

BIO-5 WESTERN POND TURTLE TECHNICAL MEMORANDUM

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

PREPARED FOR:



October 2023

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TABLE OF CONTENTS

	Page
1.0 Introduction.....	1
2.0 Study Goals and Objectives	1
3.0 Study Area and Study Sites.....	1
4.0 Methods.....	4
4.1. Literature Review and Mapping.....	4
4.1.1. Phase 1: Habitat Assessment.....	4
4.1.2. Phase 2: Visual Encounter Surveys.....	11
5.0 Data Summary.....	11
6.0 Study Specific Consultation	14
7.0 Outstanding Study Plan Elements.....	14
8.0 References	14

LIST OF TABLES

Table 5-1. Survey Data	12
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LIST OF FIGURES

Figure 3-1. Northwestern Pond Turtle Study Area.	3
Figure 4.1-1a. Potentially Suitable Pond Turtle Habitat.....	5
Figure 4.1-1b. Potentially Suitable Pond Turtle Habitat.....	7
Figure 4.1-1c. Potentially Suitable Pond Turtle Habitat.....	9
Figure 5-1. Survey Results.....	13

LIST OF APPENDICES

Appendix A Representative Photographs

Appendix B Wildlife Compendium

LIST OF ACRONYMS AND ABBREVIATIONS

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

1.0 INTRODUCTION

This Technical Memorandum provides the methods and findings of field surveys associated with the *BIO-5 Western Pond Turtle 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-5 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 (FERC, 2022), FERC approved the BIO-5 Study Plan with modifications. Specifically, FERC recommended that the northwestern pond turtle (*Actinemys marmorata*) be allocated in its own Study Plan separate from special-status salamanders. Since the conception, approval, and implementation of the BIO-5 Study Plan, the Western pond turtle was split into two species: the northwestern pond turtle and southwestern pond turtle (*Actinemys pallida*). The species that occurs in the Project Area is now known as the northwestern pond turtle. This common name is used throughout this report.

Data collection efforts were initiated May 15 to 18 and August 10 to 11, 2023, where focused northwestern pond turtle surveys were conducted. All field sampling efforts and data analysis are completed and summarized below.

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 ("Endangered and Threatened Wildlife and Plants; Threatened Species Status with Section 4(d) Rule for the Northwestern Pond Turtle and Southwestern Pond Turtle," of the Federal Register, Volume 88, Issue 190, p. 63870).

2.0 STUDY GOALS AND OBJECTIVES

The objectives of the study, as outlined in the BIO-5 Study Plan (SCE, 2022), include the following:

- Obtain additional information to supplement the existing information regarding the northwestern pond turtle including:
 - Identify and map potentially suitable habitat.
 - Document presence, if found.
 - Resurvey previously documented locations of northwestern pond turtles in the study area (Psomas, 2013).

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. Figure 3-1 shows the FERC Project Boundary. Specific study sites are further described below and shown on Figure 4.1-1.

- The study area includes:
 - Perennial streams, ephemeral creeks, off-channel ponds, or wetlands located within the FERC Project Boundary, including a 50-foot buffer around the following:
 - 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; and
 - Cannell Creek, Siphon, and access road.
 - NFKR junction with Salmon Creek, Gold Ledge Creek, Corral Creek, and Cannell Creek.
 - Fairview Dam Bypass Reach¹ between Fairview Dam and the KR3 Powerhouse.

¹ 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.

4.0 METHODS

Study implementation followed the methods described in SCE's RSP Package (SCE, 2022), with the exception noted below.

Study Plan Variances

Due to high flows in the NFKR and surrounding creeks, some locations were unsafe to access/cross during early breeding season surveys; when this occurred, potentially suitable habitat locations were viewed using binoculars.

4.1. LITERATURE REVIEW AND MAPPING

A literature review was conducted including the use of online databases such as California Natural Diversity Database records (CDFW, 2022) or iNaturalist (2023) to look for new reported occurrences in the Project Vicinity.

4.1.1. PHASE 1: HABITAT ASSESSMENT

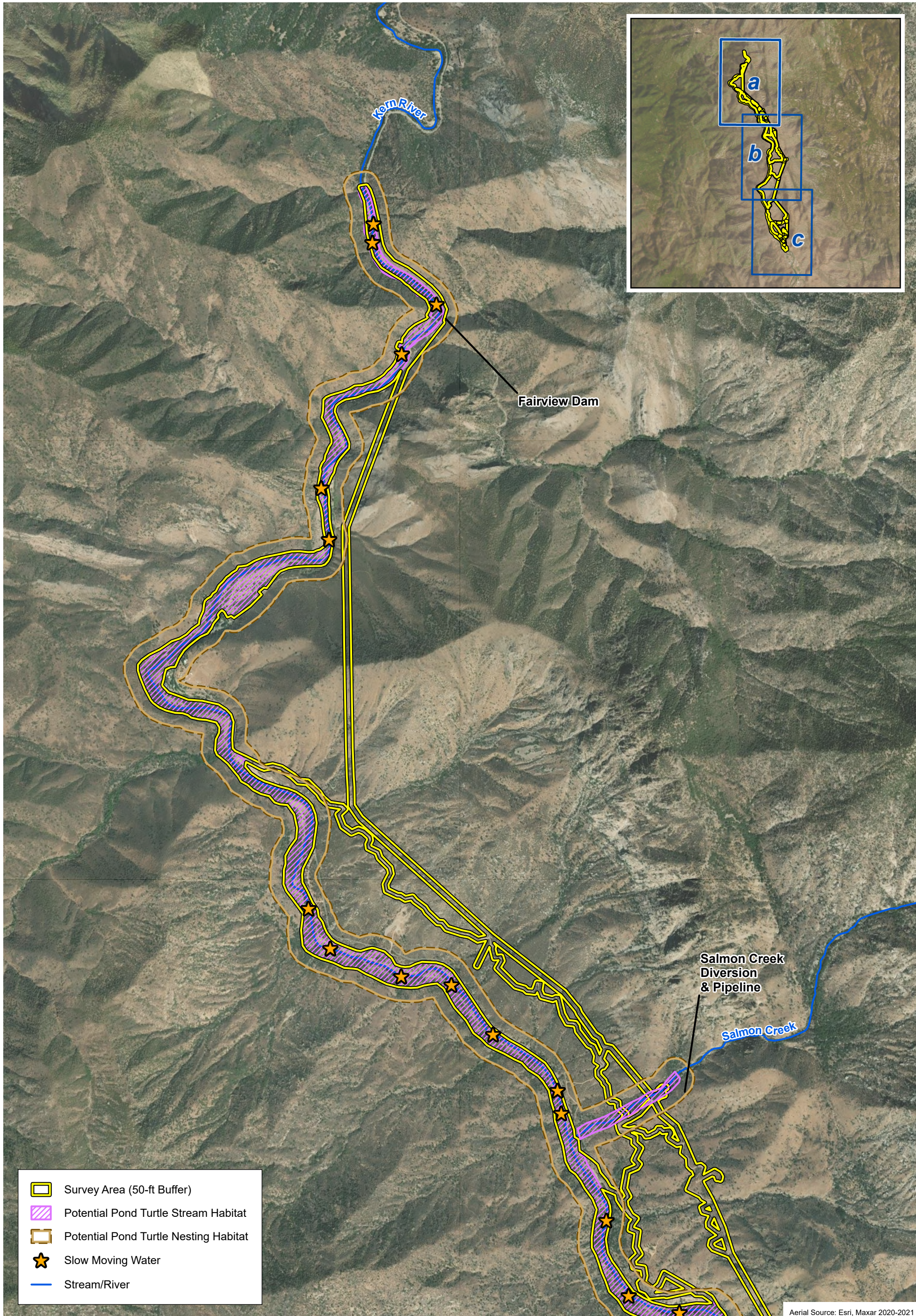
In-house Geographic Information System (GIS) mapping of U.S. Forest Service vegetation communities and National Wetlands Inventory sites was compiled and followed by on-the-ground habitat assessment surveys. Prior to the start of the habitat assessment survey, field maps were created from aerial photographs at a 1-inch to 200-foot scale and included previous northwestern pond turtle occurrences.






During the habitat assessment, biologists walked the study area to document habitat conditions. Maps were loaded onto an iPad mini 6 for field navigation. The Fairview Dam Bypass Reach was walked where accessible, otherwise visually surveyed with binoculars for suitable pond turtle habitat, such as basking sites and slow water pools and ponds depicted on Figure 4.1-1. All potential pond turtle stream sites (e.g., slow moving water, basking sites, aquatic and streamside refugia) were mapped onto aerial photographs at a 1-inch to 200-foot scale (Figure 4.1-1).

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, and amphibians, Bald Eagle, Osprey, and Great Blue Heron).

After the field portion of the habitat assessment, potentially suitable nesting habitat was mapped at a distance of 325 feet from all stream habitat based on available literature for maximum nesting distance from water (Morey, 2000) (Figure 4.1-1).

The results of the habitat assessment survey were used to target specific areas within the study area that were the subject of Visual Encounter Surveys described below. Figure 4.1-1 shows the potentially suitable northwestern pond turtle stream habitat identified during the habitat assessment. Potentially suitable nesting habitat was not surveyed during Phase 2 surveys.



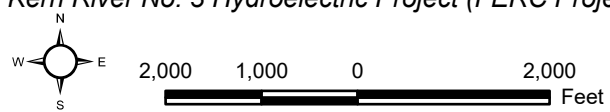
-  Survey Area (50-ft Buffer)
-  Potential Pond Turtle Stream Habitat
-  Potential Pond Turtle Nesting Habitat
-  Slow Moving Water
-  Stream/River

Aerial Source: Esri, Maxar 2020-2021

Potentially Suitable Pond Turtle Habitat

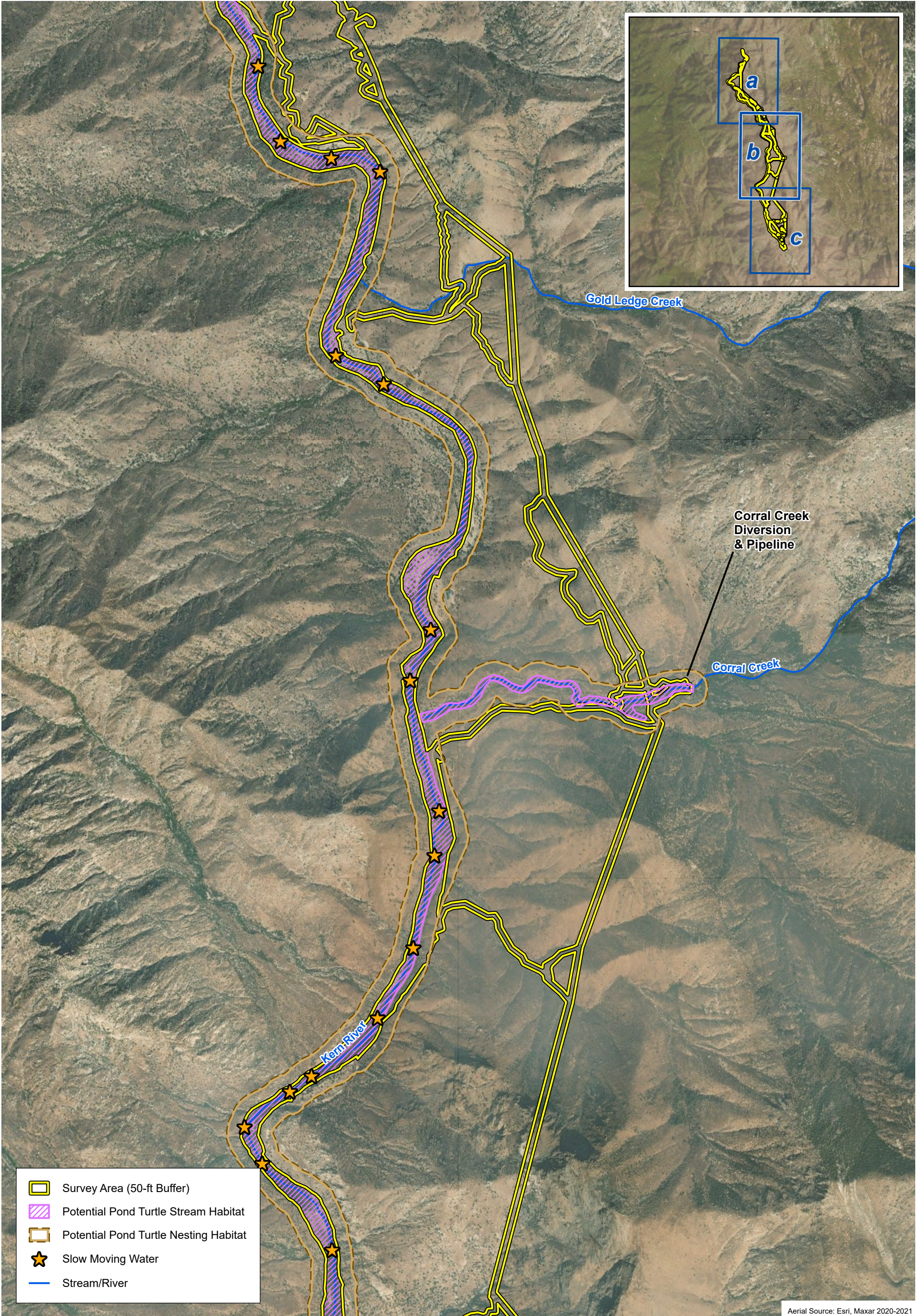
Kern River No. 3 Hydroelectric Project (FERC Project No. 2290)






Figure 4.1-1a



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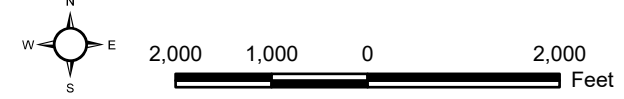


-  Survey Area (50-ft Buffer)
-  Potential Pond Turtle Stream Habitat
-  Potential Pond Turtle Nesting Habitat
-  Slow Moving Water
-  Stream/River

Aerial Source: Esri, Maxar 2020-2021

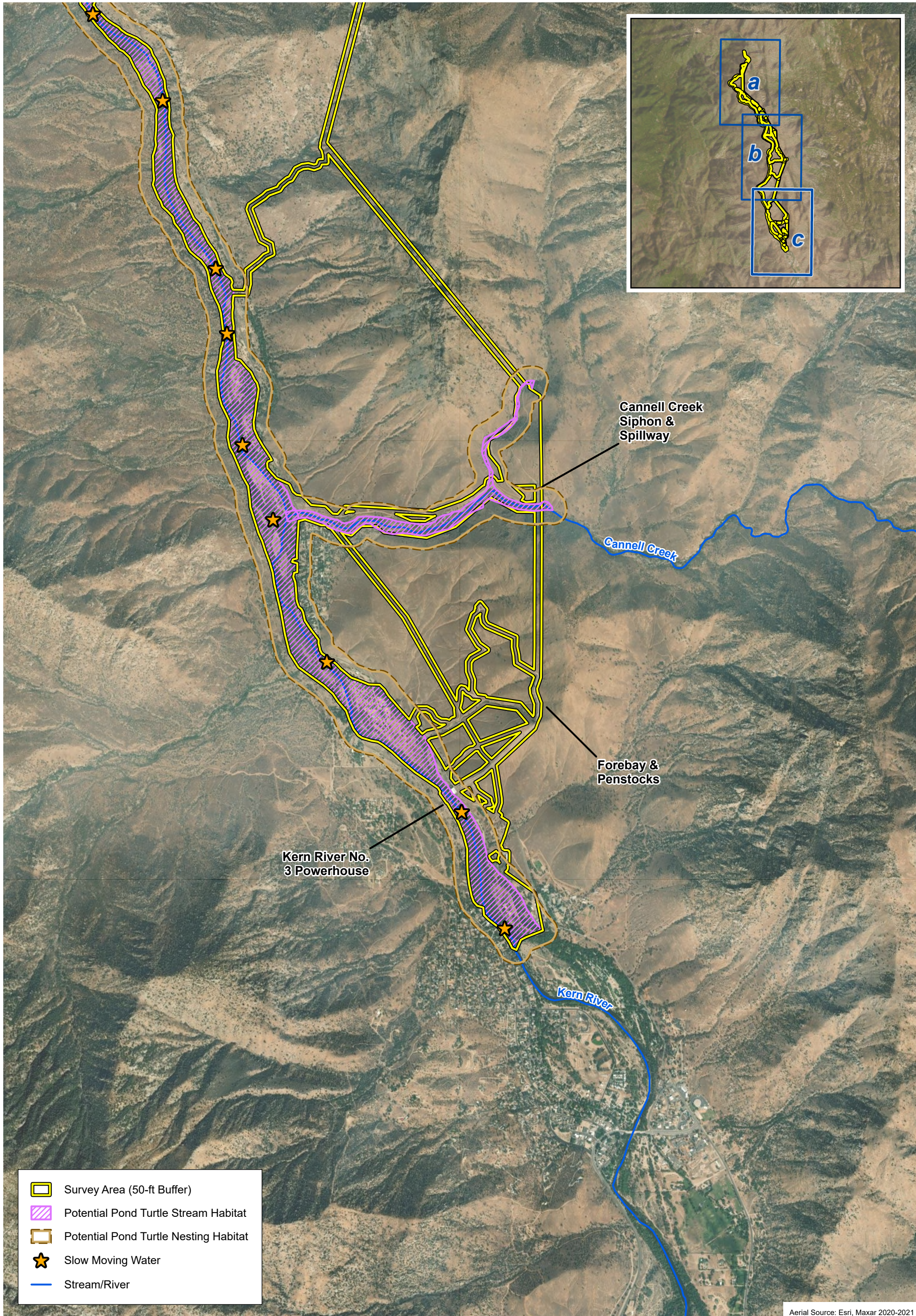
Potentially Suitable Pond Turtle Habitat
 Kern River No. 3 Hydroelectric Project (FERC Project No. 2290)

Figure 4.1-1b



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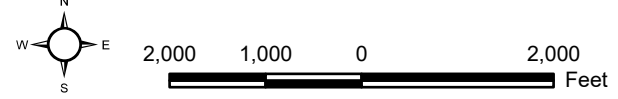


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Aerial Source: Esri, Maxar 2020-2021

Potentially Suitable Pond Turtle Habitat
 Kern River No. 3 Hydroelectric Project (FERC Project No. 2290)

Figure 4.1-1c



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4.1.2. PHASE 2: VISUAL ENCOUNTER SURVEYS

Northwestern pond turtle surveys were timed to coincide with their typical breeding period in southern California, typically March through August. Two separate surveys periods were conducted: one early in the breeding season (March to May) and one later in the breeding season (June to August). Northwestern pond turtle surveys were conducted May 15 to 18 and August 10 to 11, 2023.

A team of two qualified biologists with experience following the Visual Encounter Survey protocol for northwestern pond turtle (USGS, 2006) walked slowly along the stream channels scanning with and without binoculars and stopping at all likely pond turtle habitat areas to look for basking or underwater turtles. During the May survey, water flow was too high to traverse to the opposite side of streams at sites of potentially suitable stream habitat; therefore, vantage points along the banks of stream habitat were utilized to scan basking areas with binoculars. The Kern River was flooded over its normal banks due to the heavy rain events of early 2023, and no suitable habitat (e.g., slow-moving water) was present during the first survey. Safe and accessible portions of Cannell Creek, Corral Creek, and Salmon Creek were walked from downstream to upstream during the August survey as water flow had slowed. Biologists visually surveyed pooled areas using binoculars before approaching potential basking sites. Noise and movement was kept to a minimum during the observation period to avoid disturbing basking turtles. Biologists surveyed exposed basking sites and searched for turtles basking in the water and swimming turtles.

Vegetation data and physical features were recorded at each site turtles were observed. Biologists surveyed and documented current conditions at the known Cannell Creek location documented previously (Psomas, 2013). Any sightings of northwestern pond turtle were recorded on a Garmin GPSMAP 64sx Global Positioning System.

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 and amphibians, Bald Eagle, Osprey, and Great Blue Heron). Sierra gartersnake (*Thamnophis couchii*), an aquatic reptile, was observed in Cannell Creek.

5.0 DATA SUMMARY

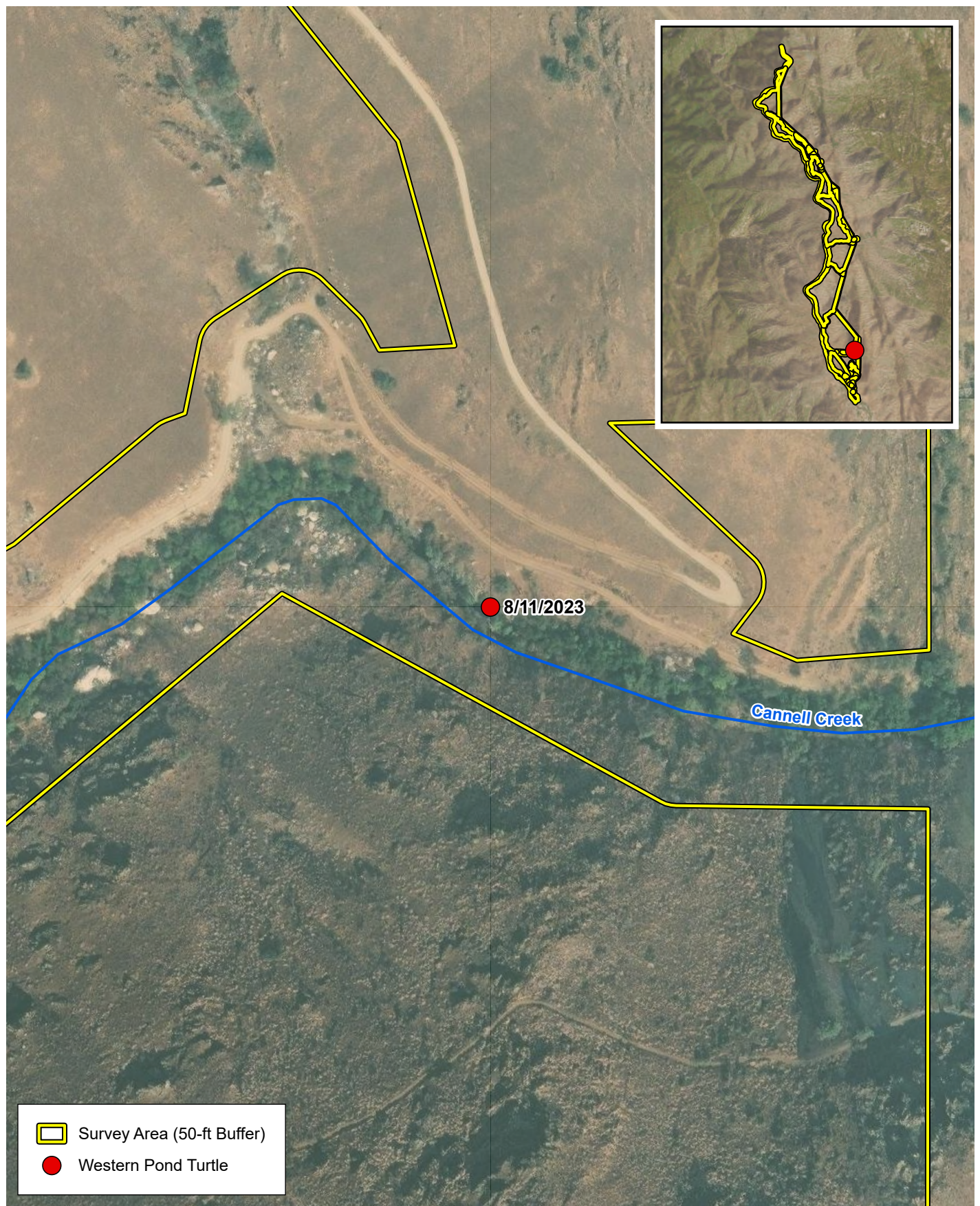
Psomas biologists Lindsay Messett and Sarah Thomas observed one adult (sex unknown) northwestern pond turtle basking on a small rock at the northern edge of a pool below Siphon Road in Cannell Creek on August 11, 2023 (Figure 5-1). This individual jumped into the water shortly after being observed; biologists observed it from afar and had no opportunity to catch the turtle. Pond turtle have been previously observed in this general location (Psomas, 2013). This pool and the surrounding area downstream and upstream provides high-quality basking, foraging, and refugia habitat. Photos of the pond turtle and suitable habitat can be viewed in Appendix A of this memorandum. A summary of survey conditions can be found in Table 5-1. A compendium of wildlife observed is found in Appendix B.

Table 5-1. Survey Data

Survey Number	Date	Time (Start/End)	Weather Conditions		
			Temperature (°F) (Start/End)	Wind (mph) (Start/End)	Cloud Cover (%) (Start/End)
1	5/15/2023	1130/1410	87/95	3-4/3-4	5/10
1	5/16/2023	1205/1435	83/89	1-2/1-2	50/50
1	5/17/2023	1145/1515	87/95	1-2/2-3	Clear/Clear
1	5/18/2023	0900/1300	76/90	2-3/2-3	Clear/Clear
2	8/10/2023	0800/1200	81/85	0-1/1-3	60/100
2	8/11/2023	0835/1400	74/89	0-1/10-2	Clear/Clear

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

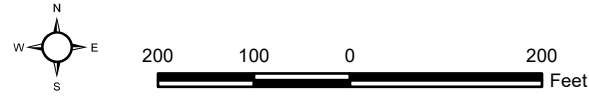
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Survey Results

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

Figure 5-1



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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 Study Plan Determination (FERC, 2022) with the exception of the variance described above.

8.0 REFERENCES

CDFW (California Department of Fish and Wildlife). 2022. California Natural Diversity Database (CNDDDB) Records of Occurrence for: Johnsondale, Fairview, Kernville, Tobias Peak, Cannell Peak, Alta Sierra, and Lake Isabella. 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.

iNaturalist. 2023. Observations. iNaturalist website application. Accessed: May 10, 2023. Retrieved from: https://www.inaturalist.org/observations?taxon_id=73592.

Morey, S. 2000. *Life History Account for Western Pond Turtle*. California Wildlife Habitat Relationships System, California Department of Fish and Game, California Interagency Wildlife Task Group. 2pp. PDF Available at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentVersionID=18106>

Psomas. 2013. *Southwestern Pond Turtle Observations during Pre-construction Surveys in Support of the KR3 Flowline Roads Improvement Project, Kern and Tulare Counties, California*. Memorandum.

SCE (Southern California Edison). 2022. *Kern River No. 3 Hydroelectric Project, Revised Study Plan*. Filed with FERC on July 1. Accessed: August 2023. Retrieved from: sce.com/sites/default/files/custom-files/Web/files/Revised_Study_Plan_KR3_20220701.pdf

USGS (U.S. Geological Survey). 2006. *USGS Western Pond Turtle (Emys marmorata) Visual Survey Protocol for the Southcoast Ecoregion*. Survey Protocol, version 1. San Diego, CA.

APPENDIX A
REPRESENTATIVE PHOTOGRAPHS

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Photo 1: Western pond turtle observed basking on a small rock in Cannell Creek (August 11, 2023).



Photo 2: Close-up view of western pond turtle found in Cannell Creek.

Representative Photographs

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





Photo 3: View of suitable habitat in Cannell Creek with rock the pond turtle was found basking on circled in red.



Photo 4: Close-up view of suitable pond turtle habitat in Cannell Creek showing rocks for basking and vegetation/rocks for hiding from predators.

Representative Photographs

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





Photo 5: Overview of suitable pond turtle habitat in Cannell Creek where pond turtle was observed.

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Representative Photographs

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**APPENDIX B
WILDLIFE COMPENDIUM**

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WILDLIFE SPECIES OBSERVED DURING SURVEYS

Scientific Name	Common Name	Special Status
AMPHIBIANS		
HYLIDAE – TREEFROG FAMILY		
<i>Pseudacris hypochondriaca</i>	Baja California treefrog	
TURTLES		
EMYDIDAE – BOX AND BASKING TURTLE FAMILY		
<i>Actinemys marmorata</i>	northwestern pond turtle	FCT, SSC, FSS
LIZARDS		
PHRYNOSOMATIDAE – SPINY LIZARD FAMILY		
<i>Sceloporus occidentalis</i>	western fence lizard	
<i>Uta stansburiana</i>	common side-blotched lizard	
SNAKES		
NATRICIDAE – HARMLESS LIVE-BEARING SNAKE FAMILY		
<i>Thamnophis couchii</i>	Sierra gartersnake	
BIRDS		
ODONTOPHORIDAE – NEW WORLD QUAIL FAMILY		
<i>Callipepla californica</i>	California quail	
COLUMBIDAE – PIGEON AND DOVE FAMILY		
<i>Streptopelia decaocto*</i>	Eurasian collared-dove	
<i>Zenaida macroura</i>	mourning dove	
PICIDAE – WOODPECKER FAMILY		
<i>Colaptes auratus</i>	northern flicker	
TYRANNIDAE – TYRANT FLYCATCHER FAMILY		
<i>Contopus sordidulus</i>	western wood-pewee	
<i>Myiarchus cinerascens</i>	ash-throated flycatcher	
CORVIDAE – JAY AND CROW FAMILY		
<i>Aphelocoma californica</i>	California scrub-jay	
<i>Corvus corax</i>	common raven	
CINCLIDAE – DIPPER FAMILY		
<i>Cinclus mexicanus</i>	American dipper	
FRINGILLIDAE – FINCH FAMILY		

Scientific Name	Common Name	Special Status
<i>Spinus psaltria</i>	lesser goldfinch	
PASSERELLIDAE – NEW WORLD SPARROW FAMILY		
<i>Melospiza crissalis</i>	California towhee	

Species Status:

SSC = Species of Special Concern (California Department of Fish and Wildlife)

FSS = Forest Service Sensitive (U.S. Forest Service)

FCT = Federal Candidate Threatened