ESA-Listed Amphibians – California Red-legged Frog Study
SUMMARY

Consistent with Section 6.0 of the *ESA-listed Amphibians – California Red-legged Frog Study Plan* (Plan) as filed with FERC on January 9, 2017, [1] the SSWD provides the following summary for the *ESA-listed Amphibians – California Red-legged Frog Study* (Study), which includes a description of work completed to date, key findings, variances, and remaining work. Links to associated data files are also included. The Licensee consider these data to be public.

Work Completed as of 4/17/18:

The Study has been completed, including a desktop analysis site assessment within one-mile of the Project Boundary, field reconnaissance within the Project Boundary, and supplemental surveys for American bullfrog (*Lithobates catesbeianus*) at sites within the Project Boundary.

The site assessment was comprised of mapping and categorizing aquatic locations potentially suitable for California red-legged frog (CRLF) (*Rana draytonii*) breeding. Existing, publically available ESRI aerial imagery (DigitalGlobe 2016) was reviewed at a scale of 1:1000 and later compared to Google Earth imagery (dated May 17, 2017). The map products also depict streams identified and categorized by the National Wetland Inventory and terrestrial areas within the Study Area.

Field reconnaissance was completed on June 29, 2017 at two sewage ponds associated with the North Shore Recreation Area (NSRA) and the South Shore Recreation Area (SSRA), respectively, in accordance with USFWS (2005) guidelines and included completion of Habitat Site Assessment Data Sheets. [2] The ponds receive raw sewage from the recreation areas, and the north pond also receives sewage from two adjacent residences. District Project operations staff follow Regional Water Quality Control Board (RWQCB) requirements to treat algae within these sewage ponds with copper. In addition, aquatic vegetation in the ponds and around the pump stations is treated with Diquat. Vegetation spraying typically occurs in February, and again in summer. No other Project-related activities which could affect amphibians typically occur at these sewage ponds. A small (i.e., about 0.02-acres), seasonal aquatic habitat location near the North Shore sewage pond was not initially identified on the ESRI imagery and was also dry at the time of the field reconnaissance, and therefore was not included in the field habitat assessment. This site dries each year in May or June.

Surveys to listen for calls of American bullfrogs were completed at the two sewage ponds, followed by a walk around the perimeter of each pond and visual scan during which all adult and juvenile bullfrogs heard or seen were noted. These daytime surveys were completed on June 29, 2017, July 25, 2017, and August 3, 2017. A survey conducted on July 18, 2017 was not included in the final results because of windy conditions, which could have suppressed bullfrog activity or interfered with auditory detection.

[1] The Plan is available on SSWD's public relicensing website (www.sswdrelicensing.com) under 'Study Plans.'
[2] United States Fish and Wildlife Service (USFWS). 2005. Revised guidance on site assessments and field surveys for California red-legged frog. August 2005.

Auditory surveys were also performed at six locations in coves or "arms" of the reservoir on Camp Far West Reservoir on the same dates. These survey sites were selected as potentially suitable for American bullfrogs because of the presence of partially submerged shoreline vegetation, including grass and willows, during the initial survey on June 29, 2017, although persistently flooded "emergent" vegetation or aquatic vegetation, favored by bullfrog as hiding cover, was generally absent.

Key Findings:

As part of the desktop analysis, a total of 134 aquatic habitat locations potentially suitable for CRLF were identified and mapped within one-mile of the Project Boundary. Most of these features (i.e., 122 of the total) are constructed impoundments along drainages or excavated ponds used to support livestock on rangeland, hold irrigation water, or for undetermined purposes on private property. Based on available aerial imagery, 51 of these constructed ponds were classified as seasonal and 71 as semi-permanent to permanently flooded. Another 10 aquatic habitat locations were categorized as seasonal emergent wetlands, which were generally located on drainages supported by irrigation water, but without an apparent constructed dam or excavated basin. Aquatic habitat locations are largely concentrated northwest, east, and south of Camp Far West Reservoir. Many of the aquatic habitats-particularly where supplemented by irrigation water -are evidently suitable habitat for CRLF as well as American bullfrog, and in most areas there are multiple suitable sites, which would facilitate dispersal of either species. The aerial imagery indicates that vegetation characteristics of the sites ranges from those with no apparent aquatic, emergent, or riparian vegetation to sites with dense areas of cattail and patches of riparian willows. The surrounding uplands include grazed annual grasslands and oak woodland, with low rolling hills, unlikely to pose a dispersal barrier. There are no known historical records of CRLF in the Project Vicinity, including no records from this area in the California Natural Diversity Database (CNDDB) (CDFW 2018).[3] However, in January 2018 the Licensee's consultant became aware of a USFWS report of CRLF from the Project (Department of the Interior letter to FERC, "Comments, Recommendations, and Preliminary Terms and Conditions on FERC's REA Notice" for the Don Pedro Hydroelectric Project, January 29, 2018).[4] Subsequent correspondence with USFWS indicated that a California Native Species Field Survey Form was completed and submitted to the CNDDB. The form indicates a "confirmed" CRLF at a seasonal stock pond and three "potential, unconfirmed CRLF" at the adjacent North Shore sewage pond on May 20, 2017. These reported sightings occurred during a night site visit. The "confirmed" CRLF, viewed by the USFWS biologists at a distance, did not exhibit any of the visual or auditory characteristics required for positive identification of CRLF according to USFWS guidelines for surveys (2005), but was instead identified primarily by a "musky" scent in the air.[5] The three "potential, unconfirmed" CRLF at the sewage pond were frogs which exhibited a red eye-shine reflection, distinguishing them from the juvenile bullfrogs observed at the pond.

[3] California Department of Fish and Wildlife (CDFW). 2018. California Natural Diversity Database (CNDDB): Rarefind 5. Online Application. Available online: <https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data>. Accessed March 23, 2018. Sacramento, California.

[4] United States Fish and Wildlife Service (USFWS). 2018. Department of the Interior Comments, Recommendations, Preliminary Terms And Conditions, And Preliminary Fishway Prescriptions on the Federal Energy Regulatory Commission Ready for Environmental Analysis Notice for the Don Pedro Hydroelectric Project, Federal Energy Regulatory Commission Project No. P-2299-082, Tuolumne River, Tuolumne and Stanislaus Counties, California. Letter to FERC. January 29, 2018.

[5] United States Fish and Wildlife Service (USFWS). 2005. Revised guidance on site assessments and field surveys for California red-legged frog. August 2005.

Based on the available information and consistent with USFWS guidelines, the four frogs should be regarded as "unidentified". SSWD's consultant biologists accompanied the USFWS biologists during the May 20, 2017 night survey, but did not observe the frog in question at the stock pond, and also accompanied the USFWS biologists during an additional daytime survey of the seasonal pond on February 15, 2018. Bullfrogs were observed on both occasions at the sewage pond.

Habitat assessments completed at the two Recreation Area sewage ponds, both of which are perennial, indicate steeply sloped sides and undetermined depth, little or no associated emergent or overhanging vegetation, but with dense cover of duckweed over part of each pond.

Juvenile bullfrogs were detected in numbers ranging from 24 to 39 at the SSRA sewage pond, but only 1 was detected at the NSRA sewage pond, probably because the pond is fenced, preventing close approach along the shoreline sufficient to cause frogs to jump and be detected. On two of the surveys, adult male bullfrogs (2 and 3, respectively) were heard at the NSRA sewage pond. No adult bullfrogs were heard at the SSRA sewage pond during any of the surveys.

No bullfrog calls were heard at any of the six survey locations on Camp Far West Reservoir.

Associated Data Files:

The five data files listed below are available on SSWD's public relicensing website (www.sswdrelicensing.com).

Table 1. Data files associated with Study summary.

File Name	Data Description	File Type and Size
ESA_Listed_Amphibians_CRLF_Study_Aquatic _Habitat_Locations_Mapbook.pdf	Map series focused on aquatic habitat locations.	Adobe PDF, 121,368 kB
ESA_Listed_Amphibians_CRLF_Study_ 1_10000_Mapbook.pdf	Map series of the entire study area.	Adobe PDF, 21,365 kB
ESA listed Amphibians Study_CRLF_Habitat Assessment_Sheets.pdf	Habitat site assessment data sheets.	Adobe PDF, 3,355 kB
ESA listed AmphibiansStudy_Bullfrog Survey Results.xls	Bullfrog survey data.	Microsoft Excel, 18 kB
ESA listed Amphibians_CRLF_Study Photos.pdf	Selected photos of bullfrog survey sites.	Adobe PDF, 16,946 kB

Variances Study:

There was one variance to the Plan. The variance was that a stand-alone report was not prepared as described in Step 4. The results of the Study are provided in this summary in the Draft License Application. This variance has no effect on the Study's characterization of CRLF and aquatic habitats.

Remaining Work:

None.

Page Left Blank