CalPeco 625 and 650 Electrical Line Upgrade Project

Biological Evaluation for Aquatic and Terrestrial Species

PREPARED FOR:
United States Department of Agriculture, Forest Service
Lake Tahoe Basin Management Unit
35 College Drive
South Lake Tahoe, CA 96150

and

United States Department of Agriculture, Forest Service
Tahoe National Forest
10811 Stockrest Springs Road
Truckee, CA 96161

September 2014

CalPeco 625 and 650 Electrical Line Upgrade Project

Biological Evaluation
Aquatic and Terrestrial Species

PREPARED FOR:

United States Department of Agriculture, Forest Service
Lake Tahoe Basin Management Unit
35 College Drive
South Lake Tahoe, CA 96150

and

United States Department of Agriculture, Forest Service
Tahoe National Forest
10811 Stockrest Springs Road
Truckee CA, 96161

PREPARED BY:

Ascent Environmental
128 Market Street, Suite 3E
Stateline, NV 89449-5022

and

455 Capitol Mall, Suite 205
Sacramento, CA 95814

September 2014

Biological Evaluation
Aquatic and Terrestrial Species

CALPECO 625 AND 650 ELECTRICAL LINE UPGRADE PROJECT

USDA Forest Service – Lake Tahoe Basin Management Unit

and

Tahoe National Forest

PREPARED BY: _____ DATE: _____
Wildlife/Fish Biologist, Ascent Environmental

APPROVED BY: _____ DATE: _____
Journey Level Fish/Wildlife Biologist, LTBMU

APPROVED BY: _____ DATE: _____
Journey Level Fish/Wildlife Biologist, Tahoe National Forest

APPROVED BY: _____ DATE: _____
Journey Level Fisheries Biologist, Tahoe National Forest

SUBMITTED BY:
Ascent Environmental
P.O. Box 5022
128 Market Street, Suite 3E
Stateline, NV 89449-5022

and

455 Capitol Mall, Suite 205
Sacramento, CA 95814

September 2014

10010071.01

TABLE OF CONTENTS

Section Page

Appendices

Exhibits

Tables

ACRONYMS AND ABBREVIATIONS

APM	Applicant Proposed Measure
BE	biological evaluation
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CPUS	California Public Utility Commission
dbh	diameter at breast height
ESA	federal Endangered Species Act of 1973 as amended
FSM	U.S. Department of Agriculture Forest Service Manual
FSM/H 2670	Forest Service Manual and Handbooks
FSS	Forest Service Sensitive
GIS	Geographic Information Systems
HRCA	Home Range Core Area
kV	kilovolt
LRMP	Land and Resource Management Plan
LTBMU	Lake Tahoe Basin Management Unit
MVA	Megavolt-amperes
NEPA	National Environmental Policy Act
NFMA	National Forest Management Act
NFS	National Forest System
PAC	Protected Activity Center
PEA	Proponent's Environmental Assessment
ROD	Record of Decision
ROW	Right-of-way
SNFPA	Sierra Nevada Forest Plan Amendment
SR	State Route
TNF	Tahoe National Forest
USACE	U.S. Army Corps of Engineers
U.S.C.	U.S. Code
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service

This page intentionally left blank.

1 INTRODUCTION

1.1 PROJECT BACKGROUND

On January 1, 2011, California Pacific Electric Company (CalPeco) purchased the Sierra Pacific Power Company's California electric service territory. The physical boundaries of the service territory include the California portion of the Lake Tahoe Basin and extend north to Portola and Loyalton and south to Walker in Mono County. The service territory includes the North Lake Tahoe Transmission System, which is a loop that runs from Truckee to Squaw Valley to Tahoe City to Kings Beach and then back to Truckee. The following lines comprise this loop:

- one 60 kV transmission line, the 609 Line, and one 120 kV transmission line, the 132 Line, from Truckee to Squaw Valley;
- one 60 kV transmission line from Tahoe City to Squaw Valley, the 629 Line;
- one 60 kV transmission line from Kings Beach to Tahoe City, the 625 Line; and
- one 60 kV transmission line from Truckee to Kings Beach, the 650 Line.

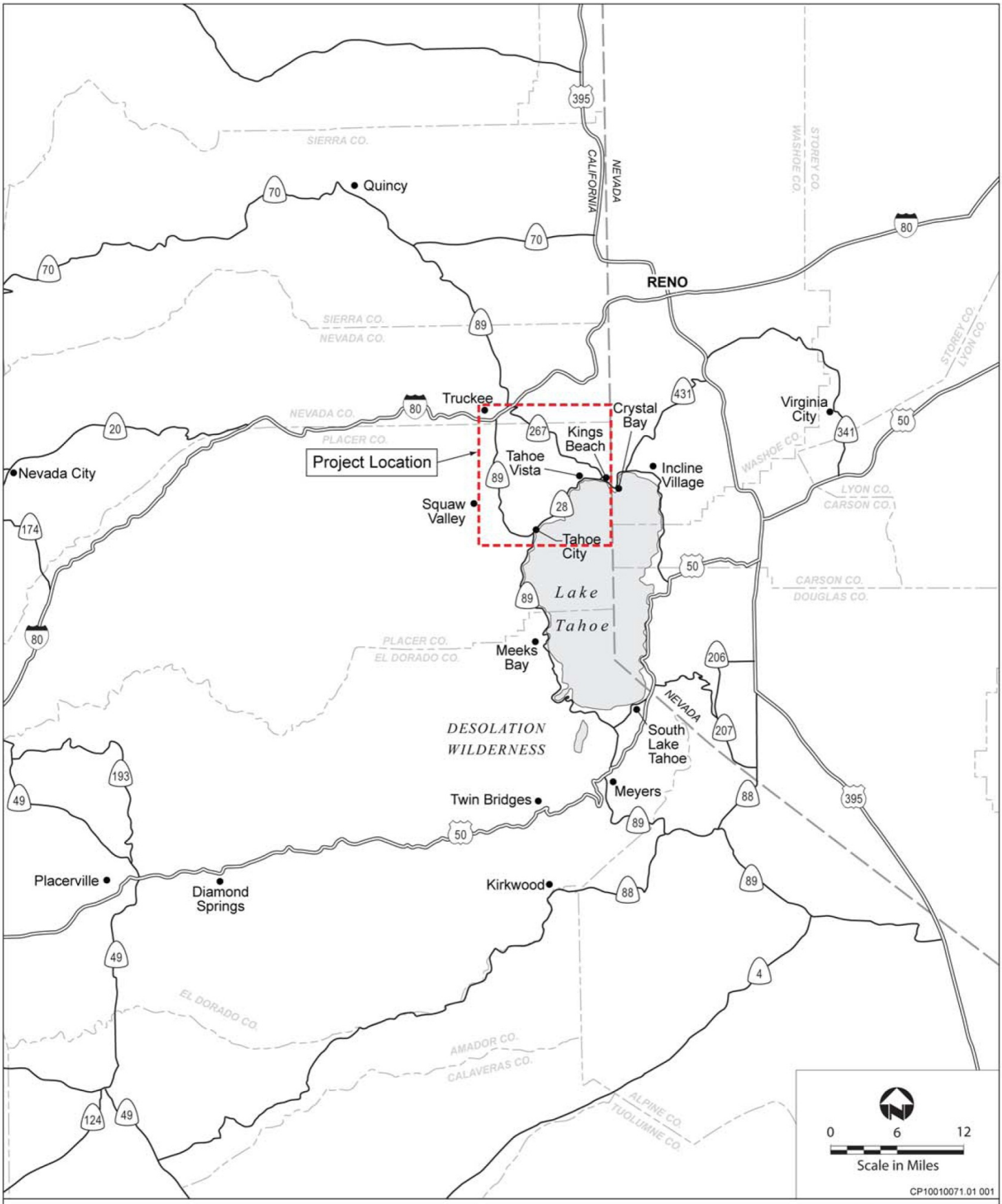
The proposed CalPeco 625 and 650 Electrical Line Upgrade Project, which is the subject of this Biological Evaluation (BE), consists primarily of an upgrade of the 625 and 650 Electrical Lines and associated substations from an existing 60 kilovolt (kV) capacity to a 120 kV capacity to allow the entire transmission loop to operate at 120 kV. The electrical lines and associated infrastructure are owned by CalPeco, the project proponent.

The proposed project is located in northeastern Placer County and southeastern Nevada County, California (Exhibit 1). The project components are predominantly located on lands managed by the U.S. Forest Service (USFS); these lands are located in the Tahoe National Forest (TNF) and in the Lake Tahoe Basin Management Unit (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 U.S. Army Corps of Engineers (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 National Forest System (NFS) lands traversed by the project are provided in Exhibit 2. Each line has been divided into numbered segments, which are also depicted in Exhibit 2.

1.1.1 PURPOSE AND NEED

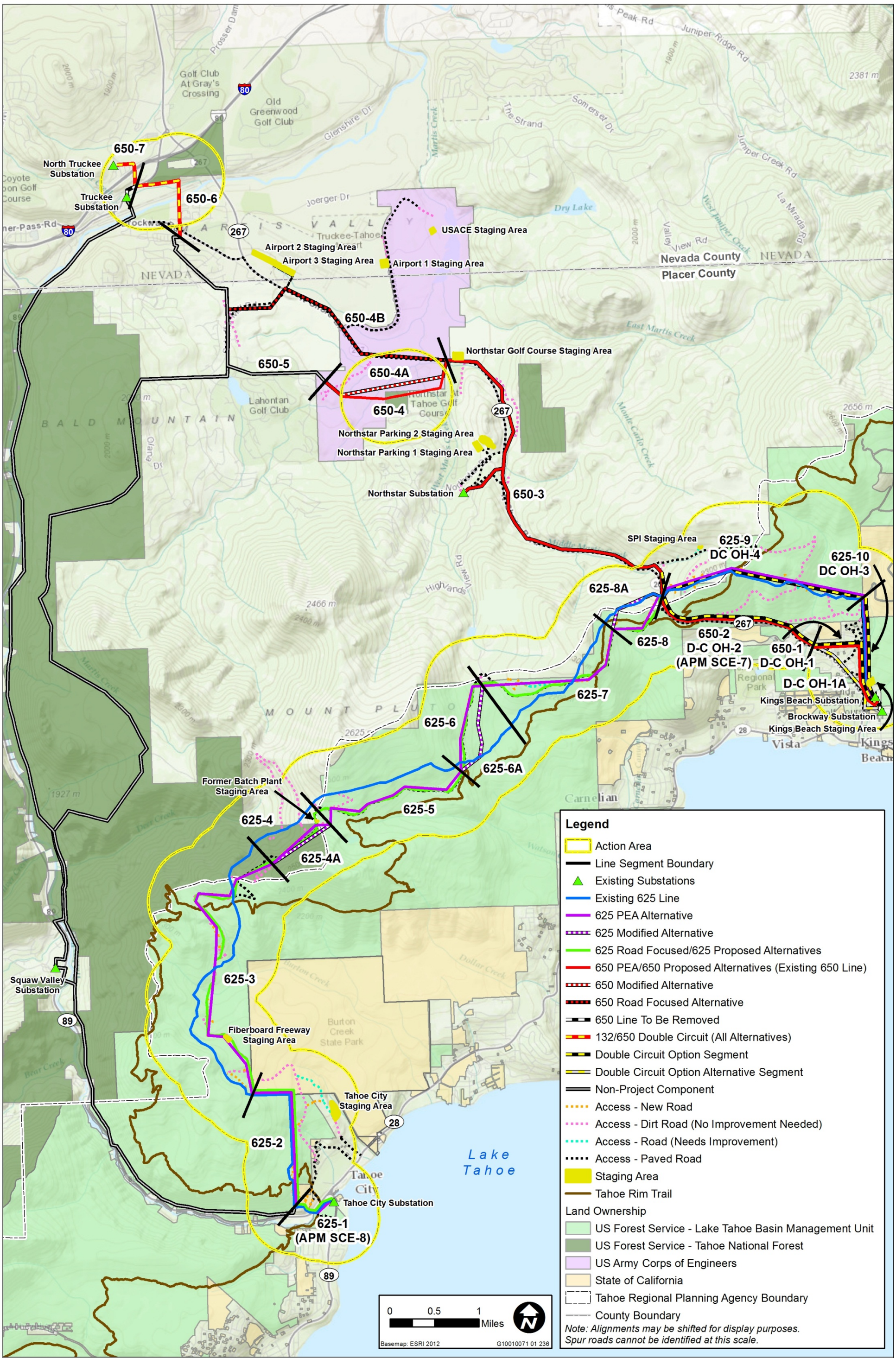
The North Lake Tahoe Transmission System must be able to supply peak loads at adequate voltage levels without overloading the system components. Although the system will not incur peak load levels at all times, it must be capable of meeting this maximum demand when it does occur. Industry-accepted criteria and regulatory standards also require the system to supply peak loads with any one component of the system out of service, termed single-contingency reliability, as described above.

The system can currently only provide single-contingency reliability with use of the Kings Beach Diesel Generation Station. However, there are regulatory limitations on the annual hours of operation for the generation station, which could be exceeded if the station is the only mechanism to respond to both single-contingency outages and any multiple-contingency outages.



Source: Adapted by Ascent Environmental In 2012

Exhibit 1 Project Vicinity Map



Source: Data received from TriSage 2012; Adapted by Ascent Environmental in 2014

Exhibit 2

Project Overview and Action Area Map

The current system is subject to regular outages, with the most common/probable mechanisms being high winds blowing down power poles, trees falling onto the power lines, snow loading causing line failure, and wildfire.

Currently, the 625 Line experiences the most outages in the North Lake Tahoe Transmission System, with the primary causes being snow loading and downed trees. The 625 Line provides a particular challenge due to its remote location and lack of road access. Inspections and maintenance must often be deferred to the winter months because trucks cannot reach much of the alignment and over-snow vehicles must be used for access. The lack of vehicle access also slows repair response time, resulting in longer outages than if the line were in a more accessible location.

The 625 and 650 Electrical Line Upgrade Project is designed to fulfill five primary purposes/objectives.

1. Provide normal capacity for current and projected loads.
2. Provide reliable capacity to assure adequate service to all customers during single-contingency outages.
3. Reduce dependence on the Kings Beach Diesel Generation Station.
4. Reduce the risk of fire hazards and outage durations associated with wooden poles and encroaching vegetation.
5. Provide more reliable access to the 625 Line for operation and maintenance activities.

Capacity and reliability would be achieved by upgrading the 625 and 650 Lines and associated facilities (e.g., substations) from their existing 60 kV capacity to 120 kV capacity. Increased resiliency to outages and fire hazards would be achieved by replacing existing wooden poles with the proposed steel poles, which are stronger and more resistant to wildfire. Increased vehicle access to the 625 Line for inspection, maintenance, and repairs would be achieved by re-routing the line to a less remote location with existing access roads, and creating new overland travel ways where needed. Improving truck access to the 625 Line for inspections and maintenance would also increase the lines resilience to outages.

1.2 PURPOSE OF BIOLOGICAL EVALUATION

This BE analyzes the potential effects of the proposed project on species designated as sensitive by the Regional Forester in USFS Region 5. The BE provides a process through which potential effects of a proposed action (i.e., proposed project) on species designated as sensitive by the Regional Forester are evaluated and considered during the planning and review process. This document follows standards established in the U.S. Department of Agriculture Forest Service Manual (FSM 2672.42).

The objectives of this BE are to:

- describe the proposed action, including measures designed to minimize or avoid potential adverse effects on species addressed in this BE (see Species Considered in this Document below);
- summarize existing resource and species occurrence information for the action area;
- analyze the direct, indirect, and cumulative effects of the proposed action on species addressed in this BE; and
- determine whether the proposed action is likely to result in a trend toward federal listing or loss of viability of any sensitive species.

Most of the format and content of this document follow a report template and guidance provided by LTBMU, but also includes input from TNF staff. The report also includes standardized text and references developed and provided by LTBMU and TNF for their respective forests where appropriate.

The project is also being analyzed in the *CalPeco 625 and 650 Electrical Line Upgrade Project Environmental Impact Statement (TRPA)/Environmental Impact Statement (NEPA)/Environmental Impact Report (CEQA)* (EIS/EIS/EIR) (Ascent Environmental 2013).

A separate biological assessment (BA) has been prepared for the project. The BA analyzes the potential effects of the proposed project on species listed as endangered or threatened, or proposed for listing, under the federal Endangered Species Act of 1973 as amended (ESA) and under the jurisdiction of the U.S. Fish and Wildlife Service (USFWS). Threatened and endangered species are managed under the authority of the ESA and the National Forest Management Act (PL 94-588). The ESA requires federal agencies to ensure that all actions are not likely to jeopardize the continued existence of any threatened or endangered species. The BA provides a process through which species listed as endangered or threatened, proposed for listing, or candidates for listing receive full consideration in the planning and consultation process. Because they are addressed in the BA, species listed, proposed for listing, or candidates for listing under the ESA are not addressed in this BE.

1.3 SPECIES CONSIDERED IN THIS DOCUMENT

1.3.1 SELECTION CRITERIA

The following criteria were used to select the species evaluated in this BE.

- **Regulatory or management status.** Species addressed in this BE are designated as sensitive by the Regional Forester.
- **Potential for the proposed action to affect the species.** Species addressed in this BE could be affected by the proposed action. This preliminary determination was based primarily on whether a species that meets the status criterion (described above) is known to occur or potentially occurs in the action area. The potential for occurrence of a species was evaluated based on the known regional and local distribution of the species, occurrence records, and the known or potential presence of suitable habitat in the action area.

1.3.2 DATA REVIEW

Several existing sources were reviewed to identify species that meet the criteria described above. These sources included:

- the Regional Forester's list of sensitive species (updated June 30, 2013);
- a records search for the Martis Peak, Kings Beach, Tahoe City, and Truckee U.S.G.S 7 1/2 Minute quadrangles and adjacent quadrangles in the California Natural Diversity Database (CNDDB 2012);
- LTBMU and TNF's survey history and results for the action area; and
- GIS and other data on known locations of sensitive resources provided by LTBMU and TNF.

1.3.3 FIELD SURVEYS

To evaluate and describe the presence or absence and quality of habitats and other biological resources in the action area, map land cover types, identify and determine the suitability of habitat for fish and wildlife species addressed in this BE, and identify potential effects of project implementation on those resources, project biologists reviewed existing data sources providing information for the project area and conducted reconnaissance

surveys of the site. The reconnaissance surveys were conducted on June 19 and 20, 2012 and July 11, 12, and 13 by botanist Tammie Beyerl and wildlife biologists Heather Valentine and Steve Henderson, and July 11 through July 15, 2012 by botanist Ken McDonald and ecologist Tom Herzog. The wildlife biologists also conducted surveys on August 8 and 29, 2012. A reconnaissance-level habitat assessment of the proposed alignment alternatives, proposed access ways, access roads, and other project elements was conducted. The focused study area is a subset of the larger action area (defined below) and 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. The project study area was defined early in the EIS/EIS/EIR planning process for purposes of focusing field surveys and mapping in locations that could be physically affected by project implementation.

Classification and descriptions of vegetation communities and habitat types generally follow California Wildlife Habitat Relationships (CDFG 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).

1.4 SPECIES EVALUATED

Seven Forest Service sensitive species could occur and are further evaluated in this BE. These species and their regulatory status are listed in Table 1.

Table 1 Species Evaluated in the Biological Evaluation

Species	Regulatory Status[1]
Birds	
Bald eagle (*Haliaeetus leucocephalus*)	FSS-LTBMU/TNF
California spotted owl (*Strix occidentalis occidentalis*)	FSS-LTBMU/TNF
Northern goshawk (*Accipiter gentilis*)	FSS-LTBMU/TNF
Mammals	
American marten (*Martes caurina*)	FSS-LTBMU/TNF
Pallid bat (*Antrozous pallidus*)	FSS-LTBMU/TNF
Invertebrates	
Western bumble bee (*Bombus occidentalis*)	FSS-LTBMU/TNF
Great Basin rams-horn (*Helisoma newberryi newberryi*)	FSS-LTBMU/TNF

[1] FT–Listed as threatened under the federal Endangered Species Act
FSS–Designated as sensitive by USFS: LTBMU–Lake Tahoe Basin Management Unit, TNF–Tahoe National Forest
Source: Ascent Environmental 2012

1.5 SPECIES CONSIDERED BUT NOT FURTHER EVALUATED

Thirteen additional species were initially considered for analysis in this BE. However, these species were not evaluated further because no suitable habitat occurs in the action area, the action area is outside of the known range of these species, or these species are otherwise not expected to occur in the action area due to

disturbance levels, lack of occurrence records, or other factors. These species, their regulatory status, and a brief rationale for eliminating them from further evaluation are summarized in Table 2.

Table 2 Species Considered but not Further Evaluated

Species	Regulatory Status[1]	Rationale for Elimination
Birds		
Great gray owl (*Strix nebulosa*)	FSS-LTBMU/TNF	Habitat with some biophysical attributes considered suitable for great gray owl (e.g., meadows bordered by large trees) is present within the action area. However, the historic or present occurrence of great gray owl has not been confirmed in the Tahoe Basin or elsewhere near the action area. In addition, the overall level of human disturbance on NFS lands within and adjacent to the action area is relatively high.
Willow flycatcher (*Empidonax traillii*)	FSS-LTBMU/TNF	Limited riparian habitat is present on the NFS lands within the action area and there are no riparian areas that contain the necessary hydrology and floodplain characteristics to provide suitable breeding habitat for willow flycatchers.
Greater sandhill crane (*Grus Canadensis tabida*)	FSS-TNF	Suitable habitat is not present on the NFS lands within the action area.
Mammals		
Townsend's big-eared bat (*Corynorhinus townsendii*)	FSS-LTBMU/TNF	Suitable habitat is not present in the action area. Until 2007, no occurrences reported within the Tahoe Basin (Schlesinger and Romsos 2000). However, this species was detected several miles from the action area in Blackwood Canyon and Cookhouse Meadow in 2007.
California wolverine (*Gulo gulo luteus*)	FSS-LTBMU-TNF	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.
Pacific fisher (*Martes pennanti*)	C; FSS-TNF	No suitable habitat present. Species is considered extirpated from the Lake Tahoe Basin and portions of the Tahoe National Forest near the action area.
Fringed Myotis (*Myotis thysanodes*)	FSS-LTBMU/TNF	Species has been detected in the Tahoe Basin; however, no known occurrences in or near the action area, and optimal habitat is not present.
Amphibians		
Foothill yellow-legged frog (*Rana boylii*)	FSS-TNF	The action area is outside the known range for the species.
Reptiles		
Western pond turtle (*Emys marmorata*)	FSS-TNF	Not known to occur on the Truckee Ranger District of the Tahoe National Forest (USDA 2010).
Invertebrates		
California floater (*Andonta californiensis*)	FSS-TNF	No suitable aquatic habitat present within the action area.
Black juga (snail) (*Juga nigrina*)	FSS-TNF	No known occurrences in or near the project area. Project activities would not affect potentially suitable habitat for this species.

Table 2 Species Considered but not Further Evaluated		
Species	**Regulatory Status[1]**	**Rationale for Elimination**
Fish		
Lahontan Lake tui chub (*Gila bicolor pectinifer*)	FSS-LTBMU/TNF	No suitable aquatic habitat is present. Found in Lake Tahoe, spawns in shallow near-shore environments with aquatic vegetation.
Hardhead (*Mylopharodon conocephalus*)	FSS-TNF	Outside of the known range for this species. Not known to occur on the Truckee Ranger District of the Tahoe National Forest.

[1] FSS–Designated as sensitive by USFS
LTBMU- Designated FSS for the Lake Tahoe Basin Management Unit
TNF- Designated FSS for the Tahoe National Forest
C–Candidate for listing under the federal Endangered Species Act
FPT–Proposed for listing as Threatened under the Federal Endangered Species Act

1.6 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 (USFS 1998);
- 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.

Forest Service management direction for threatened, endangered, and sensitive species is summarized below.

1.6.1 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.

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.

1.6.2 SENSITIVE SPECIES (FSM 2670.32)

The following summarizes the Forest Service's general management direction for species designated as sensitive by the Regional Forester.

1. Assist States in achieving their goals for conservation of endemic species.

2. As part of the NEPA process, review programs and activities, through a biological evaluation, to determine their potential effect on sensitive species.

3. Avoid or minimize effects to species whose viability has been identified as a concern.

4. If effects cannot be avoided, analyze the significance of potential adverse effects on the population or its habitat in the area of concern and on the species as a whole.

5. Establish management objectives in cooperation with the States when a project on National Forest System lands may have a significant effect on sensitive species population numbers or distribution. Establish objectives for Federal candidate species, in cooperation with the USFWS and the States.

2 DESCRIPTION OF ACTION AREA AND PROPOSED ACTION

This section describes the project location and action area, proposed action, and measures that would be implemented to avoid or minimize adverse effects on species addressed in this BE.

2.1 PROJECT LOCATION

The proposed CalPeco 625 and 650 Electrical Line Upgrade Project is located in northeastern Placer County and southeastern Nevada County, California (Exhibit 1). 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 lands traversed by the project are provided in Exhibit 2. Each line has been divided into numbered segments, which are also depicted in Exhibit 2. 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).

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).

2.1.1 625 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 (Exhibit 2). Each of the 625 Line action alternatives would generally parallel the Fiberboard Freeway, but the Road-Focused Alternative and Proposed Alternative would follow the Fiberboard Freeway more precisely, whereas the PEA Alternative 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 State Route [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 Proposed Alternatives the 625 Line would be double-circuited with 650 Line along SR 267.

2.1.2 650 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 Proposed 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 (Exhibit 2) and this segment would be the same under each alternative.

2.1.3 STAGING AREAS

Three staging areas proposed for use during construction are located on LTBMU land (Kings Beach, Former Batch Plant, and Fiberboard Freeway). There are no staging areas proposed on TNF land.

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 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 accessed from Mount Watson Road. This approximately 120-foot by 80-foot (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 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.

2.2 ACTION AREA

As defined and described previously, the project study area was defined early in the EIS/EIS/EIR planning process for purposes of focusing field surveys and resource mapping in locations that could be physically affected by project implementation. The study area used for focused resource surveys and mapping is a subset of the larger action area considered in this BE. 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 625 and 650 Electrical Line Upgrade Project for the purposes of this BE 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-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 Exhibit 2. 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.

2.2.1 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 A, which includes a series of several vegetation maps, shows the location and extent of vegetation communities and habitat types in the project survey area. For field survey and resource mapping purposes, the project survey 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 survey area encompassed the area within 50 feet of the road centerline. Table 3 provides a brief description of each habitat type mapped in the survey 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).

Table 3 Vegetation Community/Habitat Types Mapped in the Survey Area for Each Action Alternative and the Existing 625 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 alternative 625 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 and 650-2 on the 650 Line.
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% 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 and between Brockway Summit and Tahoe City along the Fiberboard Freeway. 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 ROW beneath the existing 625 and 650 Lines where regular vegetation maintenance occurs is dominated by montane chaparral species.

Table 3 Vegetation Community/Habitat Types Mapped in the Survey Area for Each Action Alternative and the Existing 625 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.

2.3 PROPOSED ACTION

The proposed action 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 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, 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 (Exhibit 2). 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) reroutes the 625 Line to more closely follow the Fiberboard Freeway and other area roadways and places more of the 650 Line and the 625 Line on a double-circuit along 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 Proposed 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 Proposed 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.

Alternatives 1, 3, and 4 include two Applicant Proposed Measures (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). The following paragraphs describe components of the action alternatives that would occur on NFS lands.

2.3.1 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 and align 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. With incorporation of APM SCE-8, Alternatives 1, 3, and 4 would be setback into the 64-Acre Recreation Site in Tahoe City. Setting the line back from the Truckee River corridor would shield views of the power line from SR 89 and the Truckee River.

2.3.2 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).

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.

2.3.3 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 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 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.

2.3.4 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 (Proposed 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.

2.3.5 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.

2.3.6 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.

2.3.7 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.

2.3.8 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.”[1] 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.

[1] 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. Calculations of required access way mileage for each alternative are based on preliminary engineering.

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-feet 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-feet 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 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.

Miles of existing USFS system roads to be used during project construction and operation that both do and do not need improvements and miles of proposed new access ways on NFS lands are summarized by Forest in Tables 4 and 5.

Table 4 Roads and Access Ways within the LTBMU

Number	Alternative 1: PEA (miles)		Alternative 2: Modified (miles)		Alternative 3: Road Focused (miles)		Alternative 3A: Road Focused Double Circuit Option Segment (miles)		Alternative 4: Proposed (miles)	
	Total	Outside of Alignment ROW	Total	Outside of Alignment ROW	Total	Outside of Alignment ROW	Total	Outside of Alignment ROW	Total	Outside of Alignment ROW
Miles of existing USFS system roads to be used (no improvement)	16.5	16.0	16.5	16.1	16.5	13.8	16.5	13.8	16.5	13.8
Miles of Existing USFS system roads to be used (improved)	0.5	0.4	0.5	0.4	-	-	-	-	-	-
Miles of new access ways on USFS Land	15.0	6.6	12.1	5.5	4.3	1.2	3.9	1.2	4.3	1.2
Total	**32.0**	**23.0**	**29.1**	**22.0**	**20.7**	**15.0**	**20.4**	**15.0**	**20.7**	**15.0**

Table 5 Roads and Access Ways within the TNF

Number	Alternative 1: PEA (miles)		Alternative 2: Modified (miles)		Alternative 3: Road Focused (miles)		Alternative 3A: Road Focused Double Circuit Option Segment (miles)		Alternative 4: Proposed (miles)	
	Total	Outside of Alignment ROW	Total	Outside of Alignment ROW	Total	Outside of Alignment ROW	Total	Outside of Alignment ROW	Total	Outside of Alignment ROW
Miles of existing USFS system roads to be used (no improvement)	2.5	2.4	2.5	2.4	2.5	2.3	2.5	2.3	2.5	2.3
Miles of Existing USFS system roads to be used (improved)	-	-	-	-	-	-	-	-	-	-
Miles of new access ways on USFS Land	0.8	0.7	1.0	0.3	0.2	-	0.2	-	0.2	-
Total	**3.3**	**3.1**	**3.5**	**2.7**	**2.7**	**2.3**	**2.7**	**2.3**	**2.7**	**2.3**

2.3.9 STAGING AREAS

The Kings Beach Staging Area would be used for material storage and equipment staging and as a helicopter landing zone. To prepare this staging area, minor improvements to the existing access road—including the removal of approximately 10 trees—would be required and a temporary fence would be installed around its perimeter.

The Former Batch Plant Staging Area would be used to store and stage material and equipment, and may also be used for logging activities related to the project. Vegetation and brush present would be cleared and approximately 30 trees would be removed to prepare this staging area for use.

The Fiberboard Freeway Staging Area would be used to store and stage material and equipment, and for logging operations related to the project. Vegetation and brush would be cleared and approximately five trees would be removed to prepare this staging area for use.

2.3.10 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.

2.3.11 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 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.

3 SPECIES ACCOUNTS

3.1 BALD EAGLE

3.1.1 STATUS, DISTRIBUTION, AND HABITAT ASSOCIATIONS

Bald eagle is designated as a sensitive species by USFS and designated as a special-interest species by TRPA. Effective August 8, 2007, bald eagle was delisted from the ESA by USFWS because of population recovery throughout most of its range. Bald eagle is still federally protected by USFWS under the Bald and Golden Eagle Protection Act.

Bald eagles require large bodies of water or free-flowing streams with abundant fish and adjacent snags or other perches for hunting. They generally nest in undisturbed coniferous forests, usually within a mile of a lake or reservoir. Bald eagle habitat typically consists of several components, most significantly, proximity to large bodies of water and wetlands associated with lakes, mature coniferous stands with presence of dominant trees, and adequate protection from human disturbance.

3.1.2 POTENTIAL FOR OCCURRENCE IN THE ACTION AREA

Bald eagle does not nest in or near the action area. This species is known to nest in only two areas of the Tahoe Basin (Emerald Bay and Marlette Lake), which are several miles from the action area. Bald eagle is not expected to regularly use habitat in the action area; however, larger water bodies there may provide potential foraging habitat occasionally during winter and summer. Any bald eagle occurrence and habitat use in the action area would be most likely during winter, when the species is more abundant in the Tahoe region. Bald eagles forage and perch along the shores of Lake Tahoe, and could also use Watson Lake within the action area. One bald eagle perch site has been identified along the shore of Lake Tahoe near Tahoe City, just north of the action area near Segment 625-1. No perch sites have been identified around Watson Lake (Segment 625-5), though suitable habitat features are present.

3.2 CALIFORNIA SPOTTED OWL

3.2.1 STATUS, DISTRIBUTION, AND HABITAT ASSOCIATIONS

California spotted owl is designated as a sensitive species by USFS Region 5 for the LTBMU and the TNF, and a species of special concern by CDFW. Management direction for spotted owl on national forest lands in Region 5 is to manage PACs and Home Range Core Areas (HRCAs) as described in the Record of Decision for the Sierra Nevada Forest Plan Amendment. A California spotted owl PAC is an area 300 acres in size that includes the best available habitat around known or suspected nest stands in as compact a unit as possible (USDA Forest Service 2001, 2004); HRCAs are 1,000-acre land allocations of base habitat that include the 300-acre PAC. All LTBMU spotted owl PACs and HRCAs were remapped in 2008 to incorporate the most current detection, nest location, and land boundary information available. Further remapping was conducted in 2012 on the LTBMU for PACs affected by the South Shore Fuels Reduction and Healthy Forest Restoration project. However, none of these PACs are in the action area. The TNF refined existing and delineated new PACs and HRCAs according to direction in the Sierra Nevada Forest Plan Amendment (SNFPA) (USDA Forest Service 2001) during February 2003. This work is updated at least once a year to add new or revise boundaries of PACs and HRCAs.

California spotted owl's range includes the southern Cascades south of the Pit River in Shasta County, the entire Sierra Nevada Province of California (and extending into Nevada), all mountainous regions of the Southern California Province, and the central Coast Ranges at least as far north as Monterey County (Verner et al. 1992). The California spotted owl's range adjoins that of northern spotted owl (*Strix occidentalis caurina*) in Siskiyou, Shasta, and Modoc Counties. Known nest sites range in elevation from approximately 1,000 to 7,700 feet; approximately 86 percent occur between 3,000 and 7,000 feet. California spotted owls are distributed relatively continuously and uniformly throughout their range in the Sierra Nevada (Verner et al. 1992, Noon and McKelvey 1996); however, habitat fragmentation at finer scales may affect local distributions (Gutiérrez and Harrison 1996).

California spotted owl occurs in several forest vegetation types, including mixed conifer, ponderosa pine, red fir and montane hardwood. In the Sierra Nevada, approximately 80 percent of known spotted owl sites occur in mixed conifer forest; 10percent are in red fir; 7 percent are in ponderosa pine/hardwood forest, and 3 percent occur in foothill riparian/hardwood forest and eastside pine (USDA Forest Service 2001a). Nesting habitat is generally characterized by dense canopy closure (i.e., >70 percent) with medium to large trees and multi-storied stands (i.e., at least two canopy layers). Foraging habitat can include intermediate to late-successional forest with greater than 40% canopy cover (Verner et al. 1992).

Six major studies (see Verner et al. 1992) described habitat relationships of California spotted owl in the Sierra Nevada. In general, spotted owls preferentially used areas with at least 70 percent canopy cover, used habitat with 40 to 69 percent canopy cover in proportion to its availability (primarily for foraging), and spent disproportionately less time in areas with less than 40 percent canopy cover.

Spotted owls preferred stands with significantly greater canopy cover, total live tree basal area, basal area of hardwoods and conifers, and snag basal area for nesting and roosting (Verner et al. 1992, Gutierrez et al. 1995). In general, stands suitable for nesting and roosting have: 1) two or more canopy layers; 2) dominant and codominant trees in the canopy averaging at least 24 inches dbh; 3) at least 70 percent total canopy cover (including the hardwood component); 4) higher than average levels of very large, old trees; and 5) higher than average levels of snags and downed woody material. North et al. (2000) suggested that canopy cover, tree density, and foliage volume attributes at nest sites are consistent across different forest types; and these attributes could indicate basic nest-site conditions selected by owls. Owl nests were consistently located in sites with 75 percent canopy cover (North et al. 2000).

In general, stands suitable for spotted owl foraging have: 1) at least two canopy layers; 2) dominant and codominant trees in the canopy averaging at least 11 inches dbh; 3) at least 40 percent canopy cover in overstory trees (30 percent canopy cover in the red fir type); and 4) higher than average numbers of snags and downed woody material. Spotted owls foraged most frequently in intermediate to late-successional forest with greater than 40 percent canopy cover and a mixture of tree sizes, including some larger than 24 inches dbh. Studies on the Tahoe and Eldorado National Forests found that owls foraged in stands with large-diameter trees (defined as trees greater than 24 inches dbh in one study and trees 20 to 35 inches dbh in the other) significantly more than expected based on availability.

Although habitat characterized by canopy cover as low as 40 percent can be suitable for foraging, it appears to be only marginally so. Radio-tracking data from the Sierra National Forest showed that owls tended to forage more frequently in sites with greater than 50 percent canopy cover than predicted from their availability; stands with 40 to 50 percent canopy cover were used approximately in proportion to their availability (USDA Forest Service 2001a). Recent analysis by Hunsaker et al. (in press) found that productivity was positively correlated with the proportion of individual owl home ranges having greater than 50 percent canopy cover and negatively correlated with the proportion having less than 50 percent canopy cover. The authors concluded that the threshold between canopy cover values that positively and negatively correspond with spotted owl occurrence and productivity is near 50%.

3.2.2 POTENTIAL FOR OCCURRENCE IN THE ACTION AREA

California spotted owl occurs throughout most the action area, and has been documented several times along all segments of the 625 and 650 Lines within the Lake Tahoe Basin. No spotted owl habitat is present within Martis Valley or on TNF lands near the Town of Truckee due to lack of suitable forest habitat, lack of connectivity to more suitable habitat, and high levels of disturbance and development. Suitable foraging habitat for spotted owl is present throughout most of the action area along the 625 Line and portions of the 650 Line in the Tahoe Basin. Portions of four spotted owl PACs (Griff Creek, Mt. Pluto, Carnelian, and Painted Rock) and their associated HRCAs occur in the action area on LTBMU lands; additionally, portions of the Burton Creek and Twin Crags HRCAs occur in the action area on LTBMU lands. The distribution of spotted owl PACs, HRCAs, recent and historic nests, and other detections of individuals in and near the action area are shown on Exhibit 3.

The western edge of the Griff Creek spotted owl PAC intersects the study area along Segment 625-10 near the Kings Beach Substation; it also overlaps with the Griff Creek northern goshawk PAC, described below. The existing power line, which would be replaced in its current location, is located along this portion of the PAC's western boundary. The Griff Creek spotted owl PAC was intermittently active historically; however, the nest tree blew down in 2009 and no owls have been detected in the area since then. The Mount Pluto PAC is approximately centered along the study area in Segment 625-6/6A and the northeast end of Segment 625-5.

This PAC was established based on previous activity of an owl pair, but a nest was never located in this area and owls have not been detected there since 2005. The Carnelian PAC, which is outside but immediately south of the study area near Segment 625-7, is active infrequently; a nest was located there in 2004 and an owl was detected in 2011. Surveys conducted by USFS in 2012 did not detect any owls in this area. Only a small portion of the Painted Rock PAC and HRCA occur within the action area, and no ground disturbing activity would occur within the PAC or HRCA. The Painted Rock PAC and HRCA are located mostly on the TNF; all other spotted owl PACs and HRCAs in the action area are located on the LTBMU.

High-quality nesting habitat is primarily located within the designated PAC areas, although additional potential nesting habitat and suitable foraging and roosting habitat are located within the broader HRCAs. Habitat within these designated areas in the study area consists primarily of coniferous forest types, including red fir, white fir, Jeffrey pine, and Sierran mixed conifer. Suitable habitats and several owl detections are also located outside of the designated spotted owl HRCAs and PACs throughout the study area, along the 625 Line and part of the 650

Line within the Lake Tahoe Basin. Overall, habitat quality for spotted owl varies throughout the study area, and the distribution and number of known active nests is limited in and adjacent to the study area; however, suitable foraging, roosting, and nesting habitat is well-distributed and spotted owls have been documented in every segment of the 625 and 650 Lines within the Lake Tahoe Basin.

3.3 NORTHERN GOSHAWK

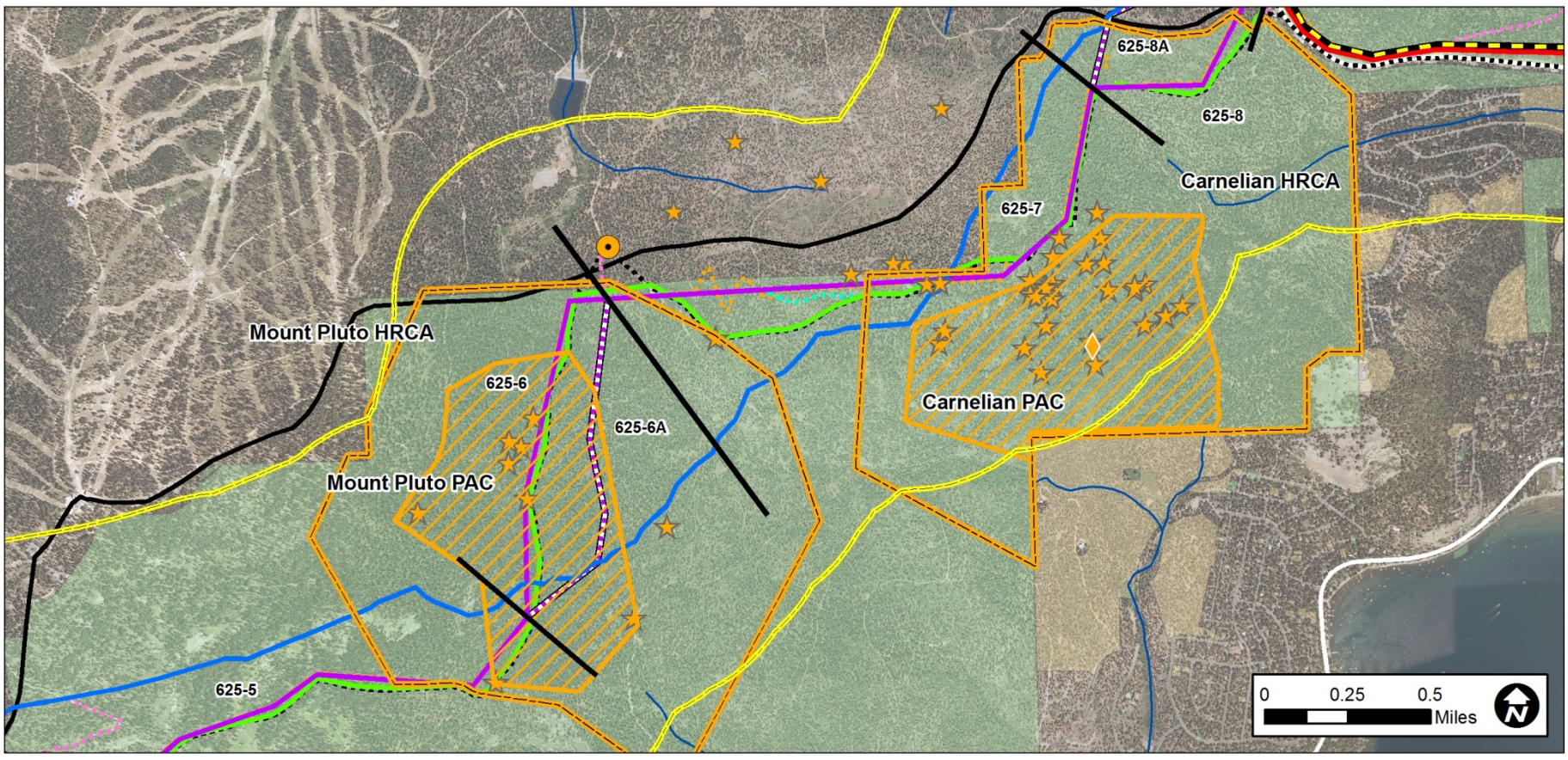
3.3.1 STATUS, DISTRIBUTION, AND HABITAT ASSOCIATIONS

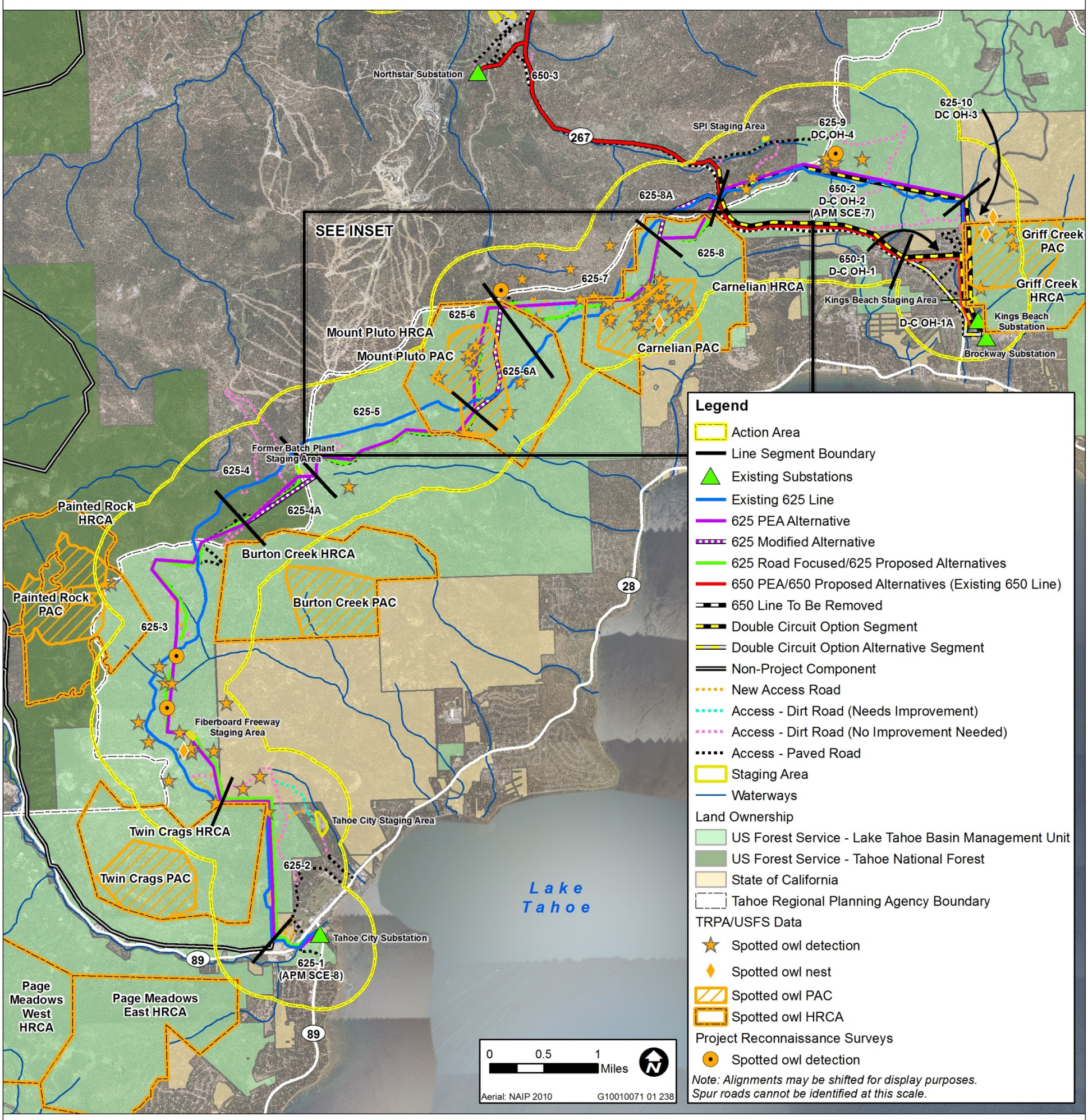
Northern goshawk is designated as a sensitive species by USFS Region 5 for the LTBMU and the TNF, a species of special concern by CDFW, and a special-interest species by TRPA. In the Sierra Nevada, northern goshawks breed at elevations from approximately 2,500 feet in the ponderosa pine/mixed-conifer vegetation types through approximately 10,000 feet in the red fir and lodgepole pine vegetation types, and throughout eastside pine forests on the east slope (Bloom et al. 1986). Additionally, northern goshawks nest in aspen stands occurring in shrub vegetation types on the eastern slope of the Sierra Nevada (Bloom et al. 1986). Northern goshawks are year-round residents in the Lake Tahoe region (Keane 1999) and are suspected to be year-round residents throughout the Sierra Nevada, although some limited seasonal altitudinal movements may occur.

In general, northern goshawks require mature conifer and deciduous forests with large trees, snags, downed logs, dense canopy cover, and open understories for nesting. Goshawk foraging habitat includes forests with dense to moderately open overstories, and open understories interspersed with meadows, brush patches, riparian areas, or other natural or artificial openings. Nest site habitat characteristics are the best-known aspect of northern goshawk habitat use patterns. There is very little information available about foraging habitat use patterns, particularly during winter. Although absolute structural characteristics of nesting habitat may differ between vegetation types and geographic regions, relative habitat use patterns are consistent: northern goshawk nest sites have greater canopy cover, greater basal area, greater numbers of large diameter trees, lower shrub/sapling/understory cover and numbers of small diameter trees, and gentle to moderate slopes relative to non-used random sites (Speiser and Bosakowski 1987, Hargis et al. 1994, Squires and Ruggerio 1996, Keane 1999). High canopy cover is the most consistent structural characteristic among studies of northern goshawk nesting habitat (Siders and Kennedy 1996). This habitat provides large trees for nest sites, a closed canopy for protection from predators and thermal cover, and open understories that provide for maneuverability and detection of prey below the canopy. Three studies have described habitat relationships at the nest-site scale in the Sierra Nevada (Hargis et al. 1994, Keane 1999, Maurer 2000). Key results of these studies are summarized below.

In the Lake Tahoe region, Keane (1999) reported that northern goshawk nest sites (n = 35) where characterized by significantly greater numbers of live trees greater than 40 inches dbh (mean = 15.8 trees/acre) and 24 to 40 inches dbh (mean = 22.1 trees/acre); greater canopy cover (mean = 70.4%); and significantly lower shrub/sapling cover (mean = 9.9%) and number of live trees greater than 2 to 12 inches dbh (mean = 121.4/acre) compared to random locations. Nest trees are usually among the largest trees in the nest stand. Conifer nest trees in the Lake Tahoe region averaged 32 inches dbh (range = 15-61 inches, n = 39) (Keane 1999).

In eastside pine forests on the Inyo National Forest, Hargis et al. (1994) documented that northern goshawk nest sites (n = 20) had significantly greater canopy cover (mean = 31%), basal area, and numbers of live trees in the 11 to 18 inches dbh (mean = 1.4/acre, sd = 0.7), 18 to 24 inches dbh (mean = 0.7/acre, sd = 0.4), and greater than or equal to 24 inches dbh (largest size class recognized; mean = 0.5/acre) size classes compared to random plots. Nest trees averaged 34 inches dbh. In eastside pine habitat on the Lassen and Modoc National Forests, mean canopy closure was approximately 64 percent at northern goshawk nest sites (USDA Forest Service 2001a *citing* Turner [Lassen National Forest] unpublished data and Woodbridge [Klamath National Forest] pers. comm.). Canopy closure values at northern goshawk nest sites in eastside pine forest in the eastern Sierra





Source: Data provided by Insignia Environmental, Placer County, TRPA, and USFS; adapted by Ascent Environmental in 2014

Exhibit 3 Occurrence of California Spotted Owl in the Action Area

Nevada appears to be more variable than those reported for mixed-conifer and red fir vegetation types in the western Sierra Nevada. However, relative differences were similar; canopy cover at nest sites was significantly greater than at random sites (USDA Forest Service 2001).

In Yosemite National Park, Maurer (2000) found that northern goshawk nest sites (n = 31) were characterized by significantly greater numbers of live trees greater than 40 inches dbh (mean = 17.3/acre), and significantly lower numbers of trees greater than 2 to 6 inches dbh (mean = 160.4/acre) and greater than 6 to 12 inches dbh (mean = 66.1/acre) compared to control plots. Nest trees averaged 51 inches dbh (range 21-79, n = 26), and canopy cover averaged 65 percent (range = 39-100%) at nest sites.

Foraging habitat preferences of northern goshawks are not well-understood; however limited information from studies in California and Arizona is consistent and suggests that northern goshawks prefer to forage in mature forests (summarized in Squires and Reynolds 1997). Hargis et al. (1994) reported that telemetry points (i.e., locations where goshawks had been) in goshawk home ranges had greater basal area, canopy cover, and trees in larger diameter classes compared to random plots. Austin (1993) found that, in mixed conifer forest, mature and old-growth habitats were used while open areas (e.g., seedling and sapling stands, meadows) were avoided. Beier and Drennan (1997) documented that foraging occurred in forests with greater canopy closure and greater density of large trees relative to control plots. Similarly, Bright-Smith and Mannan (1994) reported that goshawk foraging habitat use increased with increasing canopy cover.

3.3.2 POTENTIAL FOR OCCURRENCE IN THE ACTION AREA

Suitable foraging habitat for northern goshawk is present throughout most of the action area along the 625 Line and portions of the 650 Line, and goshawks have been detected in several segments along the 625 Line. Although habitat suitable for nesting is also present throughout the action area, nesting activity has not been documented except for some areas within Segments 625-9 and 625-10 (Exhibit 4). Nesting habitat quality within the action area may be limited by forest structure and/or levels of disturbance (e.g., from trail and other recreation uses) throughout much of the area.

One northern goshawk PAC is present within the action area along Segment 625-10 (Griff Creek PAC) (Exhibit 4), and three additional areas have documented concentrations of goshawk activity. All of these areas are located near recent or historic goshawk nests. The distribution of goshawk PACs, recent and historic nests, and other detections of individuals in and near the study area are shown on Exhibit 4.

Northern goshawk PACs are delineated by USFS to include the best available 200 acres of nesting habitat around known or suspected nest sites, as described in the Management Direction for the Sierra Nevada Forest Plan Amendment (USDA Forest Service 2001, USDA Forest Service 2004). The total acreage included in goshawk PACs on the LTBMU varies, because “non-forest vegetation (e.g., montane meadow, chaparral) should not be counted as part of the 200 acres” (USDA Forest Service 2004). All LTBMU goshawk PACs were remapped in 2008 to incorporate the most up-to-date detection, nest location, and land boundary information available. Further remapping was conducted in 2012 for PACs affected by LTBMU’s South Shore Fuels Reduction and Healthy Forest Restoration project; however, none of these PACs are in the study area.

The western edge of the Griff Creek northern goshawk PAC intersects the project study area along Segment 625-10 near the Kings Beach Substation. The existing power line, which would be replaced in its current location, is located along this portion of the PAC’s western boundary. The Griff Creek PAC has been active intermittently, with the last known nesting attempt there in 2005. In 2010, a goshawk was detected in the PAC; the area was not surveyed in 2011 or 2012. Habitat within the Griff Creek PAC consists primarily of Sierran mixed conifer forest, with some montane riparian habitat. Suitable habitat for goshawk in the study area outside of the Griff Creek PAC additionally includes Jeffrey pine and white fir forest. Much of the potential habitat for northern goshawk in the Griff Creek PAC, and elsewhere, in the study area may only be suitable for foraging, rather than

nesting. Goshawks are highly sensitive to disturbance, especially during pair bonding and the nesting initiation phase (mid-February through late May) (USDA Forest Service 2001b). Much of the habitat within the study area is bisected by several roads and trails that receive a variety of recreational use. Therefore, high-quality nesting habitat may be limited within the study area, but suitable foraging habitat is present throughout the study area and northern goshawks have been documented along the 625 Line, especially at the eastern end near Griff Creek (see Exhibit 4).

3.4 AMERICAN MARTEN

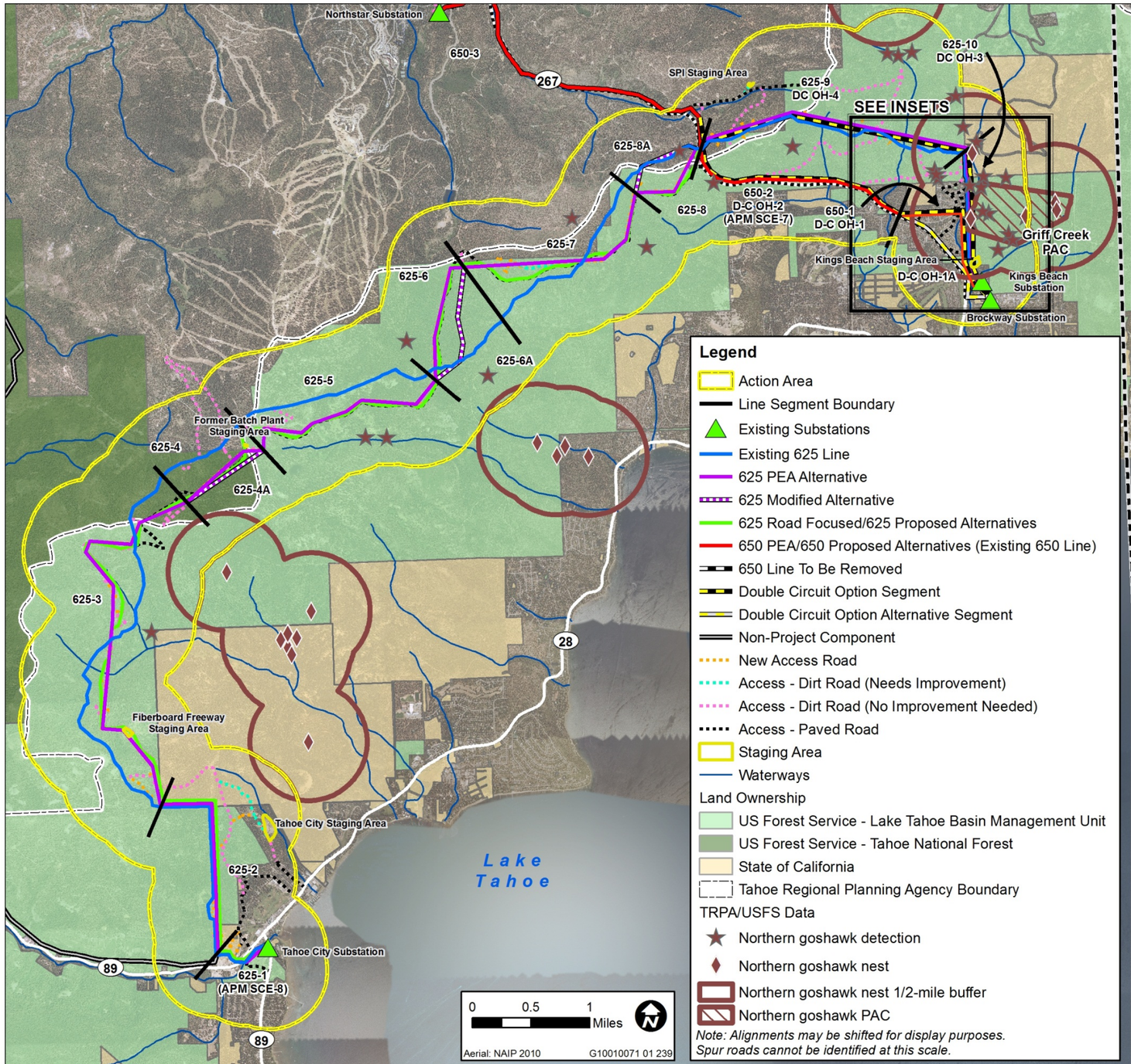
3.4.1 STATUS, DISTRIBUTION, AND HABITAT ASSOCIATIONS

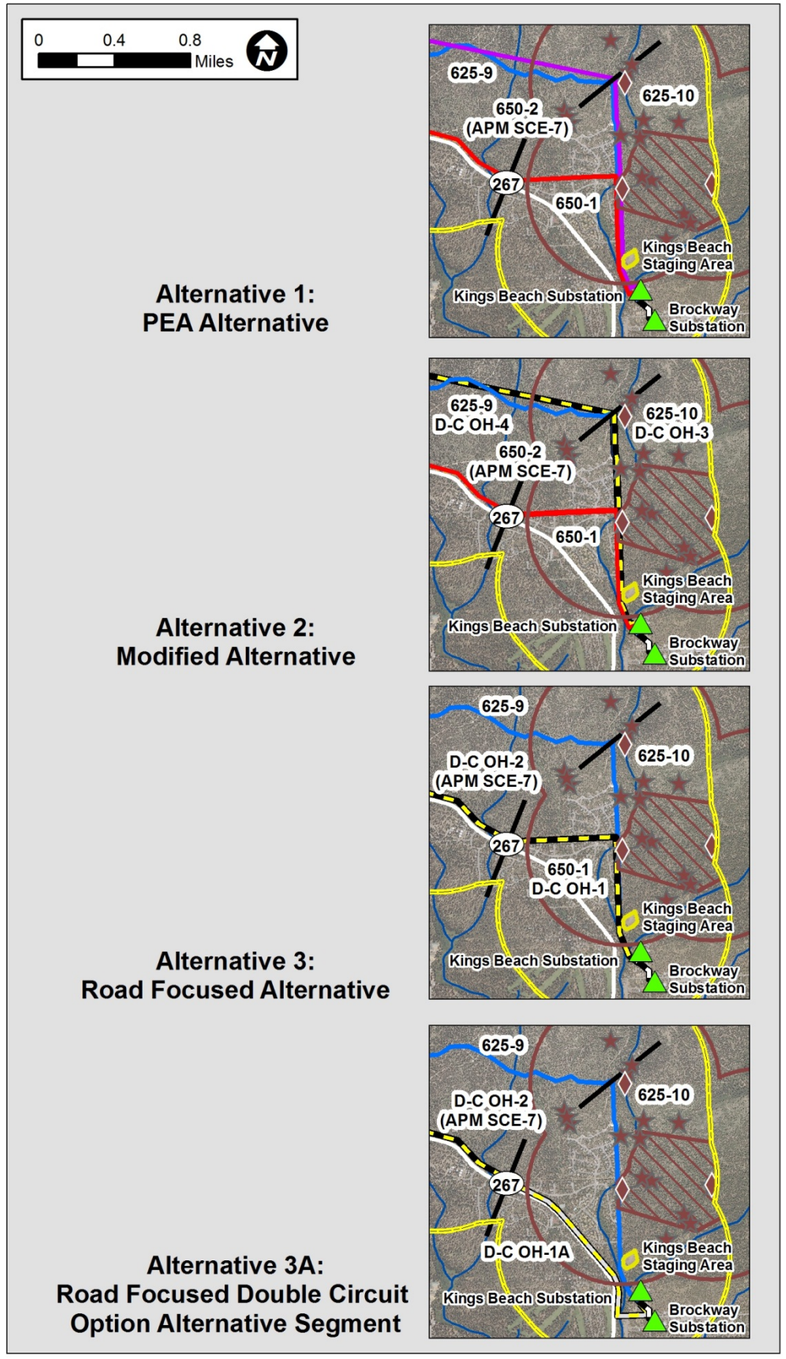
American marten is designated as a sensitive species by USFS Region 5 for the LTBMU and the TNF, and a species of special concern by CDFW. In California, martens were historically distributed throughout the Sierra Nevada, Cascade Range, and the Coast Ranges, from the Oregon border south to Sonoma County. Presently, martens are distributed throughout the Sierra Nevada and Cascades. This species occurs primarily between 5,500 and 10,000 feet elevation; in the Sierra Nevada, martens are found most frequently above 7,200 feet (USDA Forest Service 2001). However, in the Tahoe Basin, martens have been detected regularly below 7,200 feet.

Suitable habitat for American marten consists generally of conifer forest with large-diameter trees and snags, large downed logs, moderate to high-canopy closure, and an interspersion of riparian areas and meadows. Martens are closely associated with relatively mesic, late-successional coniferous forests, although they may occur in other vegetation types. Important habitat attributes include vegetative diversity in predominantly mature forests, snags, and dispersal cover and large woody debris. Studies in the Sierra Nevada indicate that martens have a strong preference for forest-meadow edges, and riparian forests appear to be important foraging habitats (Spencer, Barrett, and Zielinski 1983). Marten natal dens are typically found in cavities in large trees, snags, stumps, logs, burrows, caves, rocks, or crevices in rocky areas. The dens are lined with vegetation and occur in structurally complex, late-successional forests (Buskirk and Ruggiero 1994). Canopy cover and the number of large, old trees in these patches exceed levels available in the surrounding area (USDA Forest Service 2001).

The most important element for forest carnivore habitat may be the structural diversity of the vegetation. Complex physical structures (large snags, large downed woody material, and debris piles), especially those near the ground, appear to provide protection from predators, prey sources, access to subnivean (below snow) spaces, and protective thermal microenvironments, especially during winter (Spencer, Barrett, and Zielinski 1983). Sites used for subnivean entry have greater percent cover and total volume of coarse woody debris, greater numbers of log layers, greater volume of undecayed and moderately decayed logs, less volume of very decayed logs, and fewer small root masses than surrounding forest stands (Corn and Raphael 1992). Other elements that contribute to habitat suitability include low branches of live trees, tree boles in various stages of decay, large coarse woody debris, presence of squirrel middens, a shrub layer to the canopy, and large-diameter trees and snags (USDA Forest Service 2001).

American martens generally avoid habitats that lack overhead cover, presumably because these areas do not provide protection from avian predators (Spencer, Barrett, and Zielinski 1983). In Yosemite National Park, martens avoided areas lacking overhead cover and preferred areas with 100 percent overhead cover, especially when resting (Hargis and McCullough 1984). Preliminary results of studies in the southern Sierra Nevada indicate that marten rest sites are associated with closed canopy, multilayered conditions (Zielinski et al. 1995). Martens selected stands with 40 to 60 percent canopy closure for resting and foraging, and they avoided stands with less than 30 percent canopy closure (Spencer, Barrett, and Zielinski 1983).





Source: Data provided by Insignia Environmental, Placer County, TRPA, and USFS; adapted by Ascent Environmental in 2014

Exhibit 4

Occurrence of Northern Goshawk in the Action Area

3.4.2 POTENTIAL FOR OCCURRENCE IN THE ACTION AREA

American marten has been documented throughout the action area within the Lake Tahoe Basin and on the TNF along Segment 625-4. Suitable habitat for American marten is present within both the forested and open habitats along the entire length of the 625 Line and the portions of the 650 Line on NFS lands within the Lake Tahoe Basin. The portions of the 650 Line located in the Martis Valley and near the town of Truckee do not provide suitable habitat for marten due to lack of suitable forest habitat, lack of connectivity to more suitable habitat, and high levels of disturbance and development.

3.5 PALLID BAT

3.5.1 STATUS, DISTRIBUTION, AND HABITAT ASSOCIATIONS

Pallid bat is designated as a sensitive species by USFS Region 5 on the LTBMU and TNF, a species of special concern by the CDFW, and High Priority by the Western Bat Working Group. Throughout California pallid bat is usually found in arid habitats below 6,000 feet elevation; however, the species has been found up to 10,000 feet in the Sierra Nevada. Pallid bats use a variety of habitats including grasslands, shrublands, woodlands, and coniferous forests. Pallid bats are most common in open, dry habitats that contain rocky areas for roosting. Day roosts may vary but are commonly found in rock crevices, tree hollows, mines, caves and a variety of human-made structures. Night roosts are usually more open sites and may include open buildings, porches, mines, caves, and under bridges. Tree roosting has been documented in large conifer snags, inside basal hollows of redwoods and giant sequoias, and bole cavities in oaks (Sherwin 1998). They are a yearlong resident in most of their range and hibernate in winter near their summer roost (Zeiner et al.1990).

3.5.2 POTENTIAL FOR OCCURRENCE IN THE ACTION AREA

Though no documented occurrences of pallid bat exist for the action area, suitable habitat for pallid bat is present in the coniferous forest habitat on the TNF in the action area along Segment 625-4, and Segment 650-6 near the town of Truckee. Coniferous forest may provide suitable roosting habitat in trees and snags, and foraging habitat in relatively open areas. Foraging habitat is also present along Segment 650-4 on NFS lands within the Martis Valley.

3.6 GREAT BASIN RAMS-HORN

3.6.1 STATUS, DISTRIBUTION, AND HABITAT ASSOCIATIONS

Great Basin rams-horn is designated as a sensitive species by USFS Region 5 for the LTBMU and the TNF. This snail species occurs in larger lakes and slow rivers including larger spring sources and spring-fed creeks. Habitat requirements include cold and highly oxygenated water, muddy substrate/soft sediments, and slow stream flow. Great Basin rams-horn prefers spring habitats; however, the species will use river margins.

3.6.2 POTENTIAL FOR OCCURRENCE IN THE ACTION AREA

Great Basin rams-horn has been documented in Lake Tahoe. Historically, it has been observed in the Truckee River directly downstream of Lake Tahoe on the LTBMU (TNF data). Currently, this snail has not been sighted or surveyed for in TNF. Potential habitat in the action area occurs within slow segments of the Truckee River near Segment 625-1; however, the level of habitat suitability is considered low due to high levels of disturbance in this section of the river. Although the species could be washed through the dam into the Truckee River or

otherwise occur, it may not persist in the Truckee River in the study area due to the limited amount of suitable burrowing substrate within the channel and variable flow conditions caused by dam releases, including moderate flows and pulses below the dam during some periods.

3.7 WESTERN BUMBLE BEE

3.7.1 STATUS, DISTRIBUTION, AND HABITAT ASSOCIATIONS

Western bumble bee is designated as a sensitive species by USFS Region 5 for the LTBMU and the TNF. This species currently occurs on several national forests throughout California and in all states adjacent to California. Historically, the species was broadly distributed across western North America along the Pacific Coast and westward from Alaska to the Colorado Rocky Mountains (Thorp and Shepard 2005, Koch et al. 2012). Historically, western bumble bee was one of the most broadly distributed bumble bee species in North America (Cameron et al. 2011). Currently, the western bumble bee is experiencing severe declines in distribution and abundance due to a variety of factors including diseases and loss of genetic diversity (Tommasi et al. 2004, Cameron et al. 2011, Koch et al. 2012). There are 116 collection records for western bumble bee on nine national forests in USFS Region 5 (Hatfield 2012): Eldorado (2), Klamath (15), LTBMU (7), Lassen (29), Modoc (3), Plumas (22), Shasta-Trinity (25), Six Rivers (5) and Tahoe (6). There are only 25 collection records from national forest lands since 2000: 21 are on the Lassen, three are on the Plumas, and one is in the LTBMU.

Although the general distribution trend is steeply downward, especially in the west coast states, some isolated populations in Oregon and the Rocky Mountains appear stable (Rao et al. 2011, Koch et al. 2012). The overall status of populations in the west is largely dependent on geographic region: populations west of the Cascade and Sierra Nevada mountains are experiencing dire circumstances with steeply declining numbers, while those to the east of this dividing line are more secure with relatively unchanged population sizes. The reasons for these differences are not known.

Bumble bees are threatened by many kinds of habitat alterations that may fragment or reduce the availability of flowers that produce the nectar and pollen they require, and decrease the number of abandoned rodent burrows that provide nest and hibernation sites for queens. Major threats that alter landscapes and habitat required by bumble bees include agricultural and urban development. Exposure to organophosphate, carbamate, pyrethroid and particularly neonicotinoid insecticides has recently been identified as a major contributor to the decline of many pollinating bees, including honey bees and bumble bees (Henry et al. 2012, Hopwood et al. 2012). In the absence of fire, native conifers encroach upon meadows and this can also decrease foraging and nesting habitat available for bumble bees.

The following account of bumble bee life history is summarized from Heinrich (1979). Queens overwinter in the ground in abandoned rodent (i.e. mouse, chipmunk or vole) burrows at depths from 6-18 inches and typically emerge about mid-March. The queen then lays fertilized eggs and nurtures a new generation. She first creates a thimble-sized and shaped wax honey pot, which she provisions with nectar-moistened pollen for 8-10 individual first-generation workers when they hatch. The larvae will receive all of the proteins, fats, vitamins and minerals necessary for growth and normal development from pollen. Eventually all the larvae will spin a silk cocoon and pupate in the honey pot. The workers that emerge will begin foraging and provisioning new honey pots as they are created to accommodate additional recruits to the colony. Individuals emerging from fertilized eggs will become workers that reach peak abundance during July and August. Foraging individuals are largely absent by the end of September. Those that emerge from unfertilized eggs become males, which do not forage and only serve the function of reproducing with newly emerged queens. During the season, a range of 50 to hundreds of individuals may be produced depending on the quantity and quality of flowers available. When the colony no longer produces workers, the old queen will eventually die and newly emerged queens will mate with males and

then disperse to create new colonies. During this extended flight that may last for up to two weeks she may make several stops to examine the ground for a suitable burrow.

Unlike all other bees, bumble bees are large enough to be capable of thermoregulation, which allow them to maintain their foraging activities for longer periods of the day, but also to occupy regions with more extreme latitudes and temperatures compared to other bees (Heinrich 1979). Bumble bees may continue to forage when temperatures are below freezing even in inclement weather (Heinrich 1979). Mikkola (1984) reported that bumble bees may forage up to a distance of 80 km in Finland.

Queens end the year by locating a sheltering burrow, where they may spend the winter months under cover. Where nesting habitat is scarce, bumble bee species having queens that emerge early (mid-March) in the season like *B. vosnesenskii* which co-occurs with the later emerging western bumble bee, may be able to monopolize available nest sites and reduce the chances of success for bumble bee species emerging later.

Bumble bees require plants that bloom and provide adequate nectar and pollen throughout the colony's life cycle. Western bumble bees have a short proboscis or tongue length relative to other co-occurring bumble bee species, which restricts nectar gathering to flowers with short corolla lengths and limits the variety of flower species it is able to exploit. Western bumble bees have been observed taking nectar from a variety of flowering plants, including *Aster* spp., *Brassica* spp., *Centaurea* spp., *Cimicifuga arizonica, Corydalis caseana*, *Chrysothamnus* spp., *Cirsium* spp., *Cosmos* spp., *Dahlia* spp., *Delphinium nuttallianum*, *Erica carnea, Erythronium grandiflorum*, *Foeniculum* spp., *Gaultheria shallon*, *Geranium* spp., *Gladiolus* spp., *Grindelia* spp., *Haplopappus* spp., *Hedysarum alpinum*, *Hypochoeris* spp., *Ipomopsis aggregata*, *Lathyrus* spp., *Linaria vulgaris*, *Lotus* spp., *Lupinus monticola*, *Mentha* spp., *Medicago* spp., *Melilotus* spp., *Mertensia ciliata*, *Monardella* spp., *Nama* spp., *Origanum* spp., *Orthocarpus* spp., *Pedicularis capitata, P. kanei,* and *P. langsdorfii, P. groenlandica, Penstemon procerus*, *Phacelia* spp., *Prunus* spp., *Raphanus* spp., *Rhododendron* spp., *Salix* spp., *Salvia* spp., *Solidago* spp., *Symphoricarpos* spp., *Tanacetum* spp., *Taraxacum* spp., *Trifolium dasyphyllum, Trichostema* spp., *Trifolium* spp. and *Zea* spp. (Evans et al. 2008).

3.7.2 POTENTIAL FOR OCCURRENCE IN THE ACTION AREA

Potential habitat for western bumble bee, including forage (pollen and nectar) plants and potential nest sites, is present in the action area. The current status and distribution of the species in the Tahoe region is unknown. There is only one known collection record of western bumble bee on LTBMU lands since 2000, and no known records from the Tahoe National Forest since 2000. Therefore, the potential for occurrence of western bumble bee in the action area is generally considered low. However, because potential habitat is present and surveys have not been conducted to determine presence or absence of western bumble bee, this analysis assumes that the species could occur in the action area. Areas with the highest likelihood of supporting western bumble bee include meadows, forest gaps, and other open areas that support flowering plants for foraging, and areas with underground cavities for nesting.

4 MEASURES TO MINIMIZE ENVIRONMENTAL EFFECTS

The following Applicant Proposed Measures (APMs) have been incorporated into the project design to minimize, avoid, and reduce potential adverse effects on biological resources. Additional APMs are also part of the project; however, for purposes of this BE, only those APMs relevant to biological resources that may occur on NFS lands are listed below. Descriptions and rationale of all APMs are provided in Section 3.7, Applicant Proposed Measures, of the EIS/EIS/EIR.

- **APM BIO-1:** Prior to construction, all CalPeco, contractor, and subcontractor project personnel will receive training from a qualified resource specialist regarding the appropriate work practices necessary to

effectively implement the APMs and to comply with the applicable environmental laws and regulations, including appropriate wildlife avoidance measures, impact minimization procedures, the importance of sensitive resources, and the purpose and methods for protecting such resources. Among other topics, the training will also include a discussion of BMPs to reduce the potential for erosion and sedimentation during construction. Additionally, CalPeco and designated environmental monitors for project construction will coordinate with the applicable public land owners/managers on communication, documentation and reporting, and data submittal protocols.

- **APM BIO-2:** CalPeco will conduct a complete floristic survey, including surveys for all special-status botanical species and invasive plants, during a time that coincides with the greatest number of blooming periods for target species. This survey will be conducted no more than one year prior to the start of construction. Occurrences of special-status botanical species and weed-infested areas will be flagged or fenced no more than 30 days prior to the start of construction. Flagging and fencing will be refreshed and maintained throughout construction. Implementation of this measure will occur in coordination with USFS
- **APM BIO-3:** CalPeco will complete an invasive plant risk assessment for all ground-disturbing activities.
- **APM BIO-4:** Before construction activities begin, CalPeco will treat invasive plant infestations where feasible. Treatments will be selected based on each species ecology and phenology. All treatment methods—including the use of herbicides—will be conducted in accordance with the law, regulations, and policies governing the land owner (e.g., TRPA in the Lake Tahoe Basin; LTBMU Forest Supervisor and Tahoe National Forest Supervisor on NFS lands). Land owners will be notified prior to the use of herbicides. In areas where treatment is not feasible, CalPeco will clearly flag or fence infested areas in order to clearly delineate work exclusion. Appropriate treatments will also be incorporated into tree removal and construction activities, such as a requirement that all cut live conifer stumps greater than 6 inches in diameter be treated with Sporax or an EPA-registered borate compound to prevent the spread of Annosus root disease.
- **APM BIO-5:** Vehicles and equipment will arrive at the project area clean and weed-free and will be inspected by the on-site environmental monitor for mud or other signs that weed seeds or propagules could be present prior to use in the project area. If the vehicles and equipment are not clean, the monitor will deny entry to the ROW and other work areas.
- **APM BIO-6:** Vehicles and equipment will be cleaned using high-pressure water or air at designated weed-cleaning stations after exiting an infested area. Cleaning stations will be designated by a botanist or invasive plant specialist and located away from aquatic resources.
- **APM BIO-7:** Only certified weed-free construction materials, such as sand, straw, gravel, seed, and fill, will be used throughout the project.
- **APM BIO-8:** If invasive plant-infested areas are unavoidable, invasive plants will be cut, if feasible, and disposed of in a landfill in sealed bags or disposed of or destroyed in another manner acceptable to the USFS, TRPA, USACE, or other agency as appropriate. If cutting is not feasible, layers of mulch, degradable geotextiles, or similar materials will be placed over the infestation area to minimize the spread of propagules by equipment and vehicles during construction. These materials will be secured so they are not blown or washed away.
- **APM BIO-9:** Exclusion zones will be established around any identified special-status botanical species. In consultation with a qualified biologist, CalPeco will first attempt to avoid effects of project implementation on special-status plants and protect occurrences in situ. In the event that a special-status plant occurrence cannot be avoided by construction activities, CalPeco will notify CPUC, CDFW, TRPA, and/or USFS, as applicable depending on the species regulatory status. CalPeco will consult with CDFW, TRPA, and/or USFS in order to establish appropriate mitigation measures. If seed collection or transplantation are selected as appropriate mitigations, then the following measures will apply: a) CalPeco will collect any mature seeds from the affected plants and store them at an appropriate native plant nursery or comparable facility; b) upon the completion of work, CalPeco will redistribute the seeds within the original location of the occurrence; c) CalPeco will establish performance standards for survivorship and will also monitor and document the success rate of the transplanted individuals for three consecutive growing seasons; d) if

performance standards are not met, corrective measures will be implemented and monitoring and adaptive management continued until success criteria are met. Specifically for Plumas ivesia: if, through consultation with an occurrence's land manager, it is determined that Plumas ivesia plants cannot be avoided or protected in situ, then CalPeco will attempt to relocate all Plumas ivesia individuals. Plants that cannot be avoided during construction will be relocated to suitable habitat surrounding the 650 Line. If relocation is unsuccessful, CalPeco will consult with the CDFW and USFS in order to determine the cause of relocation failure and to establish appropriate corrective remedial measures.

- **APM BIO-10:** Any special-status botanical species identified during the floristic surveys will be documented, photographed, and submitted to the CNDDB. CalPeco will notify and provide documentation to CPUC, CDFW, TRPA, and/or USFS, as applicable depending on the species listing status.
- **APM BIO-11:** CalPeco will conduct protocol-level surveys during the appropriate season prior to construction in a particular area to determine whether northern goshawks or California spotted owls are nesting in planned work areas within suitable habitat along the new 625 Line, existing 625 Line, and 650 Line, including USFS-designated PACs or Home Range Core Areas (HRCAs).
- **APM BIO-12:** No vegetation management or treatment or other construction activities, other than vehicle passage on existing roadways, will occur within 0.25 mile of active California spotted owl nests during the breeding season (March 1 to August 31) or within 0.50 mile of active northern goshawk nests during the breeding season (February 15 to September 15), unless protocol-level surveys confirm that the birds are not nesting. A qualified biologist will have the ability to amend the start and end dates of these breeding seasons with concurrence from appropriate agencies if it can be determined that breeding has not started or that fledglings have left the nest. If the location of a nest site within a PAC is unknown, either surveys are required to locate the nest stand and determine nesting status or, as an alternative to surveys, an activity buffer will be applied to the 0.25-mile area surrounding the PAC. The activity buffer may be waived for activities of limited scope and duration, when a biological evaluation determines that such projects are unlikely to result in breeding disturbance considering their intensity, duration, timing, and specific location. Where a biological evaluation concludes that a nest site will be shielded from planned activities by topographic features that will minimize disturbance, the buffer distance may be modified in coordination with the USFS.
- **APM BIO-13:** To offset permanent removal of suitable habitat within designated PACs and HRCAs, CalPeco will assist the USFS in locating additional suitable habitat immediately adjacent to the PAC or HRCA removed to form a new PAC to support the USFS's goal of establishing additional PACs and maintaining specific acreages of California spotted owl and northern goshawk PACs and HRCAs. The amount of suitable habitat designated as a PAC or HRCA for each species is as follows: a spotted owl PAC is 300 acres, a northern goshawk PAC is 200 acres, and a spotted owl HRCA is 1,000 acres. CalPeco will coordinate with the USFS to identify areas of interest and understand the desirable components or key criteria of suitable habitat used for PAC and HRCA designation. As an alternative to assisting USFS in locating additional suitable habitat adjacent to a PAC or HRCA, CalPeco will provide monitoring support for new PAC or HRCA areas established by USFS as a result of the project. The specific objectives, timing, and duration of monitoring will be agreed upon by CalPeco and USFS.
- **APM BIO-15:** Preconstruction biological surveys will be conducted no more than 30 days prior to construction activities to identify biological resources, including burrows and den sites, which could be impacted by construction activities. All burrows and den sites will be inspected for use by sensitive mammals, and buffers may be established based on occupation. If an area is given clearance to proceed with construction and burrowing or denning activities subsequently occur, it will be assumed that the individuals are acclimated to the ongoing disturbance of construction. However, the den will be flagged to prevent damage during construction. If circumstances exist such that future activities may result in the abandonment of the burrow or den site, as determined by a qualified biologist, an appropriate exclusionary buffer will be established by CalPeco, in coordination with CDFW, USFS, and, if necessary, the USFWS.

- **APM BIO-16:** If a potentially active sensitive mammal burrow or den site is unavoidable, CalPeco will employ den-dusting or scoping to determine the species and reproductive status of the animal. If the burrow or den is determined to be active and does not contain young, CalPeco will excavate the burrow by hand, remove the den, or block the entrance to prevent re-entry until after the completion of work. If the animal is determined to be raising young, CalPeco will establish a 200-foot exclusionary buffer surrounding the burrow or den until it is determined that the young have left the den. After it is determined that young have left the den, CalPeco will commence hand excavation or removal of the den structure. CalPeco will contact CDFW, USFS and/or USACE prior to any den-dusting, scoping, burrow excavation, or den structure removal.
- **APM BIO-17:** Concurrent with the preconstruction surveys described in APM BIO-15, surveys will be conducted for amphibians, including eggs or juveniles, at aquatic habitat crossed by the project. If adults, juveniles, or eggs of sensitive amphibians are discovered, a permitted specialist will relocate the individuals to suitable habitat outside of the construction area. If amphibians are discovered in the construction area after the start of work, the environmental monitor will allow the individuals to leave under their own volition. As an alternative, an agency-approved biologist may relocate the individuals from the project area to similar, suitable habitat. CalPeco will coordinate with the CDFG, USFWS, USFS, and/or USACE prior to relocating any individuals. If it is determined that surveys would have potential to result in harassment or other forms of take of a federally listed species (e.g., Sierra Nevada yellow-legged frog), survey and potential relocation methods will be coordinated with and authorized by USFWS.
- **APM BIO-18:** For bird species not specifically addressed in other APMs, nesting bird surveys will be conducted no more than 30 days prior to construction activities if work is scheduled to occur during the breeding season—March to September. Exclusionary buffer zones (to be determined based on species-specific needs) will be created surrounding any active nests along the project alignment. Buffers will be established by a qualified biologist prior to the start of construction. If an area is given clearance to proceed with construction and nesting subsequently occurs, it will be assumed that the individuals are acclimated to the ongoing disturbance of construction. If circumstances exist such that future activities may result in the abandonment or failure of the nest, as determined by a qualified biologist, an appropriate exclusionary buffer will be established by CalPeco in coordination with the CDFW, USFS, and/or USACE.
- **APM BIO-19:** Power poles will be constructed to conform to the practices described in the Suggested Practices for Avian Protection on Power Lines Manual developed by the Avian Power Line Interaction Committee (2006).
- **APM BIO-20:** Bat surveys will be conducted in the spring, no more than 30 days prior to the start of construction, in order to identify active bat roosting sites, such as snags or dense trees. All potential roosting sites will be surveyed by a qualified biologist in order to determine usage. Specific survey methodologies will be determined in coordination with CDFW and the appropriate land manager (e.g., USFS, USACE). All non-active roosting sites will be trimmed within 30 days of the surveys in order to prevent new roosts from being established. If it is determined that an active roosting site will be impacted, CalPeco will consult with CDFW, USFS and/or USACE in order to acquire appropriate authorizations to remove the roosting sites. All active non-maternity roosting sites will be fitted with passive exclusion devices, such as one-way doors, and all bats will be allowed to leave voluntarily. Once it is confirmed that all bats have left the roost, crews will be allowed to continue work in the area. If a maternity roosting site is discovered, CalPeco will consult with the CDFW, USFS and/or USACE in order to establish appropriate exclusionary buffers until all young are determined to be volant by a qualified biologist. Once it is determined that all young are volant, passive exclusion devices will be installed and all bats will be allowed to leave voluntarily. Once it is determined by a qualified biologist that all bats have left the roost, crews will be allowed to work within the buffer zone.
- **APM BIO-21:** Qualified environmental monitors will be present with each crew during all vegetation-removal activities to help ensure that impacts to biological resources are minimized to the extent possible. For all other construction activities, monitors will be allowed to cover up to 5 miles of the project area at once to allow multiple crews to work in close proximity to each other at the same time. Environmental

monitors will have the authority to stop work or direct work in order to help ensure the protection of resources and compliance with all permits.

- **APM BIO-22:** An environmental monitor will inspect all pole excavations and areas of active construction on a daily basis for trapped wildlife. Wildlife found in active construction areas will be allowed to passively leave the site. If necessary, wildlife may be relocated by a qualified biologist. The construction foreman will notify the environmental monitor immediately if any wildlife enters or becomes trapped in the work area.
- **APM BIO-23:** Topsoil, where present, will be salvaged in areas that will be graded or excavated. Topsoil will be segregated, stockpiled separately from subsoil, and covered. These soil stockpiles, as well as any others created by the proposed project, shall have the proper erosion control measures applied until they are removed. The topsoil will then be replaced to the approximate location of its removal after project construction has been completed to facilitate revegetation of disturbed areas. Top soil will not be salvaged from areas infested with invasive plants.
- **APM BIO-24:** If invasive plant infestations are later identified throughout the course of construction in staging areas, parking areas, or access routes, they will be treated according to APM BIO-4 & BIO-8.
- **APM BIO-25:** If the environmental monitor determines that construction is occurring in an active mule deer fawning area, they will have the authority to temporarily halt or relocate work until the fawns move out of the project area. In addition, helicopter flight paths may be rerouted to avoid these areas if it is determined that helicopter use may impact fawns.
- **APM BIO-26:** Work areas will be clearly marked with fencing, staking, flagging, or another appropriate material. All project personnel and equipment will be confined to delineated work areas. In the event that work must occur outside of the work area, approval from lead and other agencies with jurisdiction over the property will be obtained prior to the commencement of activities.
- **APM BIO-27:** Helicopters will be used, where necessary, to avoid impacts to waterways or in areas of rough terrain. Appropriate measures, including regular watering, will be implemented at landing zones in order to control dust. Helicopter use within HRCAs, PACs, and TRPA disturbance zones will be prohibited if vegetation treatment restrictions are concurrently in place.
- **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 BIO-31:** Visibility permitting, all excavations will be inspected for sensitive aquatic wildlife prior to dewatering. Wildlife found in excavations will be allowed to leave passively or will be relocated by a qualified biologist.
- **APM BIO-32:** If dewatering of an excavation is needed, all dewatering pump intakes will be fitted with filter screening to prevent impacts to aquatic wildlife that may accidentally enter excavations. Water will not be pumped directly from rivers, streams, ponds, or other waters of the U.S. or wetlands (although as stated above, dewatering of excavations is permitted).
- **APM BIO-33:** All trash and food will be removed from the site at the end of each workday in order to deter wildlife from entering the site.
- **APM BIO-34:** No pets or firearms will be allowed in the project area.
- **APM BIO-35:** No harm, harassment, or collection of plant and wildlife species will be allowed. Feeding of wildlife will be prohibited.
- **APM BIO-36:** Prior to construction, CalPeco will develop a Restoration Plan that will address final clean-up, stabilization, and revegetation procedures for areas disturbed by the project. The plan will be consistent with, and implement related commitments and requirements included in the EIS/EIS/EIR project description, other APMs, mitigation measures, and agency permit requirements. The Restoration Plan will address loosening of any compacted soil, restoration of surface residue, and reseeding. If existing unpaved roads require modification to temporarily allow passage of construction equipment during the construction period, these roads will be returned to their original footprint after construction is complete. On NFS lands, restoration activities will be designed and implemented to meet invasive plant management guidelines and Visual Quality Objectives (VQO) for the area. Areas temporarily disturbed by cut and fill activities will be re-graded to blend with the natural topography. On public land, CalPeco will coordinate with the land management agency to determine an appropriate seed mix or tree planting plan as well as other elements of the plan applicable to lands managed by the agency. On private land, CalPeco will coordinate with the landowner and/or provide the landowner with a suggested seed mix based on consultation with the agency of jurisdiction. The plan will include approved seed mixes, application rates, application methods, methods to record pre-disturbance conditions, success criteria for vegetation growth, monitoring and reporting protocols, and remedial measures if success criteria are not met. If broadcast seeding is determined to be the most feasible application method, seeding rates will be doubled relative to the standard seeding rate and the seeding method rationale will be explained. The plan will also include long-term erosion and sediment control measures, slope stabilization measures, criteria to determine the success of these measures, remedial actions if success criteria are not met, and monitoring and reporting procedures. As part of normal equipment inspections during project operation, an evaluation of access ways will be conducted to confirm that use has not resulted in compaction that will result in "coverage" per TRPA standards.
- **APM BIO-37:** Decommissioning the existing 625 Line ROW and allowing natural regeneration of coniferous forest and other native vegetation types will assist in offsetting or reducing the permanent loss of trees and other vegetation along the new 625 Line ROW. Prior to the removal of poles and conductor, a qualified biologist or soil scientist will identify areas of the abandoned ROW that contain unnaturally compacted soil (resulting from unauthorized public use, development of user-created trails, or other factors) that could limit the natural reestablishment of vegetation and assess whether local treatments will be needed to facilitate native vegetation recruitment and development. CalPeco will consult with the applicable land owner/manager to verify that areas identified for treatments are appropriate (e.g., not part of a system

road, authorized trail network, or other desired use) and secure approval for restoration. Restoration of these sites will be overseen by a qualified biologist and will likely consist of a combination of the following.

- Barricade existing access points and post appropriate signage to discourage use. Also incorporate into restoration actions minimizing the visibility of potential access points from intersecting roadways.
- Loosen compacted soil to a depth of 6 to 8 inches.
- Incorporate logs, boulders, mulch and other materials into the disturbed area to discourage use.
- Apply appropriate erosion control BMPs (e.g., installation of check dams, mulch, log and/or rock stabilization) in areas where evidence of sheet, rill, or gully erosion exists.
- Seed with a certified weed-free seed mix, approved by the applicable land owner/manager, containing native, site-appropriate species.
- Apply 1 to 2 inches of locally obtained mulch such as pine needles, wood chips, or tub grindings.
- Monitor for new invasive plant invasions and expansion of existing weed populations following treatments, and implement weed control measures where needed. Post-treatment monitoring for invasive plants will be conducted annually for up to three years, similar to the frequency and duration specified for USFS land in the USFS Invasive Plant Risk Assessment prepared for the project.
- Conduct post-treatment monitoring and reporting every two years for up to 10 years, to evaluate success of restoration treatments. The details of the monitoring and reporting program, including identification and implementation of potential adaptive management actions based on monitoring results, will be developed jointly by CalPeco, TRPA, and the land owner/manager.

- **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.
- **APM AQ-2:** Unpaved areas subject to vehicle access will be stabilized using water at least two times daily, or as needed to control fugitive dust. On NFS lands, unpaved roads will be watered at least as often as specified in Forest Service Handbook 2409.15 (USFS 1992). A locally approved chemical dust palliative, applied according to the manufacturer's recommendations, may be substituted for watering with approval from the applicable land owner/manager.
- **APM AQ-4:** Prior to any ground disturbance, sufficient water will be applied to the area to be disturbed in order to control fugitive dust emissions.
- **APM AQ-7:** Traffic speeds on unpaved roads and the ROW will be limited to 15 miles per hour.
- **APM AQ-10:** Trucks transporting bulk materials off-site will be maintained such that no spillage can occur from holes or other openings in the cargo compartments. Loads will be completely covered or the bulk material will be wetted and loaded to maintain 6 inches of freeboard from the top of the container.

5 EFFECTS OF THE PROPOSED ACTION

This section addresses potential direct and indirect effects of the proposed action on species included in this BE. Direct effects are defined as those that are caused by the proposed action and occur at the time of the action; indirect effects are those that are caused by the proposed action and are later in time, but still reasonably certain to occur. 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. Cumulative effects are defined and discussed later in this document.

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 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.

Impacts to sensitive species could occur either through temporary or permanent habitat loss, disturbance of normal activity or dispersal patterns, or through direct mortality. Potential impacts to sensitive 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.

As stated previously, four action alternatives are being evaluated at an equal level of detail (Exhibit 2). 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) reroutes the 625 Line to more closely follow the Fiberboard Freeway and other area roadways and places more of the 650 Line along 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 Proposed 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 Proposed 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.

An overview of potential permanent and additional temporary impacts to native (non-developed) habitat by CWHR type and alternative are summarized in Table 6, below. Appendix A includes vegetation maps that depict the distribution of CWHR vegetation types throughout the study area. The following section analyzes the direct and indirect effects on species addressed in this BE.

Table 6 Permanent and Temporary Effects on Native Vegetation Communities/ CWHR Types on NFS Lands

Vegetation Community/Habitat Type	Alternative 1: PEA		Alternative 2: Modified		Alternative 3: Road Focused		Alternative 3A: Road Focused with Double Circuit Option		Alternative 4: Proposed	
	Permanent (acres)	Temporary (acres)	Permanent (acres)	Temporary (acres)	Permanent (acres)	Temporary (acres)	Permanent (acres)	Temporary (acres)	Permanent (acres)	Temporary (acres)
Red Fir Forest	59.93	29.83	58.58	26.72	25.98	28.51	25.98	28.51	25.98	28.51
White Fir-Red Fir Forest	5.64	1.76	3.11	0.50	2.30	1.90	2.30	1.90	2.30	1.90
Jeffrey Pine-White Fir Forest	15.70	4.14	9.71	0.29	8.98	0.84	8.98	0.84	8.98	0.84
Jeffrey Pine Forest	2.14	1.62	2.61	1.14	1.41	0.53	1.41	0.53	1.41	0.53
Sierran Mixed Conifer Forest	13.42	8.88	13.74	7.78	12.55	8.83	11.93	8.21	12.55	8.83

Table 6 Permanent and Temporary Effects on Native Vegetation Communities/ CWHR Types on NFS Lands

Vegetation Community/Habitat Type	Alternative 1: PEA		Alternative 2: Modified		Alternative 3: Road Focused		Alternative 3A: Road Focused with Double Circuit Option		Alternative 4: Proposed	
	Permanent (acres)	Temporary (acres)	Permanent (acres)	Temporary (acres)	Permanent (acres)	Temporary (acres)	Permanent (acres)	Temporary (acres)	Permanent (acres)	Temporary (acres)
Total Coniferous Forest	***96.83***	***46.23***	***87.75***	***36.43***	***51.22***	***40.61***	***50.60***	***39.99***	***51.22***	***40.61***
Montane Chaparral	10.20	4.15	9.07	3.63	5.66	5.29	5.66	5.29	5.66	5.29
Montane Riparian	0.71	0.30	0.78	0.18	0.48	0.27	0.36	0.27	0.48	0.27
Wet Meadow	0.24	0.14	0.08	0.05	-	-	-	-	0.16	-
Dry Montane Meadow	1.07	0.68	-	-	-	-	-	-	1.07	0.68
Mule Ears Meadow	0.38	0.10	0.38	0.10	0.13	0.19	0.13	0.19	0.13	0.19
Open Water	0.04	0.05	0.04	0.05	0.04	0.05	0.04	0.05	0.04	0.05
Rock Outcrop/Barren	0.36	0.33	0.36	0.33	0.45	0.54	0.45	0.54	0.45	0.54
Total	**109.83**	**51.98**	**98.46**	**40.77**	**57.98**	**46.95**	**57.24**	**46.33**	**59.21**	**47.63**

5.1 DIRECT AND INDIRECT EFFECTS

5.1.1 BALD EAGLE

ALTERNATIVES 1, 2, 3, AND 4

Bald eagle does not nest in or near the action area. Bald eagle is not expected to regularly use habitat in the action area; and any bald eagle occurrence and habitat use in the action area would be most likely during winter, when the species is more abundant in the Tahoe region. However, larger water bodies in the area may provide potential foraging habitat occasionally during winter and summer. Potential foraging habitat and perch sites are present in the action area at Watson Lake (Segment 625-5), along the shore of Lake Tahoe near the Tahoe City Substation (Segment 625-1), and along the Truckee River in Tahoe City (Segment 625-1). Although these areas contain some habitat elements that could support foraging and/or resting bald eagles, they also receive a high amount of disturbance from recreational use, which may limit habitat suitability for bald eagle. The potential habitat for bald eagle within the action area in Segment 625-1 and 625-5 is within the 0.5-mile buffer defined as part of the action area, but is approximately 0.25 mile from any proposed project-related ground disturbances.

To the extent that bald eagle uses the action area, impacts to bald eagles may occur as a result of tree removal near Lake Tahoe or by changed movement and foraging patterns caused by construction-related activities such as helicopter use. Individuals present in the action area would likely relocate temporarily to avoid construction areas. If bald eagles use the action area or immediate vicinity for foraging, project construction could temporarily disturb their foraging activities. However, because of the presence of existing recreation use, vehicle travel, vegetation/forest management, and other activities throughout the study area, the existing disturbance level is relatively high; additional construction-related disturbance would not substantially affect the foraging patterns of bald eagle. Also, abundant and suitable foraging habitat is available in other areas nearby (e.g., Lake Tahoe, Watson Lake, Martis Creek Reservoir). In addition, during the winter months, when bald eagles are most abundant in the project region, construction activity would not occur.

Direct mortality of individuals may result from collisions with the conductor and electrocution. Bird collisions with existing power facilities typically occur to migratory bird species and are generally due to poor visibility of electrical lines. Factors leading to avian collisions with existing power lines include a lack of visual cues that make the lines stand out against the surrounding environment. Most bird electrocutions occur on distribution systems at lower voltages due to the closer spacing between conductors. The closer spacing is more of a potential hazard to raptors and other large birds because their body size and wingspan are large enough to span the distance between the wires, completing the electrical circuit. However, to help prevent accidental injury or mortality as a result of electrocution, APM BIO-19 requires incorporation of avian protection measures into the project design.

Bald eagles are not known or expected to nest in the action area, based on the rarity of nesting in the region, no nesting records in or near the study area, and the lack of high-quality nesting habitat there. Therefore, potential effects of project construction on bald eagle breeding activities, nest sites and young, or reproductive success are not expected. To further ensure that construction-related disturbances and loss of nest sites would be avoided (e.g., in the event that nesting is initiated in the study area during or prior to construction), APM BIO-18 would be implemented. This measure requires conducting preconstruction surveys for nesting birds, and implementing an appropriate exclusionary buffer and limited operating period to avoid or minimize effects of construction-related disturbance on nesting activity and breeding success.

Because construction-related disturbance would not substantially affect the foraging patterns of bald eagle in the region, and potential effects on nesting and individuals would be avoided or minimized through implementation of APM BIO-18 and -19, implementation of any of the action alternatives would not substantially affect the distribution, breeding productivity, or local population size and viability of bald eagle.

5.1.2 CALIFORNIA SPOTTED OWL

ALTERNATIVE 1

California spotted owl occurs throughout most the action area, and has been documented several times along all segments of the 625 and 650 Lines within the Lake Tahoe Basin. No spotted owl habitat is present within Martis Valley or on TNF lands near the Town of Truckee due to lack of suitable forest habitat, lack of connectivity to more suitable habitat, and high levels of disturbance and development.

Suitable foraging habitat for spotted owl is present throughout most of the action area along the 625 Line and portions of the 650 Line in the Tahoe Basin. Portions of four spotted owl PACs (Griff Creek, Mt. Pluto, Carnelian, and Painted Rock) and their associated HRCAs occur in the action area on LTBMU lands; additionally, portions of the Burton Creek and Twin Crags HRCAs occur in the action area on LTBMU lands. The distribution of spotted owl PACs, HRCAs, recent and historic nests, and other detections of individuals in and near the action area are shown on Exhibit 3. High-quality nesting habitat is primarily located within the designated PAC areas, although additional potential nesting habitat and suitable foraging and roosting habitat are located within the broader HRCAs. Habitat within these designated areas in the study area consists primarily of coniferous forest types, including red fir, white fir, Jeffrey pine, and Sierran mixed conifer. Suitable habitats and several owl detections are also located outside of the designated spotted owl HRCAs and PACs throughout the study area, along the 625 Line and part of the 650 Line within the Lake Tahoe Basin. Overall, habitat quality for spotted owl varies throughout the study area, and the distribution and number of known active nests is limited in and adjacent to the study area; however, suitable foraging, roosting, and nesting habitat is well-distributed and spotted owls have been documented in every segment of the 625 and 650 Lines within the Lake Tahoe Basin.

In the short term, project activities related to construction of the new 625 and 650 Lines, and decommissioning of the existing 625 Line, could temporarily disturb spotted owls and/or their habitat located within the action area. Temporary disturbances resulting from noise and increased human activity within spotted owl habitat could affect foraging, movement, and reproductive activity of owls, and may cause individuals to temporarily

leave an area to avoid the disturbance. However, because spotted owls are primarily nocturnal, construction activities (which would occur during the day) may not directly displace foraging owls. Construction activity and habitat disturbances could cause changes in behavior and local distribution of their prey species, thus influencing spotted owl foraging activity and patterns. However, disturbances associated with construction activity would occur locally and over short periods of time in a given area, and would not be expected to affect significant portions of an individual's foraging range. Breeding pairs of spotted owls tend to be more sensitive to disturbances associated with diurnal noise and increased human activity, and may abandon a nest location where disturbances are intense and persistent during the breeding season.

Direct mortality of individuals may also result from collisions with the conductor and electrocution. Bird collisions with existing power facilities typically occur to migratory bird species and are generally due to poor visibility of electrical lines. Factors leading to avian collisions with existing power lines include a lack of visual cues that make the lines stand out against the surrounding environment. Most bird electrocutions occur on distribution systems at lower voltages due to the closer spacing between conductors. The closer spacing is more of a potential hazard to raptors and other large birds because their body size and wingspan are large enough to span the distance between the wires, completing the electrical circuit.

Habitat for spotted owl would be removed and/or disturbed to construct the new 625 and 650 Lines, and access roads and staging areas for use during and after construction. Table 7 summarizes the amount of potential habitat estimated within PACs, HRCAs, and undesignated areas on NFS lands that would be disturbed or removed permanently and temporarily as a result of implementation of all action alternatives. Table 7 also summarizes the amount of habitat potentially gained or enhanced where the existing 625 Line would be removed and revegetated (see APM BIO-37), and the long-term net change in the amount of suitable habitat when considering both disturbances/losses and enhancements/gains. For purposes of this analysis, potential habitat was generally assumed to include all conifer forest types mapped in the study area. This assumption is very conservative, because not all of these areas likely function as suitable nesting or foraging habitat, due to variability in stand structure and canopy closure, forage quality, presence of potential nesting trees, levels of existing disturbance, and other biophysical factors. Therefore, the habitat acreage values shown in Table 7 and referenced throughout this analysis overestimate the potential impact to spotted owl habitat.

Overall, implementation of Alternative 1 would initially result in the permanent loss or disturbance of up to 96.8 acres of potential habitat for spotted owl on NFS lands; of this amount, 0.1 acre would occur in the Griff Creek PAC, and 6.2 acres would occur in the Mt. Pluto PAC (Table 7; Exhibit 3), which represents approximately 0.03 percent of the Griff Creek spotted owl PAC and 2.1 percent of the Mt. Pluto PAC area. Over the long term, because the existing 625 Line would be decommissioned and vegetation would be allowed to reestablish within the existing 20-foot vegetation management corridor, the net permanent disturbance/loss would be reduced to approximately 80.2 acres overall and 5.2 acres in the Mt. Pluto PAC (effects in the Griff Creek PAC would not change). Table 7 shows the amount of additional habitat affected outside of PACs but within HRCAs (Mt. Pluto, Carnelian, Griff Creek, Twin Crags HRCAs), and impacts to suitable habitat outside of designated PACs or HRCAs on NFS lands.

Disturbance or loss of suitable spotted owl habitat along Segment 625-10, where the Griff Creek PAC is located, would be relatively limited as the new 625 and 650 lines would follow the existing ROW where vegetation is already cleared (see Exhibit 3 for detailed map of project features near the Griff Creek PAC). However, additional clearance of vegetation would need to occur along the existing line here and throughout the study area to accommodate the wider clearance requirement for a 125-kV line (40-foot vegetation management corridor vs. the existing 20 feet). Because the existing 625 Line ROW follows the western boundary of the Griff Creek PAC, habitat disturbances and loss (0.1 acre) that extend into the PAC would be limited to its western edge and avoid the PAC's core or interior (Exhibit 3). Additionally, although the study area in Segments 625-9 and 625-10 is located within or adjacent to the Griff Creek PAC and HRCA, much of the habitat there is relatively low-quality due to existing vegetation disturbances and clearance, disturbance from adjacent neighborhoods, and edge effects from adjacent residential and commercial land uses.

Table 7 Permanent and Temporary Effects on California Spotted Owl Habitat on NFS Lands[1]

Habitat Area[2]	Alternative 1 (P'EA Alternative)				Alternative 2 (Modified Alternative)				Alternative 3 (Road Focused Alternative)				Alternative 3a (Double Circuit Option)				Alternative 4 (Proposed Alternative)			
	Permanent (acres)			Additional Temp (acres)	Permanent (acres)			Additional Temp (acres)	Permanent (acres)			Additional Temp (acres)	Permanent (acres)			Additional Temp (acres)	Permanent (acres)			Additional Temp (acres)
	Disturb/ Loss[4]	Enhance/ Gain	Net Change		Disturb/ Loss[4]	Enhance/ Gain	Net Change		Disturb/ Loss[4]	Enhance/ Gain	Net Change		Disturb/ Loss[4]	Enhance/ Gain	Net Change		Disturb/ Loss[4]	Enhance/ Gain	Net Change	
PAC																				
Mt. Pluto	-6.2	+1.0	-5.2	-2.4	-4.9	+0.9	-4.0	-1.7	-2.6	+1.1	-1.5	-3.0	-2.6	+1.1	-1.5	-3.0	-2.6	+1.1	-1.5	-3.0
Griff Creek	-0.1	-	-0.1	-0.3	-0.4	-	-0.4	-	-0.4	-	-0.4	-	-	+0.1	+0.1	-	-0.4	-	-0.4	-
HRCA[3]																				
Mt. Pluto	-4.0	+2.2	-1.8	-2.3	-3.4	+2.2	-1.2	-2.2	-1.1	+2.2	+1.1	-1.8	-1.1	+2.2	+1.1	-1.8	-1.1	+2.2	+1.1	-1.8
Carnelian	-12.1	+2.0	-10.1	-5.2	-9.8	+2.0	-7.8	-4.3	-5.2	+2.0	-3.2	-5.9	-5.2	+2.0	-3.2	-5.9	-5.2	+2.0	-3.2	-5.9
Griff Creek	-0.9	-	-0.9	-1.9	-1.5	-	-1.5	-1.2	-0.4	+0.6	+0.2	-0.6	-	+0.8	+0.8	-	-0.4	+0.6	+0.2	-0.6
Twin Crags	-0.4	-	-0.4	-1.1	-0.4	-	-0.4	-	-0.3	-	-0.3	-1.1	-0.3	-	-0.3	-1.1	-0.3	-	-0.3	-1.1
Habitat Outside PACs and HRCAs																				
	-73.1	+11.4	-61.7	-33.0	-67.4	+13.1	-54.3	-27.0	-41.2	+12.3	-28.9	-28.2	-41.4	+12.4	-29.0	-28.2	-41.2	+12.3	-28.9	-28.2
Total	**-96.8**	**+16.6**	**-80.2**	**-46.2**	**-87.8**	**+18.2**	**-69.6**	**-36.4**	**-51.2**	**+18.2**	**-33.0**	**-40.6**	**-50.6**	**+18.6**	**-32.0**	**-40.0**	**-51.2**	**+18.2**	**-33.0**	**-40.6**

[1] Impact acreages assume implementation of APMs SCE-7 and SCE-8, which include an alignment setback away from SR 267 under Alternatives 1, 3, 3A and 4 for the 650 Line, and a setback away from the Truckee River and into the 64-Acre parcel under Alternatives 1, 3, 3A, and 4 for the 625 Line.

[2] For purposes of this analysis, potential spotted owl habitat includes the following CWHR Types: Jeffrey Pine, Jeffrey Pine/White Fir, White Fir/Red Fir, Red Fir, and Sierran Mixed Conifer Forest.

[3] Each PAC is associated with and included within its respective HRCA (e.g., the Mt. Pluto HRCA is larger than and includes the Mt. Pluto PAC). The acreages shown for each HRCA do not include and are in addition to PAC acreage.

[4] Where the new power line corridor would follow and expand the width of the existing 625 Line corridor, the amount of habitat affected refers specifically to overstory forest cover that would be removed to widen the existing disturbed/managed corridor (i.e., the calculation of new habitat loss does not include the amount of existing disturbed corridor).

Under Alternative 1, the proposed 625 Line would be constructed approximately though the middle of the Mt. Pluto spotted owl PAC (Exhibit 3). The Fiberboard Freeway presently bisects the Mt. Pluto PAC in this area, and the new 625 Line would parallel the Fiberboard Freeway corridor closely throughout the PAC. Although this general corridor is subject to existing disturbances and habitat degradation as a result of road use, maintenance, and edge effects, the new 625 Line ROW would be mostly separated from the existing Fiberboard Freeway disturbed corridor, resulting in up to 6.2 acres of new habitat disturbance and loss in the PAC (approximately 2.1 percent of the PAC total). In addition to habitat loss, because the new 625 Line ROW would be located within the PAC's core and approximately 1 mile in length, construction and operation of these segments would contribute to habitat fragmentation of the PAC. However, because the Fiberboard Freeway and associated disturbances are already present in this area, nesting has not been documented in the PAC, and spotted owls have not been detected there since 2005, effects of additional fragmentation on the PAC's biological function may not be substantial.

In addition to up to 96.8 acres of permanent habitat loss, implementation of Alternative 1 would result in 46.2 acres of temporary habitat disturbance, including some within spotted owl PACs and HRCAs (Table 7). 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 areas. These impacts are considered temporary because these areas would be restored and revegetated following construction.

As described in Section 4, "Measures to Minimize Environmental Effects," several APMs have been incorporated into the project design to minimize, avoid, and reduce potential adverse effects on biological resources. The following APMs have been incorporated into the project design to avoid, minimize, and compensate for impacts to spotted owl specifically:

- **APM BIO-11:** CalPeco will conduct protocol-level surveys during the appropriate season prior to construction in a particular area to determine whether northern goshawks or California spotted owls are nesting in planned work areas within suitable habitat along the new 625 Line, existing 625 Line, and 650 Line, including USFS-designated PACs or Home Range Core Areas (HRCAs).
- **APM BIO-12:** No vegetation management or treatment or other construction activities, other than vehicle passage on existing roadways, will occur within 0.25 mile of active California spotted owl nests during the breeding season (March 1 to August 31) or within 0.50 mile of active northern goshawk nests during the breeding season (February 15 to September 15), unless protocol-level surveys confirm that the birds are not nesting. A qualified biologist will have the ability to amend the start and end dates of these breeding seasons with concurrence from appropriate agencies if it can be determined that breeding has not started or that fledglings have left the nest. If the location of a nest site within a PAC is unknown, either surveys are required to locate the nest stand and determine nesting status or, as an alternative to surveys, an activity buffer will be applied to the 0.25-mile area surrounding the PAC. The activity buffer may be waived for activities of limited scope and duration, when a biological evaluation determines that such projects are unlikely to result in breeding disturbance considering their intensity, duration, timing, and specific location. Where a biological evaluation concludes that a nest site will be shielded from planned activities by topographic features that will minimize disturbance, the buffer distance may be modified in coordination with the USFS.
- **APM BIO-13:** To offset permanent removal of suitable habitat within designated PACs and HRCAs, CalPeco will assist the USFS in locating additional suitable habitat immediately adjacent to the PAC or HRCA removed to form a new PAC to support the USFS's goal of establishing additional PACs and maintaining specific acreages of California spotted owl and northern goshawk PACs and HRCAs. The amount of suitable habitat designated as a PAC or HRCA for each species is as follows: a spotted owl PAC is 300 acres, a northern

goshawk PAC is 200 acres, and a spotted owl HRCA is 1,000 acres. CalPeco will coordinate with the USFS to identify areas of interest and understand the desirable components or key criteria of suitable habitat used for PAC and HRCA designation. As an alternative to assisting USFS in locating additional suitable habitat adjacent to a PAC or HRCA, CalPeco will provide monitoring support for new PAC or HRCA areas established by USFS as a result of the project. The specific objectives, timing, and duration of monitoring will be agreed upon by CalPeco and USFS.

- **APM BIO-19:** Power poles will be constructed to conform to the practices described in the Suggested Practices for Avian Protection on Power Lines Manual developed by the Avian Power Line Interaction Committee (2006).

In addition, all of the APMs that would protect and minimize removal of trees and other vegetation resources described above in Section 4, "Measures to Minimize Environmental Effects," (APM BIO-01, -BIO-21, -23, -26, -28, -36, and -37) would also reduce and partially compensate for potential effects on spotted owl habitat. To compensate for permanent removal of suitable habitat within designated PACs and HRCAs, CalPeco proposes to conduct additional protocol-level surveys, under APM BIO-13, and assist USFS in locating additional suitable or best available habitat immediately adjacent to the PACs and HRCAs. These commitments are intended to assist USFS in achieving its goal of establishing additional PACs and HRCAs and maintaining specific acreages of spotted owl PACs and HRCAs, as described in APM BIO-13. This measure would support any potential reconfiguring or expansion of the Griff Creek and Mt. Pluto PACs and HRCAs, and the Carnelian and Twin Crag HRCAs, to include additional habitat of better or equal quality and function to that affected, if USFS pursues that option. As described above, habitat that would be affected in the Griff Creek PAC is along its western edge and relatively low-quality due to existing vegetation disturbances and clearance, disturbance from adjacent neighborhoods, and edge effects from adjacent residential and commercial land uses. Habitat that would be affected in the Mt. Pluto PAC is adjacent to the Fiberboard Freeway corridor, which is subject to existing disturbances and habitat degradation as a result of road use, maintenance, and edge effects. Therefore, opportunities to improve PAC quality and function by adding higher-quality habitat to these PACs from other adjacent areas may exist. As part of this measure, CalPeco will first coordinate with USFS to develop clear objectives and preferences for additional PAC and HRCA evaluation and designation/realignment, understand the key environmental variables and constraints used for PAC and HRCA designation, and identify priority/target areas for evaluation.

Although APM BIO-13 would provide compensation for permanent habitat loss or disturbance within the Mt. Pluto and Griff Creek spotted owl PACs and HRCAs, and the Carnelian and Twin Crags HRCAs, up to approximately 73.1 acres of potential spotted owl habitat would initially be affected in areas outside PACs and HRCAs under Alternative 1. Over time, because the existing 625 Line would be decommissioned and native vegetation is expected to reestablish within most the existing 20-foot vegetation management corridor (see APM BIO-37), the net permanent disturbance/loss would be approximately 61.7 acres. This total amount of potential habitat loss or disturbance represents a small proportion of the total amount available for spotted owl in the vicinity of the project area along its entire length; and these habitats are relatively abundant in the Truckee Tahoe region. Forest or other native vegetation recruitment, development, and succession within the decommissioned ROWs would benefit spotted owl habitat in those areas, by providing additional cover and foraging habitat for owls and their prey species. Additionally, APM BIO-37 requires that decommissioned ROWs be evaluated for soil compaction or other factors that could limit the recruitment and reestablishment of native vegetation over time, and apply appropriate treatments to facilitate native vegetation development as needed. Also, no spotted owl nest sites are known to occur within areas where potential habitat would be permanently removed.

With implementation of the APMs described above, Alternative 1 is not expected to substantially affect the distribution, breeding productivity, viability, or the regional (Tahoe-Truckee) population of California spotted owl. This conclusion is based on the following: 1) although individuals could be disturbed during project construction, disturbances to breeding spotted owls, effects on reproductive success, and the potential for direct mortality would be avoided or minimized through implementation of APM BIO-11; 2) the amount of

suitable habitat affected within PACs would be relatively small (approximately 0.03 and 2.1 percent of the Griff Creek and Mt. Pluto spotted owl PAC areas, respectively) and would be compensated for; 3) tree and other vegetation removal would be minimized, and habitat would be restored to preproject conditions in temporary construction areas; 4) no occupied nest sites would be removed; and 5) the permanent loss of potential habitat would be small relative to the total amount available in the area.

ALTERNATIVE 2

Under Alternative 2, the types and magnitude of most potential impacts to California spotted owl would be similar to those described for Alternative 1, with differences in the amounts and locations of habitats affected between the alternatives. Please see "Alternative 1," above, for a discussion of potential impact mechanisms, biological effects, and anticipated magnitude of effects on spotted owl. The following summarizes key differences between effects under Alternative 2 and those previously described for Alternative 1.

Alternative 2 includes a segment of the new 625 Line that would reduce the amount of permanent and temporary habitat loss and disturbance within the Mt. Pluto spotted owl PAC and HRCA (Segment 625-6A), relative to Alternative 1. (However, as discussed below in "Alternative 3" and "Alternative 4," Alternative 3 and Alternative 4 would result in the least amount of impact to spotted owl habitat among the action alternatives.) This segment was identified during project surveys in 2012 as an option to reduce potential habitat loss and fragmentation within the PAC and HRCA. Under Alternative 2, within the Mt. Pluto PAC, Segment 625-6A would be constructed mostly along Mt. Watson Road rather than parallel the Fiberboard Freeway (see Exhibit 3). Within the PAC, the new 625 Line would be 0.03 mile shorter and result in 1.3 fewer acres permanently affected initially than under Alternative 1 (see Table 7 for acreage comparisons among the alternatives); it would also be located closer to the western edge of the PAC, rather than through the middle as under Alternative 1 (Exhibit 3). Within the HRCA outside the PAC, the new 625 Line would permanently affect 0.6 fewer acres than under Alternative 1. However, based on project surveys conducted in 2012, the habitat along Mt. Watson Road is likely subject to less existing disturbance and habitat degradation from road use than the area adjacent to the Fiberboard Freeway. Therefore, the quality of spotted owl habitat within the Mt. Pluto PAC affected under Alternative 2 may be higher than that under Alternative 1.

Overall, implementation of Alternative 2 would initially result in the permanent loss or disturbance of up to 87.8 acres of potential habitat for spotted owl (compared to 96.8 acres under Alternative 1); of this amount, 0.4 acre would occur in the Griff Creek PAC (compared to 0.1 acre under Alternative 1), and 4.9 acres would occur in the Mt. Pluto PAC (compared to 6.2 acres under Alternative 1) (Table 7; Exhibit 3). Over the long term, because the existing 625 Line would be decommissioned and vegetation would be allowed to reestablish within the existing 20-foot vegetation management corridor, the net permanent disturbance/loss would be reduced to approximately 69.6 acres overall (compared to 80.2 acres under Alternative 1), and 4 acres in the Mt. Pluto PAC (compared to 5.2 acres under Alternative 1). Table 3 shows the amount of additional habitat affected outside of PACs but within HRCAs (Mt. Pluto, Carnelian, Griff Creek, Twin Crags HRCAs), and impacts to suitable habitat outside of designated PACs or HRCAs.

Overall, implementation of Alternative 2 (Modified Alternative) would result in the temporary loss or disturbance of up to 36.4 acres of potential habitat for spotted owl (compared to 46.2 acres under Alternative 1); of this amount, none would occur in the Griff Creek PAC (compared to 0.3 acre under Alternative 1), and 1.7 acres would occur in the Mt. Pluto PAC (compared to 2.4 acres under Alternative 1) (Table 7; Exhibit 3).

ALTERNATIVE 3

Under Alternative 3, the types of potential impacts to California spotted owl would be similar to those described for Alternative 1. Please see "Alternative 1," above, for a discussion of potential impact mechanisms, biological effects, and anticipated magnitude of effects on spotted owl. Because Alternative 3 would eliminate Segments

625-9 and 625-10 and place them into a double circuit line in Segments 650-1 and 650-2, and much of the impact footprint of Alternative 3 is within existing or adjacent to roadways that do not contain native vegetation, implementation of Alternative 3 would result in less removal of habitat compared to Alternatives 1 and 2. Furthermore, the quality of habitat that would be removed under Alternative 3 is generally lower than that under Alternative 1 or Alternative 2, because the Alternative 3 alignment is located mostly within existing road corridors that are already subject to higher disturbance levels. Some potential effects on California spotted owl under Alternative 3 would differ from those previously addressed for Alternatives 1 and 2. The following summarizes key differences between effects under Alternative 3 and those previously described for Alternatives 1 and 2.

Alternative 3 would result in less permanent and temporary impact to California spotted owl habitat than Alternative 1 and Alternative 2. Most of the new 625 and 650 Lines would be placed within existing road ROWs, requiring less permanent and temporary vegetation removal for ROW clearing, construction access, and access road construction/improvements.

Overall, implementation of Alternative 3 would initially result in the permanent loss or disturbance of up to 51.2 acres of potential habitat for spotted owl (compared to 96.8 and 87.8 acres under Alternative 1 and Alternative 2, respectively); of this amount, up to 0.4 acre would occur in the Griff Creek PAC (compared to 0.1 and 0.4 acre under Alternative 1 and Alternative 2, respectively), and 2.6 acres would occur in the Mt. Pluto PAC (compared to 6.2 and 4.9 acres under Alternative 1 and Alternative 2, respectively) (Table 7; Exhibit 3). Under the double-circuit option of Alternative 3, no habitat within the Griff Creek PAC would be affected (Table 7). Within the Mt. Pluto PAC, Segment 625-6 would be constructed within or adjacent to the disturbed Fiberboard Freeway ROW (see Exhibit 3). In addition to resulting in fewer acres permanently affected within the Mt. Pluto PAC, the existing ROW where the new 625 Line would be constructed under Alternative 3 is already subject to existing disturbances and habitat degradation as a result of road use, maintenance, and edge effects. Therefore, the quality of spotted owl habitat within the Mt. Pluto PAC affected under Alternative 3 may be lower than that affected under Alternative 1 or Alternative 2.

Over the long term, because the existing 625 Line would be decommissioned and vegetation would be allowed to reestablish within the existing 20-foot vegetation management corridor, the net permanent disturbance/loss would be reduced to approximately 33 acres overall (compared to 80.2 and 69.6 acres under Alternative 1 and Alternative 2, respectively), and 1.5 acres in the Mt. Pluto PAC (compared to 5.2 and 4 acres under Alternative 1 and Alternative 2, respectively). Under the double-circuit option, a net gain or enhancement of 0.1 acre would occur in the Griff Creek PAC (compared to the disturbance/loss of 0.1 and 0.4 acre under Alternative 1 and Alternative 2, respectively). Table 3 additionally shows the amount of additional habitat affected outside of PACs but within HRCAs (Mt. Pluto, Carnelian, Griff Creek, Twin Crags HRCAs), and impacts to suitable habitat outside of designated PACs or HRCAs.

The total amount of temporary disturbance to spotted owl habitat under Alternative 3 (Road Focused Alternative) would be less than under Alternative 1 (PEA Alternative) and greater than Alternative 2 (Road Focused Alternative). Overall, implementation of Alternative 3 (Road Focused Alternative) would result in the temporary loss or disturbance of up to 40.6 acres of potential habitat for spotted owl (compared to 46.2 and 36.4 acres under Alternative 1 and Alternative 2, respectively); of this amount, none would occur in the Griff Creek PAC (compared to 0.3 and 0 acre under Alternative 1 and Alternative 2, respectively), and 3 acres would occur in the Mt. Pluto PAC (compared to 2.4 and 1.7 acres under Alternative 1 and Alternative 2, respectively) (Table 7; Exhibit 3).

ALTERNATIVE 4

Under Alternative 4, the types of potential impacts to California spotted owl would be similar to those described for Alternative 1. Please see “Alternative 1,” above, for a discussion of potential impact mechanisms, applicable

APMs, biological effects, and anticipated magnitude of effects on spotted owl. Because Alternative 4 would eliminate Segments 625-9 and 625-10 and place them into a double circuit line in Segments 650-1 and 650-2, similar to Alternative 3, and much of the impact footprint of Alternative 4 is within existing roadways that do not contain native vegetation, implementation of Alternative 4 would result in less removal of habitat compared to Alternatives 1 and 2. Furthermore, the quality of habitat that would be removed under Alternative 4 is generally lower than that under Alternative 1 or Alternative 2, because much of the Alternative 4 alignment is located within existing road corridors that are already subject to higher disturbance levels. Some potential effects on California spotted owl under Alternative 4 would differ from those previously addressed for Alternatives 1, 2, and 3. The following summarizes key differences between effects under Alternative 4 and those previously described for Alternatives 1, 2, and 3.

Implementation of Alternative 4 (Proposed Alternative) would affect less total habitat for California spotted owl on NFS lands than under Alternatives 1 and 2, and a similar amount to that affected under Alternative 3. Overall, implementation of Alternative 4 would initially result in the permanent loss or disturbance of up to 51.2 acres of potential habitat for spotted owl (compared to 96.8, 87.8, and 51.2 acres under Alternative 1, Alternative 2, and Alternative 3, respectively); of this amount, up to 0.4 acre would occur in the Griff Creek PAC (compared to 0.1, 0.4, and 0–0.4 [depending on option] acre under Alternative 1, Alternative 2, and Alternative 3, respectively), and 2.6 acres would occur in the Mt. Pluto PAC (compared to 6.2, 4.9, and 2.6 acres under Alternative 1, Alternative 2, and Alternative 3, respectively) (Table 7; Exhibit 3). Within the Mt. Pluto PAC, Segment 625-6 would be constructed within or adjacent to the disturbed Fiberboard Freeway ROW (see Exhibit 3). In addition to resulting in fewer acres permanently affected within the Mt. Pluto PAC, the existing ROW where the new 625 Line would be constructed under Alternative 4 is already subject to existing disturbances and habitat degradation as a result of road use, maintenance, and edge effects. Therefore, the quality of spotted owl habitat within the Mt. Pluto PAC affected under Alternative 4 may be lower than that affected under Alternative 1 or Alternative 2. Effects within the Mt. Pluto PAC under Alternative 4 would be the same as those under Alternative 3.

Over the long term, because the existing 625 Line would be decommissioned and vegetation would be allowed to reestablish within the existing 20-foot vegetation management corridor, the net permanent disturbance/loss would be reduced to approximately 33 acres overall (compared to 80.2, 69.6, and 33 acres under Alternative 1, Alternative 2, and Alternative 3, respectively), and 1.5 acres in the Mt. Pluto PAC (compared to 5.2, 4, and 1.5 acres under Alternative 1, Alternative 2, and Alternative 3, respectively). Table 3 additionally shows the amount of additional habitat affected outside of PACs but within HRCAs (Mt. Pluto, Carnelian, Griff Creek, Twin Crags HRCAs), and impacts to suitable habitat outside of designated PACs or HRCAs.

Overall, implementation of Alternative 4 (Proposed Alternative) would result in the temporary loss or disturbance of up to 40.6 acres of potential habitat for spotted owl (compared to 46.2, 36.4, and 40–40.6 acres [depending on option] under Alternative 1, Alternative 2, and Alternative 3, respectively); of this amount, none would occur in the Griff Creek PAC (compared to 0.3, 0, and 0 acre under Alternative 1, Alternative 2, and Alternative 3, respectively), and 3 acres would occur in the Mt. Pluto PAC (compared to 2.4, 1.7, and 3 acres under Alternative 1, Alternative 2, and Alternative 3, respectively) (Table 7; Exhibit 3).

5.1.3 NORTHERN GOSHAWK

ALTERNATIVE 1

Suitable foraging habitat for northern goshawk is present throughout most of the study area along the 625 Line and portions of the 650 Line, and goshawks have been detected in several segments along the 625 Line. Habitat suitable for nesting is also present throughout the study area; however, except for some areas within Segments 625-9 and 625-10, nesting activity has not been documented throughout most of the study area (Exhibit 4). Nesting habitat quality within the study area may be limited by forest structure and/or levels of disturbance (e.g., from trail and other recreation uses) throughout much of the area.

One northern goshawk PAC is present within the study area along Segment 625-10 (Griff Creek PAC) (Exhibit 4), and three additional areas have documented concentrations of goshawk activity. All of these areas are located near recent or historic goshawk nests. The distribution of goshawk PACs, recent and historic nests, and other detections of individuals in and near the study area are shown on Exhibit 4. The western edge of the Griff Creek northern goshawk PAC intersects the study area along Segment 625-10 near the Kings Beach substation. The existing alignment, which would be replaced in its current location under Alternative 1, is located along this portion of the PAC's western boundary. Habitat within the Griff Creek PAC consists primarily of Sierran mixed conifer forest, with some montane riparian habitat. Suitable habitat for goshawk in the study area outside of the Griff Creek PAC additionally includes Jeffrey pine and white fir forest. Much of the potential habitat for northern goshawk in the Griff Creek PAC, and elsewhere, in the study area may only be suitable for foraging, rather than nesting. Goshawks are highly sensitive to disturbance, especially during pair bonding and the nesting initiation phase (mid-February through late May) (USDA Forest Service 2001b). Much of the habitat within the study area is bisected by several roads and trails that receive a variety of recreational use. Therefore, high-quality nesting habitat may be limited within the study area, but suitable foraging habitat is present throughout the study area and northern goshawks have been documented along the 625 Line, especially at the eastern end near Griff Creek.

In the short term, project activities related to construction of the new 625 and 650 Lines, and decommissioning of the existing 625 Line, could temporarily disturb northern goshawks and/or their habitat located within the study area. Temporary disturbances resulting from noise and increased human activity within northern goshawk habitat, or other project activities such as low-flying helicopter operations near occupied habitat, could affect foraging, movement, and reproductive activity of northern goshawks. Such disturbances may cause individuals to temporarily leave an area to avoid the disturbance and may also cause changes in behavior and local distribution of their prey species, thus influencing goshawk foraging activity and patterns. However, disturbances associated with construction activity would occur locally and over short periods of time in a given area, and would not be expected to affect significant portions of an individual's foraging range. Because northern goshawks are particularly sensitive to disturbance, especially during the breeding season, they may abandon nests if disturbance levels increase in a given area. Additionally, direct mortality of individuals may result from collisions with the conductor and electrocution, as discussed above for California spotted owl.

Habitat for northern goshawks would be removed and/or disturbed to construct the new 625 and 650 Lines, and access roads and staging areas for use during and after construction. Table 8 summarizes the amount of potential habitat estimated within PACs and undesignated areas (i.e., habitat on NFS lands outside of PACs) that would be disturbed or removed permanently and temporarily as a result of implementation of all action alternatives. Table 8 also summarizes the amount of habitat potentially gained or enhanced where the existing 625 Line would be removed and revegetated (see APM BIO-37), and the long-term net change in the amount of suitable habitat when considering both disturbances/losses and enhancements/gains. For purposes of this analysis, potential habitat was generally assumed to include all conifer forest types mapped in the study area. This assumption is very conservative, because not all of these areas likely function as suitable nesting or foraging habitat, due to variability in stand structure and canopy closure, forage quality, presence of potential nesting trees, levels of existing disturbance, and other biophysical factors. Therefore, the habitat acreage values shown in Table 8 and referenced throughout this analysis overestimate the potential effect on goshawk habitat.

Overall, implementation of Alternative 1 would initially result in the permanent loss or disturbance of up to 96.8 acres of potential habitat for northern goshawk over the study area. Of this total amount, 0.1 acre would occur in the Griff Creek PAC (Table 8; Exhibits 4), which represents approximately 0.05 percent of the PAC. Over the long term, because the existing 625 Line would be decommissioned and vegetation would be allowed to reestablish within the existing 20-foot vegetation management corridor, the net permanent disturbance/loss would be reduced to approximately 80.2 acres overall; there would be no change in PAC acreage affected. Disturbance or loss of suitable goshawk habitat along Segments 625-9 and 625-10, where the Griff Creek PAC and most documented goshawk activity are located, would be relatively limited as the new 625 and 650 Lines

Table 8 Permanent and Temporary Effects on Northern Goshawk Habitat on NFS Lands[1]

Habitat Area[2]	Alternative 1 (PEA Alternative)				Alternative 2 (Modified Alternative)				Alternative 3 (Road Focused Alternative)				Alternative 3a (Double Circuit Option)				Alternative 4 (Proposed Alternative)			
	Permanent (acres)			Additional Temp (acres)	Permanent (acres)			Additional Temp (acres)	Permanent (acres)			Additional Temp (acres)	Permanent (acres)			Additional Temp (acres)	Permanent (acres)			Additional Temp (acres)
	Disturb/ Loss[3]	Enhance/ Gain	Net Change		Disturb/ Loss[3]	Enhance/ Gain	Net Change		Disturb/ Loss[3]	Enhance/ Gain	Net Change		Disturb/ Loss[3]	Enhance/ Gain	Net Change		Disturb/ Loss[3]	Enhance/ Gain	Net Change	
PAC																				
Griff Creek	-0.1		-0.1	-0.2	-0.2		-0.2		-0.2		-0.2			+0.06	+0.06		-0.2		-0.2	
Other/Undesignated Areas																				
	-96.7	+16.6	-80.1	-46.0	-87.6	+18.2	-69.4	-36.4	-51.0	+18.2	-32.8	-40.6	-50.6	+18.5	-32.1	-40.6	-51.0	+18.2	-32.8	-40.6
Total	**-96.8**	**+16.6**	**-80.2**	**-46.2**	**-87.8**	**+18.2**	**-69.6**	**-36.4**	**-51.2**	**+18.2**	**-33.0**	**-40.6**	**-50.6**	**+18.6**	**-32.0**	**-40.6**	**-51.2**	**+18.2**	**-33.0**	**-40.6**

[1] Impact acreages assume implementation of APMs SCE-7 and SCE-8, which include an alignment setback away from SR 267 under Alternatives 1, 3, 3A and 4 for the 650 Line, and a setback away from the Truckee River and into the 64-Acre parcel under Alternatives 1, 3, 3A, and 4 for the 625 Line.
[2] For purposes of this analysis, potential northern goshawk habitat includes the following CWHR Types: Jeffrey Pine, Jeffrey Pine/White Fir, White Fir/Red Fir, Red Fir, and Sierran Mixed Conifer Forest.
[3] Where the new power line corridor would follow and expand the width of the existing 625 Line corridor, the amount of habitat affected refers specifically to overstory forest cover that would be removed to widen the existing disturbed/managed corridor (i.e., the calculation of new habitat loss does not include the amount of existing disturbed corridor).

would follow the existing ROW where vegetation is already cleared. However, additional clearance of vegetation would need to occur along the existing line here and throughout the study area to accommodate the wider clearance requirement for a 125-kV line (expanding the existing 20-foot vegetation management corridor to 40-feet). Because the existing 625 Line ROW follows the western boundary of the Griff Creek PAC, habitat disturbances and loss (0.1 acre) that extend into the PAC would be limited to its western edge and avoid the PAC's core or interior. Additionally, although the study area in Segments 625-9 and 625-10 is located within or adjacent to a goshawk PAC, much of the habitat there is relatively low-quality due to existing vegetation disturbances and clearance, disturbance from adjacent neighborhoods, and edge effects from adjacent residential and commercial land uses. In addition to up to 96.8 acres of permanent habitat loss, implementation of Alternative 1 would result in 46.2 acres of temporary habitat disturbance, including some within the Griff Creek goshawk PAC (Table 8). Additional temporary effect is the maximum amount, in addition to what would remain as a permanent ROW or access road 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. Some large trees could be removed during temporary construction activities. However, no trees used by northern goshawks for nesting would be removed. Despite the potential removal of large trees, the post-restoration conditions of temporary construction areas would not be outside the range of habitat types that contribute to suitable goshawk habitat and territories; goshawk habitat is typically a mosaic of nesting and foraging habitats, consisting of mature forest stands interspersed with patches of native shrub and herbaceous vegetation (Youtz et al. 2008).

As described in Section 4, "Measures to Minimize Environmental Effects," several APMs have been incorporated into the project design to minimize, avoid, and reduce potential adverse effects on biological resources. The following APMs have been incorporated into the project design to avoid, minimize, and compensate for impacts to northern goshawk specifically:

- **APM BIO-11:** CalPeco will conduct protocol-level surveys during the appropriate season prior to construction in a particular area to determine whether northern goshawks or California spotted owls are nesting in planned work areas within suitable habitat along the new 625 Line, existing 625 Line, and 650 Line, including USFS-designated PACs or Home Range Core Areas (HRCAs).
- **APM BIO-12:** No vegetation management or treatment or other construction activities, other than vehicle passage on existing roadways, will occur within 0.25 mile of active California spotted owl nests during the breeding season (March 1 to August 31) or within 0.50 mile of active northern goshawk nests during the breeding season (February 15 to September 15), unless protocol-level surveys confirm that the birds are not nesting. A qualified biologist will have the ability to amend the start and end dates of these breeding seasons with concurrence from appropriate agencies if it can be determined that breeding has not started or that fledglings have left the nest. If the location of a nest site within a PAC is unknown, either surveys are required to locate the nest stand and determine nesting status or, as an alternative to surveys, an activity buffer will be applied to the 0.25-mile area surrounding the PAC. The activity buffer may be waived for activities of limited scope and duration, when a biological evaluation determines that such projects are unlikely to result in breeding disturbance considering their intensity, duration, timing, and specific location. Where a biological evaluation concludes that a nest site will be shielded from planned activities by topographic features that will minimize disturbance, the buffer distance may be modified in coordination with the USFS.
- **APM BIO-13:** To offset permanent removal of suitable habitat within designated PACs and HRCAs, CalPeco will assist the USFS in locating additional suitable habitat immediately adjacent to the PAC or HRCA removed to form a new PAC to support the USFS's goal of establishing additional PACs and maintaining specific acreages of California spotted owl and northern goshawk PACs and HRCAs. The amount of suitable habitat designated as a PAC or HRCA for each species is as follows: a spotted owl PAC is 300 acres, a northern

goshawk PAC is 200 acres, and a spotted owl HRCA is 1,000 acres. CalPeco will coordinate with the USFS to identify areas of interest and understand the desirable components or key criteria of suitable habitat used for PAC and HRCA designation. As an alternative to assisting USFS in locating additional suitable habitat adjacent to a PAC or HRCA, CalPeco will provide monitoring support for new PAC or HRCA areas established by USFS as a result of the project. The specific objectives, timing, and duration of monitoring will be agreed upon by CalPeco and USFS.

- **APM BIO-19:** Power poles will be constructed to conform to the practices described in the Suggested Practices for Avian Protection on Power Lines Manual developed by the Avian Power Line Interaction Committee (2006).

In addition, all of the APMs that would protect and minimize removal of trees and other vegetation resources described above in Section 4, "Measures to Minimize Environmental Effects," (APM BIO-01, -BIO-21, -23, -26, -28, -36, and -37) would also reduce and partially compensate for potential effects on northern goshawk habitat. To compensate for permanent removal of suitable habitat within designated PACs, CalPeco proposes to conduct additional protocol-level surveys, under APM BIO-13, and assist USFS in locating additional suitable or best available habitat immediately adjacent to the PAC. These commitments are intended to assist USFS in achieving its goal of establishing additional PACs and maintaining specific acreages of northern goshawk PACs, as described in APM BIO-13. This measure would support any potential reconfiguring or expansion of the Griff Creek PAC to include additional habitat of equal or better quality and function to that affected, which would offset project-related impacts to the PAC, if USFS pursues that option. As described above, habitat that would be affected in the Griff Creek PAC is along its western edge and relatively low-quality due to existing vegetation disturbances and clearance, disturbance from adjacent neighborhoods, and edge effects from adjacent residential and commercial land uses. Therefore, opportunities to improve PAC quality and function by adding higher-quality habitat to the PAC from other adjacent areas may exist. As part of this measure, CalPeco will first coordinate with USFS to develop clear objectives and preferences for additional PAC evaluation and designation/realignment, understand the key environmental variables and constraints used for PAC designation, and identify priority/target areas for evaluation.

Although APM BIO-13 would provide compensation for the small amount of permanent habitat loss or disturbance within the Griff Creek northern goshawk PAC (0.1 acre), up to approximately 96.7 acres of potential goshawk habitat would initially be affected in areas outside the PAC under Alternative 1. Over time, because the existing 625 Line would be decommissioned and native vegetation is expected to reestablish within most of the existing 20-foot vegetation management corridor (see APM BIO-37), the net permanent disturbance/loss would be approximately 80.1 acres. This represents a small proportion of the total amount of available habitat for goshawk in the vicinity of the project area along its entire length; and these habitats are relatively abundant in the Truckee Tahoe region. Forest or other native vegetation recruitment, development, and succession within the decommissioned ROWs would benefit goshawk habitat in those areas, by providing additional cover and foraging habitat for goshawks and their prey species. Additionally, APM BIO-37 requires that decommissioned ROWs be evaluated for soil compaction or other factors that could limit the recruitment and reestablishment of native vegetation over time, and apply appropriate treatments to facilitate native vegetation development as needed. Also, no goshawk nest sites are known to occur within areas where potential habitat would be permanently removed.

With implementation of the APMs described above, Alternative 1 is not expected to substantially affect the distribution, breeding productivity, viability, or the regional (Tahoe-Truckee) population of northern goshawk. This conclusion is based on the following: 1) although individuals could be disturbed during project construction, disturbances to breeding goshawks, effects on reproductive success, and the potential for direct mortality would be avoided or minimized through implementation of APM BIO-11; 2) impacts to suitable habitat within the Griff Creek PAC would be minor (up to 0.1 acre, or 0.05 percent of the PAC, along the PAC's edge) and would be compensated for; 3) tree and other vegetation removal would be minimized, and habitat would be restored to preproject conditions in temporary construction areas; 4) no occupied nest sites would be removed; and 5) the

permanent loss of potential habitat would be small relative to the total amount available in the area, and likely limited primarily to foraging habitat.

ALTERNATIVE 2

Under Alternative 2, the types and magnitude of most potential impacts to northern goshawk would be similar to those described for Alternative 1, with differences in the amounts and locations of habitats affected between the alternatives. Please see "Alternative 1," above, for a discussion of potential impact mechanisms, biological effects, applicable APMs, and anticipated magnitude of effects on northern goshawk. The following summarizes key differences between effects under Alternative 2 and those previously described for Alternative 1.

Overall, implementation of Alternative 2 would initially result in the permanent loss or disturbance of up to 87.8 acres of potential habitat for northern goshawk over the study area (compared to 96.8 acres under Alternative 1). Of this total amount, 0.2 acre would occur in the Griff Creek goshawk PAC (compared to 0.1 acre under Alternative 1) (Table 8; Exhibit 4). Over the long term, because the existing 625 Line would be decommissioned and vegetation would be allowed to reestablish within the existing 20-foot vegetation management corridor, the net permanent disturbance/loss would be reduced to approximately 69.6 acres overall (compared to 80.2 acres under Alternative 1).

The amount of temporary disturbance to northern goshawk habitat would be less under Alternative 2. Overall, implementation of Alternative 2 would result in the temporary loss or disturbance of up to 36.4 acres of potential habitat for northern goshawk (compared to 46.2 acres under Alternative); of this amount, none would occur in the Griff Creek goshawk PAC (compared to 0.2 acre under Alternative 1) (Table 8; Exhibit 4).

ALTERNATIVE 3

Under Alternative 3, the types of potential impacts to northern goshawk would be similar to those described for Alternative 1. Please see "Alternative 1," above, for a discussion of potential impact mechanisms, biological effects, applicable APMs, and anticipated magnitude of effects on northern goshawk. Because Alternative 3 would eliminate Segments 625-9 and 625-10 and place them into a double circuit line in Segments 650-1 and 650-2, and much of the impact footprint of Alternative 3 is within existing roadways that do not contain native vegetation, implementation of Alternative 3 would result in less removal of habitat compared to Alternatives 1 and 2. Furthermore, the quality of habitat that would be removed under Alternative 3 is generally lower than that under Alternative 1 or Alternative 2, because the Alternative 3 alignment is located mostly within existing road corridors that are already subject to higher disturbance levels. Some potential effects on northern goshawk under Alternative 3 would differ from those previously addressed for Alternatives 1 and 2. The following summarizes key differences between effects under Alternative 3 and those previously described for Alternatives 1 and 2.

Implementation of Alternative 3 would affect substantially less total habitat for northern goshawk than Alternative 1 and Alternative 2. Overall, implementation of Alternative 3 would initially result in the permanent loss or disturbance of up to 51.2 acres of potential habitat for northern goshawk over the study area on NFS lands (compared to 96.8 and 87.8 acres under Alternative 1 and Alternative 2, respectively). Of this total amount, 0.2 acre would occur in the Griff Creek goshawk PAC (compared to 0.1 and 0.2 acre under Alternative 1 and Alternative 2, respectively) (Table 8; Exhibit 4). Under the double-circuit option of Alternative 3 (Alternative 3A: Road Focused Alternative), no habitat within the Griff Creek PAC would be affected (Table 8). Over the long term, because the existing 625 Line would be decommissioned and vegetation would be allowed to reestablish within the 20-foot corridor currently managed to limit vegetation, the net permanent disturbance/loss would be reduced to approximately 33 acres overall (compared to 80.2 and 69.6 acres under Alternative 1 and Alternative 2, respectively). Under the double-circuit option, a net gain or enhancement of up to 0.1 acre within the Griff Creek PAC is expected to occur over the long term (Table 8).

Overall, implementation of Alternative 3 would result in the temporary loss or disturbance of up to 40.6 acres of potential habitat for northern goshawk (compared to 46.2 and 36.4 acres under Alternative 1 and Alternative 2, respectively); of this amount, none would occur in the Griff Creek goshawk PAC (compared to 0.2 and 0 acre under Alternative 1 and Alternative 2, respectively) (Table 8; Exhibit 4). Under the double-circuit option of Alternative 3, no habitat within the Griff Creek PAC would be temporarily affected.

ALTERNATIVE 4

Under Alternative 4, the types of potential impacts to northern goshawk would be similar to those described for Alternative 1. Please see "Alternative 1," above, for a discussion of potential impact mechanisms, applicable APMs, biological effects, and anticipated magnitude of effects on spotted owl. Because Alternative 4 would eliminate Segments 625-9 and 625-10 and place them into a double circuit line in Segments 650-1 and 650-2, similar to Alternative 3, and much of the impact footprint of Alternative 4 is within existing roadways that do not contain native vegetation, implementation of Alternative 4 would result in less removal of habitat compared to Alternatives 1 and 2. Furthermore, the quality of habitat that would be removed under Alternative 4 is generally lower than that under Alternative 1 or Alternative 2, because much of the Alternative 4 alignment is located within existing road corridors that are already subject to higher disturbance levels. Some potential effects on northern goshawk under Alternative 4 would differ from those previously addressed for Alternatives 1, 2, and 3. The following summarizes key differences between effects under Alternative 4 and those previously described for Alternatives 1, 2, and 3.

Implementation of Alternative 4 would affect less total habitat for northern goshawk on NFS lands than under Alternatives 1 and 2, and a similar amount to that affected under Alternative 3. Overall, implementation of Alternative 4 would initially result in the permanent loss or disturbance of up to 51.2 acres of potential habitat for northern goshawk over the study area (compared to 96.8, 87.8, and 51.2 acres under Alternative 1, Alternative 2, and Alternative 3, respectively). Of this total amount, 0.2 acre would occur in the Griff Creek goshawk PAC (compared to 0.1, 0.2, and 0–0.2 [depending on option] acre under Alternative 1, Alternative 2, and Alternative 3, respectively) (Table 8; Exhibit 4). Over the long term, because the existing 625 Line would be decommissioned and vegetation would be allowed to reestablish within the existing 20-foot vegetation management corridor, the net permanent disturbance/loss would be reduced to approximately 33 acres overall (compared to 80.2, 69.6, and 33 acres under Alternative 1, Alternative 2, and Alternative 3, respectively).

Overall, implementation of Alternative 4 would result in the temporary loss or disturbance of up to 40.6 acres of potential habitat for northern goshawk (compared to 46.2, 36.4, and 40.6 acres under Alternative 1, Alternative 2, and Alternative 3, respectively); of this amount, none would occur in the Griff Creek goshawk PAC (compared to 0.2, 0, and 0 acre under Alternative 1, Alternative 2, and Alternative 3, respectively) (Table 8; Exhibit 4).

5.1.4 AMERICAN MARTEN

ALTERNATIVE 1

American marten has been documented throughout the action area within the Lake Tahoe Basin and on the TNF along Segment 625-4. Suitable habitat for marten is present within both the forested and open habitats along the entire length of the 625 Line and the portions of the 650 Line on NFS lands within the Lake Tahoe Basin. The portions of the 650 Line located in the Martis Valley and near the town of Truckee do not provide suitable habitat for marten due to lack of suitable forest habitat, lack of connectivity to more suitable habitat, and high levels of disturbance and development.

In the short term, activities related to construction of the new 625 and 650 Lines and decommissioning of the existing 625 Line could temporarily disturb American marten and/or its habitat located within the action area. If American marten use the study area for foraging or breeding, increased noise, human activities, or other factors

associated with construction activities (vegetation removal, clearing, and excavation) could temporarily disturb foraging, movement, or reproductive activities and temporarily displace individuals. Also, individuals could alter their behavior by avoiding the project area during construction. The behavior and local distribution of prey populations for American marten could be temporarily altered by project activities; this could influence marten foraging activity and patterns. However, potential disruptions of prey populations would occur locally and are not likely to occur over a substantial portion of any individual's foraging range. In addition, mortality or injury could occur as a result of collision with construction equipment, although individuals are mobile and would likely avoid active construction areas.

In addition to potential temporary effects on individuals described above, clearing of the new power line corridors, removal of hazard trees adjacent to the lines, extension of existing corridors, and clearing and widening of access roads would also result in permanent loss or disturbance of habitat suitable for American marten. Additional temporary habitat loss would result from vegetation removal within the temporary construction ROW, stringing sites, staging areas, and temporary access roads; establishment of new access ways; placement of crossing structures; improvement and expansion of access roads to accommodate construction equipment and supplies; and installation of new poles and conductor. Areas where temporary habitat loss and disturbance would occur would be revegetated as part of the proposed project. Temporary or permanent removal of American marten habitat could also result in disturbance or removal of an active marten reproductive den site, and injury or mortality of young or adults using the den, if dens are present in the study area.

The following APMs have been incorporated into the project design that would avoid, minimize, and compensate for impacts to American marten:

- **APM BIO-15:** Preconstruction biological surveys will be conducted no more than 30 days prior to construction activities to identify biological resources, including burrows and den sites, which could be impacted by construction activities. All burrows and den sites will be inspected for use by sensitive mammals, and buffers may be established based on occupation. If an area is given clearance to proceed with construction and burrowing or denning activities subsequently occur, it will be assumed that the individuals are acclimated to the ongoing disturbance of construction. However, the den will be flagged to prevent damage during construction. If circumstances exist such that future activities may result in the abandonment of the burrow or den site, as determined by a qualified biologist, an appropriate exclusionary buffer will be established by CalPeco, in coordination with CDFW, USFS, and, if necessary, the USFWS.
- **APM BIO-16:** If a potentially active sensitive mammal burrow or den site is unavoidable, CalPeco will employ den-dusting or scoping to determine the species and reproductive status of the animal. If the burrow or den is determined to be active and does not contain young, CalPeco will excavate the burrow by hand, remove the den, or block the entrance to prevent re-entry until after the completion of work. If the animal is determined to be raising young, CalPeco will establish a 200-foot exclusionary buffer surrounding the burrow or den until it is determined that the young have left the den. After it is determined that young have left the den, CalPeco will commence hand excavation or removal of the den structure. CalPeco will contact CDFW, USFS and/or USACE prior to any den-dusting, scoping, burrow excavation, or den structure removal.
- **APM BIO-22:** An environmental monitor will inspect all pole excavations and areas of active construction on a daily basis for trapped wildlife. Wildlife found in active construction areas will be allowed to passively leave the site. If necessary, wildlife may be relocated by a qualified biologist. The construction foreman will notify the environmental monitor immediately if any wildlife enters or becomes trapped in the work area.
- **APM BIO-33:** All trash and food will be removed from the site at the end of each workday in order to deter wildlife from entering the site.
- **APM BIO-34:** No pets or firearms will be allowed in the project area.
- **APM BIO-35:** No harm, harassment, or collection of plant and wildlife species will be allowed. Feeding of wildlife will be prohibited.

In addition, all of the APMs that would protect and minimize removal of trees and other vegetation resources described above in Section 4, "Measures to Minimize Environmental Effects," (APM BIO-01, -21, -23, -26, -28, -36, and -37) would also reduce and partially compensate for potential effects on habitat for American marten. In addition, the permanent loss of habitat along the new 625 Line ROW would be partially compensated for, over the long term, by the abandonment and revegetation of the existing 625 Line ROW.

With incorporation of these APMs as part of the project, implementation of Alternative 1 is not expected to substantially affect American marten. Although Alternative 1 would result in habitat loss and could adversely affect individuals locally, the magnitude and intensity of potential adverse effects are not expected to affect the species' distribution, breeding productivity, local population size, or regional populations.

ALTERNATIVES 2, 3, AND 4

Under Alternative2, the types and magnitude impacts to American marten would be similar to those described for Alternative 1, with minor differences in the amounts and locations of habitats affected between the alternatives. Please see "Alternative 1," above, for a discussion of potential impact mechanisms, biological effects, applicable APMs, and anticipated magnitude of effects on American marten. Because Alternatives 3 and 4 would eliminate Segments 625-9 and 625-10 and place them into a double circuit line in Segments 650-1 and 650-2, and much of the impact footprint of Alternative 3 is within existing roadways that do not contain native vegetation, implementation of Alternatives 3 and 4 would result in less removal of habitat compared to Alternatives 1 and 2. Furthermore, the quality of habitat that would be removed under Alternatives 3 and 4 is generally lower than that under Alternative 1 or Alternative 2, because the Alternative 3 and 4 alignments are located mostly within existing road corridors that are already subject to higher disturbance levels.

With incorporation of the APMs as part of the project, implementation of Alternative 2 or Alternative 3 is not expected to substantially affect American marten. Although Alternatives 2 and 3 would result in habitat loss and could adversely affect individuals locally, the magnitude and intensity of potential adverse effects are not expected to affect the species' distribution, breeding productivity, local population size, or regional populations.

5.1.5 PALLID BAT

ALTERNATIVES 1, 2, 3, AND 4

Though no documented occurrences of pallid bat exist for the action area, suitable habitat for pallid bat is present in the coniferous forest habitat in the action area. Coniferous forest may provide suitable roosting habitat in trees and snags, and foraging habitat in relatively open areas.

Under any of the action alternatives (Alternatives 1, 2, 3, and 4), construction of the new 625 Line and decommissioning of the old 625 Line could temporarily disturb pallid bats that may be roosting in the study area. If roost sites for pallid bats are present in the study area, temporary disturbances resulting from construction-related noise could disrupt roosting bats, including breeding females, and cause them to abandon a roost site and young. Project activities within suitable habitat that remove or disturb trees or other structures used for roosting could remove or cause abandonment of these features. Additionally, the removal of trees occupied by bats during removal activities could injure or kill bats. Loss of active roost sites could affect distribution of individuals over time if other suitable roost sites are not available; however, potential roost sites are not limited to the project disturbance footprint; other forested habitat with potential roost structures is abundant throughout the study area and the surrounding forest. Because construction would occur during the day when bats are typically not active, disturbances to foraging behavior and prey would be avoided.

To avoid or minimize disturbances or removal of active roost sites for pallid bat, and mortality or injury to bats, the following APM will be implemented as part of the proposed project:

- **APM BIO-20:** Bat surveys will be conducted in the spring, no more than 30 days prior to the start of construction, in order to identify active bat roosting sites, such as snags or dense trees. All potential roosting sites will be surveyed by a qualified biologist in order to determine usage. Specific survey methodologies will be determined in coordination with CDFW and the appropriate land manager (e.g., USFS, USACE). All non-active roosting sites will be trimmed within 30 days of the surveys in order to prevent new roosts from being established. If it is determined that an active roosting site will be impacted, CalPeco will consult with CDFW, USFS and/or USACE in order to acquire appropriate authorizations to remove the roosting sites. All active non-maternity roosting sites will be fitted with passive exclusion devices, such as one-way doors, and all bats will be allowed to leave voluntarily. Once it is confirmed that all bats have left the roost, crews will be allowed to continue work in the area. If a maternity roosting site is discovered, CalPeco will consult with the CDFW, USFS and/or USACE in order to establish appropriate exclusionary buffers until all young are determined to be volant by a qualified biologist. Once it is determined that all young are volant, passive exclusion devices will be installed and all bats will be allowed to leave voluntarily. Once it is determined by a qualified biologist that all bats have left the roost, crews will be allowed to work within the buffer zone.

Implementation of Alternative 1, 2, 3, or 4 is not expected to substantially affect pallid bat. As described above, implementation of APM BIO-20 would avoid or minimize disturbances or removal of active roost sites for pallid bat, and mortality or injury to bats; effects on bat foraging and roosting habitat would be minor relative to the amount available in and adjacent to the study area; and disturbances to foraging behavior would be mostly avoided due to the temporal separation between construction activity and bat foraging activity. Therefore, implementation of Alternative 1, 2, 3, or 4 would not affect the distribution, breeding productivity, or regional populations of pallid bat.

5.1.6 GREAT BASIN RAMS-HORN

ALTERNATIVES 1, 2, 3, AND 4

Great Basin rams-horn has been documented in Lake Tahoe. Historically, it has been observed in the Truckee River directly downstream of Lake Tahoe on the LTBMU (TNF data). Currently, this snail has not been sighted or surveyed for in the TNF. Potential habitat in the action area occurs within slow segments of the Truckee River near Segment 625-1; however, the level of suitability is considered low due to high levels of disturbance in this section of the river. Although the species could be washed through the dam into the Truckee River or otherwise occur, it may not persist in the Truckee River in the study area due to the limited amount of suitable burrowing substrate within the channel and variable flow conditions caused by dam releases, including moderate flows and pulses below the dam during some periods.

Project components of Alternatives 1, 2, 3, and 4 would cross or be implemented near several waterways, including the Truckee River. 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 resources, including removal of riparian vegetation, which provides shade, cover, and bank stability; 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 aquatic species caused by vehicles or equipment passing through aquatic habitats.

Some clearing of trees and woody riparian vegetation along stream channels may be required to provide adequate clearance for construction activities. Although no construction or pole placement are planned within stream channels, work adjacent to these areas could 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, corridor clearing, or other construction activity; and, the crossing of small stream channels by vehicles and equipment for construction access may be unavoidable in some cases. Additionally, dewatering could occur during work near aquatic resources, including the Truckee River, Griff

Creek, Martis Creek, Middle Martis Creek, and a large wet meadow in the Martis Valley. Along the Truckee River, which provides potential habitat for Great Basin rams-horn, work is planned to occur in two locations—in Tahoe City near the Tahoe City Substation and in Truckee where the 650/132 double-circuit line spans the river. In Tahoe City, 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.

Overhead electrical lines would span streams and riparian zones, and most power poles would be placed outside of and at a sufficient distance from stream channels to avoid excavation, pouring of pole foundations, or other ground disturbing activities within the stream channels. Because only a small number of poles would be placed within wet meadows or below the ordinary high water mark of the Truckee River, impacts to aquatic resources, riparian areas, and potential habitat for Great Basin rams-horn would be minor.

The following APMs designed to further protect aquatic resources would minimize, avoid, and partially compensate for potential impacts to aquatic habitats that could support Great Basin rams-horn:

- **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-31:** Visibility permitting, all excavations will be inspected for sensitive aquatic wildlife prior to dewatering. Wildlife found in excavations will be allowed to leave passively or will be relocated by a qualified biologist.
- **APM BIO-32:** If dewatering of an excavation is needed, all dewatering pump intakes will be fitted with filter screening to prevent impacts to aquatic wildlife that may accidentally enter excavations. Water will not be pumped directly from rivers, streams, ponds, or other waters of the U.S. or wetlands (although as stated above, dewatering of excavations is permitted).
- **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.

The project design and incorporation of applicable APMs would reduce project impacts to aquatic resources and potential habitat for Great Basin rams-horn. Any disturbances to potential rams-horn habitat in the Truckee River would be infrequent, temporary, and relatively minor if they occur, and would not substantially affect this species.

5.1.7 WESTERN BUMBLE BEE

ALTERNATIVES 1, 2, 3, AND 4

Although the potential for western bumble bee to occur in the action area and be affected by project implementation is considered low, as described previously in Section 3.7.2, potential habitat for western bumble bee (forage plants and potential nest sites) is present. Because potential habitat is present and surveys have not been conducted to determine presence or absence of western bumble bee, this analysis assumes that the species could occur in the action area. Areas with the highest likelihood of supporting western bumble bee include meadows, forest gaps, and other open areas that support flowering plants for foraging, and areas with underground cavities for nesting.

Vegetation removal and other construction activities under any of the action alternatives (Alternatives 1, 2, 3, and 4) could temporarily disturb western bumble bees, or result in injury or mortality, if they are present in the study area. For example, ground disturbances could collapse or otherwise damage underground colony/nest sites if they are present. However, because no recent records of western bumble bee are known from the action area, only one occurrence has been reported from the entire LTBMU since 2000, project-related effects on individuals or colonies/nests are not expected. (Recent surveys for western bumble bee in the action area have likely not been conducted; therefore, the absence of this species there cannot be been confirmed.)

Implementing any of the action alternatives would result in removal of vegetation and disturbance of habitat types that could support western bumble bee. Table 6 summarizes the amount of each habitat type affected on NFS lands under each action alternative. However, the extent to which suitable habitat for western bumble bee

would be adversely affected has not been quantified, but would be much less than the amounts shown in Table 6 for general habitat types. Specific areas and microhabitats with the highest likelihood of supporting western bumble bee (meadows, forest gaps, and other open areas that support flowering plants for foraging) are not expected to substantially lose their forage value. 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 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. Therefore, the availability of forage plants and potential nest sites is not expected to decrease over the long term, despite changes to overstory vegetation cover in forest habitats. Additionally, the creation of gaps and openings within existing forest habitat as a result of project implementation could enhance bumble bee foraging habitat in some areas, by potentially increasing the abundance of flowering herbaceous and shrub species and reducing dense tree cover.

Overall, project implementation is not expected to substantially reduce the quantity or quality of bumble bee forage plants and nest sites in the action area. Permanent and temporary habitat loss and disturbance that would occur under any action alternative would not substantially reduce the size, continuity, or integrity of any vegetation community or habitat type that could support suitable microhabitat for western bumble bee. Additionally, integration of the APMs into project design would require that vegetation removal is minimized to the extent feasible, invasive plants that could change plant community composition following construction would be controlled, and habitat is restored to pre-project conditions in temporary construction areas. Any disturbances to western bumble bee and suitable habitat would be infrequent, temporary, and relatively minor if they occur, and would not substantially affect this species.

5.2 CUMULATIVE EFFECTS

Cumulative effects are defined and analyzed differently under NEPA and ESA. Under NEPA, and for purposes of the BE component of this BE, a cumulative effect is the effect on the environment that results from the incremental effect of the proposed action when added to the effects of other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes the other actions and regardless of land ownership on which the other actions occur.

The geographic scope of cumulative impacts for Forest Service sensitive species is the Tahoe-Truckee region. 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, ROW 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 Appendix B.

As described in Section 5.1, “Direct and Indirect Effects,” implementing any of the action alternatives could disturb the foraging and movement patterns of individuals, affect breeding activities and reproductive success, cause direct mortality or injury, and disturb or remove suitable habitat for the USFS sensitive animal species addressed in this BE (bald eagle, California spotted owl, northern goshawk, American marten, pallid bat, and Great Basin rams-horn).

Present and probable future projects that would also affect habitat for USFS sensitive wildlife in the region primarily include residential and commercial development, recreation facilities and resort development, and forest vegetation and fuels treatment projects (see Appendix B). 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 1, 2, 3, or 4 could contribute to an adverse cumulative effect on USFS sensitive species. However, with implementation of APMs to avoid, minimize, and compensate for impacts to wildlife 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 sensitive species; or cause a change in species diversity locally or regionally. Habitat loss for any sensitive species 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. Additionally, APMs incorporated into the action alternatives include conducting focused preconstruction surveys for special-status wildlife, which would avoid the loss of individuals, nests, or roost sites of these species during construction.

Because the wildlife habitat types that would be affected are abundant and widely distributed locally and regionally, implementing Alternative 1, 2, 3, or 4, when combined with past, present, and reasonably foreseeable future projects, would not threaten, regionally eliminate, or contribute to a substantial reduction in the distribution or abundance of habitat for USFS sensitive species. Additionally, disturbances to breeding activities, effects on reproductive success, and the potential for direct mortality or injury to these species would be avoided or minimized through implementation of the APMs. Therefore, implementation of Alternatives 1, 2, 3, or 4 would not make a considerable contribution to the cumulative impact on USFS sensitive species.

6 CONCLUSIONS AND DETERMINATION

Determinations and conclusion are described and presented in Table 9, below.

6.1 USFS SENSITIVE SPECIES

It is my determination that the CalPeco 625 and 650 Electrical Line Upgrade Project will not affect great gray owl, willow flycatcher, greater sandhill crane, Townsend's big-eared bat, fringed myotis, foothill yellow-legged frog, western pond turtle, Lahontan lake tui chub, hardhead, California floater, or black juga because the action area is outside of these species' elevation or geographic range, does not contain suitable habitat that would be affected, or is otherwise not expected to be used by these species.

Table 9 Sensitive Species for the Lake Tahoe Basin Management Unit and Tahoe National Forest, and Effect Determinations for Project Level Analysis for the Proposed CalPeco 625 and 650 Electrical Line Upgrade Project

Species	Special Status	Known to Occur in the Action area	Suitable Habitat in the Action area	*Determination
Birds				
Bald Eagle (*Haliaeetus leucocephlus*)	Forest Sensitive Species (LTBMU and TNF)	No	Yes - Perching or foraging only	MANL
California Spotted Owl (*Strix occidentalis occidentalis*)	Forest Sensitive Species (LTBMU and TNF)	Yes	Yes	MANL
Northern Goshawk (*Accipiter gentiles*)	Forest Sensitive Species (LTBMU and TNF)	Yes	Yes	MANL
Willow Flycatcher (*Empidonax traillii adastus*)	Forest Sensitive Species (LTBMU and TNF)	No	No	NE
Great Gray Owl (*Strix nebulosa*)	Forest Sensitive Species (LTBMU and TNF)	No	Yes	NE

Table 9 Sensitive Species for the Lake Tahoe Basin Management Unit and Tahoe National Forest, and Effect Determinations for Project Level Analysis for the Proposed CalPeco 625 and 650 Electrical Line Upgrade Project

Species	Special Status	Known to Occur in the Action area	Suitable Habitat in the Action area	*Determination
Greater sandhill crane (*Grus canadensis tabida*)	Forest Sensitive Species (TNF)	No	No	NE
Mammals				
Pacific fisher (*Martes pennanti*)	Candidate for Federal Listing; Forest Sensitive Species (TNF)	No	No	NA
American marten (*Martes caurina*)	Forest Sensitive Species (LTBMU and TNF)	Yes	Yes	MANL
California wolverine (*Gulo gulo luteus*)	Forest Sensitive Species (LTBMU and TNF)	No	No	NE
Townsend's big-eared bat (*Corynorhinus townsendii*)	Forest Sensitive Species (LTBMU and TNF)	No	No	NE
Pallid Bat (*Antrozous pallidus*)	Forest Sensitive Species (LTBMU and TNF)	No	Yes	MANL
Fringed Myotis (*Myotis thysanodes*)	Forest Sensitive Species (LTBMU and TNF)	No	Some, but not optimal	NE
Amphibians				
Foothill yellow-legged frog (*Rana boylii*)	Forest Sensitive Species (TNF)	No	No	NE
Reptiles				
Western pond turtle (*Emys marmorata*	Forest Sensitive Species (TNF)	No	No	NE
Fish				
Lahontan Lake tui chub (*Gila bicolor pectinifer*)	Forest Sensitive Species (LTBMU and TNF)	No	No	NE
Hardhead (*Mylopharodon conocephalus*)	Forest Sensitive Species (TNF)	No	No	NE
Invertebrates				
Western Bumble Bee (*Bombus occidentalis*)	Forest Sensitive Species (LTBMU and TNF)	No	Yes	MANL
Black juga (snail) (*Juga nigrina*)	Forest Sensitive Species (TNF)	No	No	NE
California floater (*Andonta californiensis*)	Forest Sensitive Species (TNF)	No	No	NE
Great Basin rams-horn (*Helisoma newberryi newberryi*)	Forest Sensitive Species (LTBMU)	Yes (possibly)	Yes (marginal)	MANL
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	Forest Sensitive Species (TNF)	No	No	NE

*Determinations for Sensitive Species:s
NE – Will not affect the species.
MANL – May affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability.
MALT – May affect individuals, and is likely to result in a trend toward Federal listing or loss of viability.
Source: USFS 2007, Ascent 2012

6.1.1 BALD EAGLE

It is my determination that implementation of the CalPeco 625 and 650 Electrical Line Upgrade Project **may affect individuals but is not likely to result in a trend toward federal listing or loss of viability** for bald eagle. This determination is based on the following: 1) project activities would not occur near any known nest sites (the nearest known nest site is over twelve miles from the action area) or perch sites; 2) potential effects on nesting and individuals would be avoided or minimized through implementation of APM BIO-18 and -19; 3) any construction-related disturbance would not substantially affect the foraging patterns of bald eagle in the region; and 4) implementation of any of the action alternatives would not substantially affect the distribution, breeding productivity, or local population size of bald eagle.

6.1.2 CALIFORNIA SPOTTED OWL

It is my determination that implementation of the CalPeco 625 and 650 Electrical Line Upgrade Project **may affect individuals but is not likely to result in a trend toward federal listing or loss of viability** for California spotted owl. This determination is based on the following: 1) although individuals could be disturbed during project construction, disturbances to breeding spotted owls, effects on reproductive success, and the potential for direct mortality would be avoided or minimized through implementation of APM BIO-11; 2) the amount of suitable habitat affected within PACs would be relatively small (approximately 0.13 and 0.87 percent of the Griff Creek and Mt. Pluto spotted owl PAC areas, respectively, under the Proposed Alternative [Alternative 4]) and would be compensated for; 3) tree and other vegetation removal would be minimized, and habitat would be restored to preproject conditions in temporary construction areas; 4) no occupied nest sites would be removed; and 5) the unavoidable loss of potential habitat would be small relative to the total amount available in the area.

6.1.3 NORTHERN GOSHAWK

It is my determination that implementation of the CalPeco 625 and 650 Electrical Line Upgrade Project **may affect individuals but is not likely to result in a trend toward federal listing or loss of viability** for northern goshawk. This determination is based on the following: 1) although individuals could be disturbed during project construction, disturbances to breeding goshawks, effects on reproductive success, and the potential for direct mortality would be avoided or minimized through implementation of APM BIO-11; 2) impacts to suitable habitat within the Griff Creek PAC would be minor (up to 0.2 acre, or 0.1 percent of the PAC, along the PAC's edge, under the Proposed Alternative [Alternative 4]) and would be compensated for; 3) tree and other vegetation removal would be minimized, and habitat would be restored to preproject conditions in temporary construction areas; 4) no occupied nest sites would be removed; and 5) the unavoidable loss of potential habitat would be small relative to the total amount available in the area, and likely limited primarily to foraging habitat.

6.1.4 AMERICAN MARTEN

It is my determination that implementation of the CalPeco 625 and 650 Electrical Line Upgrade Project **may affect individuals but is not likely to result in a trend toward federal listing or loss of viability** for American marten. This determination is based on the following: 1) implementation of APMs BIO-15 and BIO-16 would minimize or avoid disturbances to marten den sites; 2) construction-related mortality or injury of martens would be very unlikely, because martens typically avoid high-disturbance areas (e.g., locations where active construction activities would occur); 3) the unavoidable loss of habitat would be small relative to the total amount available in the area; and 4) the magnitude and intensity of potential adverse effects are not expected to affect the species' distribution, breeding productivity, local population size, or regional populations.

6.1.5 PALLID BAT

It is my determination that implementation of the CalPeco 625 and 650 Electrical Upgrade Project **may affect individuals but is not likely to result in a trend toward federal listing or loss of viability** for pallid bat. This determination is based on the following: 1) implementation of APM BIO-20 would avoid or minimize disturbances or removal of active roost sites for pallid bat, and mortality or injury to bats; 2) effects on bat foraging and roosting habitat would be minor relative to the amount available in and adjacent to the study area; and 3) disturbances to foraging behavior would be mostly avoided due to the temporal separation between construction activity and bat foraging activity.

6.1.6 GREAT BASIN RAMS-HORN

It is my determination that the CalPeco 625 and 650 Electrical Line Upgrade Project **may affect individuals but is not likely to result in a trend toward federal listing or loss of viability** for Great Basin rams horn. Habitat suitability for Great Basin rams-horn, and the potential for the species to persist, in the action area are considered low. The project design and incorporation of applicable APMs would reduce project impacts to aquatic resources and potential habitat for Great Basin rams-horn. Any disturbances to potential rams-horn habitat in the Truckee River would be infrequent, temporary, and relatively minor if they occur, and would not substantially affect this species.

6.1.7 WESTERN BUMBLE BEE

It is my determination that the CalPeco 625 and 650 Electrical Line Upgrade Project **may affect individuals but is not likely to result in a trend toward federal listing or loss of viability** for western bumble bee. The potential for the species to occur in the project study area, and individuals to be affected, is considered low. Overall, project implementation is not expected to substantially reduce the quantity or quality of bumble bee forage plants and nest sites in the action area. Permanent and temporary habitat loss and disturbance that would occur under any action alternative would not substantially reduce the size, continuity, or integrity of any vegetation community or habitat type that could support suitable microhabitat for western bumble bee; and specific areas and microhabitats with the highest likelihood of supporting western bumble bee (meadows, forest gaps, and other open areas that support flowering plants for foraging) are not expected to substantially lose their forage value. Additionally, integration of the APMs into project design would require that vegetation removal is minimized to the extent feasible, invasive plants that could change plant community composition following construction would be controlled, and habitat is restored to pre-project conditions in temporary construction areas. Therefore, the availability of forage plants and potential nest sites is not expected to decrease over the long term, despite changes to overstory vegetation cover in forest habitats. Any disturbances to western bumble bee and suitable habitat would be infrequent, temporary, and relatively minor if they occur, and would not substantially affect this species. Additionally, the creation of gaps and openings within existing forest habitat as a result of project implementation could enhance bumble bee foraging habitat in some areas, by potentially increasing the abundance of flowering herbaceous and shrub species and reducing dense tree cover.

7 LITERATURE CITED

Austin, K. K. 1993. *Habitat Use and Home Range Size of Breeding Northern Goshawks in the Southern Cascades.* M.S. thesis, Oregon State University, Corvallis, OR.

Beier, P. and J. E. Drennan. 1997. Forest structure and prey abundance in foraging areas of northern goshawks. *Ecological Applications* 7:564–571.

Bloom, P.H., G.R. Stewart, and B.J. Walton. 1986. The status of the northern goshawk in California, 1981–1983. *Wildlife Management Branch Administrative Report 85-1.* State of California, The Resources Agency, Department of Fish and Game, Sacramento, CA.

Bright-Smith, D. J. and R. W. Mannan. 1994. Habitat use by breeding male northern goshawks in northern Arizona. *Studies in Avian Biology* 16:58-65.

Buskirk, S.W., Lyon, L.J., and W.J. Zielinski, editors. The scientific basis for conserving forest carnivores: American marten, fisher, lynx, and wolverine in the western United States. General Technical Report RM-254. U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado.

Buskirk, S. and L. Ruggiero. 1994. American marten. In L.F. Ruggiero, K. B. Aubry, S. W. Buskirk, L. J. Lyon, and W. J. Zielinski (tech eds.), *The Scientific Basis for Conserving Forest Carnivores: American Marten, Fisher, Lynx, and Wolverine in the Western United States.* U.S. Dept. of Agriculture, Forest Service, Gen. Tech. Rep. RM-254.

California Department of Fish and Game. 2012b. California Wildlife Habitat Relationships System. Operated and maintained by the Biogeographic Data Branch in cooperation with the California Interagency Wildlife Task Group. Sacramento, California. Available at http://www.dfg.ca.gov/biogeodata/cwhr/. Accessed September 2012.

California Natural Diversity Database (CNDDB). 2012. California Department of Fish and Game, Habitat Conservation Division, Wildlife and Habitat Data Analysis Branch.

Cameron, S.A., J.D. Lozier, J.P. Strange, J.B. Koch, N. Cordes, L.F. Solter and T.L. Griswold. 2011. Patterns of widespread decline in North American bumble bees. Proceedings of the National Academy of Sciences 108:662-667. See http://www.pnas.org/content/108/2/662.full.pdf+html.

Corn, J. G., and M. G. Raphael. 1992. Habitat characteristic at marten subnivean access sites. *Journal of Wildlife Management* 56:442-448.

Evans, E., R. Thorp, S. Jepsen and S.H. Black. 2008. Status Review of Three Formerly Common Species of Bumble Bee in the Subgenus Bombus: *Bombus affinis* (the rusty patched bumble bee), *B. terricola* (the yellowbanded bumble bee), and *B. occidentalis* (the western bumble bee). The Xerces society, Portland, OR. Available at http://www.xerces.org/wp-content/uploads/2009/03/xerces_2008_bombus_status_review.pdf

Fowler, C. and J.E. Bath. 1981. Pyramid Lake Northern Paiute Fishing: The Enthographic Record. *Journal of California and Great Basin Anthropology* 3(2):176-186.

Gerstung, E.R. 1988. Status, life history, and management of the Lahontan cutthroat trout. 93–106. in R. E. Gresswell, editor. *Status and management of interior stocks of cutthroattrout*. American Fisheries Society, Symposium 4, Bethesda, Maryland.

Gutierrez, R. J. and S. Harrison. 1996. Applying metapopulation theory to spotted owl management: A history and critique. Chapter 8 in D.R. McCollough (ed.), *Metapopulations and Wildlife Conservation*. Island Press, Washington, D.C.

Gutierrez R.J., Franklin, A.B., and W.S. LaHaye. 1995. Spotted owl (*Strix occidentalis*). T*he birds of North America, number 179*. The American Ornithologists' Union, Washington D.C., USA, and the Academy of Natural Sciences, Philadelphia, Pennsylvania, USA.

Hargis, C. D., and D. R. McCullough. 1984. Winter diet and habitat selection of marten in Yosemite National Park. *Journal of Wildlife Management* 48:140-146.

Hatfield, R. 2012. Records of western and Franklin's bumble bees in the western United States. Database records provided by the Xerces Society, Portland, OR on 2/29/12.

Heinrich, B. 1979. Resource heterogeneity and patterns of movement in foraging bumblebees. *Oecologia* 40:235-246

Henry, M., Benguin, M., Requier, F., Rollin, O., Odoux, J., Aupinel, P., Aptel, J., Tchamitchian, S., and Decourtye, A. 2012. A Common Pesticide Decreases Foraging Success and Survival in Honey Bees. *Science* 20: 348-350.

Holland, R.F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. California Department of Fish and Game. Sacramento, California.

Hopwood, J., Vaughn, M., Shepard, M., and Biddinger, D. 2012. *Are Neonicotinoids killing bees?* The Xerces Society for Invertebrate Conservation. Online. 33 pages.

Keane, J.J. 1999*. Ecology of the Northern Goshawk in the Sierra Nevada, California*. PhD dissertation. University of California, Davis, CA.

Koch, J., J. Strange and P. Williams. 2012. Bumble Bees of the Western United States. U.S. Forest Service and the Pollinator Partnership, Washington, D.C. 144 pp.

Maurer, J. R. 2000. *Nesting Habitat and Prey Relations of the Northern Goshawk in Yosemite National Park.* M.S. Thesis. University of California, Davis, CA.

Mikkola, K. 1984. Migration of wasp and bumble bee queens across the Gulf of Finland (Hymenoptera: Vespidae and Apidae*). Notulae Entomol*. 64:125-128.

Noon, B.R. and K.S. McKelvey. 1996. Management of the spotted owl: a case history in conservation biology. *Annual Review of Ecology and Systematics* 27: 135-162.

North, M., G. Steger, R. Denton, G. Eberlein, T. Munton, and K. Johnson. 2000. Association of weather and nest-site structure with reproductive success in California spotted owls. *Journal of Wildlife Management* 64*:*797-807.

Rao, W., Kimoto, C., and DeBano, S. 2011. The Status of the 'Red-Listed' *Bombus occidentalis* (Hymenoptera: Apiformes) in Northeastern Oregon. *Northwest Science* 85(1):64-67.

Schlesinger, M. D., and J. S. Rosmos. 2000. Vertebrate species of the Lake Tahoe Basin. Appendix G of the *Lake Tahoe Watershed Assessment*. Available online: http://www.fs.fed.us/psw/publications/documents/psw_gtr176/psw_gtr176_appendixG.pdf.

Sherwin, Rick. 1990. Species Account for Pallid Bat (*Antrozous Pallidus*) from the Ecology, Conservation, and Management of Western Bat Species: Bat Species Accounts. Compiled by Bat Conservation International as part of the North American Bat Conservation Partnership.

Siders, M. S. and P. L. Kennedy. 1996. Forest structural characteristics of accipiter nesting habitat: Is there an allometric relationship? *Condor* 98:123-132.

Speiser, R. and T. Bosakowski. 1987. Nest site selection by northern goshawks in northern New Jersey and southeastern New York. *Condor* 889:387-394.

Spencer, W.D., Barrett, R.H., and Zielinski, W.J. 1983. Marten habitat preferences in the northern Sierra Nevada. *Journal of Wildlife Management*, 47, 1881-1186.

Squires, J. R. and L. F. Ruggiero. 1996. Nest-site preference of northern goshawks in southcentral Wyoming. *Journal of Wildlife Management* 60:170-177.

Thorp, R. W., and M. D. Shepherd. 2005. Profile: Subgenus *Bombus*. In Shepherd, M. D., D. M. Vaughan, and S. H. Black (Eds). Red List of Pollinator Insects of North America. The Xerces Society for Invertebrate Conservation, Portland, OR.

Tommasi, D., A. Miro, H. A. Higo and M. L. Winston. 2004. Bee diversity and abundance in an urban setting. The Canadian Entomologist 136: 851–869.

Trout Unlimited. 2010. Lahontan Cutthroat Trout – Conservation Success Index: A Strategic Approach to Fisheries and Watershed Conservation. http://tucsi.tu.org/Lahontan_General.aspx?SpKey=14

USDA Forest Service. 1988. *Land and Resource Management Plan*. Lake Tahoe Basin Management Unit.

_____. 1990. *Land and Resource Management Plan for the Tahoe National Forest*.

_____. 2001. *Sierra Nevada Forest Plan Amendment Final Environmental Impact Statement*. Forest Service, Pacific Southwest Region. January 2001.

_____. 2004. *Sierra Nevada Forest Plan Amendment, Final Supplemental Environmental Impact Statement, Record of Decision*. USDA Forest Service, Pacific Southwest Region, Vallejo, CA.

_____. 2010. *Aquatic Organism Passage at Road-Stream Crossings Assessment*, Tahoe National Forest FY2010.

U.S. Fish and Wildlife Service. 1995. *Lahontan Cutthroat Trout Recovery Plan*.

Verner, J., McKelvey, K.S., Noon, B.R., Gutierrez, R.J., Gould, I.G.Jr., and T.W. Beck, Technical Coordinators. 1992. The California spotted owl: a technical assessment of its current status. Gen. Tech. Rep. PSW-GTR-133. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture; 285pp.

Weixelman, D. A., B. Hill, D.J. Cooper, E.L. Berlow, J. H. Viers, S.E. Purdy, A.G. Merrill, and S.E. Gross. 2011. A Field Key to Meadow Hydrogeomorphic Types for the Sierra Nevada and Southern Cascade Ranges in California. Gen. Tech. Rep. R5-TP-034. Vallejo, CA. U.S. Department of Agriculture, Forest Service, Pacific Southwest Region, 34 pp.

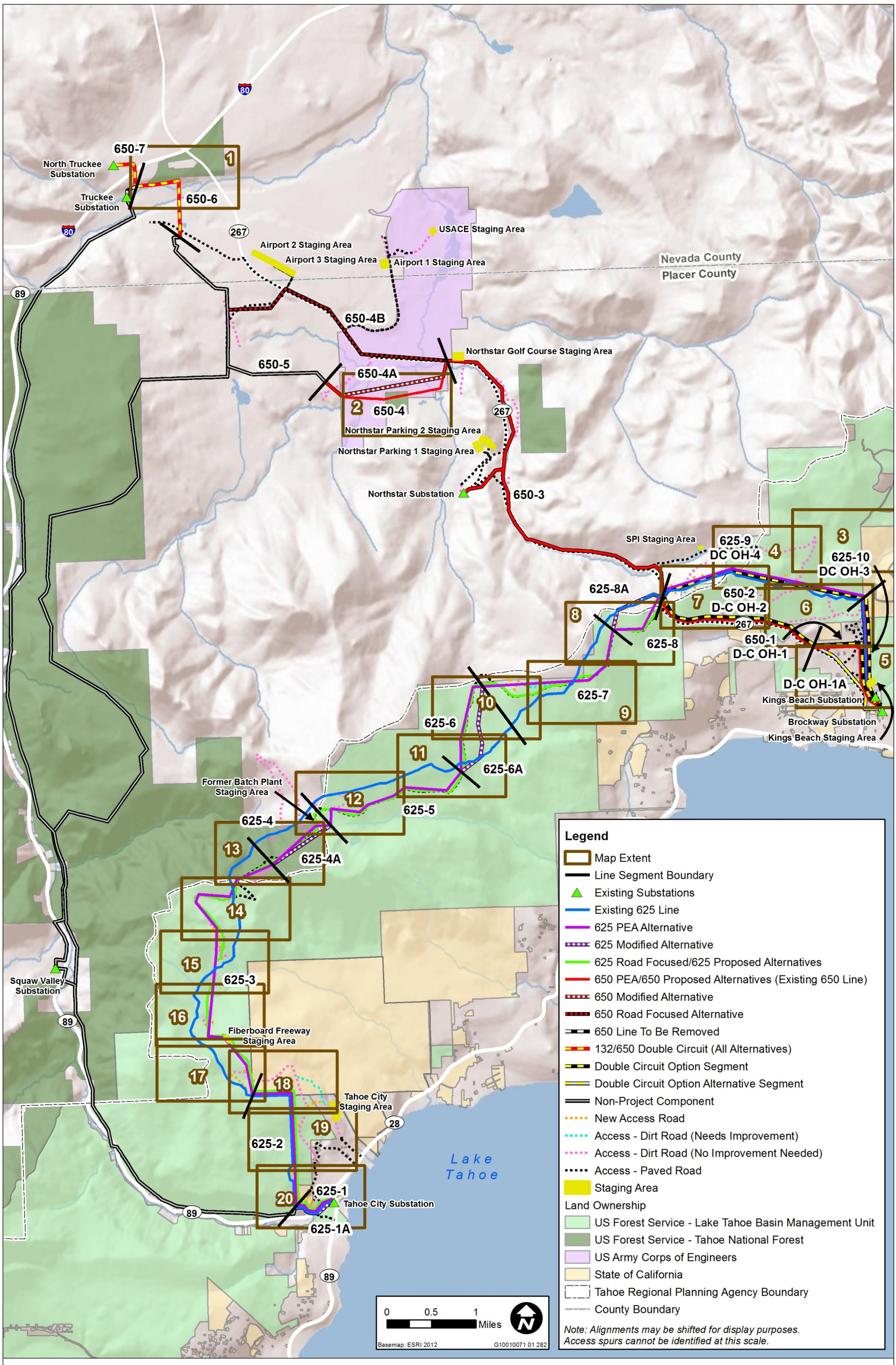
Youtz J.A., R.T. Graham, R.T. Reynolds, and J. Simon. 2008. Implementing Northern Goshawk Habitat Management in Southwestern Forests: A Template to Restoring Fire-Adapted Forest Ecosystems. Published in: Deal RL, tech. ed. 2008. Integrated restoration of forested ecosystems to achieve multiresource benefits: proceedings of the 2007 national silviculture workshop. Gen. Tech. Rep. PNW-GTR-733. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 306 p.

Zielinski, W. J., R. H. Barrett, R. L. Truex, E. Farmer. 1995. *Southern Sierra Nevada Fisher and Marten Study: Progress Report III (2 March 1995 - 31 August 1995).* USDA Forest Service, Pacific Southwest Station, Arcata, CA.

Zeiner, D.C., Laudenslayer, W.F., Mayer, K.E., and M. White, eds. 1990. California's wildlife: mammals. California Department of Fish and Game, Sacramento, California, USA.

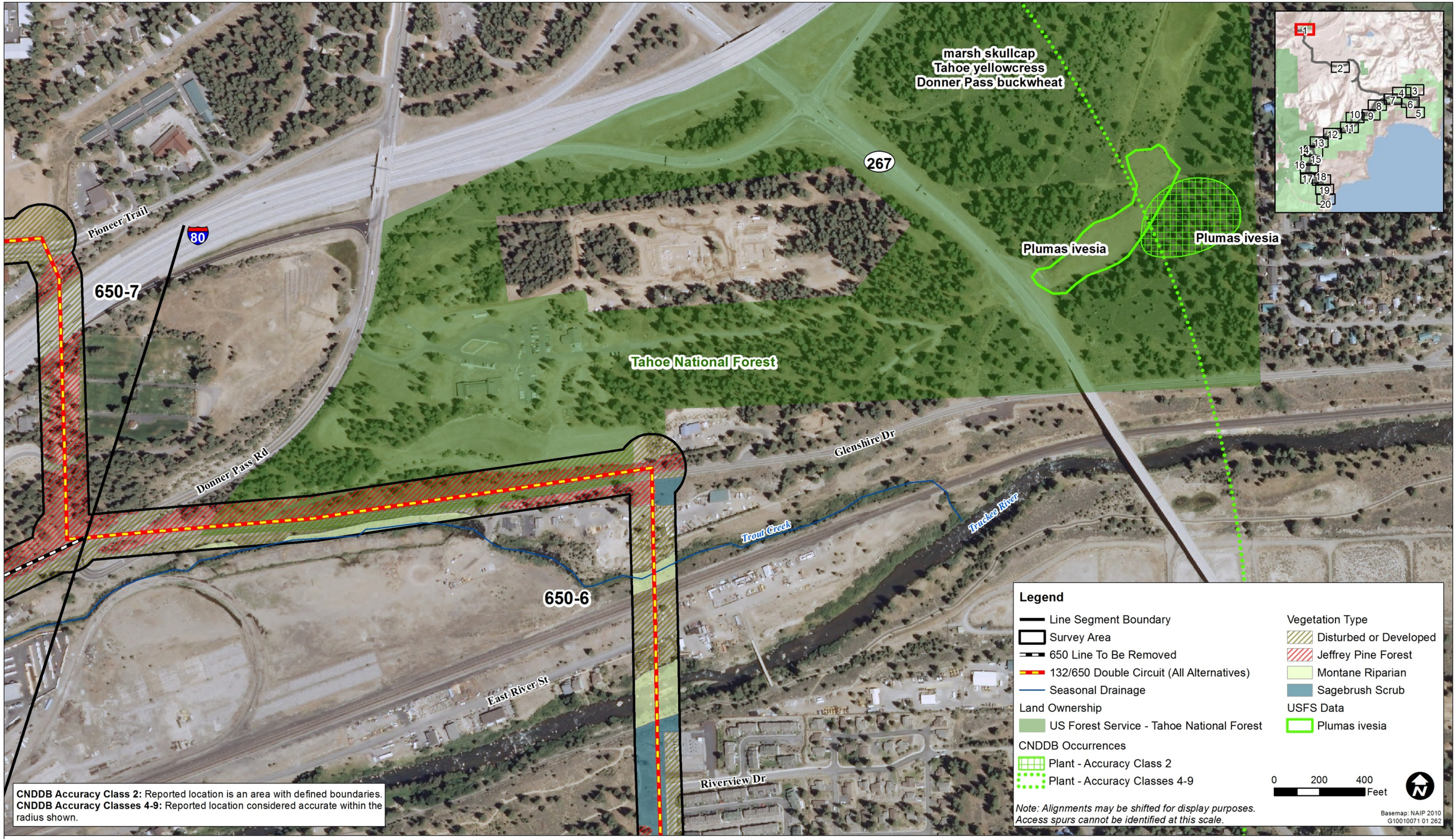
Appendix A

Vegetation Maps



Source: Data received from TriSage 2012; Adapted by Ascent Environmental in 2012

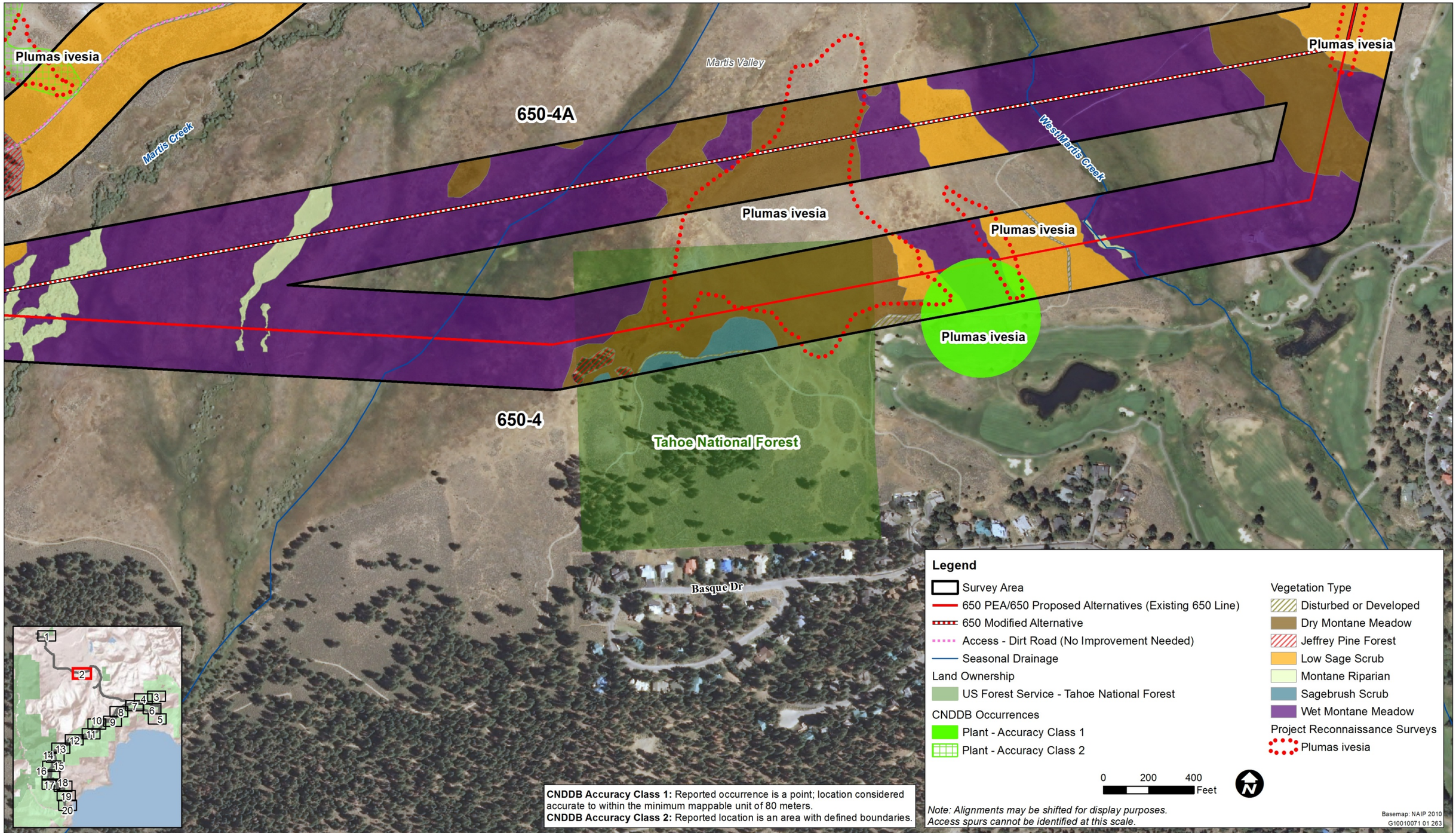
Exhibit A1 USFS Vegetation Map Layout



Source: Data received from TriSage 2012; Adapted by Ascent Environmental in 2012

Exhibit A2

USFS Vegetation Map 1



Source: Data received from TriSage 2012; Adapted by Ascent Environmental in 2012

Exhibit A3

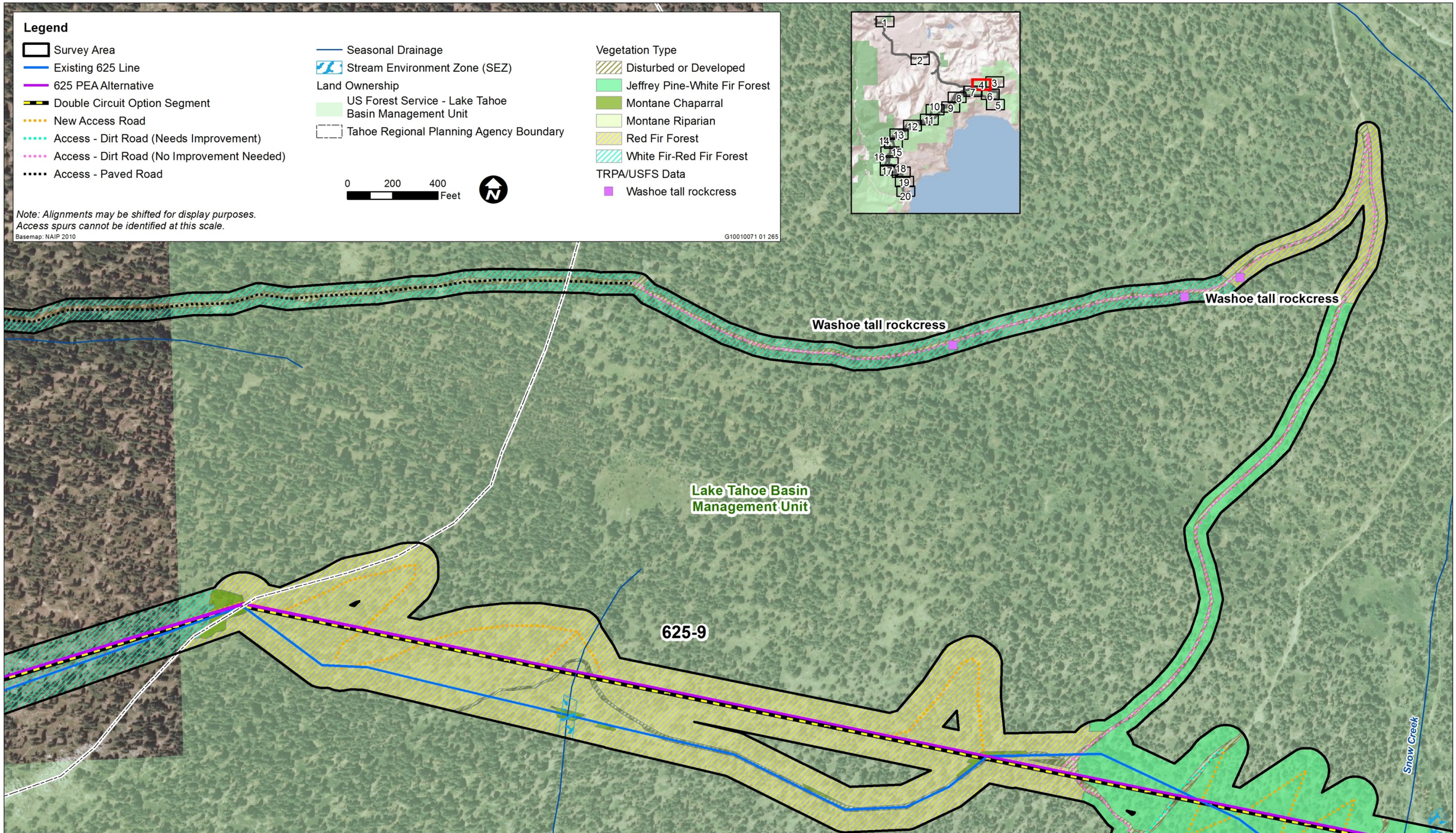
USFS Vegetation Map 2

ASCENT ENVIRONMENTAL

Source: Data received from TriSage 2012; Adapted by Ascent Environmental in 2012

Exhibit A4

USFS Vegetation Map 3



Source: Data received from TriSage 2012; Adapted by Ascent Environmental in 2012

Exhibit A5

USFS Vegetation Map 4

650-2
D-C OH-2

650-1
D-C OH-1

Mingan moonwort

625-10
D-C OH-3

267

Canterbury Dr

Kingswood Dr

Cambridge Dr

Lincoln Green Dr

Snow Creek

Lake Tahoe Basin
Management Unit

D-C OH-1A

Griff Creek

Kings Beach Staging Area

Lake Tahoe Basin
Management Unit

Tiger Ave

woolly-fruited sedge

Kings Beach Substation

Legend

- Line Segment Boundary
- Survey Area
- Existing Substations
- Existing 625 Line
- 625 PEA Alternative
- 650 PEA/650 Proposed Alternatives (Existing 650 Line)
- Double Circuit Option Segment
- Double Circuit Option Alternative Segment
- New Access Road
- Access - Paved Road
- Staging Area
- Seasonal Drainage
- Stream Environment Zone (SEZ)

Land Ownership

- US Forest Service - Lake Tahoe Basin Management Unit

CNDDB Occurrences

- Plant - Accuracy Class 1
- Plant - Accuracy Classes 4-9

Vegetation Type

- Disturbed or Developed
- Sierran Mixed Conifer Forest
- Montane Chaparral
- Montane Riparian

TRPA/USFS Data

- Mingan moonwort

0 200 400 Feet

Note: Alignments may be shifted for display purposes.
Access spurs cannot be identified at this scale.

G10010071 01 266
Basemap: NAIP 2010

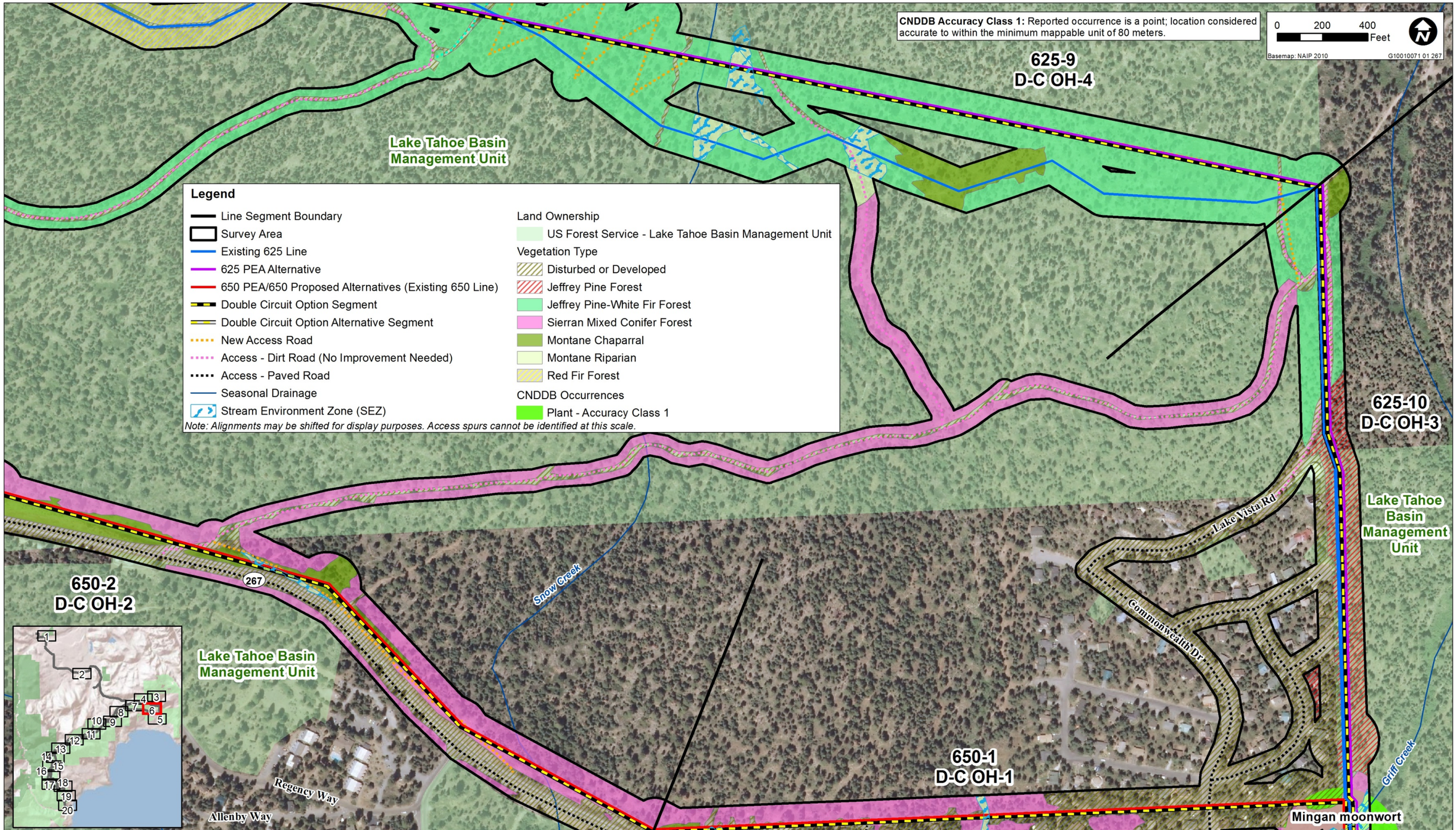
CNDDB Accuracy Class 1: Reported occurrence is a point; location considered accurate to within the minimum mappable unit of 80 meters.
CNDDB Accuracy Classes 4-9: Reported location considered accurate within the radius shown.

Source: Data received from TriSage 2012; Adapted by Ascent Environmental in 2012

Exhibit A6

USFS Vegetation Map 5

ASCENT ENVIRONMENTAL



Source: Data received from TriSage 2012; Adapted by Ascent Environmental in 2012

Exhibit A7

USFS Vegetation Map 6

650-3

625-9
D-C OH-4

Lakr Tahoe Basin Management Unit

ckway Summit

267

650-2
D-C OH-2

Legend

- Line Segment Boundary
- Survey Area
- Existing 625 Line
- 625 PEA Alternative
- 625 Modified Alternative
- 625 Road Focused/625 Proposed Alternatives
- 650 PEA/650 Proposed Alternatives (Existing 650 Line)
- Double Circuit Option Segment
- New Access Road
- Access - Dirt Road (No Improvement Needed)
- Access - Paved Road
- Seasonal Drainage
- Stream Environment Zone (SEZ)

Land Ownership

- US Forest Service - Tahoe Basin Management Unit
- Tahoe Regional Planning Agency Boundary

Vegetation Type

- Disturbed or Developed
- Jeffrey Pine Forest
- Jeffrey Pine-White Fir Forest
- Sierran Mixed Conifer Forest
- Montane Chaparral
- Montane Riparian
- Red Fir Forest
- White Fir-Red Fir Forest

Note: Alignments may be shifted for display purposes. Access spurs cannot be identified at this scale.

0 200 400 Feet

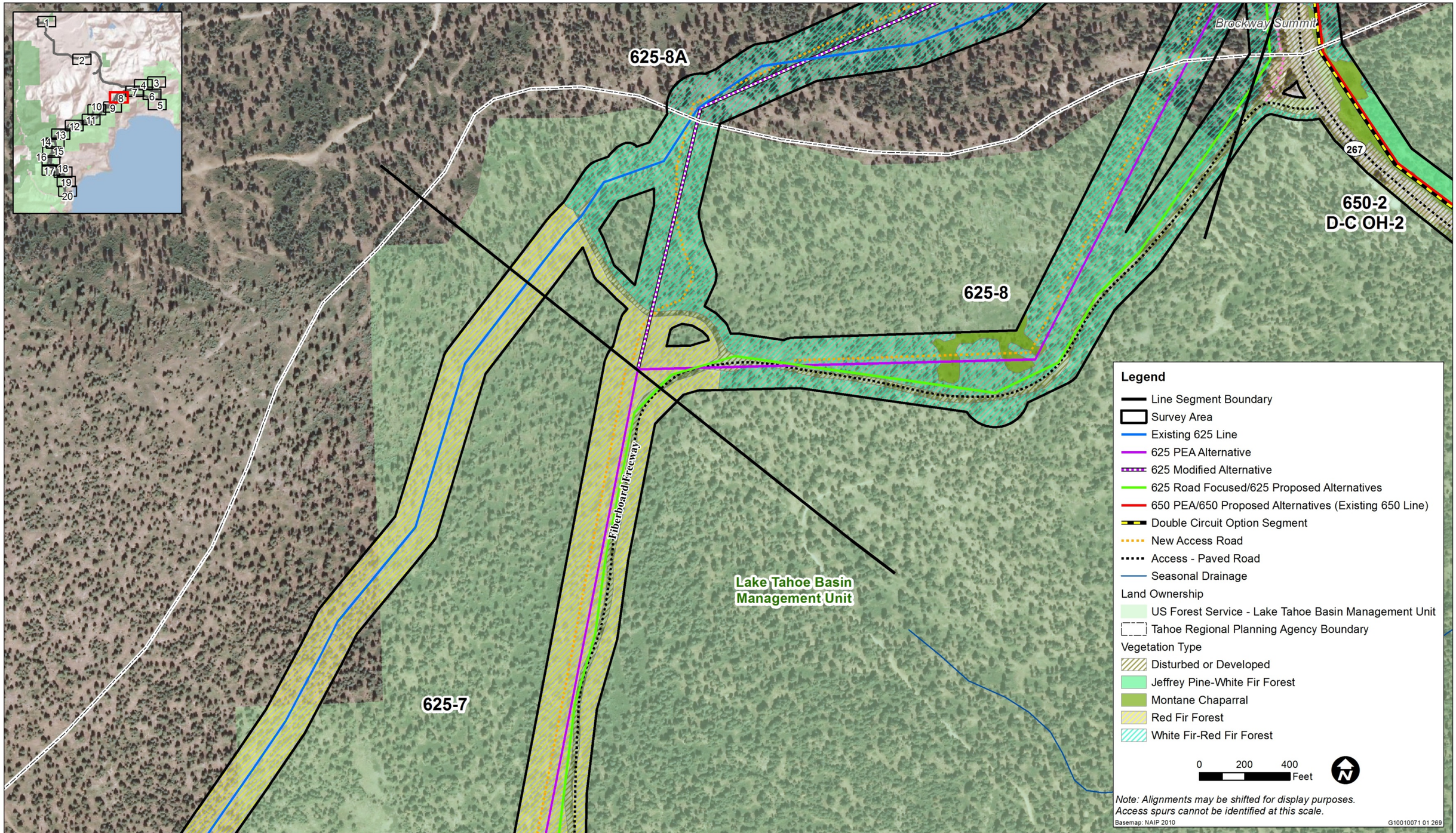
Basemap: NAIP 2010 G10010071 01 268

Source: Data received from TriSage 2012; Adapted by Ascent Environmental in 2012

Exhibit A8

USFS Vegetation Map 7

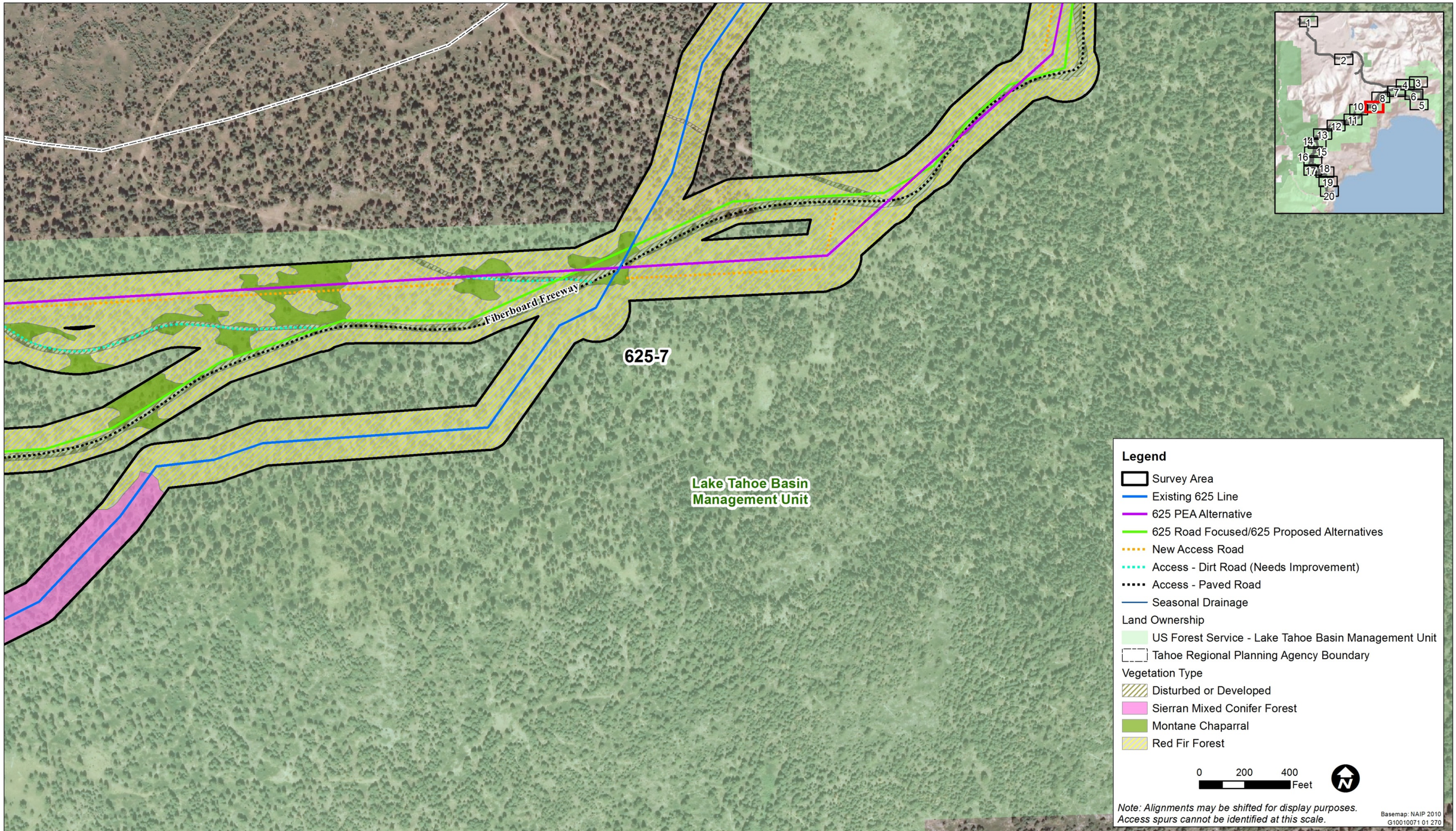
ASCENT ENVIRONMENTAL



Source: Data received from TriSage 2012; Adapted by Ascent Environmental in 2012

Exhibit A9

USFS Vegetation Map 8



Source: Data received from TriSage 2012; Adapted by Ascent Environmental in 2012

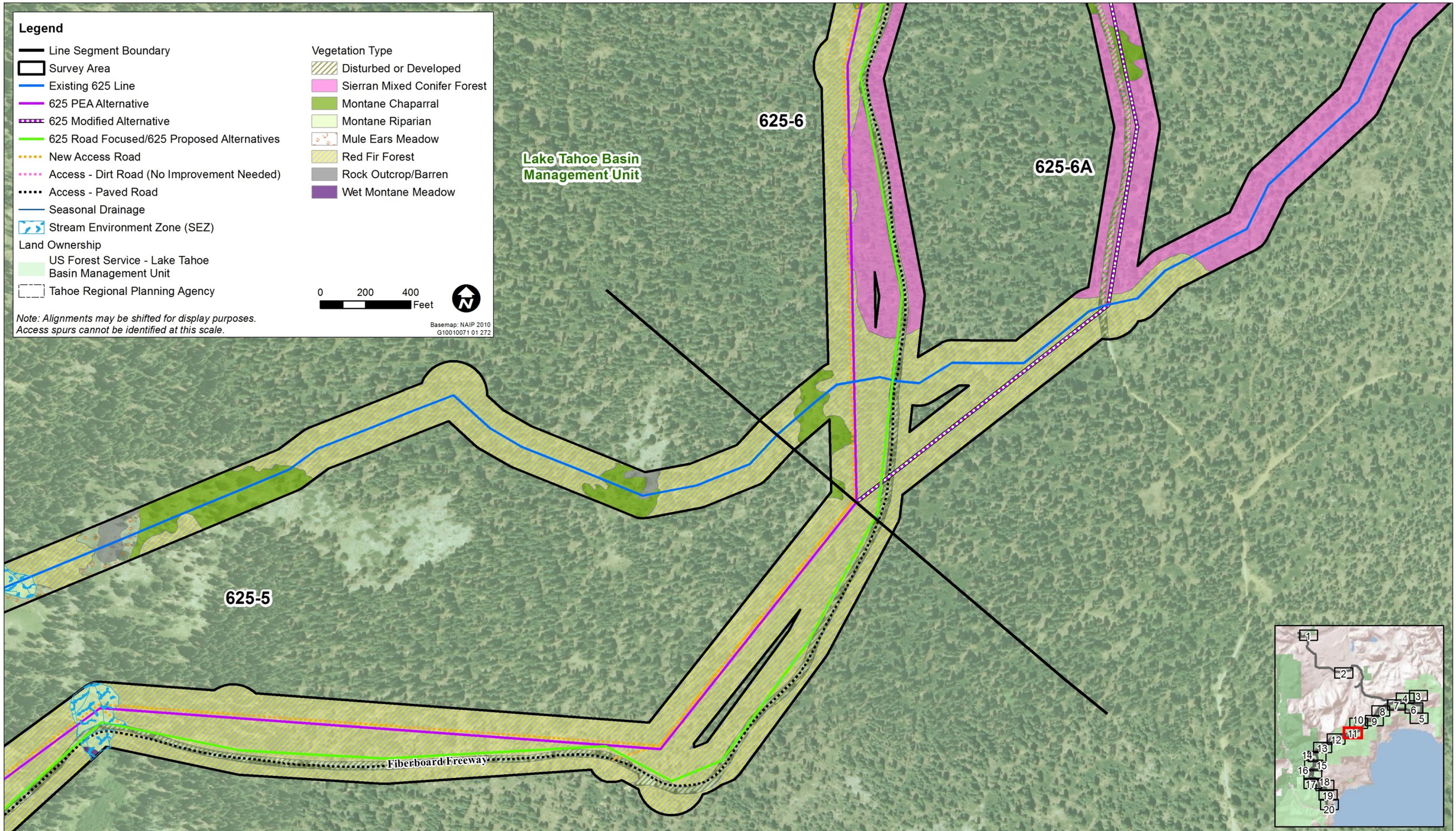
Exhibit A10

USFS Vegetation Map 9

Source: Data received from TriSage 2012; Adapted by Ascent Environmental in 2012

Exhibit A11

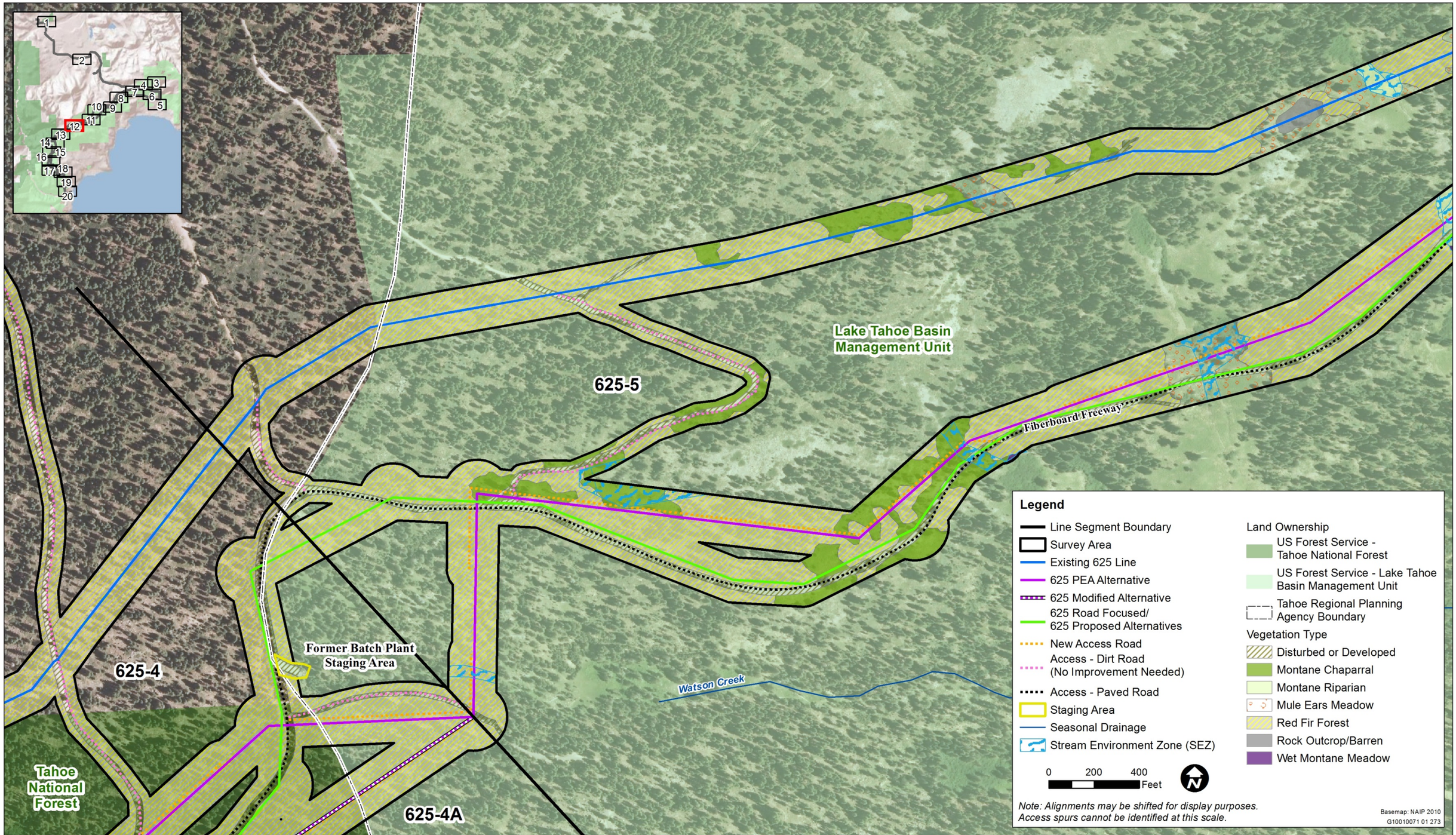
USFS Vegetation Map 10



Source: Data received from TriSage 2012; Adapted by Ascent Environmental in 2012

Exhibit A12

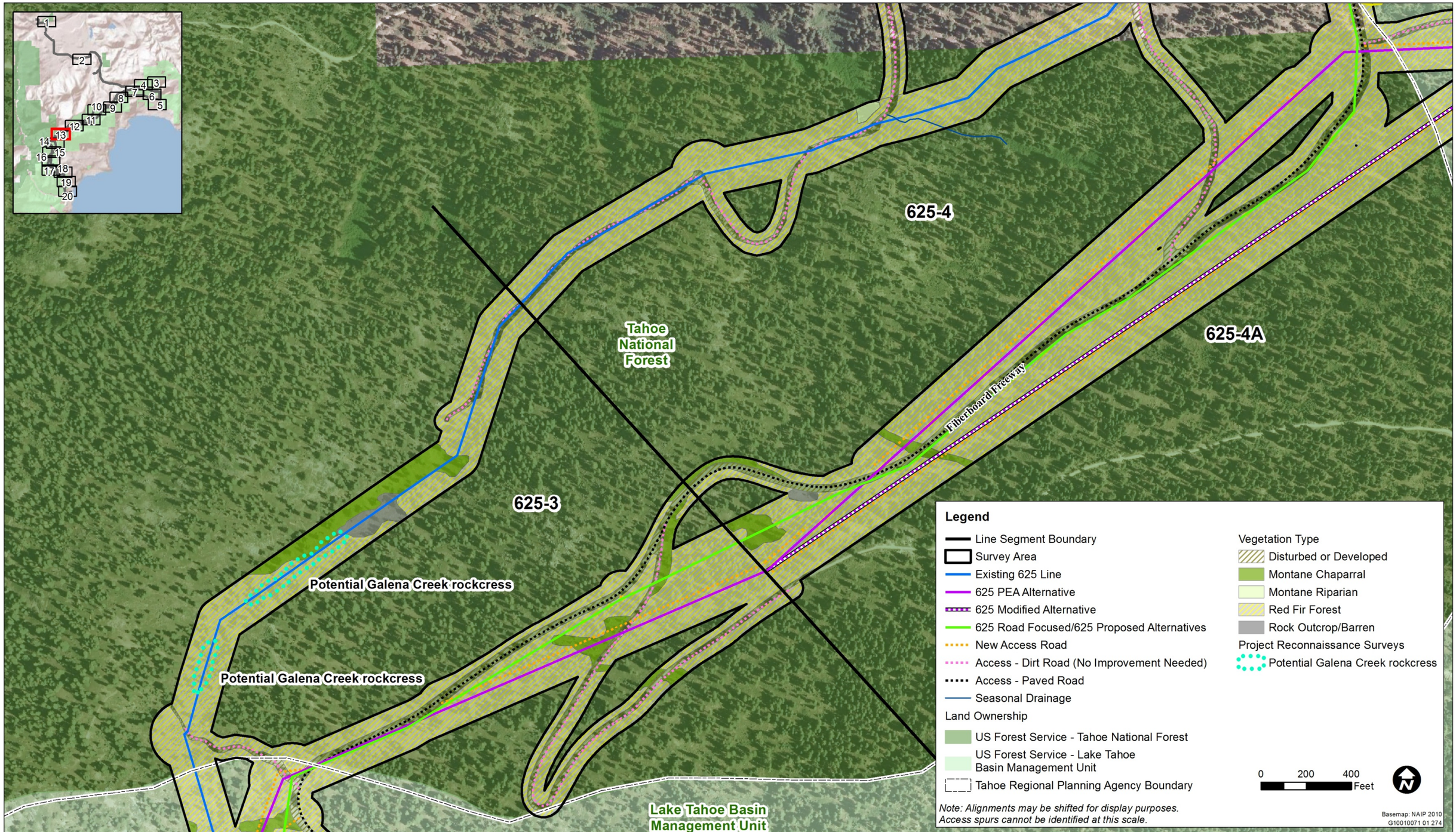
USFS Vegetation Map 11



Source: Data received from TriSage 2012; Adapted by Ascent Environmental in 2012

Exhibit A13

USFS Vegetation Map 12



Source: Data received from TriSage 2012; Adapted by Ascent Environmental in 2012

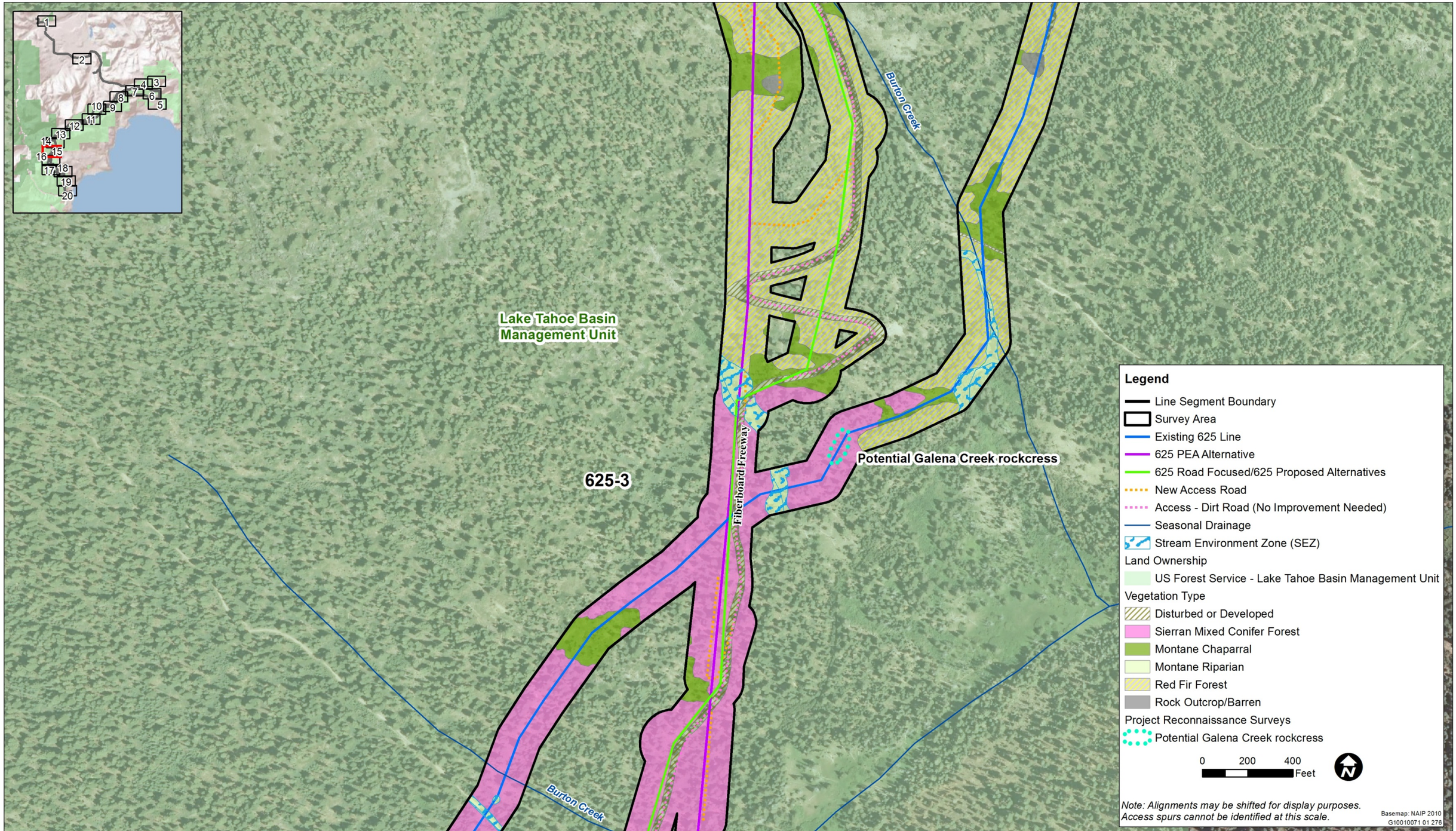
Exhibit A14

USFS Vegetation Map 13

Source: Data received from TriSage 2012; Adapted by Ascent Environmental in 2012

Exhibit A15

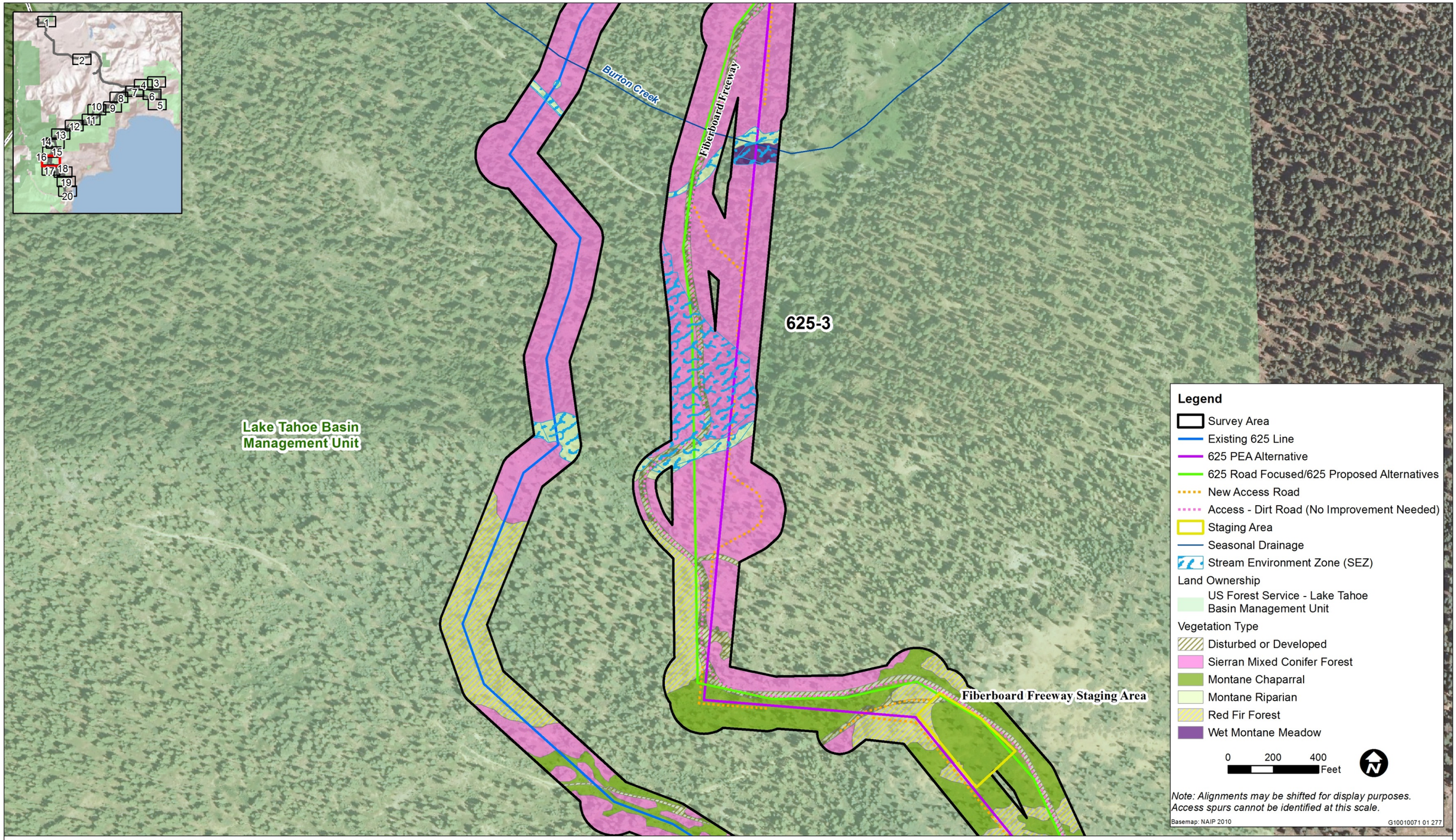
USFS Vegetation Map 14



Source: Data received from TriSage 2012; Adapted by Ascent Environmental in 2012

Exhibit A16

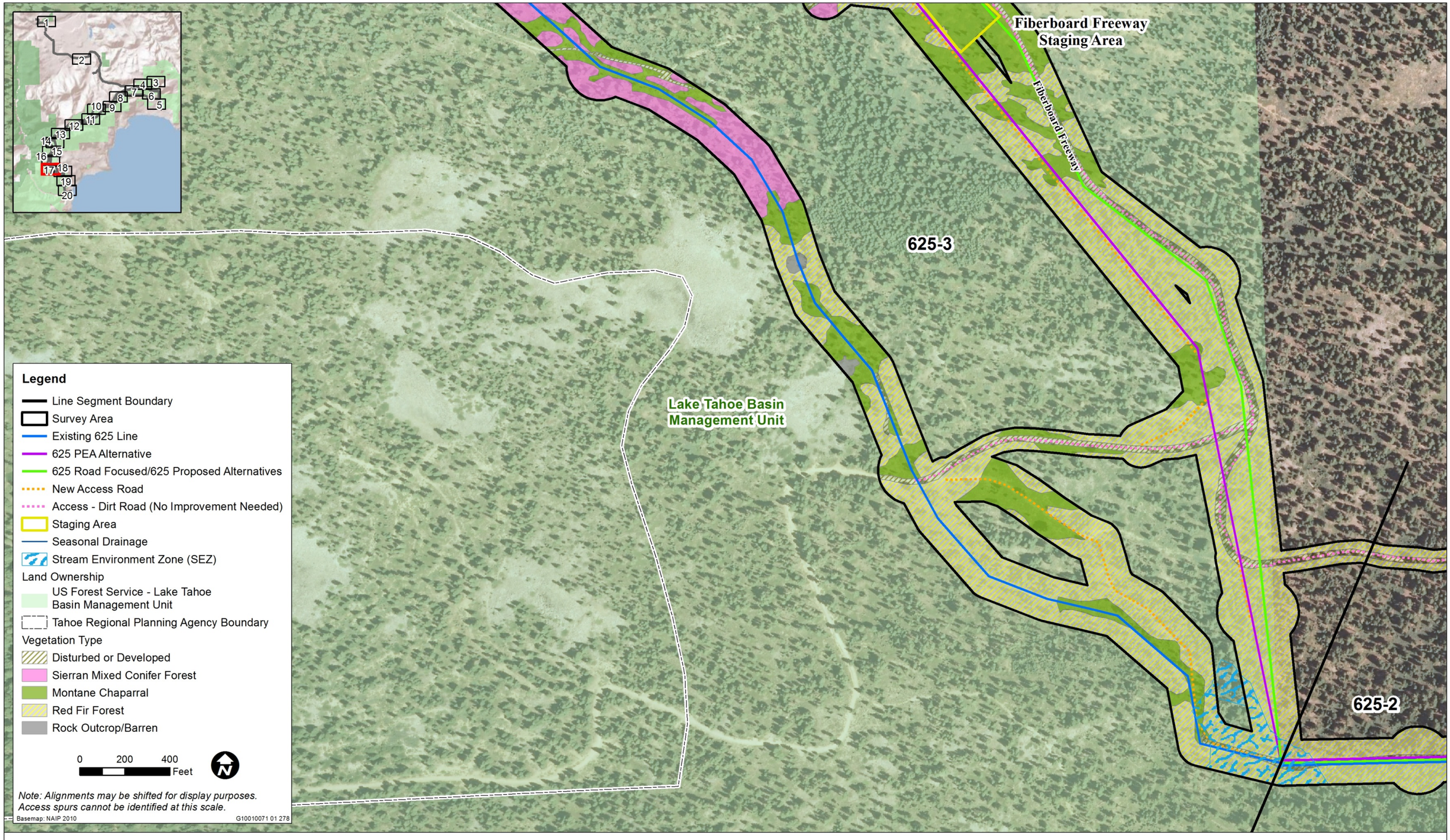
USFS Vegetation Map 15



Source: Data received from TriSage 2012; Adapted by Ascent Environmental in 2012

Exhibit A17

USFS Vegetation Map 16

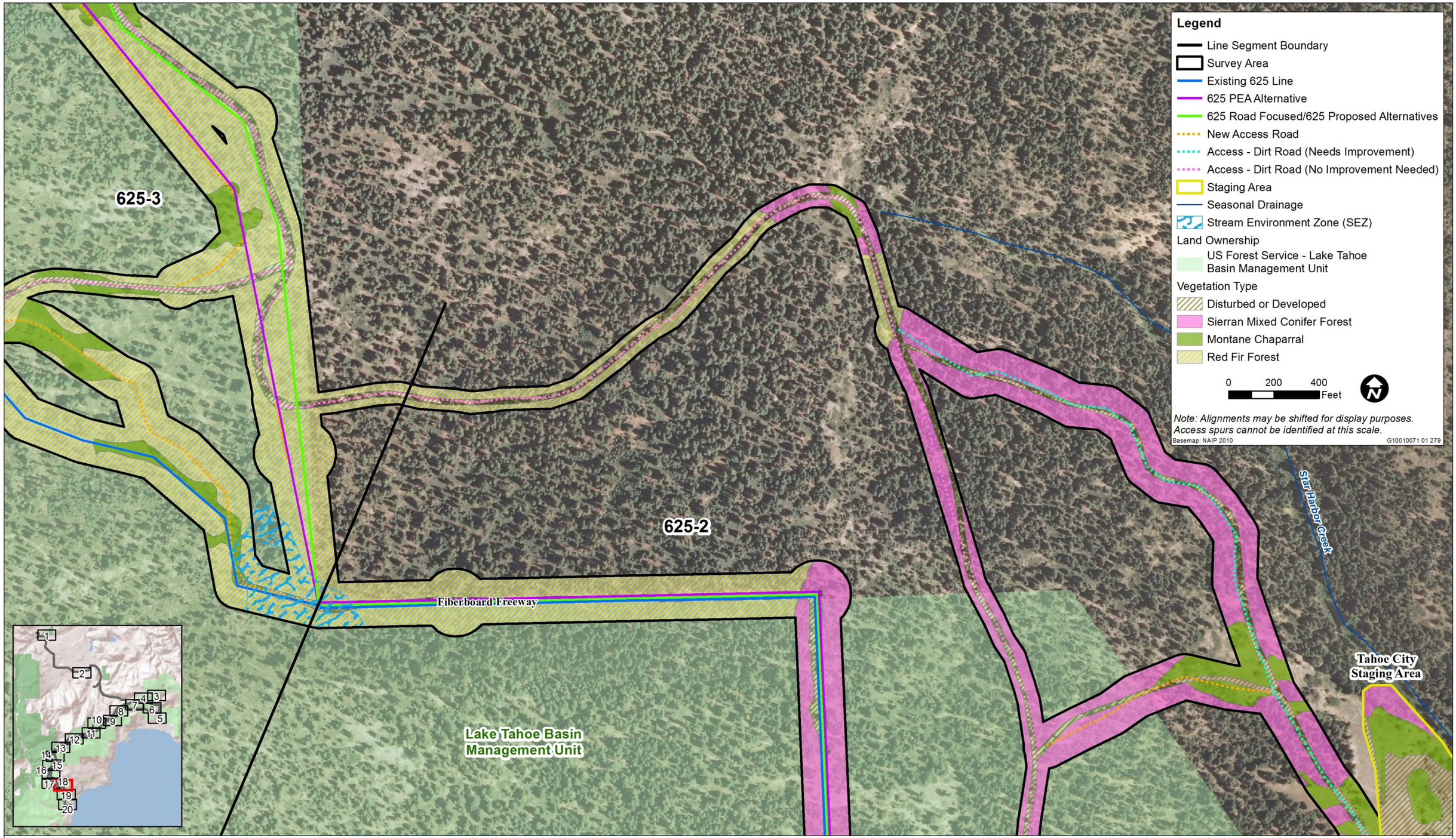


Source: Data received from TriSage 2012; Adapted by Ascent Environmental in 2012

Exhibit A18

USFS Vegetation Map 17

ASCENT ENVIRONMENTAL



Source: Data received from TriSage 2012; Adapted by Ascent Environmental in 2012

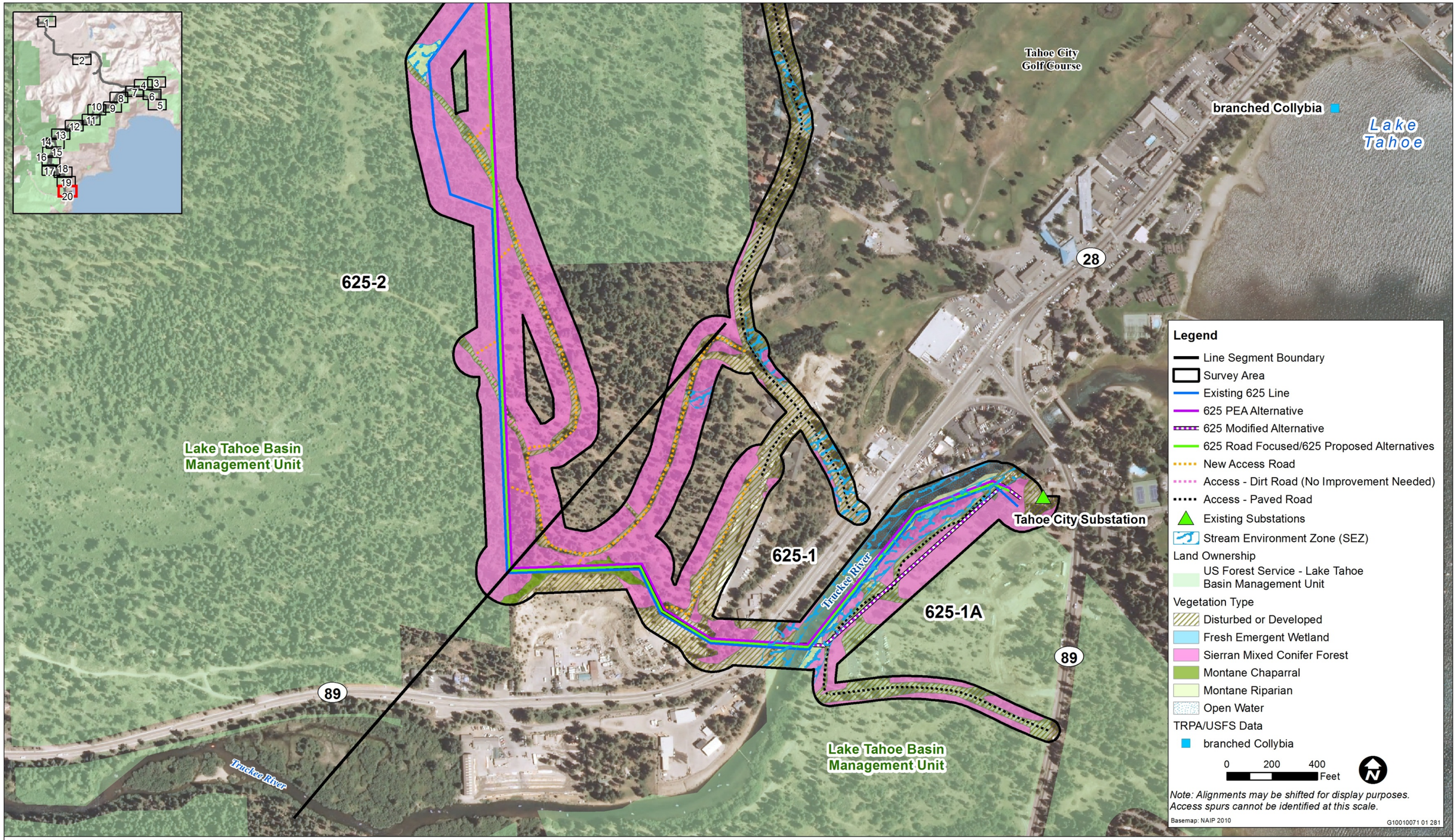
Exhibit A19

USFS Vegetation Map 18

Source: Data received from TriSage 2012; Adapted by Ascent Environmental in 2012

Exhibit A20

USFS Vegetation Map 19



Source: Data received from TriSage 2012; Adapted by Ascent Environmental in 2012

Exhibit A21

USFS Vegetation Map 20

Appendix B

Cumulative Project List

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.

Cumulative Project List				
Project Name	**Location**	**Description**	**Residential Units and/or Non-Residential Area**	**Project Status**
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.
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

Cumulative Project List				
Project Name	Location	Description	Residential Units and/or Non-Residential Area	Project Status
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.
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.

Cumulative Project List				
Project Name	**Location**	**Description**	**Residential Units and/or Non-Residential Area**	**Project Status**
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 Nevada/Placer County line eastward to the ridgeline defining the Lake Tahoe Basin.	--	FEIR is complete.
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
Sources: USDA Forest Service LTBMU, Town of Truckee, UC Davis				