DON PEDRO HYDROELECTRIC PROJECT
FERC NO. 2299

AMENDMENT OF APPLICATION

EXHIBIT E – ENVIRONMENTAL REPORT

APPENDIX E-6
TERRESTRIAL RESOURCES MANAGEMENT PLAN



WATER & POWER
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MID
Modesto Irrigation District

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List of Acronyms

ac .....acre
AFLA .....Amendment to the Final License Application
BGEPA .....Bald and Golden Eagle Protection Act
BLM.....U.S. Department of the Interior, Bureau of Land Management
BLM-S .....Bureau of Land Management – Sensitive Species
BMPs.....Best Management Practices
CCSF.....City and County of San Francisco
CDFA.....California Department of Food and Agriculture
CDFW.....California Department of Fish and Wildlife
CESA .....California Endangered Species Act
CNDDB.....California Natural Diversity Database
DDT .....dichlorodiphenyltrichloroethan
Districts.....Turlock Irrigation District and Modesto Irrigation District
DPRA.....Don Pedro Recreation Agency
ESA.....Federal Endangered Species Act
°F.....Fahrenheit
FERC.....Federal Energy Regulatory Commission
FLA.....Final License Application
ft .....feet
GPS .....Global Positioning System
in .....inch / inches
M&I.....Municipal and Industrial
MBTA.....Migratory Bird Treaty Act
MID.....Modesto Irrigation District
NEPA .....National Environmental Policy Act
O&M.....operation and maintenance
PM&E .....Protection, Mitigation, and Enhancement
RM .....River Mile
SPD .....Study Plan Determination
SSC .....State species of special concern
TID.....Turlock Irrigation District

USFWS .....U.S. Department of the Interior, Fish and Wildlife Service

UTM.....Universal Transverse Mercator

VELB .....Valley Elderberry Longhorn Beetle

WPT .....Western pond turtle

PREFACE

On April 28, 2014, the co-licensees of the Don Pedro Hydroelectric Project, Turlock Irrigation District (TID) and Modesto Irrigation District (MID) (collectively, the Districts), timely filed with the Federal Energy Regulatory Commission (Commission or FERC) the Final License Application (FLA) for the Don Pedro Hydroelectric Project, FERC No. 2299. As noted in the filing and acknowledged by FERC at the time, several studies were ongoing which were likely to inform the development of additional protection, mitigation, and enhancement (PM&E) measures. The Districts have now completed these studies and herein submit this Amendment of Application (Amendment to the Final License Application or AFLA). For ease of review and reference, this AFLA replaces the Districts' April 2014 filing in its entirety.

The Don Pedro Project provides water storage for irrigation and municipal and industrial (M&I) use, flood control, hydroelectric generation, recreation, and natural resource protection (hereinafter, the "Don Pedro Project"). The environmental analysis contained in this AFLA considers all the components, facilities, operations, and maintenance that make up the Don Pedro Project and certain facilities proposed to be included under the new license. The Don Pedro Project is operated to fulfill the following primary purposes and needs: (1) to provide water supply for the Districts for irrigation of over 200,000 acres of Central Valley farmland and M&I use, (2) to provide flood control benefits along the Tuolumne and San Joaquin rivers, and (3) to provide a water banking arrangement for the benefit of the City and County of San Francisco (CCSF) and the 2.6 million people CCSF supplies in the Bay Area. The original license was issued in 1966. In 1995, the Districts entered into an agreement with a number of parties, which resulted in greater flows to the lower Tuolumne River for the protection of aquatic resources.

Hydroelectric generation is a secondary purpose of the Don Pedro Project. Hereinafter, the hydroelectric generation facilities, recreational facilities, and related operations will be referred to as the "Don Pedro Hydroelectric Project," or the "Project". With this AFLA to FERC, the Districts are seeking a new license to continue generating hydroelectric power and implement the Districts' proposed PM&E measures. Based on the information contained in this AFLA, and other sources of information on the record, FERC will consider whether, and under what conditions, to issue a new license for the continued generation of hydropower at the Districts' Don Pedro Project. The Districts are providing a complete description of the facilities and operation of the Don Pedro Project so the effects of the operation and maintenance of the hydroelectric facilities can be distinguished from the effects of the operation and maintenance activities of the overall Don Pedro Project's flood control and water supply/consumptive use purposes.

Being able to differentiate the effects of the hydropower operations from the effects of the flood control and consumptive use purposes and needs of the Don Pedro Project will aid in defining the scope and substance of reasonable PM&E alternatives. As FERC states in Scoping Document 2 in a discussion related to alternative project operation scenarios: "…alternatives that address the consumptive use of water in the Tuolumne River through construction of new structures or methods designed to alter or reduce consumptive use of water are…alternative mitigation strategies that could not replace the Don Pedro *hydroelectric* [emphasis added] project. As such, these recommended alternatives do not satisfy the National Environmental

Policy Act (NEPA) purpose and need for the proposed action and are not reasonable alternatives for the NEPA analysis."

1.0 INTRODUCTION

The Districts developed this Terrestrial Resources Management Plan (Plan) to provide guidance for the protection and management of specific terrestrial resources with the potential to be affected by activities within the Project Boundary: (1) vegetation management, including noxious weed management, special-status plant management, Valley Elderberry Longhorn Beetle (VELB) host plant management, and revegetation following ground-disturbing activities; (2) special-status bat protection; (3) bald eagle (*Haliaeetus leucocephalus*); and (4) western pond turtle (*Actinemys marmorata*). Each Section of this Plan is based on the results of relicensing studies performed by the Districts and follows general guidelines for protection consistent with federal and State of California requirements.

1.1 Background

The Districts are the co-licensees of the 168-megawatt Project located on the Tuolumne River in western Tuolumne County, in the Central Valley region of California. Don Pedro Dam is located at river mile (RM) 54.8 and the Don Pedro Reservoir, formed by the dam, extends 24 miles upstream at the normal maximum water surface elevation of 830 feet (ft) above mean sea level (NGVD 29). At elevation 830 ft, the reservoir stores over 2,000,000 acre-feet of water and has a surface area slightly less than 13,000 acres (ac). The watershed above Don Pedro Dam is approximately 1,533 square miles.

The current Project Boundary extends from RM 53.2, which is one mile below the Don Pedro powerhouse, upstream to RM 80.8 at a water surface elevation of 845 ft (31 Federal Power Commission ¶ 510 [1964]). The current Project Boundary encompasses approximately 18,370 ac with 74 percent of the lands owned jointly by the Districts and the remaining 26 percent (approximately 4,802 ac) owned by the United States and administered as a part of the U.S. Department of the Interior, Bureau of Land Management (BLM) Sierra Resource Management Area.

1.1 Relicensing Process

The Districts began the relicensing process by filing a Notice of Intent and Pre-Application Document with FERC on February 10, 2011, following the regulations governing the Integrated Licensing Process. The Districts' Pre-Application Document included descriptions of the Project facilities, operations, license requirements, and Project lands as well as a summary of the extensive existing information available on Project area resources. The Districts convened a series of Resource Work Group meetings, engaging agencies and other relicensing participants in a collaborative study plan development process culminating in the Districts' Proposed Study Plan and Revised Study Plan filings to FERC on July 25, 2011, and November 22, 2011, respectively.

On December 22, 2011, FERC issued its Study Plan Determination (SPD), approving, or approving with modifications, 34 studies proposed in the Revised Study Plan that addressed Cultural and Historical Resources, Recreational Resources, Terrestrial Resources, and Water and Aquatic Resources. In addition, as required by the SPD, the Districts filed three new study plans

(W&AR-18, W&AR-19, and W&AR-20) on February 28, 2012, and one modified study plan (W&AR-12) on April 6, 2012. Prior to filing these plans with FERC, the Districts consulted with relicensing participants on drafts of the plans. FERC approved or approved with modifications these four studies on July 25, 2012.

Reports for each study describe the objectives, methods, and results as implemented by the Districts in accordance with FERC's SPD and subsequent study modifications and clarifications. The following study reports contain information pertinent to this Plan:

- TR-01, Special-Status Plants (TID/MID 2013f)
- TR-02, ESA- and CESA-Listed Plants (TID/MID 2013b)
- TR-04, Noxious Weeds Survey (TID/MID 2013d)
- TR-05, ESA-Listed Wildlife - Valley Elderberry Longhorn Beetle (TID/MID 2013c)
- TR-06, Special-Status Amphibians and Reptiles (TID/MID 2013e)
- TR-09, Special-Status Wildlife - Bats (TID/MID 2013g)
- TR-10, Bald Eagle (TID/MID 2013a)

This Plan is submitted as part of the Districts' AFLA, which includes operational changes and additional resource management plans and other environmental measures for the protection and enhancement of resources in the Project vicinity.

2.0 VEGETATION MANAGEMENT

This Section presents guidance for vegetation management for the Don Pedro Project, describing the Districts' proposed resource measures addressing noxious weed management, special-status plant management, Valley Elderberry Longhorn Beetle (VELB) host plant management, and revegetation following ground-disturbing activities. Section 2.0:

(1) describes current vegetation management;

(2) defines noxious weed species addressed under the Plan, provides noxious weed prevention guidelines for the Don Pedro Project, and describes noxious weed management efforts to be conducted by the Districts;

(3) defines special-status plant species addressed under the Plan and describes special-status plant protection and monitoring efforts to be conducted by the Districts;

(4) describes the Districts' proposals regarding VELB host plants; and

(5) describes bi-annual employee trainings, biennial agency consultation, and periodic review of noxious weed and special-status plant lists.

2.1 General Description of Current Vegetation Management Activities

The Districts conduct vegetation management, including noxious weed management, as part of routine activities. These vegetation management activities include:

- mechanical vegetation trimming along roads and recreation trails in the road/trail right-of-way for continued access and line-of-sight safety,
- mechanical vegetation trimming along paths parallel to canals to keep paths clear and for safety,
- mechanical vegetation trimming and herbicide use clearing to maintain bare ground adjacent to Don Pedro Project buildings and structures,
- mechanical vegetation trimming and herbicide use at switchyards and structures for fire safety,
- vegetation removal on dams to keep clear of woody vegetation and grasses for dam safety purposes,
- mechanical maintenance of bare ground in recreation areas where bare ground currently occurs and is desired, and

These routine activities will be conducted in accordance with Best Management Practices (BMPs) listed in Section 2.2.1, and use restrictions indicated in Section 2.3.2, but are not otherwise considered components of the Plan.

2.2 Noxious Weeds

The Districts' proposed noxious weed prevention and management measures are provided below for all BLM-administered lands and lands under the Districts' ownership within the Project Boundary. For the purposes of the Plan, noxious weeds are defined as plant species that are:

- listed as "noxious" under the Federal Plant Protection Act,
- listed as "noxious" and with a pest rating of A, B, or C by the California Department of Food and Agriculture (CDFA), or
- identified as noxious during annual consultation with the BLM.

2.2.1 Best Management Practices

The Districts will conduct routine recreation, facilities, and lands management activities consistent with the objective of minimizing the potential for the introduction and spread of noxious weeds. Specifically, the following prevention guidelines will be used by Districts' personnel, Don Pedro Recreation Agency (DPRA), and contractors working within lands addressed by the Plan; however, exceptions may occur in unusual or time-sensitive circumstances (e.g., emergency maintenance).

- Thoroughly clean all heavy construction equipment and vehicles that have been used off-road before entering the Project Boundary to reasonably ensure that seeds of noxious weeds are not introduced.
- Minimize ground disturbance during routine operations and management activities. When ground disturbance is required, dispose of any resulting spoils on-site if feasible, grading to match local contours and reseeding with a certified weed-free mix of native species. If fill is required, use fill collected on-site whenever possible, and reseed the disturbed area with a certified weed-free mix of native species.
- For ground disturbances larger than 0.25 ac in size, conduct revegetation in accordance with BLM Manual Handbook-1745-1, Use of Native Plant Materials in California, as periodically updated by the BLM (Attachment A).
- Use weed-free straw and native plant species for all construction, erosion control, or restoration needs.
- Restrict travel to established roads when possible, and avoid entering areas with existing noxious weed occurrences. If entering such areas is required, conduct work in uninfested areas first.

2.2.2 Noxious Weed Surveys

Beginning in the second year following license issuance, and every fifth year thereafter, the Districts will conduct a noxious weed survey of BLM-administered lands within the Red Hills Area of Critical Environmental Concern as well as lands within the Project Boundary that are subject to operations and maintenance activities, including Don Pedro Project facilities and the

Moccasin Point, Blue Oaks, and Fleming Meadows recreation areas. Surveys will be conducted at an appropriate intensity to determine the nature and distribution of noxious weed occurrences in the survey areas, and will focus on developed habitats, along roads, adjacent to facilities, and similar areas most likely to be prone to noxious weed infestations. Surveyors will record noxious weed species composition, location, and relative abundance, and will collect the following Global Positioning System (GPS) data:

- For A- and B-listed noxious weeds, use GPS to delineate a polygon for occurrences >0.1 ac in size, or a linear feature for linear occurrences >100 ft (e.g., along roads); smaller occurrences to be mapped by a single GPS point taken near the center of the occurrence.
- For C-listed or other noxious weeds, distribution of the species to be described generally, but with reference to Don Pedro Project features when feasible. Smaller or discrete occurrences will be mapped by a single GPS point taken near the center of the occurrence.

2.2.3 Noxious Weed Management Guidelines

On BLM-administered lands and lands under the Districts' ownership within the Project Boundary, noxious weeds will be managed according to the degree of threat posed to other resources (e.g., special-status plant occurrences) and the current weed status and feasibility of control as detailed in Table 2.2-1.

Table 2.2-1. Noxious weed management guidelines for the Don Pedro Project.

Current Weed Status	Typical CDFA Listing[1]	Plan Priority	Example Management Method
Not currently present, potential to invade	A, B	High	**Prevention**: implementation of noxious weed prevention guidelines, periodic survey efforts.
Present, localized	A and B and new occurrences of some C-listed weeds	High (A and B) or Moderate (C)	**Control:** intensive treatment including eradication of List A occurrences, consideration of treatment for new, small occurrences of List C, control and/or eradication of List B occurrences. **Containment:** education, implementation of weed prevention guidelines.
Present, widespread	C	Moderate or Low	**Containment:** implementation of noxious weed prevention guidelines; consideration of localized treatment near sensitive resources.

[1] CDFA Listings:
A – An organism of known economic importance subject to state action involving: eradication, quarantine, containment, rejection, or other holding action.
B – An organism of known economic importance subject to: eradication, containment, control, or other holding action.
C – An organism subject to no state-enforced action outside of nurseries except to retard spread.

When warranted within these guidelines, the Districts will implement individual noxious weed management activities for certain noxious weed occurrences or species. Prior to implementation, each noxious weed management activity will be described as part of annual agency consultation with the BLM, including the following information:

- current distribution and location of target noxious weed occurrence,
- proposed management method, duration, schedule, and specific application plans,

- desired future condition and criteria for success, and
- follow-up monitoring methods and schedule.

On BLM-administered lands, herbicide use will be in compliance with BLM standards. Only those herbicides approved for use will be applied to BLM lands.

2.2.4 Management of Existing Occurrences

Two Class B noxious weeds are currently known to occur within the Project Boundary. In accordance with the noxious weed management guidelines described above, the Districts' proposed management for these occurrences is provided in Table 2.2-2.

Herbicides and adjuvants used during management will be drawn from the BLM's list of approved chemicals, and used in compliance with labeling. Specific application rates and frequency and timing of application will be developed for each occurrence upon implementation of the Plan.

Table 2.2-2. Documented Class A and B noxious weed occurrences within the Project Boundary.

Location and Occurrence No.[1]	Property Owner	Percent Cover	Class[2]	Proposed Treatment[3]
Barbed goatgrass (*Aegilops triuncialis*)				
Recreation Bay (283)	TID/MID	Concentrated	I	Herbicide application.
Sixbit Gulch (668)	BLM	Diffuse	I	Herbicide application.
Sixbit Gulch (669)	BLM and Private[4]	Diffuse	III	Herbicide application, excepting hand/ mechanical treatment only where within 50 feet of ESA/CESA-listed plant occurrence.
Poor Man's Gulch (961)	BLM	Concentrated	I	Herbicide application.
Poor Man's Gulch (963)	BLM	Diffuse	IV	Hand/ mechanical treatment only where within 50 feet of ESA/CESA-listed plant occurrence.
Smooth distaff thistle (*Carthamus creticus*)				
Kanaka Point (109)	TID/MID	Diffuse	II	Herbicide application, excepting hand/mechanical treatment only where within 50 feet of ESA/CESA-listed plant occurrence.
Kanaka Point (216)	BLM	Concentrated	I	
Kanaka Point (229)	TID/MID	Concentrated	I	
Kanaka Point (239	TID/MID	Concentrated	I	
Jacksonville Rd. (248)	TID/MID	Diffuse	I	
Jacksonville Rd. (249)	TID/MID	Concentrated	I	
Jacksonville Rd. (250)	BLM, TID/MID and Private[4]	Concentrated	III	
Jacksonville Rd. (251)	BLM	Concentrated	I	
Moccasin Point Recreation Area (266)	BLM	Diffuse	I	
Moccasin Point Recreation Area (268)	BLM	Diffuse	I	Herbicide application, excepting hand/mechanical treatment only where within 50 feet of ESA/CESA-listed plant occurrence.
Moccasin Point Recreation Area (269)	BLM	Diffuse	II	
Jacksonville Rd. (270)	TID/MID	Diffuse	I	
Woods Creek Arm	TID/MID	Diffuse	I	

Location and Occurrence No.[1]	Property Owner	Percent Cover	Class[2]	Proposed Treatment[3]
(285)				
Kanaka Point (671)	TID/MID	Concentrated	I	
Kanaka Point (672)	TID/MID	Concentrated	I	
Tamarisk (*Tamarix* sp.)				
Moccasin Point Recreation Area (259)	TID/MID	Concentrated	I	Mechanical removal of single plant.

[1] Noxious weed occurrence numbers follow the designations and geographic coordinates in TR-04, Noxious Weeds (TID/MID 2013d).
[2] Class I: 0-0.1 acre, Class II: 0.1-0.25 acre, Class III: 0.25-4.0 acres, Class IV: >4.0 acres.
[3] Specific herbicides, application rates, frequency, and timing will be developed upon implementation of the Plan.
[4] Noxious weed occurrences on private property would not be treated unless the Districts are granted permission by a landowner and where treatment would increase the efficacy of treatment on adjacent Project land.

2.3 Special-status Plants

The Districts' proposed special-status plant monitoring and protection measures are provided below for all BLM-administered lands and lands under the Districts' ownership within the Project Boundary. For the purposes of the Draft Vegetation Management Plan, special-status plants are those species that are any of the following:

- found on BLM-managed lands and listed by the BLM as Sensitive Species (BLM-S),
- listed as threatened or endangered under the Endangered Species Act (ESA), including as Proposed or a Candidate for listing as endangered or threatened species,
- listed as threatened or endangered under the CESA, including those proposed for listing, or
- included on the California Department of Fish and Wildlife's list of California Rare species listed under the Native Species Plant Protection Act of 1977.

2.3.1 Special-status Plant Monitoring

Beginning in the second year of license issuance and every fifth year thereafter, known occurrences of special-status plant species on BLM-administered lands and lands under the Districts' ownership will be located and observed for monitoring purposes. At each located occurrence, surveyors will record data required for completion of California Natural Diversity Database forms, including sensitive plant species composition, GPS-determined location, relative abundance, phenology, habitat description, habitat condition, observable threats, and noxious weed presence. Data from survey efforts will be provided to the BLM in the biennial report as part of agency consultation (see below).

Additional monitoring or site-specific management efforts may be considered if monitoring or other data indicate substantial species decline, specific potential for Don Pedro Project effects on special-status plants, or a need to evaluate individual activities. Any such efforts will be developed in coordination with the BLM during annual consultation efforts.

2.3.2 Special-status Plant Protection

The Districts will consult with the BLM to develop specific usage plans for areas surrounding known occurrences of special-status plants with the potential for being directly affected by activities within the Project Boundary (Table 2.3-1). Until specific usage plans are developed, these occurrences will be excluded from routine Don Pedro Project activities.

In addition to these efforts, site-specific surveys for special-status plants will be conducted prior to new ground-disturbing activities affecting more than 0.5 acre, if such surveys are determined to be warranted during pre-activity review and consultation with the BLM.

Table 2.3-1. Special-status plant occurrences with the potential to be affected by Don Pedro Project activities.

Location and Occurrence No.[1]	Property Owner	Plant Count	Location of Occurrence
Red Hills onion (*Allium tuolumnense*)			
Moccasin Point Recreation Area (88)	BLM	50-75	Proximate to road
Mariposa clarkia (*Clarkia biloba* ssp. *australis)*			
Moccasin Point Recreation Area (83)	TID/MID	18	Recreation area
Moccasin Point Recreation Area (84)	TID/MID	>100	Burn pile and recreation area
Moccasin Point Recreation Area (92)	BLM	±200	Proximate to road in recreation area
Rogers Creek Arm (369)	TID/MID	500	Proximate to road
Rogers Creek Arm (373)	TID/MID	30	Proximate to road
Rogers Creek Arm (378)	TID/MID	±1000	Proximate to road
Rogers Creek Arm (385)	TID/MID	3000	Proximate to road
Rogers Creek Arm (386)	TID/MID	500	Proximate to road
Mariposa cryptantha (*Cryptantha mariposae*)			
Moccasin Point Recreation Area (86)	BLM	1000	Within storage area

[1] Special status plant occurrence numbers follow the designations and geographic coordinates in TR-01, Special-Status Species Plants (TID/MID 2013f) and TR-02, ESA- and CESA-listed Plants (TID/MID 2013b).

2.4 VELB Host Plant Guidelines

The Districts will follow U.S. Fish and Wildlife Service (USFWS) Conservation Guidelines for management of VELB and VELB host plants (elderberry [*Sambucus* sp.]) within the Project Boundary (Attachment B). These guidelines direct practitioners to avoid and protect VELB host plants whenever possible. The guidelines further state that "complete avoidance (i.e., no adverse effects) can be assumed when a 100-foot (or wider) buffer is established and maintained around elderberry plants containing stems measuring 1.0 inch (in) or greater in diameter at ground level." Accordingly, the Districts will not engage in ground disturbing activities within 100 ft of a VELB host plant (as mapped during relicensing studies) without prior authorization from the USFWS.

3.0 BAT PROTECTION

Nine species of special-status bats listed by the BLM (Sensitive) or California Department of Fish and Wildlife (CDFW) (Species of Special Concern) have been documented to occur or potentially occur in the vicinity of the Project (Table 3.0-1). This Plan is intended to provide guidance for the protection of special-status bats and other species of bats at Project facilities and structures (i.e., Project features, developed recreation areas, and structures that may be used by bats for roosting).

Table 3.0-1. Special-status bat species known from or potentially occurring in the vicinity of the Project.

Bat Species	Special Status[1,2]	Suitable Habitat	Occurrence in Project Vicinity
Pallid bat *Antrozous pallidus*	BLM-S SSC	Roosts in caves, crevices, and buildings; feeds in a variety of open habitats.	Five CNDDB[3] occurrences: (1) west of Sullivan Creek; (2) Jamestown Mine site near Sonora; (3) Tuolumne River 2.5 miles east southeast of Jacksonville; (4) near intersection of Highway 120 and Jacksonville Road; and (5) southeast of Moccasin, adjacent to Highway 49. TR-09[4]: Blue Oaks and Fleming Meadows Recreation Areas, and vicinity of Don Pedro Powerhouse and Spillway.
Townsend's big-eared bat *Corynorhinus townsendii*	BLM-S SSC	Roosts in buildings, mines, tunnels, and caves; feeds along habitat edges.	CNDDB occurrence at mine on Quartz Mountain, 2.1 miles south of Jamestown. TR-09: vicinity of Don Pedro Powerhouse and Dam Spillway.
Spotted bat *Euderma maculatum*	BLM-S SSC	Arid deserts, grasslands, and mixed conifer forests.	CNDDB occurrence 2.2 miles southeast of Standard; intersection of Woodham-Carne Road and Yosemite Road.
Western mastiff bat *Eumops perotis*	BLM-S SSC	Open areas with abundant roost locations provided by crevices in rock outcrops and buildings.	Six CNDDB occurrences: (1) one mile southwest of Yosemite Junction, mouth of Highway 120; (2) ¼ mile northeast of Yosemite Junction; (3) ½ mile southeast of New Melones Lake; (4) mapped at Tuolumne (Town)[5]; (5) southeast of Moccasin adjacent to Highway 49; and (6) near intersection of Highway 120 and Jacksonville Road. TR-09: vicinity of Don Pedro Powerhouse and Dam Spillway.
Western red bat *Lasiurus blossevillii*	SSC	Generally associated with edge habitats adjacent to streams, open fields, orchards and occasionally in urban areas. Roosts in tree foliage, and forages in open areas over land or water.	CNDDB occurrence southeast of Moccasin, adjacent to Highway 49. TR-09: Fleming Meadows Recreation Area and vicinity of Don Pedro Powerhouse and Dam Spillway.

Bat Species	Special Status[1,2]	Suitable Habitat	Occurrence in Project Vicinity
Western small-footed myotis *Myotis ciliolabrum*	BLM-S	Roosts in caves, buildings, mines, crevices, and under bridges; feeds over streams, ponds, and springs.	Potentially occurs within suitable habitat.
Western long-eared myotis *Myotis evotis*	BLM-S	Roosts in buildings, crevices, and snags; feeds along habitat edges, in open habitats, and over water.	Potentially occurs within suitable habitat. TR-09: Moccasin Point Recreation Area and vicinity of Don Pedro Powerhouse and Dam Spillway.
Fringed myotis *Myotis thysanodes*	BLM-S	Roosts in buildings, mines, caves, snags, and crevices; feeds in open habitats and over water.	Potentially occurs within suitable habitat.
Yuma myotis *Myotis yumanensis*	BLM-S	Roosts in buildings, mines, caves, and crevices; feeds over water.	Two CNDDB occurrences: (1) bridge adjacent to Highway 49; and (2) bridge near intersection of Highway 120 and Jacksonville Road. TR-09: Don Pedro Dam Spillway.

[1] BLM-S = Bureau of Land Management Sensitive Species.
[2] SSC = California Department of Fish and Wildlife Species of Special Concern.
[3] CNDDB = California Natural Diversity Database.
[4] TR-09 = Documented during Districts' relicensing Special-status Bats Study TR-09.
[5] The CNDDB only provided "Tuolumne (Town)" as the location of this occurrence, and indicated that more information was needed.

Bats often roost on or within man-made structures. These structures include, but are not limited to, storage sheds, attics, woodpiles, bridges, mines and tunnels. With the exception of mines and some tunnels, man-made structures that provide suitable roosting habitat are composed of concrete or wood materials, or a combination of both. The extent to which bats utilize man-made structures depends upon many variables, including size of the structure, internal and external temperature, proximity to foraging opportunities, protection from predators, and the species occupying the roost. The presence of bat signs, such as guano, and staining, and sightings or reports of bats themselves help to determine the extent of use (infrequent or continuous), as well as the type of roost. Types of roost include day, night, maternity, or winter; each are described below:

- Night Roosts. A night roost is a feature that allows for rest between foraging bouts, digestion of prey, escape from predators, and shelter from the weather. Night roosts may also have social purposes. Night roosts are typically sites or structures that retain a higher than ambient temperature. The elevated temperatures associated with night roosts aid in maintaining higher metabolism necessary for digestion.
- Day Roosts. A day roost is a feature where bats spend the non-active period of the day, resting or in torpor, depending on weather conditions. Day roosts provide shelter from the elements and safety from predators.
- Maternity Roosts. A maternity roost is a feature that provides protection from the elements and predators, while providing the correct thermal environment for rearing of young. Maternity roosts tend to be warmer in temperature because breeding females need to maintain a high metabolism to aid in lactation. According to Tuttle and Taylor (1998), the thermal requirements for maternity roosts vary by species, but generally sites must remain

between 70°F and 90°F. However, Townsend's big-eared bat maternity roosts have been discovered in sites where ambient temperatures are as low as 60°F. Species that form large colonies can be found raising young in mines with ambient temperatures as low as 56°F, but prefer 66°F or higher.

- Winter Hibernacula. A winter hibernacula is an area used by bats during colder winter months. During this time, bats enter torpor, receiving nourishment from fat storage gained during summer months. Many species will awaken for brief periods of time to stretch, but will resume torpor. Bats, such as the Townsend's big-eared bat, will hibernate for short periods of time and often resume feeding behavior during warm winter spells (Tuttle and Taylor 1998). Airflow and temperature are key determinants in use of structures, such as tunnels and adits, as hibernacula. Temperatures within these roost sites are generally below 53°F at the onset of hibernation and remain between 34°F and 50°F by midwinter. Structures that have a varying temperature regime allow bats to find suitable temperatures during warm or cold winters (Tuttle and Taylor 1998).

3.1 Bat Observations

In 2012, the Districts performed the Special-status Wildlife – Bats Study (TID/MID 2013g), with the goal of identifying Project operation and maintenance (O&M) and/or recreation activities that may adversely affect special-status bat species. The study included visual inspections for evidence of bat use at all Project facilities, which was followed by focused surveys, mist-netting, and long-term acoustic monitoring. The visual inspection consisted of examining the interior and exterior of Project facilities (e.g., powerhouses, storage buildings, public restrooms at campgrounds and boat launches, kiosks, etc.) for active bat roosts and/or signs of past use, including guano and urine staining. Table 3.1-1 provides the results of the inspection and focused survey.

Table 3.1-1. Evidence of bat use observed during the inspection and focused survey.

Project Feature	Project Facility Observations
Don Pedro Powerhouse	*Crane Structure*: No evidence of use.
	Generator Den B: Minor use (i.e., one piece of guano and minor staining)
	Access Tunnel: Verbal accounts from Districts' employees provided information regarding sightings of bats regularly exiting and entering the tunnel, indicating a day roost.
Don Pedro Dam	*Fixed Wheel Gate Building*: No roosting on structure. 2 bats (*Myotis*, not identified to species) observed (day roosting) behind plaque on front of structure.
	Don Pedro Dam Spillway: No signs of bat use were observed on the spillway structure. However, bats were observed within the vent structures of the spillway during focused surveys.
Don Pedro Recreation Area	*Visitor Center Building*: Guano and staining on exterior of building. Visitor Center employees reported observing bats day-roosting on exterior of the building near doors, which is likely a rare and isolated occurrence.[1]
Fleming Meadows Recreation Area	*Campground A Loop*: Restroom A1: Guano and/or staining on interior walls of Restroom A1, A2, A3, and A4; evidence of use of exterior of Restroom A1 and A3. No signs of use of Restroom A5. Guano on walls of Group Picnic Pavilion.
	Campground B Loop: Guano on interior walls of Restroom B1. Guano and possible staining on exterior of Maintenance Building.

Project Feature	Project Facility Observations
	Campground D Loop: Minor use (guano and/or staining) of Restroom D1 and D2. Major use of Swim Beach Filtration Building exterior, where pallid bat night roosting was also observed. Minor staining on exterior walls of Snack Bar. Staining and guano on shower units of Dressing Rooms. Minor use (guano and staining) on exterior of Trading Post.
	Campground H Loop: Minor staining at Restroom H1; no sign of use at Restroom H2.
	Boat Launch Restroom: Minor use (guano) of middle partition.
Moccasin Point Recreation Area	*Campground B Loop*: No signs of use of Restroom B1, B2, or B3.
	Campground C Loop: Minor use of exterior wall (one piece of guano) of Restroom C2; no sign of use of Restroom C1.
	Boat Launch Restroom: Staining on interior walls of men's restroom.
Blue Oaks Recreation Area	*Campground Area A Loop*: Staining and/or guano at Restroom A1, A2, Group Picnic Restroom, Storage Facility, and small structure near Restroom A2. Pallid bats sampled by mist nets.
	Campground Area B Loop: Guano on interior of Restroom B1 (along with pieces of Jerusalem cricket), B2, and B3.
	Campground Area C Loop: Guano and/or staining on interior of Restroom C1, C2, and C3.
	Campground Area D Loop: Guano (substantial amount) and pieces of Jerusalem cricket on interior of Restroom D1 and minor use (guano and staining) of Restroom D2.

[1] In 2016, after this study was completed, the DPRA headquarters was destroyed by a fire.

Acoustic monitoring provided evidence of at least seven species of special-status bats in the Don Pedro Project area: pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), spotted bat (*Euderma maculatum*), western mastiff bat (*Eumops perotis*), western red bat (*Lasiurus blossevillii*), western long-eared myotis (*Myotis evotis*), and Yuma myotis (*Myotis yumanensis*).

The study results indicated that Project facilities were mostly used by bats only as night roosts, where human presence is generally infrequent and intermittent at night, and associated with recreation use (e.g., visitor use of restrooms at campgrounds) or not regular use by Project O&M staff. Documented and likely day roosts were limited to the Fixed Wheel Gate building near Don Pedro Dam, where two *Myotis* bats were observed behind a plaque affixed to the building, and the access tunnel adjacent to Don Pedro Powerhouse. The Fixed Wheel Gate provides emergency closure for the power tunnel, but is not otherwise used or affected by Project O&M. A day roost in the access tunnel adjacent to the Don Pedro Powerhouse is indicated by observations of bats by Project operations staff and the results of the Districts' acoustic monitoring. No Project O&M activities occur at the tunnel that could affect bats using the area.

3.2 Bat Protection Guidelines

3.2.1 Blue Oaks Campground Monitoring

The Special-Status Wildlife – Bat Study conducted in relicensing (TID/MID 2013g) identified evidence of bat night roosting at certain campground facilities that persisted throughout the study, suggesting that disturbance to night roosts in general is not adversely affecting bat use of the area. The disturbance associated with recreation use of is unlikely to result in abandonment of roosts by bats. The the small cinderblock structure[1] near the A2 restroom in the Blue Oak campground is used by pallid bats as a night roost and anecdotal evidence suggests visitors may be accessing the building, creating a potential disturbance for the bats. To prevent visitor activities from disrupting pallid bat use of this building during the evening, physical measures will be taken to exclude humans from the building while still accommodating pallid bat use (e.g., partially boarding the doorway).

3.2.2 General Guidelines

Based on the results of the Districts' Special-Status Wildlife - Bats Study, except as identified above, there are currently no sites where Project O&M is likely to affect special-status bats. If during the new license term, bats or signs of roosting are discovered at Project facilities where there is a staff presence routinely (i.e., at least daily or weekly), the Districts will attempt to place, where feasible, and in the calendar year following discovery of such bat presence, humane exclusion devices to prevent further occupation of the structure by bats.[2] Humane exclusion devices will be placed when bats are absent from the facility, generally between November 1 and February 28. Prior to installation of the humane exclusion devices, the Districts shall perform an inspection of the facility to ensure that overwintering bats will not be trapped. If overwintering bats are present during the inspection, installation of humane exclusion measures shall be delayed. The Districts shall notify CDFW, and the BLM if the facility is located on BLM-administered land, of the overwintering bats and to identify future dates that would be suitable for installation of humane exclusion devices.

When a new exclusion device is installed, the device will be inspected six months later to confirm effectiveness (i.e., no evidence of bat presence). All exclusion devices will be inspected on an annual basis, and the facility will be reevaluated for roosting bats every two years after the initial exclusion devices are installed to insure that no new roosts or entry points have been established.

[1] The building appears to be a small shed for storing explosives that was part of Guy F. Atkinson Company's construction camp during the construction of the new Don Pedro Dam in the late 1960s and early 1970s.

[2] Bats will not be excluded from day or night roosts discovered on the exterior of Project facilities, night roosts at recreation area restrooms, and other Project facilities where staff presence is infrequent or non-existent (e.g., the Don Pedro Dam access tunnel).

4.0 BALD EAGLE MANAGEMENT

The Bald Eagle Management Section of this Plan describes the Districts' measures to protect bald eagle (*Haliaeetus leucocephalus*) nesting within the Project Boundary. The goal is to prevent O&M and recreation activities at the Don Pedro Project from disturbing bald eagles nesting at Don Pedro Reservoir. This Plan provides guidance to the Districts for the periodic monitoring of existing nests, identification of new nests, as well as implementing measures to protect them. Historical information and the Districts' 2012 and 2013 nesting surveys suggest a baseline of two occupied nesting territories at Don Pedro Reservoir, specifically Woods Creek Arm and Mine Island.

On March 11, 1967, the southern bald eagle (*H. l. leucocephalus*) was listed as Endangered under the ESA of 1966[3] due to a population decline caused by dichlorodiphenyltrichloroethane (DDT) (32 FR 4001). On February 14, 1978, the USFWS ruled to delete the subspecific names for the southern and northern subspecies (*H. l. alascanus*), which resulted in the designation of a single species *H. leucocephalus* (43 FR 6230). The February 14, 1978 ruling also listed bald eagle as endangered in 43 of the 48 contiguous States. Bald eagle in the remaining five States (i.e., Washington, Oregon, Minnesota, Wisconsin, and Michigan) was listed as threatened (43 FR 6230). On July 12, 1995, all bald eagles listed as endangered in the 43 States were reclassified as threatened, while the status of threatened remained in effect for the five other States (60 FR 36000). On August 8, 2007, the USFWS ruled to delist the bald eagle (72 FR 37346). In the ruling, USFWS indicated that a reduction or elimination of threats such as DDT, as well as habitat protection led to an increase in breeding pairs from an estimated 487 in 1963 to approximately 9,789 in 2007 in the 48 contiguous States (72 FR 37346).

Since delisting, protection of bald eagle has continued under the Migratory Bird Treaty Act of 1918 (MBTA) (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat 755) as amended, and the Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668-668c) as amended. The MBTA protects migratory birds and includes agreements between the United States, Great Britain (on behalf of Canada), Mexico, Japan and Soviet Union (now Russia) for the protection of such birds. In short, the MBTA, unless permitted by regulation, prohibits:

> *"...pursuit, hunt, capture, take, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation of carriage, or export at any time, or in any manner, any migratory bird, included in the terms of the convention…for the protection of migratory birds…or any part, nest, or egg of such bird." (16 U.S.C. 703)*

[3] Endangered Species Preservation Act of 1966 was amended in 1969 by the Endangered Species Conservation Act of December 5, 1969 (P.L. 91-135, 83 Stat. 275), which was repealed by the Endangered Species Act of 1973 (16 U.S.C. 1531-1544).

The BGEPA protects bald and golden eagles (*Aquila chrysaetos*), except under specific conditions, from take and includes their parts (feathers), nests or eggs.[4] Take is defined as "pursue, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." Furthermore, disturb is defined as:

> *"…to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding or sheltering behavior." (16 U.S.C. 668-668c)*

Violation of the BGEPA can result in criminal penalties that can result in a fine of $100,000 for an individual ($200,000 for organizations), imprisonment for one year, or both, for a first offense. Penalties increase for additional offenses, and a second offense is a felony.

Within California, the bald eagle was listed under the California Endangered Species Act as Endangered on June 27, 1971. Protection under CESA mirrors the federal ESA. In 1971, the State of California also assigned the status of Fully Protected Birds to bald eagle (California Fish and Game Code §3511). Section 3511 of the California Fish and Game Code states:

> *"Except as provided in Section 2081.7 or 2835, fully protected birds or parts thereof may not be taken or possessed at any time. No provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected bird, and no permits or licenses heretofore issued shall have any force or effect for that purpose. However, the department may authorize the taking of those species for necessary scientific research, including efforts to recover fully protected, threatened, or endangered species, and may authorize the live capture and relocation of those species pursuant to a permit for the protection of livestock."*

According to Section 86 in F.G.C.:

> *"Take" means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.*

Additional protections for bald eagle in California exist under California Fish and Game Code §3503, 3503.5, and 3513, which make it unlawful to take, possess, or needlessly destroy birds' nests or eggs; take possess, or destroy raptors and their eggs and nests; and take or possess any migratory nongame bird of pert thereof, designated in the MBTA, respectively.

[4] Bald Eagle Protection Act of 1940 was amended in 1978 (P.L. 95-616 (92 Stat. 3114) to include golden eagles.

4.1 Existing Survey Information

The Districts performed bald eagle surveys in 2012 and 2013 with the goal of gathering information regarding bald eagles associated with the Don Pedro Reservoir and associated stream reaches, and Project recreation features or activities. As described in the study plan, the study area consisted of a 1,000-foot area around Don Pedro Reservoir and Project facilities, including those portions of the Tuolumne River that are within the Project Boundary.

A review of historical records from the BLM and California Natural Diversity Database for bald eagles in the study area showed seven previously documented nests. Table 4.1-1 provides the location, nest status as of the 2012 surveys, historical nesting success, and nest tree type. Figure 4.1-1 shows the locations of historical bald eagle nest sites on Don Pedro Reservoir.

Table 4.1-1. Historical bald eagle nests on Don Pedro Reservoir.

Location	UTM-N	UTM-E	Status of Nest in 2012[1]	Historical Nesting Successes	Nest Tree
Rogers Creek Arm (Penole Peak)	4174998	733076	Nest Absent	--	--
South Bay (Blank Peak)	4175463	731891	Occupied, Not Successful	2002, 2007, 2009	Gray pine (*Pinus sabiniana*)
Woods Creek Arm	4196433	726850	Not Occupied, unrepaired	2006, 2007	Undetermined snag
Mine Island	4179132	729011	Nest No Longer Exists	--	--
Big Creek Arm	4181780	728062	Not Occupied, unrepaired	--	Gray pine
Jenkins Hill	4177769	730742	Not Occupied, unrepaired	--	Gray pine
Tuolumne River Arm	4195642	734932	Not Occupied, unrepaired	--	Gray pine

[1] Not Occupied - no nesting activity and no adults in a nesting territory.
Unrepaired – remnant of nest still visible, but no repairs have been made and the nest appears dilapidated.
Nest Absent – No nest visible at indicated site.

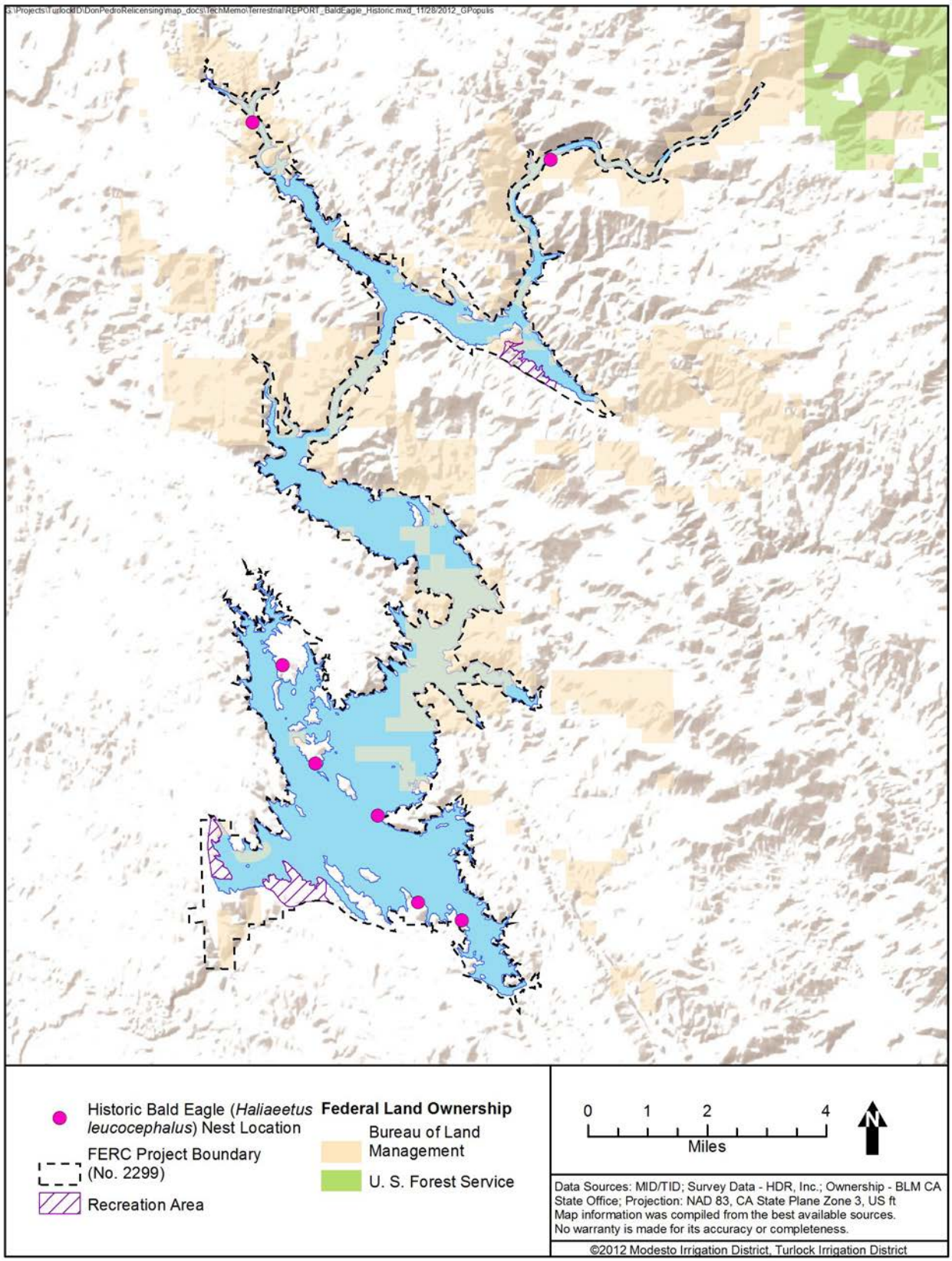

Figure 4.1-1. Historical bald eagle nests on Don Pedro Reservoir.

During the 2012 initial nesting survey (March 19 and 20, 2012), the survey team located nine bald eagle nests. Of those, five had been previously documented by the BLM, and four are considered to be new or previously undocumented by the BLM. The five previously documented nests were located: (1) on the northern flank of Blank Peak near the entrance to the Rodgers Creek Arm; (2) on the western flank of Jenkins Hill at the southern entrance to Middle Bay; (3) on the eastern shoreline of the Big Creek Arm; (4) near the confluence of Slate Creek and Woods Creek in the Woods Creek Arm; and (5) near the inflow of Rough and Ready Creek to the Tuolumne River Arm. The four new or previously undocumented nests were located: (1) near the northeast corner of Mine Island; (2) on the northern flank of an unnamed peak in the southwestern corner of the Upper Bay; (3) in the upper reach of the Woods Creek Arm; and (4) near the middle reach of the Woods Creek Arm. Furthermore, the survey team was unable to locate two of the seven historical nests reported by the BLM. It is suspected that the two "missing" nests were destroyed prior to the 2012 nesting surveys and not reconstructed. These two nests were located: (1) approximately one mile southeast of Blank Peak in the Rodgers Creek Arm; and (2) along the southern shoreline of Mine Island.

Of the nine nests documented during the initial nesting survey, three were found to be occupied by a single adult tending to eggs. These three nests were located: (1) on the northern flank of Blank Peak; (2) near the northeast corner of Mine Island; and (3) near the upper reach of the Woods Creek Arm. The remaining six nests were unoccupied.

During the second nesting survey on May 8 and 9, 2012, the survey team found that the Mine Island nest and the Woods Creek Arm nest continued to be occupied by at least one adult and contained nestlings. It is unknown if the observed nestlings later fledged from either nest so these two nests were considered to be Occupied, Success Unknown.

With respect to the Blank Peak nest, the survey team found it to be absent of adults and without nestlings. This nest was classified as Occupied, Not Successful. The remaining six nests continued to be unoccupied.

During the first 2013 visit (May 8 and 9), two occupied and eight unoccupied bald eagle nests were found. The occupied nests were the Woods Creek Arm Nest No. 1 and Mine Island Nest, both of which were also occupied in 2012. At the Woods Creek Arm Nest No. 1, an adult female was observed in the nest along with a single nestling estimated to be eight weeks old. The adult male bald eagle associated with the Woods Creek Arm Nest No. 1 was absent during the initial visit. At the Mine Island Nest, an adult female was present in the nest along with two nestlings that were estimated to be six to seven weeks old. An adult male bald eagle was perched in a gray pine (*Pinus sabiniana*) 150 feet south of the Mine Island Nest. Shortly after surveyor arrival, the male flew from his perch and began pursuing a juvenile bald eagle north of Mine Island.

During the second 2013 visit (June 17 and 18), both adults from the Woods Creek Arm Nest No. 1 were perched together in a gray pine immediately adjacent to the nest. The single nestling observed during the initial visit was not observed. At the Mine Island Nest, both parents were perched together in a gray pine 300 feet north of the nest, and two nestlings were perched on the edge of the nest.

Table 4.1-2 summarizes 2012 and 2013 observations of bald eagle nests, including location, success and nest tree. Figure 4.1-2 shows of the location of each nest found during the 2012 and 2013 surveys.

Table 4.1-2. Results of the 2012 and 2013 bald eagle nesting surveys.

Nest	UTM-N	UTM-E	2012 Survey Results[1,3]	2013 Survey Results[1]	Notes
Woods Creek Arm Nest No. 1	4195157	727484	OSU	OS	Single nestling, given approximate age during first visit, likely fledged prior to second visit.
Woods Creek Arm Nest No. 2	4196433	726850	NO	NO	Nest was in disrepair during 2012 surveys, and was not present in 2013.
Woods Creek Arm Nest No. 3	4193446	729257	NO	NO	Occupied by osprey in 2013.
Upper Bay Nest	4184371	731272	NO	NO	Nest tree fell prior to second visit in 2013.
Big Creek Arm Nest	4181780	728062	NO	NO	No repairs made since 2012 survey.
Mine Island Nest	4179687	729276	OSU	OS	Two fledged.
Jenkins Hill Nest	4177769	730742	NO	NO	No repairs made since 2012 survey.
South Bay Nest No. 1 (Blank Peak)	4175463	731891	ONS	NO	No repairs made since 2012 survey.
South Bay Nest No. 2[2]	4174790	733215	--	NO	New nest, not occupied.
Tuolumne River Arm	4195642	731894	NO	NO	No repairs made since 2012 survey.

[1] OSU = Occupied Success Unknown
NO = Not Occupied
ONS = Occupied Not Successful
OS = Occupied Successful

[2] South Bay Nest No. 2 was not present during 2012 surveys, but was reported by BLM as a historical nest.

[3] 2012 survey results obtained from TID/MID (2013a).

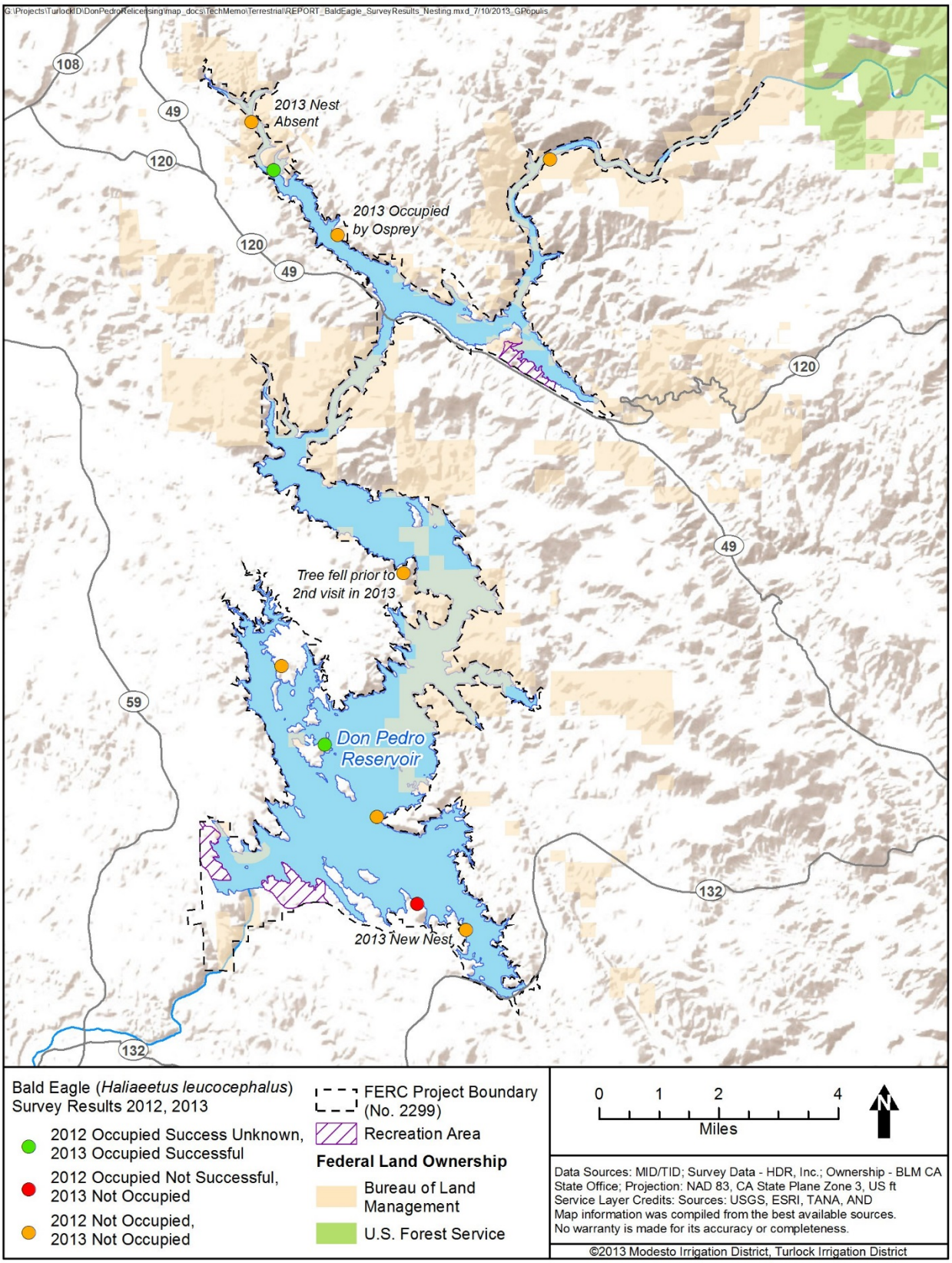

Figure 4.1-2. Results and incidental sightings during 2012 and 2013 bald eagle nesting surveys.

4.2 Bald Eagle Surveys and Monitoring

Bald eagle nest surveys will begin the first full calendar year after license issuance, and will be performed by qualified biologists. Surveys will be repeated once every two years for the first five years following license issuance (i.e., in Year 2 and Year 4). This will allow the Districts to monitor the effectiveness of protection measures (described below) at active nesting territories. After the fifth year, survey frequency will be reduced to once every five years. Surveys will be performed in accordance with the *Bald Eagle Breeding Survey Instructions* (CDFG 1999) and the *Protocol for Evaluating Bald Eagle Habitat and Populations in California* (Jackman and Jenkins 2004). Each bald eagle nesting survey consists of three visits to Don Pedro Reservoir between early March and mid-June of the same year. All data collected during nesting surveys will be recorded on the CDFW California Bald Eagle Nesting Territory Survey Form (Attachment C). These data will serve as the basis for development of the survey reports described in Section 6.2. Each visit is described below:

- Visit 1: Determine Occupancy of Territories, Identify New Nests, and Early Incubation. Occupancy of known territories (e.g., Mine Island) and a search for new nests will be performed in early March, as weather conditions allow. Data collected at each site will consist of: (1) presence of adults; (2) courtship behavior; (3) evidence of nest repair or construction; (4) incubation; (5) observation of old nests. Surveys will be performed from a boat. GPS coordinates will be recorded, and photographs will be taken for all nests observed.
- Visit 2: Confirm Occupancy of Territories and Nests, and Presence of Eggs/Nestlings. Visit 2 will be conducted in late April or early May to determine whether the breeding pair(s) observed in March is still tending the nest (e.g., incubating eggs or tending nestlings). The number of eggs/nestlings, bird behavior, and any other relevant observations will be recorded. Visit 2 surveys will be conducted from a boat.
- Visit 3: Determine Nest Success. Visit 3 will be conducted in mid-June to determine how many nestlings are approaching fledgling age. Visit 3 surveys will be conducted from a boat.

4.3 Bald Eagle Protection Measures

The Districts will make reasonable efforts to protect bald eagles that have the potential to be affected by O&M activities, including the reduction of disturbances to nesting birds. The Districts' or DPRA activities associated with maintaining Don Pedro Project safety; normal water supply O&M, flood protection, and hydropower maintenance; with life-threatening or imminent loss of facilities; and emergency situations are exempt from the restrictions imposed by the Limited Operating Period described below.

4.3.1 Establishment of Buffers

Upon completion of the first nest survey (first visit will occur in March of the first full calendar year following license issuance) and for all active nests identified after the initial nest survey, the Districts will establish a buffer around all occupied bald eagle nests. Buoys and signs will be used to delineate the buffer, which will encompass all land and water that fall within an approximate 660-foot radius of an occupied nest or logical topographical boundary.[5]

Beginning January 1 through August 31 of each year thereafter, the Districts will institute a Limited Operating Period around all known active bald eagle nests for O&M activities and recreation activities (e.g., boating, camping, hiking) within the buffer areas (described above) unless such restrictions materially affect the normal water supply, flood control, or hydropower operations at the Don Pedro Project. As needed, the Districts will work with the BLM and the DPRA to implement appropriate administrative closures on BLM lands and Districts' lands, respectively.

Nest buffers may be removed, adjusted, or new buffers established if subsequent nesting surveys demonstrate that a nesting territory is no longer occupied or new nests are identified. Additionally, any information provided to the Districts by CDFW, BLM, or USFWS regarding previously unidentified or existing nests will be used to inform the establishment of, or adjustment to, nest buffers. Removal of nest buffers will be done in consultation with the appropriate agency (depending on jurisdiction), and may include CDFW, BLM, and USFWS.

4.3.2 Protection of Nests

Under no circumstances shall a known bald eagle nest be removed without consultation and approval of CDFW, BLM, and USFWS. Any tree removal shall be in compliance with Fish and Game Code § 3503 and BGEPA.

4.3.3 Use of Rodenticides

Project O&M includes periodic gopher and ground squirrel management in developed recreation areas. Beginning in 2016, the Districts ceased use of burrow blasting and pelleted rodent poison, and now use a GopherX smoke and carbon monoxide system that presents no risk to other wildlife and leaves burrows intact following treatment. The Districts plan to continue use of this system during the course of a new license term. If the need to use rodenticides within the Project Boundary arises, the Districts and DPRA will do so in accordance with federal and State law, and prior to application will consult with the CDFW, BLM, and USFWS on the type and location of use.

[5] The Districts selected the largest buffer defined for six of the eight activity categories (A, B, C, D, E, and F) presented in the USFWS 2007, National Bald Eagle Management Guidelines. The activities covered under those six categories are the most applicable to O&M and recreation activities that could occur within the Project Boundary. The remaining two categories, G and H, are specific to aircraft use, explosives and other loud intermittent noises, and are not anticipated by the Districts.

5.0 WESTERN POND TURTLE

Western pond turtle (WPT) (*Actinemys marmorata*) is a CDFW Species of Special Concern and BLM-S associated with a wide variety of aquatic habitats, including low-flow sections of streams, permanent and seasonal ponds, and lakes. Habitat quality is generally related to: (1) the availability of suitable sites for sun-basking (e.g., partially submerged logs, overhanging vegetation, rock outcrops, or mats of submerged vegetation); (2) underwater hiding cover (e.g., submerged logs, crevices, or vegetation, often located underneath basking sites) to escape predators; and (3) areas suitable for hatchlings (i.e., warm, shallow water with ample hiding cover in the form of dense submerged or short emergent vegetation), particularly near terrestrial egg-laying ("nesting") sites (Reese 1986, Holland 1991, Jennings and Hayes 1994, Holland and Bury 1998, Buskirk 2002, Bury and Romano 2008, Rosenberg and Swift 2010). Deep, open water lacking features for basking and hiding are not typically used (Holland 1994). Reduced habitat quality is associated with the presence of introduced, predaceous warm-water fishes and exotic species of turtles that compete for basking sites (Ashton et al. 1997, Spinks et al. 2003, Bury and Germano 2008).

Don Pedro Reservoir is a large, deep reservoir, with mostly steep slopes and open expanses of water that are not suitable habitat for WPT. Incidental observations and the results targeted surveys performed by the Districts during relicensing (Table 5.0-1) suggest that WPT occurs in relatively small numbers concentrated in backwater inlets, particularly those associated with seasonal or perennial tributary streams. Most of the sightings were incidental observations and some could represent repeat observations of the same individuals. Although most of the observations were at or below the normal maximum water surface elevation, some were at locations upstream of the reservoir surface elevation at the time of the observation.

Table 5.0-1. Summary of observations of WPT and other turtles recorded during Project relicensing studies.

Location	Dates	Observations
Woods Creek Arm	4/18/12	1 adult WPT basking on bank.
	6/18/12	1 juvenile WPT basking on edge of stream; 1 adult WPT (carcass) on edge of stream.
	6/27/12	2 adult WPT basking on partially submerged log.
Moccasin Creek Arm	6/27/12	1 adult WPT swimming; 1 adult WPT (carcass) also found on shore.
Poor Man's Gulch	4/24/12	1 adult WPT basking on rock.
	5/18/12	1 adult WPT swimming.
	6/28/12	1 adult WPT basking on boulder.
Six-Bit Gulch	4/24/12	1 adult WPT basking on rock.
	5/21/12	1 adult WPT swimming near shoreline.
Big Creek Arm	4/17/12	5 adult turtles, not identified to species, basking on logs in pool.
	6/18/12	1 adult WPT observed in the water; 2 red-eared sliders also observed at site.
Upper Bay	5/20/12	1 adult WPT basking (location not associated with a tributary).
Hatch Creek Arm	6/26/12	1 adult WPT swimming.
Don Pedro Spillway	3/28/12	1 adult WPT basking, then swimming at location adjacent to Tuolumne River.

5.1 Recording and Reporting Observations

Incidental observations of WPT by staff and contractors will be recorded, assembled, and made available to BLM and CDFW as part of an annual summary memo. Staff and contractors engaged in O&M activities on Don Pedro Reservoir will be provided with laminated identification sheets showing WPT as compared to other non-native turtles that may be encountered and instructed in documentation and reporting procedures. Each turtle observation will be recorded with the following information: (1) identity of observed turtle (WPT, non-native species, or unknown); (2) approximate size/age class (approximately 1 inch (in) carapace length = hatchling; approximately 4 in carapace length or larger = adult; intermediate sizes = juvenile); and (3) location, as accurately as practicable (i.e., marked on a map or recorded by geographic coordinates. In addition to observations of live turtles, findings of skeletal remains will be noted, as well as evidence of turtle nests, such as the scrapes produced by females when digging nest-holes, signs of nests opened by predators, and remnants of hatched eggshells.

5.2 Employee Training and Agency Consultation

Beginning the second calendar year after license issuance, the Districts will provide for biennial (once every two years) environmental training for staff and contractors working on the Don Pedro Project. The training will be designed to familiarize the Districts' and the DPRA staff and contractors with the components and requirements of the license implementation plans, including this Plan. The training will include information on the following:

- recognition of WPT
- provision of visual guides to differentiate WPT from non-native turtles
- reporting procedures for WPT observations

Beginning the second calendar year after license issuance and by December 31 each year, the Districts will provide CDFW, BLM, and USFWS with a memorandum describing all activities conducted under the Plan, including incidental observations recorded under this Plan. If requested by the agencies, the Districts will also convene a meeting or conference call to discuss the memo and planned activities.

6.0 EMPLOYEE TRAINING AND AGENCY CONSULTATION

This Section describes the Districts' obligations to train employees and contractors and confer with the BLM regarding terrestrial resources. The frequency of these efforts will be:

- Environmental training for employees and contractors: every two years
- Agency reporting and consultation: annually
- Special status list review: annually

6.1 Employee and Contractor Training

Beginning the second calendar year after license issuance, the Districts will provide for biennial (once every two years) environmental training for staff and contractors working on the Don Pedro Project. The training will be designed to familiarize the Districts' and DPRA staff and contractors with the components and requirements of the Plan, including identification of special-status plants and noxious weeds, planned management activities, and reporting procedures. The training will include information on the following:

- recognition of special-status plants,
- recognition of high-priority noxious weed species (based on guidelines described above),
- noxious weed prevention guidelines,
- reporting procedures for special-status plants, noxious weeds, bats, and bald eagle,
- the locations and purpose of bat exclusionary measures,
- familiarization with potential signs of bat roosting (e.g., guano and staining),
- procedures for reporting of any newly discovered bat roosts,
- required protections for bald eagle,
- location of bald eagle nest buffers and duration of LOPs; and their application to daily and seasonal O&M activities,
- identification and reporting of new bald eagle nests, and
- identification and reporting of WPT observations.

6.2 Annual Reporting and Agency Consultation

Beginning the second calendar year after license issuance, the Districts will provide CDFW, BLM, and USFWS with a memorandum describing all activities conducted under the Plan, including results of all surveys and monitoring efforts, bald eagle data, and bat exclusion efforts during the previous year, as well as all Plan-related activities expected during the following year. If requested by the agencies, the Districts will also convene a meeting or conference call to discuss the memo and planned activities.

6.3 Special Status Species List Review

As part of annual reporting, the Districts will request from CDFW, BLM, and USFWS notification of relevant changes to lists of special-status species and noxious weeds potentially occurring within the Project Boundary. In the event one of these agencies provides notice that a potentially-occurring species is newly listed, the Districts will confer with the appropriate resource agency to determine if the species or un-surveyed suitable habitat for the species is likely to occur on lands affected by Project-related operations or maintenance activities, and will consider the potential need for surveys or resource protection measures.

7.0 SUMMARY OF ENVIRONMENTAL MONITORING ACTIVITIES AND MEASURES

This Section describes the Districts' monitoring activities and the timeframes in which these activities will be performed throughout the term of the license. The table below details the specific monitoring efforts described previously in this Plan.

Table 7.0-1. Summary of activities described in this Plan.

Resource	Activity	Timeframe
Noxious Weeds	Conduct a noxious weed survey.	Beginning in the second year following license issuance, and every fifth year after.
Special-status Plants	Locate and observe known occurrences of special-status plant species.	Beginning in the second year following license issuance, and every fifth year after.
Bats	Install humane bat exclusion devices to prevent further occupation by bats if bats or signs of roosting are discovered at Project facilities where there is a staff presence routinely.	In the calendar year following discovery of bat presence (generally between November 1 and February 28).
Bats	Perform inspection of the facility to ensure overwintering bats will not be trapped and consult with CDFW and BLM.	Prior to installation of bat exclusion devices.
Bats	Perform inspection to confirm effectiveness of any installed bat exclusion device.	Six months after bat exclusion device is installed.
Bats	Inspect all bat exclusion devices.	Annually.
Bats	Reevaluate the facility for roosting bats to ensure no new roosts or entry points have been established.	Every two years.
Bald Eagles	Perform bald eagle nest surveys.	First full calendar year after license issuance, and repeated once every two years for the first five years (i.e., in Year 2 and Year 4).
Bald Eagles	Perform bald eagle nest surveys.	Every five years (after fifth year of license issuance).
Western Pond Turtle	Provide environmental training for staff and contractors.	Once every two years (beginning the second calendar year after license issuance).
Western Pond Turtle	Record incidental observations.	As they occur.
All	Provide CDFW, BLM, and USFWS a memorandum describing all activities conducted under the Plan, including results of all surveys and monitoring efforts, bald eagle data, and western pond turtle observations.	Annually (beginning the second calendar year after license issuance).

8.0 REFERENCES

Ashton, D.T., A.J. Lind, and K.E. Schlick. 1997. Western pond turtle (*Clemmys marmorata*). Natural History. USDA Forest Service, Pacific Southwest Research Station, Arcata, California.

Buskirk, J. 2002. The Western Pond Turtle, *Emys marmorata*. Radiata 11:1-30.

Bury, R.B. and D.J. Germano. 2008. *Actinemys marmorata* (Baird and Girard 1852) western pond turtle, Pacific pond turtle. Chelonian Research Monographs 5. Conservation Biology of Freshwater Turtles and Tortoises: A Compilation Project of the IUCN/SSC Tortoise and Freshwater Turtle Specialist Group.

California Department of Fish and Game (CDFG). 1999. Bald eagle breeding survey instructions. November 1999. Sacramento, CA.

Holland, D.C. 1991. A synopsis of the ecology and status of the western pond turtle (*Clemmys marmorata*) in 1991. Prepared for USFWS, National Ecology Research Center, San Simeon Field Station. 141 pp. + appendices.

———. 1994. Final report on the western pond turtle project. Report to Oregon Department of Fish and Wildlife, Wildlife Diversity Division, Portland, Oregon.

——— and R.B. Bury. 1998. *Clemmys marmorata* (Baird and Girard 1852). Western Pond Turtle. In: P.C.H. Pritchard and A.G.J. Rhodin (editors). The Conservation Biology of Freshwater Turtles. Chelonian Research Monographs 2.

Jackman, R.E. and J.M. Jenkins. 2004. Protocol for evaluating bald eagle habitat and populations in California. Prepared for U.S. Fish and Wildlife Service. Sacramento, CA.

Jennings, M.R. and M.P. Hayes. 1994. Amphibian and reptile species of special concern in California. Final Report to the California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA. 225 pp.

Reese, D.A. 1986. Comparative demography and habitat use of western pond turtles in northern California: the effects of damming and related alterations. PhD Dissertation, University of California, Berkeley, California.

Rosenberg, D.K. and R. Swift. 2010. Post-emergence behavior of hatchling western pond turtles. Oregon Wildlife Institute, Corvallis, Oregon.

Spinks, P.Q., G.B. Pauly, J.J. Crayon, and H.B. Shaffer. 2003. Survival of the western pond turtle (*Emys marmorata*) in an urban California environment. Biological Conservation 113:257-267.

Turlock Irrigation District and Modesto Irrigation District (TID/MID). 2013a. Bald Eagle Study Report (TR-10). Prepared by HDR Engineering, Inc. December 2013.

———. 2013b. Endangered Species Act & California Endangered Species Act-Listed Plants Study Report (TR-02). Prepared by HDR Engineering, Inc. December 2013.

———. 2013c. Endangered Species Act-Listed Wildlife -- Valley Elderberry Longhorn Beetle Study Report (TR-05). Prepared by HDR Engineering, Inc. December 2013.

———. 2013d. Noxious Weeds Study Report (TR-04). Prepared by HDR Engineering, Inc. January 2013.

———. 2013e. Special-Status Amphibians and Reptiles Study Report (TR-06). Prepared by HDR Engineering, Inc. January 2013.

———. 2013f. Special-Status Plants Study Report (TR-01). Prepared by HDR Engineering, Inc. December 2013.

———. 2013g. Special-Status Wildlife-Bats Study Report (TR-09). Prepared by HDR Engineering, Inc. January 2013.

Tuttle, M.D. and D.A. Taylor. 1998. Bats and Mines. Resource Publication No. 3. Bat Conservation International, Inc. Austin Texas.

United States Fish and Wildlife Service (USFWS). 2007. National bald eagle management guidelines. [Online] URL: http://www.fws.gov/midwest/Eagle/guidelines/NationalBaldEagleManagementGuidelines.pdf.

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TERRESTRIAL RESOURCES MANAGEMENT PLAN

ATTACHMENT A

BLM MANUAL HANDBOOK-1745-1, USE OF NATIVE PLANT MATERIALS IN CALIFORNIA

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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
CALIFORNIA STATE OFFICE
MANUAL TRANSMITTAL SHEET

Release: 1-243

Date: 09/13/2001

Subject: H- 1745 -1 - Native Plant Materials Handbook

1. Explanation of Material Transmitted: This release transmits the Bureau of Land Management's (BLM) CA-Handbook-Use of Native Plant Materials in California. It provides policy and guidance specific to the use of native plant and plant seed in restoration and other revegetation projects, to ensure the preservation of healthy and productive ecosystems. It directs the use of local plant materials for vegetation projects whenever feasible and appropriate, and gives guidance on improved techniques for native plant restoration. It also provides guidance to prevent the introduction of undesirable vegetation, while emphasizing the use of local genetic composition when restoring native plant communities

2. Reports Required: None

3. Materials Superseded: None

4. Filing Instructions: File as directed below.

REMOVE:	INSERT: Release 1-243
None	H-1745
	(Total: 8 sheets, double-sided)

James Wells Abbott
FOR State Director

USE OF NATIVE PLANT MATERIALS IN CALIFORNIA

Festuca californica Photo By: G.F. Hrusa, Ca. Dept. of Food and Ag

BLM MANUAL HANDBOOK-1745 -1

H-1745-1-NATIVE PLANT MATERIALS HANDBOOK

Table of Contents

H-1745-1-NATIVE PLANT MATERIALS HANDBOOK

CHAPTER I

I. INTRODUCTION

This handbook provides direction on the use of native plants and plant seed in restoration and other revegetation projects. The maintenance of diverse native plant communities on a long-term basis is an essential part of preserving ecosystem health and productivity, and the introduction of persistent non-native plants is clearly contrary to this goal. The handbook expands on the policy elaborated in California BLM Manual Supplement 1745 and establishes the procedures to be used in complying with that policy.

Whenever plant materials are used in management activities such as erosion control, water quality, or restoration projects (including reclamation and rehabilitation), consideration needs to be given to long-term plant community stability and integrity. The selection of genetically appropriate native seeds and plants which achieve the purpose of the planting is therefore a concern. These guidelines establish policy on the use of native plant materials on BLM lands under the jurisdiction of the California State Office.

H-1745-1-NATIVE PLANT MATERIALS HANDBOOK

CHAPTER II

II. GENERAL GUIDELINES

A. Planning Stage:

1. Vegetation projects must be planned and evaluated early - preferably several years before the project start date. Seed set may not occur every year, or it may be sparse, so seed collection and stockpiling should begin as early as possible. If nursery grown seedlings are required, allow plenty of time for seed stratification and growing out. Early consideration should also be given to soil stockpiling, erosion control methods, and on-site planting and maintenance activities.

2. Determine the purpose of the planting and set your revegetation goals. If the disturbance has not yet occurred, take measurements of plant composition, density, and cover. Use soil surveys, if available, and look at soil series and ecological sites within the project area as well as the potential natural communities of the site. If this baseline information is not available for the project area, try to find a reference area that is undisturbed and ecologically similar to the project area. Decide what sort of progress can realistically be made toward the desired plant community, and what time-scale you will use to measure progress reports being used to record methodology and results.

3. Determine the desired plant species, the collection method (seeds or cuttings), the amount needed, and the planting method (seeding or transplanting). If nursery services are required, keep in mind that some nurseries require a year or more advance notification.

4. Determine through literature review and personal contacts techniques applicable to the life form you are collecting material from, transplanting, and/or seeding.

5. Develop quality standards for collecting, storing, growing, and outplanting.

6. Develop plans for long-term maintenance and yearly monitoring of the restored area.

7. Develop a contingency plan in case the plant materials become unavailable or fail to survive in the field. Seed availability may be a limiting factor for some species, so several different species should be considered. It is wise to try a variety of restoration methods to increase the odds of success and to determine the best overall method.

8. Maintain an ongoing stock of seed or vegetative materials from frequently used local species in each elevation band within a subsection (see II.D.1, below) if possible, in order to aid in the success of unexpected restoration projects. Meticulous records must be kept on the source

of all materials. A central collection facility may be more advantageous if the source areas are carefully controlled and monitored.

B. Project Review:

All restoration planning efforts must include coordination with Field Office Restoration Coordinators to ensure that the project is feasible and the appropriate plants and methods are used. Coordination with State Office Restoration Coordinators and knowledgeable individuals in other Federal and State agencies and the academic community is also highly desirable.

C. Natural Regeneration:

If there is an ample seed source and suitable conditions, natural regeneration should be encouraged. Topsoil should be salvaged and re-spread if possible, as native seeds and microbiota can often be preserved (if storage length is limited). Erosion control can often be achieved in the interim stage through the use of weed-free mulches such as native grass straw, barley straw, rice hulls, bark, and almond shells.

D. Plant Material Collection:

1. Local Plant Source: To the maximum extent possible, seeds and plants used in restoration, erosion control, fire rehabilitation, forage enhancement, and other projects shall originate from local sources. Local sources often possess genotypes that are adapted to the local environment, leading to higher short-term and long-term success rates. "Local" refers to sources within or as close as possible to the project area and within the same subsection (as shown on the Ecological Units of California map; see definitions), and elevation band (within 500') as the project area. Collections should also be made within the same vegetation series and general soil type.

If the plant population is known to be genetically rare, occurs on an unusual soil (e.g., serpentine), is found in an extreme environment (high temperature, low precipitation, etc.), or has distinct morphological characteristics that may be genetically based, then seeds/cuttings shall only be taken from these local variants. For example, a restoration effort on serpentine soil would use only seeds/cuttings collected on serpentine soil from within the same subsection and elevation band. In addition, disjunct plant populations may be genetically distinct and seeds/cuttings should be taken from within the disjunct population. Riparian species should be collected from riparian areas immediately upstream or downstream, or within sub-watersheds within the same subsection and at similar elevations. If a locally rare species is desired for use in revegetation and can only be collected from the wild, consider whether the local populations can support the impacts of collecting seed or propagules.

These guidelines can and should be tailored to individual species. Variation observed within a species is not always due to population differences; it could be a result of individual

plant differences, individual seed differences (from the same plant), and collection date differences. The use of common gardens, outplantings, and genetic analysis can be helpful in determining the presence and distribution of ecotypes, and should be done by experienced personnel. Large phenotypic plasticity would indicate that wide seed collection zones would be allowable, while large genetic variability would indicate the use of local ecotypes. Research on the genetic variability of commonly used revegetation species is therefore recommended and encouraged. (Extreme caution should be used in interpreting the results of 1) an isozyme study alone or 2) poorly researched taxa.) As ecotype information becomes available, restoration coordinators should develop seed collection "eco-zones" that will be incorporated into future versions of this policy.

2. Semi-local Plant Source: If sufficient numbers of widely-spaced source plants are unavailable within the same subsection, additional collection should occur in several well distributed sub-populations that have similar environments and are within adjacent subsections within the same section as the project area. Semi-local collection sites should be matched carefully to the project area in terms of elevation, vegetation series, aspect, slope, rainfall, annual temperature patterns, frost dates, and soil type. If plant materials are not available within the same section, consider postponing the project until native sources become available.

3. General: Try to use several (~ 50 or more) unrelated (spaced at least 1/4 mile apart) source plants within the collection area in order to maximize genetic diversity. Collect in areas that match the ecological characteristics of the project area. Only use healthy source plants. Collect seed when it is mature and still on the plant (if possible). For those plants that disperse their seed quickly at maturity, spreading sheets beneath the parent plant is advised. Obtain cuttings at the appropriate time of year and from material that is not too soft. Rapidly growing soft tissue is high in nitrogen and will not produce the auxins needed to root as opposed to more mature, woodier tissue that contains higher ratios of stored carbohydrates. Try to collect an equal number of seeds/cuttings from each source plant. Document the location of all source populations, track the plant materials taken from each population until they reach the field, and monitor the performance of each collection over time. This applies to commercial sources as well. When contracting out for seed collection, make sure the collector is well known, knowledgeable, and respected, and only pay for pounds of PURE LIVE SEED. If collected seeds are grown out in a nursery, make sure that the contract states that the seeds are government property, and cannot be used for commercial purposes. No federally-listed or proposed species shall be used for revegetation without proper coordination with the Fish and Wildlife Service. Consult with the California Department of Fish and Game if state-listed species are being considered for use.

E. Commercial Sources:

If local or semi-local plant sources are unavailable, commercial sources of native plants may be used. Plant materials should be bred and/or grown under environmental conditions that

are similar to the project area. Ideally, plant sources should be within the same section as the project area. Plant materials should only be moved from one section to another after careful evaluation. Only use commercial sources if the genetic origin is known. Above all, make sure to ask seed companies where the seed was collected, instead of telling them where you need it from! Be sure that nursery produced native seed was not grown under conditions that could have allowed hybridization with other species or other collections of the same species. Commercial sources should be used as an interim measure, using short-lived species, while adequate supplies of local or semi-local plant materials are being collected or grown.

F. Non-Natives:

Although native plants should always be given first consideration, there are certain situations where non-natives may be desired. For example, on highly disturbed sites that have had their physical characteristics altered so that native vegetation can no longer survive, it may be necessary to use non-natives to help restore site stability. Other examples that have been cited include noxious weed control and emergency situations. In cases where the use of non-native vegetation is desired, a justification shall be submitted for approval by the State Director (as outlined in BLM Manual 1745 - Introduction, Transplant, Augmentation, and Reestablishment of Fish, Wildlife, and Plants). All non-native vegetation used should be non-invasive and ideally be short-lived, have low reproductive capabilities, or be self-pollinating in order to prevent gene flow into the native community. One good example is sterile oats, which provide erosion control and will fade out in one year without cultivation (although they do release seed if disturbed). Non-native vegetation should not compete with the naturally occurring native plant community, invade plant communities outside the target area, persist in the target ecosystem over the long term, or exchange genetic material with local native plant species. One approach to selecting such species may be to use genera that do not occur in the target area as there is less likelihood of genetic exchange between genera than between species within a genus. The use of non-natives should be considered as an interim measure only, while local or semi-local sources are developed. Cultivars of native plants produced outside of California require the same justification as non-natives. Non-natives listed in the Department of Food and Agriculture's Noxious Weed Species list or the California Exotic Pest Plant Council's list of wildland weeds shall not be considered for use under any circumstances.

G. Seed Quality:

All seeds/plants used for BLM projects shall be tested for weeds, pests and diseases, and shall be processed, stored, and conditioned properly. Due to the threat of complete project failure, 0% weed species and other crop species is required in seed mixtures (see BLM Manual 9015 - Integrated Weed Management). However, if it can be shown that a certain percent of contamination of a weed species or other crop species does not interfere with native plant establishment and is not persistent in the environment, then this level will be raised on a species basis.

H. Seed Storage:

Seed storage requirements are highly variable for each species. Generally, each 1% reduction in seed moisture and each 10 ° F reduction in seed temperature doubles the life of the seed. If you wish to store the seeds for 3-5 years at ambient temperatures, dry the seeds to between 5-8% moisture content before tightly sealing in durable containers. For longer storage, dry to 2.5-5% moisture. Make sure you properly label each container with information on species, location of source plant, environmental information, date of collection, and the collector, as a minimum.

I. Planting and Maintenance:

1. If direct seeding, consider using pits or imprinted areas to improve germination, mulches to improve survival, and cracked wheat to reduce granivory. High seeding rates are usually recommended, since direct seeding success rates are lower than transplanting.

2. If transplanting, consider using a variety of container sizes, and try to transplant quickly (preferably in one day). If containers are limited, place more near the windward side of the project area to maximize effectiveness.

3. Plant at an optimal time - usually at the start of the rainy season. A knowledgeable restoration specialist should be consulted if irrigation will be necessary.

4. Permits for projects involving restoration must contain a requirement for maintenance and monitoring of the restored area.

5. Track the success or failure of all restoration projects. An annual report on the status of all restoration projects is required. Even failed efforts yield useful information.

H-1745-1-NATIVE PLANT MATERIALS HANDBOOK

CHAPTER III

III. ANNUAL REVIEW

This policy will be reviewed by Field Office and State Restoration coordinators on at least an annual basis, at which time the annual reports will be reviewed as well. The current guidelines for seed collection zones and seed purity are general, and future revisions will be needed to outline regional or species-specific standards.

H-1745-1-NATIVE PLANT MATERIALS HANDBOOK

CHAPTER IV

IV. DEFINITIONS

Ecological Units of California: Map developed by the Forest Service and Natural Resource Conservation Service in 1994. Subsection units have similar surficial geology. lithology, geomorphic process, soil groups. Subregional climate, and potential natural communities.

Exotic or Non-native Species: One that was introduced through human activity.

Genetically Local Source: Plant material that originated at or within the same subsection and elevation band as the project site.

Native Plant: One that occurs and has evolved naturally in California, and in the project area, as determined by climate, soil, and biotic factors, and that was not introduced by human activity.

Revegetation: A general term for renewing the vegetation on a project site, which may include restoration and rehabilitation.

Stand: Aggregation of individual plants separated rom other such aggregations so that cross fertilization rarely occurs (if at all).

Undesirable Plant: May be a non-native species, non-adapted source, genetically changed through selection in a foreign dissimilar environment, or possesses trait(s) that conflict with accomplishment of objectives.

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TERRESTRIAL RESOURCES MANAGEMENT PLAN

ATTACHMENT B

FISH AND WILDLIFE SERVICE (USFWS) CONSERVATION GUIDELINES FOR MANAGEMENT OF VELB AND VELB HOST PLANTS

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

Conservation Guidelines for the
Valley Elderberry Longhorn Beetle
9 July 1999

The following guidelines have been issued by the U.S. Fish and Wildlife Service (Service) to assist Federal agencies and non-federal project applicants needing incidental take authorization through a section 7 consultation or a section 10(a)(1)(B) permit in developing measures to avoid and minimize adverse effects on the valley elderberry longhorn beetle. The Service will revise these guidelines as needed in the future. The most recently issued version of these guidelines should be used in developing all projects and habitat restoration plans. The survey and monitoring procedures described below are designed to avoid any adverse effects to the valley elderberry longhorn beetle. Thus a recovery permit is not needed to survey for the beetle or its habitat or to monitor conservation areas. If you are interested in a recovery permit for research purposes please call the Service's Regional Office at (503) 231-2063.

Background Information

The valley elderberry longhorn beetle (Desmocerus californicus dimorphus), was listed as a threatened species on August 8, 1980 (Federal Register 45: 52803-52807). This animal is fully protected under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). The valley elderberry longhorn beetle (beetle) is completely dependent on its host plant, elderberry (Sambucus species), which is a common component of the remaining riparian forests and adjacent upland habitats of California's Central Valley. Use of the elderberry by the beetle, a wood borer, is rarely apparent. Frequently, the only exterior evidence of the elderberry's use by the beetle is an exit hole created by the larva just prior to the pupal stage. The life cycle takes one or two years to complete. The animal spends most of its life in the larval stage, living within the stems of an elderberry plant. Adult emergence is from late March through June, about the same time the elderberry produces flowers. The adult stage is short-lived. Further information on the life history, ecology, behavior, and distribution of the beetle can be found in a report by Barr (1991) and the recovery plan for the beetle (USFWS 1984).

Surveys

Proposed project sites within the range of the valley elderberry longhorn beetle should be surveyed for the presence of the beetle and its elderberry host plant by a qualified biologist. The beetle's range extends throughout California's Central Valley and associated foothills from about the 3,000-foot elevation contour on the east and the watershed of the Central Valley on the west (Figure 1). All or portions of 31 counties are included: Alameda, Amador, Butte, Calaveras, Colusa, Contra Costa, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Madera, Mariposa, Merced, Napa, Nevada, Placer, Sacramento, San Benito, San Joaquin, San Luis Obispo, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba.

If elderberry plants with one or more stems measuring 1.0 inch or greater in diameter at ground level occur on or adjacent to the proposed project site, or are otherwise located where they may be directly or indirectly affected by the proposed action, minimization measures which include planting replacement habitat (conservation planting) are required (Table 1).

All elderberry shrubs with one or more stems measuring 1.0 inch or greater in diameter at ground level that occur on or adjacent to a proposed project site must be thoroughly searched for beetle exit holes (external evidence of beetle presence). In addition, all elderberry stems one inch or greater in diameter at ground level must be tallied by diameter size class (Table 1). As outlined in Table 1, the numbers of elderberry seedlings/cuttings and associated riparian native trees/shrubs to be planted as replacement habitat are determined by stem size class of affected elderberry shrubs, presence or absence of exit holes, and whether a proposed project lies in a riparian or non-riparian area.

Elderberry plants with no stems measuring 1.0 inch or greater in diameter at ground level are unlikely to be habitat for the beetle because of their small size and/or immaturity. Therefore, no minimization measures are required for removal of elderberry plants with no stems measuring 1.0 inch or greater in diameter at ground level with no exit holes. Surveys are valid for a period of two years.

Avoid and Protect Habitat Whenever Possible

Project sites that do not contain beetle habitat are preferred. If suitable habitat for the beetle occurs on the project site, or within close proximity where beetles will be affected by the project, these areas must be designated as avoidance areas and must be protected from disturbance during the construction and operation of the project. When possible, projects should be designed such that avoidance areas are connected with adjacent habitat to prevent fragmentation and isolation of beetle populations. Any beetle habitat that cannot be avoided as described below should be considered impacted and appropriate minimization measures should be proposed as described below.

Avoidance: Establishment and Maintenance of a Buffer Zone

Complete avoidance (i.e., no adverse effects) may be assumed when a 100-foot (or wider) buffer is established and maintained around elderberry plants containing stems measuring 1.0 inch or greater in diameter at ground level. Firebreaks may not be included in the buffer zone. In buffer areas construction-related disturbance should be minimized, and any damaged area should be promptly restored following construction. The Service must be consulted before any disturbances within the buffer area are considered. In addition, the Service must be provided with a map identifying the avoidance area and written details describing avoidance measures.

Protective Measures

1. Fence and flag all areas to be avoided during construction activities. In areas where encroachment on the 100-foot buffer has been approved by the Service, provide a minimum setback of at least 20 feet from the dripline of each elderberry plant.

2. Brief contractors on the need to avoid damaging the elderberry plants and the possible penalties for not complying with these requirements.

3. Erect signs every 50 feet along the edge of the avoidance area with the following information: "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs should be clearly readable from a distance of 20 feet, and must be maintained for the duration of construction.

4. Instruct work crews about the status of the beetle and the need to protect its elderberry host plant.

Restoration and Maintenance

1. Restore any damage done to the buffer area (area within 100 feet of elderberry plants) during construction. Provide erosion control and re-vegetate with appropriate native plants.

2. Buffer areas must continue to be protected after construction from adverse effects of the project. Measures such as fencing, signs, weeding, and trash removal are usually appropriate.

3. No insecticides, herbicides, fertilizers, or other chemicals that might harm the beetle or its host plant should be used in the buffer areas, or within 100 feet of any elderberry plant with one or more stems measuring 1.0 inch or greater in diameter at ground level.

4. The applicant must provide a written description of how the buffer areas are to be restored, protected, and maintained after construction is completed.

5. Mowing of grasses/ground cover may occur from July through April to reduce fire hazard. No mowing should occur within five (5) feet of elderberry plant stems. Mowing must be done in a manner that avoids damaging plants (e.g., stripping away bark through careless use of mowing/trimming equipment).

Transplant Elderberry Plants That Cannot Be Avoided

Elderberry plants must be transplanted if they can not be avoided by the proposed project. All elderberry plants with one or more stems measuring 1.0 inch or greater in diameter at ground level must be transplanted to a conservation area (see below). At the Service's discretion, a plant that is unlikely to survive transplantation because of poor condition or location, or a plant that would be extremely difficult to move because of access problems, may be exempted from transplantation. In cases where transplantation is not possible the minimization ratios in Table 1 may be increased to offset the additional habitat loss.

Trimming of elderberry plants (e.g., pruning along roadways, bike paths, or trails) with one or more stems 1.0 inch or greater in diameter at ground level, may result in take of beetles. Therefore, trimming is subject to appropriate minimization measures as outlined in Table 1.

1. Monitor. A qualified biologist (monitor) must be on-site for the duration of the transplanting of the elderberry plants to insure that no unauthorized take of the valley elderberry longhorn beetle occurs. If unauthorized take occurs, the monitor must have the authority to stop work until corrective measures have been completed. The monitor must immediately report any unauthorized take of the beetle or its habitat to the Service and to the California Department of Fish and Game.

2. Timing. Transplant elderberry plants when the plants are dormant, approximately November through the first two weeks in February, after they have lost their leaves. Transplanting during the non-growing season will reduce shock to the plant and increase transplantation success.

3. Transplanting Procedure.

    a. Cut the plant back 3 to 6 feet from the ground or to 50 percent of its height (whichever is taller) by removing branches and stems above this height. The trunk and all stems measuring 1.0 inch or greater in diameter at ground level should be replanted. Any leaves remaining on the plant should be removed.

b. Excavate a hole of adequate size to receive the transplant.

c. Excavate the plant using a Vemeer spade, backhoe, front end loader, or other suitable equipment, taking as much of the root ball as possible, and replant immediately at the conservation area. Move the plant only by the root ball. If the plant is to be moved and transplanted off site, secure the root ball with wire and wrap it with burlap. Dampen the burlap with water, as necessary, to keep the root ball wet. Do not let the roots dry out. Care should be taken to ensure that the soil is not dislodged from around the roots of the transplant. If the site receiving the transplant does not have adequate soil moisture, pre-wet the soil a day or two before transplantation.

d. The planting area must be at least 1,800 square feet for each elderberry transplant. The root ball should be planted so that its top is level with the existing ground. Compact the soil sufficiently so that settlement does not occur. As many as five (5) additional elderberry plantings (cuttings or seedlings) and up to five (5) associated native species plantings (see below) may also be planted within the 1,800 square foot area with the transplant. The transplant and each new planting should have its own watering basin measuring at least three (3) feet in diameter. Watering basins should have a continuous berm measuring approximately eight (8) inches wide at the base and six (6) inches high.

e. Saturate the soil with water. Do not use fertilizers or other supplements or paint the tips of stems with pruning substances, as the effects of these compounds on the beetle are unknown.

f. Monitor to ascertain if additional watering is necessary. If the soil is sandy and well-drained, plants may need to be watered weekly or twice monthly. If the soil is clayey and poorly-drained, it may not be necessary to water after the initial saturation. However, most transplants require watering through the first summer. A drip watering system and timer is ideal. However, in situations where this is not possible, a water truck or other apparatus may be used.

Plant Additional Seedlings or Cuttings

Each elderberry stem measuring 1.0 inch or greater in diameter at ground level that is adversely affected (i.e., transplanted or destroyed) must be replaced, in the conservation area, with elderberry seedlings or cuttings at a ratio ranging from 1:1 to 8:1 (new plantings to affected stems). Minimization ratios are listed and explained in Table 1. Stock of either seedlings or cuttings should be obtained from local sources. Cuttings may be obtained from the plants to be transplanted if the project site is in the vicinity of the conservation area. If the Service determines that the elderberry plants on the proposed project site are unsuitable candidates for

transplanting, the Service may allow the applicant to plant seedlings or cuttings at higher than the stated ratios in Table 1 for each elderberry plant that cannot be transplanted.

Plant Associated Native Species

Studies have found that the beetle is more abundant in dense native plant communities with a mature overstory and a mixed understory. Therefore, a mix of native plants associated with the elderberry plants at the project site or similar sites will be planted at ratios ranging from 1:1 to 2:1 [native tree/plant species to each elderberry seedling or cutting (see Table 1)]. These native plantings must be monitored with the same survival criteria used for the elderberry seedlings (see below). Stock of saplings, cuttings, and seedlings should be obtained from local sources. If the parent stock is obtained from a distance greater than one mile from the conservation area, approval by the Service of the native plant donor sites must be obtained prior to initiation of the revegetation work. Planting or seeding the conservation area with native herbaceous species is encouraged. Establishing native grasses and forbs may discourage unwanted non-native species from becoming established or persisting at the conservation area. Only stock from local sources should be used.

Examples

Example 1
The project will adversely affect beetle habitat on a vacant lot on the land side of a river levee. This levee now separates beetle habitat on the vacant lot from extant Great Valley Mixed Riparian Forest (Holland 1986) adjacent to the river. However, it is clear that the beetle habitat located on the vacant lot was part of a more extensive mixed riparian forest ecosystem extending farther from the river's edge prior to agricultural development and levee construction. Therefore, the beetle habitat on site is considered riparian. A total of two elderberry plants with at least one stem measuring 1.0 inch or greater in diameter at ground level will be affected by the proposed action. The two plants have a total of 15 stems measuring over 1.0 inch. No exit holes were found on either plant. Ten of the stems are between 1.0 and 3.0 inches in diameter and five of the stems are greater than 5.0 inches in diameter. The conservation area is suited for riparian forest habitat. Associated natives adjacent to the conservation area are box elder (Acer negundo californica), walnut (Juglans californica var. hindsii), sycamore (Platanus racemosa), cottonwood (Populus fremontii), willow (Salix gooddingii and S. laevigata), white alder (Alnus rhombifolia), ash (Fraxinus latifolia), button willow (Cephalanthus occidentalis), and wild grape (Vitis californica).

Minimization (based on ratios in Table 1):

• Transplant the two elderberry plants that will be affected to the conservation area.

• Plant 40 elderberry rooted cuttings (10 affected stems compensated at 2:1 ratio and 5 affected stems compensated at 4:1 ratio, cuttings planted:stems affected)

• Plant 40 associated native species (ratio of associated natives to elderberry plantings is 1:1 in areas with no exit holes):

5 saplings each of box elder, sycamore, and cottonwood
5 willow seedlings
5 white alder seedlings
5 saplings each of walnut and ash
3 California button willow
2 wild grape vines
Total: 40 associated native species

• Total area required is a minimum of 1,800 sq. ft. for one to five elderberry seedlings and up to 5 associated natives. Since, a total of 80 plants must be planted (40 elderberries and 40 associated natives), a total of 0.33 acre (14,400 square feet) will be required for conservation plantings. The conservation area will be seeded and planted with native grasses and forbs, and closely monitored and maintained throughout the monitoring period.

Example 2
The project will adversely affect beetle habitat in Blue Oak Woodland (Holland 1986). One elderberry plant with at least one stem measuring 1.0 inch or greater in diameter at ground level will be affected by the proposed action. The plant has a total of 10 stems measuring over 1.0 inch. Exit holes were found on the plant. Five of the stems are between 1.0 and 3.0 inches in diameter and five of the stems are between 3.0 and 5.0 inches in diameter. The conservation area is suited for elderberry savanna (non-riparian habitat). Associated natives adjacent to the conservation area are willow (Salix species), blue oak (Quercus douglasii), interior live oak (Q. wislizenii), sycamore, poison oak (Toxicodendron diversilobum), and wild grape.

Minimization (based on ratios in Table 1):

• Transplant the one elderberry plant that will be affected to the conservation area.

• Plant 30 elderberry seedlings (5 affected stems compensated at 2:1 ratio and 5 affected stems compensated at 4:1 ratio, cuttings planted:stems affected)

• Plant 60 associated native species (ratio of associated natives to elderberry plantings is 2:1 in areas with exit holes):

20 saplings of blue oak, 20 saplings of sycamore, and 20 saplings of willow, and seed and plant with a mixture of native grasses and forbs

• Total area required is a minimum of 1,800 sq. ft. for one to five elderberry seedlings and up to 5 associated natives. Since, a total of 90 plants must be planted (30 elderberries and 60 associated natives), a total of 0.37 acre (16,200 square feet) will be required for conservation plantings. The conservation area will be seeded and planted with native grasses and forbs, and closely monitored and maintained throughout the monitoring period.

Conservation Area—Provide Habitat for the Beetle in Perpetuity

The conservation area is distinct from the avoidance area (though the two may adjoin), and serves to receive and protect the transplanted elderberry plants and the elderberry and other native plantings. The Service may accept proposals for off-site conservation areas where appropriate.

1. Size. The conservation area must provide at least 1,800 square feet for each transplanted elderberry plant. As many as 10 conservation plantings (i.e., elderberry cuttings or seedlings and/or associated native plants) may be planted within the 1800 square foot area with each transplanted elderberry. An additional 1,800 square feet shall be provided for every additional 10 conservation plants. Each planting should have its own watering basin measuring approximately three feet in diameter. Watering basins should be constructed with a continuous berm measuring approximately eight inches wide at the base and six inches high.

   The planting density specified above is primarily for riparian forest habitats or other habitats with naturally dense cover. If the conservation area is an open habitat (i.e., elderberry savanna, oak woodland) more area may be needed for the required plantings. Contact the Service for assistance if the above planting recommendations are not appropriate for the proposed conservation area.

   No area to be maintained as a firebreak may be counted as conservation area. Like the avoidance area, the conservation area should connect with adjacent habitat wherever possible, to prevent isolation of beetle populations.

   Depending on adjacent land use, a buffer area may also be needed between the conservation area and the adjacent lands. For example, herbicides and pesticides are

often used on orchards or vineyards. These chemicals may drift or runoff onto the conservation area if an adequate buffer area is not provided.

2. Long-Term Protection. The conservation area must be protected in perpetuity as habitat for the valley elderberry longhorn beetle. A conservation easement or deed restrictions to protect the conservation area must be arranged. Conservation areas may be transferred to a resource agency or appropriate private organization for long-term management. The Service must be provided with a map and written details identifying the conservation area; and the applicant must receive approval from the Service that the conservation area is acceptable prior to initiating the conservation program. A true, recorded copy of the deed transfer, conservation easement, or deed restrictions protecting the conservation area in perpetuity must be provided to the Service before project implementation.

   Adequate funds must be provided to ensure that the conservation area is managed in perpetuity. The applicant must dedicate an endowment fund for this purpose, and designate the party or entity that will be responsible for long-term management of the conservation area. The Service must be provided with written documentation that funding and management of the conservation area (items 3-8 above) will be provided in perpetuity.

3. Weed Control. Weeds and other plants that are not native to the conservation area must be removed at least once a year, or at the discretion of the Service and the California Department of Fish and Game. Mechanical means should be used; herbicides are prohibited unless approved by the Service.

4. Pesticide and Toxicant Control. Measures must be taken to insure that no pesticides, herbicides, fertilizers, or other chemical agents enter the conservation area. No spraying of these agents must be done within one 100 feet of the area, or if they have the potential to drift, flow, or be washed into the area in the opinion of biologists or law enforcement personnel from the Service or the California Department of Fish and Game.

5. Litter Control. No dumping of trash or other material may occur within the conservation area. Any trash or other foreign material found deposited within the conservation area must be removed within 10 working days of discovery.

6. Fencing. Permanent fencing must be placed completely around the conservation area to prevent unauthorized entry by off-road vehicles, equestrians, and other parties that might damage or destroy the habitat of the beetle, unless approved by the Service. The applicant must receive written approval from the Service that the fencing is acceptable prior to initiation of the conservation program. The fence must be maintained in perpetuity, and must be repaired/replaced within 10 working days if it is found to be damaged. Some conservation areas may be made available to the public for appropriate recreational and educational opportunities with written approval from the Service. In

these cases appropriate fencing and signs informing the public of the beetle's threatened status and its natural history and ecology should be used and maintained in perpetuity.

7. Signs. A minimum of two prominent signs must be placed and maintained in perpetuity at the conservation area, unless otherwise approved by the Service. The signs should note that the site is habitat of the federally threatened valley elderberry longhorn beetle and, if appropriate, include information on the beetle's natural history and ecology. The signs must be approved by the Service. The signs must be repaired or replaced within 10 working days if they are found to be damaged or destroyed.

Monitoring

The population of valley elderberry longhorn beetles, the general condition of the conservation area, and the condition of the elderberry and associated native plantings in the conservation area must be monitored over a period of either ten (10) consecutive years or for seven (7) years over a 15-year period. The applicant may elect either 10 years of monitoring, with surveys and reports every year; or 15 years of monitoring, with surveys and reports on years 1, 2, 3, 5, 7, 10, and 15. The conservation plan provided by the applicant must state which monitoring schedule will be followed. No change in monitoring schedule will be accepted after the project is initiated. If conservation planting is done in stages (i.e., not all planting is implemented in the same time period), each stage of conservation planting will have a different start date for the required monitoring time.

Surveys. In any survey year, a minimum of two site visits between February 14 and June 30 of each year must be made by a qualified biologist. Surveys must include:

1. A population census of the adult beetles, including the number of beetles observed, their condition, behavior, and their precise locations. Visual counts must be used; mark-recapture or other methods involving handling or harassment must not be used.

2. A census of beetle exit holes in elderberry stems, noting their precise locations and estimated ages.

3. An evaluation of the elderberry plants and associated native plants on the site, and on the conservation area, if disjunct, including the number of plants, their size and condition.

4. An evaluation of the adequacy of the fencing, signs, and weed control efforts in the avoidance and conservation areas.

5. A general assessment of the habitat, including any real or potential threats to the beetle and its host plants, such as erosion, fire, excessive grazing, off-road vehicle use, vandalism, excessive weed growth, etc.

The materials and methods to be used in the monitoring studies must be reviewed and approved by the Service. All appropriate Federal permits must be obtained prior to initiating the field studies.

Reports. A written report, presenting and analyzing the data from the project monitoring, must be prepared by a qualified biologist in each of the years in which a monitoring survey is required. Copies of the report must be submitted by December 31 of the same year to the Service (Chief of Endangered Species, Sacramento Fish and Wildlife Office), and the Department of Fish and Game (Supervisor, Environmental Services, Department of Fish and Game, 1416 Ninth Street, Sacramento, California 95814; and Staff Zoologist, California Natural Diversity Data Base, Department of Fish and Game, 1220 S Street, Sacramento, California 95814). The report must explicitly address the status and progress of the transplanted and planted elderberry and associated native plants and trees, as well as any failings of the conservation plan and the steps taken to correct them. Any observations of beetles or fresh exit holes must be noted. Copies of original field notes, raw data, and photographs of the conservation area must be included with the report. A vicinity map of the site and maps showing where the individual adult beetles and exit holes were observed must be included. For the elderberry and associated native plants, the survival rate, condition, and size of the plants must be analyzed. Real and likely future threats must be addressed along with suggested remedies and preventative measures (e.g. limiting public access, more frequent removal of invasive non-native vegetation, etc.).

A copy of each monitoring report, along with the original field notes, photographs, correspondence, and all other pertinent material, should be deposited at the California Academy of Sciences (Librarian, California Academy of Sciences, Golden Gate Park, San Francisco, CA 94118) by December 31 of the year that monitoring is done and the report is prepared. The Service's Sacramento Fish and Wildlife Office should be provided with a copy of the receipt from the Academy library acknowledging receipt of the material, or the library catalog number assigned to it.

Access. Biologists and law enforcement personnel from the California Department of Fish and Game and the Service must be given complete access to the project site to monitor transplanting activities. Personnel from both these agencies must be given complete access to the project and the conservation area to monitor the beetle and its habitat in perpetuity.

Success Criteria

A minimum survival rate of at least 60 percent of the elderberry plants and 60 percent of the associated native plants must be maintained throughout the monitoring period. Within one year of discovery that survival has dropped below 60 percent, the applicant must replace failed plantings to bring survival above this level. The Service will make any determination as to the

applicant's replacement responsibilities arising from circumstances beyond its control, such as plants damaged or killed as a result of severe flooding or vandalism.

Service Contact

These guidelines were prepared by the Endangered Species Division of the Service's Sacramento Fish and Wildlife Office. If you have questions regarding these guidelines or to request a copy of the most recent guidelines, telephone (916) 414-6600, or write to:

U.S. Fish and Wildlife Service
Ecological Services
2800 Cottage Way, W-2605
Sacramento, CA 95825

Figure 1: Range of the Valley Elderberry Longhorn Beetle

Literature Cited

Barr, C. B. 1991. The distribution, habitat, and status of the valley elderberry longhorn beetle Desmocerus californicus dimorphus. U.S. Fish and Wildlife Service; Sacramento, California.

Holland, R.F. 1986. Preliminary descriptions of the terrestrial natural communities of California. Unpublished Report. State of California, The Resources Agency, Department of Fish and Game, Natural Heritage Division, Sacramento, California.

USFWS. 1980. Listing the valley elderberry longhorn beetle as a threatened species with critical habitat. Federal Register 45:52803-52807.

USFWS. 1984. Recovery plan for the valley elderberry longhorn beetle. U.S. Fish and Wildlife Service, Endangered Species Program; Portland, Oregon.

Table 1: Minimization ratios based on location (riparian vs. non-riparian), stem diameter of affected elderberry plants at ground level, and presence or absence of exit holes.

Location	Stems (maximum diameter at ground level)	Exit Holes on Shrub Y/N (quantify)[1]	Elderberry Seedling Ratio[2]	Associated Native Plant Ratio[3]
non-riparian	stems > = 1" & = < 3"	No:	1:1	1:1
		Yes:	2:1	2:1
non-riparian	stems > 3" & < 5"	No:	2:1	1:1
		Yes:	4:1	2:1
non-riparian	stems >= 5"	No:	3:1	1:1
		Yes:	6:1	2:1
riparian	stems > = 1" & = < 3"	No:	2:1	1:1
		Yes:	4:1	2:1
riparian	stems > 3" & < 5"	No:	3:1	1:1
		Yes:	6:1	2:1
riparian	stems > = 5"	No:	4:1	1:1
		Yes:	8:1	2:1

[1] All stems measuring one inch or greater in diameter at ground level on a single shrub are considered occupied when exit holes are present anywhere on the shrub.

[2] Ratios in the *Elderberry Seedling Ratio* column correspond to the number of cuttings or seedlings to be planted per elderberry stem (one inch or greater in diameter at ground level) affected by a project.

[3] Ratios in the *Associated Native Plant Ratio* column correspond to the number of associated native species to be planted per elderberry (seedling or cutting) planted.

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TERRESTRIAL RESOURCES MANAGEMENT PLAN

ATTACHMENT C

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE (CDFW) CALIFORNIA BALD EAGLE NESTING TERRITORY SURVEY FORM

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DON PEDRO HYDROELECTRIC PROJECT (FERC No. 2299)
BALD EAGLE NESTING SURVEY DATA SHEET

Date: _____ **Visit ____ of 3** **Pg ___ of ___**

Reservoir: _____

Observers: _____ **Map No.**: _____

Time Start: _____ **Time End**: _____

Weather (circle one): Clear / Partly Cloudy / Overcast / Rain / Snow

Wind (circle one): Calm / Slight Breeze / Breezy / Windy

Temperature (ºC):_____

QA/QC:

- **Data Entered by: _____ on _____**
- **Checked by: _____ on _____**

Observation	1	2	3	4	5	6	7	8
General Location								
UTM E								
UTM N								
Distance from H_2O(m)								
Habitat								
Nest Tree Species								
Active? (Y/N)								
Adult(s) Present? (Y/N)								
Juvenile(s) Present in nest? (Y/N)								

Observation	9	10	11	12	13	14	15	16
General Location								
UTM E								
UTM N								
Distance from H_2O(m)								
Habitat								
Nest Tree Species								
Active? (Y/N)								
Individual(s) Present? (Y/N)								
Juvenile(s) Present in nest? (Y/N)								

COMMENTS: