

Study 4.3
**SPECIAL-STATUS WILDLIFE -
BATS**

February 2016

1.0 Project Nexus

South Sutter Water District's (SSWD) continued operation and maintenance (O&M) of the existing Camp Far West Hydroelectric Project (Project) has a potential to affect special-status bats.

For the purpose of this Special-status Wildlife – Bats Study (Study), a special-status wildlife species is a species that has a reasonable possibility of being affected by Project O&M or associated recreation and meets one or more of the following criteria: 1) listed by the Sacramento, CA, USFWS as a USFWS-S; 2) designated by California Department of Fish and Wildlife (Cal Fish and Wildlife) as a Species of Special Concern (SSC); 3) listed as threatened or endangered, or a candidate or proposed for listing under CESA; or 4) Fully Protected under California law.

2.0 Study Goals and Objectives

The goal of the Study is to provide the data necessary to perform an analysis of how special-status bats may be affected by Project O&M or recreation use of Project facilities.

The objective of the Study is to gather the information necessary to perform this analysis.

The Study does not include the development of potential requirements in the new license.

3.0 Existing Information and Need for Additional Information

Existing and relevant information regarding known and potentially occurring special-status bats in the Project Vicinity¹ is summarized below, and fully discussed in Section 3.2.4.3 of SSWD's Pre-Application Document (PAD).

Existing and relevant information regarding known and potentially occurring special-status bats in the Project Vicinity is provided in Sections 3.2.4.3 and 3.2.4.4 of SSWD's Pre-Application Document (PAD). SSWD identified five special-status bats that are known or have the potential to occur within the existing Federal Energy Regulatory Commission (FERC) Project Boundary.

¹ For the purposes of the relicensing, the "Project Vicinity" is defined as the area surrounding the Project in the order of a county or USDOI, United States Geological Survey (USGS) 1:24,000 topographic quadrangle.

Table 3.0-1 provides for each of these species: 1) special status; 2) general habitat type; and 3) recorded occurrence in the Project Vicinity.

Table 3.0-1. Special-status bat species known to occur or likely to occur in the Project Vicinity.

Bat Species	Special Status ¹	Suitable Habitat Type	Occurrence in Project Vicinity
Western red bat (<i>Lasiurus blossevillii</i>)	SSC	Roosts in foliage, forages in open areas (from sea level up through mixed conifer forests).	Project Vicinity: Potential to occur within suitable habitat. Neither species nor suitable habitat was observed during Biological Assessment surveys.
Spotted bat (<i>Euderma maculatum</i>)	SSC	Arid deserts, grasslands, and mixed conifer forests (0-9,800 feet).	Project Vicinity: Potential to occur within suitable habitat
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	SSC	Roosts in buildings, mines, tunnels, and caves; feeds along habitat edges (0-10,365 feet).	Project Vicinity: Potentially occur within suitable habitat. Neither species nor suitable habitat was observed during Biological Assessment surveys
Pallid bat (<i>Antrozous pallidus</i>)	SSC	Roosts in caves, crevices, and buildings; feeds in a variety of open habitats (8,000 feet).	Project Vicinity: Potential to occur within suitable habitat
Western mastiff bat (<i>Eumops perotis</i>)	SSC	Open areas with abundant roost locations provided by crevices in rock outcrops and buildings at lower elevations, but as high as 8,700 feet.	Project Vicinity: Potential to occur within suitable habitat

Source: CDFW 2015a, Sycamore Associates 2013

¹ Status: SSC = Cal Fish and Wildlife Species of Special Concern (CDFW 2015a)

Additionally, as described in Section 3.2.4.4.2 of the PAD, in 2014 SSWD evaluated all Project recreation facilities for evidence of bat activity. At each location, SSWD surveyed the exterior and interior of buildings for active bat roosts and signs of historic use via the presence of guano and staining resulting from urine and body oils. Any observed bat use (not just special-status bats, but all bat species) was documented on a standard data sheet, photographed and the location was recorded with a Global Positioning System. SSWD will use the information collected during the 2014 evaluations to identify and prioritize locations that will be targeted during the Study.

Additional information, which will be provided by this Study, is needed to address the Study goal. The Study will identify the specific location of special-status bats in relation to Project facilities, and normal Project O&M activities that might affect these special-status bat species.

4.0 Study Methods and Analysis

4.1 Study Area

The Study area consists of three specific areas within the existing FERC Project Boundary – the North Shore Recreation Area (NSRA), the South Shore Recreation Area (SSRA) and the Camp Far West Powerhouse and associated facilities. The facilities are described in Section 2 of SSWD's PAD, and shown in Figure 4.1-1.

If SSWD proposes an addition to the Project, the Study area will be expanded if necessary to include areas potentially affected by the addition.

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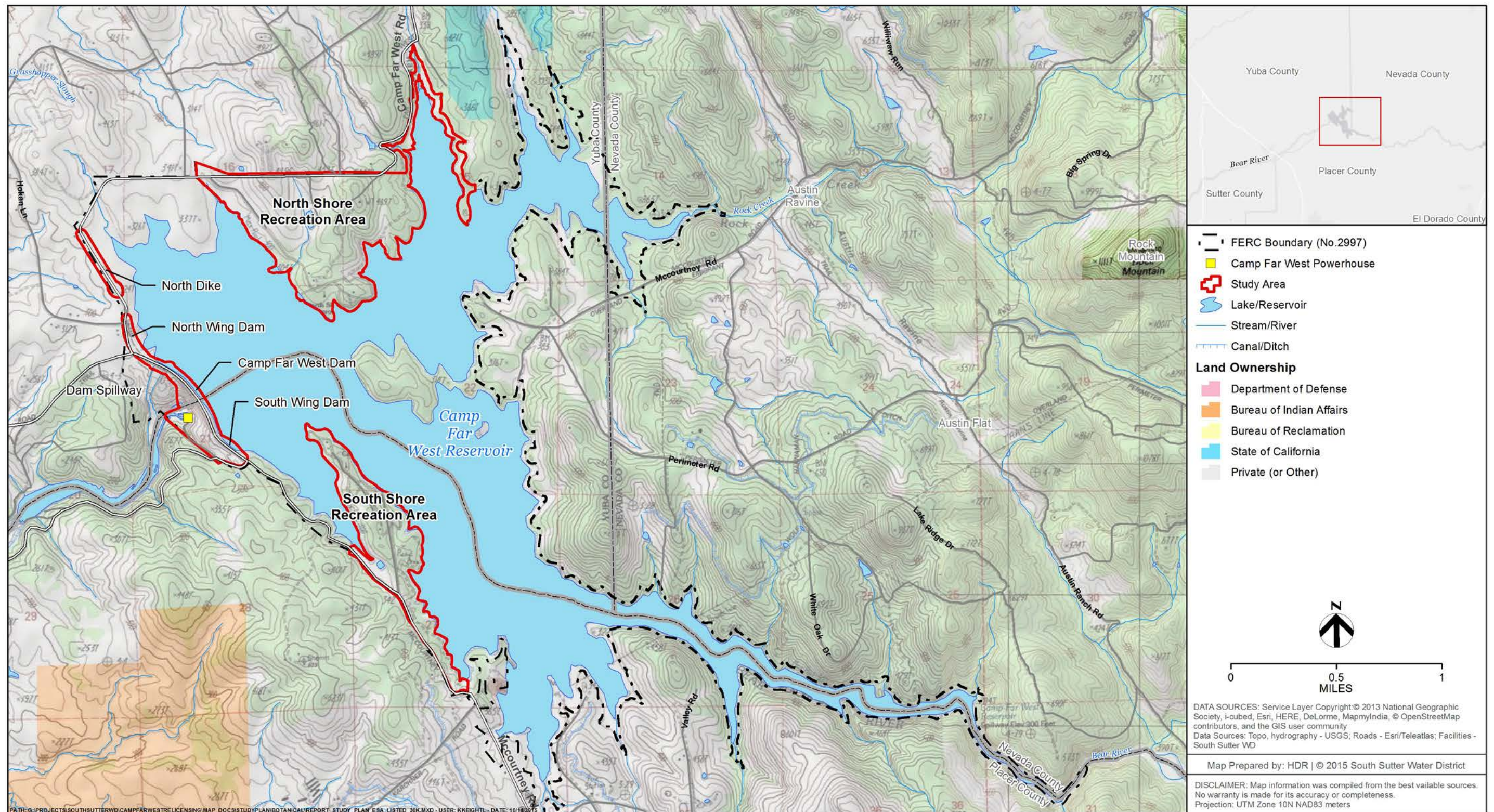


Figure 4.1-1. Study Area for Special-status Wildlife Bats.

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4.2 General Concepts and Procedures

The following general concepts and practices apply to all SSWD relicensing studies:

- Personal safety is the most important consideration of each fieldwork team.
- If required for the performance of the study, SSWD will make a good faith effort to obtain permission to access private property well in advance of initiating the study. SSWD will only enter private property if such permission has been provided by the landowner.
- SSWD will acquire all necessary permits prior to beginning fieldwork for a study that requires them.
- Field crews may make variances to the study plan in the field to accommodate actual field conditions and unforeseen problems. When a variance is made, the field crew will follow to the extent applicable the protocols in the study plan.
- When SSWD becomes aware of a variance to the study plan, SSWD will issue an e-mail to FERC, United States Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS), United States Fish and Wildlife Service (USFWS), Cal Fish and Wildlife and the State Water Resources Control Board (SWRCB) describing the variance and reason for the variance. SSWD will summarize in the Application for New License all study plan variances.
- SSWD's performance of the study does not presume that SSWD is responsible in whole or in part for measures that may arise from the study.
- If GPS data are required by a study plan, they will be collected using either a Map Grade Trimble GPS (sub-meter data collection accuracy under ideal conditions), a Recreation Grade Garmin GPS unit (3-meter data collection accuracy under ideal conditions), or similar units. GPS data will be post-processed and exported from the GPS unit into Geographic Information System (GIS) compatible file format in an appropriate coordinate system using desktop software. The resulting GIS file will then be reviewed by both field staff and SSWD's consultant's relicensing GIS analyst. Metadata will be developed for deliverable GIS data sets. Upon request, GIS maps will be provided to NMFS, USFWS, Cal Fish and Wildlife or SWRCB in a form, such as ESRI Shapefiles, GeoDatabases, or Coverage with appropriate metadata. Metadata will be Federal Geographic Data Committee compliant.
- SSWD's field crews conducting relicensing studies will record incidental records of aquatic and wildlife species observed during the performance of a study. All incidental observations will be reported in Application for New License. The purpose of this effort is not to conduct a focused study (i.e., no effort in addition to the specific field tasks identified for the specific study) or to make all field crews experts in identifying all species, but only to opportunistically gather data during the performance of a relicensing study. Species included for incidental observation will include, but are not limited to: bald eagle (*Haliaeetus leucocephalus*); golden eagle (*Aquila chrysaetos*); osprey (*Pandion haliaetus*); any bats or positive sign of bats, Chinook salmon (*Oncorhynchus*

tshawytscha); and steelhead (*O. mykiss*), including redds and carcasses; northern western pond turtle (*Actinemys marmorata*), foothill yellow-legged frog (*Rana boylei*), American bullfrog (*Lithobates catesbeianus*), and aquatic invasive species.

- Field crews will be trained on, provided with, and use materials (e.g., Quat disinfectant) for decontaminating their boots, waders, and other equipment between water-based study sites. Major concerns are amphibian chytrid fungus, and invasive invertebrates (e.g., zebra mussel, *Dreissena polymorpha*).
- If in the performance of a study, SSWD observes an ESA-listed or special-status species, within 30 days of the observation SSWD will submit to Cal Fish and Wildlife's California Natural Diversity Database a record, on the appropriate form, of the observation.
- If a study plan requires collection and reporting of time series data, the data will be provided at a minimum in HEC-DSS format. A viewer for these files (HEC-DSSVue) can be obtained from the United States Army Corps of Engineers at the following website as of March 2008: <http://www.hec.usace.army.mil/software/hec-dss/hecdssvue-dssvue.htm> in both Microsoft® Excel and *.DSS formats.
- If a field crew encounters human remains during field work, all work within a 100-foot radius of the discovery will stop immediately. The field crew will not disturb the remains in any way, secure the area to the best of its ability, mark the location with flagging tape in such a way as to not draw attention to the remains, and record the location using a GPS unit or plot the location by hand on a map if no GPS unit is available. As soon as possible thereafter, the field crew will contact SSWD and the relicensing Cultural Resources Lead to report the discovery. SSWD will report the finding and initiate the appropriate steps required under State of California and federal law to address the discovery. Any human remains encountered will be treated with respect, and the field crew members will keep the location confidential and will not disclose the location of the discovery to the public or to any other study crews. The field crew will keep a log of all calls/contacts it makes regarding the discovery and that details the event. Work will not proceed in the secured area of the discovery until provided clearance by SSWD.

4.3 Study Methods

The study methods will consist of the following four steps: 1) Long-Term Acoustic Monitoring; 2) quality assurance/quality control (QA/QC) review; and 3) prepare report. Each step is described below.

4.3.1 Step 1 – Long-Term Acoustic Monitoring

Long-Term Acoustic Monitoring (LTAM) will be conducted at four sites chosen on the Project, based on potential bat use – the Camp Far West Powerhouse, storage shed and Restroom 2 at South Recreation Area, and Restroom 4 at North Recreation Area. LTAM will involve the deployment of Titley Scientific AnaBat™ SD1 (AnaBat SD1) bat detectors for monitoring of bat activity over time. Titley Scientific Analook software will be used to analyze the data recorded

by the detectors. SSWD will deploy the LTAM equipment in select riparian zones adjacent to Project facilities such as at the dam and powerhouse. Deployment of the LTAM equipment will be from early April through October in order to capture spring migration, young rearing, periods of peak bat activity, and fall migration.

The AnaBat SD1 bat detectors will be coupled with an external power source (e.g., 12-volt battery and small solar panel) for long term deployment, and EME Systems, LLC Bat-Hats (Berkeley, California) to aid in acoustic data collection. During each day of the LTAM Study period, all detectors will be programmed to record echolocation calls emitted from bats in flight between sunset and sunrise. Calls will be saved directly to a compact flash card as an individual AnaBat call file, with the date and time of the recording as the file name. Initially (i.e., April and May) all sites will be visited every 2 weeks in order to download recorded calls, and to ensure that all equipment is functioning properly. After May, visits to each sight may be reduced to once every 3 weeks or once per month.

Upon download, data from each site will be saved to folders that corresponded to the site location and period for which monitoring occurred (e.g., July 1-15). Call files will be organized into folders that specify the date recorded (e.g., 070115). The latter will be performed by the software during data transfer from the cards to a laptop computer.

4.3.2 Step 2 – Quality Assurance/Quality Control Review

SSWD will perform a QA/QC review of all data, including maps, recordings, identifications, and sightings.

4.3.3 Step 5 – Prepare Report

SSWD will prepare a report that includes the following sections: 1) Study Goals and Objectives; 2) Methods and Analysis; 3) Results; 4) Discussion; and 5) Description of Variances from the FERC-approved study proposal, if any. The report will include maps and raw acoustic files.

5.0 Consistency of Methodology with Generally Accepted Scientific Practices

This Study is consistent with the goals, objectives, and methods outlined for most recent FERC hydroelectric relicensing efforts in California, including for the Yuba River Hydroelectric Project (FERC No. 2246), Drum-Spaulding Project (FERC No. 2310) and Merced River Hydroelectric Project (FERC No. 2179) relicensings.

6.0 Schedule

SSWD anticipates the schedule to complete the study as follows:

Planning March 2017
Fieldwork April 2017 – October 2017

QA/QC ReviewNovember 2017
Study Report Preparation November 2017 – December 2017

The Study report will be included in SSWD’s DLA and FLA. If SSWD completes the Study report before preparation of the DLA, SSWD will post the report on SSWD’s Relicensing Website and issue an e-mail to Relicensing Participants advising them that the report is available.

7.0 Level of Effort and Cost

SSWD estimates the cost to complete this Study in 2015 dollars is between \$50,000 and \$60,000.

8.0 References Cited

- California Department of Fish and Wildlife (CDFW). 2015a. California Natural Diversity Database. RareFind 5. Available online: <<http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp>>. Accessed July 1, 2015. California Department of Fish and Wildlife, Sacramento, CA.
- Sycamore Environmental Consultants, Inc. 2013. Biological Assessment: Camp Far West Reservoir Project. FERC No. P-2997. Sacramento, CA.