDDB, iDigBio, i-Naturalist, and Amphibaweb) and literature reviews (e.g., Jockusch et al. 2012 and 2020) of known locations of special-status salamanders will be mapped in relation to the Project study area.
    - Mapping of museum records obtained from iDigBio and Amphibaweb will be performed prior to field work. iDigBio has records for *B. bramei*, *B. simatus*, and *B. altasierrae*. Mapped records of readily accessible locations will be used to assist in determining characteristics of suitable habitat.
    - Prior to the start of the habitat assessment survey, field maps created from aerial photographs at a 1-inch to 200-foot scale will be prepared for field use. Field maps will be loaded onto an iPad for field data collection.
  - Biologists will walk the study area looking for potentially suitable habitat for special-status salamanders based on habitat characteristics. Suitable habitat locations will be mapped directly onto an iPad with pre-loaded study area maps.
  - Biologists will note any incidental observations of non-native invasive aquatic species (e.g., bullfrog, crayfish, Asian clams, and invasive fishes) and other key species of interest (e.g., special-status freshwater mussels, aquatic reptiles, amphibians, Bald Eagle, Osprey, and Great Blue Heron) on data sheets and will

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<sup>1</sup> Project Vicinity is identified as lands surrounding the FERC Project Boundary within a 0.5-mile buffer and an approximate 100-foot buffer along the right bank (west shore) within the Fairview Dam Bypass Reach. The Fairview Dam Bypass Reach is defined as the 16-mile bypass reach of the North Fork Kern River between Fairview Dam and the Kern River No. 3 Powerhouse tailrace.

report this information in the Technical Report for use by other studies during the relicensing process.

- The results of the habitat assessment survey will be used to target specific areas within the Project Area that will be the subject of Visual Encounter Surveys (VES) to be conducted in 2023.
- Up to six Cover Board arrays for salamanders and other reptiles will be laid out. The arrays will consist of up to three different boards of varying sizes. The locations for the arrays have not yet been determined but will be placed to provide cover for both reptiles and salamanders. The Cover Board arrays will be checked periodically and inspected during Phase 2 VES.
  - Although the target special-status salamanders are known to inhabit dryer situations under rocks and cover in moist microhabitats, the boards will be left out over the winter and during rain events. These salamanders, as all salamanders, are known to move about during rain events when the surrounding terrain is wet, and so the available suitable habitat is expanded. Therefore, the cover boards may provide suitable moist habitats for salamanders and increase the opportunity to document presence of the target salamanders and other species of wildlife.
- Phase 2: Visual Encounter Surveys
  - Survey sites for visual encounter surveys will be selected using the available information on potential habitat identified during Phase 1. The actual number of survey sites and extent of study area will depend on the results of the initial habitat assessment in the field during Phase 1.
  - Pedestrian visual encounter surveys will be seasonally timed to maximize the potential for observing these species based on life history and the literature review. Slender salamanders are generally easier to observe on rainy nights with moderate temperatures and a day or two following rain events while the habitat is still damp, and temperatures are moderately cool. Surveys will target the January to March timeframe. Two separate surveys are planned for the late winter rainy season.
  - Surveys will generally follow the methods described in Strain et al. (2009) and Grover (2006) for Area Constrained Surveys and may include lifting, overturning, and carefully replacing objects such as rocks, boards, and debris; carefully searching leaf litter and under loose tree bark; and inspecting burrows. Biologists will take care to minimize the disturbance to potentially suitable habitat and animals during field surveys.
  - Any sightings of special-status salamanders and other incidental salamander sightings will be recorded on an iPad.

- Slender salamanders will be identified to species in the field to the extent possible based on Jockusch et al. (2012), Stebbins (2003), and other references; however, individual salamanders will not be collected for later identification.
  - In the case that slender salamanders are found, a photograph of each individual will be taken in association with Global Positioning System (GPS) data and will be included in reporting efforts. A photo would not be taken if unsafe for either the biologist or salamander.
- Biologists will note any incidental observations of non-native invasive aquatic species (e.g., bullfrog, crayfish, Asian clams, and invasive fishes) and other key species of interest (e.g., special-status freshwater mussels, aquatic reptiles, amphibians, Bald Eagle, Osprey, and Great Blue Heron) on data sheets and will report this information in the Technical Report for use by other studies during the relicensing process.

## 7.0 REPORTING

SCE will file an Initial Study Report (ISR) within 1 year following FERC’s Study Plan Determination (estimated August 3, 2023) and an Updated Study Report (USR) no later than 2 years after FERC’s Study Plan Determination. The ISR and USR will provide an update on SCE’s overall progress in implementing the Study Plan and schedule and the data collected, including an explanation of any variance from the Study Plan and schedule. Standard Geographic Information System (GIS) shapefiles, including metadata, will be provided to relevant agencies upon request. A California Native Species Field Survey Form will be completed for any special-status species observed during the pedestrian surveys and will be reported to the CNDDDB. A Technical Memo will be appended to either the ISR or USR filing, as applicable. The information provided in the Technical Memo will be summarized in, and appended to, the Application for New License.

In addition, SCE may prepare interim reports during the study year to apprise Stakeholders on study implementation progress and to support consultation with Stakeholders.

## 8.0 SCHEDULE

One year of desktop analysis and habitat assessment, and 1 year of visual encounter field surveys will occur.

Date	Activity
Summer–Fall 2022	Phase 1: Conduct desk top analysis and habitat assessment field surveys
Late Winter/Early Spring 2023	Phase 2: focused visual encounter field surveys
Summer 2023	Analyze data and prepare Technical Memo

Date	Activity
August 2023	Provide Study Plan progress and schedule updates or Technical Memo with ISR, as applicable
August 2024	Provide Technical Memo with USR, if needed

ISR = Initial Study Report; USR = Updated Study Report

## 9.0 LEVEL OF EFFORT AND COST

The estimated cost (2022 dollars) for the study is \$50,000, which includes field work, data compilation and analysis, and reporting.

## 10.0 REFERENCES

CDFW (California Department of Fish and Wildlife). 2020. California Natural Diversity Database. RareFind 5 [Internet]. Version 5.1.1. Electronic database. Natural Heritage Division, California Department of Fish and Game, Sacramento, California. Accessed: May 2020.

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