BIO-2 SPECIAL-STATUS SALAMANDERS TECHNICAL MEMORANDUM

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

PREPARED FOR:



KERNVILLE, CALIFORNIA

October 2023

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Counties, California

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LIST OF ACRONYMS AND ABBREVIATIONS

°F degrees Fahrenheit

COS Cover Object Search

FERC Federal Energy Regulatory Commission

KR3 Kern River No. 3

NFKR North Fork Kern River

Project Kern River No. 3 Hydroelectric Project (FERC Project No. 2290)

RSP Revised Study Plan

SCE Southern California Edison

SPD Study Plan Determination

1.0 INTRODUCTION

This Technical Memorandum provides the methods and findings of field surveys associated with the *BIO-2 Special-Status Salamanders Study Plan* in support of Southern California Edison's (SCE) Kern River No. 3 (KR3) Hydroelectric Project (Project) relicensing, Federal Energy Regulatory Commission (FERC) Project No. 2290. The BIO-2 Study Plan was included in SCE's Revised Study Plan (RSP) submitted on July 1, 2022 (SCE, 2022). In the October 12, 2022, Study Plan Determination (SPD; FERC, 2022), FERC approved the BIO-2 Study Plan with the modification of adding the Fairview Dam Bypass Reach.¹

Habitat assessment surveys were conducted October 25 to 28 and November 14 to 16, 2022. Focused salamander surveys were conducted February 6 to 9 and April 17 to 18, 2023. All field sampling efforts and data analysis are complete and are summarized below.

2.0 STUDY GOALS AND OBJECTIVES

The objectives of the study, as outlined in the BIO-2 Study Plan (SCE, 2022) include the following:

- Obtain additional information on the Fairview salamander (*Batrachoseps bramei*), a
 U.S. Forest Sensitive Species, and other potentially occurring salamanders in the
 study area, including the Kern Canyon salamander (*Batrachoseps simatus*), a
 federally proposed threatened and state-listed threatened species; Kern Plateau
 salamander (*Batrachoseps robustus*); and Greenhorn Mountains salamander
 (*Batrachoseps altasierrae*)²;
- Identify and map potentially suitable salamander habitat; and
- Document presence, if found.

3.0 STUDY AREA AND STUDY SITES

The study area includes lands and waters within the FERC Project Boundary in addition to areas adjacent to, or in the proximity of, the FERC Project Boundary along the North Fork Kern River (NFKR) and Salmon, Corral, and Cannell creeks for the purposes of characterization and data collection relevant to understanding Project operations and maintenance activities. Specific study sites are further described below and shown on Figure 3-1.

¹ The Fairview Dam Bypass Reach is defined as the approximately 16-mile bypass reach of the North Fork Kern River (NFKR) between Fairview Dam and the KR3 Powerhouse tailrace.

² Kern Plateau salamander and Greenhorn Mountains salamander have no formal agency listing at the time of writing (CDFW, 2023).

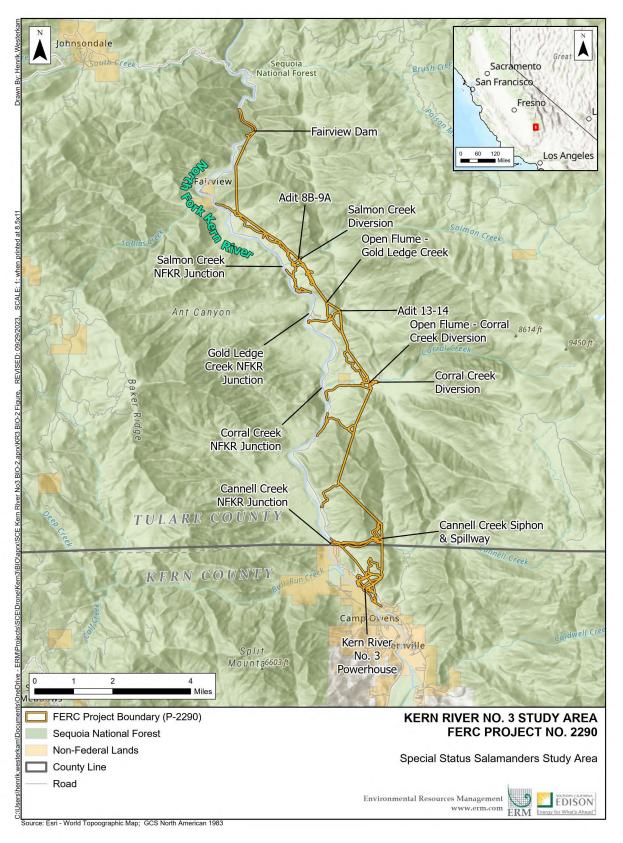


Figure 3-1. Special-Status Salamander Study Area

Perennial streams, ephemeral creeks, dry ravines, and other areas matching the habitat description in Jockusch et al. (2012) for the Fairview salamander and Greenhorn Mountains salamander and in Morey and Basey (1988) for the Kern Canyon salamander are located within the FERC Project Boundary, including a 50-foot buffer. Survey locations included the following:

- Fairview Dam;
- Fairview Dam Bypass Reach (as defined in the Section 1.0, Introduction) along safe and accessible river segments of the east side bank (west bank was not accessible);
- Salmon Creek Diversion, open flume segment, Adit 8B-9A, and adjacent access roads;
- Gold Ledge Creek open flume segment, Adit 13-14, and adjacent access road;
- Corral Creek Diversion, open flume segment, and access road;
- Cannell Creek, Cannel Creek Siphon, and access road; and
- NFKR junction with Salmon Creek, Gold Ledge Creek, Corral Creek, and Cannell Creek.

The type locality³ for Fairview salamander is in Packsaddle Canyon, a steep canyon directly east of Fairview Dam, which was visited prior to focused surveys to provide the model for Fairview salamander habitat.

4.0 METHODS

Study implementation generally followed the methods described in SCE's RSP (SCE, 2022), and as amended by FERC in their SPD (FERC, 2022), with the exceptions noted below.

Study Plan Variances

- The study area experienced heavy rainfall in March 2023, which led to flooding and generally unsafe conditions to public and Project roads in the study area. Therefore, biologists delayed the second salamander survey until April when roads were open and road conditions were safe.
- Cover Object Searches (COSs) were conducted instead of Visual Encounter Surveys.
 This survey approach involves searching under objects such as rocks where humidity levels are higher. The weather conditions made the implementation of the planned Visual Encounter Surveys unsafe. The survey requires searches during or just after

³ The location where a species is first identified.

rain fall events. However, the heavy rain made road conditions in the survey area unsafe.

A modified time-constrained search was used instead of an area-constrained search.
Due to the topography of the survey area (steep canyons), transects were not feasible.
Time-constrained searches, which limited searches of patches of microhabitat to
approximately 10 minutes and ceasing searches once a salamander was detected,
would limit habitat disturbances, an expressed concern of the U.S. Forest Service.

4.1. Phase 1: Habitat Assessment

Using online database queries (i.e., the California Natural Diversity Database, iDigBio, i-Naturalist, and Amphibiaweb) and literature reviews (e.g., Jockusch et al., 2012; CDFW, 2023a and 2023b), known locations of special-status salamanders were mapped in relation to the Project study area.

Mapping of museum records obtained from iDigBio and Amphibiaweb was performed prior to field work. IDigBio has records for Fairview salamander, Kern Canyon salamander, and Greenhorn Mountains salamander. Mapped records of readily accessible locations were used to assist in determining characteristics of suitable habitat.

Prior to the start of the habitat assessment survey, field maps showing the survey area were created from aerial photographs at a 1-inch to 200-foot scale for field use. Field maps were loaded onto an iPad Mini 6 for reference.

Biologists drove the survey area looking for potentially suitable habitat for special-status salamanders based on habitat characteristics. Potentially suitable habitat locations were mapped directly onto hard copy 11x17-inch aerial field maps. The results of the habitat assessment survey conducted October 25 to 28 and November 14 to 16, 2022, were used to target specific areas within the Project Area that were the subject of COSs conducted in February and April 2023. Habitat descriptions can be found in the Habitat Assessment Memo for the Project (Appendix A). Potentially suitable habitat depicted on Figure 4.1-1 was the focus of the Phase 2 surveys.

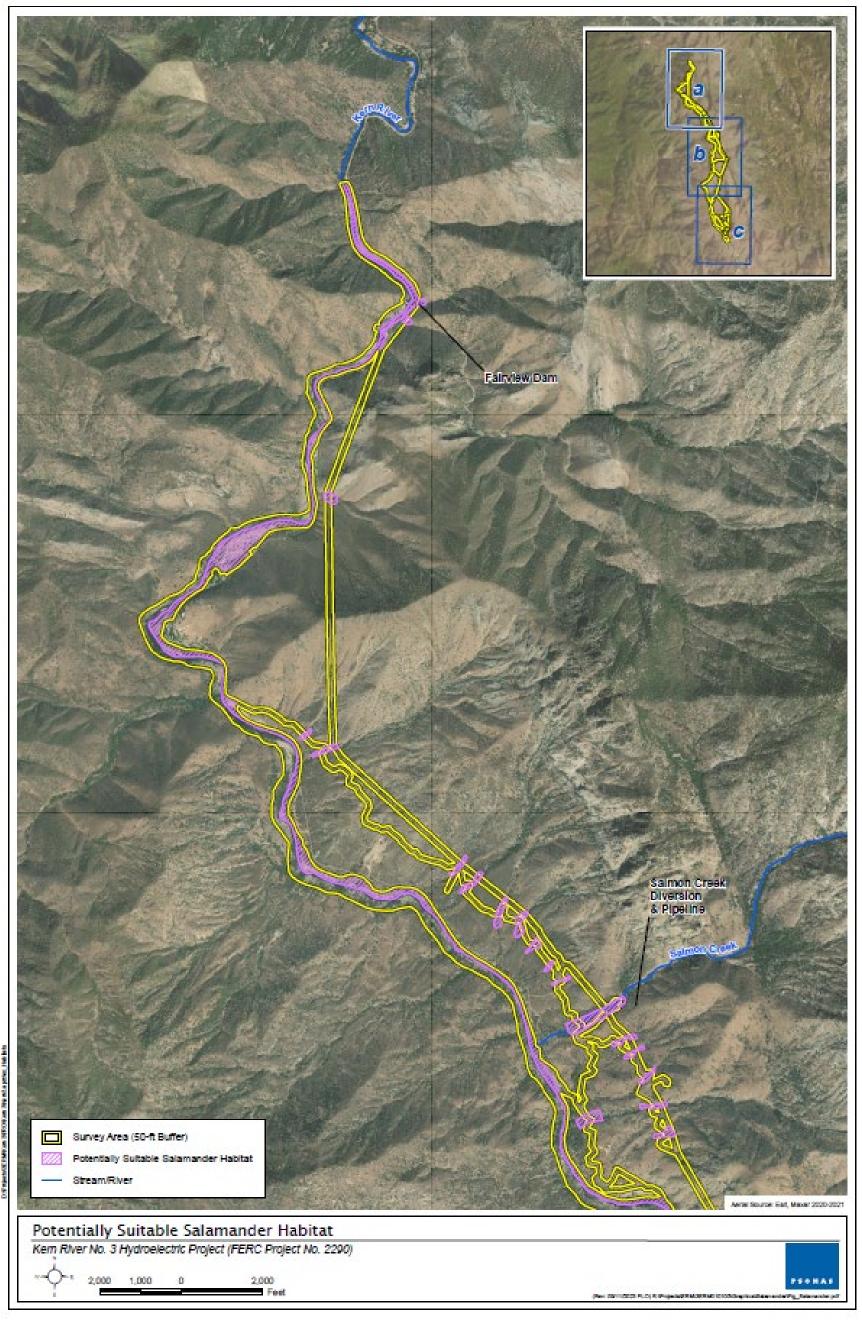


Figure 4.1-1a. Potentially Suitable Salamander Habitat.

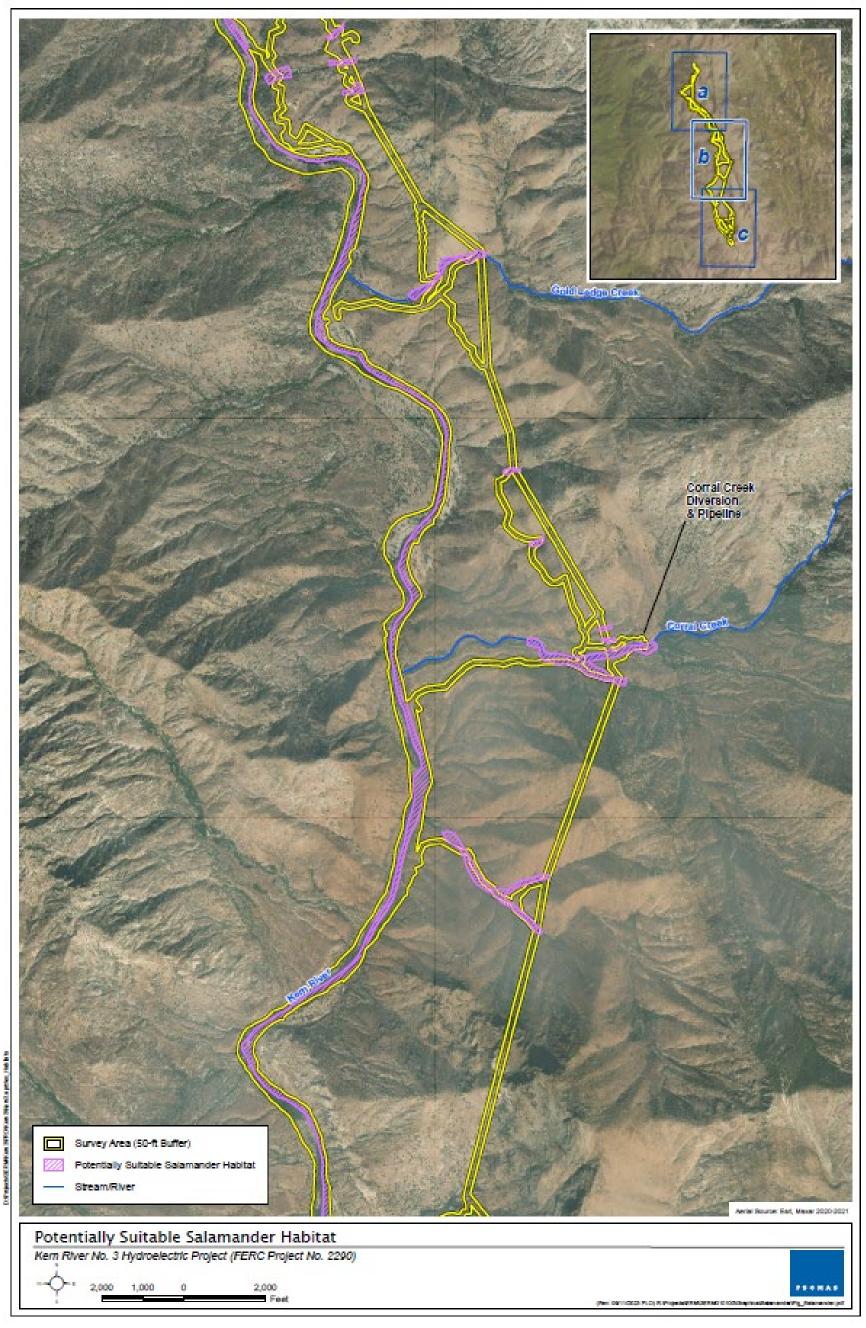


Figure 4.1-1b. Potentially Suitable Salamander Habitat.

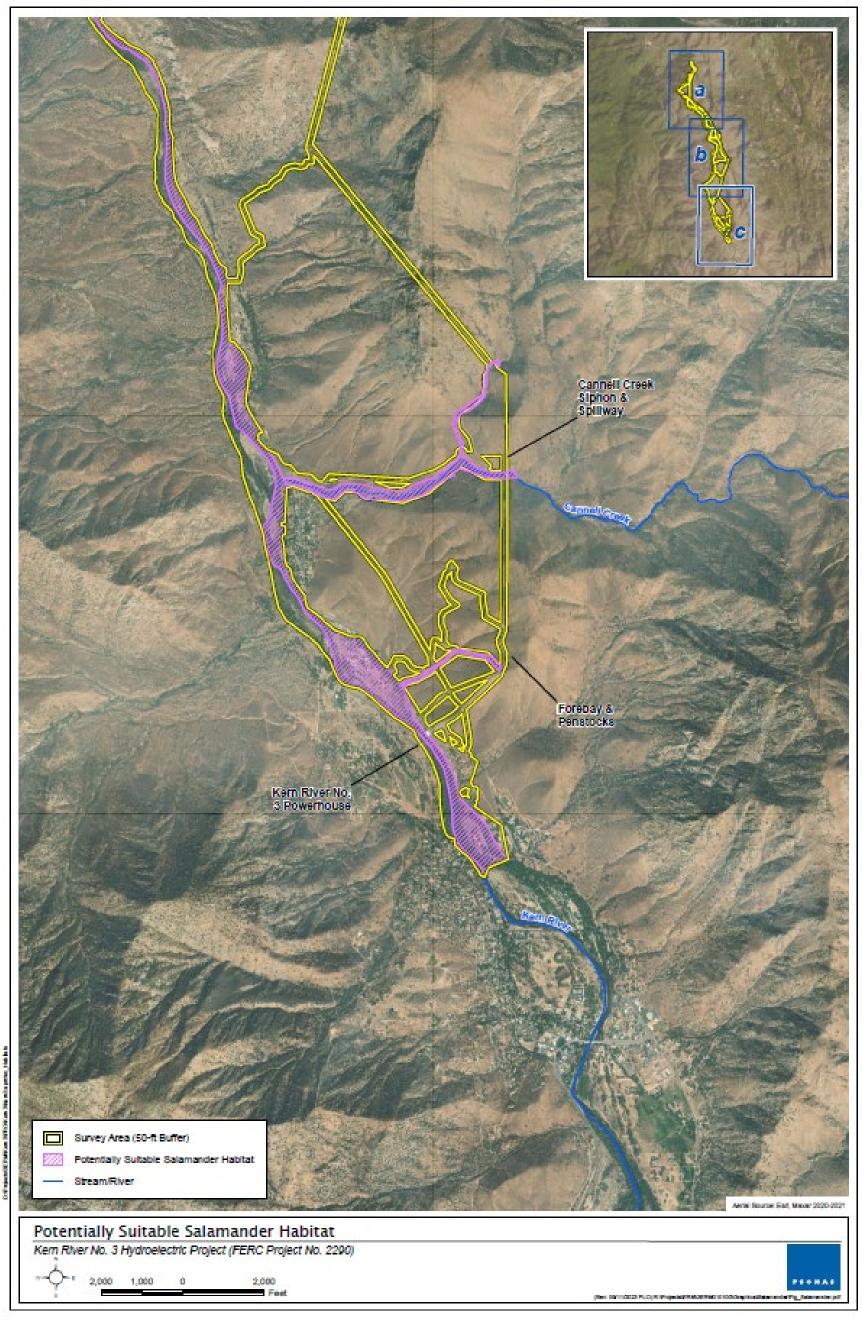


Figure 4.1-1c. Potentially Suitable Salamander Habitat.

Three 23 3/4-inch x 47 3/4-inch x 5.2-millimeter cover boards for salamanders and other reptiles were laid out: one adjacent to Salmon Creek, one adjacent to Corral Creek, and one adjacent to the NFKR near the access road to Corral Creek. The cover boards were checked periodically and inspected during Phase 2 COSs. Although the target special-status salamanders are known to inhabit drier situations under rocks and cover in moist microhabitats, the boards will be left out over the winter and during rain events. Unfortunately, the Kern River board was washed away and the board at Corral Creek was stolen. These salamanders, as with 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.

4.2. Phase 2: Cover Object Searches

Survey sites for COSs were selected using the available information on potential habitat identified during Phase 1. No survey protocol exists for the Fairview salamander, or any of the other salamander species occurring in the Project region. Survey methods were tailored to the survey area topography and species microhabitat (e.g., talus on/at the base of steep north facing canyon walls) with a prioritization of mitigating disruptions to habitat using a light-handed approach, per request of the U.S. Forest Service.

COSs were timed to maximize the potential for observing these species based on life history and literature review. Slender salamanders are generally easier to observe on rainy nights with moderately cool temperatures, a day or two following rain events while the habitat is still damp. Two separate surveys were conducted in February and April 2023. Surveys were conducted within 3 days of rain events, did not commence until temperatures were at least 41 degrees Fahrenheit (°F), and freezing temperatures (32 °F) had not occurred at the survey location during the preceding 72 hours. Surveys did not occur if it was snowing or if snow had recently (< 72 hours) covered the ground.

Surveys generally followed the time-constrained search methods described in Olson et al. (1999) and included lifting, overturning, and carefully replacing objects such as rocks, boards, and debris, and carefully searching leaf litter and under loose tree bark. Biologists spent approximately 10-person minutes searching a designated microhabitat patch (varying sizes) to limit disturbances and prevent over-searching an area. While searching, biologists attempted to return all rocks and other large cover objects to their original positions. Moss mats were carefully lifted at the edges but not removed or permanently impacted. When an individual salamander was found, biologists replaced cover objects in their original position, then placed the animal next to the object, allowing the animal to return underneath the object. Searching was stopped and "presence" for that location was designated.

Slender salamanders were identified to species in the field to the extent possible based on Jockusch et al. (2012), Stebbins (2012), and other references; however, individual salamanders were not collected for later identification. Observations of special-status salamanders were recorded on a Garmin GPSMAP 64sx Global Positioning System, and

notes on the general habitat and microhabitat were taken. A centimeter ruler was placed next to the salamander if the salamander would not be harmed.

Biologists noted 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 [Haliaeetus leucocephalus], Osprey [Pandion haliaetus], and Great Blue Heron [Ardea herodias]). Of the species listed here, Osprey was observed during surveys as a fly-over at Kern River near the confluence of Cannell Creek. None of the other species were observed during salamander surveys.

Slender salamanders and their habitat were photographed and are included as Appendix B; a list of wildlife species observed during surveys can be found in Appendix C.

5.0 DATA SUMMARY

Three Fairview salamanders were observed in the survey area—two in Packsaddle Canyon and one in a small un-named canyon adjacent to Adit 16/17 (Figures 5-1a and 5-1b). A summary of weather conditions can be found in Table 5-1, and a description of salamander observations habitat/microhabitat can be found in Table 5-2. Each observation occurred within 5 to 10 minutes of searching the survey polygon.

Table 5-1. Weather Data Summary

Survey #	Date	Time (Start/End)	Temperature (°F) (Start/End)	Cloud Cover (%) (Start/End)	Wind (mph) (Start/End)	Relative Humidity of Project Area (%) (Start/End)
1	2/7/2023	1:30 PM- 5:00 PM	51/57	40/40	1–3/0–1	55/46
1	2/8/2023	1:00 PM– 4:30 PM	63/60	50/60	1–3/1–3	67/55
1	2/9/2023	9:30 AM– 12:00 PM	54/65	0/0	1–2/0	77/67
2	4/17/2023	9:00 AM- 3:00 PM	65/66	0/0	0–1/3–5	65/40
2	4/18/2023	9:00 AM– 2:30 PM	50/58	10/0	3–8/5–8	60/34

[°]F=degrees Fahrenheit; %=percent; mph=miles per hour

Table 5-2. Results Summary

Species	Obs. #	Location (Date)	General Habitat Description	Microhabitat
Fairview salamander (<i>Batrachoseps</i> <i>bramei</i>)	1	Packsaddle Canyon (February 7, 2023)	Lower Montane Mixed Chaparral. Dominant species include Ceanothus spp., Quercus wislizeni, Pinus sabiniana, Cercocarpus betuloides, and Fremontodendron californicum	Base of steep north facing canyon wall. Large flat rock (cover) on rock substrate; substrate wet to touch, decomposing leaf litter surrounding cover rock. Running water (heavy flow) nearby.
Fairview salamander (<i>Batrachoseps</i> <i>bramei</i>)	2 ^a	Packsaddle Canyon (April 17, 2023)	Same as Observation #1	On steep north facing canyon wall. Large rock (cover) on thin layer of soil substrate on small rock outcrop/seep. Substrate wet to touch. Running water (heavy flow) nearby.
Fairview salamander (<i>Batrachoseps</i> <i>bramei</i>)	3	Adit 16/17 (April 17, 2023)	Wedgeleaf Ceonothus Scrub. Dominant species include Ceanothus cuneatus, Ericameria cuneata, Pinus sabiniana, and Q. wislizeni	Base of north facing rock outcrop. Small rock (cover) on soil substrate; substrate moist to touch, grasses surrounding cover rock. Running water (very light flow) nearby.

Notes:

^a This observation was not measured to avoid prolonged exposure to the elements.



Figure 5.1-1a. Survey Results.

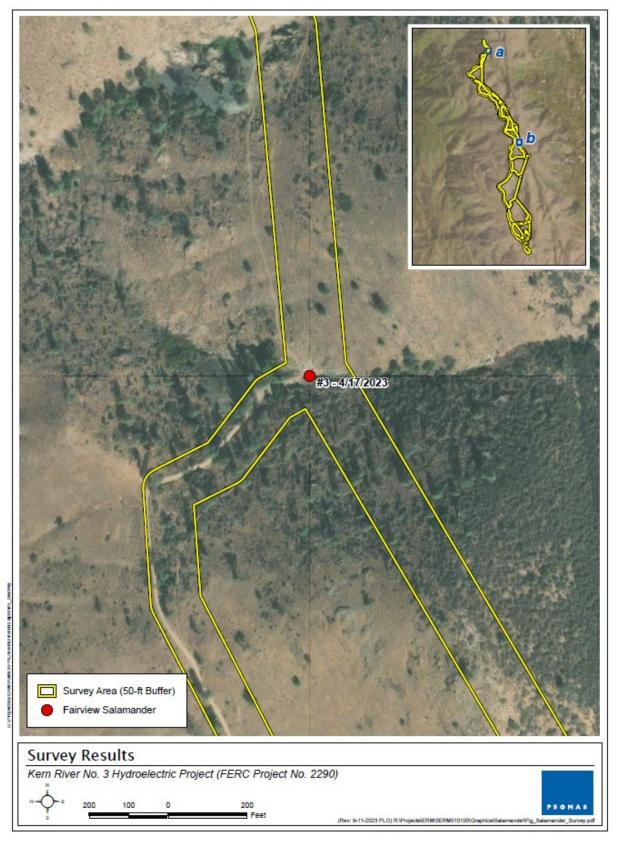


Figure 5.1-1b. Survey Results.

Two special-status species, the Fairview salamander and the Golden Eagle (*Aquila chrysaetos*), were observed during the surveys. California Natural Diversity Database forms will be submitted to the California Department of Fish and Wildlife for these observations.

6.0 STUDY SPECIFIC CONSULTATION

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

7.0 OUTSTANDING STUDY PLAN ELEMENTS

All Study Plan elements have been completed as outlined in SCE's RSP (SCE, 2022) filing and FERC's SPD (FERC, 2022) with the exception of the variances described above.

8.0 REFERENCES

- CDFW (California Department of Fish and Wildlife). 2023a. California Natural Diversity Database. RareFind5 [Internet]. Version 5.1.1. Electronic database. Natural Heritage Division, California Department of Fish and Game, Sacramento, California. Accessed: 2020–2023.
- CDFW (California Department of Fish and Wildlife). 2023b. *Special Animals*. Sacramento, CA: CDFW, Natural Heritage Division.
- FERC (Federal Energy Regulatory Commission). 2022. Study Plan Determination for the Kern River No. 3 Hydroelectric Project. Accession No. 20221012-3024. October 12.
- Jockusch, E. L., I. Martínez-Solano, R. W. Hansen, and D. B. Wake. 2012. "Morphological and molecular diversification of slender salamanders (Caudata: Plethodontidae: Batrachoseps) in the southern Sierra Nevada of California with descriptions of two new species." *Zootaxa*, 3190: 1–30. DOI: http://dx.doi.org/10.11646/zootaxa.3190.1.1
- Morey, S. and H. Basey. 1988. "Kern Canyon Slender Salamander." In Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White, eds. 1988-1990. *California's Wildlife*. Vol. I-III. California Department of Fish and Game, Sacramento, California.
- Olson, D.H., et al. 1999. October. Survey Protocols for Amphibians Under the Survey and Manage Provision of the Northwest Forest Plan Version 3.0. Corvallis, OR: USDA Forest Service. Accessed: September 2023. Retrieved from: https://www.blm.gov/or/plans/surveyandmanage/files/03-amphibians 3rd enclosed.pdf

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APPENDIX A
RESULTS OF A HABITAT ASSESSMENT CONDUCTED FOR THE KERN RIVER
NO. 3 HYDROELECTRIC (FERC PROJECT NO. 2290), KERN AND TULARE
COUNTIES, CALIFORNIA

MEMORANDUM

То	Southern California Edison (SCE)	
From	Brad R. Blood, PhD Lindsay Messett Sarah Thomas Psomas	
Date	September 12, 2023	
Subject	Results of a Habitat Assessment Conducted for the Kern River No. 3 Hydroelectric (FERC Project No. 2290), Kern and Tulare Counties, California	

This memorandum presents the results of habitat assessment for the Kern River No. 3 Hydroelectric Project Relicensing, Federal Energy Regulatory Commission (FERC) Project No. 2290 (hereinafter referred to as the "Project"). The Project is located on the North Fork Kern River (NFKR) and on Salmon and Corral Creeks near the town of Kernville in Kern and Tulare counties, California (Exhibits 1 and 2). The habitat assessment was conducted to determine the location of potential habitat for special status wildlife species within the wildlife study area and to determine future survey areas. This memorandum fulfills requirements for habitat assessments from the following Study Plans: Special-Status Salamander Study Plan (BIO-2), General Wildlife Study Plan (BIO-3), and Western Pond Turtle Study Plan (BIO-5). This habitat assessment did not include species-specific focused surveys.

PROJECT BACKGROUND

The 40.2-megawatt run-of-river Project includes an intake diversion dam, a water conveyance system consisting of concrete-lined arched tunnels, covered and open concrete box flumes, a metal siphon, two diversion dams and conduits, a forebay, two penstocks, and a powerhouse. Southern California Edison (SCE) is the licensee, owner, and operator of the existing hydroelectric facilities subject to the relicensing effort. SCE currently operates the Project under a 30-year license that was issued by FERC on December 24, 1996, which was subsequently amended in 1997, 2004, and 2019. Because the current license will expire on November 30, 2026, SCE is seeking a license renewal for continued operations and maintenance (O&M) of the Project. As part of the relicensing process, SCE will review the existing FERC Project Boundary and, if needed, propose revisions needed to: (1) include all facilities necessary for Project O&M; and (2) exclude lands within the current FERC Project Boundary that are not necessary for Project O&M. There are no new proposed facilities planned to increase the generator capacity of the Project, and there are no changes to O&M anticipated (SCE 2021).

ENVIRONMENTAL SETTING

The Project occurs along the NFKR and its tributaries including Salmon and Corral Creeks, in the southern portion of the Sierra Nevada. The NFKR begins at Lake South America nine miles northwest of Mount Whitney and approximately 50 miles north of the Project's northern terminus and drains into Lake Isabella approximately five miles south of the Project's southern terminus. The Project Area is one of moderate to steep ridge and valley topography. Elevations within the drainages range from approximately 2,700 feet above mean sea level (msl) to 3,600 feet above msl. Project facilities are primarily located on federal lands within Sequoia National Forest, with a small portion (around the powerhouse) within SCE ownership. Land uses adjacent to the Project include residential, grazing, and public recreation (e.g., whitewater rafting, camping, destination recreation areas, trails). Some portions of the water conveyance system and Project access roads fall within the Wild and Scenic River corridor quarter mile buffer. The

Project is located on U.S. Geological Survey's (USGS') Fairview and Kernville 7.5-minute topographic quadrangles (Exhibit 3).

The Project Area consists upland vegetation communities in higher terraces areas and riparian in and adjacent to Kern River and select tributaries. Plant community types mapped in the study area consist of annual grasses and forbs, California buckwheat scrub, lower montane mixed chaparral, scrub oak chaparral, upper montane mixed chaparral, wedgeleaf ceanothus chaparral, willow (shrub) alliance, California black oak forest and woodland, canyon live oak woodland, ponderosa pine forest and woodland, interior live oak alliance, interior live oak woodland and forest, riparian mixed hardwood alliance, and foothill pine woodland (Exhibit 4).

METHODS

In accordance with the Special-Status Salamander Study Plan (BIO-2), General Wildlife Study Plan (BIO-3), and Pond Turtle Study Plan (BIO-5), a habitat assessment (Phase 1) was conducted to identify and map potentially suitable habitat for northwestern pond turtle (*Actinemys marmorata*), special-status salamanders, and special status wildlife and Endangered and Threatened riparian bird species. The study area included riparian and upland habitats (e.g., perennial streams, ephemeral creeks, dry ravines, and other areas) matching each species' potential habitat needs located within the Project boundary, including a 50-foot buffer. Additionally, features that may support roosting bats were identified.

Target survey locations include, but are not limited to the following areas:

- Fairview Dam, intake, and sandbox;
- aboveground sections of the conveyance flowline, including the siphon;
- Fairview Dam Bypass Reach¹ from the river's edge to the outer edge of the riparian strip plus a 50-foot buffer, or to the edge of Mountain Highway 99, whichever is closer;
- Salmon Creek diversion, Open Flume, Adit 8B-9A, and adjacent access roads;
- Corral Creek diversion, open flume, and the access road;
- Cannell Creek, siphon, and access road;
- Gold Ledge Creek Open Flume, Adit 13-14, and adjacent access road;
- Pressure flume, forebay, and penstocks;
- Project access roads;
- Kern River No. 3 (KR3) Powerhouse and supporting maintenance buildings; and
- the NFKR confluences with Salmon, Gold Ledge, Corral, and Cannell Creeks.

Literature Review

Prior to the start of the field surveys, a review of the existing literature was conducted to determine the potential for special status species to occur in the vicinity of the Project. This review included the Study Plans as well as previous biological reports prepared for individual projects such as: Southwestern Pond Turtle Observations during Pre-construction Surveys in Support of the KR3 Flowline Roads Improvement Project (Psomas 2013a); Biological Resources Technical Report for the Kern River 3 Sandbox Repair

The Fairview Dam Bypass Reach is defined as the approximately 16-mile bypass reach of the NFKR between Fairview Dam and the KR3 Powerhouse tailrace.

Project (Psomas 2013b). The Pre-Application Document for the SCE Kern River No. 3 Hydroelectric Project was also reviewed (SCE 2021).

Museum records, AmphibiaWeb, as well as crowdsourcing platforms (e.g., iNaturalist) were utilized during the literature review. In addition, the California Department of Fish and Wildlife's (CDFW's) California Natural Diversity Database (CDFW 2022) was queried for special status wildlife species for the following USGS' 7.5-minute topographic quadrangles: Johnsondale, Fairview, Kernville, Tobias Peak, Cannell Peak, Alta Sierra, and Lake Isabella.

Habitat Assessment Field Surveys

Based on the Project Study Plans and agency comments, potentially suitable habitat for the following species was evaluated during the habitat assessment: Fairview salamander (*Batrachoseps bramei*)—a Forest Service Sensitive Species (FSS); Kern Canyon salamander (*Batrachoseps simatus*)—a federally proposed threatened/State-listed threatened/FSS species; Kern Plateau salamander (*Batrachoseps robustus*)—a G3/S3 ranked species²; Greenhorn mountains slender salamander (*Batrachoseps altasierrae*)—a G2/S2 ranked species³; northwestern pond turtle—a Federal Candidate for listing as Threatened (FCT), CDFW Species of Special Concern (SSC)/FSS; Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)—a State-listed Endangered and federally-listed threatened species; southwestern willow flycatcher (*Empidonax traillii extimus*)—a State and federally-listed Endangered species; California condor (*Gymnogyps californianus*)—a State and federally-listed Endangered/CDFW fully protected species; and fisher southern Sierra Nevada Distinct Population Segment (*Pekania pennanti* pop 2)—a federally-listed Endangered/State-listed Threatened/CDFW SSC/FSS species.

Other special status species that may occur in the Project Area, as shown in Table 5.5-1 of the Pre-Application Document for the Project, or are otherwise known from the Project Vicinity, include but are not limited to: yellow-blotched salamander (*Ensatina eschscholtzii croceator*), southern Sierra legless lizard (*Anniella campi*), California legless lizard (*Anniella* spp.), coast horned lizard (*Phrynosoma blainvillii*), northern goshawk (*Accipiter gentilis*), yellow warbler (*Dendroica petechial brewsteri*), yellow-breasted chat (*Icteria virens*), tricolored blackbird (*Agelaius tricolor*), Sierra Nevada mountain beaver (*Aplodontia rufa californica*), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), spotted bat (*Euderma maculatum*), western red bat (*Lasiurus blossevillii*), western mastiff bat (*Eumops perotis californicus*), and American badger (*Taxidea taxus*).

Prior to field surveys, field maps created from aerial photographs of the study area at a 1-inch to 200-foot scale were prepared for field use and included any known wildlife occurrences for special-status wildlife. The aerials were pre-loaded on to an iPad Mini 6 for use in in the field. On October 25–28; and November 14–16 2022, Psomas Senior Biologist Lindsay Messett and Biologist Sarah Thomas conducted reconnaissance-level habitat assessment of the entire study area. Biologists visually inspected the entire

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Global-rank 3 (G3): Vulnerable – At moderate risk of extinction due to restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors. State-rank 3 (S3): Vulnerable – At moderate risk of extirpation in the State due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors (CDFW 2023).

Global-rank 2 (G2): Imperiled – At high risk of extinction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors. State-rank 2 (S2): Imperiled – At high risk of extirpation in the state due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors (CDFW 2023).

study area to document potentially suitable habitat for special status species known from the Project Vicinity. Potentially suitable habitat for special status species was delineated in the field on 11 x 17-inch paper aerial maps and notes were taken on habitat including description including dominant species present; description of understory including dominant species present; presence/absence of talus; and observed disturbances (e.g., fire, trash). A list of wildlife observed, and weather data was recorded in field notes. The type locality for the Fairview salamander is Packsaddle Canyon (adjacent to Fairview Dam), which was surveyed prior to the habitat assessment to provide the model for suitable habitat. In addition, Biologists searched for signs of bats (staining and guano piles) at the powerhouse and various facilities and bridges in the study area. Representative photographs were taken throughout the study area and can be found in Attachment A. A list of can be found in Attachment B. One special status species, the golden eagle, was observed during the habitat assessment. A CNDDB will be submitted for this observation.

Active searches for reptiles and amphibians included lifting, overturning, and carefully replacing objects such as rocks, boards, and debris. Birds were identified by visual and auditory recognition. Mammals were identified by visual recognition or evidence of diagnostic signs including scat, footprints, scratch-outs, dust bowls, burrows, and trails. Nomenclature of wildlife taxa conform to the *Special Animals List* (CDFW 2023) for special status species; nomenclature for non-special status wildlife generally follows Crother (2012) for amphibians and reptiles, AOS (2021) for birds, and Bradley et.al (2014) and Blood (2023) for mammals.

Cover Boards and Wildlife Cameras

In order to increase the potential for documenting special status salamanders and other reptiles and amphibians in the study area, three wooden boards (measuring 4 feet x 4 feet x 1/2 inch) were placed in potentially suitable habitat in Kern River, Salmon Creek, and Corral Creek (Exhibit 5). Additionally, Biologists installed two trail cameras at locations likely to capture wildlife—specifically Pacific fisher—that may not be observable during pedestrian surveys (Exhibit 5). All cameras are equipped with night recording capabilities and were programmed to record 5 second videos when the sensor is activated. Camera placement will be reassessed after reviewing the second round of data.

RESULTS

Salamander

Fairview salamander

Fairview salamander is not listed by federal Endangered Species Act or the California Endangered Species Act nor is it a California SSC. It is included here at the request of the resource agencies. The Fairview salamander is known from the multiple locations in the Project Area (Exhibit 6). This species is generally associated with talus on north-facing slopes in steep canyons in a variety of habitats including riparian and chaparral plant communities and is most often found beneath rocks. These areas typically do not get sun in winter and remain moist and cool into the spring (Jockusch et al. 2012).

Potentially suitable habitat for the Fairview salamander was identified in Packsaddle Canyon and the gully directly to the north; along the access road to the Salmon Creek diversion; at the Corral Creek diversion and pipeline; Tunnel 18/19 Flume Access Road; and the Cannell Creek Siphon and Spillway; Gold Ledge Creek; Salmon Creek Diversion and Pipeline; Tunnel 16/17 Flume Access Road; the NFKR confluences with Salmon; Gold Ledge, Corral, and Cannell Creeks; and the drainage originating at the forebay and extending down to Kern River (Exhibit 7).

Kern Canyon salamander

Kern Canyon salamander is known from 18 sites south of Lake Isabella in the Lower Kern River Canyon, Piute Mountains, and along Erskine and Bodfish Creeks. This species is found within wet margins of creeks and seeps in narrow canyons shaded with willows (*Salix* spp.), cottonwoods (*Populus* spp.), oaks (*Quercus* spp.), and pines (*Pinus* spp.). The Kern Canyon slender salamander has also been found on talus slopes and in open grasslands (USFWS 2022). This species is not known from the Project Area. In the study area, potentially suitable habitat for this species overlaps that of the Fairview salamander.

Kern Plateau Salamander

The Kern Plateau salamander is known from 35 sites on the Kern Plateau (a high elevation plateau east of the study area), the Scodie Mountains, the eastern slope of the Sierra Nevada, Owens Valley, and Indian Wells Valley. On the Kern Plateau, Kern Plateau salamanders are found at high elevations in moist areas under woody debris and leaf litter in mesic pine-fir forests (*Pinus* spp.–*Abies* spp.), pinyon pine (*Pinus monophylla*), sagebrush (*Artemisia* spp.), and oaks in drier habitats (USFWS 2022). This species is not known from the Project Area. In the study area, potentially suitable habitat for this species overlaps that of the Fairview salamander and includes some drier drainage habitat along Tunnels 5–8A Access Road, Rincon Access Road, Tunnels 10–12 Access Road, Corral Creek Diversion Access Road, and Corral Creek Flumes North Access Road (Exhibit 7).

Greenhorn mountains slender salamander

Greenhorn mountains slender salamander is known from high elevations in the Greenhorn Mountains west of the Project Area (and one location east of the Project Area in the western Kern Plateau) (CDFW 2022; Jockusch et al. 2012). Most populations are found in mesic areas (e.g., swales, drainages, etc.) with an overstory of trees or shrubs and abundant rocks, litter, or woody debris in coniferous forests containing a mixture of pine, fir, and incense cedar (*Calocedrus decurrens*) (CDFW CIWTG 2014, Jockusch et al. 2012). This species is not known from the Project Area. In the study area, potentially suitable habitat for this species overlaps that of the Fairview salamander (Exhibit 7).

Northwestern Pond Turtle

The northwestern pond turtle is associated with permanent or nearly permanent water in a wide variety of habitats. It requires basking sites such as partially submerged logs, rocks, mats of floating vegetation, or open mud banks. Along large slow-moving streams, eggs are deposited in nests constructed in sandy banks. Along foothill streams, females may climb hillsides, sometimes moving considerable distances to find a suitable nest site (Ernst et al. 1994; Pilliod, et al. 2013; Thompson et al. 2016). The northwestern pond turtle is known from Cannell Creek in the study area (Psomas 2013a). In the study area potentially suitable habitat for the northwestern pond turtle was identified in Kern River at numerous locations where water was slow moving, and in Cannell Creek (Exhibit 8). On October 3, 2023, the U.S. Fish and Wildlife Service published a proposed rule to list the northwestern pond turtle as a federally threatened species (USFWS 2023).

California Condor

Suitable habitat for the California condor includes adequate food supply, open areas to locate food, and reliable air movements to allow for extending soaring (Bloom 2009). Foraging habitat consists of vast expanses of open savannah and grassland, including cattle ranches or pastures within chaparral with cliffs,

large trees, and snags. Roosting habitat is located near important foraging grounds, often near a previously discovered carcass. The California condor nests in caves, crevices, and large ledges on high sandstone cliffs (Bloom 2009).

Based on habitat requirements for nesting, the California condor is not expected to breed in the study area. Marginal foraging habitat occurs in the Project Area. In the study area, potentially suitable foraging habitat occurs in the grassland areas in the southern portion of the study area (Exhibit 4).

Riparian Birds

Western Yellow-Billed Cuckoo

The western yellow-billed cuckoo requires large tracts of riparian forest or woodland habitat along low-gradient rivers and streams in open riverine valleys that provide wide floodplain conditions (USFWS 2014). The optimal size of habitat patches for the species is generally greater than 200 acres in extent and has dense canopy closure and high foliage volume of willows and cottonwoods (Laymon and Halterman 1989). Habitat between 100 acres and 200 acres, although considered suitable, are not consistently used by the species (Laymon and Halterman 1989). Habitat patches from 50 to 100 acres in size are considered marginal habitat; sites less than 37 acres are considered unsuitable habitat (Laymon and Halterman 1989). The species does not use narrow, steep-walled canyons (USFWS 2014). Sites with strips of habitat less than 325 feet in width are rarely occupied for nesting (USFWS 2014). Stopover and foraging sites can be similar to breeding sites but can be smaller in size (sometimes less than 10 acres in extent), narrower in width, and lack understory vegetation when compared to nesting sites (Laymon and Halterman 1989; USFWS 2014). Minimum patch size for cuckoo occupancy is 12.4 acres; no cuckoos have been detected attempting to nest in patches this size or smaller in California or Arizona (Halterman et al. 2001; Johnson et al. 2010). They have also not been found nesting in narrow; linear habitat that is less than 33 to 66 feet wide (Halterman et al. 2015).

Based on the habitat needs for the cuckoo, there is low potential for nesting and foraging in the study area; however, the cuckoo may migrate through the study area on its way to/from suitable habitat near the Kern River. The study area does not support the acreage of riparian woodland required by this species. All riparian woodland habitat was delineated on field maps during the habitat assessment (Exhibit 4).

Southwestern Willow Flycatcher

The southwestern willow flycatcher occurs in dense riparian habitat along rivers, streams, and other wetlands. Typically, southwestern willow flycatcher nests in thickets of trees and shrubs 13 to 23 feet or greater in height, with a dense understory and a high percentage of canopy cover (USFWS 1995).

Based on the habitat needs for the flycatcher, there is low potential for nesting and foraging in the study area; however, the southwestern willow flycatcher may migrate through the study area on its way to/from suitable habitat near the Kern River. The study area does not support the dense understory required by this species. All riparian habitat was delineated on field maps during the habitat assessment (Exhibit 9).

Least Bell's Vireo

The breeding habitat of the least Bell's vireo is primarily riparian dominated by willows with dense understory vegetation; shrubs such as mule fat (*Baccharis salicifolia*) and California rose (*Rosa californica*) are often a component of the understory (Goldwasser 1981). The least Bell's vireo is often

found in areas that include trees such as willow, western sycamore (*Platanus racemosa*), or cottonwood, particularly where the canopy is within or immediately adjacent to an understory layer of vegetation (Salata 1983).

Based on the habitat needs for least Bell's vireo, there is low potential for nesting and foraging in the study area; however, least Bell's vireo may migrate through the study area on its way to/from suitable habitat near the Kern River. The study area does not support the dense understory required by this species. All riparian habitat was delineated on field maps during the habitat assessment (Exhibit 9).

Fisher

The fisher is a medium-sized forest-dwelling carnivore whose primary habitat in the western United States is dense coniferous forest, usually with a deciduous component and abundant physical structure in the form of large trees, snags, and logs (Zielinski et al. 2013). The Southern Sierra Nevada Distinct Population Segment of the fisher is an isolated population in the southern Sierra Nevada. In the Project region, the U.S. Fish and Wildlife Service (USFWS) proposed critical habitat occurs east of the Project Area in the Kern Plateau (Unit 1); and west of the Project Area in the southwestern tip of the Sierra Nevada and Greenhorn Mountains—between the Kern River and Bear Creek in the Tule River watershed (Unit 2) (USFWS 2022). No proposed critical habitat occurs in the Project Area. Fisher has not been documented in the Project Area (CDFW 2023).

USFWS proposed critical habitat units were determined based on modeled suitable, high-quality denning habitat⁴ that includes intermixed foraging and dispersal areas. Female fishers have the strictest habitat requirements, and they raise their young alone; therefore, maintaining and increasing carrying capacity for breeding females is essential to sustaining and recovering the fisher population (Spencer et al. 2016). Denning habitat used by females to raise young appears to be a subset of resting habitat (used by both sexes year-round) and is restricted to forest stands with dense canopy cover (greater than 60 percent), structural diversity, large trees, and a moderate intermix with black oaks (*Quercus kelloggii*). Resting typically occurs in the largest available (e.g., conifers greater than or equal to 35 inches and hardwoods greater than or equal to 25 inches) live trees, snags, or logs that provide cavities, platforms, or other deformities used by resting fishers (USFWS 2022, Spencer et al. 2016).

In addition to core denning habitat, the Conservation Biology Institute's (CBI) Southern Sierra Nevada Fisher Conservation Strategy identifies least risky potential linkages based on expert assumptions about fisher dispersal relative to vegetation, terrain, and other factors used by fisher to disperse between critical habitat units. Linkages identified by CBI are not included in USFWS proposed critical habitat (USFWS 2022, Spencer et al. 2016). Genetic analyses suggest that female fishers primarily disperse through dense forest stands with large trees; however, fisher experts expect that shrubs (e.g., chaparral) may provide sufficient hiding and escape cover for dispersing male fishers in non-forested portions of linkage areas (Spencer et al. 2016). The closest identified linkage (linking Critical Habitat Units 1 and 2) occurs approximately 12 miles north of the Project site and crosses Kern River (Spencer et al. 2016). No identified linkages occur in the Project Area.

On the Project site, Salmon Creek diversion, Corral Creek diversion, and forested areas adjacent to Kern River may contain marginal foraging and resting habitat for dispersing fisher from Critical Habitat Unit 1

Such habitat provides structural features for birthing kits, raising kits, protection from adverse weather conditions, facilitation of safe movement, sites to rest and thermoregulate, foraging opportunities, and cover to reduce predation risk for adults and young (USFWS 2022).

east of the Project site. These areas contain riparian habitat with high canopy cover (mostly greater than 60 percent) that fisher require for movement (Exhibit 4). Dens are primarily in mixed-coniferous and coniferous-hardwood stands with dense canopy cover, a moderate intermix of California black oaks, on steep slopes (approximately 20–50 percent slopes); these habitat elements are lacking on the Project site.

Bats

No sign of bat roosting was observed in any of the Project facilities including the KR3 Powerhouse, bridges, overhanging adits, or visible rock crevices along Project access roads. SCE field staff members were consulted during surveys to inquire about any bat observations in any Project facilities. They reported no roosting bat observations on Project facilities in the Project Area.

CONCLUSIONS

Biologists mapped potentially suitable habitat for key special status species in the study area to establish sites in accessible locations for targeted visual encounter surveys (Phase 2). In 2023, surveys will be conducted by foot during appropriate seasons and conditions to maximize the potential for observing salamanders (i.e., late-winter, early spring rainy seasons). Active searches for reptiles and amphibians will also be conducted. Methods will include lifting, overturning, and carefully replacing objects such as rocks, boards, and debris, and cover boards placed during the habitat assessment surveys. Additionally, surveys will be performed in potentially suitable habitat at appropriate times of the year (e.g., nesting season) to maximize the opportunity to observe western yellow-billed cuckoo, southwestern willow flycatcher, least Bell's vireo, California condor, and Pacific fisher.

Exhibits: Exhibit 1 – Regional Location

Exhibit 2 – Project Location

Exhibit 3 – U.S. Geological Survey 7.5-Minute Quadrangle

Exhibit 4 – Plant Communities

Exhibit 5 – Wildlife Camera and Herp Board Locations

Exhibit 6 – CNDDB Wildlife Locations

Exhibit 7 – Potentially Suitable Salamander Habitat Exhibit 8 – Potentially Suitable Pond Turtle Habitat Exhibit 9 – Potentially Suitable Riparian Bird Habitat

Attachments: Attachment A – Representative Site Photographs

Attachment B – Wildlife Compendium

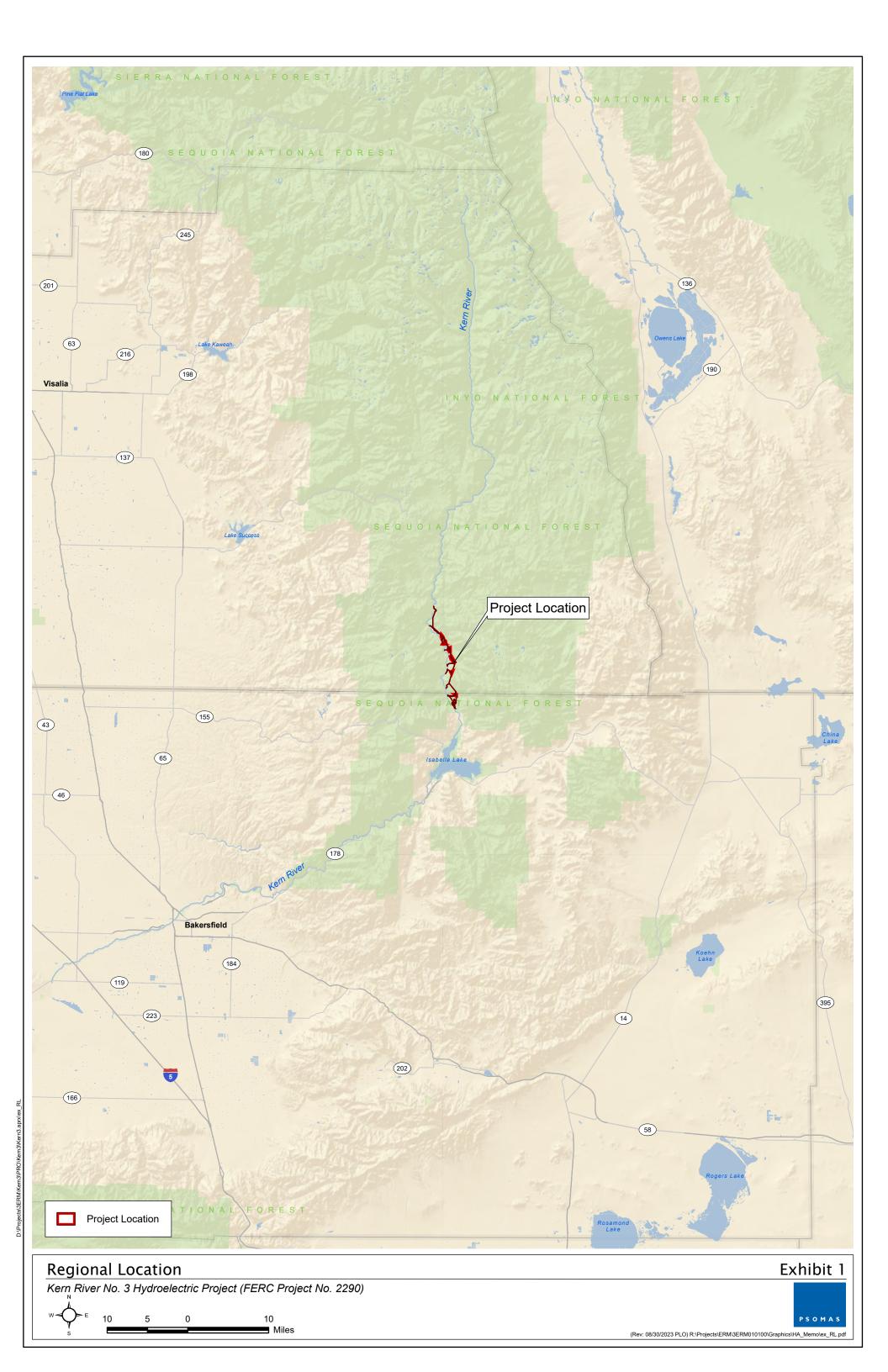
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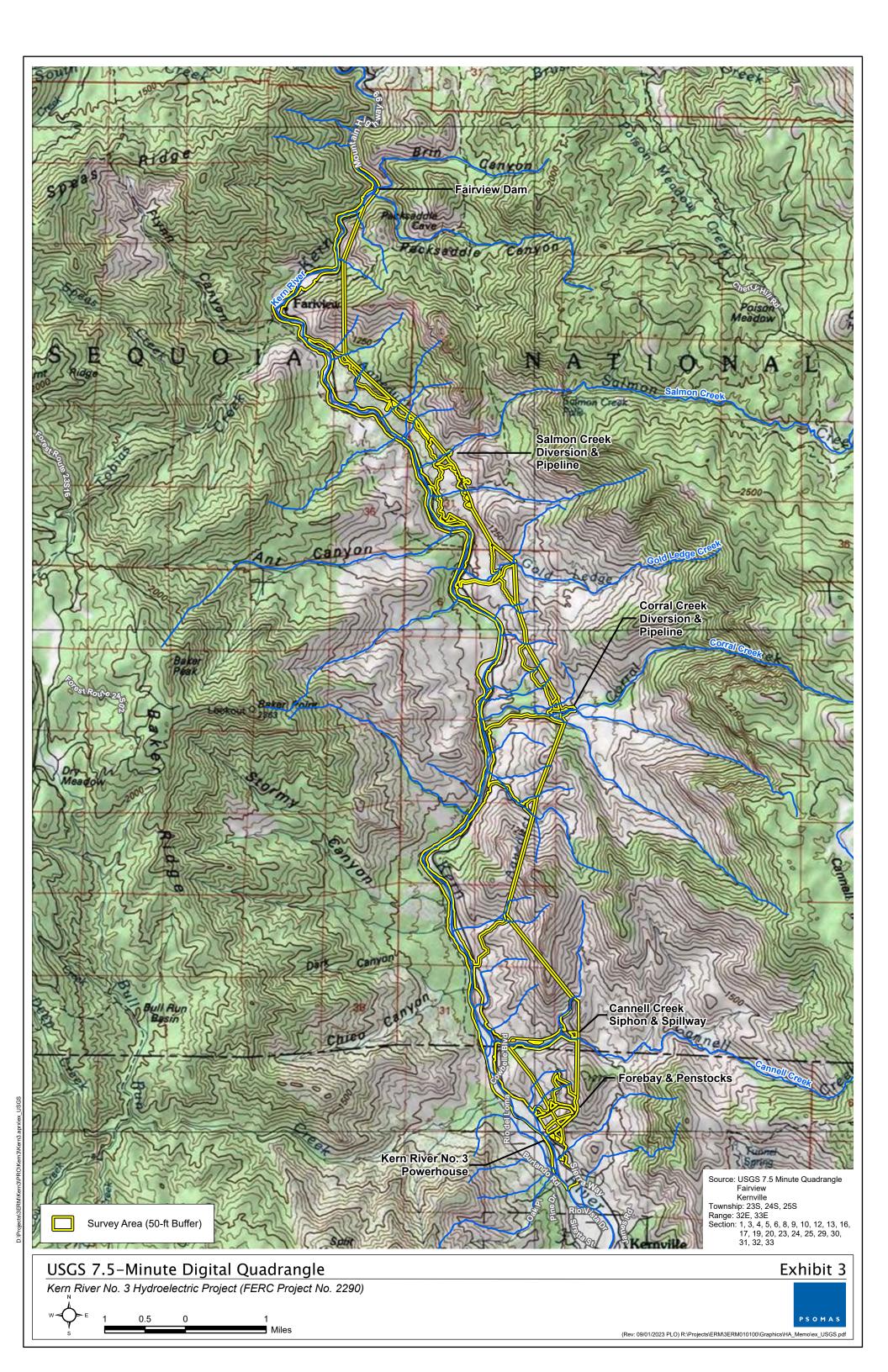
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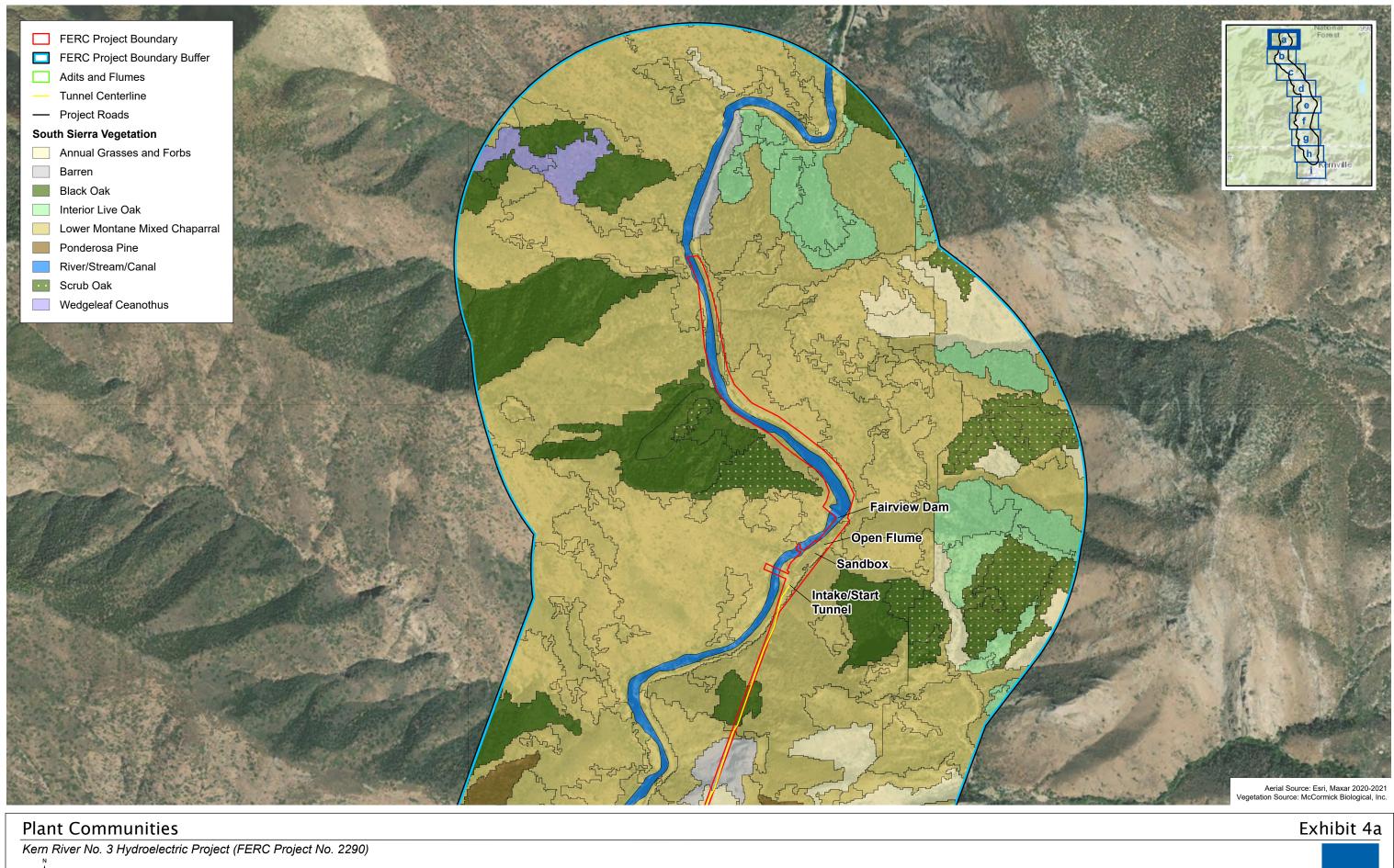
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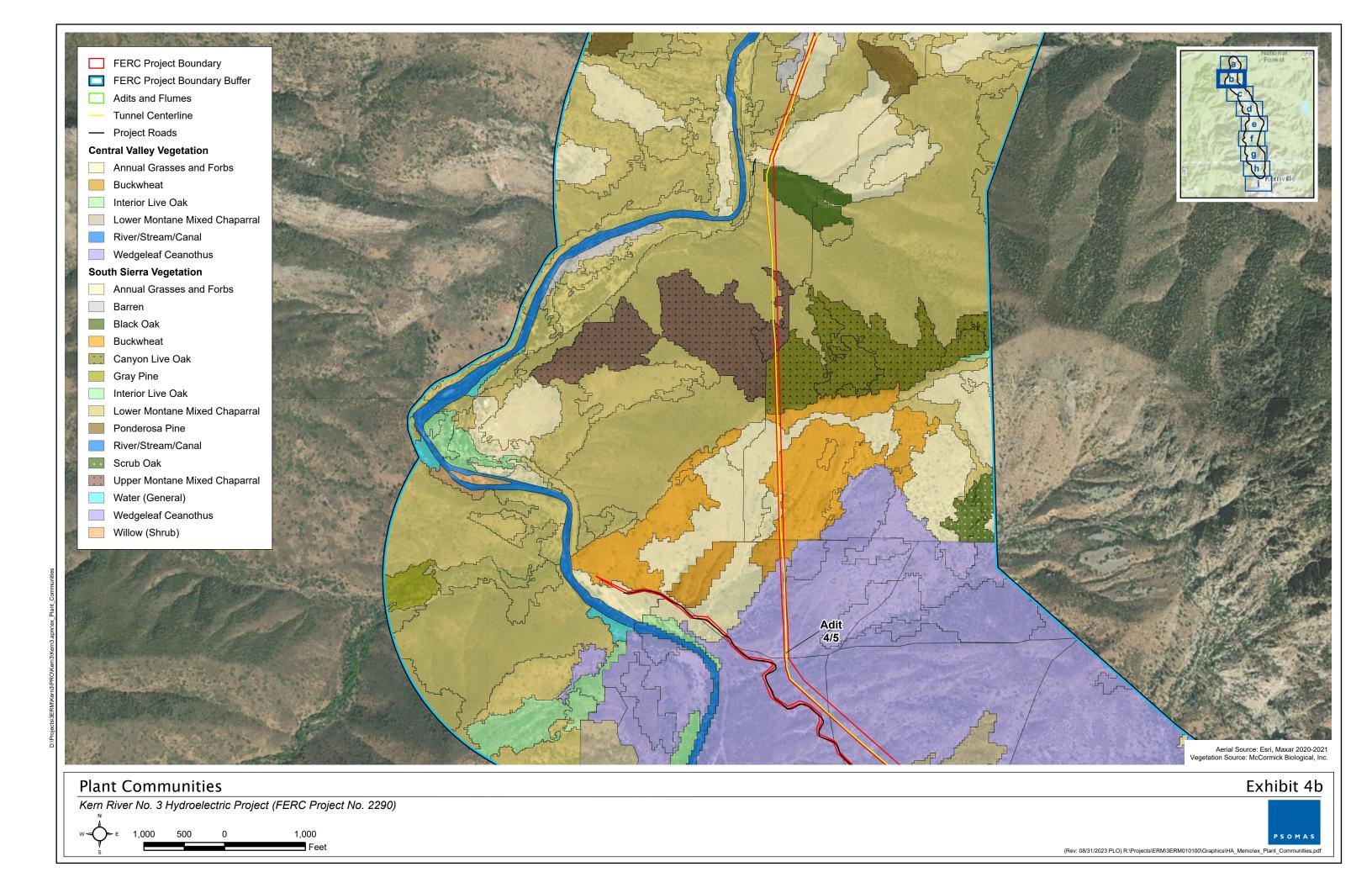
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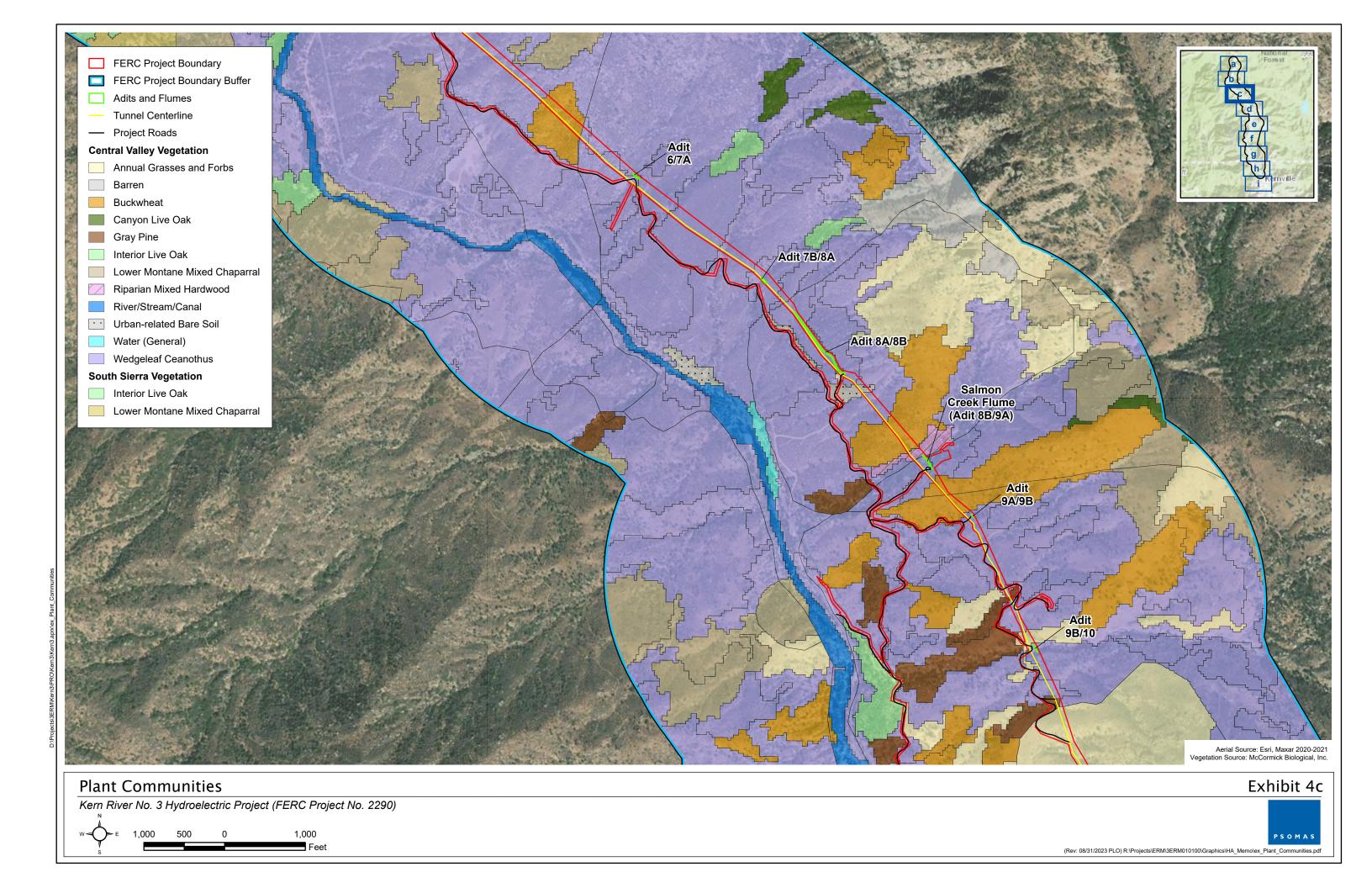


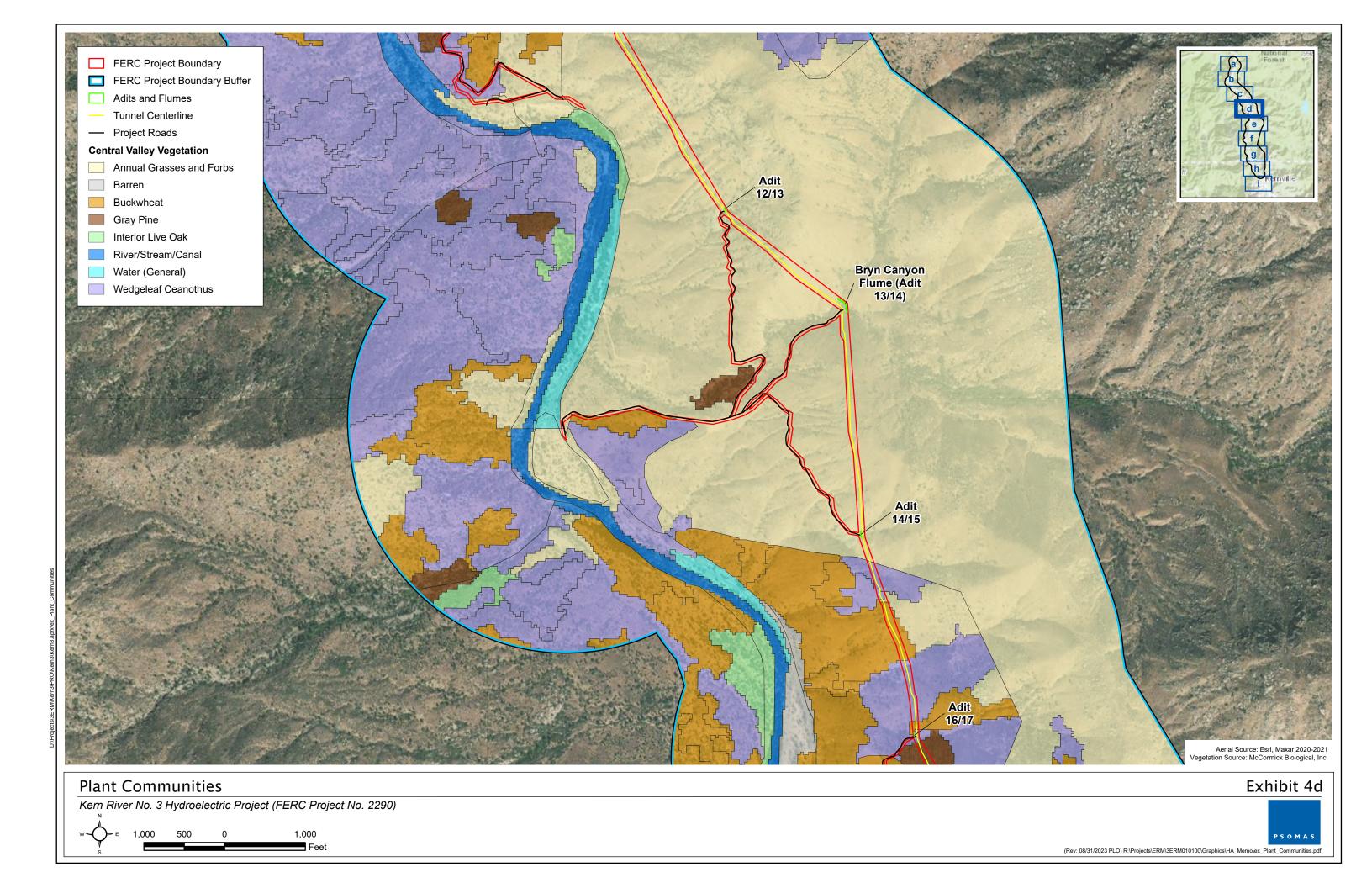


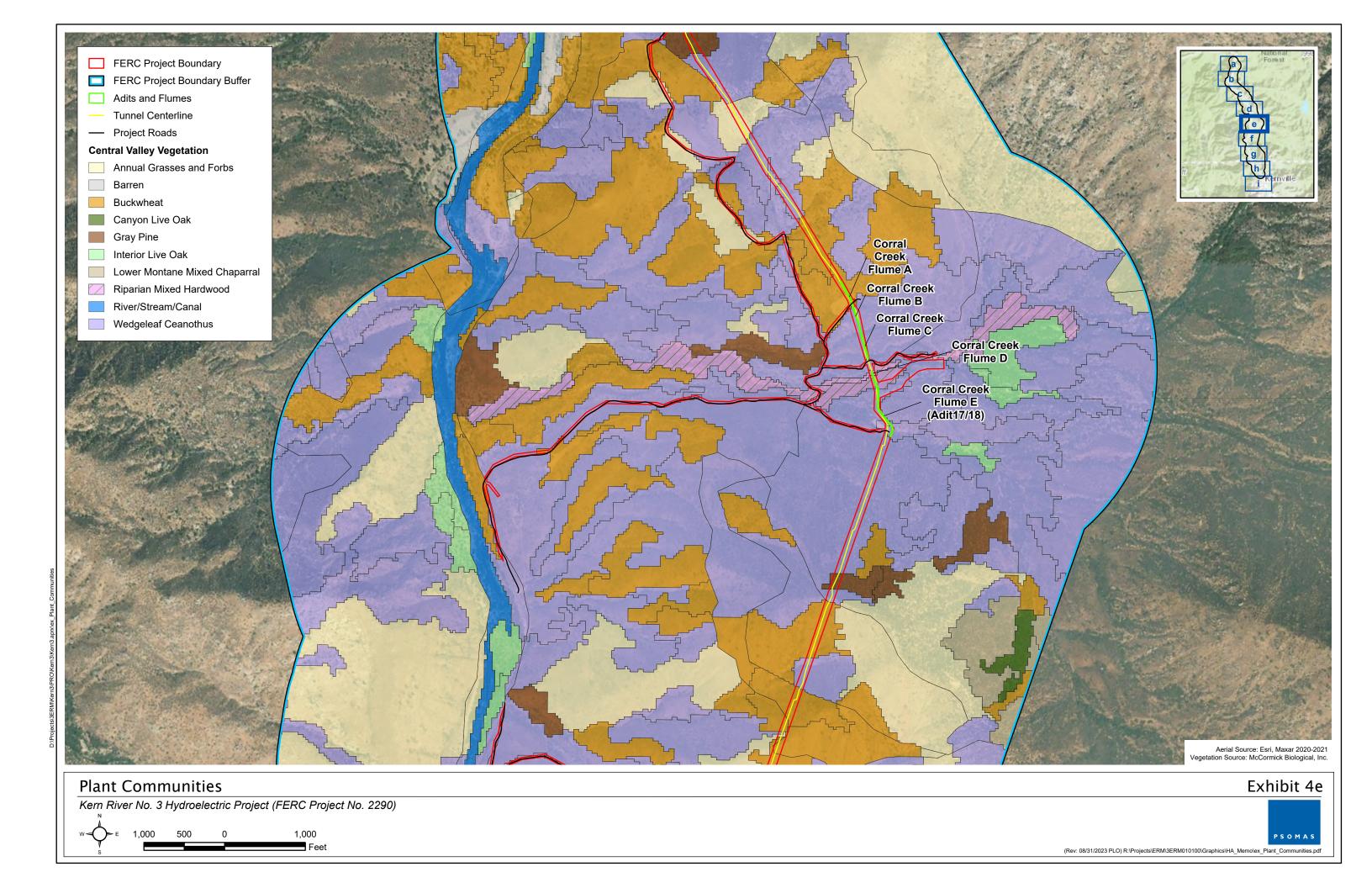


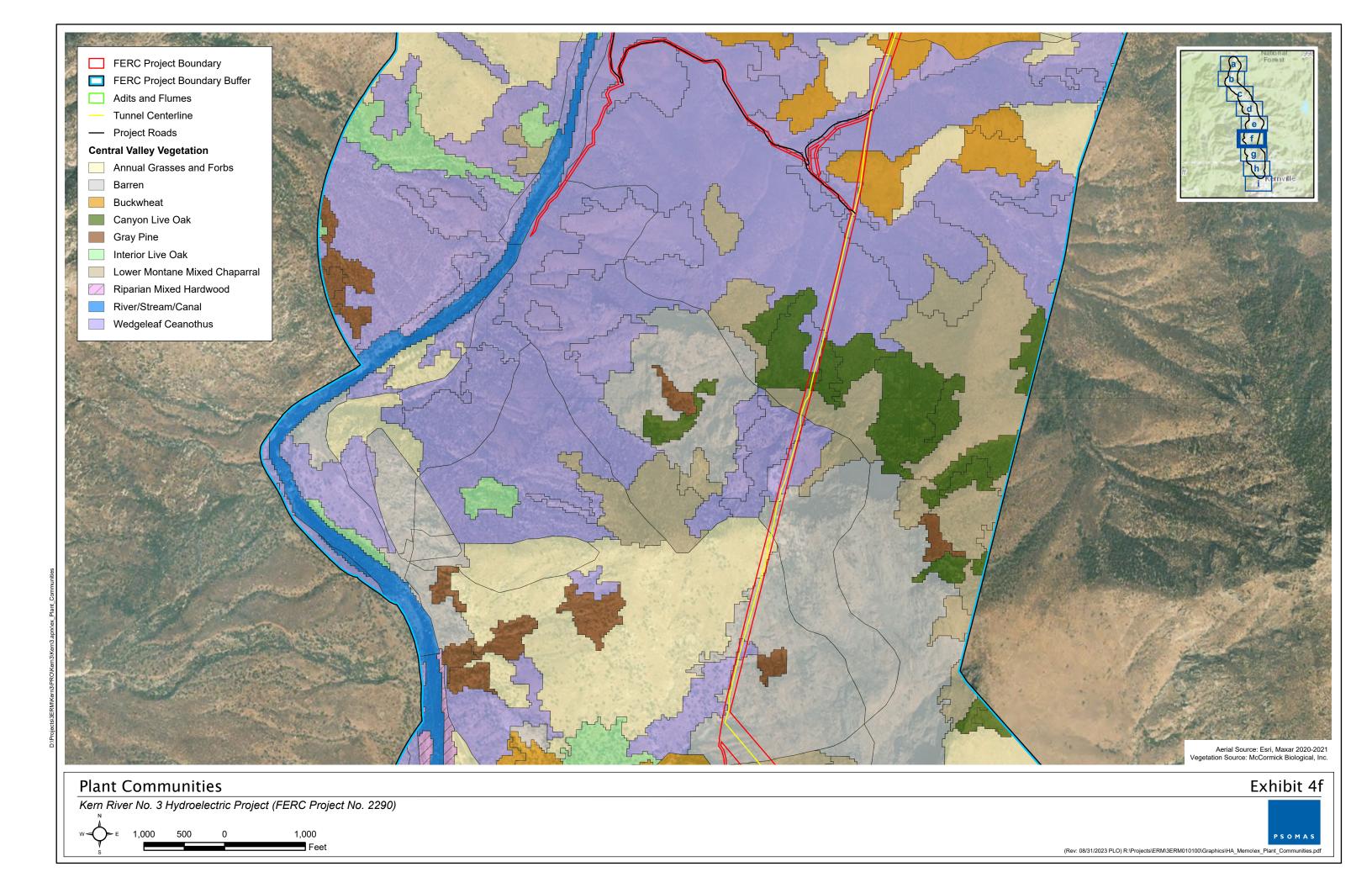
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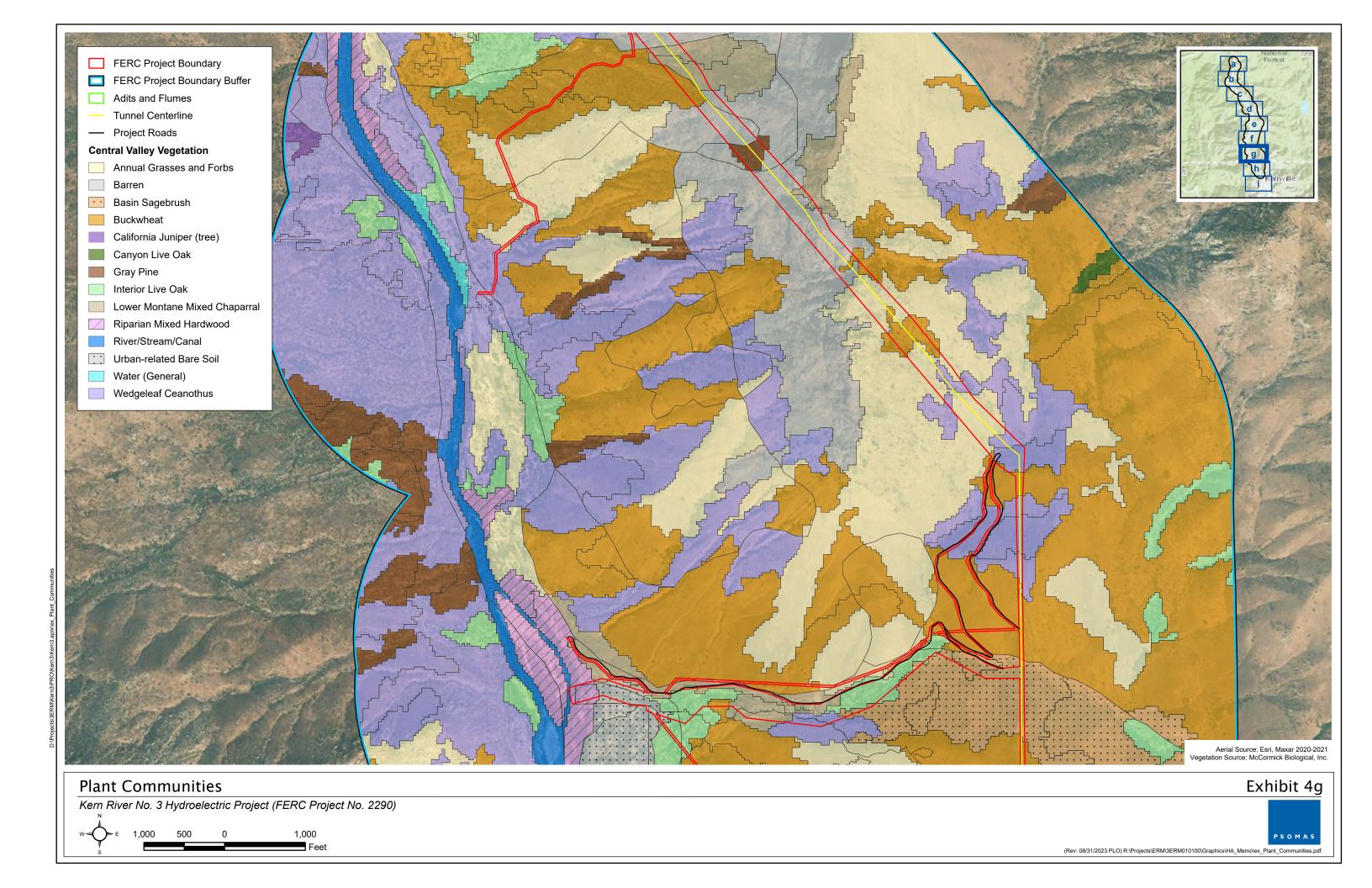


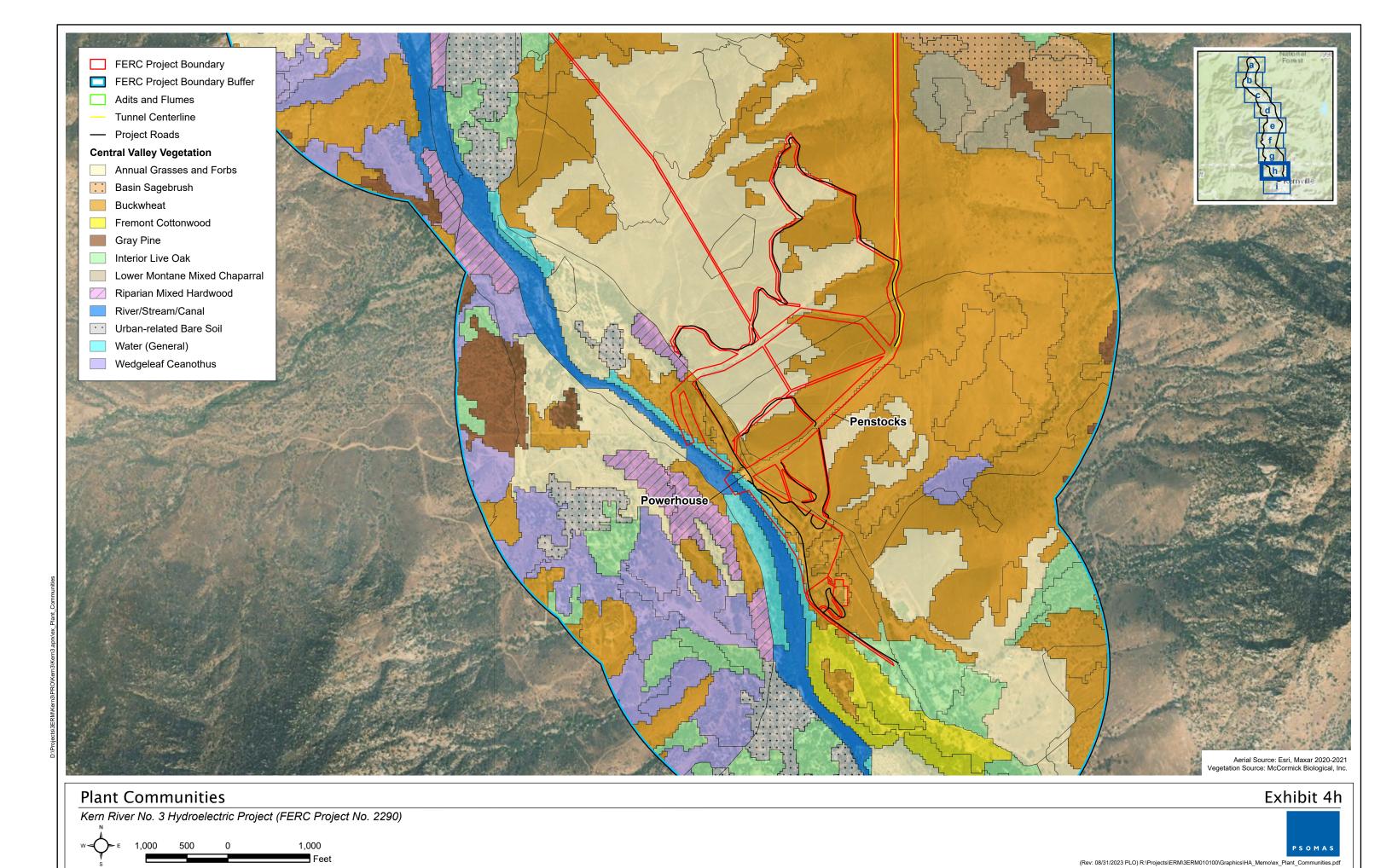














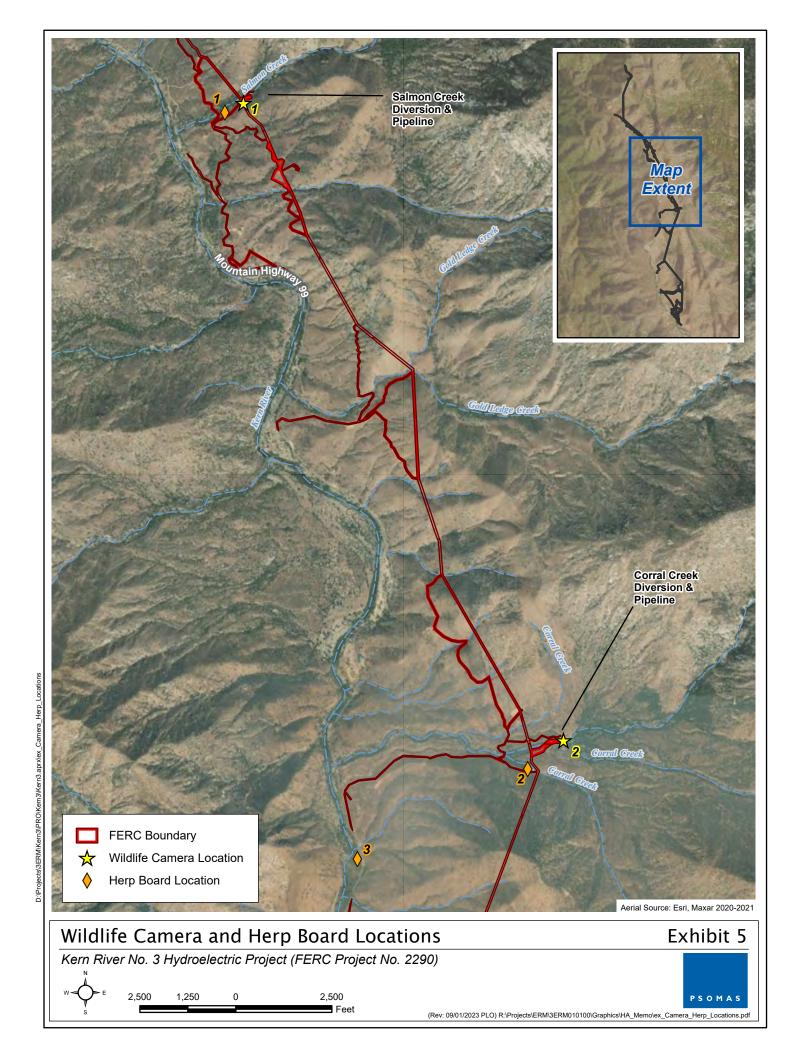
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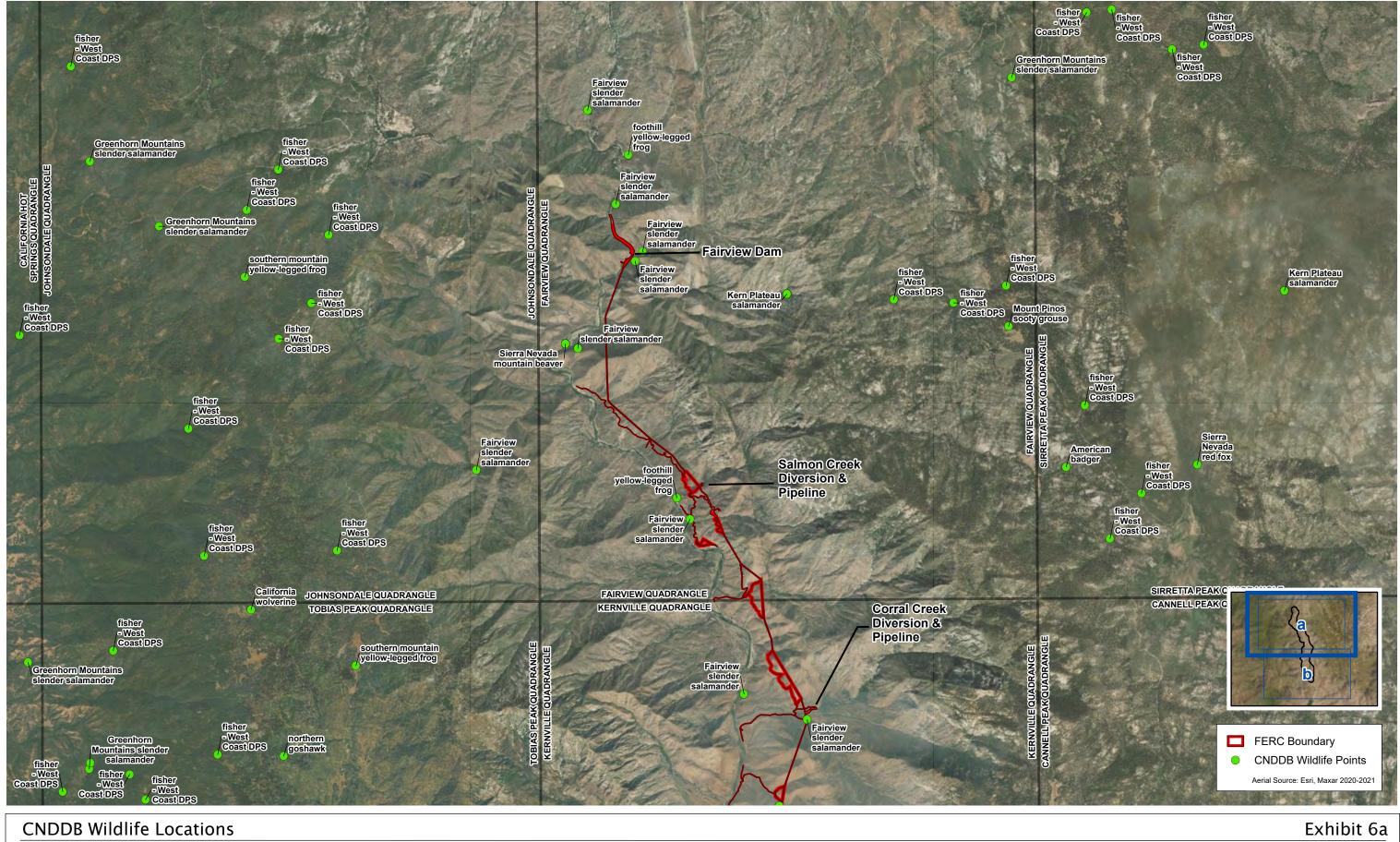
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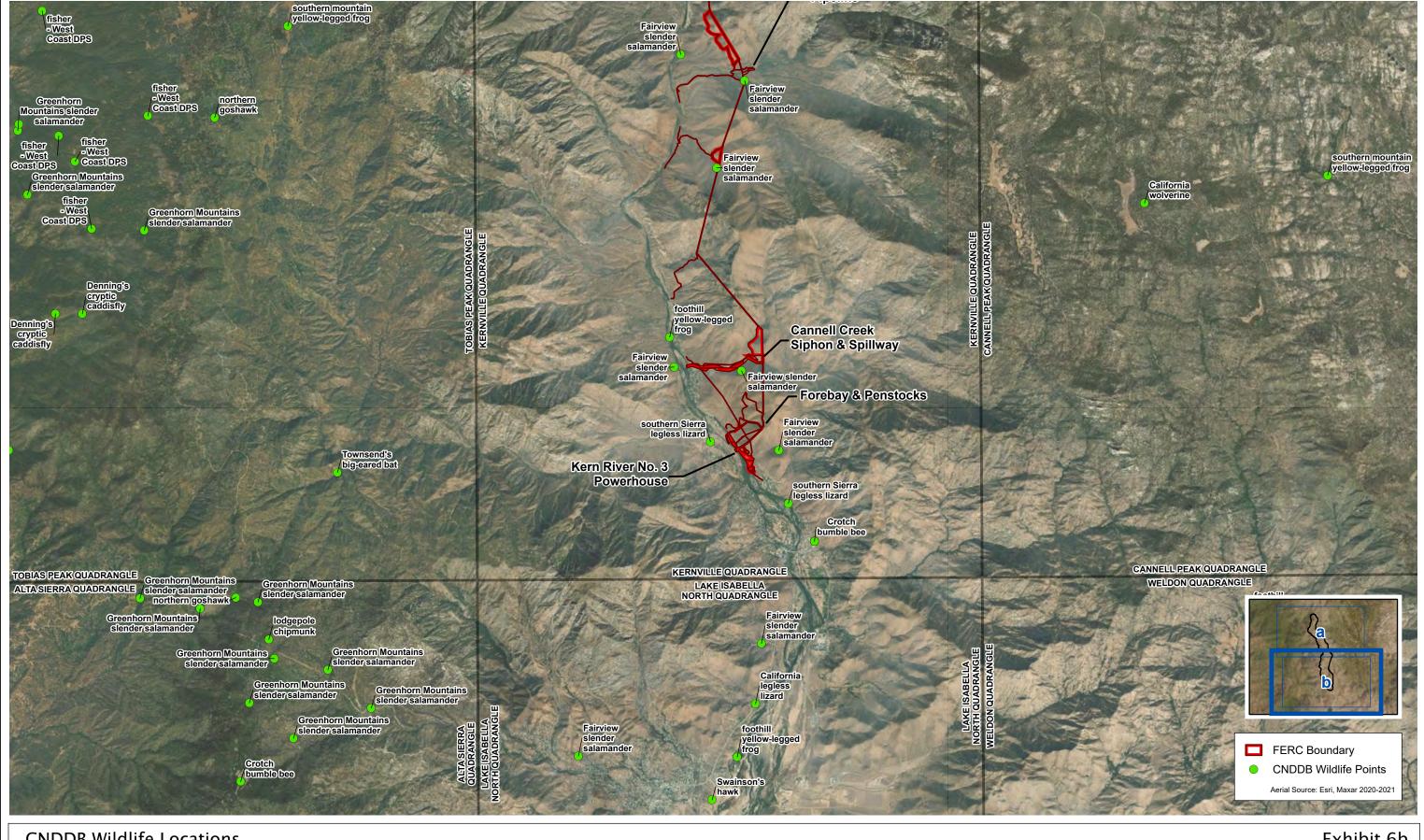
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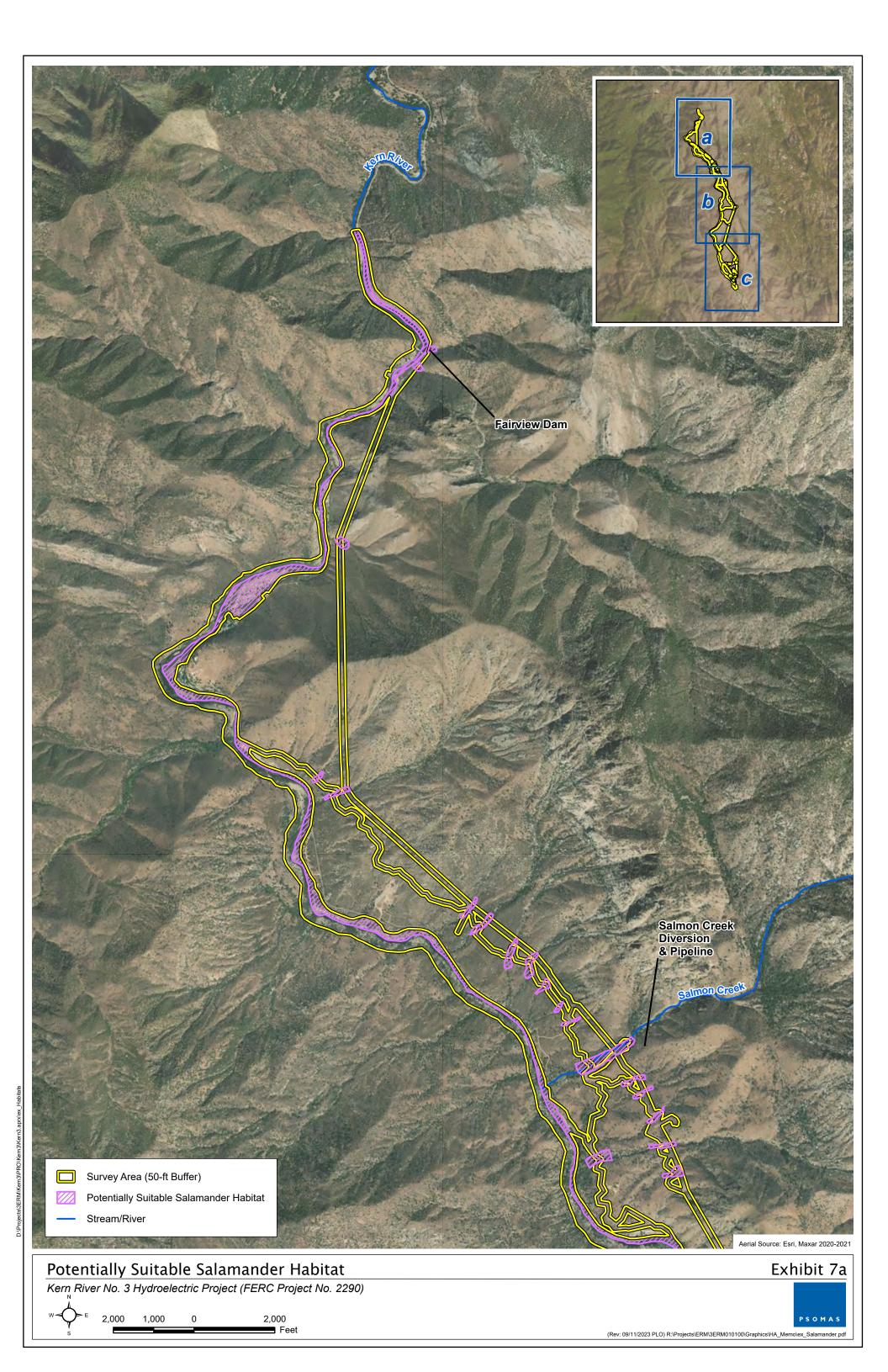


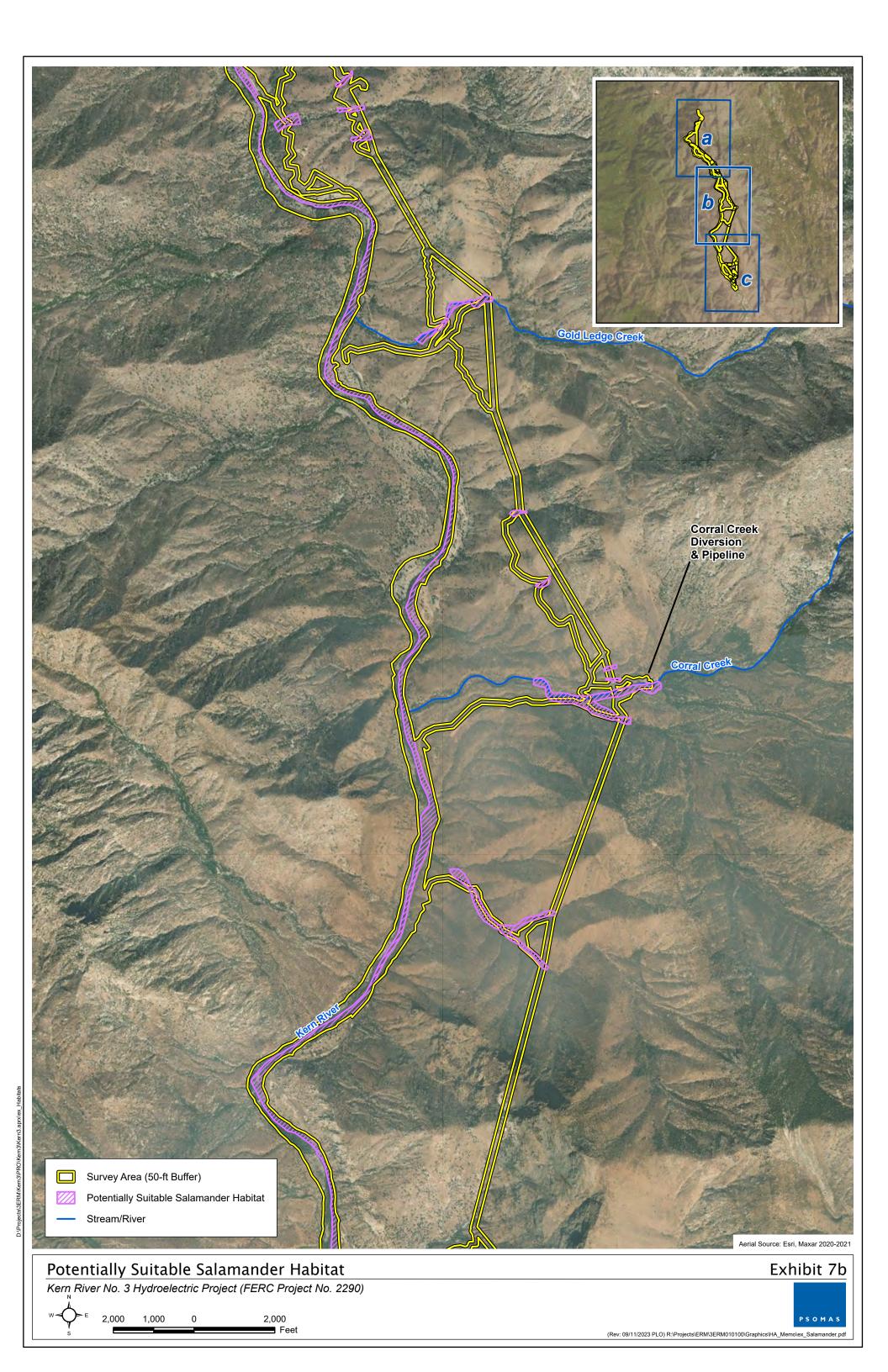


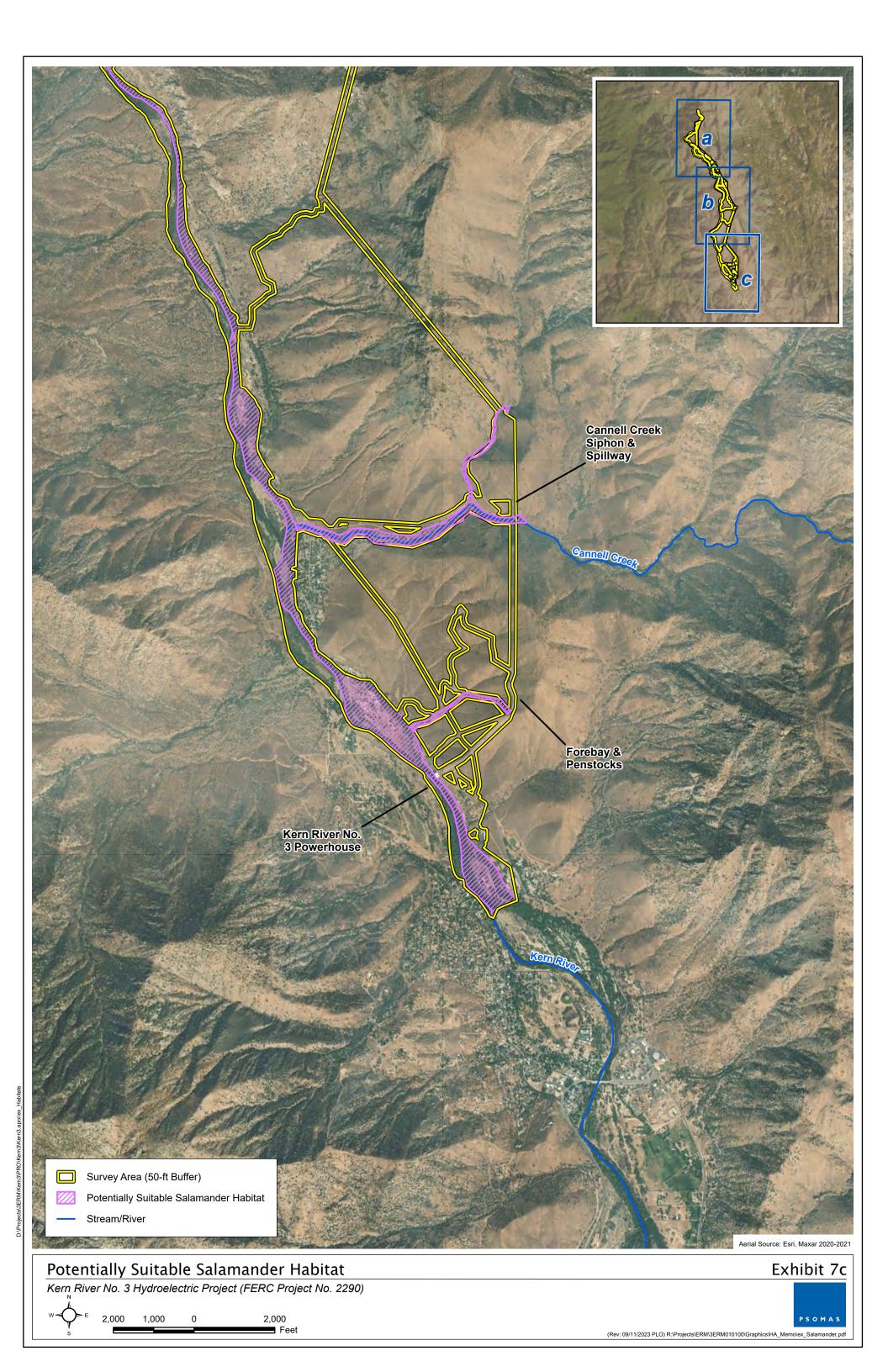


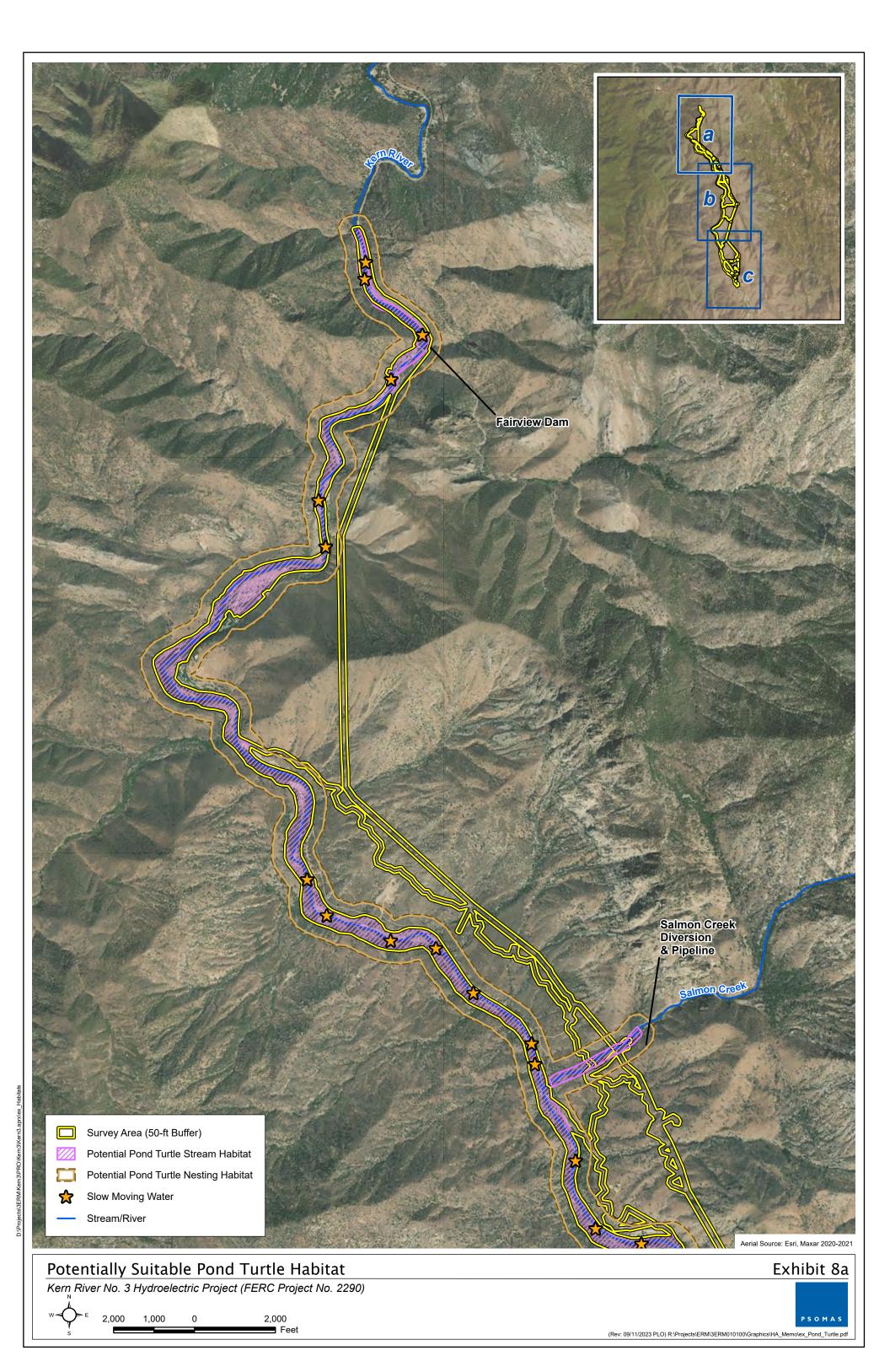
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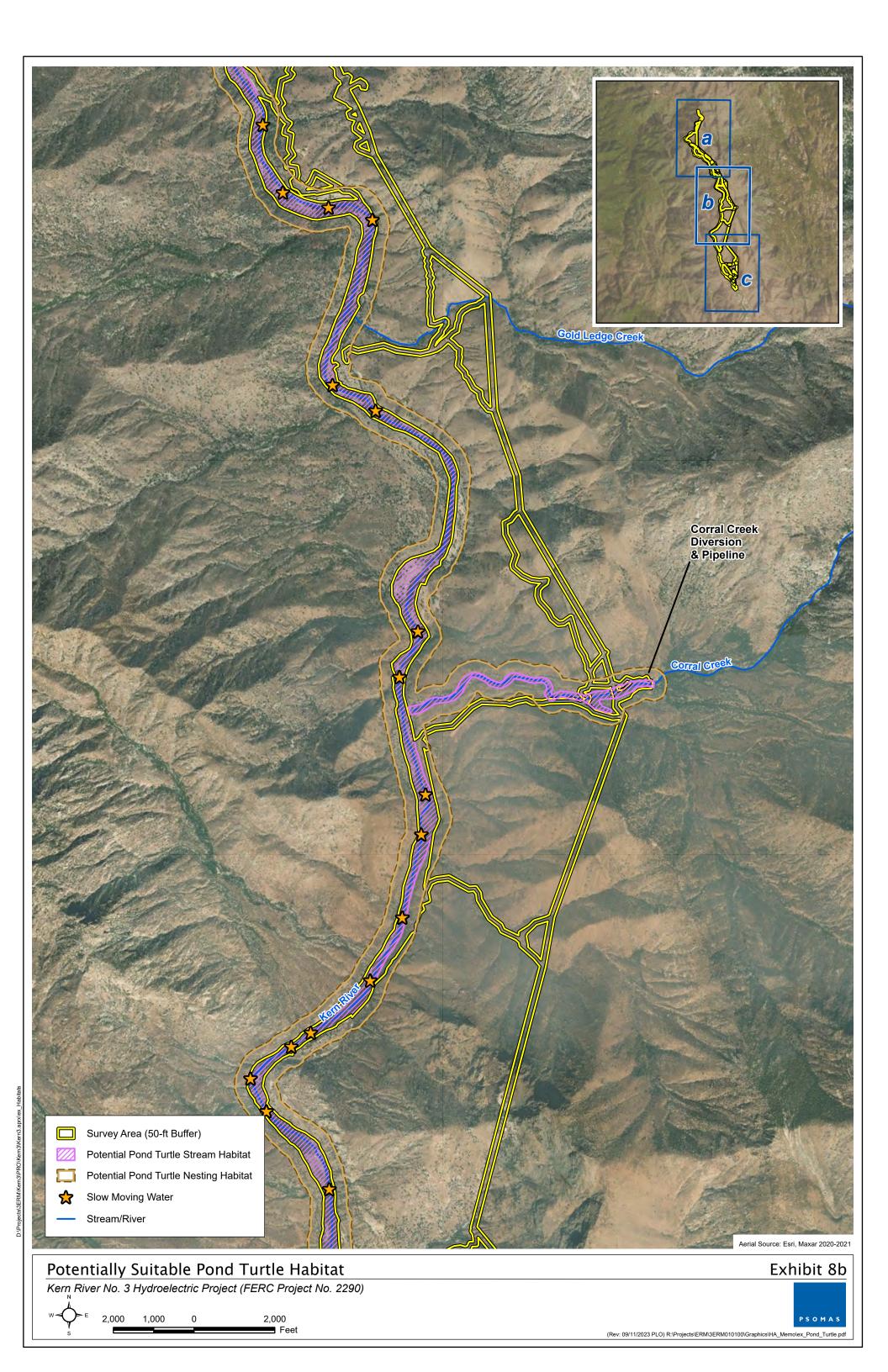


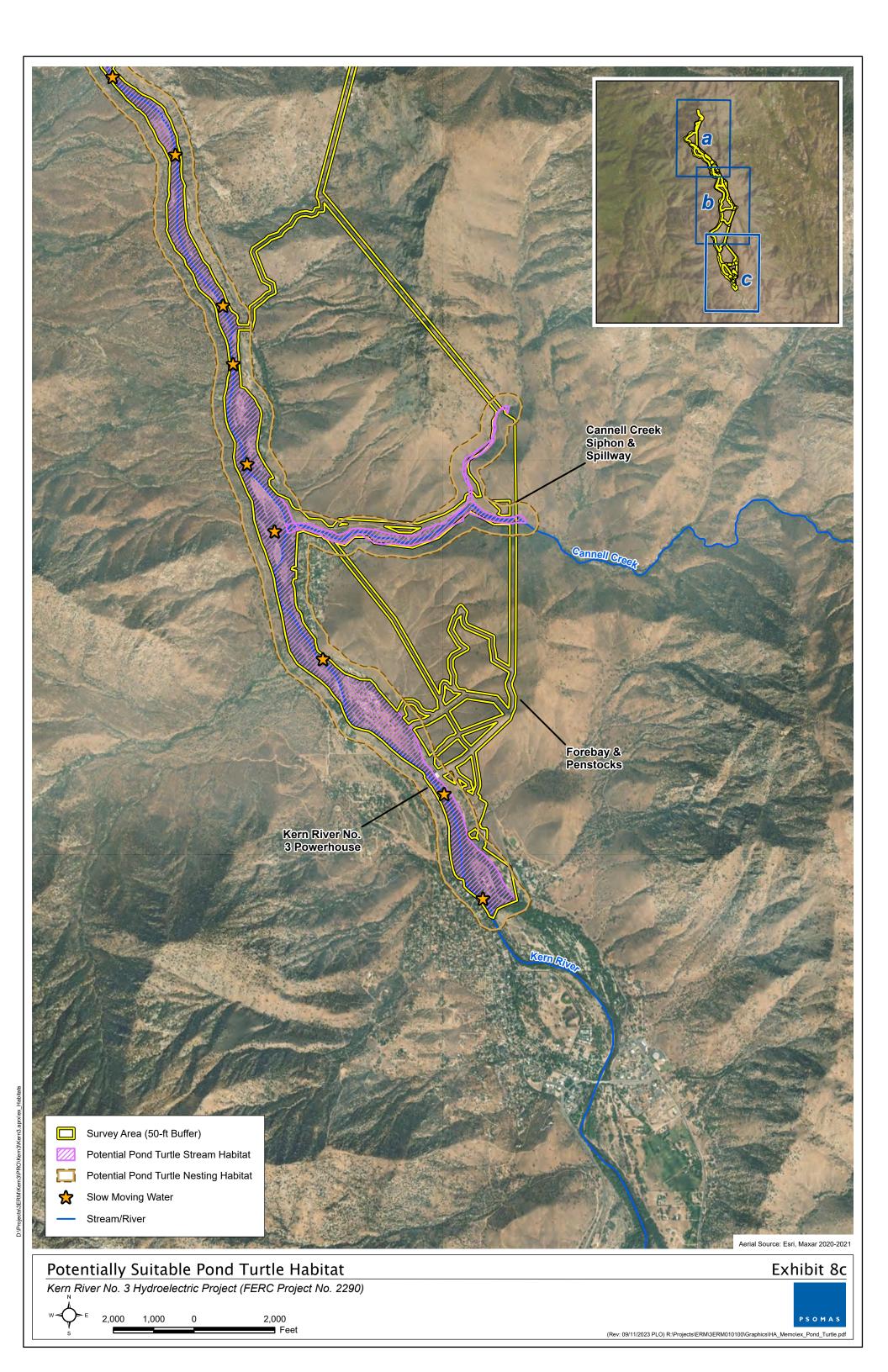


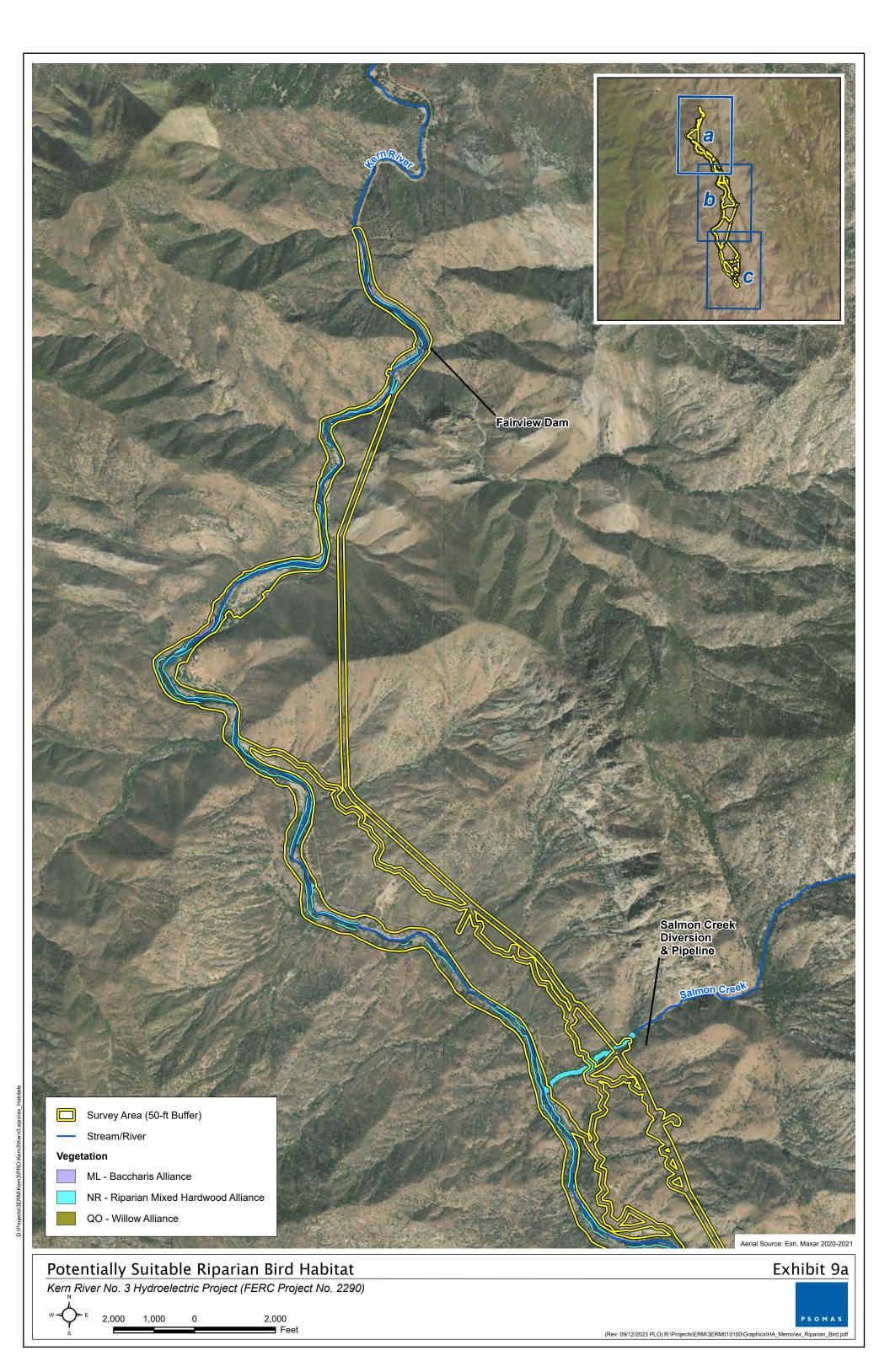


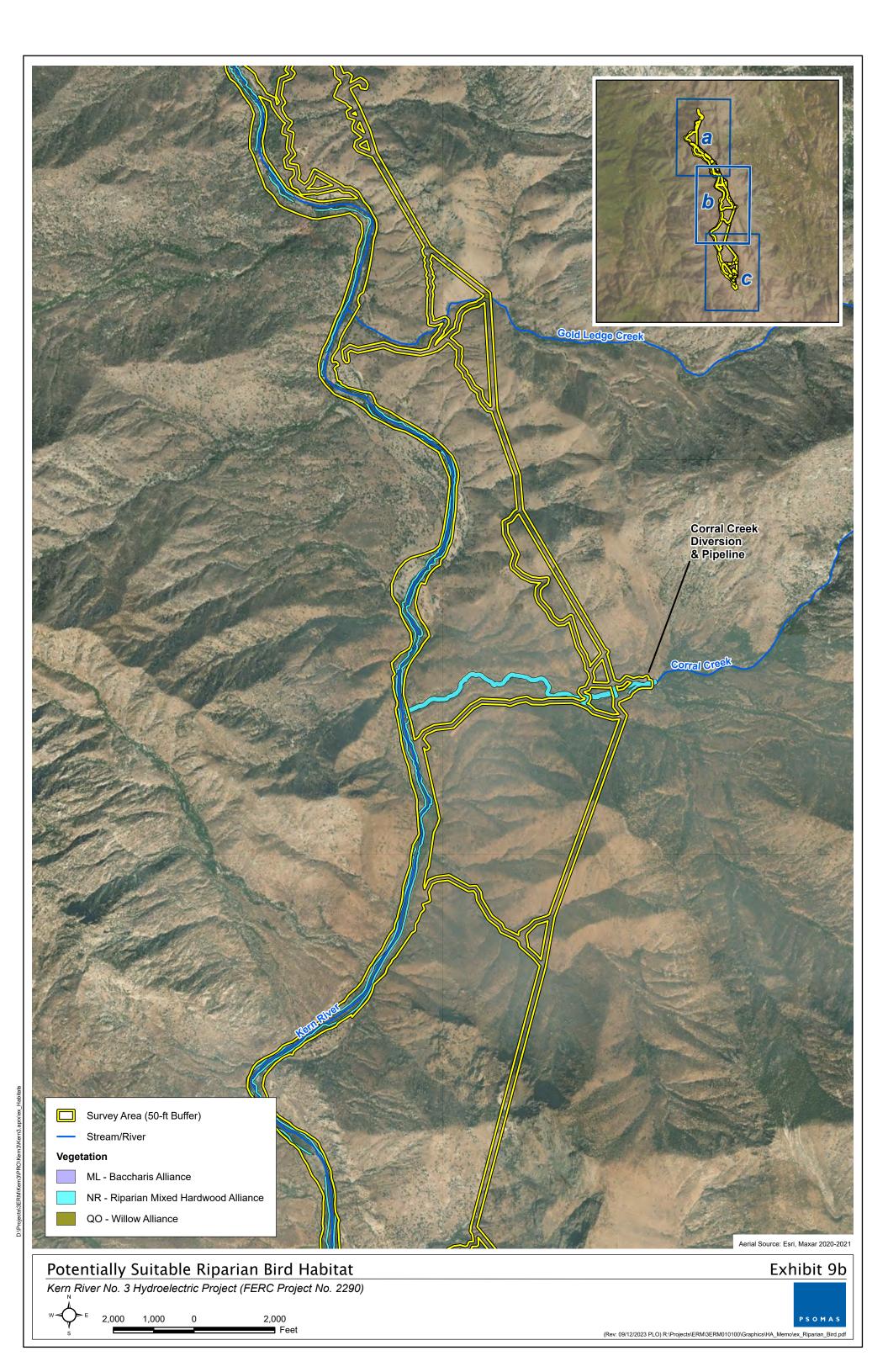


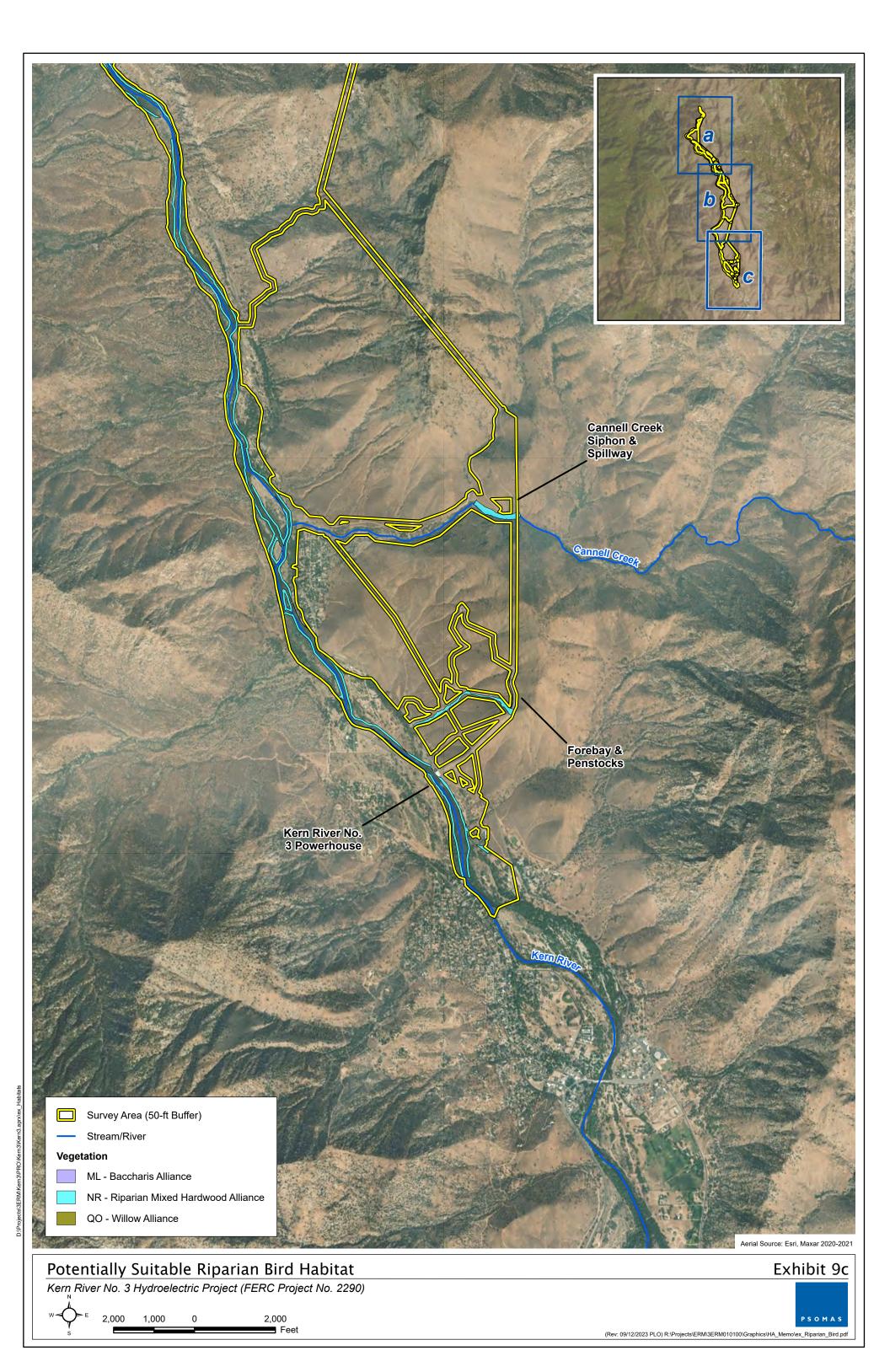












ATTACHMENT A REPRESENTATIVE SITE PHOTOS

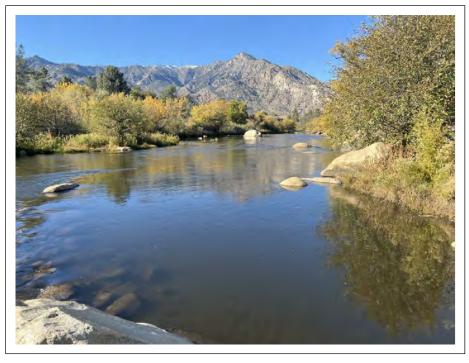


Photo 1: Kern River in the southern portion of the survey area showing slow moving water potentially suitable for pond turtle.



Photo 2: Kern River in the northern portion of the survey area showing riparian habitat and slow moving water potentially suitable for pond turtle.

Attachment A-1





Photo 3: Kern River in the northern portion of the survey area showing slow moving water potentially suitable for pond turtle.



Photo 4: Cannell Creek facing upstream showing riparian habitat.

Attachment A-2



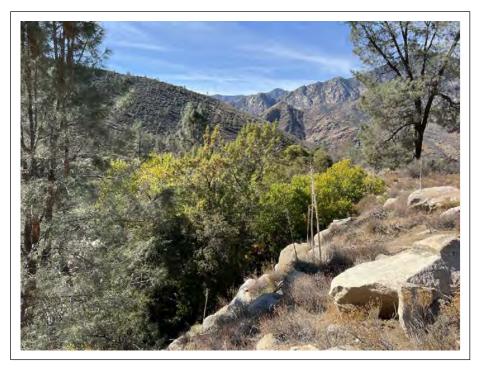


Photo 5: Corral Creek facing downstream showing riparian habitat.



Photo 6: Salmon Creek showing riparian habitat and open flume conveying water.

Attachment A-3





Photo 7: Cover board placed in upland habitat at Salmon Creek.



Photo 8: Firepit at Salmon Creek, showing human recreational use of the area.

Attachment A-4





Photo 9: Packsaddle Canyon facing downstream, Fairview salamander suitable habitat occurs in the shade on the left side of the photo.

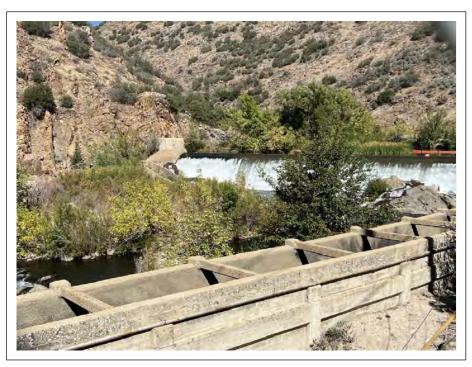


Photo 10: View of Fairview Dam facing upstream.

Attachment A-5





Photo 11: Confluence of Cannell Creek and Kern River, showing riparian habitat.



Photo 12: Confluence of Salmon Creek and Kern River, showing riparian habitat.

Attachment A-6



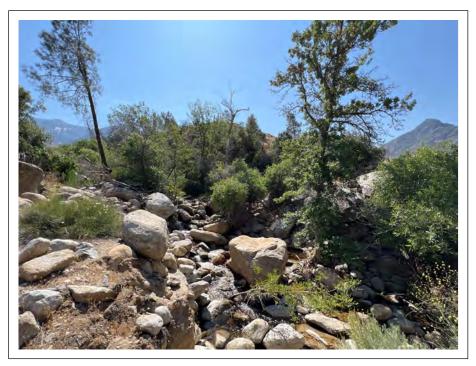


Photo 13: Confluence of Corral Creek and Kern River, showing riparian habitat.



Photo 14: View of pool in Cannell Creek, suitable pond turtle habitat. Pond turtle was observed basking on a rock at the margin of this pool on August

Attachment A-7



Photo 15: View of pool in Cannell Creek, potentially suitable pond turtle habitat.

Attachment A-8



ATTACHMENT B WILDLIFE COMPENDIUM

WILDLIFE SPECIES OBSERVED DURING SURVEYS

Species		Special
Scientific Name	Common Name	Status
LIZARDS		
PHRYNOSOMATIDAE – SPINY LIZARD FAMILY		
Sceloporus occidentalis	western fence lizard	
BIRDS		
ANATIDAE – SWAN, GOOSE, AND DUCK FAMILY		
Anas platyrhynchos	mallard	
ODONTOPHORIDAE – NEW WORLD QUAIL FAMILY		
Oreortyx pictus	mountain quail	
Callipepla californica	California quail	
COLUMBIDAE – PIGEON AND DOVE FAMILY		
Streptopelia decaocto*	Eurasian collared-dove	
Zenaida macroura	mourning dove	
CUCULIDAE – CUCKOO AND ROADRUNNER FAMILY		
Geococcyx californianus	greater roadrunner	
APODIDAE – SWIFT FAMILY		
Aeronautes saxatalis	white-throated swift	
TROCHILIDAE – HUMMINGBIRD FAMILY		
Calypte anna	Anna's hummingbird	
ARDEIDAE – HERON FAMILY		
Ardea herodias	great blue heron	
CATHARTIDAE – NEW WORLD VULTURE FAMILY		
Cathartes aura	turkey vulture	
ACCIPITRIDAE – HAWK FAMILY		
Buteo jamaicensis	red-tailed hawk	
Aquila chrysaetos	golden eagle	FP
ALCEDINIDAE – KINGFISHER FAMILY		
Megaceryle alcyon	belted kingfisher	
PICIDAE – WOODPECKER FAMILY		
Melanerpes formicivorus	acorn woodpecker	
Picoides nuttallii	Nuttall's woodpecker	
Colaptes auratus	northern flicker	
FALCONIDAE – FALCON FAMILY		
Falco sparverius	American kestrel	
TYRANNIDAE – TYRANT FLYCATCHER FAMILY		
Sayornis nigricans	black phoebe	
CORVIDAE – JAY AND CROW FAMILY		
Aphelocoma californica	California scrub-jay	
Corvus corax	common raven	
PARIDAE – TITMOUSE FAMILY		
Poecile gambeli	mountain chickadee	

WILDLIFE SPECIES OBSERVED DURING SURVEYS

Species		Special
Scientific Name	Common Name	Status
Baeolophus inornatus	oak titmouse	
AEGITHALIDAE – BUSHTIT FAMILY		
Psaltriparus minimus	bushtit	
TROGLODYTIDAE – WREN FAMILY		
Thryomanes bewickii	Bewick's wren	
TURDIDAE – THRUSH FAMILY		
Catharus guttatus	hermit thrush	
Turdus migratorius	American robin	
MIMIDAE – MOCKINGBIRD AND THRASHER FAMILY		
Mimus polyglottos	northern mockingbird	
STURNIDAE – STARLING FAMILY		
Sturnus vulgaris*	European starling*	
BOMBYCILLIDAE – WAXWING FAMILY		
Bombycilla cedrorum	cedar waxwing	
PTILOGONATIDAE – SILKY-FLYCATCHER FAMILY		
Phainopepla nitens	phainopepla	
FRINGILLIDAE – FINCH FAMILY		
Haemorhous mexicanus	house finch	
Spinus psaltria	lesser goldfinch	
PASSERELLIDAE – NEW WORLD SPARROW FAMILY		
Junco hyemalis	dark-eyed junco	
Zonotrichia leucophrys	white-crowned sparrow	
Melospiza melodia	song sparrow	
Melozone crissalis	California towhee	
Pipilo maculatus	spotted towhee	
PARULIDAE – WOOD-WARBLER FAMILY		
Setophaga petechia	yellow warbler	SSC
Setophaga coronata	yellow-rumped warbler	
CARDINALIDAE – CARDINALS AND ALLIES		
Piranga ludoviciana	western tanager	
MAMMALS		
SCIURIDAE – SQUIRREL FAMILY		
Sciurus griseus	western gray squirrel	
Otospermophilus beecheyi	California ground squirrel	
FELIDAE – CAT FAMILY		
Lynx rufus	bobcat	
CERVIDAE – CERVID FAMILY		
Odocoileus hemionus	southern mule deer	
* Non-native species		

Special Status

State (CDFW)

FP Fully Protected SSC Species of Special Concern

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APPENDIX B REPRESENTATIVE SITE PHOTOS

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Photo 1: Fairview salamander #1, located under large flat rock at the base of north facing slope in Packsaddle canyon (Feb. 7, 2023).



Photo 2: Photo showing salamander #1 found location under rock (circled in red).

Appendix B-1





Photo 3: Close-up view of habitat where salamander #1 was located in Packsaddle canyon.



Photo 4: Overview of Packsaddle canyon facing upstream from near observation #1 location.

Appendix B-2





Photo 5: Close-up view of Fairview salamander #2, located under rock embedded on north facing slope in Packsaddle canyon (April 17, 2023).



Photo 6: View of salamander #2 found location (red circle).

Appendix B-3





Photo 7: Overview of salamander #2 found location in foreground (mossy seep) with upstream view of Packsaddle canyon in the background.



Photo 8: Close-up view of Fairview salamander #3, located under small rock at the base of an un-named canyon adjacent to Adit 16/17 (April 17, 2023).

Appendix B-4





Photo 9: Salamander #3 next to cenimeter ruler. This individual is estimated to measure approximately 1.9 cm snout-to-vent.



Photo 10: Photo showing salamander #3 found location under small rock (circled in red).

Appendix B-5





Photo 11: Overview of salamander #3 found location under small rock at base of rock outcrop to the right, with trickle of water flowing to the left.

Appendix B-6



APPENDIX C WILDLIFE COMPENDIUM

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Wildlife Species Observed During Surveys

Scientific Name	Common Name	Special Status
AMPHIBIANS		
PLETHODONTIDAE – LUNGLESS SALAMANDER FAMILY		
Batrachoseps bramei	Fairview salamander	FSS
SNAKES		
COLUBRIDAE – COLUBRID SNAKE FAMILY		
Pituophis catenifer	gophersnake	
NATRICIDAE – HARMLESS LIVE-BEARING SNAKE FAMILY		
Thamnophis couchii	Sierra gartersnake	
BIRDS		
COLUMBIDAE – PIGEON AND DOVE FAMILY		
Zenaida macroura	mourning dove	
PANDIONIDAE – OSPREY FAMILY		
Pandion haliaetus	osprey	
ACCIPITRIDAE – HAWK FAMILY		
Aquila chrysaetos	golden eagle	FP
TYRANNIDAE – TYRANT FLYCATCHER FAMILY		
Myiarchus cinerascens	ash-throated flycatcher	
CORVIDAE – JAY AND CROW FAMILY		
Aphelocoma californica	California scrub-jay	
Corvus corax	common raven	
FRINGILLIDAE – FINCH FAMILY		
Spinus psaltria	lesser goldfinch	
PASSERELLIDAE – NEW WORLD SPARROW FAMILY		
Melozone crissalis	California towhee	

Notes:

<u>Species Status</u>: State (California Department of Fish and Wildlife)

FP=Fully Protected

U.S. Forest Service:

FSS=Forest Service Sensitive

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