TECHNICAL MEMORANDUM 7-3

ESA-Listed Amphibians – California Red-Legged Frog

Yuba River Development Project
FERC Project No. 2246

June 2013

TECHNICAL MEMORANDUM 7-3

EXECUTIVE SUMMARY

In 2011 and 2012, Yuba County Water Agency (YCWA) conducted a data review for recorded occurrences of California red-legged frog (*Rana draytonii*, CRLF), a threatened species under the federal Endangered Species Act, and performed site assessments for this species in the vicinity of the Yuba River Development Project (Project).

The study covered the area within the Federal Energy Regulatory Commission (FERC) Project Boundary and a 1.6 kilometer (km) (1 mile) radius of the boundary, as well as an area within 1.6 km of streams in which flows may be affected by the Project.

To qualify as potentially suitable CRLF breeding habitat, the aquatic habitat sites needed to meet United States Department of Interior, Fish and Wildlife Service (USFWS) criterion for essential aquatic habitat - low-gradient fresh water bodies capable of holding water for a minimum of 20 weeks in all but the driest of years (i.e., the period required for CRLF to go from egg stage to metamorphosis). Site assessments included characterizing potential aquatic breeding habitats and adjacent upland habitat, including dispersal habitat. Habitat locations that were accessible on-site or viewable from an adjacent public road were assessed in the field. Locations not accessible or viewable in the field were evaluated from aerial imagery.

YCWA found records of CRLF occurrence in only one part of the study area. The records were for occurrences at two small, spring-fed depressions near Oregon Hill Road and Little Oregon Creek, about 0.8 km west of New Bullards Bar Reservoir. Little Oregon Creek is a tributary to New Bullards Bar Reservoir and is not associated with Oregon Creek, which is a tributary to the Middle Yuba River southeast of New Bullards Bar Reservoir. Proximate to Little Oregon Creek, but with no apparent hydrologic connection, the locations are within an area with evidence of substantial historical mining, including piles of mine tailings, excavations, terracing created by hydraulic mining, and resulting surface spring flows. The area surrounding the sites is designated by the USFWS as critical habitat for CRLF as Unit YUB-1.

YCWA identified 274 aquatic habitat locations for site assessments. A majority of the sites (n=164) were within 1.6 km of the FERC Project Boundary and 110 were within 1.6 km of stream reaches in which flows may be affected by the Project, but are more than 1.6 km from the Project Boundary.

Of the 164 sites within 1.6 km of the FERC Project Boundary, 91were classified as meeting the minimum criterion of 20-week persistence of standing or slow-moving water, six sites did not meet the criterion because of insufficient persistence, and the available information was inconclusive for the other 67 sites. Most of the sites meeting the criterion were streams (n=58) or stream impoundments (n=9). Seasonal streams in areas that could not be field assessed constituted most of the sites (n=62) for which no determination was made. Perennial streams that were not field-assessed were assumed to meet the criterion, including high-gradient streams where standing or slow-moving water would likely be limited to plunge pools. Other types of

aquatic habitats that were determined to meet the 20-week criterion included excavated ponds (n=24 sites) and depressional wetlands associated with old mining excavations or mine tailings (n=7 sites). Two of these mining legacy sites have recorded occurrences of CRLF as described above. The CRLF population at the sites is presumed to be extant. No CRLF were observed here, or at other locations during the performance of this study or incidentally during the performance of other Relicensing studies to-date.

Of the 110 sites within 1.6 km of Project-affected stream reaches, 91 met the minimum 20-week criterion for persistence of standing or slow-moving water; two did not meet the criterion, and there was insufficient information to make a determination for 17 sites. Most of the sites that met the criterion were excavated ponds (n=56), mining legacy water bodies (n=12), or impoundments of small tributaries to the Yuba River (n=12). Mining legacy included the Yuba Goldfields which were represented by a single assessment site comprised of a complex of more than 36 separate National Wetland Inventory-mapped wetlands, mostly classified as palustrine open water features. Only four of the sites within 1.6 km of Project-affected stream reaches were free-flowing streams, all of which met the criterion. None of the Project-affected streams represent potential CRLF breeding habitat.

The three Project impoundments were included in this assessment. New Bullards Bar Reservoir and Our House Diversion Dam impoundment on the Middle Yuba River do not represent potential breeding habitats for CRLF, and Log Cabin Diversion Dam impoundment on Oregon Creek is also unlikely to be used. New Bullards Bar Reservoir is a deep reservoir, with mostly steeply-sloped banks and supports a recreational fishery. The two diversion impoundments are situated on streams with seasonal high flows driven by snow-melt runoff occur in most years, conditions incompatible with CRLF breeding.

There is a low potential for Project operation and maintenance (O&M) to affect sites with suitable habitat for CRLF. Project O&M has no effect on tributaries, all of which are located at higher elevations than the New Bullards Bar Reservoir normal maximum water surface elevation. Although the reservoir is a source of predatory fish entering tributary streams, recreational fishing is an important ancillary benefit of the Project, which is supported by California Department of Fish and Game fish stocking.

Project-related recreational activity is unlikely to occur in the areas where depressional wetland sites are located. None of the depressional wetland sites are accessible to fish. Road traffic on Oregon Hill Road-the road closest to the extant CRLF population-appears to be low. Moran Road has a seasonal closure designed, in part, to minimize potential for road traffic to affect CRLF making overland movements. Moran Road is situated about 0.8 km from sites where CRLF has been reported to occur; other potentially suitable mining legacy sites in the vicinity of Oregon Hill Road are located further from Moran Road.

Site CC4, an impoundment on Cottage Creek, a tributary to New Bullards Bar Reservoir, is located partly within the Project Boundary about 0.3 km west of the reservoir and proximate to YCWA's equipment staging facility. Although the site meets the minimum criterion for CRLF breeding habitat, deep, cold water and the presence of largemouth bass may limit site suitability. YCWA's activities have no foreseeable effect on this site.

Project O&M also has no foreseeable effect on potentially suitable sites surrounding Project-affected stream reaches. These sites include excavated ponds, impoundments of tributaries, and depressional wetlands associated with historical mining. The stream reaches on Oregon Creek, Middle Yuba River, and the Yuba River are not potential CRLF breeding habitat, but could represent non-breeding or dispersal habitat. There is a low potential for Project flows to affect CRLF use of stream reaches for these purposes.

YCWA consulted with United States Department of the Interior (USDOI), Fish and Wildlife Service's (USFWS) on October 22, November 8 and December 3, 2012 to review the results of the interim technical memorandum, and specifically to determine if additional data gathering (e.g., protocol-level surveys) was needed. At the December 3 meeting, USFWS said it was in the process of completing its internal reviews and consulting with other agencies. YCWA and USFWS agreed that for the purpose of the FERC-approved study, consultation would be considered complete. However, YCWA and USFWS agreed that consultation would continue under both FERC's Integrated Licensing Process (ILP) and Section 7 of the ESA. Under the ILP, consultation regarding additional data gathering could occur both formally (i.e., through the ILP Initial Study Report process), and informally (i.e., YCWA and USFWS could continue discussion of potential additional data gathering, if the parties believed there was benefit in doing so).

The USFWS filed comments with FERC on the Initial Study Report concerning this study, recommending that YCWA conduct protocol-level surveys for CRLF at all of the sites that were determined by the study to meet the minimum breeding habitat criterion and near locations wherever bullfrogs were observed in other studies on stream reaches that may be affected by the Project. FERC (2013) determined that the requested study modification was not required, but recommended that YCWA and USFWS continue informal ESA consultation on the need for and extent of protocol-level surveys.

On May 17, 2013, YCWA and USFWS agreed on next steps, including a site visit together on July 11 to view wetland sites in the vicinity of Little Oregon Creek, and staging areas for New Bullards Bar Reservoir woody debris disposal near Moran Cove. After the field trip, a trip report will be provided to FERC and a follow-up meeting will be held on July 24, 2013. YCWA and USFWS also agreed that Technical Memorandum 7-3 can now be considered final. If USFWS and YCWA collaboratively agree on the need for and extent of protocol-level surveys or other additional focused efforts, YCWA will prepare a new study proposal accordingly. YCWA will file the study proposal with FERC, and implement the study as directed by FERC.

The study was conducted in conformance to the Federal Energy Regulatory Commission-approved Study 7.3, *ESA-Listed Amphibians – California Red-Legged Frog Study*, with two variances. First, the FERC-approved study states that separate site assessment reports will be prepared for the Forest Service addressing site assessments on NFS land and for BLM for site assessments on federal land administered by BLM. YCWA provided an interim technical memorandum to both agencies in September 2012. The interim technical memorandum meets

the requirements of the Site Assessment Report, includes all site assessments, including those site assessments on NFS land and BLM-administered land. Second, the FERC-approved study stated the study would be complete in September 2012. Study completion was delayed because the quality review of the data and consultation with the USFWS took slightly longer than anticipated.

The study is complete.

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TECHNICAL MEMORANDUM 7-3

ESA-LISTED AMPHIBIANS – CALIFORNIA RED-LEGGED FROG[1]

The continued operation and maintenance (O&M) of the Yuba River Development Project, Federal Energy Regulatory Commission (FERC or Commission) Project Number 2246 (Project) by Yuba County Water Agency (YCWA) may potentially have an adverse effect on California red-legged frog (*Rana draytonii,* CRLF), a threatened species under the federal Endangered Species Act (ESA).

In its January 4, 2011, *Notice of Intent to File License Application, Filing of Pre-Application Document (PAD), Commencement of Pre-Filing Process, and Scoping; Request for Comments on the PAD and Scoping Document, and Identification of Issues and Associated Study Requests,* FERC initiated informal consultation with the United States Department of Interior, Fish and Wildlife Service (USFWS) under section 7 of the ESA and the joint agency regulations thereunder at 50 CFR, Part 402. In addition, in its January 4, 2011, Notice, FERC designated YCWA as the Commission's non-federal representative for carrying out informal consultation, pursuant to Section 7 of the ESA.

1.0 Goals and Objectives

The goal of this study was to develop information concerning CRLF associated with impoundments and other aquatic habitats within the existing Project FERC Project Boundary,[2] and stream reaches potentially affected by the Project, and assess potential effects.

The objectives of this study were to:

- Identify and map known occurrences of CRLF and the distribution of suitable habitats for CRLF.
- Evaluate the likelihood that CRLF currently exists in the FERC Project Boundary using habitat assessments and historical records.
- If deemed warranted by USFWS at specific locations, perform CRLF surveys to document whether CRLF occurs at that location.
- Compile incidental observations of CRLF from other aquatic studies.
- Through incidental observations, document the presence and provide estimates of number of exotic species (e.g., American bullfrogs [*Lithobates catesbeianus*], non-native

[1] This technical memorandum presents the results for Study 7.3, *ESA-Listed Amphibians – California Red-Legged Frog,* included in YCWA's Revised Study Plan filed with FERC on August 14, 2009, and approved by FERC in its Study Determination on September 14, 2009. There were no modifications to Study 7.3 subsequent to FERC's September 30, 2011 Study Determination.

[2] The existing FERC Boundary for the Project is shown on existing Exhibit J and K maps.

crayfish, bass, catfish, or mosquito fish), which may limit the occurrence of CRLF in otherwise suitable habitats (USFWS 2002).

- Develop information on Project-affected streams or non-stream areas to allow for evaluation of potential Project-related effects on CRLF populations.
- Provide information that can be used to develop protection, mitigation and enhancement measures.

2.0 Methods

The study included three steps, each of which is described below.

2.1 Identify Study Area

Figure 2.0-1 shows the study area. For consultation under the ESA, the USFWS describes a "project action area" as the area directly or indirectly affected by the proposed action. This area will usually be larger than the "project footprint" and should cover the range of impacts. For the purposes of the relicensing, the proposed project action area is a 1 mile area around Project developments, including Project-affected stream reaches. The two primary components of the Project are the New Colgate Development and Narrows 2 Development. The New Colgate Development includes the sole Project reservoir, New Bullards Bar Reservoir, two diversion impoundments (i.e., Our House Diversion Dam impoundment on the Middle Yuba River and Log Cabin Diversion Dam impoundment on Oregon Creek), the New Colgate Powerhouse, switchyard, penstock and associated Project roads. The Narrows 2 Development includes Narrows 2 Powerhouse, a switchyard, and associated Project access roads. Project diversion and power tunnels are underground facilities and were not used to define the project action area for purposes of this study.

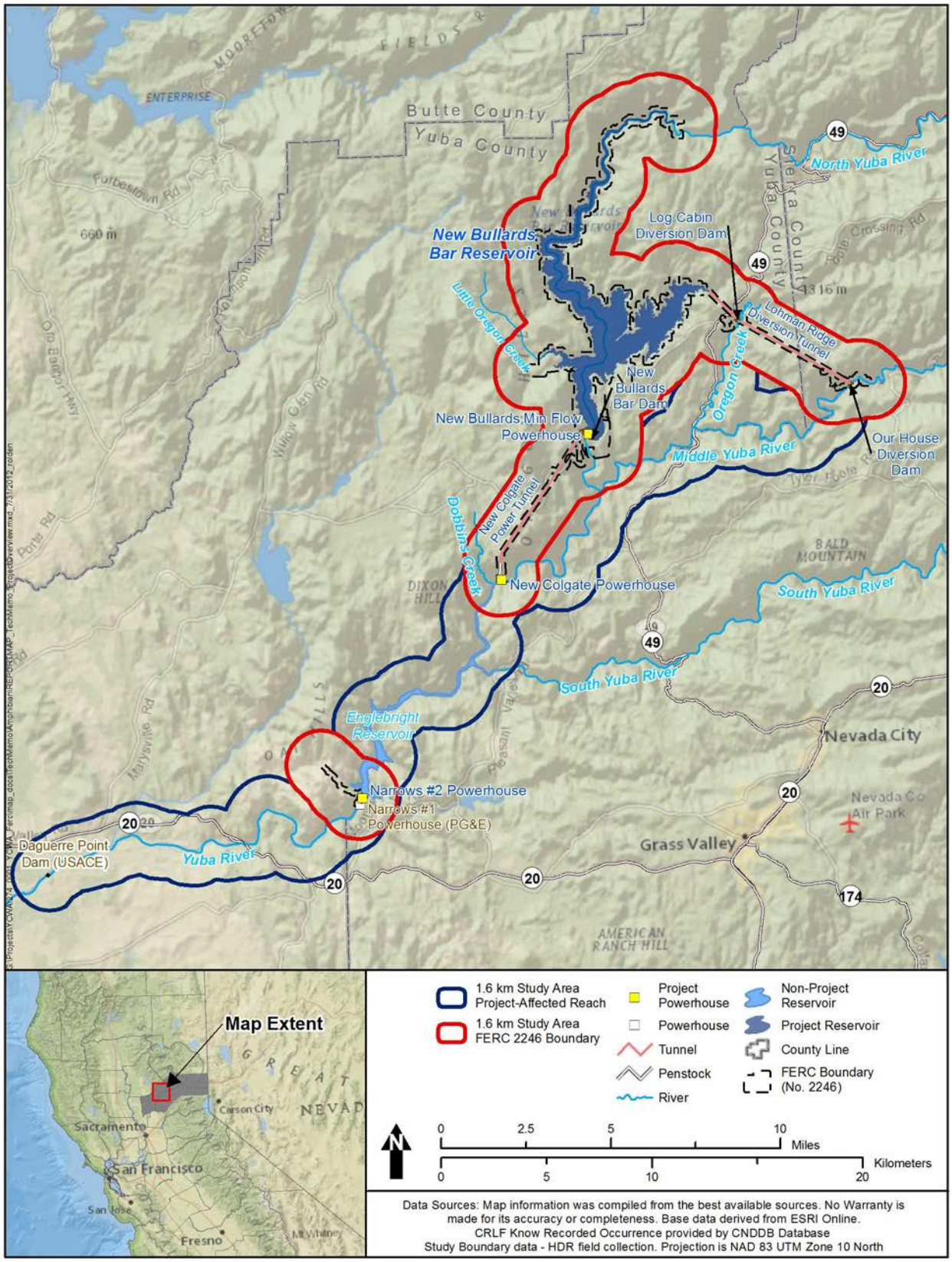

Figure 2.0-1. Study area for Study 7.3, *ESA-listed Amphibians – California Red-legged Frog*.

Project-affected stream reaches within the study area are: 1) the Middle Yuba River from and including Our House Diversion Dam Impoundment to the confluence with the North Yuba River; 2) Oregon Creek from and including the Log Cabin Diversion Dam Impoundment to the confluence with the Middle Yuba River; 3) the North Yuba River from and including New Bullards Bar Dam Reservoir to the confluence with the Middle Yuba River; 4) the portion of the Yuba River from the confluence of the North and Middle Yuba rivers to the United States Army Corps of Engineers' (USACE) Englebright Reservoir; and 5) the Yuba River from Englebright Dam to USACE's Daguerre Point Dam. The boundaries of the study area coincide with USFWS's guidelines for CRLF habitat assessment and surveys (USFWS 2005), which advise a 1.6 km (i.e., 1 mile) radius around normal high water lines.

2.2 Field Reconnaissance and Site Assessments

2.2.1 Selection of Study Sites

CRLF is typically associated with low-gradient streams (Hayes and Jennings 1988), backwaters, and lentic habitat with emergent vegetation, although habitats lacking vegetation are sometimes used. Suitable CRLF breeding habitat is defined as:

> Low-gradient fresh water bodies, including natural and manmade (e.g., stock) ponds, backwaters within streams and creeks, marshes, lagoons, and dune ponds…To be considered essential breeding habitat, the aquatic feature must have the capability to hold water for a minimum of 20 weeks in all but the driest of years (USFWS 2010a).

Known occurrences of CRLF and potential CRLF habitat within the study area were identified and mapped, based on agency consultation, museum records, existing aerial photography and videography, National Wetland Inventory maps (USFWS 2011), on-the-ground photographs, and other pertinent resource agency Geographic Information System (GIS) layers as available. Because information from these data sources regarding potential suitability of streams as CRLF habitat was particularly limited, small streams were included as assessment sites unless there was sufficient information available to exclude them.

Other aquatic habitats potentially affected by the Project that may be utilized by CRLF for dispersal, foraging, or predator avoidance were also identified and included on study area and habitat assessment maps. These areas consist of stream reaches situated downstream of Project facilities and potentially affected by the Project, but generally do not represent potential CRLF breeding habitats.

2.2.2 Review of Historical Data

Known CRLF records in the study area were compiled from a review of the following sources: California Department of Fish and Game's (CDFG) California Natural Diversity Database (CNDDB) (CDFG 2012); University of California, Berkeley's Museum of Vertebrate Zoology (MVZ) Data Access (MVZ 2012); California Academy of Sciences (CAS) online records (CAS

2012); California Red-Legged Frog Recovery Plan (USFWS 2002); a GIS shapefile of the final critical habitat for the CRLF (USFWS 2010b); and pertinent written reports (Barry 2000, 2002). In addition, YCWA requested information from the United States Department of Agriculture, Forest Service (Forest Service), Plumas National Forest (PNF) and Tahoe National Forest (TNF), and interviewed the District Biologist, Yuba River Ranger District, TNF (M. Tierney, pers. comm., 2011).

2.2.3 Habitat Characterization Methods

For study sites identified through the habitat mapping and historical information review (Section 2.2.2), a reconnaissance of potentially suitable aquatic habitat was conducted in accordance with *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (USFWS 2005). Locations that were publically accessible were examined in the field, and other locations were assessed from aerial imagery (Google Earth 2012) and U.S. Geological Service's (USGS) topographic maps. A Habitat Site Assessment Data Sheet (Appendix D of USFWS 2005) was completed for each field and desktop reconnaissance site that was examined, along with photographs depicting habitat and other notable findings. Potential habitats assessed in the field were photographed from opposite directions, both up and down the drainage, where possible, in order to document seasonal cover and foraging habitat adjacent to aquatic habitat.

Based on the site assessments, aquatic habitats were mapped and characterized by habitat type (e.g., stream or depressional emergent wetland), apparent seasonality, dominant vegetation type (e.g., emergent or overhanging shrubs), water depth at the time of the site assessment, bank-full depth, stream gradient (i.e., percent slope), substrate, and description of bank. The field crew was also cognizant of and prepared to note the presence of fish, non-native crayfish, American bullfrog, and other incidental observations of amphibians, reptiles, and turtles. Upland habitats were characterized based on descriptions of upland vegetation communities, land uses, and any potential barriers to CRLF movement.

A map of upland vegetation types was created from available Forest Service CalVeg (2010) data, with the "Barren" category representing early Successional/Shrub vegetation cover in the vicinity of Little Oregon Creek and mine tailings in the Yuba River corridor and other areas with historical mining activity. CalVeg is a two-level hierarchical classification system of actual vegetation designed to assess broad scale resources throughout California. Upland habitats were further characterized based on descriptions of land uses and any potential barriers to CRLF movement.

3.0 Results

3.1 Recorded Occurrences of CRLF in the Study Area

Known historical CRLF occurrences near the Project are summarized in Table 3.1-1 and described in greater detail in Attachment 7.3A – Part 1. Small numbers of adult CRLF have been observed at two small, spring-fed wetlands in depressions about 70 meters apart which is

near Oregon Hill Road and Little Oregon Creek,[3] with the largest number (n=8) observed in 2004, and two large tadpoles were observed in 2001 (Barry 2000, 2002; CDFG 2012; M. Tierney 2009). Because of the small distance between the two wetlands, USFWS and others generally treat them as a single occurrence. The locations, which correspond to assessment sites LO21 and LO28 in this study, are 0.64 to 0.72 km outside of the FERC Project Boundary and in an area with evidence of substantial historical mining, including piles of mine tailings, excavations, terracing created by hydraulic mining, and resulting surface spring flows. The surrounding area has also been subject to recent clear-cut logging and a forest fire in 1999, after which CRLF were detected (Barry 2000, 2002). USFWS (2002) also referenced reported observations of CRLF in the headwaters of Indian Creek near Woodleaf from 1973-1983. Indian Creek is a tributary to New Bullards Bar Reservoir and the Woodleaf area is more than 4 river miles from the reservoir. This historical occurrence is not included in current CNDDB records (CDFG 2012).

Table 3.1-1. Recorded occurrences of CRLF within 1.6 km of the Yuba River Development Project Boundary and other known occurrences in Yuba, Nevada, Sierra, or Butte Counties.

Occurrence	Distance from the Project and Other Details of Habitat and Observations of California Red-legged Frog
OCCURRENCES WITHIN ABOUT 1.6 KM OF PROJECT	
Near Little Oregon Creek at Oregon Hill Road, Yuba Co. and associated critical habitat unit YUB-1.[1]	~796 meters west of New Bullards Bar Reservoir. Two small, spring-fed, mine-tailing wetlands in area that burned in 1999.[1]
	Total of 6 adults from the two wetlands (2000). Population presumed to be extant by CNDDB (CDFG 2012).
	Total of 6 adults and 2 tadpoles from the two wetlands, 2001 (Barry 2002).
	Total of 8 adults from the two wetlands, 2004. From transcribed notes received from M. Tierney, (Forest Service 2009)
	1 adult, 2005. From transcribed notes received from M. Tierney, (Forest Service 2009).
OTHER KNOWN OCCURRENCES WITHIN YUBA, NEVADA, SIERRA AND BUTTE COUNTY	
Sailor Flat, Nevada Co., and associated critical habitat unit NEV-1.	~19 kilometers southeast of New Bullards Bar Dam. Several ponds at about 930 meters elevation on slope above South Yuba River. 8 CRLF (adults and juveniles) sampled for chytrid fungus in 2009 (Tatarian and Tatarian 2010).
Hughes Place Pond, Butte Co., and associated critical habitat unit BUT-1	~43 kilometers northwest of New Bullards Bar Dam. Approximately 0.1 hectare pond at about 760 meters elevation on Plumas National Forest. 13 CRLF (adults and juveniles) sampled for chytrid fungus in 2007, 7 in 2008, and 7 in 2009 (Tatarian and Tatarian 2010).

[1] This occurrence consists of two small, spring-fed wetlands which are referred to as assessment site LO21 and LO28 in this study. The wetlands are only about 70 meters apart and are treated as one location in the detailed information in this table.

YCWA has implemented measures to minimize potential effects of Project-related recreation on CRLF in the vicinity of the known population. The existing Project recreation plan includes annual gate closures of Moran Road from October 15 – May 1 to protect CRLF, as well as to protect American bald eagle (*Haliaeetus leucocephalus*), and to assure public safety (YCWA 1993).

There are no other known current or historical occurrences of CRLF in or near the study area. Documented occurrences in Nevada County (Sailor Flat, critical habitat unit NEV-1) and Butte County (Hughes Place Pond, critical habitat unit BUT-1) are 10 and 35 km, respectively, from the nearest site and designated critical habitat addressed in this Technical Memorandum.

[3] Little Oregon Creek is a tributary of New Bullards Bar Reservoir (North Yuba River) on the west side of the reservoir and is not associated with Oregon Creek, which is a tributary of the Middle Yuba River southeast of New Bullards Bar Reservoir.

Critical habitat unit YUB-1 has been designated for 2,558 hectares (6,322 acres) surrounding the documented occurrence near Little Oregon Creek (USFWS 2010a) (Figure 3.1-1). Special management considerations or protection for this unit may be required associated with wildland fire suppression, timber harvest activities, and controlling predation by non-native species (USFWS 2010a).

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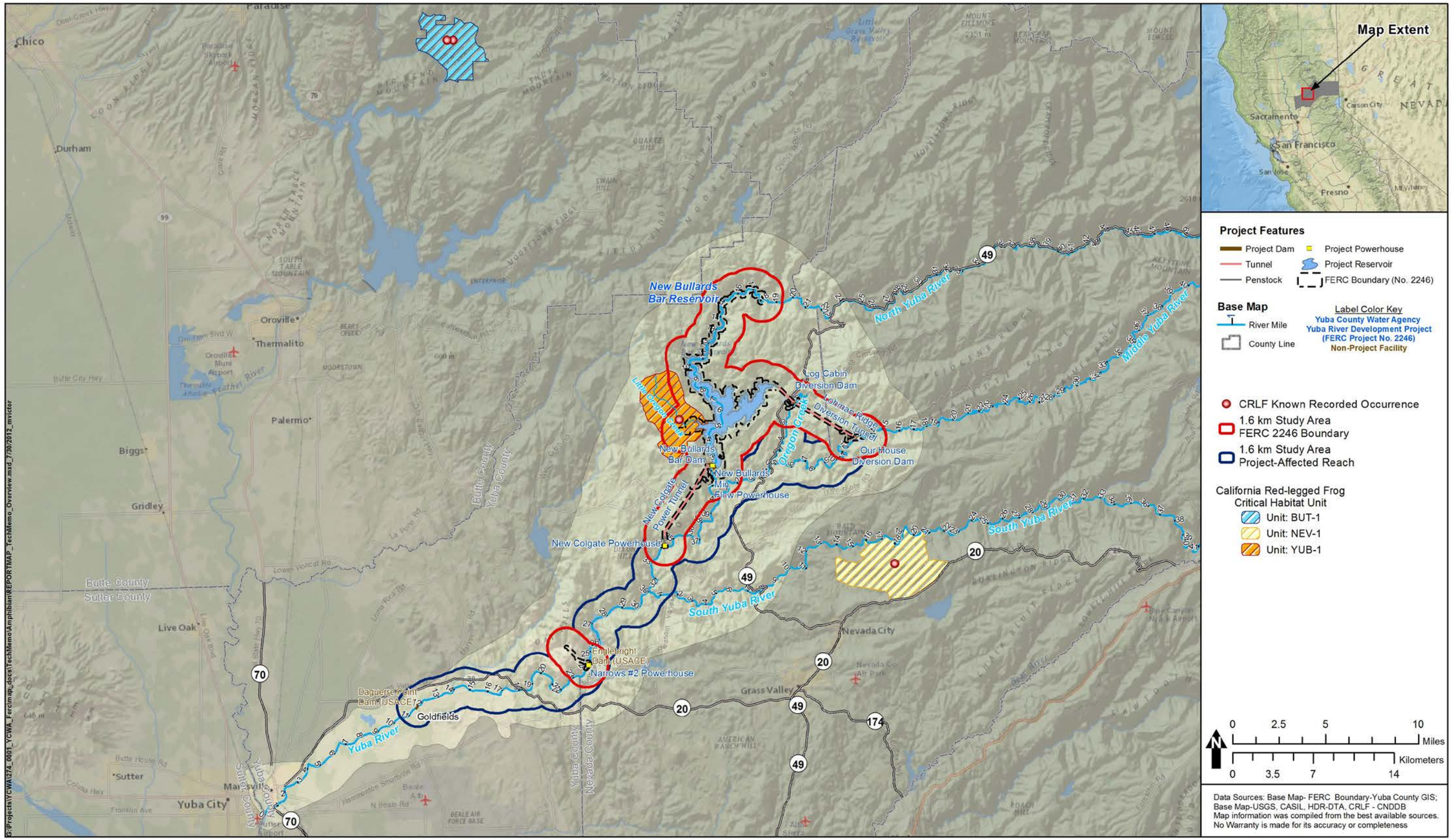

Figure 3.1-1. Locations of known CRLF occurrences and critical habitat units.

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3.2 Habitat Characterization Results

Site assessment results are provided in Attachment 7-3A, with detailed aquatic and upland habitat descriptions presented in Part 1 and representative photographs from field site assessments presented in Part 2. Parts 3 and 4 of Attachment 7-3A present maps of the area with the specific location of each study site. A Habitat Site Assessment Data Sheet for each site is provided in Attachment 7-3B.

In total, 274 sites were assessed, distributed as follows: 1) 164 sites were within 1.6 km of the FERC Project Boundary, of which 149 were surrounding the New Colgate Development (i.e., "New Colgate Development Assessment Area") and 15 were surrounding the Narrows 2 Development (i.e., "Narrows 2 Development Assessment Area"); and 2) 110 sites were within 1.6 km of Project-affected stream reaches, but more than 1.6 km from the Project Boundary. Most of the assessment sites were entirely or partly situated on National Forest System (NFS) land (n=86) or private property (n=191); only 23 sites were located on land owned by YCWA; 10 sites were on federal land administered by the Department of Interior, Bureau of Land Management (BLM); and 9 sites were on State of California land (Table 3.2-1). Although federal land administered by the USACE occurs within the stream reach assessment areas, there were no aquatic habitats associated with these lands potentially suitable for CRLF, and therefore no assessment sites were located on federal land administered by the USACE.

Table 3.2-1. Land ownership of aquatic habitat assessment sites within 1.6 km of the Yuba River Development Project Boundary and within 1.6 km of Project-affected stream reaches.

Assessment Area	Total Number of Sites[1]	Land Ownership[2]				
		Federal		State	Private	
		Forest Service	BLM	State of California	YCWA	Other Private
WITHIN 1.6 KM OF PROJECT BOUNDARY						
New Colgate Development Assessment Area	149	85	3	0	23	81
Narrows 2 Development Assessment Area	15	0	0	9	0	6
WITHIN 1.6 KM OF PROJECT-AFFECTED STREAM REACHES AND MORE THAN 1.6 KM FROM PROJECT BOUNDARY						
Middle Yuba River, Oregon Creek Reach	11	0	1	0	0	10
Oregon Creek, Log Cabin Diversion Dam Reach	3	1	0	0	0	2
Yuba River, Narrows 2 Powerhouse Reach	63	0	2	0	0	62
Yuba River, Englebright Reservoir Reach	14	0	0	0	0	14
Yuba River, New Colgate Powerhouse Reach	1	0	0	0	0	1
WITHIN 1.6 KM OF PROJECT-AFFECTED STREAM REACHES AND MORE THAN 1.6 KM FROM PROJECT BOUNDARY						
Yuba River, Middle/North Yuba River Reach	18	0	4	0	0	15
Total	**274**	**86**	**10**	**9**	**23**	**191**

[1] Does not include New Bullards Bar Reservoir, which is not potential CRLF habitat.
[2] Some sites have multiple ownerships; therefore, ownership total exceeds the number of assessed locations.

Field site assessments were performed at 70 sites, predominately within the New Colgate Development Assessment Area (n=59 sites); 8 sites were field assessed within the Narrows 2 Development Assessment Area, and 3 sites in the project-affected stream reach assessment areas were field-assessed. The remaining 204 sites were characterized based on review of aerial imagery and other remote data sources. Most of the field site assessments were performed

directly on-site; however, 24 of the field sites were assessed from an adjacent, public road because of private property restrictions.

3.2.1 Sites within 1.6 km of Project Boundary

The area within 1.6 km of the FERC Project Boundary is characterized by rugged topography with mostly steep gradient streams and few wetlands that are not associated with stream courses. Most of the area is forested, except where recently logged or burned by forest fire, and oak savannah at the lower elevations surrounding the Narrows 2 Development. Land ownership in the assessment area is principally NFS land and private, except surrounding the Narrows 2 Development where land ownership is mostly State of California, USACE administered land, and private. Lands owned by YCWA occur around New Bullards Bar Reservoir, in the vicinity of New Colgate Powerhouse, and in the vicinity of Log Cabin Diversion Dam. Existing land uses are predominantly forestry, with limited residential development and recreation, and includes agriculture in the area surrounding the Narrows 2 Development. Recreational use is low, except at New Bullards Bar Reservoir and associated trails/campsites around the reservoir.

Detailed in Attachment 7-3A, Table 3.2-2 summarizes the New Colgate and Narrows 2 development assessment area results by category. Most (n=113) of the 164 sites within 1.6 km of the FERC Project Boundary were sections of free-flowing streams, ranging from seasonal to perennial drainages. An additional nine sites were impoundments on streams, some of which were within excavated basins, and one site was a side channel pool, possibly connected to the stream at times. Three other sites were depressional emergent wetlands or fens adjacent to and connected to streams. At least 58 of these stream-associated sites were determined to meet the minimum criterion of 20-week persistence of standing or slow-moving water, four did not meet the criterion, and there was insufficient information to make a determination for the remaining 57 sites, most of which were remote streams that had been assessed from aerial imagery. Perennial streams that were not field-assessed were assumed to meet the criterion, including high gradient streams where standing or slow-moving water would likely be limited to plunge pools. Other types of aquatic habitats represented by assessed sites were excavated ponds (n=25 sites), depressional wetlands associated with old mining excavations or mine tailings (n=11 sites), and a slope wetland.

Table 3.2-2. Aquatic habitat sites assessed for CRLF breeding habitat within 1.6 km of the Project Boundary arranged by habitat type and determined to meet (Y), not meet (N), or undetermined to meet (U) minimum criterion of 20-week persistence of standing or slow-moving water.

Assessment Area	Total Number of Sites	Stream Section[1]		Stream Impoundment[2]		Side Channel or Wetland Adjacent to Stream[3]		Excavated Pond		Mining Legacy[4]		Other Wetlands[5]	
		Total	Met Criterion	Total	Met Criterion	Total	Met Criterion	Total	Met Criterion	Total	Met Criterion	Total	Met Criterion
New Colgate Development	149	105	Y: 44 N: 4 U: 57	9	Y: 9 N: 0 U: 0	4	Y: 4 N: 0 U: 0	20	Y: 19 N: 0 U: 1	11	Y: 7 N: 1 U: 3	2	Y: 0 N: 1 U: 1
Narrows 2 Development	15	10	Y: 3 N: 0 U: 7	0	Y: 0 N: 0 U: 0	0	Y: 0 N: 0 U: 0	5	Y: 5 N: 0 U: 0	0	Y: 0 N: 0 U: 0	0	Y: 0 N: 0 U: 0

Table 3.2-2. (continued)

Assessment Area	Total Number of Sites	Stream Section[1]		Stream Impoundment[2]		Side Channel or Wetland Adjacent to Stream[3]		Excavated Pond		Mining Legacy[4]		Other Wetlands[5]	
		Total	Met Criterion	Total	Met Criterion	Total	Met Criterion	Total	Met Criterion	Total	Met Criterion	Total	Met Criterion
Total	**164**	**113**	**Y: 47 N: 4 U: 62**	**9**	**Y: 9 N: 0 U: 0**	**4**	**Y: 4 N: 0 U: 0**	**25**	**Y: 24 N: 0 U: 1**	**11**	**Y: 7 N: 1 U: 3**	**2**	**Y: 0 N: 1 U: 1**

[1] Streams may include pools, but were not dammed
[2] Some sites also appear to have been excavated
[3] Includes depressional emergent wetlands and fens adjacent to streams
[4] Includes mine tailing depressions that hold water
[5] Excavated ditch and slope wetland

Few of the free-flowing stream sites that were field-assessed exhibited significant emergent vegetation and none contained aquatic vegetation; most were also under the shade of a forest canopy. Fish were documented or are likely to occur, based on known occupancy or lack of apparent barriers to fish, at all of the field-assessed stream sites that appear to meet the minimum 20-week criterion for persistence of standing or slow-moving water. Information is more limited regarding stream sites assessed from aerial imagery; however, all perennial streams in the study area are likely to support fish. Based on these factors, stream sites that met the criterion may represent marginal habitat for CRLF breeding, where isolated CRLF could sometimes breed opportunistically, as described by Barry (2002). In particular, sites along Little Oregon Creek, which is situated near wetlands where CRLF has been recorded (Section 3.1), may also provide non-breeding, aquatic habitat.

One site, LO19, is a side channel of Little Oregon Creek and connected to the creek at high flows. The site meets the minimum 20-week criterion and, unlike the other stream-associated sites, contains dense aquatic vegetation (American brooklime [*Veronica americana*]) (see Figure 1-140 in Attachment 7-3A, Part 2), which may increase habitat suitability.

Depressional wetland features within 1.6 km of the FERC Project Boundary include excavated ponds on private property that may be used for livestock or irrigation; and sites on the PNF associated with historical mine excavations or tailings. Six assessed mine-tailing sites in the vicinity of Little Oregon Creek appear to meet the 20-week criterion (LO15 and LO16) or do so with certainty (LO17, LO21, LO23, and LO28). Three other wetland sites (LO11, LO12, and LO24) probably do not hold significant standing water for prolonged periods. The wetland sites that meet the 20-week criterion all exhibit ample emergent vegetation and three also contain areas of floating, aquatic vegetation. These sites also have moderate to minimal forest canopy, do not contain fish and are not accessible to fish. CRLF has been documented previously at two of the sites (see Section 3.1), LO21 and LO28.

New Bullards Bar Reservoir is not potential breeding habitat for CRLF and therefore, was not identified as an assessment site (Section 2.2). Large, deep reservoirs and lakes, particularly with predatory fish, are not known to provide CRLF breeding habitat (USFWS 2002). New Bullards Bar Reservoir is deep, with steeply-sloped banks lacking emergent vegetation. The reservoir supports numerous game fish species and has a long history of fish stocking by CDFG dating

back to 1959 (YCWA 2010). Planted species include Kokanee (*Oncorhynchus nerka*), rainbow trout (*O. mykiss*), brook trout (*Salvelinus fontinalis*), cutthroat trout (*O. clarki*), and spotted bass (*Micropterus punctulatus*). Sport fishermen also report catching largemouth bass (*M. salmoides*), smallmouth bass (*M. dolomieu*), redear sunfish (*Lepomis microlophus*), crappie (*Pomoxis* sp.), bluegill (*L. macrochirus*) and channel catfish (*Ictalurus punctatus*). Similarly, Our House Diversion Dam Impoundment on the Middle Yuba River is not potential breeding habitat because it is situated on a large stream with snow-melt driven hydrology, inconsistent with stream habitats used by CRLF for breeding, and predatory fish occur.

Log Cabin Diversion Dam Impoundment[4] on Oregon Creek was assessed as potential habitat, and is included as a stream impoundment which met the 20-week criterion. Oregon Creek is a smaller stream than the Middle Yuba River; however, seasonal high flows from rain and snow-melt runoff typically occur, likely making this an unsuitable site for CRLF breeding habitat.

3.2.2 Sites within 1.6 km of Project-affected Stream Reaches

The area within 1.6 km of stream reaches that may be affected by flows from the Project, but more than 1.6 km from the FERC Project Boundary, spans a relatively wide elevation range (2,600 feet [ft] in the upper part of the Middle Yuba River Assessment Area to 200 ft in the Yuba River – Narrows 2 Powerhouse Reach Assessment Area). The topography at higher elevations is steep and rugged with steep gradient streams and few wetlands, whereas low foothills with few mapped stream courses and concentrations of anthropogenic water bodies occur in the lower elevations around the Yuba River. Most of the assessment area associated with Oregon Creek and the Middle Yuba River consists of NFS land or is privately-owned, whereas, the area associated with the Yuba River is mostly privately owned or State of California land and USACE administered land. Existing land uses in the vicinity of Oregon Creek and Middle Yuba River and Yuba River above Englebright Reservoir are predominantly forestry, with limited residential development and recreation. Downstream of Englebright Reservoir, residential development becomes more prevalent. Recreational use is low, except at Englebright Reservoir.

Table 3.2-3 summarizes the river reach site assessment results by category. Parts 5 and 6 of Attachment 7-3A present maps of the area with the specific location of each study site. Most (n=86) of the 110 sites in the Project-affected stream reach assessment areas were excavated depressional wetlands on rural/residential properties, including stock, irrigation, or ornamental ponds of various sizes (n=66 sites) or were associated with historical mining (n=20 sites). The 20 mining legacy sites represent more than 25 separate or interconnected depresssional wetland features concentrated in the vicinity of the lowermost Project-affected reach of the Yuba River and in other mined areas more than 2.5 km east of New Colgate Powerhouse. One of the assessment sites ("Yuba Goldfields") is comprised of more than 36 separate dredger-created, National Wetland Inventory-mapped wetlands, mostly classified as palustrine open water features interspersed among rows of dredger spoils. There were 12 stream impoundment sites on tributaries to the Yuba River and only four of the sites were free-flowing streams. Most of the assessed sites (n=91) were classified as meeting the criterion for CRLF breeding habitat.

[4] A unique site number was not assigned to Log Cabin Diversion Dam Impoundment for this study; it is simply referred to by its name.

Because the sites were almost entirely located on private property, assessments were performed remotely (i.e., review of aerial photographs and other available mapped information). In addition, none of the Project-affected streams represent potential CRLF breeding habitat.

Table 3.2-3. Aquatic habitat sites assessed for CRLF breeding habitat within 1.6 km of Project-affected stream reaches, but more than 1.6 km from the Project Boundary, arranged by habitat type and determined to meet (Y), not meet (N), or undetermined to meet (U) minimum criterion of 20-week persistence of standing or slow-moving water.

Assessment Area	Total Number of Sites	Stream[1]		Stream Impoundment[2]		Excavated Pond[3]		Mining Legacy[4]		Other Wetlands[5]	
		Total	Met Criterion	Total	Met Criterion	Total	Met Criterion	Total	Met Criterion	Total	Met Criterion
Middle Yuba River, Oregon Creek Reach	11	0	Y: 0 N: 0 U: 0	1	Y: 1 N: 0 U: 0	10	Y: 6 N: 0 U: 4	0	Y: 0 N: 0 U: 0	0	Y: 0 N: 0 U: 0
Oregon Creek, Log Cabin Diversion Dam Reach	3	0	Y: 0 N: 0 U: 0	1	Y: 1 N: 0 U: 0	0	Y: 0 N: 0 U: 0	0	Y: 0 N: 0 U: 0	2	Y: 1 N: 0 U: 1
Yuba River, Narrows 2 Powerhouse Reach	63	1	Y: 1 N: 0 U: 0	10	Y: 10 N: 0 U: 0	34	Y: 27 N: 2 U: 5	12	Y: 12 N: 0 U: 0	6	Y: 6 N: 0 U: 0
Yuba River, Englebright Reservoir Reach	14	2	Y: 2 N: 0 U: 0	0	Y: 0 N: 0 U: 0	12	Y: 6 N: 0 U: 6	0	Y: 0 N: 0 U: 0	0	Y: 0 N: 0 U: 0
Yuba River, New Colgate Powerhouse Reach	1	0	Y: 0 N: 0 U: 0	0	Y: 0 N: 0 U: 0	1	Y: 1 N: 0 U: 0	0	Y: 0 N: 0 U: 0	0	Y: 0 N: 0 U: 0
Yuba River, Middle/North Yuba River Reach	18	1	Y: 1 N: 0 U: 0	0	Y: 0 N: 0 U: 0	9	Y: 8 N: 0 U: 1	8	Y: 8 N: 0 U: 0	0	Y: 0 N: 0 U: 0
Total	**110**	**4**	**Y: 4 N: 0 U: 0**	**12**	**Y: 12 N: 0 U: 0**	**66**	**Y: 56 N: 2 U: 16**	**20**	**Y: 12 N: 0 U: 0**	**8**	**Y: 7 N: 0 U: 1**

[1] Entire streams or stream sections, not impounded.
[2] Some stream impoundments also appear to have been excavated.
[3] Includes stock ponds, irrigation ponds, and ornamental ponds.
[4] Includes old dredger tailing depressions and mining excavations that hold water; some sites include multiple water bodies.
[5] Includes depressional wetlands adjacent to Yuba River that may be relict channels.

3.3 Incidental Observations

No CRLF were observed during the 70 field site assessments performed as part of this study, nor have there been any incidental sightings of CRLF during ongoing performance of the other relicensing studies.

Sierran treefrogs (*Pseudacris sierra*) were detected at sites in the Narrows 2 Development Assessment Area, and Sierran treefrogs and Sierra newts (*Taricha sierrae*) were detected at sites in the New Colgate Development Assessment Area. Other incidental observations that may be pertinent to the potential occurrence of CRLF in the study area include fish at numerous stream sites. More detailed information on incidental observations at each site is presented in Attachment 7-3A, Part 1.

4.0 Discussion

4.1 CRLF Life History

CRLF is primarily associated with perennial ponds and pools and perennial or seasonal streams, where water remains for a minimum of 20 weeks, beginning in the spring (i.e., sufficiently long for breeding to occur and larvae to complete development) (Jennings and Hayes 1994, USFWS 2006). Locations with the highest densities of CRLF exhibit dense emergent or shoreline riparian vegetation, closely associated with moderately deep (greater than 2.3 ft), still, or slow-moving water. The types of vegetation that seem to provide the most suitable structure are willows (*Salix* spp.), cattails (*Typha* spp.), and bulrushes (*Schoenplectus* and *Scirpus* spp.) at, or close, to the water level, which shade a substantial area of the water (Hayes and Jennings 1988). Barry (2002) also suggested that dense, floating patches of water primrose (*Ludwigia palustris*) or similar aquatic vegetation is often an indicator of "optimal" breeding habitat. Another correlation to CRLF occurrence is the absence, or near-absence, of introduced predators, such as American bullfrog and predatory fish - particularly centrarchids (i.e., freshwater sunfishes), which feed on larvae at higher rates than native predatory species (Hayes and Jennings 1988) - and mosquitofish. Hiding cover from predators may be provided by emergent vegetation, undercut banks, and semi-submerged root wads (USFWS 2005). Some habitats that are not suitable for breeding (e.g., shallow or short-seasonal wetlands, pools in intermittent streams, seeps, and springs) may constitute habitats for aestivation, shelter, foraging, predator avoidance, and juvenile dispersal.

Depending on elevation and climate, CRLF may breed from late November to late April. Barry (2002) reported that a Sierra Nevada CRLF population in El Dorado County at about 2,000 ft elevation bred in late April. Egg masses of CRLF are attached to emergent vegetation, such as cattail or bulrush, in natural ponds, stock ponds, marshes, or in deep pools and backwaters of streams. Larvae usually metamorphose between July and September (Jennings and Hayes 1994). Barry (2002) notes that suitable seasonal breeding ponds typically begin to dry in mid-August, and by completely drying prevent establishment of fish.

Adult dispersal outside of the breeding season may be directed upstream, downstream, or upslope of breeding habitat and may be associated with foraging and pursuit of hiding cover or aestivation habitat. Telemetry and other detection methods indicate that CRLF utilize small-mammal burrows, leaf litter, and other moist sites as much as 200 ft from riparian areas (Jennings and Hayes 1994, USFWS 2006). Long-distance, over-land dispersal has been documented at distances of up to a mile and probably occurs only during wet periods (USFWS 2006).

Suitable dispersal habitat consists of all upland and wetland habitat that connect two or more patches of suitable aquatic habitat within 1.25 mi of one another. Use of dispersal habitat is affected by barriers to movement, such as heavily traveled roads (with more than 30 cars per hour), moderate to high-density urban or industrial developments, and large reservoirs (Allen and

Tennant 2000). The healthiest CRLF populations persist and flourish where suitable breeding and non-breeding habitats are interspersed throughout the landscape and are interconnected by un-fragmented dispersal habitat (Allen and Tennant 2000).

4.2 Known Occurrences of CRLF and Suitable Habitat in Relation to Project Operation and Maintenance

The results of this study indicate the presence of at least 182 aquatic habitat sites within 1.6 km (i.e., CRLF dispersal distance) of the FERC Project Boundary or Project-affected stream reaches that are potentially suitable as CRLF breeding habitat, and 84 sites for which available information is inconclusive. Within the relatively high relief terrain that surrounds the Project, most of these sites are free-flowing streams, including tributaries to New Bullards Bar Reservoir, stream impoundments, and other stream-associated habitats, with a smaller number of excavated ponds and mining legacy wetlands. In contrast, a majority of the sites within the Project-affected stream reach assessment area consist of excavated ponds, stream impoundments, or mining legacy wetlands. Nearly all of the potentially suitable sites are outside of the Project Boundary. New Bullards Bar Reservoir and Our House Diversion Dam Impoundment on the Middle Yuba River do not represent potential breeding habitats for CRLF. Log Cabin Diversion Dam Impoundment on Oregon Creek met the minimum criterion for persistence of slow-moving water, but is unlikely to be used.

There have been no incidental detections of CRLF during this study or during performance of the other relicensing studies. However, New Bullards Bar Reservoir is less than 1.6 km from an area near Oregon Hill Road and Little Oregon Creek with known recorded occurrences of CRLF, a population which is presumed extant, and associated with designated critical habitat (CDFG 2012; USFWS 2010b). The sites with documented occurrences of CRLF and other similar, mining legacy sites in the same general vicinity that appear to be suitable habitat are situated 0.19 to 0.72 km (0.12 to 0.45 mi) from New Bullards Bar Reservoir and are not connected to Little Oregon Creek, a fish-bearing tributary of the reservoir. As noted earlier, Little Oregon Creek is not associated with Oregon Creek, which is a tributary to the Middle Yuba River. There have been no recorded observations of CRLF in Little Oregon Creek itself, or other tributaries. Site assessment results and earlier observations by Barry (2002) suggest that tributaries of New Bullards Bar Reservoir are, at best, marginal habitat for CRLF, but could represent seasonal, non-breeding aquatic habitat. Other known extant occurrences at Sailor Flat (Nevada County) and Hughes Pond (Butte County) are 7.2 and 27.2 km (4.5 to 16.9 mi) from the Project and are not affected by the Project in any foreseeable way.

Habitats at New Bullards Bar Reservoir and stream reaches downstream of the reservoir are unlikely to attract or support CRLF for reasons described above. Accordingly, O&M of New Bullards Bar Reservoir, which is operated as a storage reservoir, is unlikely to affect CRLF. Although the specific hydrology of each year can vary widely, YCWA typically operates New Bullards Bar Reservoir by capturing winter and spring runoff from rain and snowmelt. The North Yuba River inflow to New Bullards Bar Reservoir is augmented by diversions from the Middle Yuba River to Oregon Creek through the Lohman Ridge Tunnel and Oregon Creek into the reservoir through the Camptonville Tunnel. Consequently, New Bullards Bar Reservoir

normally reaches its peak storage at the end of the spring runoff season and then is gradually drawn down until its lowest elevation in early to mid-winter. The reservoir does not undergo significant daily changes in elevation. New Bullards Bar Reservoir is operated to meet minimum carryover storage requirements designed to ensure that instream flow requirements and at least 50 percent of the surface water deliveries to YCWA's service area are met during the next year. The carryover storage requirement is a drought protection measure. The two diversions generally operate in winter and spring during periods of high flow. Storage and water levels of the impoundments do not fluctuate under Project operations. YCWA's PAD (YCWA 2010) provides a detailed account of Project operations, including minimum flow schedule requirements.

Sites that may meet the minimum criterion for CRLF breeding habitat included at least 51 stream sites (sites with sufficient information to make a determination), 21 stream impoundments, 19 sites associated with historical mining, and 80 other excavated ponds. There is a low potential for Project O&M to affect sites associated with tributary streams of New Bullards Bar Reservoir. All of the stream sites are situated at a higher elevation than New Bullards Bar Reservoir's normal maximum water surface elevation. Tributaries to New Bullards Bar Reservoir are likely accessible to spawning fish from the reservoir and resident fish probably occur. Although the reservoir is a source of predatory fish entering tributary streams, recreational fishing is an important ancillary benefit of the Project, which is supported by CDFG fish stocking.

Project O&M has no foreseeable effect on any of the pond and mining legacy sites in the study area with suitable habitat. None of the sites are accessible to fish from New Bullards Bar Reservoir. No recreational activity associated the Project is likely to occur at these sites. Some of the sites, including site LO28, are located near Oregon Hill Road, on which road traffic appears to be low. Moran Road has a seasonal closure designed to minimize potential for road traffic to affect CRLF making overland movements (YCWA 1993). In a letter dated January 21, 1999, YCWA proposed Draft O&M Guidelines for the Project for ESA listed and FS Species of Concern. This letter directs that Project O&M activities be conducted in a manner that minimizes impacts to FS species of concern. Implementation would occur through an annual meeting each January with USFS and YCWA staff to identify and review planned projects and activities, and develop work schedules and approaches that minimize potential impacts.

One site, Site CC4, an impoundment on Cottage Creek, is located partly within the FERC Project Boundary about 0.3 km west of New Bullards Bar Reservoir and proximate to YCWA's equipment staging facility associated with the Project. The site, illustrated in Figures 1-3 to 1-6 in Attachment 7-3, Part 2, meets the minimum criterion for CRLF breeding habitat; however, the field assessment indicated the site is at least 4 meters deep when full and largemouth bass reportedly occur (D. Teater, Forest Service, pers. comm. March 2, 2012). Barry (2002) surveyed the site, which he designated "East Cottage Creek Pond," in 2001 and 2002, finding Sierra newts (*Taricha sierrae*) and Sierra treefrogs (*Pseudacris sierra*) and concluded that the site may be "too dark, too deep, and too cold to support red-legged frogs." This site is used as a water storage pond. To minimize potential effects on aquatic biota, the Forest Service (2002) draft management plan for New Bullards Bar Reservoir directs that the pond average water depth be maintained no less than 2 feet year around. The draft management plan also indicates that Forest

Service formally consulted with USFWS and obtained permission for incidental take in regards to prescribed maintenance activities.

Project O&M also has no foreseeable effect on the 108 potentially suitable sites surrounding Project-affected stream reaches. These sites include excavated ponds and impoundments of tributaries. The stream reaches on Oregon Creek, Middle Yuba River, and the Yuba River are not potential CRLF breeding habitat, but could represent non-breeding or dispersal habitat. There is a low potential for Project flows to affect CRLF use of stream reaches.

5.0 Study-specific Consultation

The FERC-approved study required three study-specific consultations, each of which is described below.

5.1 Submittal of Site Assessment Reports

The FERC-approved study requires:

> A Site Assessment Report will be prepared for submittal to USFWS; with separate submittals to the Forest Service addressing site assessments on NFS land, and to the BLM for site assessments on BLM-managed land. The report will include the following:
>
> - Copies of data sheets
> - Copies of field notes
> - Global Positioning System (GPS) data for all field reconnaissance sites
> - List of known occurrences of CRLF locations within the study area
> - Photographs of the reconnaissance sites including a map of photo locations
> - GIS map of potential CRLF habitat
>
> The report will be provided to USFWS for all CRLF occurrences, to the Forest Service for occurrences on NFS land, and to BLM for occurrences on BLM-managed land.

For the purposes of relicensing, the September 2012 interim technical memorandum was considered the Site Assessment Report, which addressed all assessment sites. The interim technical memorandum was provided to the USFWS, Forest Service and BLM in September 2012.

5.2 Submittal of Data Sheets to CNDDB

The FERC-approved study requires:

> YCWA will notify USFWS within three working days if CRLF are detected at any location. Within three working days of a detection of CRLF on NFS land or BLM-managed land, YCWA will notify the Forest Service or BLM, respectively.
>
> A California Native Species Field Survey Form will be prepared and submitted to the CNDDB for all CRLF recorded.

There were no detections of CRLF; consequently, notification and filing of CNDDB forms were not required.

5.3 Consult with USFWS Regarding Need for Protocol-Level Surveys

FERC has designated YCWA as its non-federal representative for Section 7 informal consultation under the ESA, YCWA will consult with USFWS prior to, during, and after study implementation.

Step 2 of the FERC-approved study states:

> Following submittal of the Site Assessment Report to USFWS, YCWA will consult with USFWS to determine if Protocol-level CRLF surveys are needed. The Site Assessment Report will provide a basis for discussions with USFWS regarding the potential for occurrence of CRLF within project-affected areas. For areas where surveys are required, YCWA will complete the surveys in accordance with the *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog, August 2005* (USFWS 2005). USFWS decontamination guidelines will be implemented during the surveys.
>
> CRLF surveys will be completed in areas that are accessible and can be safely surveyed by a pair of qualified biologists. If there are any incidental sightings of CRLF during implementation of any Relicensing studies, follow-up surveys will also be conducted at those locations.
>
> Protocol-level surveys consist of up to eight visits (i.e., two day visits and four night visits during the breeding season and one day and one night visit during the non-breeding season). If necessary, survey protocols will be modified, in consultation with USFWS, to provide for safety of survey personnel.
>
> A CRLF survey report will be prepared that includes the following:
>
> - Copies of datasheets
> - Copies of field notes

- Global Positioning System locations for all surveyed sites
- Photographs of individual CRLF observed during surveys and habitats where the individual was observed
- GIS maps documenting the location of each individual CRLF observed during the surveys

The report will be provided to USFWS for all CRLF occurrences and also to the Forest Service for occurrences on public land managed by the Forest Service.[5]

YCWA consulted with the USFWS prior to and during study implementation. YCWA, as FERC's non-federal representative for informal Section 7 consultation under ESA, consulted with USFWS throughout the relicensing. These consultation events included:

- Since July 2009, YCWA has met with Relicensing Participants, including USFWS, to provide USFWS staff with an overview of the project and relicensing.
- On September 29, 2009, YCWA provided to USFWS a Preliminary Information Package.
- On November 5, 2010, YCWA provided to USFWS a Pre-Application Document.
- YCWA included USFWS staff on all e-mail correspondences regarding the relicensing, including study proposal development and Relicensing Participant meetings since July 2009.
- On March 7, 2011, USFWS responded to YCWA's November 2010 Proposed Study Plans (submitted as Section 10.0 of the PAD), but did not make any comments on or suggest modifications to Study 7.3, *ESA-Listed Amphibians – California Red-legged Frog*.
- On July 2011, USFWS submitted comments on Scoping Document 2 and YCWA's Proposed Study Plan and made two suggested modifications to Study 7.3, which were adopted.
- On September 1, 2011, USFWS responded to YCWA's August 17, 2011 Revised Study Plan, but did not make any comments on or suggest further modifications to Study 7.3.
- On July 15, 2012, USFWS issued a dispute letter to FERC's September 30, 2011, Study Determination, but did not dispute Study 7.3.
- On September 20, 2012, YCWA posted to the Relicensing Website Interim Technical Memorandum 7.3, *ESA-Listed Amphibians – California Red-legged Frog*, that summarized the results of the FERC-approved Study 7.3, *ESA-Listed Amphibians – California Red-legged Frog*. YCWA provided a hardcopy of the interim technical memorandum to USFWS.

[5] Since this information may be considered "Confidential" by USFWS and the Forest Service, YCWA will make a summary of the information available to Relicensing Participants unless otherwise directed by the federal agencies.

- On October 22, 2012, FERC, USFWS and YCWA met to discuss the potential for Project effects related to CRLF. USFWS said it believed additional data gathering was not necessary, but would consider this and advise YCWA in mid November 2012.
- On November 8, 2012, USFWS advised YCWA that USFWS has not come to a decision regarding additional data gathering needs.
- On December 3, 2012, USFWS said it was in the process of completing its internal review of the September 2012 interim technical memorandum and consulting with other agencies. YCWA and USFWS agreed that for the purpose of the FERC-approved study, consultation would be considered complete. However, YCWA and USFWS agreed that consultation would continue under both FERC's Integrated Licensing Process (ILP) and Section 7 of the ESA. Under the ILP, consultation regarding additional data gathering could occur both formally (i.e., through the ILP Initial Study Report process), and informally (i.e., YCWA and USFWS could continue discussion of potential additional data gathering, if the parties believed there was benefit in doing so).

The USFWS filed comments with FERC on the Initial Study Report concerning this study, recommending that YCWA conduct protocol-level surveys for CRLF at all of the sites that were determined by the study to meet the minimum breeding habitat criterion. In addition, USFWS recommended CRLF surveys 0.25 mi upstream and downstream of locations where bullfrogs were observed on stream reaches that may be affected by the Project. FERC (2013) determined that the requested study modification was not required for the following reasons. Firstly, USFWS did not provide a rationale for why all the sites, many of which would not be affected by Project operation or maintenance activities, needed to be surveyed, or explained how surveys would lead to the development of license conditions. Secondly, FERC concluded that performing CRLF surveys on the basis of bullfrog presence was not justified, because the presence of bullfrogs is not a reliable indicator of potential CRLF habitat. FERC recommended that YCWA and USFWS continue informal ESA consultation on the need for and extent of protocol-level surveys.

On May 17, 2013, YCWA met again with USFWS, along with FS Biologist M. Tierney (Tahoe National Forest) to continue informal consultation. The parties agreed to perform a site visit together on July 11, 2013 to view wetland sites in the vicinity of Little Oregon Creek, and staging areas for woody debris disposal near Moran Cove. A trip report will be provided to FERC and a follow-up meeting will be held on July 24, 2013. YCWA and USFWS also agreed that Technical Memorandum 7-3 can now be considered final. If USFWS and YCWA collaboratively agree on the need for and extent of protocol-level surveys or other additional focused efforts, YCWA will prepare a new study proposal accordingly. YCWA will file the collaboratively developed study proposal with FERC, and implement the study as directed by FERC.

6.0 Variances from the FERC-approved Study

This study was conducted according to the FERC-approved Study 7.3, *ESA-Listed Amphibians – California Red-Legged Frog*, with two variances. First, the FERC-approved study states that separate site assessment reports will be prepared for the Forest Service addressing site assessments on NFS land and for BLM for site assessments on federal land administered by BLM. YCWA provided the interim technical memorandum to both agencies in September 2012. The interim technical memorandum meets the requirements of the Site Assessment Report, includes all site assessments, including those site assessments on NFS land and BLM-administered land.

Second, the FERC-approved study stated the study would be complete in September 2012. Study completion was delayed due because the quality review of the data and consultation with the USFWS took slightly longer than anticipated.

7.0 Attachments to This Technical Memorandum

This Technical Memorandum includes two attachments:

- Attachment 7-3A Parts 1 through 4, Detailed CRLF Site Assessment Results and Maps
  - Part 1, Detailed CRLF Site Assessment Results [1 Adobe pdf file: 5 MB; 80 pages formatted to print double sided on 8 ½ by 11 paper]
  - Part 2, Representative Photographs [1 Adobe pdf file: 40 MB; 128 pages; formatted to print double sided on 8 ½ by 11 paper]
  - Part 3, Habitat Assessment Location Maps: FERC Project Boundary Study Area [1 Adobe pdf file: 50 MB; 26 pages; formatted to print double sided on 11 by 17 paper]
  - Part 4, CalVeg Vegetation Type Maps: FERC Project Boundary Study Area [1 Adobe pdf file: 52 MB; 26 pages; formatted to print double sided on 11 by 17 paper]
  - Part 5, Habitat Assessment Location Maps: Project-Affected Stream Reaches Study Area [1 Adobe pdf file: 38 MB; 20 pages; formatted to print double sided on 11 by 17 paper]
  - Part 6, CalVeg Vegetation Type Maps: Project-Affected Stream Reaches Study Area [1 Adobe pdf file: 42 MB; 20 pages; formatted to print double sided on 11 by 17 paper]
- Attachment 7-3B Habitat Site Assessment Data Sheets [1 Adobe pdf file: 14 MB; 318 pages formatted to print double sided on 8 ½ by 11 paper]

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