

**UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
LAKE TAHOE BASIN MANAGEMENT UNIT
and
TAHOE NATIONAL FOREST**

and

**DEPARTMENT OF DEFENSE
UNITED STATES ARMY CORPS OF ENGINEERS
SACRAMENTO DISTRICT**

***Draft*
Biological Assessment**

**California Pacific Electric Company 625 and 650
Electrical Line Upgrade Project**

**Final
Environmental Impact Statement
Environmental Impact Statement
Environmental Impact Report**

September 19, 2014

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

Prepared & Reviewed by:

DATE:

Rena Escobedo, Lake Tahoe Basin Management Unit,
Journey-level – Fish & Wildlife Biologist

Prepared & Reviewed by:

DATE:

Courtney Rowe, Lake Tahoe Basin Management Unit,
Journey-level – Botanist

Reviewed by:

DATE:

Kristie Boatner, Tahoe National Forest,
Journey-level – District Wildlife Biologist/Natural Resources Officer

Reviewed by:

DATE:

Brian Luke, Army Corps of Engineers,
Senior Environmental Manager/Biologist

Reviewed / Approved by:

DATE:

Holly Eddinger, Lake Tahoe Basin Management Unit,
Supervisory Forest Biologist – Biological Program Leader

Contact Person:

Holly Eddinger
Forest Biologist, Biological Program Leader
Lake Tahoe Basin Management Unit – Ecosystem Conservation Department
35 College Drive, South Lake Tahoe, CA 96150
530-543-2633
heddinger@fs.fed.us

TABLE OF CONTENTS

I. EXECUTIVE SUMMARY	5
II. INTRODUCTION	6
III. CONSULTATION TO DATE.....	9
IV. CURRENT MANAGEMENT DIRECTION	10
Threatened and Endangered Species (FSM 2670.31)	10
Martis Creek Lake Master Plan.....	11
V. DESCRIPTION OF THE ACTION AREA AND PREFERRED ALTERNATIVE.....	11
Project Description	11
Project Location	12
625 Line.....	12
Removal and Reconstruction of the Existing 625 Line.....	13
650 Line.....	13
Rebuild of the Existing 650 Line.....	13
Staging Areas	13
Action Area	14
Habitat in the Action Area.....	14
Substations.....	16
Permanent Right-Of-Way Requirements.....	17
Temporary Right-Of-Way Requirements.....	17
Pole Work Areas	17
Stringing Sites	17
Access.....	18
Clean-Up and Post-Construction Restoration.....	19
Operations and Maintenance	19
Preferred Alternative (Alternative 4).....	20
No Action Alternative (Alternative 5)	22
Power Lines.....	22
Substations.....	22
Risks associated with No Project/No Action Alternative.....	23
Climate Change	23
VI. DESCRIPTION OF AFFECTED SPECIES	26
Species Accounts and Status	26
Lahontan cutthroat trout (<i>Oncorhynchus clarki henshawi</i>)	26
Potential for Occurrence in the Action Area	27
VII. EFFECTS OF THE PROPOSED PROJECT	28

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

Project Analysis..... 28

Direct / Indirect Effects Analysis – General Habitat Effects..... 28

Cumulative Effects Analysis 29

Effects on Species by Alternatives..... 29

 Lahontan Cutthroat Trout 29

VIII. DETERMINATIONS..... 34

IX. CONTRIBUTORS 35

X. LITERATURE CITED 37

APPENDIX A – FWS SPECIES LIST

APPENDIX B – EIS/EIS/EIR BIOLOGICAL EVALUATION – EXHIBIT 2

APPENDIX C – CUMULATIVE PROJECT LIST

I. EXECUTIVE SUMMARY

The US Forest Service (USFS), Lake Tahoe Basin Management Unit (LTBMU) and Tahoe National Forest (TNF); the Tahoe Regional Planning Agency (TRPA); and the California Public Utilities Commission (CPUC) are preparing a joint environmental document for the California Pacific Electric Company (CalPeco) 625 and 650 Electrical Line Upgrade Project (project). The document is an environmental impact statement (EIS) for the LTBMU and Tahoe National Forest prepared pursuant to the National Environmental Policy Act (NEPA) (42 U.S. Code 4321-4347), the Council on Environmental Quality (CEQ) Regulations Implementing NEPA (40 Code of Federal Regulations 1500-1508), Forest Service Manual 1950, and Forest Service Handbook 1909.15; an EIS for TRPA pursuant to the Tahoe Regional Planning Compact (Public Law 96-551), Code of Ordinances, and Rules of Procedure; and an environmental impact report (EIR) for CPUC pursuant to the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations Section 15000 et seq.). All three agencies have determined that an EIS/EIS/EIR is needed to effectively analyze the proposal and evaluate impacts. In addition, the US Army Corps of Engineers (USACE), as a federal cooperating agency, will be responsible for the scope and content of the NEPA portion of the environmental document as it pertains to lands within its jurisdictional boundaries in Martis Valley. CalPeco is the project applicant.

The Final EIS/EIS/EIR, including all appendices have been included with the submittal of this Biological Assessment to the USDI Fish and Wildlife Service (FWS) field offices in Reno and Sacramento. The information for the project can be obtained from the TRPA website at: <http://www.trpa.org/get-involved/major-projects/>.

Species that have been listed by the FWS for the LTBMU and TNF were analyzed in the Biological Assessment for affects by the Preferred Alternative (Alternative 4) and the No Action/No Project Alternative (Alternative 5) and the following species determinations were found:

Table 1 Species listed by the US Fish and Wildlife for the LTBMU, TNF, and USACE			
Species	Status	Determination – Alternative 4 (Preferred Alternative)	Determination – Alternative 5 (No Action /No Project)
Lahontan cutthroat trout (<i>Oncorhynchus clarki henshawi</i>)	Threatened	May Affect but Not Likely to Adversely Affect	Will Not Affect
Central Valley steelhead (<i>Oncorhynchus mykiss</i>)	Threatened	Will Not Affect	Will Not Affect
Delta smelt (<i>Hypomesus transpacificus</i>)	Threatened	Will Not Affect	Will Not Affect
Central Valley spring-run chinook salmon (<i>Oncorhynchus tshawytscha</i>)	Threatened	Will Not Affect	Will Not Affect
Winter-run chinook salmon, Sacramento River (<i>Oncorhynchus tshawytscha</i>)	Endangered	Will Not Affect	Will Not Affect
California red-legged frog (<i>Rana draytonii</i>)	Threatened	Will Not Affect	Will Not Affect
Critical habitat for California red-legged frog (<i>Rana draytonii</i>)	Critical Habitat	Not Likely to Result in the Destruction or Adverse Modification of proposed critical habitat	Not Likely to Result in the Destruction or Adverse Modification of proposed critical habitat
Sierra Nevada Yellow-legged Frog (<i>Rana sierrae</i>)	Endangered	Will Not Affect	Will Not Affect
Critical habitat for Sierra Nevada yellow-legged frog (<i>Rana sierrae</i>)	Proposed Critical Habitat	Not Likely to Result in the Destruction or Adverse Modification of proposed critical habitat	Not Likely to Result in the Destruction or Adverse Modification of proposed critical habitat
Yosemite toad (<i>Bufo canorus</i>)	Threatened	Will Not Affect	Will Not Affect
California wolverine (<i>Gulo gulo luscus</i>)	NA (Former Threatened listing proposal has been withdrawn)	Will Not Affect	Will Not Affect
Pacific fisher (<i>Martes pennanti</i>)	Candidate	Will Not Affect	Will Not Affect

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

Table 1 Species listed by the US Fish and Wildlife for the LTBMU, TNF, and USACE			
<i>Species</i>	Status	Determination – Alternative 4 (Preferred Alternative)	Determination – Alternative 5 (No Action /No Project)
Tahoe yellow-creed (<i>Rorippa subumbellata</i>)	Candidate	Will Not Affect	Will Not Affect
Webber's ivesia (<i>Ivesia webberi</i>)	Candidate	Will Not Affect	Will Not Affect
Layne's butterweed (<i>Senecio layneae</i>)	Threatened	Will Not Affect	Will Not Affect
Whitebark Pine (<i>Pinus albicaulis</i>)	Candidate	Will Not Affect	Will Not Affect
Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>)	Threatened	Will Not Affect	Will Not Affect

II. INTRODUCTION

The proposed 625 and 650 Electrical Line Upgrade Project would consist primarily of an upgrade of CalPeco's existing 625 and 650 electrical power lines and associated substations from 60 kilovolt (kV) to 120 kV to allow the entire North Lake Tahoe Transmission System to operate at 120 kV. The project would include six primary components: 1) removal of the existing 625 Line and construction of a new, rerouted 625 Line; 2) rebuild of the existing 650 Line with potential for realignments based on the action alternatives considered; 3) realignment of two short segments of the 650 Line and removal of the replaced segments; 4) rebuild of the Northstar Tap into a fold (a "fold" allows for service to be maintained at a substation in the event of an interruption in service on either side of the power line feeding it); 5) rebuild of a 1.6-mile long section of the existing 132 Line in the Town of Truckee; and 6) upgrade, modification, and/or decommissioning of six substations. These improvements would increase the ability to maintain the current maximum system loads during an outage on any one of the four sections of the system (described in detail in Chapter 3, Project Alternatives, California Pacific Electricity Company 625 and 650 Electrical Line Upgrade Project Final EIS/EIS/EIR, 2013), and decrease reliance on the Kings Beach Diesel Generation Station. In addition, rebuilding and realigning the power lines would reduce the likelihood of outages associated with high winds, downed trees, snow loading, and forest fires, and would improve access to the lines for maintenance, emergency outage response, and repair activities.

This Final EIS/EIS/EIR does not make a recommendation regarding the approval or denial of the project. The analysis included in the Final EIS/EIS/EIR is purely informational in content, and will be used by the USFS, TRPA, and CPUC to render decisions regarding approval of project elements within their jurisdiction and selection of an alternative.

The purpose of this **Biological Assessment** (BA) is to present an analysis of the potential effects on the preferred alternative (Alternative 4) and that of the No Action/No Project Alternative (Alternative 5) from the Final EIS/EIS/EIR of the proposed California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project, hereafter CalPeco Upgrade Project, on federally listed endangered, threatened, candidate, and proposed species and their habitats. Federally listed species are managed under the authority of the Endangered Species Act (ESA) and the National Forest Management Act (NFMA; PL 94-588). The ESA requires federal agencies to ensure that all actions are not likely to jeopardize the continued existence of any federally listed species. The ESA requires that a BA be written and that the analysis conducted determine whether formal consultation or conference is required with the United States Department of Interior (USDI) Fish and Wildlife Service (FWS). This BA is prepared in compliance with the requirements of the ESA, Forest Service Manual 2670, and also provides for compliance with Code of Federal Regulations (CFR) 50-402.12.

The species analyzed in this Biological Assessment were based on the September 18, 2011 (verified on December 23, 2013 – Appendix A) FWS species list and with the FWS federal register listings for all federally threatened, endangered, proposed, and candidate species for the Lake Tahoe Basin Management Unit (LTBMU), Tahoe National Forest (TNF), and Army Corps of Engineers (USACE) from the U.S.D.I. Fish and Wildlife Service (USFWS; <http://www.fws.gov/sacramento/>). Analysis is presented in this document to determine the effects of Alternative 4 and 5 on the following federally threatened, endangered, proposed, and or candidate species:

Threatened:

- Yosemite toad (*Buca canorus*)

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

Endangered:

- Winter-run chinook salmon, Sacramento River (*Oncorhynchus tshawytscha*)
- Sierra Nevada Yellow-legged Frog (*Rana sierrae*)
- Critical Habitat for Sierra Nevada Yellow-legged Frog (*Rana sierrae*)

Threatened:

- Central Valley steelhead (*Oncorhynchus mykiss*)
- Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*)
- Delta smelt (*Hypomesus transpacificus*)
- Central Valley spring-run chinook salmon (*Oncorhynchus tshawytscha*)
- California red-legged frog (*Rana draytonii*)
- Critical Habitat for California red-legged frog (*Rana draytonii*)
- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)
- Layne's butterweed (=ragwort) (*Senecio layneae*)

Proposed Threatened:

- North American wolverine (*Gulo gulo luscus*)¹

Candidate:

- Pacific Fisher (*Martes pennanti*)
- Tahoe yellow-crested (*Rorippa subumbellata*)
- Whitebark Pine (*Pinus albicaulis*)
- Webber's ivesia (*Ivesia webberi*)

The following species will not be considered further in this BA due to lack of occurrences and or habitat suitability (refer to Table 2):

Table 2 Species Considered but not Further Evaluated		
Species	Regulatory Status ^a	Rationale for Elimination
Mammals		
California wolverine (<i>Gulo gulo luteus</i>)	NA (Former Threatened listing proposal has been withdrawn)	Marginally suitable habitat is present in red fir forest located within the action area. However, the area experiences high levels of human disturbance and there have been very few documented occurrences in the region. The species is not expected to occur in the action² area.
Pacific fisher (<i>Martes pennanti</i>)	C	No suitable habitat present. Species is considered extirpated from the portions of the Lake Tahoe Basin and the Tahoe National Forest near the action area. No suitable habitat for this species occurs within the action area.

¹ Currently accepted taxonomy classifies wolverines as *Gulo gulo* and those in the contiguous U.S. as part of the New World subspecies, *G. g. luscus* (USFWS, Federal Registrar - FWS-R6-ES-2012-0107: 4500030113, February 4, 2013). Species was Proposed Threatened at the time of list preparation/verification in December 2013; however, the listing proposal was subsequently withdrawn.

² The action area for the project for the purposes of this BA is defined as federal lands that include: the 40-foot wide right-of-way (ROW) corridor along the existing 625 and 650 electrical lines where single-circuit options are proposed; the 65-foot wide construction corridor along the new or rebuild segments of the 625 and 650 electrical lines where single-circuit options are proposed; the 65-foot wide ROW corridor where double-circuit options are proposed (i.e., where a double-circuit would be constructed the permanent ROW where vegetation management would occur would be 65-feet wide rather than 40-feet wide); the construction stringing sites (300-foot diameter); the sites of expanded, improved, and decommissioned substations; access roads; construction staging areas; and a 0.5-mile buffer surrounding these areas. The action area and project components are displayed on Appendix B. Project construction and disturbances to habitat would be limited to these project locations; and this analysis assumes that construction-related disturbances or indirect effects to sensitive species would not extend beyond a 0.5-mile disturbance buffer. The study area is included as part of the action area. All terms in the Final EIS/EIS/EIR referring to study or analysis areas are included within the action area for this analysis.

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

Table 2 Species Considered but not Further Evaluated		
Species	Regulatory Status ^a	Rationale for Elimination
Amphibians		
Sierra Nevada yellow-legged frog (<i>Rana sierrae</i>) and critical habitat	E	The only known population in the Tahoe Basin occurs at Hell Hole bog, in the southern end of the Lake Tahoe Basin, over 25 miles south of the action area, and in Desolation Wilderness. There are also limited records of the species on the Tahoe National Forest, with the largest known population in the Soda Springs area more than 12 miles northwest of the action area. The species is not expected to occur in the action area.
Yosemite toad (<i>Bufo canorus</i>)	T	Outside of the known range for the species.
California red-legged frog (<i>Rana aurora draytonii</i>) and critical habitat	T	Outside of the known range for the species.
Invertebrates		
Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>)	T	Outside of the known range for this species.
Fish		
Delta smelt (<i>Hypomesus transpacificus</i>)	T	Outside of the known range for the species.
Central Valley steelhead (<i>Oncorhynchus mykiss</i>)	T	Outside of the known range for the species.
Central Valley spring-run chinook salmon (<i>Oncorhynchus tshawytscha</i>)	T	Outside of the known range for the species.
Sacramento River winter-run chinook salmon (<i>Oncorhynchus tshawytscha</i>)	E	Outside of the known range for the species.
Plants		
Tahoe yellow-cress (<i>Rorippa subumbellata</i>)	C	This species occurs on decomposed granitic beaches in lower montane coniferous forest. It is endemic to the shore zone around Lake Tahoe in California and Nevada. Typically found in back beach areas between elevations of 6,223 and 6,230 ft. No suitable habitat for this species occurs within the action area.
Webber's Ivesia (<i>Ivesia webberi</i>)	C	This species occurs on shallow, clayey soils derived from andesitic rock at elevations of 3,000 to 7,000 ft. Typically found on sparsely to moderately densely vegetated sites in low sage scrub in association with dwarfed or cushion-like perennial herbs. No suitable habitat for this species occurs within the action area, and this species is known in California only from Sierra Valley and Dog Valley.
Layne's butterweed (<i>Senecio layneae</i>)	T	Outside known range of the species. This species occurs below 3,500ft. It is serpentine endemic. Suitable habitat consists of chaparral & foothill woodland habitat. Only known in western Eldorado, Placer, & Yuba counties. No suitable habitat for this species occurs within the action area.
Whitebark pine (<i>Pinus albicaulis</i>)	C	Several stands have been mapped in the LTBMU, the closest being approximately 2.5 miles northeast of Segment 625-10 near Incline Village, Nevada. The majority of populations in the Tahoe Basin are on the Nevada side or south of Lake Tahoe. Suitable habitat for whitebark pine consists of rocky sites at or near timberline. Whitebark pine was not observed during reconnaissance-level surveys and it is not expected to occur because the action area is below timberline and below the elevation where this species is typically found in the Tahoe Basin. No suitable habitat for this species occurs within the action area.
³ FT–Listed as threatened under the federal Endangered Species Act FE–Listed as endangered under the federal Endangered Species Act C–Candidate for listing under the federal Endangered Species Act FPT–Proposed for listing as Threatened under the Federal Endangered Species Act FPE = Proposed for listing as Endangered under the Federal Endangered Species Act Source: Ascent Environmental 2012		

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

Based on the information found for this project, this BA will only consider in detail the Lahontan cutthroat trout since all other species are expected to not be affected by this project and thus have been found to have a determination of “**Will Not Affect**”.

Additional information regarding the status of the species listings can be found at: <http://www.fws.gov/sacramento>.

III. CONSULTATION TO DATE

Consultation with the USFWS is ongoing for other projects on the LTBMU and USACE lands. For the LTBMU, formal consultation is underway for listed species as part of the Forest Plan Revision process that will cover the entire LTBMU in a programmatic Biological Opinion when issued this spring. Currently the only Biological Opinions (BO) that are in effect on the LTBMU are for the threatened Lahontan cutthroat trout (LCT) for the Recovery of LCT Project (BO#: 2008-F-0434-R001) and for the Upper Truckee River Project (BO#: 2011-I-0386). Both of these projects fall outside of the CalPeco Upgrade project area.

The most recent lists of threatened and endangered species that could be affected by projects in the Lake Tahoe Basin Management Unit (LTBMU) and TNF were initially obtained from the USFWS, Sacramento Fish and Wildlife Office website on August 15 and 21, 2012, which had been updated on September 18, 2011. (The website was also queried again on September 16, 2013 and December 23, 2013; no updates to the 2011 versions of the species lists had been made by USFWS.) These lists fulfill the requirements of the USFWS to provide a current species list pursuant to Section 7 of the ESA.

In addition to acquiring USFWS lists, Ascent biologists who were contracted to work on the environmental analysis for this project met with LTBMU biologists and other staff on May 1, 2012, to review the project and begin identifying resource issues of concern. On May 16, 2012, Ascent biologists met with LTBMU and TNF biologists to discuss biological resource issues in more depth, review the environmental analysis approach, and obtain TES lists from each Forest. On May 21 and 22, 2012, Ascent, LTBMU, and TNF biologists attended a site tour with other project staff to see the locations of project elements and discuss issues of concern and possible ways to avoid impacts to particular resources. On September 18, 2012, during a project review meeting with LTBMU and TNF staff, an Ascent biologist provided an update on field data collected during project surveys in summer 2012, and how that information was being incorporated into the environmental analysis. The LTBMU and TNF staff provided Ascent Geographic Information System (GIS) point location data for known special-status plant and animal species on their lands in the project vicinity.

On August 13, 2013, an Ascent biologist corresponded with USFWS staff, Selena Werden, via email regarding the potential for Lahontan cutthroat trout to occur in the Truckee River in a portion of the action area. In the email, USFWS considers all reaches of the Truckee River as having potential to be occupied, but that the likelihood of Lahontan cutthroat trout's presence in segments 625-1 and 625-1A would be “undoubtedly low” given the overall rarity in the watershed. USFWS added that the low likelihood is slightly offset by tendency of fish to congregate below dams/barriers, if deep pools and cold water habitat is present.

*On April 29th, 2014, while the environment review for the proposed action was underway, the USFWS published the final rule listing the Sierra Nevada yellow-legged frog (*Rana sierrae*) as endangered. The project specific analysis of potential effects on Sierra Nevada yellow-legged frog is discussed in detail in the project's Aquatic and Terrestrial Species BE and the associated project effects description in the NEPA document and are an accurate portrayal for this species at this time with the information obtained to date. Since this project was identified as having up to 19 acres of suitable Sierra Nevada yellow-legged frog habitat (as defined by USFWS and the USFS Region as all areas within 25 meters of perennial or intermittent streams, lakes, meadows, and ponds), this project was included in the regional programmatic batching for Section 7 ESA consultation on Sierra Nevada yellow-legged frog. The programmatic effort includes projects containing suitable habitat across all forests in Region 5. The final determination of effects for Sierra Nevada yellow-legged frog will be based on the programmatic consultation efforts and thus may differ from what is stated in this project specific analysis. Once the consultation process with USFWS is complete, the information will be incorporated into the project NEPA, BA/BE, and decision documents.*

*On February 4, 2013 the USFWS published a proposed rule in the Federal Register (78 FR 7863) to list the distinct population segment of the North American wolverine (*Gulo gulo luscus*) occurring in the contiguous United States, as a threatened species under the ESA. At the time the environmental review for the CalPeco 625 and 650 Electrical Line Upgrade Project was initiated, the proposed threatened status was in effect and reflected in the environmental documents. However, on August 12, 2014, the USFWS withdrew the proposal for threatened status for the North American wolverine and currently the species has no status under the ESA. Although consideration of the North American wolverine remains in this BA, the current lack of ESA listing status is reflected in the document.*

IV. CURRENT MANAGEMENT DIRECTION

The management of NFS lands on the LTBMU and TNF is guided by Land Resource Management Plans (LRMP) specific to those individual forests, as amended by the Sierra Nevada Forest Plan Amendment (SNFPA) (USFS 2004). The standards and guidelines of the Forest Plan amendment are described in detail in the Record of Decision (ROD) (USFS 2004). Current management direction on desired future conditions for Threatened, Endangered, Sensitive and Management Indicator Species on the LTBMU and TNF can be found in the following documents, filed at the Supervisor's Office on the LTBMU and the Truckee Ranger District Office on the TNF:

- Forest Service Manual and Handbooks (FSM/H 2670);
- National Forest Management Act (NFMA);
- Endangered Species Act (ESA);
- National Environmental Policy Act (NEPA);
- Lake Tahoe Basin Management Unit Land and Resource Management Plan (as amended, and or revised));
- Tahoe National Forest Land and Resource Management Plan (USFS 1990);
- Species specific Recovery Plans, which establish population goals for recovery of those species;
- Sensitive species list, accounts, and life history;
- Species management plans;
- Species management guides or Conservation Strategies;
- Regional Forester policy and management direction;
- Sierra Nevada Forest Plan Amendment (USFS 2004); and
- TRPA Code of Ordinances.

Pertinent Forest Service management direction for threatened, endangered, proposed, and candidate species is summarized below.

Threatened and Endangered Species (FSM 2670.31)

The following summarizes the Forest Service's general management direction for species listed as threatened or endangered under the ESA.

1. Place top priority on conservation and recovery of endangered, threatened, and proposed species and their habitats through relevant National Forest System, State and Private Forestry, and Research activities and programs.
2. Establish through the Forest planning process objectives for habitat management and/or recovery of populations, in cooperation with States, the USFWS and other Federal agencies.
3. Through the biological assessment process, review actions and programs authorized, funded, or carried out by the Forest Service to determine their potential for effect on threatened and endangered species and species proposed for listing.
4. Avoid all adverse effects on threatened and endangered species and their habitat except when it is possible to compensate adverse effect totally through alternatives identified in a biological opinion rendered by the USFWS; when an exemption has been granted under the act, or when the USFWS biological opinion recognizes an incidental taking. Avoid adverse effects on species proposed for listing during the conference period and while their Federal status is being determined.

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

5. Initiate formal consultation or conference with the USFWS when the Forest Service determines that proposed activities may have an adverse effect on threatened, endangered, or proposed species or when Forest Service projects are for the specific benefit of a threatened or endangered species.
6. Identify and prescribe measures to prevent adverse modification or destruction of critical habitat and other habitats essential for the conservation of endangered, threatened, and proposed species. Protect individual organisms or populations from harm or harassment as appropriate.

Martis Creek Lake Master Plan

The US Army Corps of Engineers' Martis Creek Lake Master Plan (USACE 1977) is used to guide the administration and development of land and water within the Master Plan area (Appendix B shows the limits of land managed by the USACE in Martis Valley). The Master Plan prescribes the policies, objectives, and programs for the continuation of conservation, enhancement, development, use, and management of land, water, and other resources within the Master Plan area. It identifies the resources of the Master Plan area and describes the manner in which public use needs and other uses of the land and water resources will be met. Facilities development, operation, and management are described and discussed. Segments 650-4 (Alternative 1, PEA Alternative and Alternative 4, Proposed Alternative), 650-4A (Alternative 2, Modified Alternative), and 650-4B (Alternative 3, Road Focused Alternative [there is no difference between Alternatives 3 and 3A in this area]) pass through this USACE managed property. Project consistency with relevant guidance provided in the Master Plan is considered in Appendix G of this EIS/EIS/EIR.

The master plan includes several Engineering Regulations (ER) that have been rescinded, but one is still in effect; ER 1110-2-400 (published May 31, 1988) establishes policy and guidance for the design of recreation sites, areas, and facilities. The action alternatives do not include design of recreation facilities, and therefore, ER 1110-2-400 does not apply. The USACE, through the Regulatory Program, administers and enforces:

- Section 10 of the Rivers and Harbors Act of 1899 (RHA)
- Section 404 of the Clean Water Act (CWA)

Under RHA Section 10, a permit is required for work or structures in, over or under navigable waters of the United States. Under CWA Section 404, a permit is required for the discharge of dredged or fill material into waters of the United States. Many waterbodies and wetlands in the nation are waters of the United States and are subject to the Corps' regulatory authority.

V. DESCRIPTION OF THE ACTION AREA AND PREFERRED ALTERNATIVE

Project Description

This section summarizes the preferred alternative (Alternative 4) and the No Action/No Project Alternative (Alternative 5) as described in the Final Environmental Impact Statement/Environmental Impact Statement/Environmental Impact Report (Final EIS/EIS/EIR). Full alternative descriptions, including desired conditions, management strategies, objectives and standards are described in detail in the Final EIS/EIS/EIR. The complete Final EIS/EIS/EIR is included with this BA consultation package that is being sent to the two FWS field offices (Reno and Sacramento) and can also be obtained from the Lake Tahoe Basin Management Unit Supervisor's Office or at: <http://www.trpa.org/get-involved/major-projects/>.

Alternative 4 is considered the preferred alternative and consists primarily of an upgrade of the 625 and 650 Electrical Lines and associated substations from an existing 60 kilovolt (kV) capacity to a 120 kV capacity to allow the entire transmission loop to operate at 120 kV. The electrical lines and associated infrastructure are owned by CalPeco, the project proponent. The primary project components that would occur at least partially on NFS lands are: 1) removal of the existing 625 Line that extends between Tahoe City and Kings Beach and construction of a new, rerouted 625 Line, and 2) rebuild of the existing 650 Line that extends from Kings Beach to the Town of Truckee. In addition to the electric line improvements, a number of access ways would be improved or created and

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

existing NFS roads would be used for construction and operational access. In some locations, improvements to existing NFS roads would be required (e.g., grading, widening, and removal of encroaching vegetation). The proposed system improvements would increase the ability to maintain the current maximum system loads while experiencing an outage on any one of the four legs of the system, and decrease reliance on the Kings Beach Diesel Generation Station for back-up power generation. In addition, rebuilding and realigning the power lines would reduce the likelihood of outages associated with high winds, felled trees, snow loading and forest fires and improve access to the lines for inspection, maintenance, and repair activities.

Four action alternatives are being evaluated at an equal level of detail. The PEA Alternative (Alternative 1) is the alternative described in the Proponent's Environmental Assessment (PEA) submitted by Sierra Pacific Power Company as part of the original permit application provided to the California Public Utilities Commission (CPUC) in 2010. The Modified Alternative (Alternative 2) is similar to the PEA Alternative, but includes rerouting of some portions of the alignment based on various factors, such as resource constraints, public and agency input received during scoping, additional information gathered during detailed field reviews, and further progress on project engineering and design. The Road Focused Alternative (Alternative 3) re-routes the 625 Line to more closely follow the Fiberboard Freeway and other area roadways and places more of the 650 Line as well as the 625 Line on a double-circuit along State Route (SR) 267. The Road Focused Alternative includes a sub-alternative (Alternative 3A) that begins placement of the 625/650 Line double-circuit at a more southerly point, closer to Kings Beach. The Preferred Alternative (Alternative 4) is a combination of the Road Focused Alternative (Alternative 3) for the 625 Line improvements and elements of the PEA Alternative (Alternative 1) and the Road Focused Alternative (Alternative 3) for the 650 Line improvements. The Preferred Alternative (Alternative 4) allows facilities to be in proximity to existing roadways, while maximizing the use of an already upgraded portion of the 650 Line in Segment 650-5. The following paragraphs describe components of the action alternatives that would occur on NFS and USACE lands.

Project Location

The proposed CalPeco 625 and 650 Electrical Line Upgrade Project is located in northeastern Placer County and southeastern Nevada County, California. The project components are predominantly located on lands managed by the USFS; these lands are located in the TNF and in the LTBMU. The project area also includes the Town of Truckee and the unincorporated communities of Kings Beach and Tahoe City, as well as the Martis Creek Lake Recreation Area managed by the USACE and Burton Creek State Park. Land use in the project area is predominantly forested, with segments of residential, industrial, and tourism-related uses where the project components enter more developed communities. A project overview map showing the location of each project component and alternative and the extent of NFS and USACE lands traversed by the project are provided in Appendix B.

Segments of the project on NFS lands are located in Township 15N Range 16E Sections 1 and 12, Township 15N Range 17E Section 7, Township 16N Range 16E Sections 13, 23, 24, 26, and 35; Township 16N Range 17E Sections 1-3, 8-10, 12, and 16-18; Township 16N Range 18E Section 18; Township 17N Range 16E Section 11; and Township 17N Range 17E Section 30 of the Mt. Diablo Meridian (21).

625 Line

The existing 625 Line and the proposed action alternatives all generally run in a northeast-southwest direction between the communities of Kings Beach and Tahoe City and are located primarily on NFS lands managed by the LTBMU, though Segments 625-4, 625-4A, and part of Segment 625-3 are on NFS land managed by the TNF. Each of the 625 Line action alternatives would generally parallel the Fiberboard Freeway, but Alternative #3 and #4 (Road-Focused Alternative and Preferred Alternative respectively) would follow the Fiberboard Freeway more precisely, whereas Alternative #1 (Proponent's Environmental Assessment (PEA)) would deviate more from the roadway alignment to provide a straighter line with fewer angle points. The Modified Alternative would follow the same alignment as the PEA Alternative, except in Segments 625-1A, 4A, 6A, and 8A where the alignment is relocated to avoid or minimize effects to specific resources. Segments 625-9 and 625-10 (from Kings Beach to SR 267 at Brockway Summit) would follow the same route under the PEA and Modified Alternatives, except in the Modified Alternative the 650 Line would be double-circuited with the 625 Line (both lines would share the same

poles). Under the Road Focused and Preferred Alternatives the 625 Line would be double-circuited with 650 Line along SR 267.

Removal and Reconstruction of the Existing 625 Line

As part of the upgrade to 120 kV for the North Lake Tahoe Transmission System, CalPeco is proposing to reconductor (i.e., old electrical line is replaced with new line) and reroute the 625 Line with the objective that the new conductor (i.e., wire along the towers) can accommodate 120 kV capacity and to align the line more closely with the existing roadways in the area. After completion of the new 625 Line, the existing line would no longer be needed and would be removed. The removal of the existing 625 Line would involve approximately 15 miles of conductor and 341 wooden poles. For analysis purposes, the line was broken into segments. There are one to three alternative alignments considered for each segment of the new 625 Line (e.g., only one possible route is being considered in Segment 625-2 but three possible routes are being considered for Segment 625-4).

650 Line

Segments 650-1 and 650-2 are partially located on NFS lands managed by LTBMU, primarily along SR 267 heading northwest out of Kings Beach. With the Modified Alternative, Segments 650-1 and 650-2 would be eliminated and the 650 Line would be constructed as a double-circuit configuration with the 625 Line in Segments 625-9 and 625-10; these segments are also located primarily within NFS lands managed by LTBMU. Under the PEA and Preferred Alternatives, Segment 650-4 would cross TNF land for approximately 0.25 mile in Martis Valley adjacent to the Northstar Golf Course, but this segment would be realigned outside of NFS lands under the Modified and Road Focused Alternatives. A portion of Segment 650-6 under all action alternatives traverses TNF land along Glenshire Road in the town of Truckee and this segment would be the same under each alternative.

Segment 650-4 existing line spans Martis Valley south of SR 267 through an approximately 40-acre National Forest System (NFS) parcel managed by the Tahoe National Forest, and the Martis Creek Lake National Recreation Area managed by the USACE. Under Alternative #4 the line would turn south for approximately 0.25 mile and cross SR 267. It would then trend west across the Martis Creek Lake National Recreation Area, crossing an approximately 40-acre NFS parcel managed by the USFS Tahoe National Forest, and continue west through the Martis Creek Lake National Recreation Area for approximately 0.5 mile to intersect with the previously upgraded portion of the 650 Line (Segment 650-5).

Rebuild of the Existing 650 Line

Approximately 10 miles of the existing 650 Line would be rebuilt. Various segments would either be rebuilt in the existing ROW and alignment, or constructed along a new alignment, depending on the alternative being considered. Where the existing alignment is followed, new poles would generally be placed 7 to 10 feet from the existing poles (which would be removed as part of the project, except in cases where there is underbuild [existing electrical distribution or communication lines on the same pole as the power lines to be replaced] that cannot be moved to the new poles), but in some areas, new poles could be further from existing poles to best support the system design (e.g., to remove existing angle points in the line or avoid sensitive resources).

Staging Areas

Three staging areas are being considered on NFS lands. The Kings Beach Staging Area is located just north of the Kings Beach Substation and is accessed using an existing dirt access road located at the end of Canterbury Drive. This location was formerly used as a landfill and as a result, has a previously disturbed area that measures approximately 300 feet by 300 feet (2 acres). Activity at this location would be restricted to this previously disturbed area. The vegetation within the planned staging area mainly consists of bunch grasses and scattered Jeffrey pines under 10 feet in height, and has a light infestation of cheatgrass and a moderate woolly mullein infestation.

The Former Batch Plant Staging Area is located approximately 300 feet north of the new 625 Line near mile post (MP) 9.3 (near Segment 625-4) and is accessed from Mount Watson Road. This approximately 120-foot by 80-foot

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

(0.2 acre) area is previously disturbed and has little natural vegetation directly within the staging area. The surrounding area's primary vegetation type is red fir (*Abies magnifica*) forest.

The Fiberboard Freeway Staging Area is located approximately 200 feet east of the new 625 Line near MP 12.8 (near Segment 625-3) and is accessed from Mount Watson Road. This approximately 200-foot by 100-foot (0.5 acre) area is previously disturbed but has some vegetative cover. The vegetation on site is dominated by mountain whitethorn (*Ceanothus cordulatus*) with scattered pines.

One staging area is being considered on USACE land. However, it is one of four options (Airport 1, Airport 2, Airport 3, and USACE) to be used, if an agreement can be reached with a landowner. All four are evaluated because it is unclear at this time which, if any, might ultimately become available. The USACE staging area would be located on less than 2 acres in Nevada County. The entire site has been previously disturbed. This staging area would be used as a helicopter landing zone and for material storage and equipment staging. Access to the site would be via existing paved (Martis Creek Road) and dirt access ways.

Action Area

Under federal regulation, the action area includes all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action (50 CFR Section 402.02). The action area for the CalPeco Upgrade Project for the purposes of this BA is defined as NFS lands that include: the 40-foot wide right-of-way (ROW) corridor along the existing 625 and 650 electrical lines where single-circuit options are proposed, the 65-foot wide construction corridor along the new or rebuild segments of the 625 and 650 electrical lines where single-circuit options are proposed; the 65-foot wide ROW corridor where double-circuit options are proposed (i.e., where a double-circuit would be constructed the permanent ROW where vegetation management would occur would be 65-foot wide rather than 40-foot wide); the construction stringing sites (300-foot diameter); the sites of expanded, improved, and decommissioned substations; access roads; construction staging areas; and a 0.5-mile buffer surrounding these areas. The action area and project components are displayed on Appendix B. Project construction and disturbances to habitat would be limited to these project locations; and this analysis assumes that construction-related disturbances or indirect effects to sensitive species would not extend beyond a 0.5-mile disturbance buffer.

Habitat in the Action Area

Coniferous forest is the predominant habitat type in the action area, followed by disturbed and developed habitats concentrated around the Kings Beach, Tahoe City, and Truckee population centers. In the Martis Valley, the project traverses a large meadow complex featuring wet and dry meadow communities surrounded by low sage and sagebrush scrub. Riparian vegetation communities are present along rivers and streams in the action area, including the Truckee River, Martis Creek, and Griff Creek. Appendix B, which includes a series of several vegetation maps, shows the location and extent of vegetation communities and habitat types in the project study area. For field survey and resource mapping purposes, the project study area was the portion of the action area that covered all project elements and generally comprised a 200-foot-wide corridor centered on the existing and proposed electric lines and access ways (i.e., the area within 100 feet of the centerline); however, for existing roads that would not need improvement but would be used for access during construction, the study area encompassed the area within 50 feet of the road centerline. Table 3 provides a brief description of each habitat type mapped in the action area.

As described previously, classification and community descriptions generally follow California Wildlife Habitat Relationships (CDFW 2012b) and Holland (1986), with modifications to account for local variability and communities not specifically treated in these two classification systems. Meadow community classification and descriptions are based on *Meadow Hydrogeomorphic Types for the Sierra Nevada and Southern Cascade Ranges in California* (Weixelman et al. 2011).

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

Table 3 Vegetation Community/Habitat Types Mapped in the Action Area for Each Action Alternative and the Existing 625/650 Line Corridor	
Vegetation Community/ Habitat Type	Summary Description
Coniferous Forest Habitats	
Red Fir Forest	Typically dominated by even-aged, monotypic stands of mature red fir. In the study area, scattered western white pine and sugar pine are present. The understory is much more open than the mixed conifer forests, with the primary understory shrub species being pinemat manzanita. A heavy duff layer exists in this community, contributing to the lack of understory diversity. This is the most abundant community in the study area and is primarily present at the higher elevations along the existing and new 625/650 Lines.
White Fir-Red Fir Forest	Similar to red fir forest, but with white fir and red fir codominant throughout and occasional occurrences of incense cedar and Jeffrey pine. The understory is also similar to the description of red fir forest, with the primary understory shrub species being pinemat manzanita. A heavy duff layer exists contributing to the lack of understory diversity. Within the study area, occurs primarily along Segments 625-8 through 625-10 and 650-1 through 650-2.
Jeffrey Pine-White Fir Forest	Similar to mixed conifer forest, but with shorter trees, and dominated by Jeffrey pine and white fir. The understory of this community tends to be open with scattered montane chaparral species, and smaller trees, blue wild rye, and snowberry. A thick layer of duff is typical, contributing to the low understory abundance. Common understory species observed include pinemat manzanita, mule ears, mountain monardella, and rockcress species. Jeffrey pine-white fir forest occurs within the study area, mainly along the 625 Line and Segments 650-1 through 650-2.
Jeffrey Pine Forest	Open forest community clearly dominated by Jeffrey pine. In the study area, lodgepole pine is also present in small numbers. Canopy cover is less dense than in other forest communities as Jeffrey pine tends to be more scattered throughout the community. This generally allows for the understory of the Jeffrey pine forest to contain plants requiring drier, sunnier conditions than in other conifer communities. These understory plants include big sagebrush, bitterbrush, rabbitbrush, mule ears, and Idaho fescue. Present in the study area primarily along Segments 650-3, 650-4B, and 650-6.
Sierran Mixed Conifer Forest	Dense forest dominated by a mix of white fir, red fir, Jeffrey pine, sugar pine, and incense cedar (3 or more codominant). Historic burning and logging have created wide variability in stand structure and composition in this community. Canopy cover varies from nearly 100 percent to a more open canopy. In open areas, the understory consists of a variety of shrubs, grasses, and forbs, including mahala mat, mountain whitethorn, tobacco brush, pinemat manzanita, greenleaf manzanita, bush chinquapin, huckleberry oak, and several currant species. Mixed conifer forest is the second most widespread vegetation community in the study area, extending from Kings Beach north to the Brockway Summit area along the existing and new 625 Lines and the 650 Line and between Brockway Summit and Tahoe City along the existing and new 625 Lines. At higher elevations, the vegetation community transitions from mixed conifer forest to red fir forest.
Chaparral and Scrub Habitats	
Sagebrush Scrub	Comprised of soft-woody shrubs dominated by mountain big sagebrush. Occurs on a variety of soils and terrain. Rubber rabbitbrush and bitterbrush are the most common associates of this community in the study area. Found within the Martis Valley and Truckee portions of the study area along Segments 650-4, 650-4B, and 650-6 and associated access roads.
Montane Chaparral	Composition changes with elevation, soil type, and aspect. Montane chaparral exists in small patches throughout the study area and is characterized by one or more of the following species: mountain whitethorn, tobacco brush, greenleaf manzanita, pinemat manzanita, huckleberry oak, bush chinquapin, and bitter cherry. Open areas in the Sierran mixed conifer forest are dominated by this vegetation community. These openings are either natural forest openings or clearings created by disturbances, such as logging, road construction, fire, or utility line clearance. Much of the right-of-way (ROW) beneath the existing 625 and 650 Lines where regular vegetation maintenance occurs is dominated by montane chaparral species.

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

Table 3 Vegetation Community/Habitat Types Mapped in the Action Area for Each Action Alternative and the Existing 625/650 Line Corridor	
Vegetation Community/ Habitat Type	Summary Description
Riparian Habitats	
Montane Riparian	Varies greatly in vegetative structure and species composition. Many of the montane riparian areas at higher elevations consist of extremely dense, shrub-like mountain alder and willow with no standing or flowing water. Along the Truckee River, large mountain alder, black cottonwood, and willows are the dominant species, with an extensive understory of a wide variety of herbaceous vegetation. Along Middle Martis Creek and Martis Creek, small, shrub-like willows dominate the vegetative community and are surrounded by an expansive wet meadow. Several montane riparian communities in the study area are not associated with perennial flowing streams or seasonal channels, but instead with wet seeps or small ravines.
Open Water	Areas containing pools of standing or flowing freshwater with little to no emergent vegetation. This category is comprised of a man-made pond along Segment 650-6 and a portion of the Truckee River channel in Segments 625-1 and 625-1A.
Meadow Habitats	
Wet Montane Meadow	Comprised of a wide variety of grasses and forbs adapted for growth in saturated soils, such as sedges, rushes, and bentgrasses. Wet meadows in the project area have seasonally saturated soils and are usually associated with an adjacent riparian forest or scrub community, seep, or waterway. The best examples of this relationship are located along Middle Martis Creek, West Martis Creek, and Martis Creek, where soils are too wet, due to a shallow water table, throughout much of the year to support trees. Several small wet meadow communities exist throughout the study area. Additionally, the 650 Line traverses a large wet meadow in the Martis Creek Wildlife Area.
Dry Montane Meadow	Characterized by dense growth of perennial herbs and graminoids such as common bluegrasses, yarrow, dryland rushes, and mat muhly. Dry meadows form in areas where water is concentrated near the soil surface early in the growing season only, but long enough to allow perennial herbs to reproduce. Dry meadows are generally located adjacent to wet meadows supported by groundwater and where snowmelt is slow at higher elevations and on shady slopes. In the study area, dry meadow is found primarily in the Martis Creek Recreation Area in association with wet montane meadow.
Mule Ears Meadow	A type of dry meadow community characterized by near monotypic stands of mule ears. Occurs on dry, rocky slopes within openings in red fir forest along the existing and proposed 625 Lines in Segment 625-5.
Barren Habitats	
Rock Outcrop/ Barren	Barren habitat is defined by the absence of dominant vegetation (less than 2% cover). In the study area, small patches of barren habitat are best characterized as rock outcrops or talus slopes with minimal vegetative cover. Rock outcrops are located along ridgelines at high elevations along the existing and proposed 625 Lines.
Anthropogenic (Human-Made) Habitats	
Disturbed or Developed	Consists of highways, paved roads, dirt roads, dirt tracks/trails, and road shoulders, as well as housing and commercial developments, which are primarily concentrated around Kings Beach, Tahoe City, Truckee, and the Northstar-at-Tahoe Resort.

Substations

There are no substations on USFS property; however, construction at the Tahoe City Substation would require a temporary work area outside of the existing fence line on an adjacent NFS land parcel managed by the Lake Tahoe Basin Management Unit (LTBMU). In order to upgrade the substation while maintaining distribution capabilities, portable (temporary) transformers would be required during construction and would be connected to the 625 Line or 629 Line (a separate line in the looped system extending from Tahoe City to Squaw Valley that has already been upgraded to 120 kV capacity under a separate project) using temporary poles. These transformers would be located on the NFS parcel (i.e., the 64-Acre Recreation Site) immediately to the south of the Tahoe City Substation. The portable transformers would be mounted on two trailers, measuring 8 feet wide by 40 feet long. The temporary poles would be similar to the existing 60 kV poles. Upon completion of the Tahoe City Substation upgrade, these temporary poles and transformers would be removed and the 625 and 629 lines would be connected to the permanent, new transformers.

Permanent Right-Of-Way Requirements

CalPeco currently holds easements from the USFS, USACE, the California Department of Parks and Recreation, Placer County, other public entities, and various private landowners that own properties that are crossed by the existing 650 Line, 625 Line, 132 Line, and Northstar Fold. The widths of the existing easements vary, but average approximately 30 feet. The easement for the proposed Northstar Fold would widen from approximately 40 feet to 95 feet between the westernmost pole and the Northstar Substation due to the divergence of the separate circuits. As part of project implementation, CalPeco would negotiate with the existing landowners to obtain a permanent easement of 40 feet for single-circuit options (one line on each pole) for the new 625 and 650 Lines for operation and maintenance purposes. For segments of Alternative 2 (Modified Alternative), Alternative 3 (Road Focused Alternative), and Alternative 4 (Preferred Alternative) where a double-circuit option is being considered, a permanent easement of 65 feet would be pursued. The wider easement and associated vegetation management is desired for double-circuit options because equipment damage from tree fall, wildfire, or other events could cause failure in two lines simultaneously and significantly affect service in the whole North Lake Tahoe Transmission System.

Temporary Right-Of-Way Requirements

To accommodate construction, a temporary 65-foot wide ROW would be established for the new 625 Line and 650 Line (single-circuit options), the Northstar Fold, and the 132 Line. All disturbances outside of the permanent 40-foot wide easement described above would be temporary and the land would be restored to its original condition following construction, unless otherwise requested by the landowner or land management agency. For double-circuit options, all construction activity would occur within the 65-foot permanent easement.

Pole Work Areas

To accommodate construction equipment and activities, work areas surrounding each pole location would be cleared of vegetation and graded as necessary to provide a safe work area. Each angle pole (where there is a turn in the line) would require an approximately 0.5-acre work area measuring approximately 65 feet by 335 feet; each tangent pole (where the line continues in a straight path) would require an approximately 0.25-acre work area measuring approximately 65 feet by 170 feet; however, these work areas can be reduced or adjusted to avoid sensitive resources through review by a biologist prior to final design of pole work areas, or in consultation with a qualified environmental monitor in the field during construction. Pole work areas would typically be accessed by truck using existing access roads or new access ways and the power line ROW. In areas where the terrain is too rugged for truck access, crews would use all-terrain vehicles or hike in by foot to access the pole sites.

An additional temporary work area may be required in instances where anchors would be installed outside of the temporary ROW. In these instances, a work area up to 15 feet wide and 50 feet long, extending from the ROW to the anchor location, would be established to provide access for the construction equipment and crew.

Stringing Sites

Multiple stringing sites would be required during the removal and installation of the conductors. In general, stringing sites would be approximately 300 feet in diameter (approximately 1.6 acres) and would be spaced at a distance between approximately 500 feet and approximately 8,000 feet apart depending on the terrain and surface conditions along the ROW, as well as placement of angle structures. On average, they would be located approximately 2,500 feet apart. Stringing sites require a relatively flat surface; therefore, they would need to be cleared and may need to be graded to allow for safe equipment operation. Site preparation would require heavy equipment for removing obstacles (e.g., large rocks, trees, brush). Vegetation would be removed, as necessary, to provide safe and efficient work areas. Mowing or grubbing would be the preferred method for clearing vegetation.

Access

The electrical line ROWs would primarily be accessed through the use of existing, paved municipal roadways and paved and dirt USFS system roads. However, additional access ways would need to be developed to facilitate access from existing roads to the power line ROWs for construction and later inspections, maintenance, and repairs. For the purpose of this assessment, all roads used to access the site are termed “access ways.”³ Access ways include existing paved roads, existing dirt roads, and new dirt roads and “two-track” pathways that would be developed for the project. Where access ways would be on slopes greater than 20 percent, a wider access way would require grading, as discussed below.

Among the access ways to be used are categories titled “Dirt Road (No Improvement Needed)” and “Paved Road;” these are existing dirt and paved roads that would be used to access the power line ROWs during project construction and operation and maintenance activities. These roads would be used as they currently exist and no changes or modifications are proposed. If these roads are damaged during construction, they would be restored to pre-project conditions.

Another category, “Dirt Road (Needs Improvement),” represents existing dirt roads that would require some modification to support their use during project construction. In most instances, the improvement or modification would consist of removing rocks and logs that may have fallen onto the road and trimming brush, branches, and other vegetation encroaching on the roadway to provide sufficient width and clearance to allow construction vehicles (e.g., cable trucks, tensioning trucks) to pass. In some instances, water bars (an interceptor dyke that is used to prevent erosion on sloping roads) and other features that might obstruct use by construction vehicles would be removed and then replaced after the construction process is complete. After completion of construction, no further work on these existing dirt roads is proposed. If the roads were damaged during construction (e.g., if deep ruts or potholes were created), they would be repaired to pre-project conditions prior to project completion.

The category of “new access ways” indicates a location where a new vehicle travel pathway would be created where one does not currently exist. A majority of the mileage of new access ways would be within the power line ROWs providing “centerline access routes.” The centerline access routes would be approximately 10-foot wide, and although “centerline” is in the category title, in reality the route would move back and forth within the power line ROW, going on either side of power poles, avoiding boulders and other barriers, and responding to topography. In addition, turnouts (30-foot wide) would be needed approximately every 1,000 feet for vehicle passing. The power line ROWs would initially be cleared of trees and shrubs as part of project construction. After completion of construction, the centerline access routes would be maintained in low growing vegetation for erosion control while allowing over-land vehicle travel by line trucks and inspection trucks (i.e., pickup trucks).

New access ways outside the power line ROW would be similar to centerline access routes in all respects except for location. They would first be developed during project construction to support construction vehicle access to the ROW. Many of the new access ways would consist of short spur roads connecting existing roadways to nearby portions of the power line ROW. In instances where existing topography and vegetation allow vehicle access to the

³ The criterion for defining a road varies by the agency with jurisdiction. Each land manager or owner may have different requirements for design, construction, maintenance, and use. TRPA Code defines “road” as a smooth or paved surface designed for travel by motor vehicles. In general, the impacts are assessed based on the coverage of the road surface. The project does not include the construction of any new paved roads. Roads on National Forest System lands described for this project are either temporary or permanent. Temporary Roads are built to facilitate the construction of the project. They are completely restored at the conclusion of construction and no longer used or open to vehicles. Permanent Roads would be included as part of the National Forest Road System. They are classified in five levels from Maintenance Level 1 (basic custodial care, closed to vehicles) to Maintenance Level 5 (high comfort; passenger car). This project includes the use of roads that are already included in the National Forest Road System (e.g., Fiberboard Freeway) and construction of new roads. New roads may be both completely new construction or may utilize portions of old legacy roadways. For this project, new roads, which include any road not previously part of the National Forest System, are assumed for analysis to be Maintenance Level 2, to facilitate the long term operational and maintenance needs of the project. Given the different uses and definitions of the term “road,” the term “access way” is used in this document to encompass the various types of facilities that may provide vehicle access. The term “access way” is not specifically defined by any of the lead agencies, but is used herein to describe a route within the project area (that may or may not require widening or clearing), which is required for construction and/or operation of the project. For the purpose of this document, access ways include several categories of routes, including existing dirt roads, National Forest System roads, existing roads and trails that are not part of a formal designated travel system, new dirt roads constructed as part of the project, and existing and new “two-track” pathways intended for power line operations and maintenance access.

ROW without development of a spur road/new access way, no travel way would be developed and inspection and maintenance vehicles would drive over the existing ground surface. Trees and shrubs would be removed during construction to create an approximately 10-foot wide access way. After completion of construction, the new access way would be maintained in low growing vegetation to allow over-land vehicle travel for inspection and maintenance (Road Maintenance Level 2 per the Forest Service Handbook 7709.58, 10, 12.3).

In locations where slopes are greater than 20 percent, it is assumed that some grading would be necessary to create a suitable access way (either within or outside the power line ROW) that can be traveled by maintenance and inspection vehicles. In particularly steep areas, the new access way would likely require switch back roadways to provide moderate grades and generally level cross-slopes, and would result in a noticeable change in the topography. New access ways requiring grading/earth moving due to terrain would be approximately 10 feet wide for straight sections and up to 25-feet wide at curves to safely allow the movement of construction equipment and vehicles to each site. Cut and fill slopes would disturb a wider area. Typically, each access way requiring grading/earth moving would first be cleared of vegetation and graded by a bulldozer. A motor grader would then level the access way in accordance with the engineered specification. Erosion control best management practices (BMPs) (e.g., water bars) would also be installed to address erosion control and water quality protection concerns. Gravel would not typically be placed on these roadways. However, it may be applied where a dirt access way intersects a paved public road to minimize the potential for dirt and mud being tracked onto public roadway. Gravel may also be applied as an erosion control BMP if appropriate. The new access way would then be revegetated with low growing vegetation and maintained as described above for other access ways, except where BMPs would not allow for revegetation.

The new access ways would not be intended for public access. Where new access ways connect to, or cross, existing roads or trails, barriers to access, such as boulders or gates would be placed at the entrance to the access way. During maintenance and inspection activities any evidence of public use would be noted, and public access barriers could be adjusted, if needed.

Alternative 4 will consist of 19 miles of existing roads to be used during project construction and operation that both do and do not need improvements and 4.5 miles of proposed new access ways. For more information on roads, refer to chapter 4.12 in the Final EIS/EIS/EIR.

Clean-Up and Post-Construction Restoration

Surplus material, equipment, and construction debris would be removed at the completion of construction activities. All man-made construction debris would be removed and recycled or disposed of at permitted landfill sites, as appropriate. Cleared vegetation would either be chipped and stored on the ROW for later use during reclamation or disposed of off-site, depending on agency agreements. In some instances, agencies have historically requested that some wood poles be left on site for a specific purpose such as raptor perching and nesting, trail alignment borders, or for erosion control in areas of steep terrain. If this occurs, CalPeco will comply with the requests.

All areas that are temporarily disturbed around each pole, as well as areas used for conductor stringing, staging, and temporary vehicle access would be restored to preconstruction conditions, to the extent practicable, following construction. This would include returning areas to their original contours and reseeding in accordance with USFS guidelines. Unless otherwise requested by the USFS, existing access roads on NFS land that have been widened would be returned to their preconstruction widths and USFS approved seed mixes would be applied to disturbed areas. CalPeco would attempt to close or restrict vehicle access to areas that would not remain open to the public or that have been seeded until the reclamation success criteria have been achieved. Rocks removed during access way grading and foundation excavation would be redistributed over the ROW to resemble adjacent site conditions.

Operations and Maintenance

Current operations and maintenance activities would continue with implementation of the action alternatives. The CalPeco North Lake Tahoe District Office operations personnel would patrol the lines on an annual basis. Separately from these yearly patrols, CalPeco vegetation management staff would conduct an annual hazard tree inspection, in conjunction with a California Registered Forester. As needed, CalPeco operations staff would also patrol the lines in

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

the event of unexplained outages or significant natural incidents, such as fire, flood, or electrical storms, to inspect and repair damage. Inspections would be conducted using helicopters, all-terrain vehicles, and/or line trucks.

The typical inspections would involve a visual review of the line along a path that is roughly parallel to the centerline and along existing dirt access roads. Vegetation management activities would include tree and vegetation trimming or removal to maintain the 40-foot or 65-foot wide easement in accordance with CPUC General Order 95, Rule 35 and California Public Resources Code Section 4293. Hazard trees (i.e., dead, dying, diseased, decaying, or bug-infested trees) would also be removed as part of these vegetation management activities. In addition to the annual inspections, CalPeco operation and maintenance personnel would conduct pole-climbing inspections every five years. These inspections would include accessing each power pole site using four-wheel-drive vehicles on existing dirt access roads. CalPeco personnel would climb each pole to inspect the integrity and condition of the hardware and insulators.

The electrical line would be accessed via the centerline access routes established during construction. After completion of construction, the centerline access routes would be maintained in low growing vegetation that provides erosion control while allowing over-land vehicle travel by line trucks and inspection trucks (i.e., pickup trucks). Line trucks would access the power line ROW using the centerline access routes several times per year for routine maintenance, while inspection trucks would access the ROW one to two times per year. Vehicles would also travel on the centerline access routes as needed to perform repairs. If any of the existing access roads become impassable, CalPeco would contact the property owner prior to use or conducting any potential improvements.

Preferred Alternative (Alternative 4)

Alternative 4, as evaluated in the EIS/EIS/EIR, is the environmentally preferable alternative. With implementation of Alternative 4 (Preferred Alternative), facilities would be in proximity to existing roadways, while maximizing the use of the already upgraded portion of the 650 Line in Segment 650-5. As described in the various discussions in Chapter 4, Affected Environment, Environmental Consequences, and Mitigation Measures, of the EIS/EIS/EIR, where there are differences in environmental effects among the action alternatives it is often a matter of some degree of more or less effect among the alternatives rather than one or more of the alternatives generating an environmental effect that the others do not. Complete descriptions of all the alternatives, including Alternative 4, can be found in the EIS/EIS /EIR for this project. Alternative 4 includes two APMs that alter the proposed power line alignment to minimize scenic impacts. APM SCE-7 moves the 650 Line along SR 267 between Kings Beach and Brockway summit further away from SR 267. APM SCE-8 moves the 625 Line along the Truckee River in Tahoe City slightly south, further away from the river (see discussion below).

650 Line

Approximately 10 miles of the existing 650 Line would be rebuilt as part of this alternative, and two portions would be removed (i.e., Segments 650-7 and 650-1) (See Final EIS/EIS/EIR Exhibit 3-4d). The new line would generally follow the alignment of the existing 650 Line, but would be constructed as a double circuit with the 625 Line from Brockway Summit to Kings Beach.

Removal Segment 650-1 - The portion of Segment 650-1 that would be removed is located between the existing Kings Beach Substation and Brockway Substation. From the Kings Beach Substation, the segment trends in a generally southeast direction for approximately 0.2 mile, crosses Speckled Street, crosses Deer Street, and terminates at the Brockway Substation. This segment is configured with a distribution line underbuild that would remain in place upon completion of the project.

Rebuild Segment 650-2 - In the Kings Beach/Brockway Summit area, incorporation of APM SCE-7 into the project would result in installation of the power line in a new corridor east of SR 267. Replacement poles for the 650 Line would be sited to eliminate or substantially reduce their visibility from the highway within the Lake Tahoe Basin, as compared to the existing 650 Line, without causing new visual impacts from tree removal or construction of access ways that would be required to erect and maintain the line. The realigned portion of the 650 Line would be unseen or minimally visible from the highway.

Rebuild Segment 650-3 - The line would parallel the east side of SR 267 for approximately 4 miles from the existing and new 625 Line near Brockway Summit to south of the Truckee town limits.

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

Rebuild Segment 650-4 - The line would turn south for approximately 0.25 mile and cross SR 267. The Preferred Alternative would then trend west across the Martis Creek Lake National Recreation Area, crossing an approximately 40-acre NFS parcel managed by the USFS Tahoe National Forest, and continue west through the Martis Creek Lake National Recreation Area for approximately 0.5 mile to intersect with the previously upgraded portion of the 650 Line (Segment 650-5).

Rebuild and Remove Segments 650-6 and 650-7 - The 132 Line extends from the North Truckee Substation to a recently upgraded portion of the 650 Line (shown as Segment 650-5 in Exhibit 3-4d of the EIS/EIS/EIR), just south of SR 267 in Truckee. This section of the 132 Line would be rebuilt to accommodate a double-circuit with the 650 Line. The distribution underbuild associated with the existing 650 Line would be transferred to the new 132/650 Line double circuit. A second distribution line would be underbuilt between the North Truckee Substation and the Truckee Substation. On the 132 Line, approximately 32 poles would be replaced and the line would be reconfigured to allow a double-circuit configuration with the 650 Line and operation at 120 kV.

The portion of the 650 Line that originates at the Truckee Substation and heads north, crossing over Trout Creek Road, Donner Pass Road, and East Keiser Avenue, and then turns east to intersect with the existing 132 Line would be removed. This segment is approximately 0.2 mile long and is configured with a distribution line underbuild, which would remain in place upon completion of the project.

625 Line

To achieve 120 kV, Alternative 4 (Preferred Alternative) would include reconductoring and rerouting the 625 Line. The existing 15 miles of conductor would be replaced with approximately 13 miles of new conductor on a single circuit (Segment 625-1 through Segment 625-8), and approximately 3 miles of new conductor on a double circuit with the 650 Line (Segments 650-1 D-C OH-1/1A and 650-2 D-C OH-2) (See Final EIS/EIS/EIR Exhibit 3-4d).

Rebuild Segment 625-1 - From the Tahoe City Substation, this route generally follow the alignment of the existing 625 Line, heading southwest to parallel the south side of the Truckee River before turning northwest and spanning the river and SR 89. However, with incorporation of APM SCE-8, Alternative 4 would be setback into the 64-Acre Recreation Site. Setting the line back from the Truckee River corridor would shield views of the power line from SR 89 and the Truckee River.

Rebuild Segment 625-2 - The new 625 Line would turn to the north and continue through NFS lands managed by the USFS LTBMU for over 1 mile. The alignment would then turn west for approximately 0.5 mile and run adjacent to the southern border of Burton Creek State Park (with a portion of the 40-foot wide operations/maintenance/access easement crossing over the park boundary).

Segments 625-3, 625-5, 625-6, 625-6, 625-7, and 625-8 - These segments would follow the Fiberboard Freeway along the entire route.

Segment 625-9 Replaced by Segment 650-2 D-C OH-2 - Segment 625-9 is not included in this alternative because this segment would be built as a double circuit with the 650 Line.

Segment 625-10 Replaced by Segment 650-1 D-C OH-1/1A - Segment 625-10 is not included in this alternative because this segment would be built as a double circuit with the 650 Line.

629 Line

The portion of the 629 Line from its intersection with the existing 625 Line to the Tahoe City Substation would be rebuilt with the double circuit configuration maintained. This double circuit portion would be upgraded and reconducted as a result of this project. The angle poles would be replaced with single self-supporting steel poles (i.e., no guying). Once the remainder of the project has been completed, the 629 Line would have the capability to be operated in its entirety at 120 kV.

Underbuild

Alternative 4 would transfer most of the underbuild to the new power poles (see Exhibit 3-11 in the EIS/EIS/EIR). In Tahoe City, between the Tahoe City Substation and the Truckee River crossing, the existing underbuild would be

transferred to new poles. The existing underbuild would also be transferred along the 650 Line between Kings Beach and Martis Valley (Segments 650-1 to 650-4)⁴. On the 625 Line, approximately three poles immediately east of the 650 Line would be topped to continue to support underbuild. Poles would also be topped and left in place to support underbuild between the Truckee Substation and Segment 650-7.

No Action Alternative (Alternative 5)

Alternative 5 is the No Action - No Project Alternative. NEPA, TRPA, and CEQA Requirements, NEPA and CEQA regulations require analysis of a no action alternative (CFR 1502.14[d]) and a no project alternative (California Code of Regulations Section 15126.6[e]), respectively. NEPA requires that the no action alternative is analyzed at a comparable level to the proposed project. Complete descriptions of all the alternatives, including Alternative 5 can be found in the Final EIS/EIS /EIR for this project.

Under Alternative 5 CalPeco would implement a load shedding plan to address events when the system reaches a stressed condition. In this scenario, lines would be operated close to or above their ratings, which would put the line conductor at high risk of annealing (excessive heating and cooling of a conductor that results in decreased tensile strength). The Kings Beach Diesel Generators would be used when needed, but because the permit for the generators limits the total number of operating hours each year, use would have to be judicious so that hours could be retained throughout the year to ensure sufficient operation during emergency scenarios throughout the year and into the heavy snow periods. To avoid risk of fire resulting from the overheated lines, additional vegetation management would be conducted. This would be evaluated based on the surrounding area and density of trees, but most likely clearing outside of the ROW would be necessary. Additionally, each pole would be evaluated and any compromised poles would be replaced. All of this would be completed under the existing ROW, permits, and easement agreements with no additional environmental study. Due to the remote locations of several segments of the 625 Line, roadway access could be bladed into the areas during emergency outages. CalPeco would also seek additional wider easements to allow for a safer vegetation management to address the anticipated overstressed/overheated operation of the conductor.

Power Lines

Under Alternative 5, additional inspections and maintenance may be needed along the line routes due to the stressed operation of the conductor. Damaged conductor would be replaced as necessary and could likely result in pole replacements as overheated conductor can damage multiple aspects of the poles, equipment, hardware and conductor. This would be completed in addition to the normal inspection and maintenance that would occur, as described above for the action alternatives. In addition, these lines would immediately be investigated upon project denial, and all poles that are compromised would be replaced. Additionally, a new Timber Harvest Plan would be developed to address the vegetation management requirements associated with the risk of fire during normal operations. This would include all necessary roadway access to be completed to support the on-going operation of the existing lines. Supplemental risk assessments would be conducted on approximately a 10 year rotation. All additional work would be completed under an emergency scenario to minimize, among other issues, risk of line arcing (the flow of electricity through the air from one conductor to another, often as a result of snow bending tree branches near the power line, a voltage surge due to lightning, or sagging lines as a result of heavy electrical loads or warm weather) or annealing. The USFS would be notified of the critical operation of the lines and the additional fire risk resulting from the high temperature operation. While the work would originally be completed within the existing ROW, CalPeco could seek additional ROW to allow for further tree/vegetation management to help reduce the increased risk of fire from the overheated line operation.

Substations

CalPeco crews maintain a minimum quarterly inspection schedule of each substation within CalPeco's service territory. During these inspections the crews record all operation counters in the breakers, transformers, and

⁴ The existing underbuild in Segment 650-2 (AT&T communications lines) may not be transferred. In this instance, the remaining existing wooden poles would be shorted by approximately 60 percent, with the concomitant loss of the majority of the scenic mass of the existing full size poles. The lead agencies are in discussions with AT&T regarding co-location to the new poles, which is the preferred outcome. However, even if the underbuild were to remain in place on the existing poles, scenic conditions on SR 267 are expected to improve as a result of the proposed setback.

regulators. The inspectors also record any discrepancies such as broken insulators, oil leaks, and gate or fence disrepair. Significant discrepancies are fixed immediately and less significant discrepancies are scheduled for repair on a case-by-case basis. Under Alternative 5, these inspections would likely be stepped up to monthly or weekly to allow for monitoring of the at-risk parameters.

The substation controls are operated remotely from an Electric Systems Control Center. The substation circuit breakers can also be manually opened or closed by troublemen (CalPeco employees who patrol, repair, and restore service or report the nature of the trouble found on electrical lines, and inspect and operate automatic substation equipment) at the substations, as needed. Under Alternative 5 (No Project/No Action Alternative), the operational personnel would have the load shedding scheme available for implementation, if needed.

Risks associated with No Project/No Action Alternative

Under Alternative 5, the north Tahoe area could experience two different operating scenarios. In the event of mild weather and no line outages, the system could perform in its current normal state. However, in the event of winter weather and a critical line outage, the North Tahoe area could experience load shedding. During such an event, the risks to the community include traffic signal outages, risk to life support equipment in residences, and loss of power to residences and business (which could result in revenue loss). Depending on the level of the load shedding, there could be impacts to sewage management facilities, water service, and fire suppression sources. Additionally, line loadings would increase annually and, as the lines are operated to their limit, the associated operating temperature of the lines would increase and pose both annealing and arching concerns. In either case, the risk of fire to USFS area is increased.

Another risk with Alternative 5 is a potential indirect effect in response to the level of outages. The purchase of stand-alone generators for residences and businesses to provide power during extended outages could increase. This could result in the increase use of fossil fuels, and, similarly, an increase in wood stove and fire burning.

Climate Change

Climate change is expected to result in a variety of effects in the project area including changes to timing and intensity of precipitation resulting in increased risk from landslides associated with ground saturation and increased stormwater runoff. Climate change could also result in increased temperatures, leading to increased wildland fire in the project vicinity. However, there are numerous programs and policies in place to protect against and respond to wildland fire.

The types of issues associated with climate change that could adversely affect the proposed project are the same under Alternative 5 as described under Alternative 4 (Preferred Alternative) (e.g., increased frequency and intensity of wildfire, increased risk of landslide, rock falls, debris/earth flows, and avalanches). Various existing plans and programs would reduce future risk of wildfire. However, because the existing transmission system would not be modified under Alternative 5, the increased resiliency to disturbance and damage provided by the action alternatives would not occur under Alternative 5. Although the potential effects of climate change on the transmission system would be greater under Alternative 5, they would not make the system inoperable or have other substantial adverse effects.

Changes in temperature, precipitation, and fire behavior have been occurring in the Lake Tahoe Basin and throughout the Sierra Nevada and are likely influencing aquatic and terrestrial wildlife and plant species. Mean annual temperature has risen by about two degrees Fahrenheit and precipitation has increased during the last century in the Lake Tahoe Basin (Safford 2010). Overall there appears to be a strong upward trend in air and lake temperature, rainfall intensity, a shift from snow to rain, earlier seasonal snowmelt events, and increased inter-annual variability in the Lake Tahoe Basin (Coats 2010). The Sierra Nevada has experienced an increased frequency of fires since the 1980's (Westerling et al. 2006) and an increase in the mean and maximum fire size, total burned area, and fire severity between the early 1980's and 2007 (Miller et al. 2009); increases are attributed to the interaction between climate change and increasing forest fuels.

Both latitudinal and altitudinal range shifts for plants have been documented and attributed to temperature changes associated with climate change (Lenoir et al. 2008; Parmesan 2006; Walther et al. 2005). Lenoir et al. (2008) found that two-thirds of the species they investigated in the Alps shifted up in elevation. Changes in water availability may play a crucial role in vegetation shifts in California's Mediterranean climate. In a study of 64 plant species in California, climate change have resulted in a significant downward shift in species' optimum elevations, tracking regional changes in climatic water balance rather than temperature (Crimmins et al. 2011). Furthermore, individual species will respond differently to changing climate (Hawkins et al. 2008; Parmesan 2006); this may result in the formation of novel vegetation communities. This illustrates that climate-related changes can interact in a variety of unusual ways that influence vegetation. Anticipating future effects of changing climate to ecosystems will be challenging, since climate projections are inherently uncertain and climate-related stressors are variable and complex.

In addition to habitat alteration, climate change presents other, less well-described risks to already vulnerable species. For example, if conditions for pollinators do not keep pace with those for their host plants, there may be a disruption in synchrony between plants and pollinators, leading to further species declines across the food chain (Hawkins et al. 2008). Decline of certain key species (e.g. canopy species, pollinators) may trigger a cascade effect of local extinctions among associated species and could lead to larger changes in ecosystems. In the face of changing environmental conditions, plants have two options, migrate to more suitable habitat or adapt to new conditions. Species with fast generation times and wide ecological tolerances, traits often associated with early-seral and invasive species, are more likely to survive than species with specific habitat requirements or long generation times (Hawkins et al. 2008; Willis et al. 2010). Rare species often have small ecological tolerances, which suggest these species may be less successful in adapting to climate change.

Even though the type, scope, and duration of climate-related effects are not yet well understood, climate change is still predicted to become a major threat to biodiversity in the 21st century (Dawson et al. 2011). Models of future plant distributions indicate that anywhere from a tenth to fully one-half of all terrestrial plants species will be threatened with extinction as a result of climate change (Hawkins et al. 2008; Thomas et al. 2004). An assessment of California's plant taxa under four different climate models suggests that over two-thirds of California plant species are expected to experience range reductions of more than 80% over the next century (Loarie et al. 2008). Many of the factors that have made at-risk species currently vulnerable to extinction, such as a small geographic range, ecological niche, or elevation gradient, are likely to be exacerbated in a changing climate.

Changing climate conditions are likely influencing amphibian and fish populations but our understanding of the effects are not well understood and predictions are limited due to the complexity of biological and physical interactions. Temperature, water quality, food availability, flow regime, and biotic interactions are all critical factors for aquatic species distributions (Wenger et al. 2011). Changes in aquatic habitats will parallel trends in climate changes, streams and lakes will become warmer, flow will be more variable, there will be an increase in extreme events such as flooding, droughts (Rieman and Isaak 2010). Changes in sediment input and recruitment of large woody debris will likely occur due to altered forest and riparian communities and increased fire (Rieman and Isaak 2010, Miller et al. 2009).

Individual species will respond differently to changing climate, which may change community composition and lead to the formation of novel communities. Sensitivity to changes in temperature and flow regime varies by species. Trout and salmon require cold water to survive and the warming of the atmosphere will increase water temperatures, making certain sections of streams and rivers uninhabitable for trout and salmon as water temperatures increase. Most climate change models predict water temperature increases of approximately 5.4° F by the year 2050. Fish that are already stressed by poor water quality, degraded habitat, and non-native species will have a harder time as these natural disturbances increase and cause additional strain on them (Haak 2010). Additionally, trout are coldwater species that are sensitive to high water flow after spawning (Wenger et al. 2011).

Amphibians are more threatened than either birds or mammals due to a combination impacts including: non-native fish introduction (Knapp 1996, Knapp et al. 2000a), disease (Daszak et al. 2003), habitat loss (Davidson et al. 2002) ultraviolet (UV) radiation (Blaustein et al. 1988, Blaustein et al. 2003), climate change (Davidson et al. 2002, Stuart et al. 2004) and pesticide use (Davidson et al. 2002, Boone and Bridges 2003).

In addition to the physical habitat qualities, habitat needs to be suitable biologically. It cannot be degraded by competition with or predation by non-native species or disease. Climate may play an indirect role in facilitating disease. *Chytridiomycosis* (Chytrid fungus) is a fungal disease that infects amphibians and has been causing mortality and population declines worldwide (Berger et al. 1998, Daszak et al. 1999, Fellers et al. 2001, Bradley et al. 2002, Bell et al. 2004). Fungal habitat is normally influenced by temperature and water availability (Bosch et al. 2006). Bosch et al. (2006) identified a positive correlation between climate change and *chytridiomycosis*.

For terrestrial wildlife species, changing climate conditions are likely influencing those found within the Lake Tahoe Basin but our understanding of the effects are not well understood and predictions are limited. Climate change has been correlated with latitudinal and altitudinal range boundary shifts (Parmesan 2006, Moritz et al. 2008, Crimmins et al. 2011) as well as phenological (timing) shifts (e.g., migration and blooming) (Parmesan & Yohe 2003, Root et al. 2003) in a variety of plants and animals. Uphill and higher elevation range shifts in response to historical warming have been well documented (Lawler et al. 2009). For example, in Yosemite National Park, Moritz et al. (2008) found substantial upward shifts in elevation limits of 50% of small mammal species sampled as well as an expansion of ranges in low elevation species, contraction of ranges in high elevation species, and changes in the community composition at mid- and high-elevations. Forister et al. (2010) found a similar upward shift in elevation range of butterfly species in the Sierra Nevada. In contrast, recent research on range shifts of 73 vascular plant species in various California mountain ranges over the last century showed that about half of them had shifted the center of their range slightly *downhill*, in response to increasing water balance due to rising precipitation, which has slightly outpaced increasing evapotranspiration due to increasing temperatures (Crimmins et al. 2011). Based on their results, the authors suggest that cooler and wetter sites at higher elevations have potential to be more sensitive to changes in precipitation than warmer and drier sites at lower elevation sites which would be more sensitive to temperature changes. The authors also suggest that downhill shifts in species' ranges are expected to be more likely at these higher elevation wetter sites (Crimmins et al. 2011).

Although these results are not specific to terrestrial wildlife species, which have been found to have experienced uphill and higher elevation shifts in the Sierra Nevada (e.g., Moritz et al. 2008, Forister et al. 2010), some terrestrial wildlife species could shift ranges in response to precipitation changes. For example, repeated bird surveys along Grinnell transects in the entire Sierra Nevada has provided evidence that bird species may be tracking both precipitation and temperature or either over time (Tingley et al. 2009). It can be expected that range shifts in terrestrial wildlife species will occur although the type (up or down) and pace of shifts are not well understood at this time.

It can also be expected that community composition will change with range shifts; related species and species in the same community may respond differently to changing environmental variables and these disparate responses may result in the breaking up of existing communities and formation of novel communities (Root et al. 2003, Moritz et al. 2008). Novel communities that are formed will present new challenges in terms of predator/prey relationships, parasitism, change in foraging resources, among other things.

In order to survive species have two options, migrate to appropriate conditions or adapt to new environmental conditions (Hawkins et al. 2008). Species with fast generation times and wide ecological tolerances are more likely to survive than species with specific habitat requirements or long generation times (Hawkins et al. 2008). Climate change has been correlated with latitudinal and altitudinal range boundary shifts (Crimmins et al. 2011, Lenoir et al. 2008). Lenoir et al. (2008) found the 2/3 of the species they investigated shifted up in elevation, while only 1/3 of the species shifted down. There were larger shifts in distribution for mountainous species and species with faster life cycles (Lenoir et al. 2008). Water availability plays a crucial role in vegetation composition in California (Dolnac et al. 2013, Crimmins et al. 2011). In California, a larger number of species shifted towards warmer conditions, while an equal number of species shifted towards wetter and drier conditions (Crimmins et al. 2011). Rare species often have small ecological tolerances, which suggest these species may be less successful in adapting to climate change.

Species that are able to respond to climate change by adjusting their phenology have historically increased in abundance (Willis et al. 2010). Willis et al. (2010) found that non-native and invasive species are better able to adjust their phenology than native species. This suggests that changes in climate may increase non-native species naturalization and invasion (Willis et al. 2010). In addition, this can cause a disruption in synchrony between plants and pollinators, leading to further species declines across the food chain (Hawkins et al. 2008). A decline in some

species may trigger a cascade effect of local extinctions among associated species and could lead to large changes in ecosystems.

The discussion about the impacts of climate change on the project under Impact 4.13-5 (for each action alternative) concludes that the project would include sufficient design features to increase its resiliency to elevated risk of wildfires, landslides, high-wind storm events, and other occurrences that may become more prevalent with climate change. Because the action alternatives would increase resiliency to potential effects from climate change, the proposed project could not make a cumulatively considerable contribution to any potential significant cumulative impact related to the effects of climate change on existing and future projects. For more discussion on the projects climate change, see Chapter 4.13 in the CalPeco Upgrade Project DEIS/EIS/EIR (Ascent Environmental 2013).

VI. DESCRIPTION OF AFFECTED SPECIES

This section is based on analysis of habitat suitability and current and historic survey information where available and summarizes species status, habitat requirements, and occurrences of the listed FWS species for the LTBMU, TNF, and USACE. The only species considered in further detail for this project in this Biological Assessment is the Lahontan cutthroat trout (refer to Table 2 for the full list of species that are threatened, endangered, proposed and or with critical habitat that were eliminated for further analysis in this Biological Assessment)

Species Accounts and Status

Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*)

Lahontan cutthroat trout (LCT) was listed as endangered under the ESA in 1970 (Federal Register Vol. 35, p.13520). In 1975, LCT was reclassified as threatened to facilitate management and to allow for regulated angling (Federal Register Vol. 40, p.29864). In 1995, USFWS released its recovery plan for LCT, encompassing six river basins within LCT historic range, including the Truckee River basin.

Historically, LCT occurred throughout the Truckee River drainage from the headwaters in California downstream to Pyramid Lake (Gerstung 1988). The LCT in Pyramid Lake and Lake Tahoe were known regionally as a valuable food source consumed by the Pyramid Lake Paiute Tribe, the Washoe Tribe, early explorers and by commercial fishermen (Fowler and Bath 1981). By 1938, LCT had been extirpated from the Tahoe Basin.

In the Tahoe region, LCT is presently absent from most of its historic range. LCT has been stocked in a few streams and lakes within the Lake Tahoe Basin, including the headwaters of the Upper Truckee River, Fallen Leaf Lake/Glen Alpine watershed, and Lake Tahoe. Recovery efforts, which have required intensive removal of nonnative brook trout over several years, restored a reproducing population in the upper headwaters of the Upper Truckee River. Additionally, in 2012 and 2013, LCT spawning was detected in Glen Alpine Creek. LCT have been stocked into Fallen Leaf Lake as part of a USFWS pilot research project to examine their interactions with nonnative lake trout. Recent efforts toward reintroducing LCT into Lake Tahoe, for recreational purposes, began during the summer of 2011. The Nevada Department of Wildlife (NDOW) stocked approximately 22,000 LCT in Lake Tahoe (near Cave Rock) as part of their efforts to begin stocking native aquatic species for the benefit of anglers. Additionally, in 2011, NDOW, in cooperation with the California Department of Fish and Wildlife (CDFW) (formerly California Department of Fish and Game [CDFG]) and the University of Nevada-Reno, stocked LCT on the California side of Lake Tahoe in Emerald Bay.

Lahontan cutthroat trout inhabit lakes and streams and require spawning and nursery habitat characterized by cool water, pools in close proximity to cover and velocity breaks, well vegetated and stable stream banks, and relatively silt free rocky substrate in riffle-run areas (USFWS 1995).

Non-native salmonids have displaced many LCT populations. Non-native fish, especially non-native salmonid species, are considered the greatest threat to LCT persistence over the species' range, through interspecific competition, hybridization, and limiting the amount of available suitable habitat. Introduced fall spawning salmonids may have an advantage over spring spawning LCT because altered watersheds provide poor habitat with such conditions as excessive turbidity, limited spawning gravel, and high flows. Furthermore, nursery habitat during the

summer may be impacted by rapidly increasing water temperatures, and drying of stream segments important for fry survival. Habitat improvement without the removal of non-native salmonids could impact LCT populations through hybridization and displacement (USFWS 1995).

Potential for Occurrence in the Action Area

LCT have been documented to occur in the reaches below the project area (USFWS, 1995) and in Martis Creek reservoir. The nearest known occurrence of LCT is in Pole Creek, a tributary of the Lower Truckee River downstream of Tahoe City, approximately 8 miles from the action area; additionally, LCT were released in the Lower Truckee River at Granite Flat Campground, approximately 12 miles from the action area (USFWS, 1995). With the exception of the Lower Truckee River subwatershed, LCT are considered extirpated from all subwatersheds in the action area (Trout Unlimited 2010). Individuals may move from Lake Tahoe into stream environments to spawn; however, none of the stream reaches in the study area, including the Truckee River, are currently expected to support this species due to habitat degradation and limited function (particularly for spawning), potential barriers to movement, presence of nonnative salmonids, and overall rarity of LCT in the watershed.

Although LCT could potentially occur in the Truckee River in the action area at Segment 625-1 due to hydrologic connectivity with Pole Creek and Lake Tahoe, LCT are not expected to occur there. The river reach at this location is immediately below the dam and Fanny Bridge at Tahoe City. USFWS considers all of the Truckee River as having potential to be occupied by LCT, given past stocking efforts in the Truckee River watershed (including Lake Tahoe); however, USFWS considers the potential for LCT to occur at Segment 625-1 to be low (Weldon, pers. comm.). Overall, the quality of aquatic habitat for LCT in the Truckee River at Segment 625-1 is low. Limits to the aquatic habitat functions and quality for LCT include channel incision throughout most of this reach, a high level of recreational activity that continues to erode and deteriorate the river banks, lack of complex and continuous aquatic and riparian habitat structure and shading, low substrate diversity and high amounts of fine sediments along the river bottom, and the high abundance of nonnative fish species. Eurasian watermilfoil (*Myriophyllum spicatum*), an aquatic invasive plant species, is also abundant in this reach. A deep pool located just below the dam circulates a variety of nutrients as it flows from Lake Tahoe and provides foraging habitat for abundant and large nonnative salmonids such as rainbow trout (*Oncorhynchus mykiss*). Additionally, people standing on Fanny Bridge often feed fish and wildlife from this location, which results in concentrations of nonnative fish in the pool. The potential to support fish spawning is considered low due to the level of recreational disturbance and amount of fine sediment along the river bottom. If LCT did occur in this reach, the abundance of nonnative salmonids and habitat degradation would make their persistence unlikely. However, without conclusive data on the recovery of LCT in the Truckee River, we are considering this species as having the potential to occur.

The LCT fishery within Martis Creek Reservoir was supported through the stocking of fingerling LCT. The California Department of Fish & Wildlife (CDFW) stocked an average of 9100 fingerling LCT into the Martis Creek Reservoir over the last decade. A backpack electrofishing survey of Martis Creek above Martis Creek Reservoir and downstream of Highway 267 was conducted on June 29, 2012 by California Department of Fish and Wildlife. This survey was conducted to determine if LCT are present and spawning in Martis Creek, the main tributary stream to Martis Creek Reservoir. The results of the electrofishing were a total of three LCT captured. The average total length of the LCT was 363.0 mm with a range of 345 mm to 372 mm. Electrofishing surveys indicate Martis Creek below Highway 267 does not support a wild LCT fishery due to the presence of nonnative fish (USACE, 2013). A wild LCT population could exist in Martis Creek above Highway 267 and these trout could migrate into the reservoir, thus into the project area. Also, recent electrofishing surveys conducted in Martis Creek Reservoir did not produce any LCT, but found large numbers of green sunfish, which are potential predators and/or competitors of the LCT within the reservoir (USACE 2013).

VII. EFFECTS OF THE PROPOSED PROJECT

Project Analysis

Analysis of direct, indirect, and cumulative effects for Alternative 4 (Preferred Alternative) and Alternative 5 (No Action/No Project) as summarized above and described in detail in the Final EIS/EIS/EIR (attached) are presented below for the Lahontan cutthroat trout.

Direct / Indirect Effects Analysis – General Habitat Effects

This section addresses potential direct and indirect effects of the proposed action on LCT. In this analysis, direct effects are those that would occur while the proposed action is being implemented (e.g., disturbances during construction). Indirect effects are those that would occur as a result of the proposed action such as disturbances associated with operations and maintenance of the power line and associated infrastructure. Implementing any of the action alternatives are not likely to adversely affect LCT or its habitat but may contribute to habitat modification downstream of the project area where LCT may occur.

Potential impacts of each action alternative on biological resources were initially identified by overlaying GIS layers of proposed project components on the land cover maps of the study area and maps of sensitive biological resources. Any natural community and wildlife habitat that overlapped with an area of proposed modification was considered to be directly affected during project construction. An estimate of the amount of vegetation removal planned for the clearing of the ROWs, work areas, and access ways was determined. Short-term construction impacts would occur where natural vegetation would be removed to construct new features and facilities or modify existing features. Long-term impacts to biological resources would occur in or adjacent to habitats that would experience a permanent conversion in land use and cover (i.e., conversion of natural vegetation to substations, electric line maintenance ROW, and access ways).

Permanent effect is based on the 40-foot-wide permanent electric line ROW that would remain following project completion plus new and improved access roads. Additional temporary effect is the maximum amount, in addition to what would remain as a permanent ROW or access way following project construction, assumed for temporary construction. This is based on a 65-foot-wide construction corridor along the entire length of the electric line alignments, minus the 40-foot-wide permanent maintenance ROW. Additional acreage of temporary habitat effects result from vegetation removal at staging. These impacts are considered temporary because these areas would be restored and revegetated following construction. Following construction, the 40-foot-wide permanent ROW would be cleared periodically to allow overland travel by line and inspection trucks, but low-growing native plants, such as mule ears, pinemat manzanita and mahala mat would be allowed to establish and the ROW would not be maintained in a barren state or covered by an impervious surface; however, trees and taller shrubs would not be allowed to establish under the electric lines. The existing 625 Line would be decommissioned and native vegetation would be allowed to regenerate within the approximately 20-foot wide corridor that is currently managed to limit vegetation height.

In the Tahoe Basin portion of the study area, the boundaries of stream environment zones (SEZs) were derived from the verified TRPA land capability maps and were used to calculate the SEZ acreage that would be affected under each action alternative. A formal wetland delineation according to USACE criteria would be conducted after selection of a preferred alternative and prior to project permitting under Section 404 of the CWA, but it is not required for the Final EIS/EIS/EIR phase. The detailed maps of plant community boundaries and the map of SEZ boundaries were used as an intermediary method of determining the approximate limits of potentially jurisdictional wetlands. Areas outside the Basin follow the Sierra Nevada Forest Plan Amendment (USFS, 2004) requirements and Riparian Conservation Objectives.

Impacts to species could occur either through temporary or permanent habitat loss, disturbance of normal activity or dispersal patterns, or through direct mortality. Potential impacts to species associated with the project were determined by analyzing species life history requirements and known occurrences or potential to occur in the study area. Once the species and habitats were identified, impacts from project activities were analyzed.

Cumulative Effects Analysis

Past, present, and foreseeable future activities that have affected or may affect biological resources in the Tahoe-Truckee region include logging, grazing, fuels management, recreational development and activities, urban and commercial development, right-of-way maintenance and operation activities, and a variety of aquatic and terrestrial habitat restoration projects. A summary table of past, present, and reasonably foreseeable future actions is presented in the project record for the Final EIS/EIS/EIR.

Present and foreseeable future projects that would also affect habitat in the region primarily include residential and commercial development, recreation facilities and resort development, and forest vegetation and fuels treatment projects. Development projects that overlap with native habitats would be expected to have some level of adverse effects on these resources; however, forest vegetation and fuels treatment projects are expected to result in some long-term habitat enhancement that would benefit some wildlife species.

When combined with other past, present, and probable future projects with similar biological effects, implementation of Alternative 4 could contribute to an adverse cumulative effect on LCT. However, with implementation of Applicant Proposed Measures (APM⁵) to avoid, minimize, and compensate for impacts to biological resources generally and several special-status species specifically, none of the action alternatives are expected to substantially affect the distribution, breeding productivity, population viability, or the regional population of any LCT; or cause a change in species diversity locally or regionally. Habitat loss for LCT would occur mostly along a narrow linear corridor, and would be minor relative to the total amount available in the area; although, this project-level effect could contribute cumulatively to effects of other projects that may displace species or reduce habitat availability through increased disturbance, traffic, and other human uses.

Effects on Species by Alternatives

Lahontan Cutthroat Trout

Direct and Indirect Effects

Although LCT could potentially occur in the Truckee River in the action area at Segment 625-1 because of hydrologic connectivity with Pole Creek, the Lower Truckee River at Granite Flat Campground, and Lake Tahoe, LCT is not expected to occur there, and USFWS considers the potential for LCT to occur at Segment 625-1 to be low (Selena Werdon, USFWS, e-mail communication, August 12, 2013). Additionally, as described previously, Martis Creek within segment 650-4 could potentially support LCT. For purposes of this BA, it is assumed that the stream reaches near Segment 650-4 and Segment 625-1 in the action area could potentially support LCT, even if habitat suitability there may be low. Other stream reaches or other aquatic habitat in the action area are not presently known or expected to support LCT due to habitat degradation and limited function (particularly for spawning), potential barriers to movement, presence of nonnative salmonids, and overall rarity of LCT in the watershed.

Alternative 4 (Preferred Alternative)

None of the stream reaches or other aquatic habitats in the action area are presently known or expected to support LCT due to habitat degradation and limited function (particularly for spawning), potential barriers to movement, presence of nonnative salmonids, and overall rarity of LCT in the watershed. Although LCT could potentially occur in the Truckee River in the action area at Segment 625-1 because of hydrologic connectivity with Pole Creek and Lake Tahoe, LCT is not expected to occur there. The river reach at this location is immediately below the dam and Fanny Bridge at Tahoe City. USFWS considers all of the Truckee River as having potential to be occupied by LCT, given past stocking efforts in the Truckee River watershed (including Lake Tahoe); however, USFWS considers the potential for LCT to occur at Segment 625-1 to be low (Selena Werdon, USFWS, e-mail communication, August 12, 2013). Overall, the quality of aquatic habitat for LCT in the Truckee River at Segment 625-1 is low. Limits to the aquatic habitat functions and quality for LCT include channel incision throughout most of this reach, the high level of recreational activity that continues to erode and deteriorate the river banks, lack of complex and continuous aquatic and riparian habitat structure and shading, low substrate diversity and high amounts of fine sediments along the river bottom, and the high abundance of nonnative fish species. Eurasian milfoil (*Myriophyllum spicatum*), an aquatic invasive plant species, is also abundant in this reach. If LCT did occur in this reach, the abundance of

⁵ Descriptions and rationale of all APMs are provided in Section 3.7, Applicant Proposed Measures, of the Final EIS/EIS/EIR.

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

nonnative salmonids and habitat degradation would make their persistence unlikely. However, the following discusses potential impacts to aquatic habitat and LCT in the Truckee River at Segment 625-1, in the event that LCT individuals did occasionally occur there.

The existing transmission system proposed for modification in Segment 625-1 ties into the Tahoe City Substation south of the Truckee River and west of State Route (SR) 89. It is a double-circuit line that also includes the 60 kV 629 Line. The lines share tangent poles (poles used for straight lines), but are split onto separate poles at angle points (where the power line conductor [i.e., cable] changes direction in less than a 30 degree angle) so that guy wires can be used to anchor the poles. The line parallels the southern bank of the Truckee River for over 1,000 feet. Existing power poles are located in the riparian area north of the Tahoe Rim Trail and adjacent to the river. The power line crosses the Truckee River and SR 89 north of the California Department of Transportation's (Caltrans') Tahoe City Maintenance Station and approximately 0.25 mile west of the intersection of SR 89 and SR 28. At the crossing, there is a wooden power pole adjacent to the southbound lane of SR 89. The existing line continues northwest for approximately 1,000 feet on the north side on SR 89 before splitting into the 629 Line and Segment 625-2 of the 625 Line. Under Alternative 4 (Preferred Alternative), the modified transmission system would follow the alignment of the existing 625 Line, heading southwest to parallel the south side of the Truckee River before turning northwest and spanning the river and SR 89.

Under alternative 4, the power line would span all waterways. No construction or water diversions would occur in the Truckee River channel; although some pole installations and removals may be required below the ordinary high water mark. Work would only occur on the river banks and would be scheduled during low-flow conditions. Construction crews would need to access the bank of the Truckee River to remove poles along the existing 625 Line. CalPeco would attempt to construct poles for the new 625 Line further away from the river; however, new poles may be required below the ordinary high water mark, but not within the river channel. Some clearing of trees and woody riparian vegetation along stream channels may be required to provide adequate clearance for construction activities. Construction activities such as vegetation clearing, pole installation, pole removal, creation of access ways, and staging near the Truckee River could temporarily result in adverse impacts to aquatic habitat, including some removal of riparian vegetation, which provides shade, cover, and bank stability; accidental spill and contamination from construction chemicals, fuels, or other hazardous materials; and increased erosion, downstream sedimentation, and turbidity. The riparian vegetation corridor in this area is presently highly disturbed, narrow, and fragmented. Multiple user-created access points are present along the corridor, which have contributed to bank erosion and fragmentation of the riparian corridor. Additionally, the 625 Line under all of the action alternatives would generally follow the existing line (Appendix B) for the location and extent of vegetation communities and each alternative project alignment in Segment 625-1 in the Final EIS/EIS/EIR. Therefore, any effects of riparian vegetation disturbance on aquatic habitats (e.g., loss of shading) in the Truckee River are expected to be negligible because there are no construction is planned within stream channels. Work adjacent to these areas could result in minor, short-term water quality impacts (e.g., increased turbidity, sedimentation) if sediment is inadvertently transported into aquatic habitats during pole foundation construction, pole placement, corridor clearing, or other construction activity.

The following APMs designed to further protect aquatic resources would minimize, avoid, and partially compensate for potential impacts to aquatic habitats and LCT, if the species was present there.

- **APM BIO-28:** CalPeco will minimize vegetation and tree removal to only the areas necessary for construction, with particular attention given to minimizing effects on riparian areas and preserving trees greater than 30 inches diameter at breast height (dbh).
- **APM BIO-29:** Skidding of trees will not be permitted in waters of the United States or waters of the State, including wetlands. Within these waters tree removal may be conducted by hand, use of cable systems, helicopter yarding, or use of ground based equipment when determined suitable for ground based mechanical harvest. Any work conducted in the vicinity of waters of the United States, waters of the State, and wetlands will have an environmental monitor present, consistent with the requirements of APM WQ-4. Other APMs applicable to the protection of aquatic resources will also be implemented.
- **APM BIO-30:** Prior to commencing construction in any area containing aquatic resources or potential wetlands, a qualified biologist will conduct a delineation of waters of the United States according to methods established in the USACE wetlands delineation manual (Environmental Laboratories 1987) and

Western Mountains, Valleys, and Coast Region Supplement (Environmental Laboratories 2010). The delineation will map and quantify the acreage of all aquatic habitats on the project site and will be submitted to USACE for verification. CalPeco will determine, based on the verified wetland delineation and the project design plan, the acreage of impacts on waters of the United States and waters of the state that will result from project implementation. Impacts will be avoided to the extent practicable through the siting of poles and other facilities outside of delineated waters of the United States and waters of the state. Work in wetlands or wet meadow habitats with saturated soil conditions will be scheduled when soils are dry to the extent possible. If soils become saturated, timber mats will be installed along all vehicle and equipment access routes to minimize rutting. Prior to disturbance of waters of the United States or waters of the state, an environmental monitor will record via photographs and field notes the pre-disturbance condition of the water. Disturbed waters will be restored to preconstruction conditions and seeded with a native species, consistent with the vegetation community present prior to disturbance, to stabilize the soils and minimize the introduction of invasive plants, as specified by the USACE and RWQCB. In accordance with the USACE “no net loss” policy, all permanent wetland impacts will be mitigated at a minimum of a 1:1 ratio. This mitigation will come in the form of either contributions to a USACE-approved wetland mitigation bank or through the development of a Compensatory Mitigation and Monitoring Plan aimed at creating or restoring wetlands in the surrounding area (although creation is not authorized by TRPA in their jurisdiction).

- **APM WQ-4:** When working near aquatic resources, poles and trees will be cut by hand and felled away from such features (unless there is an ecological reason to do otherwise that is approved by applicable regulatory agencies, such as adding coarse woody debris to a stream to enhance fish habitat). The skidding of poles and trees through aquatic resources will not be permitted. Within Stream Environment Zones (SEZs) poles and trees will be removed by hand, by cable system, or by helicopter. No mastication will occur in SEZs and no chip material will be left in SEZs unless approved for erosion control. Vehicles and equipment will be staged away from aquatic features, along designated access routes or within staging areas. If there are circumstances where disturbance to the bank or channel of an aquatic feature is unavoidable, CalPeco will restore the banks and channels to preconstruction conditions immediately afterwards. An environmental monitor will be present in all instances where disturbance to an aquatic feature may occur to ensure conditions of this APM and any other applicable APMs, permit conditions, and mitigation measures are complied with.
- **APM WQ-5:** When construction activities are required adjacent to flowing streams or rivers, work will be conducted during low-flow conditions (i.e., when surface flow is restricted to the low-flow channel, as confirmed by the environmental monitor).
- **APM WQ-7:** CalPeco will minimize vehicle and equipment usage within and crossing of stream channels and other aquatic resources consistent with the requirements of other APMs. If vehicles and equipment must cross stream channels or other aquatic resources, CalPeco will construct shoo-fly access roads, install culvert crossings, or use other methods to access either side of the resource or utilize existing bridges, where feasible, in order to minimize the need to install temporary bridges. Limit crossings to no more than one for every 800 feet of channel. If there are no existing crossings and the construction of shoo-fly roads or other crossing methods may cause greater resource impact, CalPeco will install timber mats, slash mats, or other materials suitable for a temporary bridge. If bridges are installed over streams with discernible flow, all attempts will be made to span the channel. Temporary crossings on ephemeral or intermittent drainages will be constructed and removed, to the maximum extent feasible, when the channels are dry and will be removed before the winter season begins. These crossings will be designed to not obstruct water flow and fish passage and to accommodate flows from a 1 inch or greater precipitation event.
- **APM WQ-8:** CalPeco will obtain permits from appropriate regulatory agencies prior to commencing work in waters of the United States or waters of the state. Following construction, CalPeco will restore any impacted waterbodies and wetlands to pre-project conditions and compensate for any permanent wetland impacts in accordance with the US Army Corps of Engineer’s “no net loss” policy.

Additionally, a stormwater pollution prevention plan (SWPPP) would be prepared and implemented as part of the project. This plan would detail the BMPs that would be implemented to minimize erosion, reduce sediment transport, control stormwater flow from the project area, and prevent construction materials from entering or otherwise affecting waterways. In addition, the SWPPP would generally describe the terrain type and slope at temporary construction areas, and would address grading and slope stabilization methods, as well as construction waste disposal methods. Furthermore, Mitigation Measure 4.7-2a (Compensate for Unavoidable Loss of Stream and

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

Riparian Habitat), which is described in the Final EIS/EIS/EIR, would be implemented to ensure consistency with California Fish and Wildlife Code Section 1602 (Streambed Alteration Agreement) and further reduce and compensate for effects on riparian habitat.

Because work along the Truckee River in Segment 625-1 would only occur on the river bank and be scheduled during low-flow conditions, implementation of any of the action alternatives would not impede flow or disrupt movement potential for LCT, or result in injury or mortality to LCT if the species was present. Although work adjacent to the river could potentially result in minor, short-term water quality impacts (increased turbidity, sedimentation) if sediment is inadvertently transported into aquatic habitats during pole foundation construction, pole placement, or other construction activity, implementation of the applicable APMs and the SWPPP are expected to avoid those potential effects. Additionally, as described previously, any effects of riparian vegetation disturbance on aquatic habitats (e.g., loss of shading) in the Truckee River are expected to be negligible and would be temporary. In conclusion, implementation Alternatives 4) is not likely to adversely affect LCT because: 1) LCT is not known or expected to occur in the action area, based on degraded habitat conditions and overall rarity in the watershed; 2) no pole placement or other construction would occur in the Truckee River channel; and 3) applicable APMs and mitigation measures to avoid potential effects on aquatic habitat and water quality would be implemented.

To find more information on general habitat info can be found in the Final EIS/EIS/EIR and biological evaluation (Ascent, 2013).

Alternative 5 (No Action/No Project)

Under Alternative 5 (No Action/No Project Alternative), no upgrade of the existing power lines would occur. This alternative would be associated with increased maintenance activities, including some deferred items, such as ROW maintenance and replacement of existing wooden poles. Lines would be operated close to or above their ratings, which would put the line conductor at high risk of annealing (excessive heating and cooling of a conductor that results in decreased tensile strength). The Kings Beach diesel generators would be used when needed, but because the permit for the generators limits the annual operating hours, use would have to be judicious so that hours could be retained throughout the year.

Effects on aquatic habitat would include actions limited to the existing operation and maintenance and completion of existing deferred maintenance to raise the power system to current standards. With continued implementation of aquatic resource protection measures in CalPeco's current Vegetation Management Plan, vegetation management within the existing ROW under Alternative 5 would not result in new or substantial effects on aquatic habitat functions. Therefore, potential effects of implementing Alternative 5 on aquatic habitats would be less than significant.

Under the No Action/No Project Alternative, the intensity of vegetation removal within the existing 20-foot vegetation management zone for the 60 kV lines are expected to increase in the short term, but would still be within the scope of the electric system's existing approved vegetation management plans and permits. The proximity of vegetation management activities to aquatic resources, and potential effects on aquatic habitats, are not expected to change under Alternative 5; they would continue to be minimized, avoided, or mitigated through practices specified in CalPeco's Vegetation Management Plan (CalPeco 2012). As described in the Vegetation Management Plan, necessary vegetation removal operations located within Waterbody Buffer Zones (as defined by the Lahontan Regional Water Quality Control Board) shall be implemented appropriately to ensure compliance with applicable water quality regulations; and CalPeco will use the following BMPs when performing vegetation management within Waterbody Buffer Zones:

- avoid removal of any vegetation within 15 feet of the high water mark of perennial streams;
- avoid the use of mechanical equipment within Waterbody Buffer Zones;
- direct the felling of trees within a Waterbody Buffer Zone away from the watercourse or lake;
- avoid the use of herbicides for controlling vegetation growth within Waterbody Buffer Zones;
- remove all wood, debris, slash, and chips that are produced as a result of vegetation management activities which occur within 15 feet of the high water mark of all perennial, intermittent, and ephemeral streams;
- retain all stumps and low growing vegetation; and
- use only pre-existing roads as access to facilities and trees.

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

With continued implementation of aquatic resource protections in the current Vegetation Management Plan, vegetation management within the existing ROW under Alternative 5 would not result in new or substantial effects on aquatic habitat functions. Therefore, potential effects of implementing Alternative 5 on LCT is considered as having no effect as the default condition falls under the California Pacific Electric Company Master Special Use Permit (USFS, 2012).

From the standpoint of minimizing environmental effects, Alternative 5 would be the environmentally preferable/environmentally superior alternative. Under Alternative 5, no construction would take place and operations and maintenance would continue under existing programs, with the exception of a short-term increase in activity to address needed vegetation management and other ROW maintenance. Little change to the existing environment would occur under Alternative 5. However, Alternative 5 would not meet any of the basic project objectives related to system capacity, reliability, resilience, and access, and reduced dependence on the Kings Beach Diesel Generation Station. Ultimately, implementation of Alternative 5 would lead to power demand regularly exceeding the system design capacity, leading to more frequent system failures and the need for rolling blackouts and other load shedding measures.

Cumulative Effects

Implementation of the action alternatives would not create local, watershed-, or landscape-level barriers that would impair movement, redirect migration, or prevent the use of traditional habitats throughout a species range; and would not permanently affect any known or potentially significant wildlife movement corridors. Potential effects on wildlife and fish movement patterns and corridors would be short-term and minor. Therefore, implementation of any of the action alternatives would not make a considerable contribution to any cumulative impact on wildlife and fish movement corridors.

Several sensitive habitats that also function as aquatic habitat have been subject to significant adverse cumulative effects from past and current projects. Reasonably foreseeable future projects that encompass, or are near aquatic habitats (Appendix C), could further contribute to this cumulative effect, although various laws and regulations (e.g., CWA, TRPA Code, Fish and Game Code Section 1602) would minimize these effects.

As described in Alternative 4 (Preferred Alternative), construction activities such as vegetation clearing, pole installation, pole removal, creation of access ways, and staging near aquatic habitats could temporarily result in adverse impacts to aquatic habitat, including removal of riparian vegetation; accidental spill and contamination from construction chemicals, fuels, or other hazardous materials; increased erosion, downstream sedimentation, and turbidity; small amounts of fill placed in aquatic habitats; and direct mortality or injury of fish and other aquatic species caused by equipment passing through aquatic habitat. However, the project's design, construction methods, incorporation of several APMs designed to protect aquatic resources and implementation of Mitigation Measure 4.7-7 (Compensate for Unavoidable Loss of Stream and Riparian Habitat) would minimize, avoid, and compensate for these potential impacts to aquatic habitats. Specifically, these measures require that: 1) aquatic habitat is avoided to the extent feasible; 2) aquatic habitats that cannot be avoided are restored following construction; 3) any unavoidable losses would be compensated for in a manner that results in no net loss of aquatic habitats; and 4) project implementation is consistent with the aquatic and riparian habitat protection provisions of Fish and Game Code Section 1602. Because any residual effects on aquatic habitats would be minor, temporary, and mitigated; the no net loss standard would be implemented; and there would be no permanent impacts to the quality, amount, or function of aquatic habitats, implementation of any of the action alternatives would not make a considerable contribution to any cumulative impact related to aquatic habitat.

Pole placement or other construction activities are not expected to occur within streams that provide movement corridors for aquatic species, and implementation of the applicable APMs described in Impact 4.7-7 would further minimize, avoid, or compensate for potential effects on riparian and aquatic habitats. However, as described in

Impact 4.7-8 some temporary disturbances to small stream channels that may function as fish movement corridors locally and within watersheds may be unavoidable in some cases. Because such disturbances would be infrequent, temporary, and relatively minor if they occur, they would not substantially impair movement or migratory habitat for aquatic species.

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

Numerous federal agencies are involved in the regulation and management of LCT in the Lake Tahoe basin. The Federal land management agency is the U.S. Forest Service, LTBMU and TNF. The Federal regulatory agency responsible for implementing the ESA is USFWS. Non-Federal entities also regulate and manage lands and resources in the Tahoe basin California State Parks, California Tahoe Conservancy, Nevada Division of State Parks and Nevada Division of Lands also manage lands within the basin for public recreation and natural resource stewardship purposes. The Washoe Tribe of California and Nevada is also involved in the management of LCT within the Basin. Representatives from these agencies comprise the Tahoe Basin Recovery Implementation Team (TBRIT).

Because LCT is a listed species, a Recovery Plan was developed in 1995 that encompasses six river basins within LCT historic range, including the Truckee River basin (USFWS 1995). Any activity that has a potential effect on LCT is required to follow regulation set by the ESA, which is intended to set guidelines to eliminate or minimize the threats that impact LCT and ensure the long-term persistence and recovery.

Additionally, TRPA provides relevant policies and regulations for the maintenance of habitat conditions for Fisheries Thresholds Standards. The goal of TRPA adopted Threshold Standards for the fisheries resources is to improve aquatic habitat important for the growth, reproduction, and perpetuation of existing and threatened fish resources in the Lake Tahoe Basin (TRPA 1982). The EIP, administered by TRPA, includes programs that result in the enhancement of restoration of fish habitats. For lake environments, all projects and activities conducted in the shorezone may be prohibited, limited, or otherwise regulated in prime habitat areas (spawning, feed and cover habitats that include submerged substrates comprised of gravels, cobbles, and rocks), or in situations that TRPA found to be vulnerable or critical to the needs of fish. Special conditions of project approval, such as restoring physically altered substrate, limiting construction to designated periods, or implementing shoreline protective measures, may be required for development in the shorezone to mitigate or avoid significant adverse impacts to habitat or fish.

To support the nondegradation standard that applies to lake fish habitat, TRPA's Code prohibits the alteration of substrate in areas of prime fish habitat unless mitigated and approved by TRPA. The protection provision for instream habitats is similar; prohibit stream channel alterations, stream crossings shall be designed to facilitate fish movement, barriers to fish movement are permitted to be removed, development shall fully mitigate impacts to fish habitat, maintain instream flows, prevent sediment entry into streams, and provide vegetative cover. More recently, the agency adopted additional ordinances to prevent the introduction of new aquatic invasive species by requiring inspections and possible decontaminations of all boats entering regional lakes.

VIII. DETERMINATIONS

Information used to arrive at determination of effects for the listed species are based on the alternatives as described in the Final EIS/EIS/EIR (provided in brief in Section V above and in full as an attachment to this BA).

Thus based on the information presented in this BA and the Final EIS/EIS/EIR, the determinations for the listed threatened, endangered, proposed, and or candidate species and critical habitats for the Lake Tahoe Basin and Tahoe National Forest are as follows for Alternative 4 and 5.

<i>Species</i>	<i>Status</i>	Determination – Alternative 4 (Preferred Alternative)	Determination – Alternative 5 (No Action /No Project)
Lahontan cutthroat trout (<i>Oncorhynchus clarki henshawi</i>)	Threatened	May Affect but Not Likely to Adversely Affect	Will Not Affect
Central Valley steelhead (<i>Oncorhynchus mykiss</i>)	Threatened	Will Not Affect	Will Not Affect
Delta smelt (<i>Hypomesus transpacificus</i>)	Threatened	Will Not Affect	Will Not Affect
Central Valley spring-run chinook salmon (<i>Oncorhynchus tshawytscha</i>)	Threatened	Will Not Affect	Will Not Affect

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

<i>Species</i>	<i>Status</i>	Determination – Alternative 4 (Preferred Alternative)	Determination – Alternative 5 (No Action /No Project)
Lahontan cutthroat trout (<i>Oncorhynchus clarki henshawi</i>)	Threatened	May Affect but Not Likely to Adversely Affect	Will Not Affect
Winter-run chinook salmon, Sacramento River (<i>Oncorhynchus tshawytscha</i>)	Endangered	Will Not Affect	Will Not Affect
California red-legged frog (<i>Rana draytonii</i>)	Threatened	Will Not Affect	Will Not Affect
Critical habitat for California red-legged frog (<i>Rana draytonii</i>)	Critical Habitat	Not Likely to Result in the Destruction or Adverse Modification of critical habitat	Not Likely to Result in the Destruction or Adverse Modification of critical habitat
Sierra Nevada yellow-legged Frog (<i>Rana sierrae</i>)	Endangered	Will Not Affect	Will Not Affect
Critical Habitat for Sierra Nevada yellow-legged Frog (<i>Rana sierrae</i>)	Proposed Critical Habitat	Not Likely to Result in the Destruction or Adverse Modification of proposed critical habitat	Not Likely to Result in the Destruction or Adverse Modification of proposed critical habitat
Yosemite toad (<i>Bufo canorus</i>)	Threatened	Will Not Affect	Will Not Affect
North American wolverine (<i>Gulo gulo luscus</i>)	NA (Former Threatened listing proposal has been withdrawn)	Will Not Affect	Will Not Affect
Pacific fisher (<i>Martes pennanti</i>)	Candidate	Will Not Affect	Will Not Affect
Tahoe yellow-crested (<i>Rorippa subumbellata</i>)	Candidate	Will Not Affect	Will Not Affect
Webber's ivesia (<i>Ivesia webberi</i>)	Candidate	Will Not Affect	Will Not Affect
Layne's butterweed (<i>Senecio layneae</i>)	Threatened	Will Not Affect	Will Not Affect
Whitebark Pine (<i>Pinus albicaulis</i>)	Candidate	Will Not Affect	Will Not Affect
Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>)	Threatened	Will Not Affect	Will Not Affect

IX. CONTRIBUTORS

*Rena Escobedo, Fish & Wildlife Biologist
USDA Forest Service, Lake Tahoe Basin Management Unit*

Education:

- B. S. Environmental Biology & Conservation, California State Polytechnic - Pomona, CA
- Acoustic Research Undergrad Thesis of Southern Resident Orcas, University of Washington, Seattle, WA

Experience:

- Fish & Wildlife Biologist, US Forest Service LTBMU (2011 to present)
- Ecologist, US Forest Service LTBMU (2010-2011)
- Wildlife Biologist, US Forest Service LTBMU (2006-2010)
- Biological Science Technician (Wildlife), US Forest Service, Lincoln NF (2005)

*Holly Eddinger, Supervisory Forest Biologist - Biological Program Leader
USDA Forest Service, Lake Tahoe Basin Management Unit*

Education:

- Extended Graduate Curriculum Stream Ecology & Hydrology, Oregon State University, Corvallis, OR
- B.S. Environmental Biology & Environmental Ethics, Humboldt State University, Arcata, CA

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

Experience:

- Supervisory Forest Biologist / Biological Program Leader, US Forest Service LTBMU (2008 – Present)
- Acting Ecosystem Conservation Department Staff Officer, US Forest Service LTBMU (2013)
- Acting Regional Wildlife Program Manager, US Forest Service Pacific Southwest Regional Office (2011)
- District Resource Officer, Eco Team Leader, Kings River Project Planner, District (Zone) Fisheries / Aquatic Biologist, US Forest Service Sierra NF, High Sierra (Kings River & Pineridge) Ranger District (1999 – 2008)
- Regional Emphasis Program Leader - Aquatic Education & National Fishing Week Activities, US Forest Service Pacific Southwest Regional Office (1994-2000)
- Assistant Forest Fisheries Biologist, District (Zone) Fisheries Biologist and Hydrologist, US Forest Service Sequoia National Forest, Supervisor's Office, Tule River and Hot Springs Ranger Districts (1992 – 1999)
- Fisheries / Aquatic Crew Leader, and Biological Survey Technician, US Forest Service Six Rivers National Forest, Supervisor's Office & Sequoia National Forest, Tule River Ranger District (1989 – 1992)

Courtney Rowe, Botanist

USDA Forest Service, Lake Tahoe Basin Management Unit

Education:

- M.S. Natural Resources and Environmental Sciences, University of Nevada, Reno
- B. A. Geography, University of California, Berkeley

Experience:

- Botanist, USDA Forest Service LTBMU (2012-present)
- Restoration Specialist, USDA Forest Service, Plumas NF (2010-2012)
- Botanist (Student Trainee), USDA Forest Service, Plumas NF (2009-2010)
- Biological Science Technician (Plants), USDA Forest Service, Plumas NF (2008-2009)
- Biological Science Technician (Revegetation), USDOI National Park Service, Grand Teton NP (2007)
- Native Plant Production Manager, Bitterroot Restoration, Lincoln, CA (2005-2007)
- Restoration Coordinator, Golden Gate National Recreation Area, San Francisco, CA (2003-2005)

Kristie Boatner, District Wildlife Biologist/Natural Resources Officer/District NEPA Coordinator

USDA Forest Service, Tahoe National Forest, Truckee Ranger District

Education:

- Extended Graduate Studies, Northwestern School of Law of Lewis & Clark College, Portland, OR; Virginia Polytechnic Institute and State University, Blacksburg, VA; Utah State University, Logan, UT.
- B.S. Wildlife and Fisheries Biology, University of California, Davis, CA

Experience:

- District Wildlife Biologist/Natural Resources Officer/ District NEPA Coordinator, US Forest Service (USFS), Tahoe National Forest (NF), Truckee Ranger District (RD), (July 2001 – Present).
- Forest Wildlife Biologist, USFS, Humboldt-Toiyabe NF, (August 2012 – December 2012)
- Acting Eastside Range Manager, USFS, Tahoe NF, (April 2004 – September 2004)
- Acting District Ranger, USFS, Tahoe NF, Truckee RD, (September 2003 – December 2003)
- District Wildlife Biologist/Natural Resources Officer, USFS, Eldorado NF, Amador RD, (July 1993 – June 2001)
- Acting Forest Wildlife Biologist, USFS, Eldorado NF, (February 1999 – February 2000)
- Assistant Forest Wildlife Biologist, USFS, Eldorado NF, (September 1995 – December 1995)
- Wildlife Crew Leader and Biological Survey Technician, USFS, Eldorado NF, Georgetown RD (June 1991 – June 1993)

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

Brian Luke
U.S Army Corps of Engineers, Sacramento District

Education:

- B.S. Biological Conservation, California State University Sacramento

Experience:

- Biological Sciences Environmental Manager (2007-present)

X. LITERATURE CITED

- Ascent Environmental. 2013. *CalPeco 625 and 650 Electrical Line Upgrade Project: Draft Biological Assessment/Biological Evaluation Aquatic and Terrestrial Species*. Prepared for United States Department of Agriculture, Forest Service, Lake Tahoe Basin Management Unit and Tahoe National Forest.
- Bell, B.D., S. Carver, N.J. Mitchell, and S. Pledger. 2004. The recent decline in a New Zealand endemic: How and why did populations of Archey's frog crash over 1996-2001? *Biological Conservation*, 120:189-199.
- Berger, L., Speare, R., Daszak, P., Green, D.E., Cunningham, A.A., Goggin, C.L., Slocombe, R., Ragan, M.A., Hyatt, A.D. McDonald, K.R., Hines H.B., Lips, K.R., Marantelli, G., and Parkes, H. 1998. Chytridiomycosis causes amphibian mortality associated with population declines in the rain forest of Australia and Central America. *Proceedings of the National Academy of Sciences*, 95:9031-9036.
- Boone, M. D., and C. M. Bridges. 2003. Effects of pesticides on amphibian populations. Pages 152-167 in R. D. Semlitsch, editor. *Amphibian Conservation*. Smithsonian Institution, Washington.
- Bosch, J., and Martínez-Solano, I. 2006. Chytrid fungus infection related to unusual mortalities of *Salamandra salamandra* and *Bufo bufo* in the Peñalara Natural Park (Central Spain). *Oryx* 40: 84-89.
- Bradley, G.A., P.C. Rosen, M.J. Sredl, T.R. Jones, and J.E. Longcore. 2002. Chytridiomycosis in native Arizona frogs. *Journal of Wildlife Diseases* 88:206-212.
- CDFW *see* California Department of Fish and Wildlife
- California Department of Fish and Wildlife, California Interagency Task Group. 2005. California Wildlife Habitat Relationships (CWHR) version 8.1 personal computer program. Sacramento, CA.
- CalPeco. 2012. *Vegetation Management Plan* (Version 2012.1). Prepared by California Pacific Electric Company Vegetation Management Department. South Lake Tahoe, CA.
- Coats, R. 2010. Climate change in the Tahoe basin: regional trends, impacts and drivers. *Climate Change*. 102: 435-466.
- Crimmins, S. M., S. Z. Dobrowski, J. A. Greenberg, J. T. Abatzoglou, A. R. Mynsberge. 2011. Changes in Climatic Water Balance Drive Downhill Shifts in plant Species' Optimum Elevations. *Science*, 331: 324-327.
- Daszak, P., L. Berger, A.A. Cunningham, A.D. Hyatt, D.E. Green, and R. Speare. 1999. Emerging Infectious Diseases and Amphibian Declines. *Emerging Infectious Diseases*, 5:735-748.
- Daszak P., A.S. Trieby, A.A. Cunningham, and A.D. Hyatt. 2003 Infectious disease and amphibian population declines. *Diversity and Distributions*, 9:141-150.
- Davidson, CC., H.B. Shaffer and M.R. Jennings. 2002. Spatial tests of the pesticide drift, habitat destruction, UV-B, and climates-change hypotheses for California amphibian declines. *Conservation Biology* 16:1588-1601.

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

- Dawson, T.P., S.T. Jackson, J.I. House, I.C. Prentice, and G.M. Mace. 2011. Beyond Predictions: Biodiversity Conservation in a Changing Climate. *Science* 332(6025):53-58.
- Dolanc, C.R., J.H. Thorne, and H.D. Safford. 2013. Widespread shifts in the demographic structure of subalpine forests in the Sierra Nevada, California, 1934 to 2007. *Global Ecology and Biogeography* 22(3):264-276.
- Fellers, G.M., D.E. Green, and J.E. Longcore. 2001. Oral Chytridiomycosis in mountain yellow-legged frogs (*Rana muscosa*). *Copeia*, 2001:945-953.
- Forister, M. L., A. C. McCall, N. J. Sanders, J. A. Fordyce, J. H. Thorne, J. O'Brien, D. P. Waetjen, A. M. Shapiro. 2010. Compounded effects of climate change and habitat alteration shift patterns of butterfly biodiversity, *Proceedings of the National Academy of Sciences*, 107: 2088-2092.
- Fowler, C.S., Bath, J.E. *Pyramid Lake Northern Paiute Fishing: The Ethnographic Record. Journal of California and Great Basin Anthropology* Vol. 3: No. 2:176-186
- Gerstung, E.R. 1988. Status, life history, and management of the Lahontan cutthroat trout, American Fisheries Society symposium 4:93-106.
- Haak, Amy L., Jack E Williams, Daniel J. Isaak, Albert H. Todd, C.C. Muhlfeld, J.L. Kershner, Robert E. Gresswell, S.W. Hostetler, and Helen M. Neville. 2010a. The Potential Influence of Changing Climate on the Persistence of Salmonids of the Inland West. Open-File Report. Reston, VA: U.S. Geological Survey. <http://pubs.usgs.gov/of/2010/1236/>.
- Hawkins, B., S. Sharrock, and K. Havens. 2008. Plants and Climate Change: which future? Botanical Gardens Conservation International.
- Holland, R.F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. California Department of Fish and Game. Sacramento, California.
- Knapp, R.A. 1996. Non-native trout in the natural lakes of the Sierra Nevada: An analysis of their distribution and impacts on the native aquatic biota. Pages 363-390. In Sierra Nevada Ecosystem project, Final Report to Congress, Volume II, Assessments and Scientific Basis for Management Options, University of California, Davis, Wildlife Resources Center Report (37):vii+1528p.
- Knapp, R. A., and K. R. Matthews. 2000. Effects of nonnative fishes on wilderness lake ecosystems in the Sierra Nevada and recommendations for reducing impacts. Pages 312-317 in *Proceedings: Wilderness Science in a Time of Change*. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.
- Lawler, J. J., S. L. Shafer, D. White, P. Kareiva, E. P. Maurer, A. R. Blaustein, P. J. Bartlein. 2009. Projected climate-induced faunal change in the Western Hemisphere. *Ecology*, 90(3): 588-597.
- Lenoir, J., J.C. Gegout, P.A. Marquet, P. de Ruffray, and H. Brisse. 2008. A significant upward shift in plant species optimum elevation during the 20th century. *Science* 320(5884):1768-1771.
- Loarie, S.R., B.E. Carter, K. Hayhoe, S. McMahon, R. Moe, C.A. Knight, and D.D. Ackerly. 2008. Climate Change and the Future of California's Endemic Flora. *PLoS ONE* 3(6):e2502.
- Miller, J. D., Safford, H. D., Crimmins, M., and Thode, A. E. 2009. Quantitative evidence for Increasing forest fire severity in the Sierra Nevada and southern Cascade Mountains, California and Nevada, USA. *Ecosystems* 12: 16-32.
- Moritz, C., J. L. Patton, C. J. Conroy, J. L. Parra, G. C. White, S. R. Beissinger. 2008. Impact of a century of climate change on small-mammal communities in Yosemite National Park, USA. *Science*, 322: 261-943.

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

- Parmesan, C. 2006. Ecological and evolutionary responses to recent climate change. P. 637-669 in Annual Review of Ecology Evolution and Systematics. Annual Reviews, Palo Alto.
- Parmesan, C. and G. Yohe. 2003. A globally coherent fingerprint of climate change impacts across natural systems. *Nature*, 421: 37-42.
- Rieman, B., and D. Isaak. 2010. Climate change, aquatic ecosystems and fishes in the Rocky Mountain West: implications and alternatives for management. USDA Forest Service, Rocky Mountain Research Station, GTR-RMRS-250, Fort Collins, CO.
- Root, T. L., J. T. Price, K. R. Hall, S. H. Schneider, C. Rosenzweig, and J. A. Pounds. 2003. Fingerprints of global warming on wild animals and plants. *Nature*, 421:57-60.
- Safford, H.D. 2010. A summary of current trends and probable future trends in climate and climate-driven processes in the Lake Tahoe Basin and the neighboring Sierra Nevada. USDA Forest Service, Pacific Southwest Region Ecology Program, Vallejo, CA. Online at: <http://fsweb.r5.fs.fed.us/program/ecology/>
- Tahoe Regional Planning Agency. 2012 (April). *Regional Plan Update Draft Environmental Impact Statement*. SCH: E2008-124:2007092027.
- Tahoe Regional Planning Agency. 2012. *Regional Plan for the Lake Tahoe Basin: Plan Area Statements*. Adopted by the Governing Board May 27, 1987. Updated through October 25, 2012.
- Tahoe Regional Planning Agency. 1982. *Lake Tahoe Basin: Scenic Resource Inventory*. Prepared by Wagstaff and Brady.
- Thomas, C.D., A. Cameron, R.E. Green, M. Bakkenes, L.J. Beaumont, Y.C. Collingham, B.F.N. Erasmus, M.F. de Siqueira, A. Grainger, L. Hannah, L. Hughes, B. Huntley, A.S. van Jaarsveld, G.F. Midgley, L. Miles, M.A. Ortega-Huerta, A.T. Peterson, O.L. Phillips, and S.E. Williams. 2004. Extinction risk from climate change. *Nature* 427(6970):145-148.
- Tingley, M. W., W. B. Monahan, S. R. Beissinger, C. Moritz. 2009. Birds track their Grinnellian niche through a century of climate change. *Proceedings of the National Academy of Sciences*.
- USACE *see* U.S. Army Corps of Engineers
- U.S. Army Corps of Engineers. 1977. *Martis Creek Lake Master Plan*.
- U.S. Army Corps of Engineers. 2013. 2012 Electrofishing Martis Creek with a Summary of 2003 through 2011 Angler Survey Box Data on Martis Creek Reservoir.
- U.S. Fish and Wildlife Service. 1995. Lahontan cutthroat trout (*Oncorhynchus clarkihenshawi*) recovery plan. Portland, OR.
- USDA Forest Service. 1988. *Land and Resource Management Plan*. Lake Tahoe Basin Management Unit.
- USDA Forest Service. 1990. *Land and Resource Management Plan for the Tahoe National Forest*.
- USDA Forest Service. 2001. *Sierra Nevada Forest Plan Amendment Final Environmental Impact Statement*. Forest Service, Pacific Southwest Region. January 2001.
- USDA Forest Service. 2004. *Sierra Nevada Forest Plan Amendment Final Supplemental Environmental Impact Statement – Record of Decision, U.S.D.A. Forest Service, Pacific Southwest Region, R5-MB-046, Vallejo, CA*. 55 pages plus various appendices.

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

- USDA Forest Service. 2010. *Aquatic Organism Passage at Road-Stream Crossings Assessment*, Tahoe National Forest FY2010.
- USDA Forest Service. 2012. *California Pacific Electric Company (CalPeco) Master Special Use Permit, Lake Tahoe Basin Management Unit*. ELD409201. Expiration Date: 12/31/2042
- Walther, G.R., S. Beissner, and C.A. Burga. 2005. Trends in the upward shift of alpine plants. *Journal of Vegetation Science* 16(5):541-548.
- Wenger, S.J., D.J. Isaac, C.H. Luce, H.M. Neville, K.D. Fausch, J.B. Dunham, D.C. Daulwalter, M.K. Young, M.M. Elsner, B.E. Rieman, A.F. Hamlet, and J.E. Williams. 2011. PNAS.
www.pnas.org/cgi/doi/10.1073/pnas.1103097108.
- Werdon, Selena. Deputy Assistant Field Supervisor, Nevada Fish and Wildlife Office, U.S. Fish and Wildlife Service, Reno, Nevada. August 13, 2013. E-mail correspondence with Steve Henderson of Ascent Environmental regarding potential for Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*) occurrence in the Truckee River in the CalPeco project area.
- Westerling, A. L., H. Hidalgo, D. R. Cayan, and T. Swetnam. 2006. Warming and earlier spring increases western U.S. forest wildfire activity. *Science*, 6 July, 2006 /10,1126/ science.1128834
- Willis CG, Ruhfel BR, Primack RB, Miller-Rushing AJ, Losos JB, et al., 2010, Favorable Climate Change Response Explains Non-Native Species' Success in Thoreau's Woods. *PLoS ONE* 5(1): e8878.
[doi:10.1371/journal.pone.0008878](https://doi.org/10.1371/journal.pone.0008878)

APPENDIX A – FWS SPECIES LIST

DRAFT

U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office
Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the
Lake Tahoe Basin Management Area
Database last updated: September 18, 2011
Report Date: December 23, 2013

Listed Species

Hypomesus transpacificus - delta smelt (T)
Oncorhynchus (=Salmo) clarki henshawi - Lahontan cutthroat trout (T)
Oncorhynchus mykiss - Central Valley steelhead (T)
Rana sierrae - Mountain yellow legged frog (PX)

Candidate Species

Bufo canorus - Yosemite toad (C)
Martes pennanti - fisher (C)
Rana muscosa - mountain yellow-legged frog (C)
Rorippa subumbellata - Tahoe yellow-cress (C)

Species with Critical Habitat Proposed or Designated in this National Forest

None

Key:

(E) *Endangered* - Listed as being in danger of extinction.
(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the [National Oceanic & Atmospheric Administration Fisheries Service](http://www.nmfs.gov). Consult with them directly about these species.
Critical Habitat - Area essential to the conservation of a species.
(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
(C) *Candidate* - Candidate to become a proposed species.
(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
(X) *Critical Habitat* designated for this species

U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office
Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the
Tahoe National Forest
Database last updated: September 18, 2011
Report Date: December 23, 2013

Listed Species

Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)
Hypomesus transpacificus - delta smelt (T)
Oncorhynchus (=Salmo) clarki henshawi - Lahontan cutthroat trout (T)
Oncorhynchus mykiss - Central Valley steelhead (T)
Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)
Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)
Rana draytonii - California red-legged frog (T)
Rana sierrae - Mountain yellow legged frog (PX)
Senecio layneae - Layne's butterweed (=ragwort) (T)

Candidate Species

Ivesia webberi - Webber's ivesia (C)
Martes pennanti - fisher (C)
Rana muscosa - mountain yellow-legged frog (C)
Rorippa subumbellata - Tahoe yellow-cress (C)

Species with Critical Habitat Proposed or Designated in this National Forest

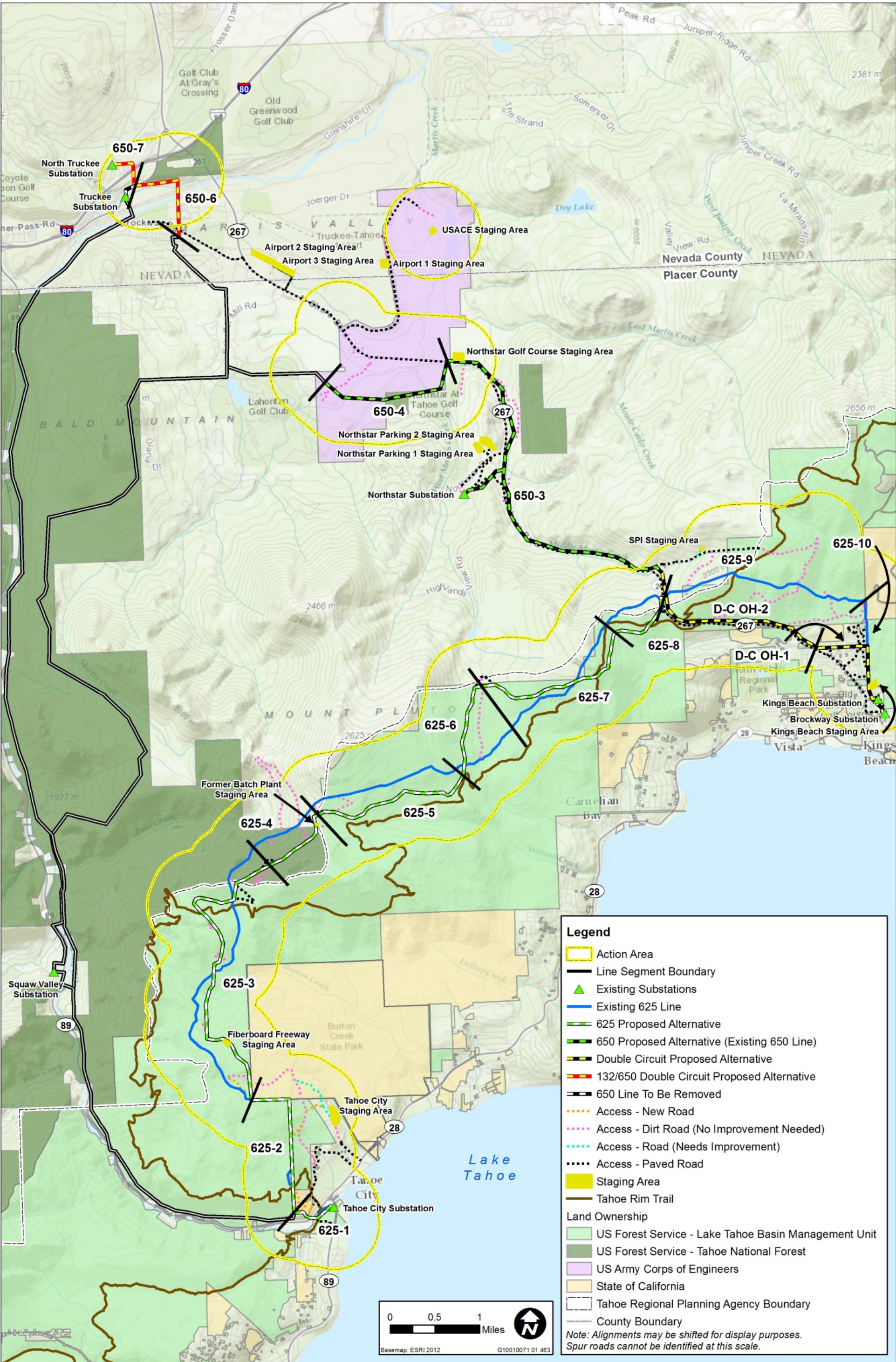
California red-legged frog (X)

Key:

(E) *Endangered* - Listed as being in danger of extinction.
(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the [National Oceanic & Atmospheric Administration Fisheries Service](#). Consult with them directly about these species.
Critical Habitat - Area essential to the conservation of a species.
(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
(C) *Candidate* - Candidate to become a proposed species.
(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
(X) *Critical Habitat* designated for this species

APPENDIX B – EIS/EIS/EIR BIOLOGICAL EVALUATION – EXHIBIT 2

DRAFT



APPENDIX C – CUMULATIVE PROJECT LIST

DRAFT

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

Appendix C Cumulative Project List				
Project Name	Location	Description	Residential Units and/or Non-Residential Area	Project Status
Coldstream Specific Plan	Teichert property, Coldstream Road, Town of Truckee	Planned Community	345 residential units; 70,000 square feet of retail / commercial	Application complete. Draft EIR review period ended August 26, 2011
Canyon Springs	Martis Peak Road/Edinburgh Drive, Town of Truckee	Subdivision	177 single-family parcels; 8 affordable housing parcels; 171 acres of open space	Application complete. Public NOP scoping period ended June 2, 2011
Pollard Station	West of Pine Cone Road, at Hilltop, Town of Truckee	Age-restricted senior neighborhood: lodge and condominiums (8.05-acres in the Hilltop Master Plan area)	120 residential units	Application complete. Public review period for IS/MND ended August 5, 2011. Application currently on hold.
Gregory Creek Subdivision	Western portion of the Town of Truckee (32.1 acre site)	Single-family, duplex, and attached multi-family residential	31 residential units	Application complete. Final EIR in preparation.
Joerger Ranch Specific Plan (PC-3)	Intersection of SR 267, Brockway Road, and Soaring Way, Town of Truckee	Mixed use planned community	--	Applicants placed project on hold in 2008.
Truckee-Donner Recreation and Parks District Cultural Arts Center	Town of Truckee	Performing arts theatre and classroom (conversion of existing community center)	252-seat theater	Application submitted and under review.
Hilltop Master Plan	Town of Truckee on the south side of Brockway Road between Palisades Drive and South River Street	Commercial, lodging, residential, park, and open space	--	Master Plan was approved in 2008, development of individual parcels is under review.
Hirschfield Cindercone Mine	Town of Truckee northwest of the Glenshire Subdivision (Old Hwy 40 and Archery View)	Mining and reclamation permit (ten-year permit review)	--	Application submitted and under review.
Northstar-At-Tahoe Alpine Coaster	Martis Valley Community Plan Area, Truckee/Martis Valley Area	All-weather toboggan ride	--	Application submitted; project currently on hold.
Northstar-At-Tahoe Ski Trail Widening	Martis Valley Community Plan Area, Truckee/Martis Valley Area	Widen existing ski trails over 2,252 acres and snowmaking hydrant relocation.	--	Application complete. Public review period for IS/MND public review ended 1/12/11.
Northstar Mountain Lodge	Placer County - Truckee/Martis Valley Areas	One-story building north for restaurant and cafeteria services, retail, lounge.	15,750 square feet	Operational
Northstar Overall Mountain Master Plan	Martis Valley Community Plan Area, Truckee/Martis Valley Areas	Mountain Master Plan for the existing ski resort area. Various additions and changes to ski lifts, snowmaking, trails, bridges, access, ropes course, bike trails, and campsites.	--	Application complete. EIR under preparation.

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

Appendix C Cumulative Project List				
Project Name	Location	Description	Residential Units and/or Non-Residential Area	Project Status
Northstar Highlands Phase II Modifications	Truckee/Martis Valley Areas	Modify the original subdivision approval, reducing the development area and number of housing units (from 576 units to 446 units).	50 townhomes, 10 single family lots, 386 condominiums, up to 147 commercial condominiums, 4,000 square feet of commercial space	Application has been submitted to Placer County.
Squaw Valley Village Improvement Projects	Olympic Valley/North Lake Tahoe	Further development of the existing village to provide additional lodging and resort amenities.	Up to 1,295 resort residential units and 454,000 square feet of commercial	Application submitted. Draft EIR in preparation.
Squaw Valley Red Dog Lift Replacement	Olympic Valley/North Lake Tahoe	Replace the existing triple chairlift with a high-speed, detachable, 6-place chairlift.	--	Application submitted to Placer County.
Squaw Valley Timberline Twister	Olympic Valley/North Lake Tahoe	Construction of an alpine coaster attraction in a triangular stand of trees between the Lower Far East and lower Red Dog chairlift alignments.	--	Application submitted to Placer County.
Alpine Meadows Hot Wheels Lift Replacement	Alpine Meadows Ski Resort/North Lake Tahoe	Replace the existing triple chairlift with a detachable quad chairlift	--	Environmental review complete; project approved.
Cabin Creek Biomass Facility Project	Adjacent to Eastern Regional Material Recovery Facility and Transfer Station off SR 89, about 2 miles from Truckee.	Develop a two megawatt (MW) wood-to-energy facility that would utilize a gasification technology. Would support fuels reduction and thinning activities within and outside of the Tahoe Basin. Fueled by forest-sourced material only.	--	Application complete. Draft EIR review period ended September 10, 2012
Truckee River Corridor Access Plan	Truckee River Corridor/North Lake Tahoe	Continuous and coordinated system of preserved lands and habitat, with a connecting corridor of walking, in-line skating, equestrian, bicycle trails, and angling and boating access from Lake Tahoe to the Martis Valley.	--	Application submitted; design and environmental review underway.
SR 89/Fanny Bridge Improvement Project	Truckee River Corridor/North Lake Tahoe	Construction of a new bridge over the Truckee River, repair or replacement of Fanny Bridge, and various other improvements.	--	Application complete. NOP scoping period ended January 30, 2012. EIR/EIS/EA under preparation.

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

Appendix C Cumulative Project List				
Project Name	Location	Description	Residential Units and/or Non-Residential Area	Project Status
Homewood Mountain Resort Master Plan	HMR Ski Area Master Plan, Truckee River Corridor/North Lake Tahoe	Redevelop mixed-uses at the North Base area, residential uses at the South Base area, a lodge at the Mid-Mountain Base area, and ski area.	--	EIR/EIS certified and project approved in December 2012.
Carnelian Fuels Reduction and Healthy Forest Restoration Project (LTBMU Project)	Adjacent to Cedar Flat, Carnelian Bay, Tahoe Vista, and Kings Beach	Mechanical, hand, and prescribed burning treatments to reduce surface fuels and conifer density.	--	Decision expected in Spring 2012
Incline Fuels Reduction and Healthy Forest Restoration Project	Adjacent to Incline Village, Nevada	Mechanical, hand, and prescribed burning treatments. Tree thinning, biomass removal, prescribed burning, chipping, and mastication.	--	Decision expected April 2012
Domus Development Kings Beach Housing Project	Five sites in Kings Beach	Multi-occupant affordable housing units, commercial, and environmental improvement components	79 affordable workforce housing units and 8,175 square feet of commercial	Approved; under construction.
Boulder Bay Project	Crystal Bay, Nevada/North Stateline Community Plan	Redevelopment of Tahoe Biltmore on North Shore. Project includes a four-story, 275-room hotel with a 10,000 square-foot casino.	--	Environmental review complete; project approved. Construction pending.
Kings Beach Commercial Core Improvement Project	Kings Beach	Project involves reducing SR 28 in Kings Beach from a 4-lane highway to a 3-lane highway with a roundabout. Project is a SR 28 beautification project, and includes off-highway and water quality improvement components.	--	Environmental review complete; project approved. Construction of off-highway and water quality improvements and neighborhood traffic calming measures underway.
Tahoe City Transit Center	Truckee River Corridor/North Lake Tahoe (on 64-acre parcel adjacent to the Tahoe City Substation)	North shore transit center and parking facility.	--	Environmental review complete; project approved. Construction underway.
Tahoe City Vision Plan (leading to Area Plan)	Tahoe City (contiguous with Tahoe City Community Plan boundaries)	Visioning effort to guide Area Plan development.	--	Planning effort. Vision planning underway.
Martis Valley Trail	Town of Truckee to Brockway Summit	The proposed project is a paved, multi-use recreational trail extending from the southern limits of the Town of Truckee at the	--	FEIR is complete.

Biological Assessment
California Pacific Electric Company 625 and 650 Electrical Line Upgrade Project

Appendix C Cumulative Project List				
Project Name	Location	Description	Residential Units and/or Non-Residential Area	Project Status
		Nevada/Placer County line eastward to the ridgeline defining the Lake Tahoe Basin.		
Dollar Creek Shared-Use Trail	North Lake Tahoe	2.5 mile long shared-use trail extending between the existing trail at Dollar Hill and Cedar Flats neighborhood on the North Shore.	--	Environmental review underway
Lake Tahoe Passenger Ferry	Cross-lake ferry service with a South Shore Ferry Terminal at the Ski Run Marina in South Lake Tahoe and a North Shore Ferry Terminal at the Grove Street Pier west of the Tahoe City Marina	Year-round waterborne transit between north and south shores of Lake Tahoe.	--	NOP/NOI released in November 2013. Draft EIS/EIS/EIR in preparation.
Caltrans' Highway Improvement Projects	SR 267	Planned Improvements (those included in a long-term plan that can be funded) and Programmed Improvements (those included in a near-term programming document that identifies funding amounts by year) in the 2012 Transportation Corridor Concept Report for SR 267 include: widening to four lanes between the Placer County line and Northstar Drive, rehabilitating pavement and widening shoulders between Placer County line and Brockway Summit, plant establishment and protection from Northstar Drive to SR 28, class II bike lane from Brockway Summit to SR 28	--	Anticipated construction between 2014 and 2025
Sources: USDA Forest Service LTBMU, Town of Truckee, UC Davis				