Environmental Assessment

Horseshoe Bend Trail Realignment Project
Big Creek No. 4 (FERC Project No. 2017)

Bass Lake Ranger District, Sierra National Forest
Madera County, California

T9S, R23E MDB&M

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Summary

The Sierra National Forest proposes to realign an approximately 0.5 mile portion of the Horseshoe Bend Trail, beginning at the existing unimproved parking and staging area at County Road 235, and FR 9S75 and 9S321. The project area is located southeast of Kerckhoff Lake, west of Redinger Lake, and just south of Redinger Lake Road and is within the Bass Lake Ranger District, Sierra National Forest, California. This action is needed to meet the Federal Energy Regulatory Commission Final License Conditions, Condition Ten item #2, to relocate and reconstruct the Horseshoe Bend Trail around Powerhouse No. 4 to avoid project facilities.

The Proposed Action has been determined through analysis to have minimal effect on resources.

Based upon the effects of the Proposed Action, the responsible official will decide whether to allow SCE to realign the trail as designed.
Chapter 1: Introduction

This Environmental Assessment documents the analysis performed by an interdisciplinary team on the Horseshoe Bend Trail Realignment (Horseshoe Bend Trail) Project area on the Bass Lake Ranger District within the Sierra National Forest. The Trail Realignment Project encompasses an estimated 0.5 mile portion of trail on the Bass Lake Ranger District, located in Township 9 South (T9S) and Range 23 East (R23E), Mount Diablo Base and Meridian (MDB&M). The project area is located 30 miles northeast of the City of Fresno in Madera County, California. The site is southeast of Kerckhoff Lake, west of Redinger Lake, and just south of Redinger Lake Road.

The purpose of this document is to provide an environmental analysis pursuant to the National Environmental Policy Act (NEPA) for the proposed realignment of the Trail Realignment Project. This Environmental Assessment (EA) discloses the direct, indirect, and cumulative effects that may result from the implementation of the proposed action or alternatives to that action. This EA is prepared in accordance with legal requirements set forth under the Council of Environmental Quality (CEQ) regulations implementing NEPA (40 CFR 1500-1508).

This document is tiered from the Revised Environmental Assessment and Decision Notice for the Big Creek No. 4 Water Power Project (Federal Energy Regulatory Commission (FERC) Project No. 2017) (Revised EA, May 2002). Through coordination with Southern California Edison (SCE) on the various requirements for licensing, several plans have been implemented including a Visual Resource Management Plan, Sediment Management Plan and Noxious Weed Management Plan. Since these plans have been implemented and were designed to protect these resources in the larger project area, which includes the Project area, there is no need to reanalyze potential effects for these resources. Therefore, it was determined that the potential effects of the proposed project are limited to two key environmental resource areas, cultural and biological. This document is, therefore, presented as a focused EA, specifically addressing the potential of the project to affect cultural and biological resources.

**DOCUMENT STRUCTURE**

Chapter 1 of this EA discusses relevant background information, the purpose and need, and the public involvement, including the issues brought up during scoping. Chapter 2 presents a description of the proposed action, alternatives, mitigation measures and/or design features included in the alternatives to protect resources, and a comparison of the alternatives. Chapter 3 provides a detailed analysis of the potential environmental consequences for each resource area, including potential cumulative effects of implementing the Proposed Action. Chapter 4 displays the individuals and agencies contacted and consulted during preparation of this EA. Chapter 5 provides references for literature cited in this document. Appendix A includes all maps and figures related to this Project. Appendix B addresses design measures that address potential Project impacts.
Background

SCE owns and operates the Big Creek No. 4 Hydroelectric Project, under license from FERC Project No. 2017. On December 4, 2003, FERC issued a new license for the Big Creek No. 4 Project, which included a number of license conditions. Specifically, the Final License Conditions Necessary for Protection and Utilization of the Sierra National Forest in Connection with the Application for License Project No. 2017, Big Creek No. 4 Waterpower Project, Southern California Edison Company, Condition Ten - Recreation Plan - Facilities and Interpretive Services states that a Recreation Plan would be submitted to the Forest Service for approval, and then filed with FERC within one year following the issuance of a new project license.

The Recreation Plan was developed by SCE, approved by the Forest Service and filed with FERC on March 8, 2006. Upon approval and filing of the Recreation Plan by FERC, SCE began developing design specifications for a final construction package. SCE worked in consultation with the Forest Service to define design specifications and develop a final construction package that included: (1) design drawings; (2) site-specific erosion and sedimentation control measures in accordance with the Sediment Management Plan; (3) references to cultural and biological resource inventories and appropriate procedures to avoid resource impacts; and (4) schedules for implementation.

Condition Ten includes project-related recreation opportunities, and construction or implementation plans including item number 2:

Relocate and reconstruct the Horseshoe Bend Trail around Powerhouse No. 4 to avoid project facilities. Reconstruct the remainder of the existing trail west of Powerhouse No. 4 (approximately ¼ mile) and County Road 235 to correct existing drainage problems, widen the trail tread, install waterbars and drainage structures, and reroute steep sections to attain proper drainage. Incorporate Best Management Practices into all construction and maintenance work to reduce erosion and protect water resources. Install appropriate directional signs to direct the public to the end of the trail and to ensure the trail can be followed (FERC 2003).

The existing Horseshoe Bend Trail begins at a parking and staging area located at the intersection of County Road 235 and the Big Creek No. 4 Powerhouse access road (Forest Road (FR) 9S75). (See Figure 1 in Appendix A). Hikers currently walk down FR 9S75 to the powerhouse and switchyard, where the existing foot trail is located immediately adjacent to the switchyard chain link fence near the powerhouse. Once past the switchyard, the trail climbs the hillside where it then continues around Horseshoe Bend on the hillside above the San Joaquin River.

Purpose and Need for Action

The purpose of this project is to meet the Final License Conditions, Condition Ten item #2, to relocate and reconstruct the Horseshoe Bend Trail around Powerhouse No. 4 to avoid project facilities.
In addition, the Southern California Edison Company before the Federal Energy Regulatory Commission Willow Creek Trail and Horseshoe Bend Trail Final Design Package Big Creek No. 4 Project (FERC Project No. 2017) (February 2009) slightly refines the purpose:

SCE is required to relocate a section of the existing Horseshoe Bend Trail to provide visual screening from the Big Creek No. 4 Powerhouse and switchyard.

There is a need to comply with the 1992 Sierra National Forest Land and Resource Management Plan (LRMP) (USDA-FS 1992) as amended by the 2004 Sierra Nevada Forest Plan Amendment (USDA-FS 2004), and 2007 Sierra Nevada Forests Management Indicator Species Amendment (USDA-FS 2007). The LRMP, as amended, provides standards and guidelines to manage recreation trails for resource protection, visitor enjoyment and visual quality maintenance (Standards and guides 2, 25, 176 and 182).

Objectives of the Project include visual buffering from hydropower facilities for a more natural experience and the avoidance of culturally sensitive sites.

**Proposed Action**

The Proposed Action is to realign an approximately 0.5 mile portion of the Horseshoe Bend Trail, beginning at the existing unimproved parking and staging area at County Road 235, and FR 9S75 and 9S321.

**Decision Framework**

Recreation enhancements must be developed in accordance with the SNF LRMP, as amended. Therefore, the responsible official will review the proposed action in order to decide whether to allow SCE to realign the trail as designed.

**Public Involvement**

Scoping for Big Creek No. 4 (FERC Project No. 2017)

Public scoping for the Big Creek No. 4 project started on November 13, 1997. FERC published in the Sierra Star, Oakhurst, CA, a “Notice of Intent to Conduct Public Scoping Meetings and Site Visit; and Notice of Solicitation of Written Scoping comments.” The meetings were recorded by a court reporter and the Forest Service ID Team members attended these meetings to hear public comments and express agency concerns.

On November 28, 1997, a notice was published in the Fresno Bee announcing a combined FERC and Sierra National Forest scoping meeting: “To avoid duplication of effort, the Forest Service will conduct scoping at the same time as the FERC and rely on the issues identified to the FERC for the purpose of conducting the Forest Service environmental analysis.” A public scoping meeting was conducted on December 15, 1997 at Sierra National Forest, Minarets [now Bass Lake] District Office in North Fork, California; and an agency scoping meeting was conducted on December 16, 1997 at the Sierra National Forest Supervisors Office in Clovis, California.
Comment Period for Big Creek No. 4 EA (FERC Project No. 2017)
On September 17, 1998, 74 copies of the Environmental Assessment were mailed to interested individuals for a 30-day comment period. In conjunction, on September 23, 1998, the Sierra National Forest published the legal notice for comment in the Fresno Bee.

There were several responses to comment, several of which raised concerns and issues regarding the range of recreation opportunities in compliance with the LRMP, and concern about the minimum flow releases and their relationship to aquatic habitat. In response to those issues, the Forest Service developed another alternative and revised the EA. As part of the revision process, the Forest Service hosted a collaborative process to resolve issues surrounding the proposed 4(e) conditions for Native Aquatic Species Management and Whitewater Recreation flows.

Comment Period for Big Creek No. 4 REVISED EA (FERC Project No. 2017)
The revised EA and intended decision were issued for notice and comment pursuant to 36 CFR 215 on October 3, 2002. Six comments were received that provided factual corrections and suggestions to modify the final conditions. The suggested modifications were made to help clarify the intent of specific conditions.

No comments were made regarding the proposed realignment of Horseshoe Bend Trail.

Consultation on Horseshoe Bend Trail
In November, 2002, the Honorable Ron Goode, Chair of the North Fork Mono Tribe, submitted for filing an agreement between the North Fork Mono Tribe and SCE. Under the terms of the agreement, North Fork Mono Tribe withdrew opposition to the relicensing of Big Creek 4, and SCE agreed to specifically address five conditions for relicensing raised by the Tribe, of which only one relates to the Trail Realignment Project. The conditions that North Fork Mono and SCE resolved included notification to the Tribe of the realignment of the Horseshoe Bend Trail away from the project penstock and stabilizing parts of the trail.

Since 2004, SCE has been working with the SNF and representatives from the Native American community to identify potential trail locations, complete necessary cultural and biological resource surveys, and develop the FERC-required Final Design Package. As part of this process, several meetings were held, and site visits were conducted with participation from SNF personnel, SCE, and the Native American community.

A trail alignment for the relocation of the Horseshoe Bend Trail around Powerhouse No. 4 was identified through consultation between SCE, SNF personnel and the Native American community and was the Final Design Package for the project that was filed with FERC on February 11, 2009 (See Appendix A: Figure 1-trail segment A-1). Subsequent to the submittal of the Final Design Package, a new alignment for the Horseshoe Bend Trail was proposed by members of the North Fork Mono Tribe (See Appendix A: Figure 1-trail segment PA-1). This new alignment (trail segment PA-1) in addition to a portion of the previous trail alignment (See Appendix A: Figure 1-trail segment PA-2) is analyzed as the proposed action (Alternative 3) in this EA.
Using the comments from the public and the tribal consultation, the interdisciplinary team developed a list of concerns to address. The specific concerns and how they are addressed in the Project record on file at the Bass Lake Ranger Station.

**Issues**

The Forest Service identified two concerns raised during public involvement and consultation. These concerns include:

1. Concern that the trail realignment would affect cultural resources, including archeological and historical sites.
2. Concern that the trail realignment would affect biological resources, specifically habitat for the valley elderberry longhorn beetle (VELB).

Forest Service Response: Chapter 2 of this document discloses the potential effects to cultural and biological resources from implementing either action alternative. The effects analysis is based on the alternatives as described, including the design features.

**Chapter 2: Alternatives, Including the Proposed Action**

This chapter describes and compares the alternatives considered for the Trail Realignment Project. It includes a description and map of each alternative considered. This section also presents the alternatives in comparative form, sharply defining the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public.

**Alternatives**

Two alternatives are being analyzed in this project. Alternative 1 is the No Action alternative, and Alternative 2 is the Proposed Action. Public scoping did not provide issues or requests for additional alternatives. One additional alternative, which was the original trail alignment identified was considered and eliminated from detailed study.

**Alternative 1 - No Action**

Under the No Action Alternative, the Horseshoe Bend Trail would not be realigned as described under Alternatives 2. This alternative would not meet the purpose and need for the Project because it would not allow SCE to comply with the FERC license requirements for the Big Creek No. 4 Project, specifically, License Order Condition Number 10 item #2, which requires realignment of the Horseshoe Bend Trail.

**Alternative 2- Proposed Action**

The Horseshoe Bend Trail provides access into the undeveloped area along the Horseshoe Bend of the San Joaquin River. Relocation of the Horseshoe Bend Trail around Powerhouse No. 4 would create a visual buffer between the trail and the Big Creek No. 4 facilities, and provide a more natural outdoor recreation experience for hikers.
The Proposed Action is to realign an approximately 0.5 mile portion of the Horseshoe Bend Trail, beginning at the existing unimproved parking and staging area at County Road 235, and FR 9S75 and 9S321. Instead of beginning at FR 9S75, the new trail would begin on FR 9S321 and extend approximately 100 feet along this road. From that point, the new trail location would extend along the hillside gaining elevation sufficient to pass above the Big Creek No. 4 Powerhouse, switchyard, penstock, and FR 9S75A. The new foot trail would continue downhill in a southerly direction to a flat bench located at the top of a tunnel spoil pile approximately 350 feet east of the Big Creek No. 4 penstocks. The trail would cross the top of the tunnel spoil pile, and connect to the existing Horseshoe Bend Trail at the southeast edge of the tunnel spoil pile.

SCE would install signs identifying the trail and directing trail users along the new route. Two signs would be installed as follows: (1) at the parking and staging area; and (2) at the foot trail turn-off from FR 9S321.

The new section of the Horseshoe Bend Trail would be constructed to approximately 3-feet-wide with a construction corridor that extends 5 feet on either side of the trail centerline. The majority of trail construction would be completed with hand tools (e.g., shovel, pick ax, crow bar, etc.) but, where accessible, a small grader, bulldozer, or trail excavator would be used. Staging for construction crews and equipment would be at the intersection of County Road 235 and the Big Creek No. 4 Powerhouse access road (FR 9S75). All construction material would be stored at this location. The duration of construction is estimated to be one month and all work would take place during daylight hours.

SCE would minimize the need to import materials for the construction of the trail by utilizing excavated soil and rock as fill material in other trail sections. If fill material must be imported for the trail construction, then SCE would use tunnel spoils from the tunnel muck site near Dam 7, approximately 3 miles away. No excavated materials would be side-cast during construction. Excavated materials would be stockpiled within the construction corridor and appropriate measures will be implemented to prevent stockpile erosion. Trail construction techniques would follow the USDA-FS Standard Specification for Construction and Maintenance of Trails, National Trails Drawings and Specifications (EM-7720-103) (USDA-FS 1996) and Best Management Practices including BMP 2.1, 2.3, 2.7, 2.13, 2.22, 7.4 and 7.8 as applicable.

Vegetation would be trimmed and cleared as necessary for construction of the new trail section. This would include hand-trimming of trees and removal of shrubs using hand-operated equipment (e.g., hand trimmers, chainsaw, clippers). No trees would be removed during construction, only small branches or overhanging limbs would be removed as necessary to provide trail access. Clearing limits would be consistent with USDA-FS Standard Specification for Construction and Maintenance of Trails (USDA-FS 1996) and would allow for adequate passage of individuals, equipment and stock.

Following completion of construction activities, the construction area would be graded to conform to natural ground contours and SCE would revegetate the disturbed areas. Locally
native species pre-approved by the Forest Botanist would be used for revegetation. If necessary, weed-free straw or jute mat would be used to stabilize slopes until vegetation is established. The trail section that would no longer be used would not require revegetation or additional slope stabilization. This section has not been extensively maintained in the past and surrounding vegetation communities are already established within the alignment.

Routine Maintenance Activities

Following construction of the Horseshoe Bend Trail realignment, SCE would implement maintenance activities for the realigned section of the trail. Maintenance activities during the next three to five years would include trail rehabilitation and vegetation management to provide for continued trail access for recreation activities. Future maintenance activities conducted by SCE, beyond five years from trail realignment, would be subject to environmental analysis and applicable documentation under NEPA at that time.

Trail Maintenance

- Trail maintenance would consist of removal of obstructions (e.g., downed trees or fallen rocks), reinforcement of trail anchor points, and rebuilding or replacement of water bars. These activities would be completed using hand tools (e.g., shovels, pick axes, chainsaws) on an as-needed basis (*USDA-FS Standard Specification for Construction and Maintenance of Trails, National Trails Drawings and Specifications* (EM-7720-103) (USDA-FS 1996)) and Best Management Practices (including BMP 2.1, 2.3, 2.7, 2.13, 2.22, 7.4 and 7.8 as applicable.).

Vegetation Management

Vegetation management would be implemented consistent with the Big Creek No. 4 Vegetation Management Plan (SCE 2004a).

- Vegetation management along the trail would be limited to the area necessary to reduce fire hazard and provide public health and safety (approximately 2 feet on either side of the trail). SCE would implement a combination of manual and chemical methods to control vegetation. Selection of an appropriate control method is based on worker/public health and safety, potential environmental effects, and effectiveness of methods based on site characteristics. These vegetation management methods are also useful for noxious weed control, when timed correctly and combined appropriately.
- *Vegetation Trimming by Hand:* One method of vegetation trimming is the use of hand tools. This includes trimming of grasses and forbs with a string trimmer as well as removing or trimming of overhanging limbs of shrubs and trees with a chainsaw or other handheld saw. This activity would be implemented on an as-needed basis.
- *Herbicide Use:* Because the terrain is steep and difficult to walk, and hand-pulling or mowing are impractical and less safe in certain areas, herbicides may be necessary in addition to manual methods to effectively control weeds. Application of herbicides requires that far less time be spent walking these steep slopes, resulting in less risk to workers and less soil disturbance, including erosion and
sedimentation. After vegetation has been cleared by manual methods, herbicides may also be applied in accordance with the Big Creek No. 4 Vegetation Management Plan (SCE 2004a).

**Cultural Resource Protection**
- An isolated artifact near the proposed trail alignment would be collected and curated at the Bass Lake Ranger District.

**Design Measures**
The design measures listed in Appendix D would be implemented as part of the proposed action.

**Actions Considered but Eliminated From Detailed Study**

**0.25 Mile Reroute**
This alternative would realign and construct an approximately 0.25 mile section of the Horseshoe Bend Trail on the hillside above the Big Creek No. 4 Powerhouse, switchyard, and penstock. This alternative would utilize existing roads and would require construction of a new 3-foot-wide trail above the Big Creek No. 4 facilities. The trail alignment would begin at the parking and staging area currently used for the existing trail. This alternative would direct hikers to begin walking from the existing parking and staging area, and continue along FR 9S75 approximately 300 feet to the intersection with the Big Creek No. 4 penstocks access road (FR 9S75A). Hikers would then continue along FR 9S75A to a new foot trail that would leave the roadway approximately 450 feet northwest of the end of the road at the Big Creek No. 4 penstocks. The new foot trail would traverse uphill in a northeasterly direction, gaining elevation sufficient to pass above the Big Creek No. 4 Powerhouse, switchyard, and penstocks.

From its highest point above the Big Creek No. 4 facilities, the new foot trail would have the same alignment as the proposed action (labeled as trail segment PA-2 on Figure 1) and would continue downhill to a flat bench located at the top of a tunnel spoil pile approximately 350 feet east of the Big Creek No. 4 penstocks. The trail would cross the top of the tunnel spoil pile, and connect to the existing Horseshoe Bend Trail at the southeast edge of the tunnel spoil pile. The elevation at the beginning of the new trail section is approximately 1,240 feet and climbs approximately 45 feet before descending and connecting to the existing Horseshoe Bend Trail at an elevation of about 1,245 feet.

SCE would install signs identifying the trail and directing trail users along the new route. Four signs would be installed as follows: (1) at the parking and staging area; (2) along FR 9S75; (3) along FR 9S75A; and (4) at the foot trail turn-off from FR 9S75A.

This alternative was not considered in detail as it has effects similar to the Proposed Action and does not meet the objectives of providing visual buffering and avoiding culturally sensitive sites.
Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information in the table is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

Table 1: Comparison of Alternatives

<table>
<thead>
<tr>
<th>Measure</th>
<th>Alternative 1</th>
<th>Alternative 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miles of trail relocation</td>
<td>0</td>
<td>0.5</td>
</tr>
<tr>
<td>Valley Elderberry Longhorn Beetle habitat potentially affected (number of plants)</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Cultural resources potentially affected (number of sites)</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

The proposed action would realign approximately ½ mile of trail and may affect 1 elderberry plant that has been identified as potential VELB habitat.

The proposed action has the potential to affect cultural resources, however adherence to standard protocol as explained in the design features should minimize potential effects.

Chapter 3: Environmental Consequences

As discussed in Chapter 1, this chapter summarizes the cultural and biological environment of the affected project area and the potential changes to this environment due to implementation of the alternatives. It presents the scientific and analytical basis for comparison of alternatives presented in the chart above. This chapter also describes the Project’s relationship to the factors of significance as described in Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR Parts 1500-1508, section 1508.27, July 1, 1986).

Issue 1: Cultural Resources

Affected Environment

The assessment of cultural resources was based on literature review, agency consultation, and field surveys completed in the vicinity of the proposed trail alignment. Cultural resource surveys were conducted in 2007 along trail segments A-1 and PA-2 (See Appendix A: Figure 1-Alternative 1 route). Additional cultural resource surveys were conducted in 2010 along trial segments PA-1 and PA-2. Detailed information on survey methods and results from the surveys can be found in the Cultural Resources Report for the Horseshoe Bend Trail Realignment Project (Potter 2010) in the project record on file at the
Bass Lake Ranger Station.

Archaeological reconnaissance surveys resulted in the identification of four historic cultural features in the project area, two of which are part of a disjointed cultural resource in the project vicinity (one site and one isolated artifact).

Surveys were conducted within 50 feet on either side of the centerline of the proposed trail alignment to inventory prehistoric Native American and historic (older than 50 years) cultural resources within or adjacent to the proposed project area. The 2007 surveys along trail segments A-I and PA-2 identified two historic era cultural resources in the vicinity, but not within the area of disturbance for the proposed Horseshoe Bend Trail realignment. In addition, these sites were determined to be not eligible for the National Register of Historic Places (SCE 2008).

As described in the Proposed Action, due to the proximity of the disjointed cultural resource to the proposed trail alignment, the artifact would be collected and curated at the Bass Lake Ranger District. No other artifacts were observed near this location.

**Direct and Indirect Effects**

Proposed trail construction activities would avoid cultural resources. No cultural resources are present within the proposed construction locations. Because there are no indications that other cultural resources exist in the Project area, no further archaeological work would be done.

Adherence to the design features would further avoid known cultural resources, and minimize the potential to adversely affect previously undiscovered cultural resources in the project area. Therefore, there should be no direct or indirect effects to cultural resources.

**Cumulative Effects**

As there are no Project effects on cultural resources, there would be no cumulative effects.

**Issue 2: Valley Elderberry Longhorn Beetle (VELB) Habitat**

**Affected Environment**

There are no documented occurrences of federally listed wildlife species in the project area. Based on vegetation communities present, and the location and elevation of the project area, it was determined that one federally listed wildlife species could potentially occur along the proposed trail realignment. Habitat for VELB (defined as elderberry shrubs below 3,000 feet elevation) was identified during surveys conducted in 2009.

A single elderberry shrub with four stems and three branches >1 inch in diameter at ground level was identified north of the proposed trail alignment for segment PA-2 (See Appendix A: Figure 3). The shrub did not have any exit holes indicating occupation by VELB. There are no recorded occurrences of this species in the project vicinity and
this species was not observed during a wildlife reconnaissance survey of the project area, nor were any VELB observed in the elderberry shrub adjacent to the proposed trail realignment.

**Direct and Indirect Effects**

Alternative 1 does not include the proposed trail segment PA-2, so it was determined that no VELB are likely to occur or be directly or indirectly affected by this alternative. However, Alternative 2 proposes to add trail segment PA-2, so several design measures for protected areas and vegetation control were developed to reduce potential to damage VELB habitat (See Appendix B: Design Features-Biological Resources (Special-status Wildlife Species)). Adherence to the design measures should minimize the potential for direct or indirect effects to VELB habitat under the Proposed Action.

**Cumulative effects**

Records indicate that cultural resources present in the project vicinity have not been negatively impacted by past, or on-going present actions. However, the Willow Creek General Recreation Access Trail (Willow Creek Trail), approximately one mile east of this Project, has the potential to affect cultural resources in the larger context of the overall Horseshoe Bend area. The Willow Creek Trail project is currently in the environmental analysis process and cultural resources are being considered in alternative development. Of the on-going and reasonably foreseeable actions, cattle grazing and the proposed trail work (Willow Creek Trail construction) are the most likely to affect elderberry bushes. However, grazing permits include limitations on browse and the trail project would need to limit the potential for negative effects to VELB habitat as well. Therefore, since the on-going and reasonably foreseeable projects are required to minimize effects to VELB habitat, and no VELB have been found in the project area, this project will have minimal potential for cumulative effects on VELB habitat.

**Project Significance**

This section describes the factors of significance as described in *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (40 CFR Parts 1500-1508, section 1508.27, July 1, 1986).

**1. Impacts that may be both beneficial and adverse.** A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.

In terms of context and intensity, the Horseshoe Bend Trail Project has minimal effects. The Horseshoe Bend Trail Project is a site-specific project and was analyzed within the context of a portion of the Willow Creek watershed. Based on the specialist reports summarized in the following discussion all the impacts from this project would be minimal. None of them would be significantly beneficial or adverse as discussed under the cumulative effects analysis summarized under factor 4 of this section.
2. The degree to which the proposed action affects public health or safety.
Under the Proposed Action trail realignment occurs in compliance with the license conditions stipulated by FERC and agreed to by SCE. This should result in a slightly beneficial effect to public health and safety through the trail realignment away from hazards. In contrast, under Alternative 1, the trail would remain in close proximity to the roadway and buildings. This in turn could result in a slightly higher likelihood that hikers are injured by passing autos under the no action alternative.

3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.
The Horseshoe Bend Trail Project is not near parklands, prime farmlands, wetlands, wild and scenic rivers or known ecologically critical areas. The project area is within the San Joaquin River Critical Aquatic Refuge. However the Horseshoe Bend Trail Project is expected to reduce erosion and sedimentation concerns by constructing the trail in compliance with *USDA-FS Standard Specification for Construction and Maintenance of Trails, National Trails Drawings and Specifications* (USDA-FS 1996) and Best Management Practices (including BMP 2.1, 2.3, 2.7, 2.13, 2.22, 7.4 and 7.8 as applicable.). Also, there are known cultural resources in the Project area (which are not impacted by construction, as discussed in the *Cultural Resources Report for the Horseshoe Bend Trail Realignment Project* (Potter 2010) and summarized under Issue 1 in this chapter.

4. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by breaking it down into small component parts.
SCE actions that may contribute to cumulative impacts include the continued operation of the Big Creek No. 4 Project, including all terms of the FERC Order Issuing New License for Big Creek No. 4, issued in December 2003.

Private actions that may contribute to cumulative impacts include placer mining, cattle grazing, and recreational uses permitted by Forest Service within the project area. Placer mining occurs and is likely to continue to occur along Willow Creek, approximately 1.5 miles east of the project area. Cattle grazing is permitted on SNF land within the Project area, and is likely to occur in the future.

Recreational uses permitted by the Forest Service within the Project area include hiking, horseback riding, mountain-biking, whitewater boating and rafting, and off-highway vehicle use (OHV). In general, OHVs may operate only on roads or trails that are designated with an OHV marker (a jeep symbol). Horseshoe Bend Trail is designated as non-motorized (no OHVs).

There are a few reasonably foreseeable projects in the vicinity. The Willow Creek General Recreation Access Trail is currently in the environmental analysis process. This new trail and associated trailhead would be approximately one mile east of the Horseshoe Bend Trail Project.
The following are resource-specific discussions of the potential cumulative effects from implementing one of the action alternatives in this Trail Realignment project.

**Cultural Resources**

As discussed under Issue 1 in this chapter, the Project has no cultural resource related cumulative effects.

**Noxious Weeds**

Noxious weed is a term used by government agencies for non-native invasive plants that have been defined as pests by law or regulation (CDFA 2007). Noxious weed surveys were conducted in conjunction with the special-status plant surveys in compliance with the Big Creek No. 4 Noxious Weed Management Plan (FERC Project No. 2017) and to assess the potential for the spread or introduction of noxious weeds into the project area (SCE 2004b). Levels of infestation were reported as required under Section 2083 of the Forest Service Manual, Information and Reporting Guidelines for Noxious Weeds (USDA-FS 1995).

Three noxious weed species—tocalote (Centaurea melitensis), Italian thistle (Carduus pycnocephalus), and Himalayan blackberry (Rubus discolor) were identified during surveys of the project area. There are four populations of tocalote, two populations of Italian thistle, and one population of Himalayan blackberry observed along the Proposed Action (Alternative 2) trail alignment (See Appendix A: Figure 2). The BA/BE (SCE 2009b) contains further details on these populations.

Ground disturbance and vehicle use associated with the construction of the trail could potentially result in the introduction or spread of noxious weeds. However, SCE would implement the design measures described in Appendix B to minimize the introduction or spread of noxious weeds from Project activities in accordance with the Big Creek No. 4 Noxious Weed Management Plan (FERC Project No. 2017) (SCE, June 2004b).

**Cumulative Effects**

The on-going recreation use and cattle grazing activities are likely to contribute to the spread of noxious weeds in the vicinity of the project area on a continuing basis. However, the design measure for SCE to maintain the trail and coordinate with the Forest Botanist regarding noxious weeds is likely to reduce the potential of spread into the future. In addition, the reasonably foreseeable trail project would likely contain similar management requirements and constraints to avoid introducing and spreading noxious weeds as this Project. Therefore the potential of cumulative effects from spread of noxious weeds is minimal from implementing Proposed Action.

**Visuals**

This project is designed to adhere to the Visual Resource Plan for the Big Creek No. 4 (FERC Project No. 2017) (SCE, June 2005), and includes the two required design measures. In addition, the Proposed Action was proposed, in part, to improve the visual experience of hikers on the Horseshoe Bend Trail. The reasonably foreseeable trail project is the only project to potentially affect visual quality, and it would likely contain similar management requirements and constraints to maintain or improve visual quality as this Horseshoe Bend Trail Project. Therefore the potential of cumulative effects to visual quality is minimal from...
implementing the Proposed Action.

**Watershed**

This project is designed to comply with the *Revised Environmental Assessment for the Big Creek No. 4 Waterpower Project, (FERC No. 2017)* and the *Sediment Management Plan for the Big Creek No. 4 (FERC Project No. 2017)* (SCE, June 2005) to minimize impacts to soil and watershed. In addition, the realignment project is expected to reduce erosion and sedimentation concerns by constructing the trail in compliance with *USDA-FS Standard Specification for Construction and Maintenance of Trails, National Trails Drawings and Specifications* (USDA-FS 1996) and Best Management Practices (including BMP 2.1, 2.3, 2.7, 2.13, 2.22, 7.4 and 7.8 as applicable).

The reasonably foreseeable trail project is the only project to potentially affect watershed conditions, and it would likely contain similar management requirements and constraints to maintain or reduce potential for sedimentation and erosion as this Horseshoe Bend Trail Project. Therefore the potential of cumulative effects to the watershed is minimal from implementing the Proposed Action.

**Biological Evaluation and Biological Assessment**

According to the *Horseshoe Bend Trail Realignment Project-Specific Biological Assessment/Biological Evaluation* (BA/BE, SCE 2009) this assessment of biological resources was based on a review of existing information relevant to the Big Creek No. 4 Project, agency consultation, and focused field surveys. In addition, resource-specific surveys were conducted along the Alternative 1 and Alternative 3 proposed trail alignments.

A reconnaissance-level survey for terrestrial wildlife species was conducted in 2005 (trail segment PA-2) and 2009 (trail segment PA-1) (See Appendix A: Figure 3). Species were recorded as present if they were observed, if species-specific vocalizations were heard, or if diagnostic field signs (e.g., scat, tracks, pellets, nests, or den sites) were found. In addition, in compliance with the *Big Creek No. 4 Bald Eagle Management Plan*, bald eagle wintering and nesting surveys were conducted in 2006 at Redinger Lake and along the San Joaquin River in the vicinity of the proposed Horseshoe Bend Trail realignment. A summary of the habitat requirements and life history for special-status wildlife species potentially occurring in the Project area is provided in the BA/BE.

There are three federally listed species (designated as endangered, threatened, candidate, or proposed) identified as known or potentially occurring in the Project area as shown in Table 2.

**Table 2: Federally Listed Plants and Animals with Potential Habitat in Project Area**

<table>
<thead>
<tr>
<th>Species (common/scientific name)</th>
<th>Status</th>
<th>Likelihood of occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mariposa pussypaws (<em>Calyptridium pulchellum</em>)</td>
<td>Threatened</td>
<td>Potential</td>
</tr>
<tr>
<td>Keck’s checkerbloom (<em>Sidalcea keckii</em>)</td>
<td>Endangered</td>
<td>Potential</td>
</tr>
<tr>
<td>Valley elderberry longhorn beetle (<em>Desmocerus Californicus dimorphus</em>)</td>
<td>Threatened</td>
<td>Potential</td>
</tr>
</tbody>
</table>

There are no documented occurrences of federally listed wildlife species in the Project.
area. Based on vegetation communities present, and the location and elevation of the Project area, it was determined that one federally listed wildlife species could potentially occur along the proposed trail realignment. Habitat for VELB (defined as elderberry shrubs below 3,000 feet elevation) was identified during surveys conducted in 2009. See Issue #2 earlier in this Chapter for a discussion of VELB potential impacts.

There are several species known or potentially occurring in the Project area that are designated as Forest Service Sensitive. These species and their potential occurrence is show in Table 3.

Table 3: Forest Service Sensitive Species with Potential Habitat in the Project Area

<table>
<thead>
<tr>
<th>Species</th>
<th>Likelihood of occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tree-anemone (<em>Carpenteria californica</em>)</td>
<td>Potential</td>
</tr>
<tr>
<td>Parry’s horkelia (<em>Horkelia parryi</em>)</td>
<td>Potential</td>
</tr>
<tr>
<td>Madera leptosiphon (<em>Leptosiphon serrulatus</em>)</td>
<td>Potential</td>
</tr>
<tr>
<td>Orange lupine (<em>Lupinus citrinus var. citrinus</em>)</td>
<td>Potential</td>
</tr>
<tr>
<td>Elongate copper-moss (<em>Mielichhoferia elongate</em>)</td>
<td>Potential</td>
</tr>
<tr>
<td>Slender-stalked monkeyflower (<em>Mimulus gracilipes</em>)</td>
<td>Potential</td>
</tr>
<tr>
<td>American peregrine falcon (<em>Falco peregrinus anatum</em>) – Former FE (Delisted on 8/20/99),</td>
<td>Potential</td>
</tr>
<tr>
<td>Bald eagle (<em>Haliaeetus leucocephalus</em>) – Former FT (Delisted on 9/9/2007; nesting and wintering),</td>
<td>Potential</td>
</tr>
<tr>
<td>Western red bat (<em>Lasiurus blossevilli</em>)</td>
<td>Potential</td>
</tr>
<tr>
<td>Pallid bat (<em>Antrozous pallidus</em>)</td>
<td>Potential</td>
</tr>
</tbody>
</table>

No Forest Service Sensitive species were observed during a wildlife reconnaissance survey of the Project area, nor were any signs or their presence. However, bald eagles are known to winter nearby at Redinger Lake. The Project area represents potential wintering and foraging habitat for this species.

The Project area is generally only suitable as foraging habitat for the peregrine falcon. However, the project area represents potential roosting and foraging habitat for both the pallid and western red bat.

Direct and Indirect Effects
A single elderberry shrub with four stems and three branches >1 inch in diameter at ground level was identified north of the proposed trail alignment for segment PA-2 (See Appendix A: Figure 3). Trail construction and vegetation management activities could potentially affect the species shown in tables 2 and 3 through:

- Loss or degradation of potential VELB habitat resulting from vegetation removal associated with trail construction activities, or trimming of vegetation by hand and from use of herbicides associated with routine vegetation management activities (Alternative 2 area only),
- Degradation of terrestrial habitat resulting from use of herbicides associated with routine vegetation management activities.
- Temporary disturbance to foraging or nesting raptors (or other birds protected
under the MBTA) resulting from vegetation removal and equipment noise associated with trail construction activities, or trimming of vegetation by hand associated with routine vegetation management activities.

- Temporary disturbance to mammals resulting from equipment noise associated with trail construction activities.

However, with implementation of the design measures described in Appendix B to reduce potential negative effects the Proposed Action would not have an adverse impact on Federally-listed or Forest Service Sensitive plants or wildlife species. As result, the determinations from the BA/BE are that the Proposed Action will have:

- **No effect** on Mariposa pussypaws, Keck’s checkerbloom, tree anemone, Parry’s horkelia, Madera leptosiphon, orange lupine, elongate copper-moss, slender-stalked monkeyflower

- **May affect individuals**, but is not likely to result in a trend toward federal listing for VELB, American peregrine falcon, bald eagle, western red bat and pallid bat.

**Cumulative Effects**

As stated earlier, no special-status species designated critical habitat is present in the vicinity of the Proposed Action and therefore, none would be affected. The on-going and reasonably foreseeable projects are not likely to affect habitat conditions overall. As described in the determinations above, the potential for direct or indirect effects from this Project are limited. Therefore, the potential of cumulative effects to the Federally-listed and Forest Service Sensitive plants and animals would be minimal from implementing either action alternative. The *Horseshoe Bend Trail Realignment Project-Specific Biological Assessment/ Biological Evaluation* (BA/BE, SCE 2009) is hereby incorporated by reference.

**Management Indicator Species**

The *Project Management Indicator Species Report: Southern California Edison Company’s Horseshoe Bend Trail Realignment* (MIS Report) which is hereby incorporated by reference, documents compliance with the recent decision for management indicator species in two habitat groups within the Project area. The species associated with the two habitat groups are fox sparrow and mule deer (See table). The analysis of the effects of the Horseshoe Bend Trail Project on the MIS habitat for the selected project-level MIS is conducted at the project scale. Vegetation communities/wildlife habitats were mapped through aerial photograph interpretation, and ground-truthing surveys. Vegetation community classification was based primarily on the *Preliminary Descriptions of Terrestrial Natural Communities of California* (Holland 1986) and cross-referenced to *A Manual of California Vegetation* (Sawyer and Keeler-Wolf 1995). Habitat for MIS species within these vegetation communities was determined, based on a review of *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988). Detailed information on the MIS can be found in the SNF Bioregional MIS Report (USDA-FS 2008).
Table 4: Management Indicator Species Habitat Evaluated in Detail

<table>
<thead>
<tr>
<th>Biological Community</th>
<th>Indicator Species</th>
<th>Acreage in Project Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>West-Slope Chaparral habitat</td>
<td>Fox Sparrow</td>
<td>0.65 +1/4 mi buffer</td>
</tr>
<tr>
<td>Oak-associated Hardwoods and Hardwood/Conifer habitat</td>
<td>Mule Deer</td>
<td>0.65 +1/4 mi buffer</td>
</tr>
</tbody>
</table>

West-Slope Chaparral Habitat (Fox Sparrow)

*Cumulative Effects*

The area evaluated consists of approximately 0.65 acres within which vegetation will be trimmed or removed. No other known actions have occurred or are currently taking place in the area. Further actions resulting from the proposed project include trail rehabilitation and vegetation management. Trail rehabilitation will consist of removal of obstructions (e.g., downed wood debris, fallen rocks), reinforcement of trail revetments or anchor points, and rebuilding or replacement of water bars and will not result in significant effects to this habitat type. Vegetation management along the trail will be limited to the area necessary to reduce fire hazard and provide worker/public health and safety (approximately two feet on either side of the trail) and will not result in significant effects to this habitat type. Therefore, the known past, present, or foreseeable future actions are not affecting this habitat type. The approximately 0.65-acre area, plus a ¼ mile buffer would change less than 1 percent of shrub ground cover habitat in the project area. This change would not alter the existing trend in the habitat.

*Summary of Fox Sparrow Status and Trend at the Bioregional Scale*

There are currently 922,000 acres of west-slope chaparral shrubland habitat on National Forest System lands in the Sierra Nevada. Within the last decade, the trend is stable.

The fox sparrow has been monitored in the Sierra Nevada at various sample locations by avian point counts and breeding bird survey protocols, including: 1997 to present – Lassen National Forest (Burnett and Humple 2003; Burnett et al. 2005); 2002 to present - Plumas and Lassen National Forests (Sierra Nevada Research Center 2007); on-going monitoring through California Partners in Flight Monitoring Sites (CPIF 2002); 1992 to 2005 – Sierra Nevada Monitoring Avian Productivity and Survivorship (MAPS) stations (Siegel and Kaschube 2007); and 1968 to present – BBS routes throughout the Sierra Nevada (Sauer et al. 2007). These data indicate that fox sparrows continue to be present at these sample sites, and current data at the rangewide, California, and Sierra Nevada scales indicate that, although there may be localized declines in the population trend, the distribution of fox sparrow populations in the Sierra Nevada is stable.

The change in shrub ground cover of less than 1 percent of the existing shrubland habitat in the project area would not have a cumulative effect of altering the existing trend in the habitat, nor would it lead to a change in the distribution of fox sparrow across the Sierra Nevada bioregion.
Oak-Associated Hardwoods and Hardwood/Conifer Habitat (Mule Deer)

Cumulative Effects
The area evaluated consists of approximately 0.65 acres plus a ¼ mile buffer, within which vegetation trimming and removal will occur. No trees will be downed. No other known actions have occurred or are currently taking place in the area. Further actions resulting from the proposed project include trail rehabilitation and vegetation management. Trail rehabilitation will consist of removal of obstructions (e.g., downed wood debris, fallen rocks), reinforcement of trail revetments or anchor points, and rebuilding or replacement of water bars and would result in minimal positive effects to this habitat type. Vegetation management along the trail will be limited to the area necessary to reduce fire hazard and provide worker/public health and safety (approximately two feet on either side of the trail) and will not result in significant effects to this habitat type.

In addition, the known past, present, or foreseeable future actions are not affecting this habitat type. No change in overall canopy closure is expected to occur in the project area, which includes the approximately 0.65-acre Project site plus a ¼ mile buffer. Vegetation trimming and removal will occur within approximately 0.65 acres. The approximately 0.65-acres, plus a ¼ mile buffer would cause less than 1 percent of oak associated hardwood/conifer habitat in the project area to be cleared. This change would not alter the existing trend in the habitat.

Summary of Mule Deer Status and Trend at the Bioregional Scale.
There are currently 809,000 acres of oak-associated hardwood and hardwood/mixed conifer habitat on National Forest System lands in the Sierra Nevada. The trend is slightly increasing (within the last decade, changing from five to seven percent of the acres on National Forest System lands).

The mule deer has been monitored in the Sierra Nevada at various sample locations by herd monitoring (spring and fall) and hunter survey and associated modeling (CDFG 2007). California Department of Fish and Game (CDFG) conducts surveys of deer herds in early spring to determine the proportion of fawns that have survived the winter, and conducts fall counts to determine herd composition (CDFG 2007). This information, along with prior year harvest information, is used to estimate overall herd size, sex and age rations, and the predicted number of bucks available to hunt (ibid). These data indicate that mule deer continue to be present across the Sierra Nevada, and current data at the range-wide, California, and Sierra Nevada scales indicate that, although there may be localized declines in some herds or Deer Assessment Units, the distribution of mule deer populations in the Sierra Nevada is stable.

Since there will be no change in canopy closure of oak-associated hardwood and hardwood/conifer habitat present in the project area, and less than one percent of the vegetation in the project area would change, there would be no cumulative effect altering the existing trend in the habitat, nor will it lead to a change in the distribution of mule deer across the Sierra Nevada bioregion.
5. The degree to which the action may adversely affect districts, sites, highways, structures or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural or historical resources.

As discussed under Issue 1 in this chapter, there are no cultural resource direct, indirect or cumulative effects due to the Proposed Action.

6. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

As discussed above, according to the Horseshoe Bend Trail Realignment Project-Specific Biological Assessment /Biological Evaluation (BA/BE 2009b) there are no known threatened or endangered plants, or terrestrial or aquatic wildlife species in the Project area. Therefore there are no adverse Project related effects to these species.

7. The degree to which the effects on the human environment are likely to be highly controversial.

Scoping surfaced no scientific controversy regarding the magnitude or nature of effects of the action alternatives. The effects analysis discussed in this document display that the Proposed Action is not likely to be highly controversial since it was designed to be responsive to the public input.

8. The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

The Horseshoe Bend Trail Project proposes resource management activities under similar circumstances to numerous other projects that have been successfully implemented for many years. The nature and magnitude of the effects to the human environment from implementing the action alternatives are well understood and do not pose highly uncertain, unique or unknown risks.

9. The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

All of the proposed management practices under the project have been conducted both separately and in various combinations within similar landscapes and vegetation types. These management practices, as well as the project objectives, are envisioned by the goals of the LRMP, as amended, and are consistent with applicable standards and guides, as noted under factor 10. Therefore the precedent for the proposed activities in the action alternatives is already well established, and would not represent a decision in principle about future considerations.

Regarding the potential for significant effects, the Sierra National Forest has implemented such practices for many years. In most cases this has been accomplished without producing significant effects, by designing projects with protection measures to prevent such effects from occurring. Based upon the analysis of the action alternative, as documented herein, none of the proposed activities should result in significant effects.
10. **Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.**

None of the proposed activities under the action alternatives would threaten violation of applicable Federal, State or local environmental protection laws or requirements.

Management requirements and constraints are set in place to protect wildlife, other resources and people throughout the Project area (See Appendix D, Management Requirements and Constraints for the Horseshoe Bend Trail Project). These requirements assure that all the activities in the action alternatives are consistent with the LRMP, as amended, by following the standards and guidelines during project implementation. The LRMP provides standards and guidelines to manage recreation trails for resource protection, visitor enjoyment and visual quality maintenance (Standards and guides 2, 25, 176 and 182).

The Forest Service Manual provides additional National Forest Management Act management direction, regarding species viability. FSM 2670.32 provides direction to avoid or minimize impacts to species whose viability has been identified as a concern. This includes federally listed threatened or endangered species, and Forest Service sensitive species. Effects on threatened and endangered species and critical habitat are noted in the discussion of cumulative effects above. The BA/BE determined that the action alternatives would have little to no effect on Forest Service sensitive species, because there would be little to no impact to habitat. The MIS Report also determined that the action alternatives would have little to no effect on habitat characteristics.

The Proposed Action would comply with the Clean Water Act, by implementing watershed best management practices (BMPs), and by keeping cumulative watershed effects below the threshold of concern (USDA 2000). Applicable BMPs have been identified to maintain water quality and reduce potential for soil movement resulting from trail construction and annual maintenance in the short term within the project area (See Appendix D: Management Requirements and Constraints). Along with the BMPs, implementation of the SNFPA Riparian Conservation Areas and Objectives, and Regional Soil Quality Standards and Guidelines have also been included as design criteria for the action alternatives (Appendix D: Management Requirements and Constraints). Adherence to guidelines including Best Management Practices, as necessary, would result in minimal effects to water and soil resources in the project area (Soil and Water Conservation Handbook, Chapters 10 and 20). Adherence to the Soil and Water Conservation Handbook would adequately protect streams, wetlands, meadows and downstream fish habitat.

**CHAPTER 4 CONSULTATION AND COORDINATION**

This chapter lists the individuals and organizations, which participate in the analysis or were consulted as part of the scoping process. FERC scoping was initiated on November 13, 1997 for the Revised EA for the Big Creek No. 4 Water Power Project. There were several respondents. A comment period was initiated on the original EA in September 1998, and on October 3, 2002 on the Revised EA. The original scoping and comment letters and respondent letters are in the project record on file at Bass Lake Ranger Station. Listed below are the names of the respondents and/or organizations.
The San Joaquin River Trail Council, American Whitewater Affiliation, Southern California Edison, Friends of the River, Friends of the River, San Joaquin Paddlers Association, California Outdoors, State Water Resources Control Board California Department of Fish and Game, North Fork Mono Tribe, National Park Service, and FERC staff

Consultation occurred between Sierra National Forest personnel and SCE, ENTRIX, North Fork Mono Tribe, and Pacific Legacy. Several meetings and site visits were held to finalize the proposed location of the Trail Realignment project. The following is a brief summary of key relevant consultation conducted for the development of the Horseshoe Bend Trail Project:

- September 23, 2004. Consultation meeting/site visit to discuss implementation of License Order Appendix A, Condition No. 10, which included relocation of the Horseshoe Bend Trail. Attendees: SNF, SCE, ENTRIX, and Pacific Legacy.
- June 20, 2006. Field consultation/site visit to identify a new trail alignment which would bypass the Big Creek 4 penstock and switchyard. Attendees: USDA-FS, SNF, Pacific Legacy, SCE, and North Fork Mono Tribe.
- July 18, 2006. Field consultation/site visit to conduct a walk-over of the entire trail area. Attendees, USDA-FS, SNF, Pacific Legacy, SCE, and North Fork Mono Tribe.
- December 15, 2008. Meeting to discuss proposed new trail alignment. Attendees: SNF, SCE, and ENTRIX.

CHAPTER 5 REFERENCE MATERIALS

The following documents were used in preparing this Environmental Assessment. References may be found in the project file at the Bass Lake Ranger Station.


California Department of Fish and Game (CDFG). 2000. Guidelines for Assessing Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities.


SCE. 2009b. Horseshoe Bend Trail Project-Specific Biological Assessment/Biological Evaluation (BA/BE).


USDA-FS. 2002. Revised Environmental Assessment and Decision Notice for the Big Creek No. 4 Water Power Project (FERC 2017).


USDA-FS. 2006. Sierra National Forest Sensitive Plant List. Obtained from Jamie Tuitele-Lewis, Assistant Forest Botanist, Sierra National Forest, on May 25,


APPENDIX A: ALTERNATIVE MAPS AND FIGURES
APPENDIX B: DESIGN MEASURES

Applicable measures included in the Big Creek No. 4 License Order have also been incorporated into the Proposed Action as the following design measures listed below.

Cultural Resources

Applicable standard resource protection measures would be followed in accordance with the Pacific Southwest Regional Programmatic Agreement Attachment B (I)-Standard Resource Protection Measures:

- Prior to initiating construction activities, all known sites will be flagged by a qualified archaeologist to delineate site boundaries so that they would be avoided during trail construction activities.
- A Forest Service Archaeologist would monitor trail construction activities around known archaeological sites.
- In the unlikely event that previously unknown or unexpected archaeological artifacts, features, or cultural deposits are discovered during construction activities, all earth-moving activity within and around the immediate discovery area would be diverted until the following measures would be implemented to protect unidentified cultural resources:
  - In the event unidentified cultural materials (e.g., flaked stone tools or waste flakes, grinding stones, bone, shell, historic cans, bottles, and trash or building foundations) are found during construction, work in the area would be halted to allow a Forest Service archaeologist to assess and evaluate the nature and significance of any find.
  - If human remains or suspected human remains are encountered during construction or any other phase of development, further disturbances and activities shall cease in any area or nearby area suspected to overlie remains and SNF law enforcement and the County Coroner contacted. If the remains are thought to be Native American, SCE will comply with the Native American Graves Protection and Repatriation Act (NAGPRA) pursuant to 25 U.S.C. 3001 et seq. and implementing regulations at 43 CFR Part 10. SCE will comply with the current Sierra National Forest NAGPRA protocol.

Biological Resources (Noxious Weeds)

The following design features would be implemented to minimize the introduction and spread of noxious weeds resulting from project-related ground disturbance and vehicle use:

- SCE employees would attend environmental training sessions that include a review of noxious weeds potentially occurring in the project area, as well as measures to prevent the spread or introduction of noxious weeds.
- SCE vehicles and equipment entering the project area from outside the watershed or traveling through noxious weeds within the watershed have the potential to introduce and/or spread noxious weeds. All SCE field vehicles and equipment previously used on non-paved surfaces outside of the watershed would be
thoroughly cleaned before entering the project area during construction activities. SCE would wash each vehicle/equipment with power or high-pressure washers to remove soil, seeds, vegetation, or other seed bearing material before the equipment enters the Project area. SCE vehicles traveling through noxious weeds within the watershed would be cleaned as soon as practicable after leaving the infested area, using specific methods agreed upon by the SNF and SCE during annual coordination meetings with the SNF, and documented in SCE’s annual noxious weed reports. Following washing of the vehicle/equipment, SCE would confirm through visual inspection that potentially contaminated material has been removed. SCE shall notify the SNF at least 10 working days prior to moving any such vehicles or equipment onto National Forest System land from outside the watershed, unless otherwise agreed. Notification would include identifying the location of the equipment's most recent operations. Upon request of the SNF, arrangements would be made for the Forest Botanist to inspect each piece of equipment prior to its being placed in service.

- Areas of ground-disturbance and/or vegetation removal necessary for construction of the trail, as well as known noxious weed populations removed during construction would be monitored one year following completion of the project to identify if new populations of noxious weeds have become established and, if needed, recommendations for treatment. Following completion of monitoring, SCE would provide SNF with monitoring results as part of the Annual Noxious Weed Monitoring Report.
- To avoid the introduction of noxious weeds, certified weed-free straw would be used for all construction needs. If certified weed-free straw is not available, rice straw may be substituted. The licensee shall use an approved mix of species native to the SNF for restoration or erosion control purposes.
- Locally native species pre-approved by the Forest Botanist would be used for revegetation of any disturbed area.
- During the annual Big Creek No. 4 SNF-SCE consultation meeting, coordinate with the Forest Botanist to determine if additional recommended treatment methods to control identified noxious weed populations would be necessary.

**Biological Resources (Special-status Wildlife Species)**

The following design features would be implemented to avoid or minimize disturbance to special-status wildlife species potentially occurring in the project area:

- SCE employees would attend environmental training sessions that include a review of special-status species potentially occurring in the Project area, so that these resources may be recognized and avoided if observed during construction activities.
- The total area of the activity would be limited to the minimum necessary for the construction of the trails. To the extent possible, all staging areas and access routes would be located on developed roads and areas that have already been disturbed.
- Duration of construction is estimated to be no longer than one month, and all work would take place during daylight hours.
- The following measures would be implemented to protect habitat for valley
elderberry longhorn beetle (VELB) (*Desmocerus Californicus dimorphus*), defined as elderberry shrubs below 3,000 feet in elevation. These measures are in compliance with the Big Creek No. 4 VELB Management Plan (SCE 2006):

Protected Areas
- Each elderberry shrub, or group of shrubs, potentially affected by project operation or maintenance activities, with one or more stems measuring 1-inch in diameter or greater (\(>1\)) at ground level, would be flagged prior to implementation of project activities that may impact VELB or its habitat.
- Signage would be installed in areas where elderberry shrubs are known to occur.
- No elderberry shrub with one or more stems \(>1\) inch in diameter at ground level would be removed.
- No elderberry shrub stems or branches \(>1\) inch in diameter would be trimmed.

Vegetation Control
- Annual and biannual vegetation control would only be conducted July through April in areas within 100 feet of elderberry shrubs.
- No flail-type mower would be used within an elderberry shrub dripline with one or more stems measuring \(>1\) inch in diameter at ground level.
- Basal bark or foliar techniques would be utilized when herbicide application must occur within 100 feet of the dripline of an elderberry shrub with one or more stems measuring \(>1\) inch in diameter at ground level. Basal application techniques include cutting of a non-elderberry shrub and applying an oil-based herbicide directly to the stump. Foliar application techniques include hand spraying of an herbicide, with a deposition/retention additive, to control overspray. The application of herbicides would be completed or supervised by a certified pesticide applicator in compliance with the herbicide application prescription. Herbicide application would occur from July through April on an as-needed basis.

**Biological Resources (Special-status Raptors or Other Bird Species)**
The following design features would be implemented to avoid or minimize disturbance to special-status raptors or other bird species protected under the Migratory Bird Treaty Act (MBTA) potentially occurring in the project area:
- Construction would be scheduled outside the breeding season for bald eagle and other raptors (generally, March through June). If construction is scheduled during the breeding season, clearance surveys for raptor nests would be conducted prior to construction.
- If active raptor nests are discovered within the Project area, SCE would not conduct construction activities within 500 feet of the nest.
- If other nesting bird species (excluding raptors) are found, removal of the nest shrub shall be avoided until the young have fledged, as determined by a qualified biologist.

**Visual Resources**
According to the Visual Resource Plan for the Big Creek No. 4 (FERC Project No. 2017),
there are two design features required (SCE, June 2005).

- If existing vegetative screening is removed during the trail construction process, SCA will revegetate the area with native species within one year following completion of the rerouting of the trail.

- SCE will tend to the new plantings on an as-needed basis.