

Bald Eagle Monitoring Report

Sacramento Municipal Utility District

Hydro License Implementation • June 2019
Upper American River Project
FERC Project No. 2101



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Acronyms and Abbreviations

Acronym	Definition
CDFW	California Department of Fish and Wildlife
FERC	Federal Energy Regulatory Commission
GPS	Global Positioning System
SMUD	Sacramento Municipal Utility District
SWRCB	State Water Resources Control Board
UARP	Upper American River Project
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service

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1.0 INTRODUCTION AND BACKGROUND

This Bald Eagle Monitoring Report (Report) addresses monitoring requirements set forth in Sacramento Municipal Utility District's (SMUD) Bald Eagle Monitoring Plan (SMUD 2015). The requirements for this Plan are found in State Water Resources Control Board (SWRCB) Condition 8.L, and U.S. Forest Service (USFS) 4(e) Condition 31, located in Appendices A and B, respectively, of the Federal Energy Regulatory Commission's (FERC) Order Issuing New License for the Upper American River Project (UARP), dated July 23, 2014 (FERC 2014, Attachments 1 and 2). The Plan was developed in consultation with the SWRCB, USFS, California Department of Fish and Wildlife (CDFW), and U.S. Fish and Wildlife Service (USFWS). FERC approved the Plan on July 2, 2015. Results of bald eagle monitoring conducted in 2018 are provided in this Report.

The UARP lies within El Dorado and Sacramento counties, primarily within lands of the Eldorado National Forest. The UARP consists of three major storage reservoirs: Loon Lake, Union Valley, and Ice House (with a combined capacity of approximately 379,000 acre-feet), eight smaller regulating or diversion reservoirs, and eight powerhouses. The UARP also includes recreation facilities containing over 700 campsites, five boat ramps, hiking paths, and bicycle trails at the reservoirs.

2.0 MONITORING PLAN OBJECTIVES

As described in USFS 4(e) Condition 31 and SWRCB WQC Condition 8.L (Attachments 1 and 2), the primary objectives and rationale for the bald eagle monitoring program are to coordinate with the CDFW, USFS, and USFWS to continue monitoring bald eagle nest sites and to ensure that bald eagle nest sites are not being adversely affected by activities related to the UARP. The results of the monitoring are intended to inform future bald eagle management in the UARP area.

3.0 STUDY AREA AND SURVEY FREQUENCY

The Bald Eagle Monitoring Plan (SMUD 2015) specifies that surveys will be conducted at Union Valley Reservoir, Loon Lake Reservoir, and Ice House Reservoir (Figure 1) at the frequencies described below:

- Nesting surveys will be conducted at Union Valley Reservoir annually. In addition, two winter night roost surveys will be conducted at Union Valley Reservoir during the 2015/2016 and 2016/2017 winter seasons.
- Nesting surveys will be completed at Ice House Reservoir (starting in 2016). If no nesting activity is observed at Ice House Reservoir, surveys will continue to be conducted once every three years. If nesting activity is observed at Ice House Reservoir, monitoring will be conducted annually until there are three consecutive years without nesting activity.

- Nesting surveys will be completed at Loon Lake annually for the first three consecutive years of license issuance (2016, 2017, and 2018). If any nesting activity is observed at this reservoir during these three years of surveys, regardless of nesting success, nesting surveys will continue annually until there are three consecutive years without nesting activity. If no nesting activity is observed during the three consecutive years of surveys, nesting survey frequency at Loon Lake Reservoir will be reduced to once every three years.

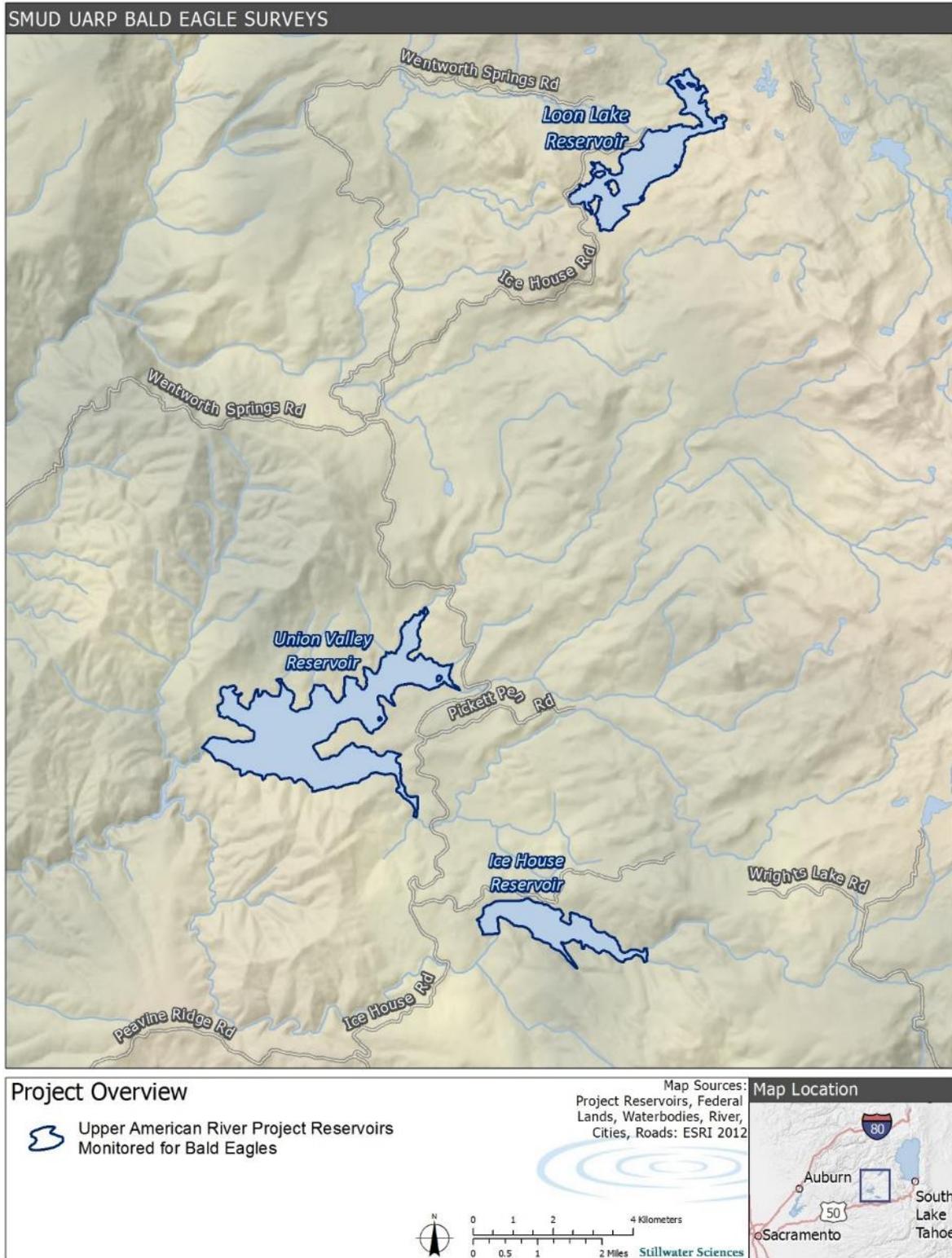


Figure 1. Bald eagle monitoring study area overview.

4.0 METHODS

Surveys for bald eagle were conducted during the 2018 breeding season at Union Valley Reservoir and Loon Lake Reservoir; Ice House Reservoir was not surveyed because bald eagle nesting was not documented at this location in 2016 (see Section 3.0 for additional detail on frequency and duration of surveys by reservoir). Surveys for new nests and at known nest sites were conducted in accordance with protocols described in the *Protocol for Evaluating Bald Eagle Habitat and Populations in California* (Jackman and Jenkins 2004) and *Bald Eagle Breeding Survey Instructions* (CDFG 2010). Where possible (i.e., weather-related conditions permitting), surveys were conducted at each reservoir during the following time periods: late February through March (early breeding season), late April through May (mid-breeding season), and early June to early July (late breeding season). If weather conditions precluded surveying during the early breeding season, an additional survey was performed during the mid- or late breeding season so that three total surveys were performed during the breeding season at each reservoir.

Surveys began at dawn and concluded in the late afternoon. Nest sites documented during the previous year of surveys were revisited (SMUD 2017) and other areas with suitable habitat surrounding each reservoir, including historical nest sites documented during relicensing surveys (SMUD 2004), were evaluated for signs of bald eagle nesting activity. Observations were made using binoculars and/or a spotting scope from a boat and land-based vantage points accessed by vehicle and/or foot (Figures 2 and 3). Detailed data regarding the location, age class, activity, movement, and behavior of bald eagles were recorded and notes were taken on incidental observations of other avian species and recreational activities on the day of the survey. Bald eagle perches and nests located during the surveys were mapped using a handheld Global Positioning System (GPS) unit. Using the California Bald Eagle Nesting Territory Form (CDFG 2010), a detailed summary of all bald eagle observations at each reservoir was submitted to CDFW at the end of the breeding season.

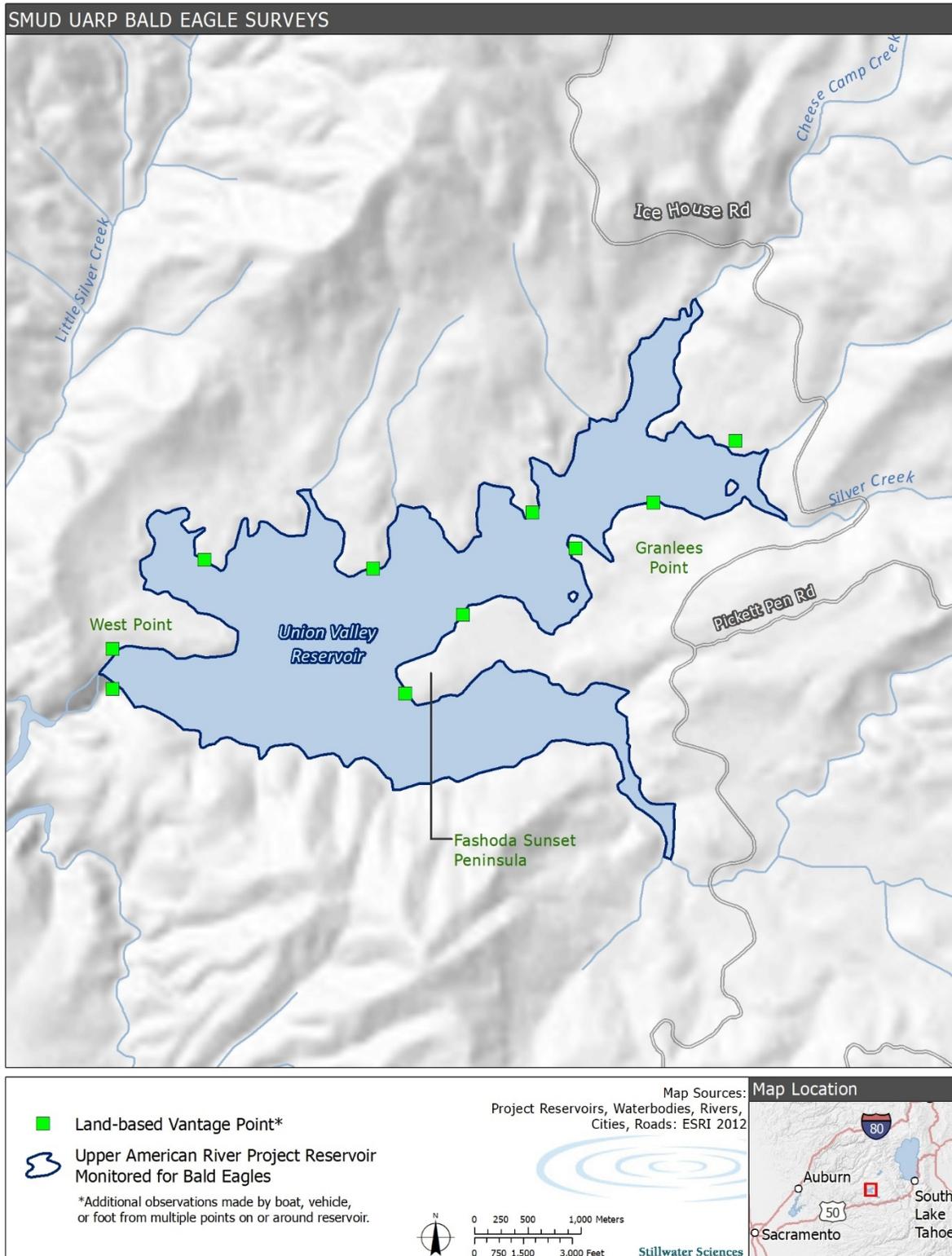


Figure 2. Land-based vantage points used for bald eagle monitoring on Union Valley Reservoir.

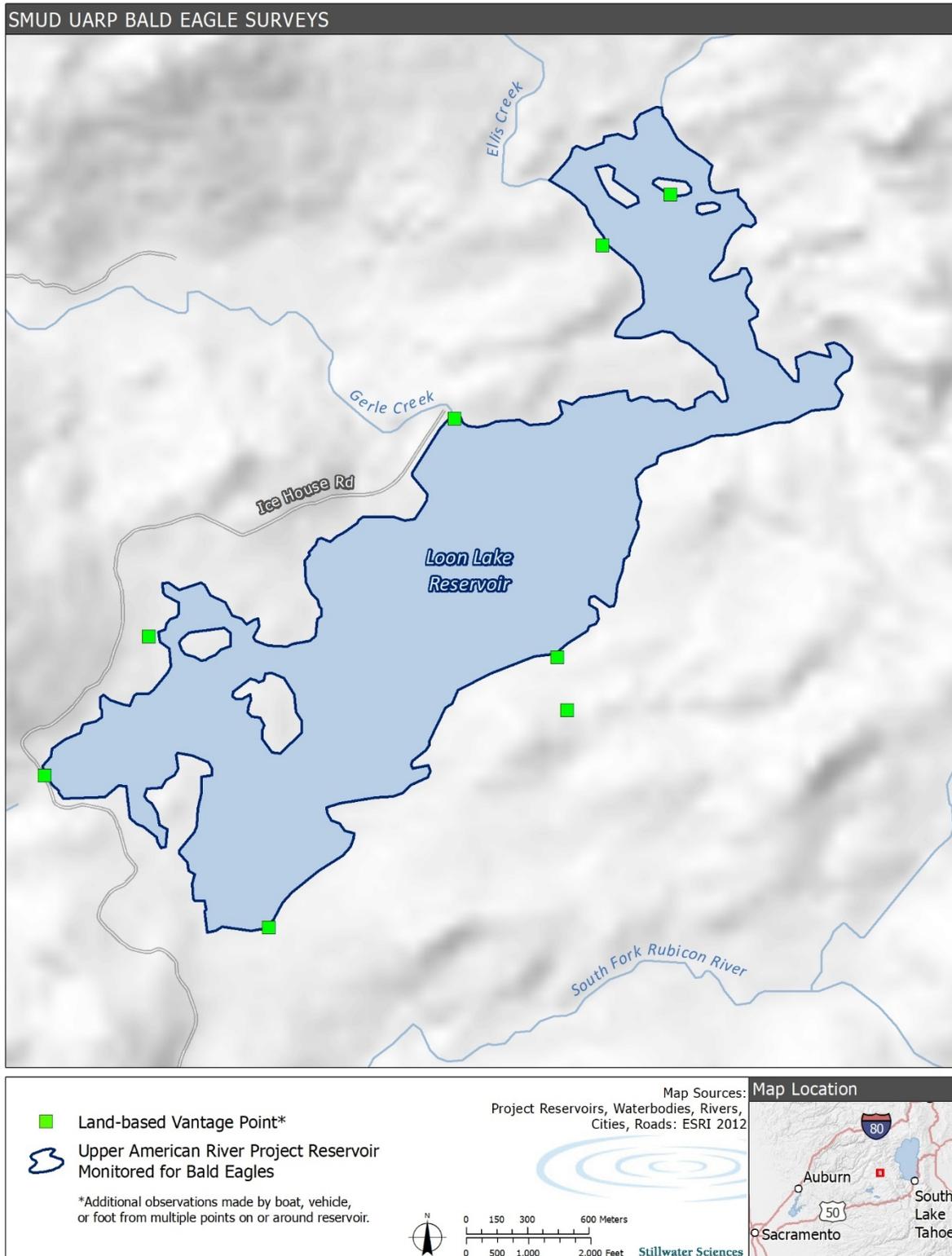


Figure 3. Land-based vantage points used for bald eagle monitoring on Loon Lake Reservoir.

5.0 RESULTS

5.1 UNION VALLEY RESERVOIR

Surveys for bald eagles during the breeding season were conducted at Union Valley Reservoir on the following dates in 2018: March 12, April 18, and June 05. Additional reproductive status checks between official surveys were performed on April 17, 2018 and May 15, 2018. Table 1 summarizes bald eagle observations made during the surveys and status checks. Since the reservoir was visited on five separate occasions during the breeding season, it is assumed that many of these observations are repeat detections of birds seen during previous visits.

Results of the survey conducted in the early breeding season of 2018 at Union Valley Reservoir indicated occupancy and initiation of reproductive activity. The nest located in Sunset Campground that was utilized in 2016 and 2017 had deteriorated substantially, but evidence of rebuilding activity was noted. In addition, a pair of adult bald eagles was observed exhibiting courtship behavior over the northwest perimeter of the reservoir. Subsequent surveys, however, indicated that the reproductive attempt was not successful. During the mid-breeding season, the nest structure was partially disassembled and determined to be empty and a pair of adults and a juvenile were observed perched together in a pine tree on the north edge of the peninsula, approximately 300 feet from the nest tree (Figures 4 and 5). There was also no evidence of reproductive activity during the late breeding season survey, although bald eagles were observed. Surveyors visited the historical nest site (2015) and the USFS nest platform on Granlees Point during each of the 2018 breeding season surveys; several bald eagle roosting and perching locations were documented in the vicinity, but there was no evidence of nesting at either of these locations (Figures 4 and 6).

Table 1. Bald Eagle Observations During the 2018 Breeding Season Surveys at Union Valley Reservoir.

Date (Time)	Number of Eagles	Age Class	Notes
03/12/18 (09:15)	1	Adult	Flying east from area near Union Valley Dam toward Fashoda Sunset Peninsula
03/12/18 (09:30)	2	Adults	Pair perched approximately 150 feet south of nest tree in Sunset Campground
03/12/18 (10:00)	2	Adult	Pair departing roost tree in Sunset Campground, soaring together intermittently over Fashoda Sunset Peninsula
03/12/18 (11:00)	2	Adult	Pair soaring over northwest perimeter of Union Valley Reservoir, occasionally exhibiting courtship behavior
04/17/18 (17:00)	1	Adult	Male perched in pine (Jeffrey or Ponderosa) along north edge of Granlees Point
04/17/18 (17:07)	1	Adult	Female flying over reservoir and perching in snag along northeast edge of Granlees Point, departed to the southwest approximately 35 minutes later
04/17/18 (17:22)	1	Adult	Male departing perch in pine (Jeffrey or Ponderosa), flying southwest
04/17/18 (17:30)	1	Adult	Male (relocated) perched in white fir just east of previous perch, departed to the southwest several minutes later
04/17/18 (17:40)	1	Juvenile	Juvenile (3 rd year) flying over Azalea Campground and perching on snag along east shoreline of reservoir
04/17/18 (19:20)	3	Adults Juvenile	Two adults and one juvenile (2 nd year) perched in pine (Jeffrey or Ponderosa) on north end of Fashoda Sunset Peninsula, approximately 100 feet from nest tree
04/18/18 (07:30)	1	Adult	Female perched in snag along northeast edge of Granlees Point
04/18/18 (07:35)	1	Adult	Male perched in pine (Jeffrey or Ponderosa) along north edge of Granlees Point
04/18/18 (17:50)	1	Juvenile	Juvenile (2 nd year) flying northeast over Fashoda Sunset Peninsula
06/05/18 (10:20)	1	Adult	Adult flying west to east over Camino Cove
06/05/18 (11:10)	1	Adult	Adult soaring above Fashoda Sunset Peninsula

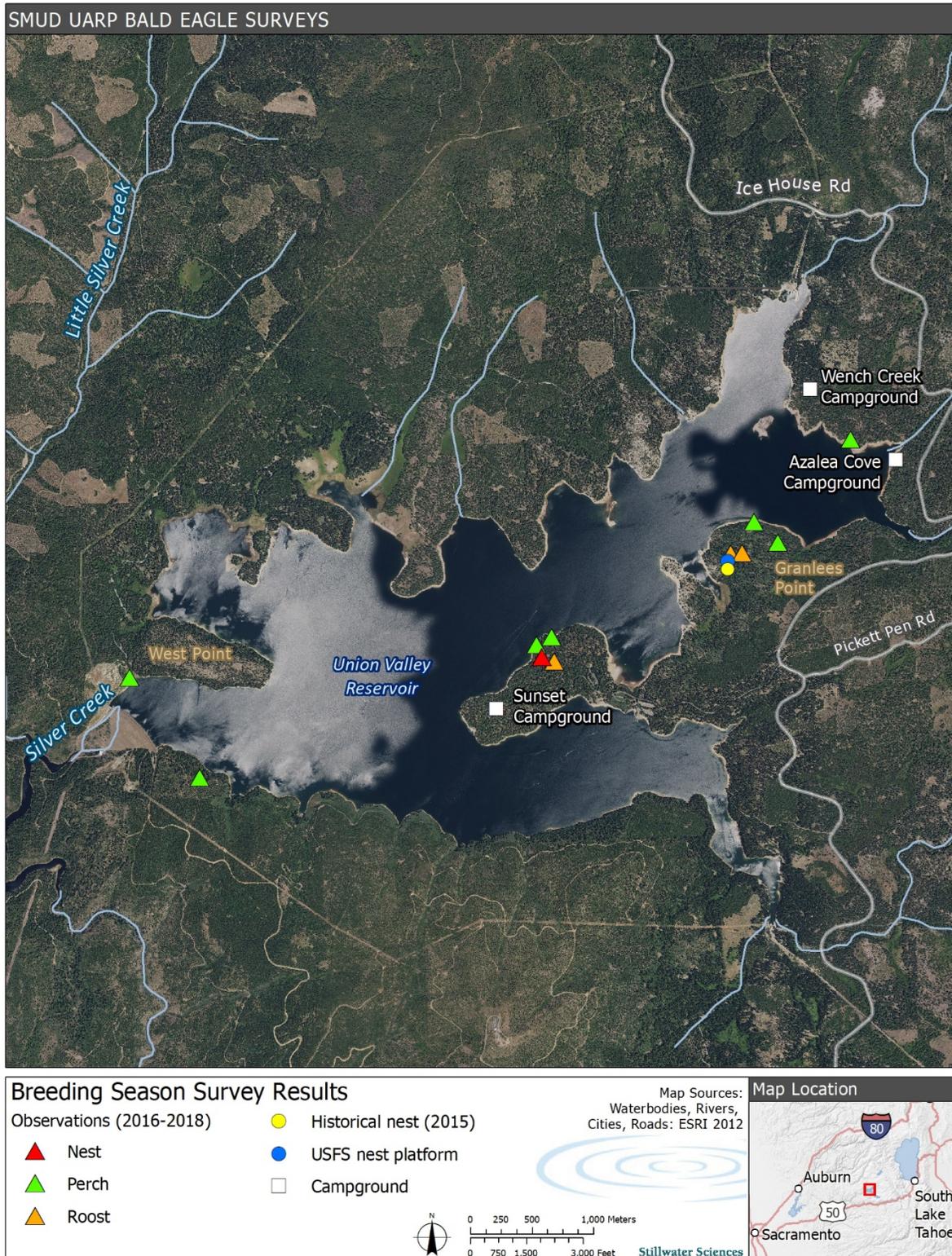


Figure 4. Bald eagle activity sites at Union Valley Reservoir.



Figure 5. Partially disassembled bald eagle nest at Sunset Campground during the mid-breeding season at Union Valley Reservoir (May 2018).



Figure 6. Unoccupied bald eagle nesting platform on Granlees Point at Union Valley Reservoir (April 2018).

5.2 LOON LAKE RESERVOIR

Surveys for bald eagles during the breeding season were conducted at Loon Lake Reservoir on the following dates in 2018: May 16, June 06, and July 09. Additional reproductive status checks, beyond the required protocol, were performed on July 15, 2018 and July 24, 2018. Table 2 summarizes bald eagle observations made during the surveys.

A successful nesting attempt was documented on the south side of the reservoir approximately 400 feet from the Rubicon Trail in a dominant Jeffrey pine; unsuccessful nesting attempts occurred at this location in both the 2016 and 2017 breeding seasons (SMUD 2017) (Figure 7). During the early breeding season survey in 2018, which was postponed until May due to accessibility and weather conditions, surveyors observed an adult bald eagle (female) in the nest tree receive a food delivery from a male bald eagle and subsequently feed two nestlings that were barely visible above the edge of the nest. When surveyors returned a few weeks later for the mid-breeding season survey, one nestling was visible in the nest and the other was not observed (Figure 8). In early July, SMUD staff observed a single late stage nestling exhibiting branching behavior near the nest. When surveyors returned a few days later for the late breeding season survey, the nest was unoccupied and it was determined that the juvenile eagle had fledged based on bits of thermal down and whitewash found under several low branches and snags in the surrounding area. The fledgling was not observed or definitively heard during the late breeding season survey, nor were the adult eagles. Surveyors returned to the area for two subsequent status checks in an effort to determine if the fledgling had survived; on the second of these additional visits, the fledgling was heard vocalizing near dusk and subsequently located in a sugar pine on the edge of the reservoir approximately 0.1 mile west of the nest tree (Figures 7 and 9).

Table 2. Bald Eagle Observations During the 2018 Breeding Season Surveys at Loon Lake Reservoir.

Date (Time)	Number of Eagles	Age	Notes
05/16/18 (07:15)	1	Adult	Female observed from spillway in dominant pine on south side of reservoir
05/16/18 (08:30)	1	Adult	Male flying east and landing in Jeffrey pine with food delivery; remained for five minutes and then departed to the south
05/16/18 (08:35)	3	Adult Juveniles	Female feeding two nestlings; remained in nest (intermittently visible) until surveyor departure at 11:15
05/16/18 (10:10)	1	Adult	Male flying north and returning to nest in Jeffrey pine; remained in nest tree until surveyor departure at 11:15
06/06/18 (06:35)	2	Adult Juvenile	Female perched in nest tree (Jeffrey pine); single nestling intermittently visible on branches near nest
06/06/18 (06:50)	1	Adult	Female departing nest tree to south; nestling no longer visible
06/06/18 (07:05)	1	Adult	Female returning to nest tree from south; nestling still not visible
06/06/18 (09:15)	2	Adult Juvenile	Female and single nestling visible in nest tree
06/06/18 (10:10)	1	Adult	Female departing nest tree, flying south
06/06/18 (10:24)	2	Adult Juvenile	Male arriving at nest tree with food delivery; single nestling visible (adult female heard vocalizing from the south)
07/24/18 (19:50)	1	Juvenile	Post-fledging juvenile heard begging west of the nest tree and subsequently located in red fir north of the Rubicon Trail

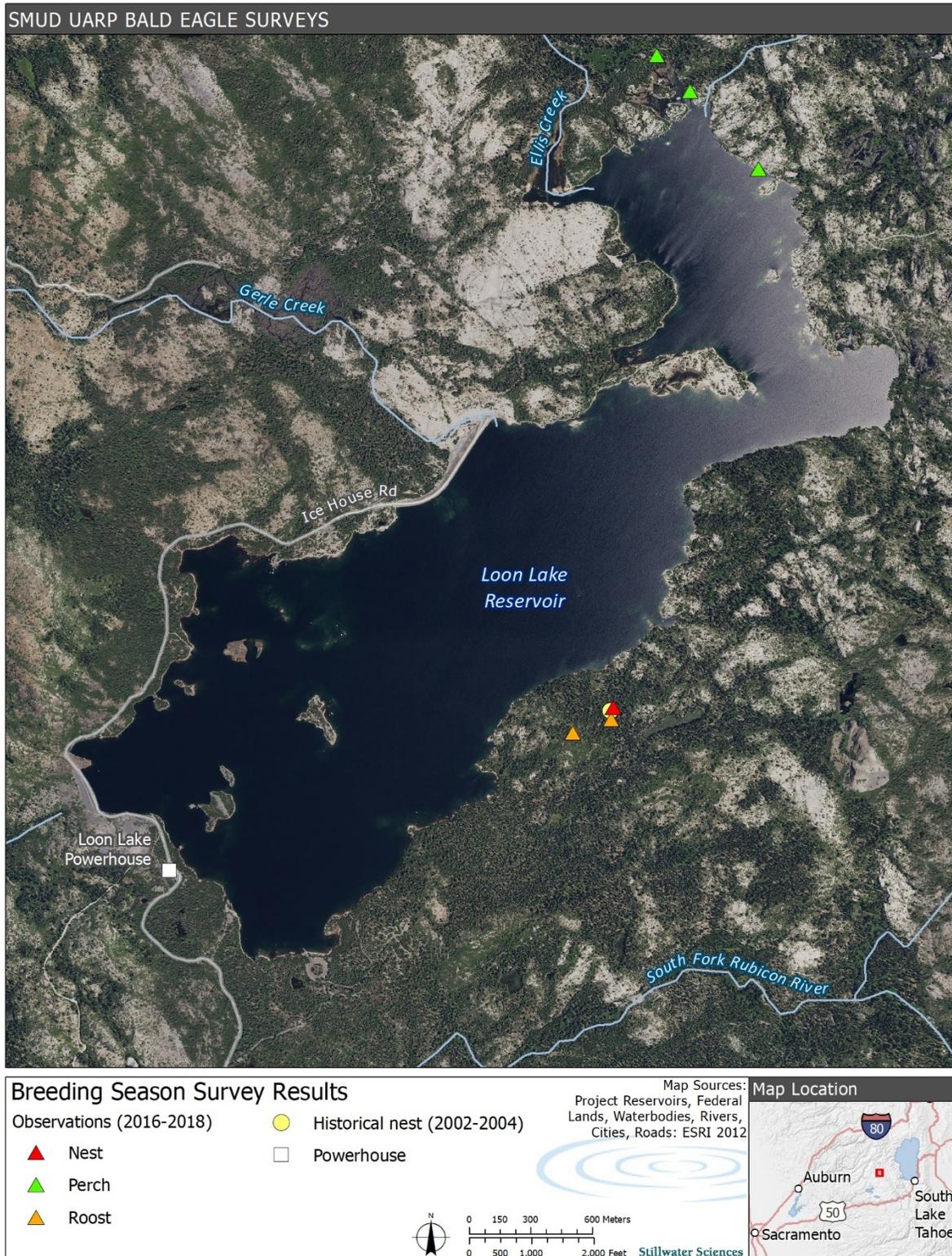


Figure 7. Bald eagle activity sites at Loon Lake Reservoir.



Figure 8. Bald eagle nestling in nest tree on Loon Lake Reservoir (June 2018).



Figure 9. Post-fledging juvenile bald eagle in roost on Loon Lake Reservoir (July 2018).

6.0 DISCUSSION

6.1 UNION VALLEY RESERVOIR

Bald eagles continue to use the habitat surrounding Union Valley Reservoir, but the reproductive attempt was unsuccessful in 2018. Nonetheless, reproductive productivity over the last three years at Union Valley Reservoir has been higher than the average previously recorded during relicensing studies (SMUD 2004) and that documented during a 20-year study of occupied territories along the Pit River drainage in northern California (Jenkins and Jackman 2006).

Inclement weather and/or reservoir levels were unlikely to have affected bald eagle nesting success at Union Valley Reservoir in 2018. The 2018 water year was dryer than average and cumulative precipitation in the region was approximately 75% of normal (NOAA 2018). Reservoir levels remained relatively consistent during the breeding season, gradually increasing from approximately 4,830 feet above mean sea level in February to approximately 4,870 feet by the end of May (CDWR 2018 [UNV]). Cumulative precipitation during the breeding season at Moratinni Flat (the closest gage to Union Valley Reservoir) was approximately 34 inches (CDWR 2018 [MFT]), with the most significant accumulation (approximately 30 inches) occurring by mid-April. Snowpack (as measured by water content) at Robbs Peak Powerhouse peaked at 12 inches in late March and had largely melted by mid-April (CDWR 2018 [RBP]). Although minimum air temperatures regularly dropped below freezing through mid-April, the portion of the lake to the north and east of Granlees Point that was frozen during the early breeding season in 2017 did not freeze for any significant length of time in 2018.

There was very little recreational activity observed on or around the reservoir during the early and mid-breeding season surveys; however, increased activity was noted during the late breeding season survey (see Attachment 3 for additional details). Maintenance activities involving noise-generating equipment performed at Union Valley Reservoir during the breeding season in 2018 included campground improvements at Azalea Cove, Wench Creek, and Sunset campgrounds. Azalea and Wench Creek campgrounds are both located on the eastern end of Union Valley Reservoir, approximately two miles east of Fashoda Sunset Peninsula (Figure 4). Activities at these campgrounds began in late April and concluded in June. Maintenance activities at Sunset Campground also began in April but were initially limited to campsites in the two western-most loops approximately 0.25 mile from the nest tree until mid-May, when it was determined that the reproductive attempt was unsuccessful. Campground improvement activities in the eastern-most loop were performed within designated work areas that were designed to avoid the nest tree and other trees identified by surveyors as perches or roosts. Campground upgrade activities in Sunset Campground were completed in November 2018. No observations of bald eagles exhibiting agitation or appearing disturbed as a result of recreational or maintenance activity at Union Valley Reservoir were made during the surveys.

6.2 LOON LAKE RESERVOIR

There is suitable bald eagle reproductive habitat around Loon Lake Reservoir during a limited season due to its high elevation (approximately 6,500 feet). The duration of this season varies with weather conditions from year to year. A successful reproductive attempt was documented in a Jeffrey pine located on the south side of the reservoir during the 2018 breeding season. Surveys conducted during the breeding season in the two previous years (2016 and 2017) each documented unsuccessful reproductive attempts at the same location. Although two nestlings were observed in the nest during the early breeding season survey in 2018, only one juvenile successfully fledged from the nest. The second nestling may have been outcompeted in the nest and/or perished due to weather, predation, or other unknown factors.

Weather and/or reservoir levels did not appear to be a factor affecting bald eagle nesting at Loon Lake Reservoir during the 2018 breeding season. As stated previously, the 2018 water year was dryer than average and cumulative precipitation in the region was approximately 75% of normal (NOAA 2018). Reservoir levels ranged from approximately 6385 to 6410 feet above mean sea level (CDWR 2018 [LON]) during the breeding season and the main body of the reservoir was frozen over and partially covered with snow during most of April. Cumulative rainfall at Loon Lake Reservoir during the breeding season was approximately 31 inches, with the vast majority (27 inches) of it occurring before the middle of April (CDWR 2018 [LON]). Minimum air temperatures regularly dropped below freezing through April (CDWR 2018 [LON]) and snowpack (as measured by water content) at the nearby Van Vleck Gage peaked at approximately 22 inches in late March and had melted by early May (CDWR 2018 [VVL]).

There was no recreational activity observed on or around the reservoir during the early breeding season survey and surveyors noted a modest increase in activity during the mid- and late breeding season surveys (see Attachment 3 for additional details). Other than a cable replacement between the powerhouse and the gate house on the western end of the reservoir during the month of July, SMUD did not perform maintenance activities involving noise-generating equipment at Loon Lake Reservoir during the breeding season in 2018. Periodic helicopter flights for standard operation and maintenance activities at Rubicon Reservoir and Buck Island Reservoir occurred on occasion over the summer but were routed to avoid the bald eagle nesting area on the south end of the reservoir. Annual repair and maintenance of the Rubicon Trail on the south end of the reservoir was postponed and conducted in August after the juvenile bald eagle had fledged. No observations of bald eagles exhibiting agitation or appearing disturbed as a result of recreational or maintenance activity at Loon Lake Reservoir were made during the surveys.

7.0 UPCOMING SURVEY PLANS

In accordance with the schedule outlined in Section 3.0 and described in the monitoring plan (SMUD 2015), surveys during the 2019 breeding season will be conducted at

Union Valley Reservoir (requires annual monitoring), Loon Lake Reservoir (monitor based on 2018 results), and Ice House Reservoir (monitor every three years unless nesting activity is observed).

8.0 LITERATURE CITED

CDFG (California Department of Fish and Game). 2010. Bald eagle breeding survey instructions and California bald eagle nesting territory field form. Sacramento, CA.

CDWR (California Department of Water Resources). 2018. Precipitation, snow water content, temperature, and reservoir level data from the following stations in California: Loon Lake Reservoir (Station ID: LON), Morattini Flat (Station ID: MFT), Pacific House (Station ID: PCF), Robbs Powerhouse (Station ID: RBP), Union Valley Reservoir (Station ID: UNV), and Van Vleck Bunkhouse (Station ID: VVL). California Data Exchange Center, CDWR, Sacramento, California. <http://cdec.water.ca.gov/>

FERC (Federal Energy Regulatory Commission). 2014. Federal Energy Regulatory Commission Order 148 FERC 62,070 Issuing New License for the Sacramento Municipal Utility District Upper American River Hydroelectric Project No. 2101. Issued July 23, 2014.

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Attachment 1
State Water Resources Control Board section 401 Water
Quality Certification for the UARP
Condition 8.L. Bald Eagle Monitoring

From the FERC Order Issuing New License to SMUD for the Upper American River Hydroelectric Project, July 23, 2014:

Appendix A Water Quality Certificate Conditions for the Upper American River Project issued by the California State Water Resources Control Board on October 4, 2013:

Condition 8.L. Bald Eagle Monitoring

8.L. Bald Eagle Monitoring

Within six months of license issuance, the Licensee shall develop a bald eagle monitoring plan in consultation with USFS, CDFW, USFWS, and State Water Board. The bald eagle is listed as a fully protected endangered species under the California Endangered Species Act (CESA). Further, the Rationale Report directs that measures be taken to maintain, protect and enhance populations of sensitive, threatened and endangered plant and wildlife species. The bald eagle monitoring plan will at a minimum include: (i) a statement of goals and objectives; (ii) a description of all proposed monitoring and monitoring methods; and (iii) specific, measurable criteria to be used to evaluate the data collected and objectively assess the continued viability of this resource. The Licensee shall provide the Deputy Director with any comments provided by the agencies during the consultation process. The Licensee shall submit the plan to the Deputy Director for review and approval after agency consultation. The Licensee shall provide the Deputy Director with at least 60 days to review and approve the plan prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required plan modifications, with the Commission.

Method: Use a method approved by the Deputy Director, developed in consultation with USFS, CDFW and USFWS, to continue monitoring bald eagle nest sites to determine if bald eagles are being affected by UARP-related activities.

Frequency: Annually for the term of the license and any extensions

Attachment 2
U.S. Department of Agriculture, Forest Service section 4(e)
Condition 31 for the UARP

From the FERC Order Issuing New License to SMUD for the Upper American River Hydroelectric Project, July 23, 2014:**Appendix B – Conditions filed by the U.S. Forest Service on June 8, 2008, pursuant to section 4(e) of the Federal Power Act, for the Upper American River Project No. 2101****USFS 4(e) Condition 31 – Bald Eagle Monitoring**

Within 6 months of license issuance, the licensee shall develop a bald eagle monitoring plan in consultation with FS, CDFG, FWS, and SWRCB. The licensee shall provide FS, CDFG, FWS, and SWRCB a 90-day review and approval period for the monitoring plan prior to implementation. The licensee shall implement the plan upon approval.

Method: Coordinate with FS and FWS to continue monitoring bald eagle nest sites.

Frequency: Annually.

Rationale: To ensure bald eagle nest sites are not being affected by Project-related activities.

Attachment 3
Bald Eagle Survey Forms

Attachment 4

Incidental Observations of Avian Species

Incidental Observations of Avian Species in the Study Area (2016–2018)

Common Name	Scientific Name
Canada goose	<i>Branta canadensis</i>
mallard	<i>Anas platyrhynchos</i>
bufflehead	<i>Bucephala albeola</i>
common merganser	<i>Mergus merganser</i>
mountain quail	<i>Oreortyx pictus</i>
common loon	<i>Gavia immer</i>
pie-billed grebe	<i>Podilymbus podiceps</i>
eared grebe	<i>Podiceps nigricollis</i>
western grebe	<i>Aechmophorus occidentalis</i>
red-necked grebe	<i>Podiceps grisegena</i>
turkey vulture	<i>Cathartes aura</i>
osprey	<i>Pandion haliaetus</i>
sharp-shinned hawk	<i>Accipiter striatus</i>
northern goshawk	<i>Accipiter gentilis</i>
Cooper's hawk	<i>Accipiter cooperii</i>
red-tailed hawk	<i>Buteo jamaicensis</i>
American kestrel	<i>Falco sparverius</i>
peregrine falcon	<i>Falco peregrinus</i>
killdeer	<i>Charadrius vociferus</i>
spotted sandpiper	<i>Actitis macularius</i>
California spotted owl	<i>Strix occidentalis occidentalis</i>
common nighthawk	<i>Chordeiles minor</i>
Vaux's swift	<i>Chaetura vauxi</i>
red-breasted sapsucker	<i>Sphyrapicus ruber</i>
hairy woodpecker	<i>Picoides villosus</i>
white-headed woodpecker	<i>Picoides albolarvatus</i>
northern flicker	<i>Colaptes auratus</i>
pileated woodpecker	<i>Dryocopus pileatus</i>
olive-sided flycatcher	<i>Contopus cooperi</i>
western wood-pewee	<i>Contopus sordidulus</i>
dusky flycatcher	<i>Empidonax oberholseri</i>
black phoebe	<i>Sayornis nigricans</i>
Cassin's vireo	<i>Vireo cassinii</i>
warbling vireo	<i>Vireo gilvus</i>
Steller's jay	<i>Cyanocitta stelleri</i>
Clark's nutcracker	<i>Nucifraga columbiana</i>
American crow	<i>Corvus brachyrhynchos</i>
common raven	<i>Corvus corax</i>
tree swallow	<i>Tachycineta bicolor</i>
mountain chickadee	<i>Poecile gambeli</i>
brown creeper	<i>Certhia americana</i>

Common Name	Scientific Name
red-breasted nuthatch	<i>Sitta canadensis</i>
white-breasted nuthatch	<i>Sitta carolinensis</i>
rock wren	<i>Salpinctes obsoletus</i>
golden-crowned kinglet	<i>Regulus satrapa</i>
Townsend's solitaire	<i>Myadestes townsendi</i>
mountain bluebird	<i>Sialia currucoides</i>
hermit thrush	<i>Catharus guttatus</i>
American robin	<i>Turdus migratorius</i>
orange-crowned warbler	<i>Oreothlypis celata</i>
Nashville warbler	<i>Oreothlypis ruficapilla</i>
yellow warbler	<i>Dendroica petechia</i>
yellow-rumped warbler	<i>Setophaga coronata</i>
hermit warbler	<i>Setophaga occidentalis</i>
MacGillivray's warbler	<i>Geothlypis tolmiei</i>
Wilson's warbler	<i>Cardellina pusilla</i>
western tanager	<i>Piranga ludoviciana</i>
spotted towhee	<i>Pipilo maculatus</i>
California towhee	<i>Melospiza crissalis</i>
rufous-crowned sparrow	<i>Aimophila ruficeps</i>
chipping sparrow	<i>Spizella passerina</i>
fox sparrow	<i>Passerella iliaca</i>
dark-eyed junco	<i>Junco hyemalis</i>
evening grosbeak	<i>Coccothraustes vespertinus</i>
Cassin's finch	<i>Haemorhous cassinii</i>
purple finch	<i>Haemorhous purpureus</i>

STATE OF CALIFORNIA THE
RESOURCE AGENCY
DEPARTMENT OF FISH AND GAME

BALD EAGLE BREEDING SURVEY INSTRUCTIONS

The breeding season of bald eagles in California extends primarily from February through July. Each year cooperating agencies, organizations, and private individuals participate in a statewide monitoring program to document nesting activities at each nesting territory. In 1997, 160 recently active breeding territories were surveyed, and the number increases yearly.

Annual breeding season surveys are an important part of the population recovery effort. Survey information is used by resource agencies to aid breeding territory management or protection activities. Additionally, population status and trends must be monitored annually to provide the data needed for assessing population recovery.

Specific assignments and scheduling of observer time are usually handled at the agency district or regional office level. In general, agencies are responsible for surveys or territories on or near their own lands, with Department of Fish and Game also surveying on private lands. Field personnel should coordinate with other agencies or volunteers to avoid duplication of effort or to arrange for survey help.

The bald eagle breeding population is increasing annually. So, it is important that suspected new nesting territories be adequately checked, especially early in the breeding season.

Territories should be checked at least three times during the nesting season, although more frequent checking is preferred. Emphasis should be placed on checking during incubation and early nesting periods.

1. **Early March (early incubation)** – Territories in northern California should be checked in the first half of March, if possible, or as soon thereafter as road or weather conditions allow. The purpose of the first check is to determine whether a territory is occupied (record presence of adults, courtship behavior, evidence of nest repair or construction, incubation).
2. **Late April or early May (early nesting period)** – This check is needed to confirm that a territory is unoccupied, or if occupied in March, to determine whether the breeding pair is still tending the nest (incubating eggs or tending young nestlings).
3. **Mid-June (late nesting period)** – The main purpose of this check is to determine how many nestlings are approaching fledgling age.

Survey dates maybe modified from these recommended time periods if the territories can be checked more frequently or if particular breeding pairs are known to begin nesting especially early or late in the season.

We recommend that observers report the stage of development of nestlings in accordance with [An Illustrated Guide for Identifying Developmental Stages of Bald Eagle Nestlings in the Field](#), by G.P. Carpenter (April 1990). This booklet is available from the San Francisco Zoological Society, Sloat Blvd. At the Pacific Ocean, San Francisco, CA 94132 (415-753-7080).

SUBMITTAL OF SURVEY FORMS

Please report observations on the **CALIFORNIA BALD EALGE NESTING TERRITORY FORM (revised 4/2010)**.

Please mail all completed forms by September 1 of the survey year to:

California Department of Fish and Game
Wildlife Branch
1812 Ninth St.
Sacramento, CA 95814
ATTN: Carie Battistone

Forms will be maintained in Department files and annual survey results will be compiled on the basis of these reports. If you have any questions, please contact Carie Battistone at the above address or at cbattistone@dfg.ca.gov. Electronic forms can be found at http://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html.

California Department of Fish and Game
CALIFORNIA BALD EAGLE NESTING

TERRITORY SURVEY FORM

Revised 4/2010

Territory Code: LLR

County: El Dorado Survey Year: 2018

Property Owner: USFS If USFS: El Dorado National Forest

Name (or general location of territory): Loon Lake Reservoir

Name of nearest water body: Loon Lake Reservoir

Location of Nest Site:

UTM E: 733613 UTM N: 4319278 Zone: 10S

No. of nests in territory - Intact: 1 Remnant:

Nest Tree: Species: Jeffrey Pine Year Last Used: 2017

NOTE: Please attach a map showing the location of any newly documented nest tree.

Describe tree and nest condition and size and add other remarks: Dominant Jeffrey pine located on south side of Loon Lake west of the summer camp.

For each visit to a territory, note, in detail, the times, number and age of birds, behavior of birds (lying, perching, etc.), evidence of nesting (nest maintenance, courtship, incubation posture), disturbances, and other pertinent information:

Observers	Date	Observations/Notes
Krista Orr Steven Wood	05.16.18 (06:45 to 11:15)	<p><u>Early Breeding Season Survey (postponed due to elevation and weather conditions):</u></p> <ul style="list-style-type: none"> • Loon Lake free of ice at time of survey with a few remnant patches of snow on surrounding ground. • 07:15 – Adult BAEA (female) observed from spillway in dominant pine on S side of reservoir. • 08:30 – Adult BAEA (male) flying E to same dominant pine with apparent food delivery; remained in nest tree for approximately 5 minutes and then departed S. • 08:35 – Adult BAEA (female) feeding two chicks in nest (barely discernable through spotting scope); female BAEA remained in tree (intermittently visible) until surveyor departure at 11:15. • 10:10 – Adult BAEA (male) flying N to nest tree; remained in tree until surveyor departure. • No additional BAEA activity observed. • Survey ended early due to inclement weather, poor visibility, and unsafe conditions on lake. • No recreational activity observed.

Observers	Date	Observations/Notes
Steven Wood Krista Orr	06.06.18 (06:30 to 15:15)	<p data-bbox="500 205 846 237"><u>Mid Breeding Season Survey:</u></p> <ul data-bbox="521 279 1534 1178" style="list-style-type: none"> <li data-bbox="521 279 1534 363">• 06:35 – Adult BAEA (female) observed from spillway perched in nest tree on S side of reservoir; one juvenile intermittently visible on branches near nest. <li data-bbox="521 384 1276 415">• 06:50 – Adult BAEA (female) departing nest tree and flying S. <li data-bbox="521 436 1292 468">• 07:05 – Adult BAEA (female) returning to the nest tree from S. <li data-bbox="521 489 1485 636">• 09:15 – Adult BAEA (female) and one juvenile observed in nest tree from land-based vantage point upslope of nest tree; juvenile resting in nest and barely visible. <li data-bbox="521 657 1406 688">• 10:10 – Adult BAEA (female) departing nest tree, vocalizing and flying S. <li data-bbox="521 709 1498 793">• 10:24 – Adult BAEA (male) arriving at nest tree with food delivery (still only one juvenile visible in nest). <li data-bbox="521 814 1507 898">• 10:28 – Adult BAEA (male) departing nest to the N; female BAEA vocalizing from the S. <li data-bbox="521 919 1515 1066">• 10:30 – Surveyors depart vantage point; other suitable habitat around Loon Lake (including Pleasant Lake) surveyed for evidence of BAEA utilization by boat and foot. <li data-bbox="521 1087 1003 1119">• No additional BAEA activity observed. <li data-bbox="521 1140 1482 1178">• Recreational activity low (three fishing boats); no BAEA disturbance observed.

Observers	Date	Observations/Notes
Krista Orr Steven Wood	07.09.18 (07:00 to 14:00)	<p><u>Late Breeding Season Survey:</u></p> <ul style="list-style-type: none"> • Nest partially disassembled in comparison to previous visit and unoccupied. • SMUD staff (E. Koenigs) reported branching juvenile approximately one week prior to survey, so juvenile assumed fledged; bits of fluff visible on remaining sticks and abundant whitewash on ground surrounding tree. • 09:15 – very faint and short BAEA vocalizations heard originating E and downslope of nest tree; area canvassed extensively (no BAEA observed and no further vocalizations heard). • Surveyors split up and remained in area, alternating vantage points for several hours; no additional BAEA activity observed, but potential evidence of juvenile perching on low snag of downed log noted near nest tree (whitewash and bits of fluff in surrounding vegetation). • Moderate recreational activity (2 boats, 2 jet skis, and approximately 10 hikers); no BAEA disturbance observed.
Krista Orr Steven Wood	07.24.18 (18:30 to 21:30)	<p><u>Reproductive status check:</u></p> <ul style="list-style-type: none"> • Surveyors returned to nest site for additional status check of assumed fledged juvenile that was not located during previous survey. • 19:50 – juvenile BAEA heard begging approximately 0.1-mi W of nest tree. • 20:30 – juvenile BAEA (hatching year) located in fir (Abies spp.) N of Rubicon Trail and W of nest tree. • 20:45 – juvenile BAEA departing perch and flying N over reservoir. • 20:48 – juvenile BAEA returning to perch in adjacent fir (Abies spp.) N of Rubicon Trail. • No additional BAEA activity observed. • Recreational activity low (no boats and approximately 5 hikers); no BAEA disturbance observed.

SUMMARY:

A. Successful Nestings: 1 No. of young known fledged: 1 or probably fledged: N/A

B. If no fledglings were produced this season please answer the following: N/A

How many adults seen in the territory?

Was there evidence of nest repair or construction?

Were adults seen in the nest?

Were adults in incubating posture?

Number of nestlings observed?

Failed during incubation or nesting stage?

Other remarks:

Observer Contact Information:

Surveys conducted by Stillwater Sciences, contractors for the Sacramento Municipal Utility District. For additional information contact Ethan Koenigs, SMUD Project Manager (Ethan.Koenigs@smud.org).