# BIO-1 FOOTHILL YELLOW-LEGGED FROG STUDY PLAN

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

***PREPARED FOR:***

SOUTHERN CALIFORNIA EDISON®

Energy for What's Ahead®

**KERNVILLE, CALIFORNIA**

March 2022

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## 1.0 POTENTIAL RESOURCE ISSUE

- Potential effects on foothill yellow-legged frog (*Rana boylii*) and their habitat.

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

- Kern River No. 3 (KR3) Hydroelectric Project (Project) operations affect streamflows, which may affect the state-endangered foothill yellow-legged frog in the Project Area.
- Results of this study will be used to examine Project operations and maintenance activities.

## 3.0 STUDY GOALS AND OBJECTIVES

This study will:

- Evaluate habitat suitability for all foothill yellow-legged frog life stages (i.e., egg masses, tadpoles, post-metamorphs) in the study area; and
- Determine whether any life stage of the foothill yellow-legged frog is present within the study area.

## 4.0 STUDY AREA AND STUDY SITES

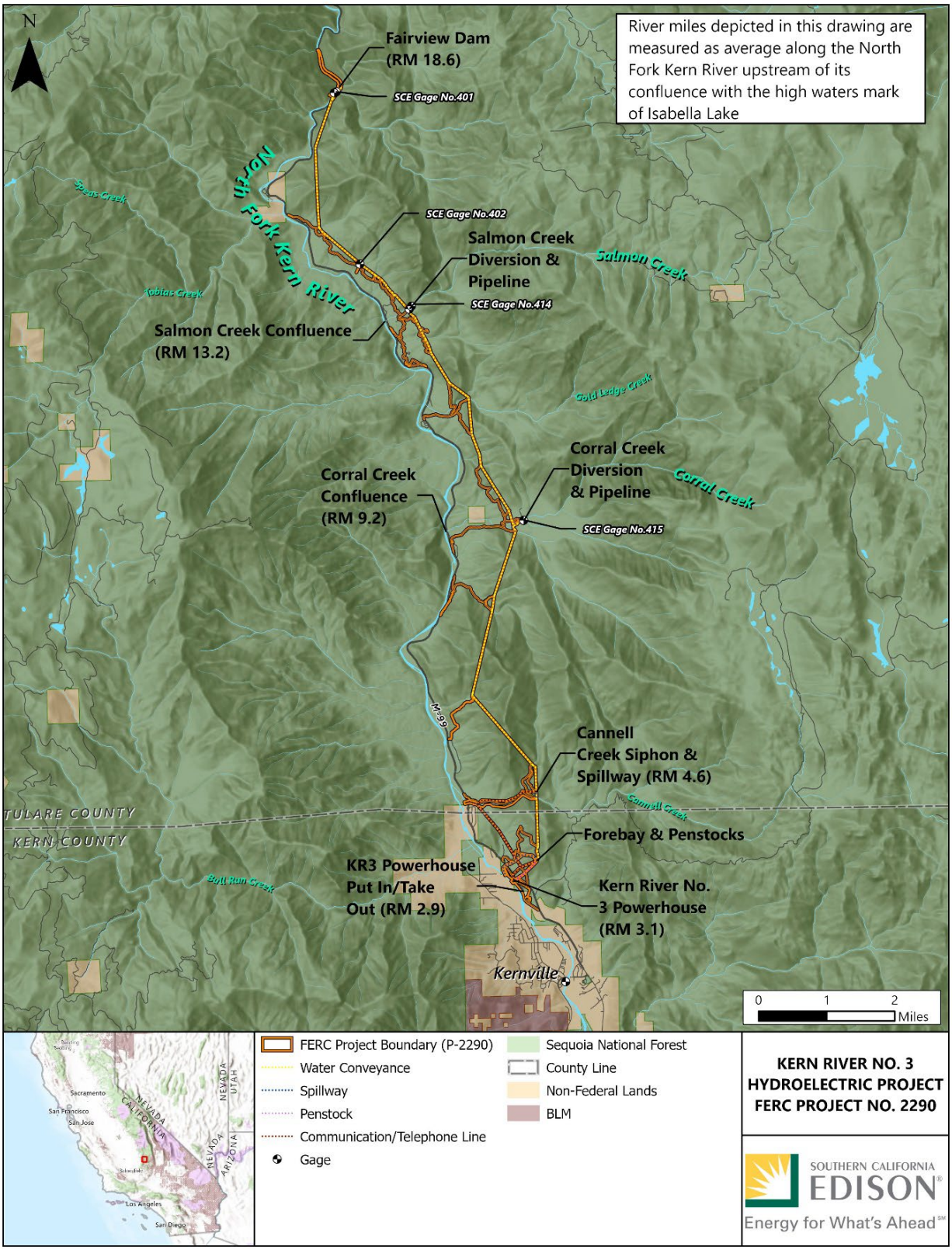
The study area includes Project forebays and Project-affected stream reaches (Figure 4-1). The habitat suitability assessment area includes: (1) North Fork Kern River (NFKR) immediately upstream and around Fairview Dam, (2) Fairview Dam Bypass Reach (the 16-mile bypass reach of the NFKR between Fairview Dam and the KR3 Powerhouse tailrace), (3) NFKR between the KR3 Powerhouse and Kernville, (4) Salmon Creek Diversion Bypass Reach (the 0.4-mile reach from Salmon Creek Diversion downstream to the confluence with the NFKR), (5) Corral Creek Diversion Bypass Reach (the 1.1-mile reach from Corral Creek Diversion downstream to the confluence with the NFKR), and (6) Cannell Creek between the siphon spillway and the NFKR.

Specific sites for environmental deoxyribonucleic acid (eDNA) sampling and visual encounter surveys (VESs) will be selected using habitat suitability assessment information including habitat quality or value, species-specific habitat criteria, suitability for eDNA sampling, and safety and access considerations. The actual number of survey sites will depend on the results of the habitat assessment. Surveys will occur at:

- One to two sites in the NFKR upstream of Fairview Dam
- One to four sites in the Fairview Dam Bypass Reach
- One to two sites in the NFKR between the KR3 Powerhouse and Kernville
- One site in the Salmon Creek Diversion Bypass Reach

- One site in the Corral Creek Diversion Bypass Reach
- One site in Cannell Creek

An additional study site upstream of the Project with contemporary documented occurrences of foothill yellow-legged frogs may be included as a reference site for eDNA sampling.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River miles depicted in this drawing are measured as average along the North Fork Kern River upstream of its confluence with the high waters mark of Isabella Lake
Fairview Dam (RM 18.6)
SCE Gage No.401
North Fork Kern River
Spears Creek
SCE Gage No.402
Salmon Creek Diversion & Pipeline
Salmon Creek
Tobias Creek
SCE Gage No.414
Salmon Creek Confluence (RM 13.2)
Gold Ledge Creek
Corral Creek Diversion & Pipeline
Corral Creek
Corral Creek Confluence (RM 9.2)
SCE Gage No.415
M.599
Cannell Creek Siphon & Spillway (RM 4.6)
Cannell Creek
TULARE COUNTY
KERN COUNTY
Forebay & Penstocks
KR3 Powerhouse Put In/Take Out (RM 2.9)
Bull Run Creek
Kern River No. 3 Powerhouse (RM 3.1)
Kernville
0 1 2 Miles
Sacramento
San Francisco
San Jose
Los Angeles
San Diego
NEVADA
CALIFORNIA
UTAH
ARIZONA
FERC Project Boundary (P-2290)
Water Conveyance
Spillway
Penstock
Communication/Telephone Line
Gage
Sequoia National Forest
County Line
Non-Federal Lands
BLM
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## 5.0 EXISTING INFORMATION

- Historically, foothill yellow-legged frogs were observed in the Project Area, including along the NFKR downstream of Fairview Dam at the confluence of Salmon Creek, and upstream of Cannell Creek, although all observations were recorded prior to 1972 (CDFW, 2020).
- The Eastern/Southern Sierra clade of foothill yellow-legged frog was listed as endangered by the California Fish and Game Commission on February 21, 2020 (California Fish and Game Commission, 2020).
- Biological evaluation surveys within stream reaches have not documented foothill yellow-legged frog; however, contemporary focused foothill yellow-legged frog surveys have not been conducted within Project-affected stream reaches (Psomas, 2004, 2013a, 2013b, 2013c; SCE, 2012).
- The nearest recorded observations to the Project Area are in Sequoia National Forest approximately 5 miles northeast from Fairview Dam. Two small, isolated populations were observed in two unnamed tributaries to the NFKR, locally referred to as Jywood Creek and Ash Creek, during multiple surveys between 1998 and 2018 (CDFW, 2020; Hayes et al., 2016).

## 6.0 STUDY APPROACH

A three-phased approach is being developed, as outlined below.

- Phase I: Assess the general study area for suitable habitat and select survey and sampling sites.
- Phase II: Implement eDNA and VES protocols.
- Phase III: Pending positive identification in any Project-affected stream reaches, additional data collection may be conducted.

### 6.1. PHASE I: IDENTIFICATION OF SUITABLE HABITAT AND SELECTION OF SURVEY SITES

- A field reconnaissance visit will be conducted at specific locations to support the identification of suitable foothill yellow-legged frog habitat, select study sites, and test eDNA methods prior to sampling.
- Available data sources, including aerial imagery and video, will be reviewed prior to the reconnaissance visit to aid in identifying areas of potential habitat for foothill yellow-legged frog.
- Sites will be selected to provide reasonable coverage of representative suitable habitat and stream conditions suitable for eDNA sampling at access points that do not compromise surveyor safety.

The following are foothill yellow-legged frog habitat suitability ranking categories.

- High: areas containing suitable habitat for all life stages, especially breeding. These stream segments would provide protection for egg mass deposition and larval maturation (e.g., wide channel areas with edgewater and backwater areas sheltered from flow; banks with shallow slopes).
- Moderate: areas containing suitable habitat for most life stages, although areas may lack potential habitat for one or more life stages (e.g., some habitat may be exposed to the main flow; there may be moderately steep or incised banks).
- Low: areas containing little or no suitable habitat for breeding or larval development and minimal refugia for post-metamorphic life stages (young-of-year, juveniles, adults). Habitat may function as a dispersal corridor.
- Not suitable: areas containing no potentially suitable habitat for any life stage.

Site selection will focus on areas with high habitat suitability; sites with moderate or low suitability will be selected if highly suitable sites are not identified.

## 6.2. PHASE II: CONDUCT FIELD SURVEYS

To minimize the potential spread of invasive species and pathogens (e.g., Chytrid fungus [*Batrachochytrium dendrobatidis*]), appropriate standard and currently accepted decontamination protocols will be followed prior to each aquatic-based field effort.

### 6.2.1. ENVIRONMENTAL DNA SAMPLING

eDNA field collection methods will be based on current eDNA sample collection literature and protocols (e.g., Halstead et al., 2020; Bedwell and Goldberg, 2020; Carim et al., 2016; Laramie et al., 2015; Goldberg et al., 2015; and Pilliod et al. 2014). Field sampling methods include:

- Decontaminate sampling gear (e.g., forceps) in a 50 percent bleach solution before sample collection.
- Filter stream water using a filter and pump assembly (e.g., manual hand-driven vacuum or peristaltic pump).
- Preserve filters and send samples to laboratory for analysis.

eDNA water samples will be collected during a single event in the breeding season, timed to coincide with the VES. Site-specific eDNA sample design and methods (e.g., filter pore size and sample volume) will be developed to maximize the likelihood of foothill yellow-legged frog detection within the sample site. *In situ* water quality measurements (conductivity, pH, and temperature) will be collected. eDNA field collection methods will be tested during the reconnaissance survey described in Section 6.1.

The eDNA samples will be analyzed by a recognized laboratory that conducts eDNA analysis for identification of foothill yellow-legged frogs. Results will be reported as detection or non-detection.

#### 6.2.2. VISUAL ENCOUNTER SURVEYS

- A single VES for foothill yellow-legged frog will be conducted along with eDNA sampling at each site.
- The survey area will include safely accessible aquatic features within approximately 250 feet upstream and downstream (500-foot total survey distance) of the eDNA sample location.
- Surveys will be conducted by a minimum of two surveyors working in tandem. Surveyors will wade or walk the shoreline and shallow-water habitats where possible, scanning ahead and searching stream banks, back-channel areas, and instream habitats for larvae (tadpoles) and post-metamorphic frog life stages (juveniles and adults) on both sides of the river, where possible.
- All other amphibian and aquatic reptile species observed during the surveys will be recorded. Each species' detection will be recorded by life stage along with associated habitat data. Data collected will include species information, microhabitat characteristics where the individual was detected (e.g., air and water temperature, substrate, location in the stream, associated vegetation or cover), and Universal Transverse Mercator (UTM) coordinates.
- A California Native Species Field Survey Form will be completed for any special-status species observed during the field surveys and will be submitted to the California Natural Diversity Database (CNDDB).

### 6.3. PHASE III: ADDITIONAL FIELD SURVEYS

If the results of field surveys indicate that foothill yellow-legged frogs are present in any stream reach, additional studies may be developed in consultation with Stakeholders to characterize the population of foothill yellow-legged frog (e.g., multi-life stage surveys) that may be affected by Project operations.

## 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. A Technical Memo will be appended to either the ISR or USR filing, as applicable. Confidential information (e.g., precise locations of any incidental special-status species observations) will be provided directly to relevant agencies and filed as "Privileged Information" with FERC. Standard geographic information system (GIS)

shapefiles, including metadata, will be provided to relevant agencies upon request. 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 data collection will occur for foothill yellow-legged frog; a second year of data collection would be considered in consultation with relevant agencies if the results of eDNA and field surveys indicate that this species is present in any of the study areas.

| Date | Activity |
|---|---|
| Spring–Fall 2022 | Conduct desktop analysis and field surveys |
| Winter 2022/2023 | Analyze data and prepare Technical Memo |
| Spring–Summer 2023 | If needed, conduct additional field surveys pending consultation with relevant agencies |
| August 2023 | Provide Technical Memo with ISR |
| August 2024 | Provide updated Technical Memo with USR, if applicable |

ISR = Initial Study Report; USR = Updated Study Report

## 9.0 LEVEL OF EFFORT AND COST

The estimated cost (2022 dollars) for the study is $100,000, which includes field work, data compilation and analysis, and reporting.

## 10.0 REFERENCES

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