

Appendix H

Biological Resources Data

- H1 Botanical Survey Report 2015–2017
- H2 Animal Species Observed within the Study Area for the Squaw-Alpine Base to Base Gondola Project
- H3 California Natural Diversity Database Results
- H4 USDA Forest Service Sensitive Animal Species by Forest
- H5 USFWS IPaC Resource List

H1

Botanical Survey Report 2015–2017

Squaw Valley - Alpine Meadows

Interconnect Project

Botanical Survey Report 2015-2017

Prepared by:

EcoSynthesis Scientific & Regulatory Services, Inc.

Prepared for:

Ascent Environmental

Date:

December 18, 2017

Table of Contents

1	Summary	1
1.1	Site and Survey Details	1
1.2	Summary of Results	1
2	Introduction	2
2.1	Site Location and Setting.....	2
3	Methods.....	4
3.1	Field Survey.....	4
3.2	Descriptions and Mapping.....	4
3.3	Investigator Qualifications	5
4	Results	6
4.1	Upland Habitats.....	6
4.2	Human Modified Habitats	8
4.3	Mesic to Aquatic Habitats.....	9
4.4	Special Status Species	12
4.5	Invasive Weeds	17
5	References	18

Table

Table 1. Special status species recorded in the CNDDDB from project region.....	13
---	----

Figures

Figure 1. Location map.....	3
-----------------------------	---

Appendices

Appendix A. Species observed on the project site.

Appendix B. Element list from CNDDDB query.

Appendix C. Botanical survey and land cover map

1 SUMMARY

1.1 Site and Survey Details

- Site name:** Squaw Valley - Alpine Meadows Interconnect Project
- Location:** Section 32, T. 16 N, R. 16 E; and Sections 5 and 8, T. 15 N, R. 16 E (USGS Tahoe City quadrangle). Site is partially within and between Squaw Valley and Alpine Meadows ski areas.
- Prepared for:** Ascent Environmental
- Survey dates:** August 25, October 2, 3, 11, and 18, 2015; September 17 and October 6, 12, and 13, 2016; July 6 and August 6, 8, 12, 15, 16, and 29, 2017.
- Report date:** November 28, 2017
- Biologist:** Adrian Juncosa, Ph.D.

1.2 Summary of Results

The study site includes several long linear polygons centered on possible gondola alignments, and several shorter curvilinear ones surrounding avalanche control facilities. The survey areas cross small patches of different kinds of Sierra Nevada coniferous forest, montane chaparral and other shrub/forb communities, extensive areas of Rock Outcrop and Talus, Ruderal vegetation of several kinds, Mountain Alder Thicket, part of a native quaking aspen grove, and very small areas of Freshwater Emergent Wetland and Riverine habitat (seasonal tributaries).

The lower portions of the northern and southern segments of the study site, and small portions of the Alternative 3 alignment, are within developed ski areas, and cross some unpaved roads and developed base areas that are variously revegetated (thus, an Urban land cover type). The remainder of the study area is undeveloped.

Several unnamed seasonal tributaries cross the site. Ponds occur both within the study area and short distances outside it.

Wetlands and other waters are mapped and described in a separate report by Hydro Restoration.

Habitat that is potentially suitable for several special-status species is present, but no special status species was observed on the site during surveys carried out during 2015-2017. Probable hybrid sagebrush plants were observed, with inferred parentage including one three-tip sagebrush, a Rare Plant Rank 2 species.

2 INTRODUCTION

2.1 Site Location and Setting

The mapped study site (Figure 1) consists of about 110-120 acres in the Squaw Creek and Bear Creek valleys, eastern Placer County. Distances are feet as seen in plan (map) view. In the northern and southern segments (see below), the actual straight-line distance of the gondola would be about 4.5 percent longer than the plan view. Areas of steep cliff that are not suitable for the installation of gondola towers were not surveyed. Portions of the mapped study area were not safely accessible on foot, but in those areas, tentative tower locations within otherwise unsurveyed areas were accessed using climbing ropes for fall protection, so that all areas of proposed construction footprint were surveyed.

The gondola alignment alternatives consist of the segments shown approximately in Figure 1. The northern segment runs from Cushing Pond in the Squaw Valley base area southwest approximately 5,500 (map) feet to the top of "Skunk Rock" at about 7,800 feet elevation. From that point, the central segment runs due south for about 4,000 feet. The southern segment then runs southeast for about 3,500 feet to arrive within the Alpine Meadows base area. Alternative 3 (for the central and southern segments) extends directly from Skunk Rock to the Alpine Meadows base area without a pivot point at the crest of the ski area. Alternative 4 follows an entirely independent alignment in the general vicinity of the existing KT-22 ski lift, and from a point on the ridge crest a short distance west of the upper KT-22 terminal directly to the Alpine Meadows base area.

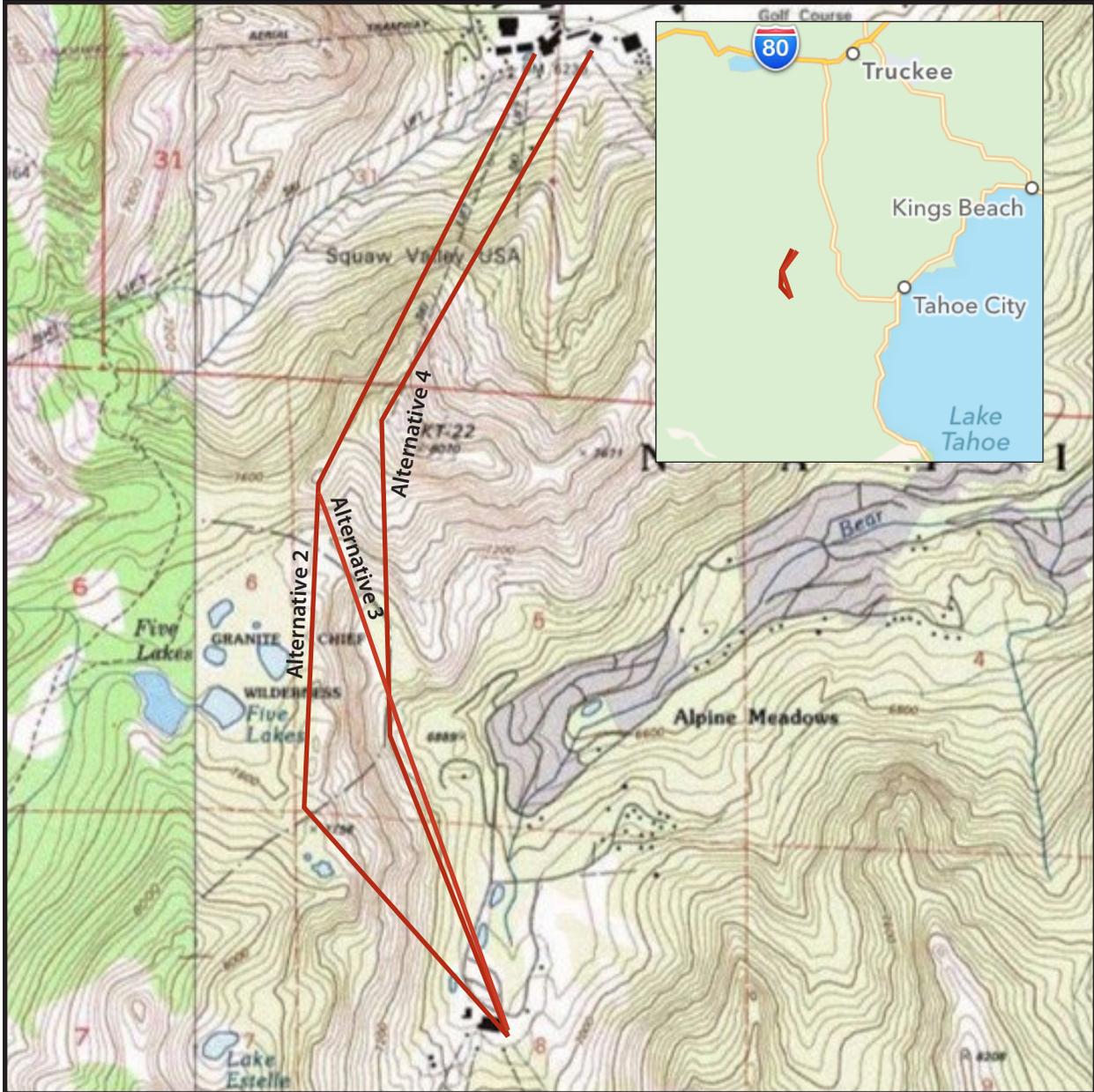
The botanical survey area (50 feet on each side of the Alternative 2 gondola alignment and 100 feet on each side of Alternatives 3 and 4; 30 to 50 feet around the Gasex facilities) is narrower in places than the wetland/tributary and wildlife study areas described in other reports. The botanical survey area totaled about 116 acres.

The elevation of the site varies from approximately 6,220 to 7,800 feet.

The regional setting of the study site is undeveloped and recreational development.

The study area lies in the Sierra Nevada ecoregion (Level III), Northern Sierra Upper Montane Forests (Level IV). However, even the Level IV regions are very broad biological categories encompassing an amount of species and ecological process diversity that is not useful for environmental review of individual small project sites. Further discussion of habitat mapping is provided under Methods, below.

The purpose of the present report was to provide a floristic botanical survey and general description of habitats and other land cover types that occur within the botanical study area. Thus, although this report necessarily includes some information about wetland habitat or other types of waters that lie within the study area boundaries, it is not intended to provide mapping of all such features at the level of detail that is needed for that category of impact assessment. Habitat boundaries do not always coincide with regulatory wetland boundaries. The reader is referred to other project reports for information on their respective subject matters.



Eco Synthesis

SCIENTIFIC & REGULATORY SERVICES INC

Scale: Approximately 1:24,000 (1"=2,000')

North



Alpine Meadows - Squaw Valley Base to Base Gondola Project

Botanical Surveys 2015-2017

Figure 1. Location Map



Study area (approximate)

Gasex survey areas not shown here (see Fig. 2)

3 METHODS

3.1 Field Survey

Botanical survey area polygons were provided by the project sponsor and uploaded onto a Trimble Geo XH 6000 GNSS (“GPS”) capable field computer. The device thus served both as a means to stay within the study area in difficult terrain with few reference landmarks, and to record the survey transects, any plants of interest that were encountered, and other vegetation features of possible project or environmental review interest.

The study area was surveyed by means of transects meandering back and forth within each survey corridor so as to view all portions of the study area that 1) provide suitable habitat for special status plant species known from the region, and 2) might be subject to project impacts. Some areas of cliff terrain (solid rock faces with slope gradients exceeding about 170 percent) were excluded, since they are not suitable locations for tower construction. Potential tower sites on promontories or ledges surrounded by cliffs were surveyed using ropes for safety. Survey transects were created from points recorded every 30-50 feet (thus, not necessarily representing the entire meandering survey pathway) are shown in Figure 2 (included in Appendix C).

Plant species present were identified by sight or by reference to Baldwin et al. (2012) and other scientific sources, and were recorded on a proprietary checklist of the local flora. Dried fragments of some species were collected for subsequent microscopic identification. In 2016, reference populations of several special status species (*Boechea rigidissima* var. *demota*, *Erigeron miser*, and *Eriogonum umbellatum* var. *torreyanum*) were visited and photographed before and after the Interconnect field surveys.

The site was studied on the following dates: August 25, October 2, 3, 11, and 18, 2015; September 17 and October 6, 12, and 13, 2016; July 6 and August 6, 8, 12, 15, 16, and 29, 2017 (plus several site visits of short duration on other dates). The July 6, 2017, field survey was specifically directed at one species of concern (*Lewisia kelloggii*) which is evident and identifiable much earlier than other target species, but its above-ground parts fall completely apart or may be eaten by herbivores and therefore be impossible to find later in the season.

For administrative reasons, most of the 2015 and 2016 survey dates were later than the blooming time for many of the special-status plant species that have the potential to occur. Many California plants can be definitively identified (indeed some are *best* identified) by means of dry fruits or seeds which remain identifiable until they are knocked off by rain or covered by snow. Consequently, microscopic study of plant remains facilitated species-level identification of nearly all species encountered during those years. Plants that were identified only to genus during the 2015 and 2016 surveys were revisited during the blooming season in 2017 to finalize the species level identifications of the few plants in genera that include special-status species.

3.2 Descriptions and Mapping

Vegetation polygons were mapped by digitizing polygons on the basis of GNSS features and notes marked on field maps. More comprehensive study of wetlands and other waters has been conducted by Hydro Restoration and is documented in a separate report.

Vegetation types were discriminated to levels equivalent to the Group or, where possible, Alliance in the US National Vegetation Classification 2.01 (USNVC, 2016; referred to herein as USNVC) and/or *A Manual of California Vegetation, 2nd Edition* (Sawyer et al., 2009; referred to herein as MCV2). Deviations from this principle are described in Results. However, in environments such as steep mountain slopes, plants often occur in combinations that do not correspond precisely to the circumscriptions provided by Also, the very granular microsite variation leads to occurrence of very small occurrences of different alliances, at scales that were not mapped for the present project. For one example, extremely arid microsites occur in close juxtaposition to mesic or even wetland microsites in areas where bedrock occurs near the land surface.

Some land cover types that do not have a suitable name and description in either reference cited above are referred to by descriptive names applicable to the local region.

3.3 Investigator Qualifications

The site was studied and this report written by Adrian M. Juncosa, Ph.D. (Botany; Duke University). Since 1988, he has completed over 150 site studies, impact analyses, mitigation, and monitoring projects in central and northern California, with particular expertise with floristic botanical surveys in the foothills and montane Sierra Nevada, where he has been based since 1995.

4 RESULTS

Appendix A includes the list of about 340 vascular plants and 25 mosses that were observed. On a per-area basis, this is a relatively extensive plant list, but such is often the result for long narrow study sites with substantial elevation change within them. Vegetation and other types of land cover, such as areas of generally <10 percent vegetation cover and urban land cover such as roads and buildings, that are found within the study area are depicted in Figure 2 (Appendix C).

As noted in Methods, the mapping of land cover types depicts the predominant land cover type. Thus, Rock Outcrop polygons include patches of Montane Chaparral, and individual conifer trees occur in other land cover types than Coniferous Woodland.

Under each vegetation type heading, alliances described in MCV2 that are found within that community type are listed. The text descriptions below characterize the typical conditions within each land cover type.

4.1 Upland Habitats

4.1.1 SIERRA NEVADA CONIFEROUS WOODLAND

Abies magnifica – *A. concolor* Alliance

Pinus contorta ssp. *murrayana* Alliance

Pinus jeffreyi Alliance

(*Pinus monticola* Alliance possible)

The patches of coniferous woodland that lie within the study area are so small that, for many of them, it was not possible to definitively assign them to one or another forest alliance as described in MCV2. Overall, seven species of arborescent conifers were observed (see Appendix A; plus the prostrate shrubby *Juniperus communis* var. *saxatilis*), and dominance varies between as many of five of those from one to another small patch of forest along the alignment. Identifiable woodland types included Lodgepole Pine (*Pinus contorta* ssp. *murrayana*) near the Alpine Meadows base area; Jeffrey Pine (*Pinus jeffreyi*) scattered at mostly moderate elevations; and Red Fir – White Fir (*Abies magnifica* and *A. concolor*) in one or two very small patches at middle-upper elevations of the slopes. Coniferous trees were also encountered as scattered individuals within non-forest vegetation types, and, in one area within the Rock Outcrop land cover type,

The woodland understory was generally sparse to non-existent and, due to the small size of forest patches, no one or several herbs or shrubs could be identified as being consistently dominant or as being characteristic associates of the Coniferous Woodland.

4.1.2 MONTANE CHAPARRAL

For the purposes of the present report, Montane Chaparral is mostly limited to the non-deciduous, coriaceous-leaved community. Deciduous and soft-leaved shrub vegetation is described in other land cover types.

Quercus vaccinifolia Shrubland Alliance

Arctostaphylos patula Shrubland Alliance (*A. patula* – *A. nevadensis* Alliance in USNVC web site)

Montane Chaparral include areas that correspond to more than one vegetation alliance described in Sawyer et al. (2009), however, these often occur intermixed, so a single more inclusive cover type is appropriate for the present project. This community is found most continuously on south- and southeast-facing rocky slopes, especially in the southern segment of all of the gondola alignments.

Many of the mapped polygons of Montane Chaparral are nearly pure huckleberry oak; other areas are mostly greenleaf or rarely pinemat manzanita; some areas are a mixture of those species and/or mixed with snowbush (*Ceanothus cordulatus*) or rarely tobacco brush (*C. velutinus*). The distinguishing ecological characteristics of this community type as mapped in the present report are dense "hard-leaved" shrub canopy with leaves that are not deciduous. This vegetation occurs on steep rocky slopes. There is often no herbaceous understory at all, due to the dense shrub canopy which prevents sufficient light from reaching the ground surface for herbaceous or subshrubby plants to be sustained. Where there are gaps or thin shrub canopy, lower stratum plant species may occur, most often ones that are typical of Rock Outcrop areas (see below), such as species of wild buckwheat (*Eriogonum* spp.) or penstemon (*Penstemon* spp.).

4.1.3 BITTER CHERRY THICKETS

Prunus emarginata Provisional Alliance

This shrubland type is distinguished from Montane Chaparral by the deciduous habit of the majority of the dominant species within it. It is found extensively but not exclusively on the lower elevation slopes of the southern segments of Alternatives 3 and 4. MCV2 and direct field observation suggest that there is likely to be a somewhat more mesic soil moisture regime in bitter cherry thickets than chaparral areas, but they are still quite dry in summertime.

The most dominant species is bitter cherry; also codominant in many areas is Sierra coffeeberry (*Frangula rubra*). In some areas, there is a minor to codominant component of some non-deciduous species such as tobacco brush (*Ceanothus velutinus*). Wildlife values of the deciduous and non-deciduous shrubland types may differ somewhat.

This map unit term is also applied to the patchwork of mostly shrub- and subshrub-dominated woody vegetation found in the northern segment of the alignment, which varies widely in species composition (bitter cherry; oceanspray, *Holodiscus discolor* var. *microphyllus*; and snowberry, *Symphoricarpos rotundifolius*). These mixed species communities may also include a substantial component of subshrub or forb species.

4.1.4 MOUNTAIN SAGEBRUSH/FORB VEGETATION

Artemisia tridentata ssp. *vaseyana* Shrubland Alliance

These communities occur on slopes and ridges with all aspects and of all gradients from gentle to steeply sloping. Soil moisture regimes vary from relatively dry to much more mesic. Mountain sagebrush is the distinguishing shrub species, but many others occur within the alliance. Cover is highly variable from sparse to nearly 100 percent canopy including associated forbs and grasses. Overall species diversity tends to be much higher than in Montane Chaparral or Bitter Cherry Thickets.

Although the USNVC has formerly mentioned “Forb Meadow” in Macrogroup descriptions of montane vegetation, there is no alliance for the mixed subshrub/forb communities that occur commonly throughout the northern Sierra Nevada. Since those are ecologically more similar to the Mountain Sagebrush community at the present project site, and cannot always be mapped separately, they are included under this heading. Common species of the montane forb communities on the Interconnect study site include coyote mint (*Monardella odoratissima*), Brewer’s angelica (*Angelica breweri*), woolly mule’s-ears (*Wyethia mollis*), Brewer’s aster (*Eucephalus breweri*), paint-brush (*Castilleja* spp.), beard-tongue (*Penstemon* spp.), sulfur buckwheat (*Eriogonum umbellatum* var. *nevadense* and var. *modocense*), lupines (*Lupinus* spp.), and others.

Plant communities that are transitional to riparian ecological conditions are described below under Mesic to Aquatic Habitats.

4.1.5 ROCK AND TALUS

This land cover type does not technically constitute vegetation: except for small patches, there is usually much less than 10 percent vegetative cover. Nearly all of the area within Rock and Talus is exposed bedrock, with areas of talus (broken rock from large boulders down to angular cobbles) and sparsely vegetated gravel and coarse sand. Within the study area, talus may occur in large exposures of one to many acres, or in small patches within otherwise extensive bedrock. For this reason they were mapped together for this report.

The lithology along the central and segment of Alternative 2 and portions of Alternatives 3 and 4 is mostly granitic, but it is volcanic rock throughout most of the northern and southern segments. “Skunk Rock” (a major pivot point where Alternatives 2 and 3 diverge) is so named for the light (granitic) and dark colored (volcanic) rock occurring next to one another. Rock and Talus occur on all aspects and slopes.

Notwithstanding the low vegetation cover, many plant species occur in Rock and Talus. In small depressions or flat areas within the rock, tiny pockets of finer grained soil have accumulated and support a great diversity if not much cover of vegetation. Commonly encountered species include frosted buckwheat (*Eriogonum incanum*), Lobb’s buckwheat (*E. lobbii*), mountain pride (*Penstemon newberryi*), stonecrop (*Sedum obtusatum*), jewel weed (*Streptanthus tortuosus*), and various sedges and grasses. Rock outcrops and small accumulations of sandy soil within them provide potentially suitable habitat for a variety of special status plant species. Talus is typically fractured along pre-existing zones of weakness and are lying at diverse angles, there is usually nowhere for soil to accumulate, and no crevices in which species such as starved daisy (*Erigeron miser*) could grow. However, talus provides refuge for wildlife species that forage on herbaceous species supported by nearby soil patches.

4.2 Human Modified Habitats

The two land cover types in this category are characterized by substantial modification from the original natural conditions.

4.2.1 RUDERAL VEGETATION

“Ruderal” refers to vegetation growing in areas disturbed by human activities, usually grading but also applicable to other anthropogenic disturbances. Within the study area, this occurs primarily

within the developed ski areas, both at the base facilities and on road embankments and ski runs. Ruderal vegetation occurs on all aspects and slope gradients from nearly level to steeply sloping. Soil textures and moisture regimes are also highly variable.

Ruderal vegetation is often used to refer only to weedy communities dominated by non-native species; however, for the present project, the wider (and correct) definition of the term is appropriate. Within the study area, Ruderal vegetation includes small areas of landscaping and lawn turf near the ski area base facilities; erosion control revegetation on ski slopes and other constructed features such as roads and their embankments; and substantially disturbed soil profiles that support weedy plants.

The ruderal erosion control vegetation within the two ski area base areas is generally dominated by grasses, especially wheatgrass (*Elymus hispidus*=*Thinopyrum intermedium*), squirreltail (*Elymus elymoides*), and hard fescue (*Festuca* sp.) but also including (and being locally dominated by) a variety of forbs and low shrubs (yarrow, *Achillea millefolium*; rabbitbrush, *Ericameria nauseosa*; and many others). As is typical of ruderal vegetation, dominance varies greatly by microsite. Weedy ruderal vegetation includes a wide variety of both native and non-native species.

4.2.2 URBAN LAND COVER

This land cover type includes primarily pavement (asphalt or gravel), buildings including ski lift towers, and some other structures such as pond weirs and outfalls. Most of the lift towers and some other constructed features have very small footprints and were not mapped separately, but some of the terminals with associated paved or otherwise unvegetated surface were mapped as Urban polygons.

4.3 Mesic to Aquatic Habitats

The focus of the present report is the overall vegetation and botany of the study area. A report being prepared separately by Hydro Restoration focuses upon mapping of wetlands and other waters. These features are therefore treated only briefly in the present study. However, it is appropriate to mention them in the context of a report on overall vegetation and habitats.

4.3.1 MESIC AND RIPARIAN SHRUBLAND

Acer glabrum Provisional Shrubland Alliance

Rubus (parviflorus) Shrubland Alliance

This land cover type includes vegetation that is intermediate between the upland shrubland types described above, and truly riparian woody vegetation that is consistently associated with presence of surface water or saturated soil for a portion of the year (see below under Mountain Alder Thicket). It occurs almost exclusively on moderate slopes (for this project study area) with shallow to deep, sometimes loamy soils. Aspect is generally north or east. The vegetation is characterized by having deciduous leaves that are much thinner and more susceptible to desiccation than those of the species that are characteristic of Montane Chaparral or Bitter Cherry Thickets.

Common plant species in Mesic and Riparian Shrubland vary spatially but include one or more of the following: mountain maple (*Acer glabrum*), Scouler's willow (*Salix scouleriana*), thimbleberry

(*Rubus parviflorus*), currants/gooseberries (*Ribes nevadensis*, *roezlii*, *viscosissimum*), elderberries (*Sambucus* spp.), snowberry (*Symphoricarpos mollis*), and serviceberry (*Amelanchier* spp.).

4.3.2 MOUNTAIN ALDER THICKET

Alnus incana Shrubland Alliance

This woody riparian vegetation type occurs in the lower elevation portion of the southern segment, on lower slopes adjoining a snowmaking pond at Alpine Meadows ski area, and in several other small exposures. Aspect is variable, and slopes vary from steep ones that are fed by groundwater emerging at a point-source or diffuse spring to near level ones. The water source is generally entirely, or supplemented by, groundwater, though for convenience the small areas of streamflow supported riparian vegetation are included in this land cover type. The distinguishing physical characteristic of Mountain Alder Thicket is the presence of saturated soil at or near the ground surface throughout most or all of the year.

The dominant species is mountain alder (*Alnus incana*), but scattered groups of willow species (*Salix* spp.) may also occur. A small patch of Eastwood's willow (*S. eastwoodiae*) near the pond where Alternatives 3 and 4 cross was mapped within adjacent alder thicket for simplicity.

There is little or no understory in most of the alder thickets, but some openings are vegetated by wetland or facultative herbaceous species. In the present study area, these herbaceous areas are dominated mostly by forbs (specifically fireweed, *Chamerion angustifolium* and corn lily, *Veratrum californicum*) but may also include species of *Juncus* and/or *Carex*.

4.3.3 ASPEN GROVE

Populus tremuloides Forest Alliance

A very small portion of the study area passes through an aspen grove in the lower part of the southern segment of the study area. Quaking aspen is a tree with rhizomes (underground stems) or near-surface roots with adventitious shoots, which thereby form small to large (100-acre) clones of separate-appearing trees. These groves persist for long periods of time; some, at least, are believed to date from the last glacial period, 10,000 years ago. Most aspen groves occur on upland slopes, but also occur in lower parts of riparian valleys. Aspen groves provide some ecological values that are similar to those of riparian forest and are a sensitive biological resource, even though aspen itself is a facultative-upland (mesic but not generally hydrophytic) plant species.

4.3.4 FRESHWATER EMERGENT WETLANDS

Herbaceous wetland vegetation occurs in extremely small patches in slight topographic depressions within tributary drainages within the study area. Dominant species include sedges (*Carex leporinella* and *heteroneura*), rushes (*Juncus chlorocephalus* or *bufonius*), grasses (*Agrostis exarata* and/or *humilis*), and forbs (e.g. *Oreostemma alpigenuus*). In one seasonally ponded area, some woody species are also present (*Salix eastwoodiae*, *Vaccinium* sp.). A *Carex* wetland is present at the fringe of a perennial pond near the southern end of the central segment. Small areas of wetland vegetation occur near the Alpine Meadows base lodge, in patches too small to be effectively mapped for the present vegetation study.

4.3.5 RIVERINE

Several unnamed seasonal tributaries cross the site, in all three segments of the study area. They are recognizable primarily from exposures of rounded or subangular (alluvial) gravels, deposits of transported sand and from “water staining” (blackish growth of cyanobacteria, and/or deposition of orangish oxidized iron compounds) on bedrock and boulders, but also occasionally from the presence of hydrophytic plant species. Mapping and other details pertaining to wetlands and tributaries are provided in a separate report by Hydro Restoration. Vegetation of Riverine habitat within the study site includes areas of cover by mosses (and no vascular plants) growing on sand or bedrock, and areas of hydrophytic vascular plants.

4.4 Special Status Species

The study site lies in the Tahoe City quadrangle. The element list of species and natural communities that resulted from a CNDDDB query for the nine quadrangles centered on Tahoe City is included in Appendix B, along with a species list and resource report from US Fish and Wildlife Service (USFWS).

Information on regulatory status (if any), habitat requirements, and potential occurrence within the site is provided in Table 1. CNDDDB query results include species designated as “sensitive” by US Forest Service and Bureau of Land Management, as well as many species (particularly insects) that have no official regulatory status and do not necessarily meet the criteria provided by CEQA Guideline 15380 for determination of significant impacts on individual species. For example, plant species with Rare Plant Rating of 4 are those of limited geographic distribution (a watch list). Except on a case-by-case basis, impacts on these species do not usually merit a determination of “significant.” However, this botanical survey report does not make any determinations about potential impacts, but rather is intended merely to provide background information and field survey results, so all species on either the CNDDDB element list or USFWS resource report list, with or without any status, or with status designations that might not be expected to result in determination of a significant impact (except on a case-by-case basis), are included in Table 1.

At the suggestion of US Forest Service staff, one species (*Lewisia kelloggii*) that is not yet reported as occurring in the nine-quadrangle query area, but for which potentially suitable habitat occurs in small exposures on the ridge top between Squaw Valley and Bear Valley, was specifically searched for in those locations at the time when it is evident and identifiable (about 4-6 weeks earlier than most other target plant species).

The current, authoritative treatment in Flora of North America North of Mexico (volume 7) does not recognize *Boechera* (formerly *Arabis*) *rigidissima* var. *demota* as a separate taxon, but includes it in *A. rigidissima*, which is relatively common and widespread and considered to be a series of apomictic (non-outcrossing) hybrids. However, the discussion states that the two geographic occurrences (var. *rigidissima* in Trinity County and var. *demota* in the northern Sierra) represent different hybrid origins possibly from the same two parent species.

4.4.1 OVERVIEW OF DATA BASE AND AGENCY QUERY RESULTS

Many of the special-status species, both plants and wildlife, which resulted from the CNDDDB and USFWS queries utilize wetland and aquatic habitats with slow-moving or stationary water, or (in the case of wetland species) are found in nearly level wetland habitats with long-seasonal saturation to or nearly to the ground surface. The floristic field survey was extended to such areas notwithstanding the likelihood that wetlands and aquatic sites would be avoided by project facilities to the extent that is feasible.

The soils of the site are primarily very gravelly or stony, including fine-textured loams only in very small microsites within Rock Outcrop areas. Lithology includes both granitic and volcanic rocks. Deeper soils are found only in a few small patches that support forest vegetation.

Some of the upland plant species in Table 1 are characteristically found in granitic rocks (e.g., starved daisy, *Erigeron miser*); others only in specific subtypes of volcanic soils (Torrey’s sulfur buckwheat, *Eriogonum umbellatum* ssp. *torreyanum*); others in either.

Table 1. Special status plant species recorded by CNDDDB in the nine USGS quadrangles centered on the Tahoe City quadrangle, and some US Forest Service sensitive species with known occurrences within the elevation range of the site though not represented by reported occurrences within the nine-quadrangle area. Plants are listed alphabetically by scientific name. Some species tracked by CNDDDB have no regulatory status, or have status applicable only within certain lands, and do not necessarily meet the criteria of CEQA guideline 15380. Lichens and fungi are not included in this list; no suitable habitat for *Peltigera gowardii*. Fungi cannot be effectively targeted by floristic surveys.

Status definitions (Federal status/State status/California Native Plant Society [CNPS] list):

E or T, listed as endangered or threatened under state or federal Endangered Species Act;

C, candidate for listing as endangered or threatened;

SC, species of special concern (California DFW);

RPR (rare plant rank) 1B, considered rare, threatened or endangered by CNPS and normally regarded by DFW as meriting consideration under CEQA Guideline 15380; RPR 2, rare, threatened, or endangered in California but more common elsewhere; effects on RPR 3 (insufficient information) and 4 (watch list) species are not generally considered to be significant except on a case-by-case basis.

Species	Status (US/Ca /RPR)	Microhabitat/Occurrence	Suitable Habitat Present?	Other Information
PLANTS				
Galena Creek rock-cress <i>Arabis (Boechea) rigidissima</i> var. <i>demota</i>	-/-/1B	Moderately mesic lower-slope open coniferous woodland, near small-tributary floodplain.	Yes	Taxon is not considered valid by Flora North America, Vol. 7 (2010), but was considered for this study. See text.
Three-tip sagebrush <i>Artemisia tripartita</i> ssp. <i>tripartita</i>	-/-/2B	Exposed montane ridges on rocky volcanic substrate; one site in conifer forest just above edge of mesic meadow.	Yes	
Austin's astragalus <i>Astragalus austini</i>	-/-/1B	Exposed ridges above timberline (7,900 to 9,000 feet)	Marginal	Site is just below known lower elevational limit of the species.
Upswept moonwort <i>Botrychium ascendens</i>	-/-/2B	Meadows or willow-forb vegetation near springs or creeks.	Marginal	
Scalloped moonwort <i>Botrychium crenulatum</i>	-/-/2	Moist meadows.	Marginal	Tiny areas of suitable meadows within study area.

Common moonwort <i>Botrychium lunaria</i>	-/-/2	Moist meadows.	Marginal	Tiny areas of suitable meadows within study area.
Mingan moonwort <i>Botrychium minganense</i>	-/-/2	Meadows and open forest along streams.	No	
Western goblin <i>Botrychium montanum</i>	-/-/2	Shady, mesic conifer woodland along streams	No	Not within 9-quad area, but known from the region.
Bolander's bruchia <i>Bruchia bolanderi</i>	-/-/2	Wet soil, often fresh fine sand.	Yes	
Davy's sedge <i>Carex davyi</i>	-/-/1B	Mesic to wet meadows.	Yes	
Woolly-fruited sedge <i>Carex lasiocarpa</i>	-/-/2	Shores of lakes, ponds	Yes	
Mud sedge <i>Carex limosa</i>	-/-/2B	Perennial standing water in fens or edges of perennial ponds or lakes.	Yes	One very small spot of suitable pond-edge habitat within Alternatives 3 and 4.
Starved daisy <i>Erigeron miser</i>	-/-/1B	Granite outcrops.	No	
Donner Pass buckwheat <i>Eriogonum umbellatum</i> var. <i>torreyanum</i>	-/-/1B	Open areas on specific type of volcanic soils substrate.	Yes	
American manna grass <i>Glyceria grandis</i>	-/-/2	Long-saturated, nearly level wetlands.	No	Only Sierra occurrences are in the Truckee River.
Blandow's bog-moss <i>Helodium blandowii</i>	-/-/2B	Usually in bogs or fens, but also rarely in other wetland situations.	Marginal	
Plumas ivesia <i>Ivesia sericoleuca</i>	-/-/1B	Vernally moist flats and areas just outside meadow wetlands; volcanic lithology.	No	No records from steeply sloping terrain or granitic outcrops.
Santa Lucia dwarf rush <i>Juncus luciensis</i>	-/-/1B	Wetland species.	Yes	
Kellogg's lewisia <i>Lewisia kelloggii</i>		Sandy soils on level or gently sloping surfaces.	Yes	
Long-petaled lewisia <i>Lewisia longipetala</i>	-/-/1B	Rocky and gravelly areas with snowmelt seepage.	No	Site is below altitudinal range of species.
Three-ranked hump moss <i>Meesia triquetra</i>	-/-/4	Fens.	No	

Broad-nerved hump moss <i>Meesia uliginosa</i>	-/-/2	Very wet situations in lodgepole pine forests.	Yes	One very small area near Alpine Meadows but not where any gondola tower would be built.
Hiroshi's flapwort <i>Nardia hiroshii</i>	-/-/2	Soil at edge of wet meadow with willows. CNDDDB lists meadows and seeps; damp soil on granitic bedrock.	Yes	Plant is a liverwort (closer to mosses than vascular plants). Only one North American record.
Stebbins's phacelia <i>Phacelia stebbinsii</i>	-/-/1B	Various habitats on west slope of Sierra Nevada.	Not in the project area.	Unverified listing in checklist at Sugar Pine Point park is likely a misidentification.
Whitebark pine <i>Pinus albicaulis</i>	-/-/-	High elevation montane habitat.	Marginal	Generally above elevation of site. Considered for RPR listing but rejected.
Nuttall's pondweed <i>Potamogeton epihydrus</i>	-/-/2	Grows exclusively in standing water such as ponds.	Yes	Usually only in natural perennial ponds.
Robbins's pondweed <i>Potamogeton robbinsii</i>	-/-/2	Grows exclusively in standing water such as ponds.	Yes	Usually only in natural perennial ponds.
Alder buckthorn <i>Rhamnus alnifolia</i>	-/-/2	Wet meadow edges, seeps, stream sides; obligate wetland species in California.	Yes	No species of <i>Rhamnus</i> was found anywhere within study area.
Tahoe yellow cress <i>Rorippa subumbellata</i>	C/E/1B	Known only from sandy lakeshore habitat (Lake Tahoe).	No	
Marsh skullcap <i>Scutellaria galericulata</i>	-/-/2	Wetland (wet meadow) species.	Yes	No wet meadows.
Munro's desert mallow <i>Sphaeralcea munroana</i>	-/-/2	Open areas in conifer forest.	Yes	Species was not found in suitable habitat.
Slender-leaved pondweed <i>Stuckenia filiformis</i> ssp. <i>alpina</i>	-/-/2	Ponds, near-stationary water.	Yes	Usually only in natural perennial ponds.
Howell's tauschia <i>Tauschia howellii</i>	-/-/1B	Exposed sandy or gravelly granitic soils; ridgetops and forest openings	(No)	No known occurrence south of Sierra County.
Felt-leaved violet <i>Viola tomentosa</i>	-/-/4	Dry, gravelly, open conifer forest on west slopes of Sierra Nevada.	Marginal	
NATURAL COMMUNITIES				
Fen	n.a.	Fen is defined as a wetland habitat supported by groundwater seepage.	No	Wetlands on site are supported primarily by incident precipitation and runoff.
Great Basin Cutthroat Trout/Paiute Sculpin Stream	n.a.	Perennial tributaries	No	No perennial streams within study area.

4.4.2 FIELD SURVEY FINDINGS

The list of species encountered during the field surveys is included in Appendix A. No special status plant species were observed within the study area.

Three-tip Sagebrush – Mountain Sagebrush Hybrids

Three-tip sagebrush (*Artemisia tripartita*) was not recognized as occurring in California by the second edition of the Jepson Manual (Baldwin et al., 2012; as is normal for large floristic references, the taxonomic treatment was completed much earlier than the publication date). However, a few specimens identified as that species are found in one or more California herbaria, and I have observed plants corresponding to the species in several locations in the Tahoe – Donner region of the northern Sierra Nevada. Dr. Leila Shultz, the author of the *Artemisia* treatments for both Jepson and the Flora of North America, examined a specimen from one of these locations and confirmed that it was three-tip sagebrush. Based upon that identification and observation of the species in the field in both Nevada and California, including locations where some of the aforementioned herbarium specimens were collected), I am confident of having a detailed and comprehensive knowledge of the taxonomic characters of the species.

In 2012, the California Native Plant Society recommended that a status of RPR 2 be assigned to based upon the herbarium records available at the time, and the relatively scanty additional field observation data from myself and others. Accumulating survey results and field observations suggest that the species may not be quite as rare as previously supposed, but information is incomplete in any case.

Many sagebrush plants in the Sierra region where three-tip sagebrush is found match mountain sagebrush perfectly with the exception of having more divided leaves than the characteristic mountain sagebrush strap-shaped leaves with three short lobes. There are several additional characters that distinguish three-tip from mountain sagebrush; not merely the divided leaves, though that is the easiest character to use in a dichotomous key.

Accordingly, I concluded (back in 2009) that these divided-leaved mountain sagebrush plants are hybrids between the two species. Multiple instances of hybrids between different species of *Artemisia* are known, most of which are not judged to merit recognition as discrete taxa. It is also well known in the botanical literature that fertile hybrids may occur where one or even both of the putative parent species are absent, which is the case here as well. Within the Interconnect study area, the hybrid sagebrush plants occur commonly on the slope that is crossed by the northern segment of Alternative 4 (where three-tip sagebrush is not found), and also extensively outside the study area, from Ward Valley northward to Castle Peak, and possibly further.

4.5 Invasive Weeds

Three species of invasive weeds were observed in the study area: diffuse knapweed (*Centaurea diffusa*), tall whitetop (*Lepidium latifolium*), and hoary cress (*Berteroa incana*). Additional occurrences of these species and of other invasive species are found outside the defined study area of the present survey project.

Diffuse knapweed was found in one location in the lower part of the northern segment of Alternative 2, within Squaw Valley Ski Area (no waypoint recorded).

Tall whitetop was found in two occurrences. One of these was only one or two plants in 2015 but is probably many more plants now, on the same Alternative 2 gondola alignment segment (point shown in Figure 2). The other is surrounding and within an abandoned building just west of the KT-22 top terminal, within the Alternative 4 alignment and surrounding survey area.

Hoary cress was found in moist vegetation adjacent to the Alpine Meadows base area (see points in Figure 2). When this survey began in 2015, there were only a few plants of the species there and extending uphill toward the area behind the maintenance buildings. In 2017, there were at least 20 plants, which were uprooted and removed from the site for sterilization of both the plants and seeds and disposal of the remains. However it should be considered certain that there is now a substantial seed bank in that area, perhaps spreading elsewhere, so long-term monitoring and control in the early spring would be advisable to reduce the chance that this species could spread widely in the northern Sierra Nevada.

5 REFERENCES

- Baldwin, et al. 2012. *The Jepson Manual: Vascular Plants of California (Second Edition)*. University of California Press, Berkeley, California.
- California Department of Fish and Wildlife (CDFW). 2015. *California Natural Diversity Data Base*. Habitat Conservation Division, Wildlife and Habitat Data Analysis Branch, Sacramento, California. Digital data base accessed by online RareFind 5 software several times, most recently on November 20, 2017.
- Flora of North America Editorial Committee (FNAEC). 2007. *Flora of North America North of Mexico, Volume 27. Bryophytes: Mosses, Part 1*. Oxford University Press, New York. [several additional volumes consulted for general systematics information]
- Flora of North America Editorial Committee (FNAEC). 2010. *Flora of North America North of Mexico, Volume 7. Salicaceae to Brassicaceae*. Oxford University Press, New York.
- Flora of North America Editorial Committee (FNAEC). 2014. *Flora of North America North of Mexico, Volume 28. Bryophytes: Mosses, Part 2*. Oxford University Press, New York.
- Malcolm, B., N. Malcolm, J. Shevock, and D. Norris. 2009. *California Mosses*. Micro-Optics Press.
- Norris, D.H., and J.R. Shevock. 2004a. Contributions toward a Bryoflora of California: I. A specimen-based catalogue of mosses. *Madroño* 51: 1-131.
- Norris, D.H., and J.R. Shevock. 2004b. Contributions toward a Bryoflora of California: II. A Key to the mosses. *Madroño* 51: 133-269.
- Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. *A Manual of California Vegetation, 2nd edition*. California Native Plant Society in collaboration with California Department of Fish and Game, Sacramento, California.
- USNVC (US National Vegetation Classification System). 2016. United States National Classification Database, V2.01. Federal Geographic Data Committee, Vegetation Subcommittee, Washington DC. Internet web site at <http://usnvc.org>, accessed most recently on 22 October 2017.

Appendix A.

Plant Species Observed in Squaw-Alpine Interconnect Study Area

Appendix A. List of plant species observed within the project study areas during 2015, 2016, and 2017.

Species are listed first by divisions, then within groups alphabetically by family, genus, and species, except for mosses (alphabetically by genus). Moss species nomenclature follows FNAEC (2007 and 2014) and Malcolm et al. (2009); for mosses identified only to genus, names follow Norris and Shevock (2004). Vascular plant nomenclature generally follows Baldwin et al. (2012). The names and placements of families in the current Jepson Manual (Baldwin et al., 2012) are based upon major changes in angiosperm systematics in recent years. In many cases, notes are provided pertaining to former or more familiar classification or nomenclature. Species marked with an asterisk (*) are non-native.

Scientific Name	Notes
BRYOPHYTA (s.l.)	Mosses and liverworts listed together.
<i>Amblystegium varium</i>	
<i>Brachytheciastrum collinum</i>	
<i>Brachythecium salebrosum</i>	
<i>Bryum calobryoides</i>	
<i>Bryum lanatum</i>	
<i>Bryum uliginosum</i>	
<i>Bryum weigeli</i>	
<i>Cephaloziella</i> sp.	Only liverwort encountered.
<i>Codriophorus (Racomitrium) aciculare</i>	Within seasonal tributary.
<i>Dicranoweisia crispula/contermina</i>	Separate species according to Norris and Shevock (2004a); conspecific according to FNAEC Vol. 27 (2007).
<i>Fontinalis antipyretica</i>	
<i>Grimmia hamulosa</i>	
<i>Grimmia montana</i>	Possibly <i>G. alpestris</i> also.
<i>Homalothecium nevadense</i>	
<i>Kiaeria starkei</i>	
<i>Leskea polycarpa</i>	
<i>Meiotrichum lyallii</i>	
<i>Mnium blyttii</i>	
<i>Philonotis caespitosa</i>	
<i>Pohlia</i> sp.	Outside range of <i>P. robertsonii</i> .
<i>Polytrichum juniperinum</i>	
<i>Polytrichum piliferum</i>	
<i>Pseudoleskea (Lescurea) patens</i>	
<i>Scleropodium</i> sp.	
<i>Syntrichia ruralis</i>	
<i>Tortula hoppeana</i>	
<i>Trichostomum brachydontium/crispulum</i>	

Scientific Name	Common Name	Notes
LYCOPHYTA	LYCOPHYTES	
Selaginellaceae <i>Selaginella watsonii</i>	Spike-moss Family Watson's spike-moss	
FERNS	FERNS	
Dennstaedtiaceae <i>Pteridium aquilinum</i>	Bracken Family bracken	
Pteridaceae <i>Aspidotis densa</i> <i>Cheilanthes gracillima</i> <i>Cryptogramma acrostichoides</i> <i>Pellaea breweri</i> <i>Pellaea bridgesii</i>	Brake Family dense lace fern lace lip-fern rock-brake, parsley fern cliff-brake cliff-brake	
Woodsiaceae <i>Athyrium filix-femina</i> var. <i>cyclosorum</i> <i>Woodsia oregana</i>	Cliff Fern Family lady fern cliff fern	
GYMNOSPERMS	CONIFERS	
Cupressaceae <i>Juniperus communis</i> var. <i>saxatilis</i> <i>Juniperus grandis</i>	Cypress Family mountain juniper Sierra juniper	
Pinaceae <i>Abies concolor</i> <i>Abies magnifica</i> <i>Pinus contorta</i> ssp. <i>murrayana</i> <i>Pinus jeffreyi</i> <i>Pinus monticola</i> <i>Tsuga mertensiana</i>	Pine Family white fir red fir lodgepole pine Jeffrey pine western white pine mountain hemlock	
ANGIOSPERMS-DICOTYLEDONS	FLOWERING PLANTS	
Adoxaceae <i>Sambucus nigra</i> ssp. <i>caerulea</i> <i>Sambucus racemosa</i>	Muskroot Family elderberry elderberry	
Apiaceae (Umbelliferae) <i>Angelica breweri</i> <i>Cymopterus terebinthinus</i> <i>Heracleum maximum</i> <i>Ligusticum grayi</i> <i>Lomatium nevadense</i> <i>Osmorhiza chilensis</i>	Carrot Family Brewer's angelica cow parsnip Gray's lovage sweet cicely	

<i>Perideridia lemmonii</i>	Lemmon's yampah	
<i>Perideridia parishii</i>	Parish's yampah	
Apocynaceae	Dogbane Family	
<i>Apocynum androsaemifolium</i>	dogbane	
<i>Asclepias cordifolia</i>	purple milkweed	
Asteraceae (Compositae)	Sunflower Family	
<i>Achillea millefolium</i>	yarrow	
<i>Ageratina occidentalis</i>	snakeroot	
<i>Anaphalis margaritacea</i>	pearly everlasting	
<i>Antennaria rosea</i>	rosy pussy-toes	
<i>Arnica lanceolata</i> ssp. <i>prima</i>		
<i>Arnica longifolia</i>		
<i>Artemisia douglasiana</i>	mugwort	
<i>Artemisia tridentata</i> ssp. <i>vaseyana</i>	mountain sagebrush	
<i>A. tridentata</i> ssp. <i>vaseyana</i> X <i>A. tripartita</i>		See text for discussion.
<i>Balsamorhiza sagittata</i>	arrow-leafed balsamroot	
<i>Brickellia grandiflora</i>	brickellbush	
<i>Brickellia greenei</i>		
* <i>Centaurea diffusa</i>	diffuse knapweed	Noxious weed; one patch
<i>Chaenactis douglasii</i> var. <i>douglasii</i>	dusty maidens	
<i>Cichorium intybus</i>	chicory	
<i>Cirsium andersonii</i>	Sierra thistle	
<i>Crepis occidentalis</i>		
<i>Ericameria nauseosa</i> ssp. <i>hololeuca</i>	rubber rabbitbrush	
<i>Erigeron breweri</i> var. <i>breweri</i>		
<i>Erigeron coulteri</i>		
<i>Erigeron inornatus</i> var. <i>inornatus</i>		
<i>Erigeron tener</i>		
<i>Eriophyllum lanatum</i> var. <i>integrifolium</i>	woolly sunflower	
<i>Eucephalus (Aster) breweri</i>	Brewer's aster	
<i>Eurybia integrifolia</i>		
<i>Gnaphalium palustre</i>	marsh cudweed	
<i>Helianthella californica</i>	California helianthella	
<i>Hieracium albiflorum</i>	white-flowered hawkweed	
<i>Hieracium horridum</i>	hawkweed	
<i>Kyhosia (Madia) bolanderi</i>	tarweed	
* <i>Lactuca serriola</i>	prickly lettuce	
* <i>Leucanthemum vulgare</i>	ox-eye daisy	
<i>Madia glomerata</i>	mountain tarweed	
* <i>Matricaria discoidea</i>	pineapple weed	
<i>Microseris nutans</i>		
<i>Oreostemma alpigenum</i> var. <i>andersonii</i>	alpine-aster	
<i>Pseudognaphalium thermale</i>	cudweed	

<i>Raillardella argentea</i>	silky raillardella	
<i>Senecio integerrimus</i>	lamb's-tongue groundsel	
<i>Senecio triangularis</i>	arrowleaf groundsel	
<i>Solidago lepida</i> var. <i>salebrosa</i>	goldenrod	
<i>Symphyotrichum bracteolatum</i>	Eaton's aster	
<i>Symphyotrichum (Aster) campestre</i>	aster	
<i>Symphyotrichum spathulatum</i>	western aster	
* <i>Taraxacum officinale</i>	dandelion	
* <i>Tragopogon dubius</i>	salsify, goat's-beard	
<i>Wyethia mollis</i>	mule's-ears	
Betulaceae	Birch Family	
<i>Alnus incana</i> ssp. <i>tenuifolia</i>	mountain alder	
<i>Betula occidentalis</i>	western river birch	Planted by Cushing Pond.
Boraginaceae	Borage Family	
<i>Cryptantha affinis</i>		
<i>Cryptantha echinella</i>		
<i>Cryptantha torreyana</i> var. <i>torreyana</i>		
<i>Cynoglossum occidentale</i>		
<i>Hackelia micrantha</i>	stickseed	
<i>Phacelia hastata</i> ssp. <i>hastata</i>	silver-leaf scorpion-weed	
<i>Phacelia humilis</i>		
<i>Phacelia ramosissima</i> var. <i>eremophila</i>	scorpion-weed	
<i>Plagiobothrys</i> sp.	popcorn flower	
Brassicaceae (Cruciferae)	Mustard Family	
* <i>Berteroa incana</i>	hoary cress	Alpine base near pond.
<i>Boechera howellii</i>	rock-cress	
<i>Boechera lyallii</i>	rock-cress	Glabrous individuals.
<i>Boechera platysperma</i>	rock-cress	
<i>Boechera retrofracta</i>	rock-cress	
<i>Boechera (sparsiflora</i> var. <i>sparsiflora)</i>	rock-cress	
<i>Boechera suffrutescens</i>	rock-cress	
<i>Descurainia</i> sp.	tansy mustard	
<i>Erysimum capitatum</i>	wall flower	
<i>Erysimum perenne</i>	wall flower	
* <i>Lepidium campestre</i>	field peppergrass	
<i>Lepidium densiflorum</i>	peppergrass	
<i>Lepidium virginicum</i>	peppergrass	
* <i>Lepidium latifolium</i>	tall whitetop	Very noxious weed
<i>Phoenicaulis cheiranthoides</i>	daggerpod	
<i>Rorippa curvipes</i>	yellow cress	
* <i>Sisymbrium altissimum</i>	tumble mustard	
<i>Streptanthus tortuosus</i> (ssp. <i>orbiculatus)</i>	jewel weed	

Caprifoliaceae

Lonicera conjugialis
Symphoricarpos mollis
Symphoricarpos rotundifolius

Caryophyllaceae

Eremogone (Arenaria) kingii var. *glabrescens*
Silene douglasii var. *douglasii*
 **Spergularia rubra*

Chenopodiaceae

**Chenopodium album*
Chenopodium atrovirens
Chenopodium berlandieri
 **Chenopodium foliosum*
 **Dysphania botrys*

Convolvulaceae

Calystegia malacophylla ssp. *malacophylla*
 **Convolvulus arvensis*
Cuscuta californica var. *californica*

Cornaceae

Cornus sericea

Crassulaceae

Sedum obtusatum ssp. *obtusatum*

Ericaceae

Arctostaphylos nevadensis
Arctostaphylos patula
Chimaphila menziesii
Phyllodoce breweri
Pterospora andromedea
Pyrola asarifolia ssp. *asarifolia*
Pyrola picta

Sarcodes sanguinea
Vaccinium sp.

Euphorbiaceae

Chamaesyce serpyllifolia var. *serpyllifolia*

Fabaceae

Acmispon americanus var. *americanus*
 **Astragalus canadensis*
 **Lathyrus latifolius*
 **Lotus corniculatus*
Lupinus arbustus (possibly *argenteus*)

Honeysuckle Family

honeysuckle
 snowberry
 snowberry

Pink Family

catchfly
 purple sand-spurry

Pigweed Family

pigweed

 pitted goosefoot

 Jerusalem oak

Dogwood Family

morning-glory
 field bindweed
 dodder

Dogwood Family
 red-osier dogwood

Stonecrop Family

stonecrop

Heath Family

pinemat manzanita
 greenleaf manzanita
 prince's-pine
 mountain heather
 pine-drops
 bog wintergreen
 white-veined
 wintergreen
 snowplant
 bilberry

Spurge Family

Legume Family

Formerly *Lotus purshianus*.
 Canadian milkvetch
 sweet pea
 bird's-foot trefoil
 lupine

Lupinus lepidus

dwarf lupine

Melilotus albus

sweet-clover

Trifolium gracilentum

clover

**Trifolium repens*

white clover

Fagaceae

Oak Family

Quercus vaccinifolia

huckleberry oak

Gentianaceae

Gentian Family

Gentiana calycosa

explorer's gentian

Gentianopsis simplex

hiker's gentian

Grossulariaceae

Gooseberry Family

Ribes cereum

wax currant

Ribes inerme

currant

Ribes nevadense

mountain pink currant

Ribes roezlii

Sierra gooseberry

Ribes viscosissimum

sticky currant

Hypericaceae

St. Johns Wort Family

Hypericum anagalloides

Klamath weed

**Hypericum perforatum*

Lamiaceae (Labiatae)

Mint Family

Agastache urticifolia

horse-mint

Monardella odoratissima ssp. pallida

coyote-mint

Stachys ajugoides var. rigida

hedge-nettle

Linaceae

Flax Family

Linum lewisii

Lewis' flax

Malvaceae

Mallow Family

Sidalcea glaucescens

checkerbloom

Sidalcea oregana

Montiaceae

Miner's Lettuce Family

Calyptidium monospermum

pussy-paws

Onagraceae

Evening Primrose Family

Chamerion angustifolium

fireweed

Circaea alpina ssp. pacifica

willow herb

Epilobium brachycarpum

California fuschia

Epilobium canum ssp. latifolium

willow herb

Offset leafy rosettes.

Epilobium ciliatum

willow herb

Pink fleshy bulb-like shoots;

Epilobium hallianum/saximontanum

Epilobium obcordatum

Epilobium pallidum

Gayophytum diffusum ssp. parviflorum

Taraxia tanacetifolia

Orobanchaceae

Castilleja applegatei
Castilleja miniata
Castilleja nana
Castilleja pilosa
Cordylanthus tenuis
Orthocarpus cuspidatus ssp. cryptanthus

Papaveraceae

**Eschscholtzia californica*

Phrymaceae

Mimulus breweri
Mimulus guttatus

Mimulus lewisii
Mimulus tilingii

Plantaginaceae

Collinsia parviflora
Keckiella lemmonii
Penstemon azureus
Penstemon deustus
Penstemon gracilentus
Penstemon heterodoxus var. heterodoxus
Penstemon heterophyllus
Penstemon newberryi
Penstemon roezlii
Penstemon rydbergii ssp. oreocharis
Penstemon speciosus
**Plantago lanceolata*
**Plantago major*

Polemoniaceae

Allophyllum gilioides
Collomia linearis
Collomia tinctoria
Ipomopsis congesta ssp. montana
Leptosiphon ciliatus
Linanthus (Leptodactylon) pungens
Microsteris gracilis
Navarretia capillaris
Navarretia intertexta
Navarretia leptalea
Phlox diffusa

Broomrape Family

indian paintbrush
indian paintbrush

bird's-beak

Poppy Family

California poppy

From seed mix; native to California but not area.

Lopseed Family

monkeyflower

Also one or two additional small annual species.

Plantain Family

plantain
English plantain

Phlox Family

Polygonaceae

Aconogonon (Polygonum) davisiae
Aconogonon (Polygonum) phytolaccifolium
Eriogonum heracleoides
Eriogonum incanum
Eriogonum lobbii
Eriogonum nudum var. *nudum*
Eriogonum umbellatum var. *modocense*
Eriogonum umbellatum var. *nevadense*
Eriogonum ursinum
Eriogonum wrightii var. *subscaposum*
Oxyria digyna
 **Polygonum aviculare* ssp. *depressum*
Polygonum douglasii ssp. *douglasii*
Polygonum douglasii ssp. *johnstonii*
Polygonum minimum
Polygonum spergulariiforme
 **Rumex acetosella*
 **Rumex crispus*
Rumex salicifolius

Ranunculaceae

Anemone drummondii var. *drummondii*
Aquilegia formosa
Delphinium glaucum
Delphinium sp.
Thalictrum fendleri

Rhamnaceae

Ceanothus cordulatus
Ceanothus prostratus

Ceanothus velutinus
Frangula rubra ssp. *obtusissima*

Rosaceae

Amelanchier alnifolia
Amelanchier utahensis
Drymocallis glandulosa ssp. *reflexa*
Holodiscus discolor var. *microphyllus*
Horkelia fusca ssp. *parviflora*
Potentilla drummondii
Potentilla gracilis
Prunus emarginata
Prunus sp. (probably *virginiana*)
Rosa woodsii

Buckwheat Family

Probably from seed mix.
 frosted wild buckwheat
 Lobb's wild buckwheat
 wild buckwheat
 Modoc sulfur buckwheat
 sulfur buckwheat
 bear buckwheat
 bastard-sage
 mountain sorrel
 knotweed
 Douglas's knotweed
 knotweed

 sheep sorrel
 curly dock
 willow dock

Buttercup Family

western columbine
 tower delphinium
 larkspur
 meadow-rue

Buckthorn Family

snow-bush
 mahala mat, squaw
 carpet
 tobacco-bush
 Sierra coffee-berry

Rose Family

serviceberry
 serviceberry
 sticky cinquefoil
 oceanspray
 horkelia
 Drummond's cinquefoil
 slender cinquefoil
 Sierra (bitter) cherry
 choke cherry
 wild rose
 Planted at Cushing Pond.

Rubus parviflorus

thimbleberry

Sorbus californica

mountain ash

Sorbus scopulina

mountain ash

Spiraea densiflora

spiraea

Rubiaceae

Madder Family

Galium grayanum

Gray's bedstraw

Galium triflorum

bedstraw

Kelloggia galioides

Salicaceae

Willow Family

Populus balsamifera ssp. *trichocarpa*

black cottonwood

Populus tremuloides

quaking aspen

Salix eastwoodiae

Eastwood's willow

Salix geyeriana

Geyer's willow

Salix lasiandra var. *lasiandra*

Pacific willow

Salix lasiolepis

arroyo willow

Salix lemmonii

Lemmon's willow

Salix scouleriana

Scouler's willow

Sapindaceae

Soapberry Family

Acer glabrum var. *glabrum*

mountain maple

Formerly Aceraceae.

Saxifragaceae

Saxifrage Family

Heuchera micrantha

alumroot

Pectiantia (Mitella) breweri

Scrophulariaceae

Figwort Family

Scrophularia californica

figwort

**Verbascum thapsus*

woolly mullein

Solanaceae

Nightshade Family

Chamaesaracha nana

Valerianaceae

Valerian Family

Valeriana californica

Verbenaceae

Vervain Family

Verbena lasiostachys var. *scabrida*

Wrong geographic range, but nutlets unequivocally key to var. *scabrida* (clearly white-papillate faces).

Violaceae

Violet Family

Viola macloskeyi

Viola purpurea

ANGIOSPERMS-MONOCOTYLEDONS

FLOWERING PLANTS

Alliaceae

Onion Family

Allium platycaule

Cyperaceae

Sedge Family

Carex athrostachya

Carex brainerdii

Carex fracta

Carex heteroneura

Carex hoodii

Carex lenticularis var. *lipocarpa*

Carex leporinella

Carex multicosmata

Including *C. pachycarpa*.

Carex nebrascensis

Carex nervina

Carex praegracilis

Carex raynoldsii

Carex rossii

Carex subfusca

Carex utriculata/vescicaria

Not flowering.

Carex whitneyi

Eleocharis macrostachya

creeping spike-rush

Scirpus congdonii

Juncaceae

Rush Family

Juncus balticus

Baltic rush

Juncus bufonius

toad rush

Juncus chlorocephalus

green-headed rush

Juncus confusus

Juncus effusus ssp. *pacificus*

soft rush

Juncus ensifolius var. *brunnescens*

sword-leaved rush

Juncus ensifolius var. *montanus*

Juncus exiguus

Juncus nevadensis

Juncus orthophyllus

Juncus parryi

Luzula divaricata

Liliaceae

Lily Family

Calochortus leichtlinii

mariposa lily

Lilium parvum

Sierra lily

Melanthiaceae

False-Hellebore Family

Toxicoscordion venenosum var. *venosum*

death camas

Veratrum californicum

corn lily; false hellebore

Orchidaceae

Platanthera dilatata var. *leucostachys*

Orchid Family

white flowered bog orchid

Poaceae

Agrostis exarata

**Agrostis gigantea*

Agrostis humilis

Agrostis scabra

Agrostis stolonifera

Agrostis variabilis

Alopecurus pratensis

Bromus carinatus

**Bromus inermis*

Calamagrostis canadensis

**Dactylis glomerata*

Danthonia sp.

Deschampsia elongata

Elymus elymoides

Elymus glaucus

**Elymus hispidus* (*Thinopyrum intermedium*)

Elymus (*Pseudoroegneria*) *spicatus*

Elymus trachycaulus

Festuca (*Lolium*) *perennis*

**Festuca* sp.

Glyceria elata

Hordeum brachyantherum

Melica stricta

Muhlenbergia andina

Muhlenbergia filiformis

**Phleum pratense*

**Poa annua*

Poa pratensis

Poa secunda

Stipa (*Achnatherum*) *hymenoides*

Stipa (*Achnatherum*) *nelsonii*

Stipa (*Achnatherum*) *occidentalis*

Torreyochloa pallida

Trisetum spicatum

Grass Family

spike bent grass

redtop

bent grass

rough bent grass

creeping bent grass

mountain bent grass

meadow foxtail

mountain brome

smooth brome

reed grass

orchard grass

oat grass

slender hair grass

squirrel-tail

blue wild-rye

pubescent wheatgrass

bluebunch wheatgrass

slender wheatgrass

Italian wild-rye

hard fescue

manna grass

meadow barley

rock melic

foxtail muhly

pull-up muhly

field timothy

annual bluegrass

Kentucky bluegrass

one-sided bluegrass

Indian rice-grass

Nelson's needle-grass

western needle grass

false manna grass

spike false oat

Probably cv. 'Luna'

In lawn at base area.

F. trachyphylla or *viridula*.

Native/introduced status is still being debated.

Potamogetonaceae

Stuckenia pectinata

Pondweed Family

fennel-leaf pondweed

Ruscaceae

Maianthemum (*Smilacina*) *racemosa*

false Solomon's seal

Themidaceae

Triteleia ixioides ssp. *scabra*

Typhaceae

Sparganium sp.

Cattail Family

In pond, barely within survey area.

Appendix B.

Element List for Nine-Quadrangle CNDDDB Query

for

Squaw-Alpine Interconnect Project Site



Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Arabis rigidissima</i> var. <i>demota</i> Galena Creek rockcress	PDBRA061R1	None	None	G3T3Q	S1	1B.2
<i>Artemisia tripartita</i> ssp. <i>tripartita</i> threetip sagebrush	PDAST0S1S2	None	None	G5T4T5	S2	2B.3
<i>Astragalus austini</i> Austin's astragalus	PDFAB0F120	None	None	G2G3	S2S3	1B.3
<i>Botrychium ascendens</i> upswept moonwort	PPOPH010S0	None	None	G3G4	S2	2B.3
<i>Botrychium crenulatum</i> scalloped moonwort	PPOPH010L0	None	None	G4	S3	2B.2
<i>Botrychium lunaria</i> common moonwort	PPOPH01080	None	None	G5	S2	2B.3
<i>Botrychium minganense</i> Mingan moonwort	PPOPH010R0	None	None	G4G5	S3	2B.2
<i>Botrychium montanum</i> western goblin	PPOPH010K0	None	None	G3	S2	2B.1
<i>Bruchia bolanderi</i> Bolander's bruchia	NBMUS13010	None	None	G3G4	S3	4.2
<i>Carex davyi</i> Davy's sedge	PMCYP033H0	None	None	G3	S3	1B.3
<i>Carex lasiocarpa</i> woolly-fruited sedge	PMCYP03720	None	None	G5	S2	2B.3
<i>Carex limosa</i> mud sedge	PMCYP037K0	None	None	G5	S3	2B.2
<i>Erigeron miser</i> starved daisy	PDAST3M2K0	None	None	G3?	S3?	1B.3
<i>Eriogonum umbellatum</i> var. <i>torreyanum</i> Donner Pass buckwheat	PDPGN086U9	None	None	G5T2	S2	1B.2
<i>Fen</i> Fen	CTT51200CA	None	None	G2	S1.2	
<i>Glyceria grandis</i> American manna grass	PMPOA2Y080	None	None	G5	S3	2B.3



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



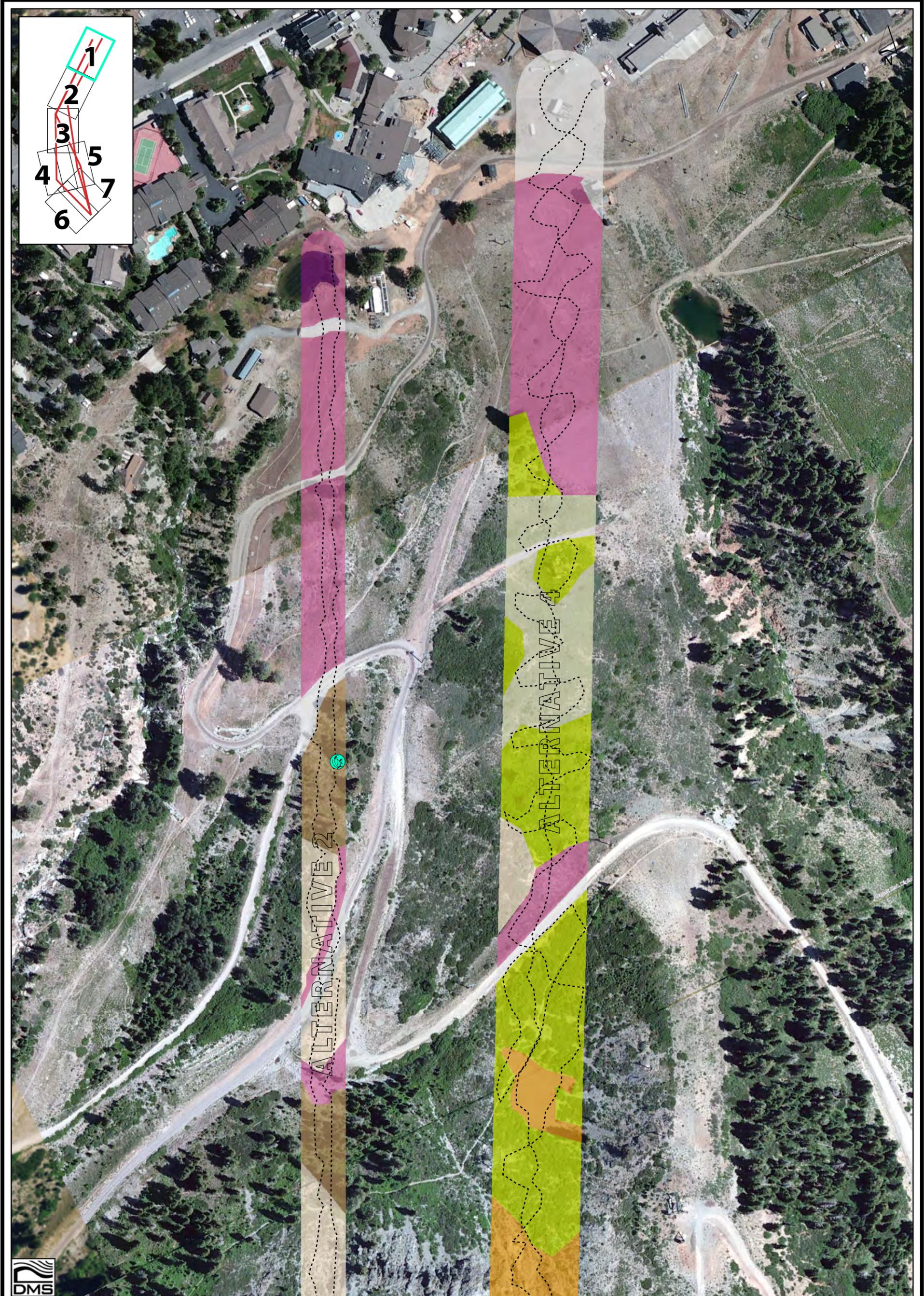
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Great Basin Cutthroat Trout/Paiute Sculpin Stream Great Basin Cutthroat Trout/Paiute Sculpin Stream	CARC2320CA	None	None	GNR	SNR	
Ivesia sericoleuca Plumas ivesia	PDROS0X0K0	None	None	G2	S2	1B.2
Juncus luciensis Santa Lucia dwarf rush	PMJUN013J0	None	None	G3	S3	1B.2
Lewisia longipetala long-petaled lewisia	PDPOR040K0	None	None	G2	S2	1B.3
Nardia hiroshii Hiroshi's flapwort	NBHEP2A080	None	None	G5	S1	2B.3
Phacelia stebbinsii Stebbins' phacelia	PDHYD0C4D0	None	None	G3	S3	1B.2
Potamogeton epihydrus Nuttall's ribbon-leaved pondweed	PMPOT03080	None	None	G5	S2S3	2B.2
Potamogeton robbinsii Robbins' pondweed	PMPOT030Z0	None	None	G5	S3	2B.3
Rhamnus alnifolia alder buckthorn	PDRHA0C010	None	None	G5	S3	2B.2
Rorippa subumbellata Tahoe yellow cress	PDBRA270M0	None	Endangered	G1	S1	1B.1
Scutellaria galericulata marsh skullcap	PDLAM1U0J0	None	None	G5	S2	2B.2
Sphaeralcea munroana Munro's desert mallow	PDMAL140F0	None	None	G4	S1	2B.2
Stuckenia filiformis ssp. alpina slender-leaved pondweed	PMPOT03091	None	None	G5T5	S3	2B.2
Viola tomentosa felt-leaved violet	PDVIO04280	None	None	G3	S3	4.2

Record Count: 30

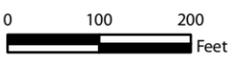
Appendix C.

Botanical Survey and Land Cover Map

Squaw-Alpine Interconnect Study Area



Squaw Alpine Interconnect Project
Figure 2. Botanical and Vegetation Study
Placer County, California



Scale 1:2,400 (1 in = 200 ft)

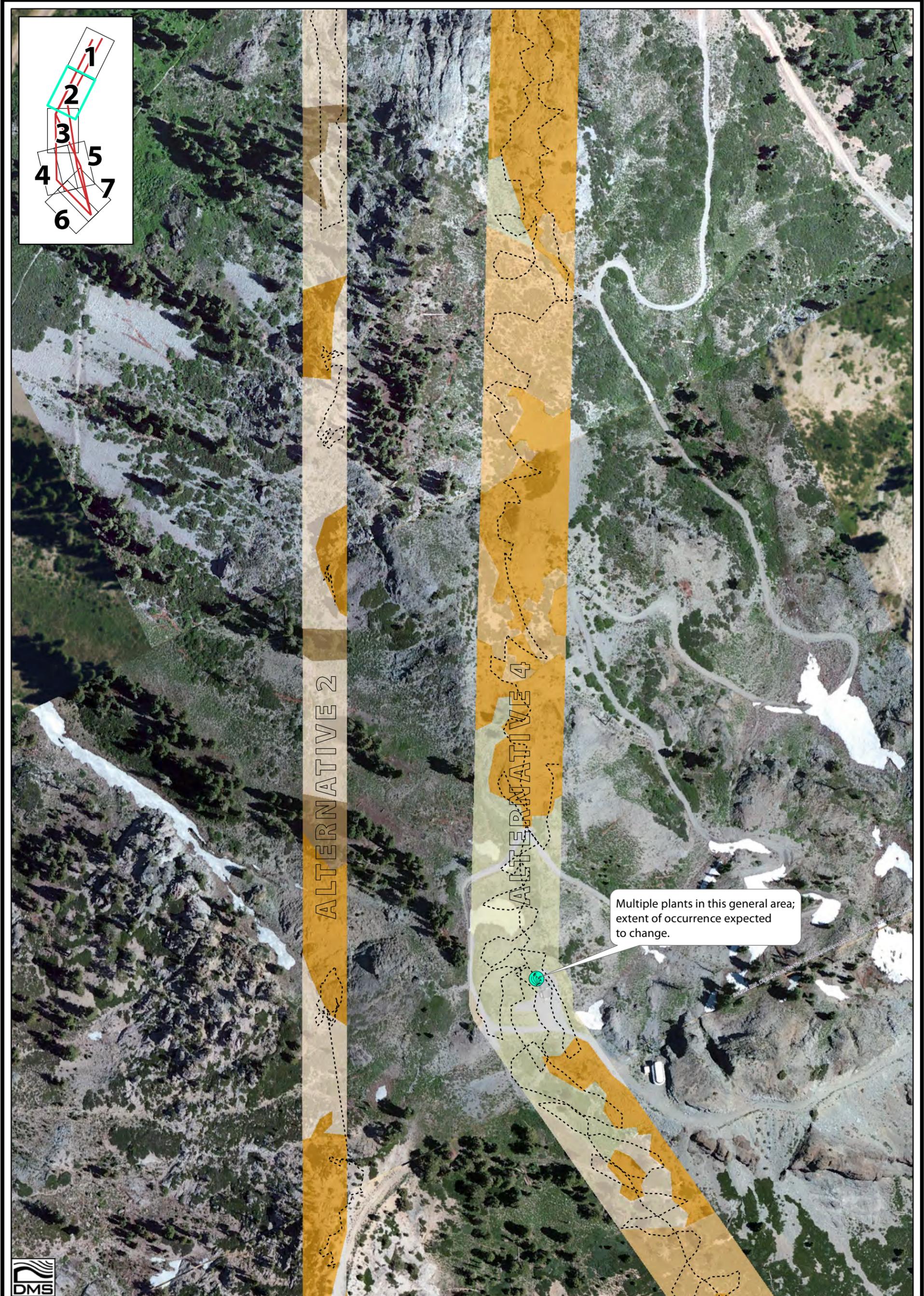
Legend

- Berteroia incana*
- Coniferous Woodland
- Freshwater Emergent Wetland
- Lepidium latifolium*
- Montane Chaparral
- Pond
- Surveyed Tracks
- Bitter Cherry Thicket
- Tributary
- Mountain Sagebrush - Forb
- Aspen
- Rock and Talus
- Mesic and Riparian Shrubland
- Rock Outcrop
- Mountain Alder Thicket
- Urban
- Ruderal

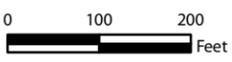
Notes

Rock and Talus includes both granitic and volcanic lithology. Mapping of wetlands and other waters is partial. Please refer to other baseline reports for additional information. Portions of some areas that were surveyed in the field are not represented by tracks shown on this figure.

Aerial Source: NAIP 2016, ESRI, Digital Globe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.



Squaw Alpine Interconnect Project
Figure 2. Botanical and Vegetation Study
Placer County, California



Scale 1:2,400 (1 in = 200 ft)

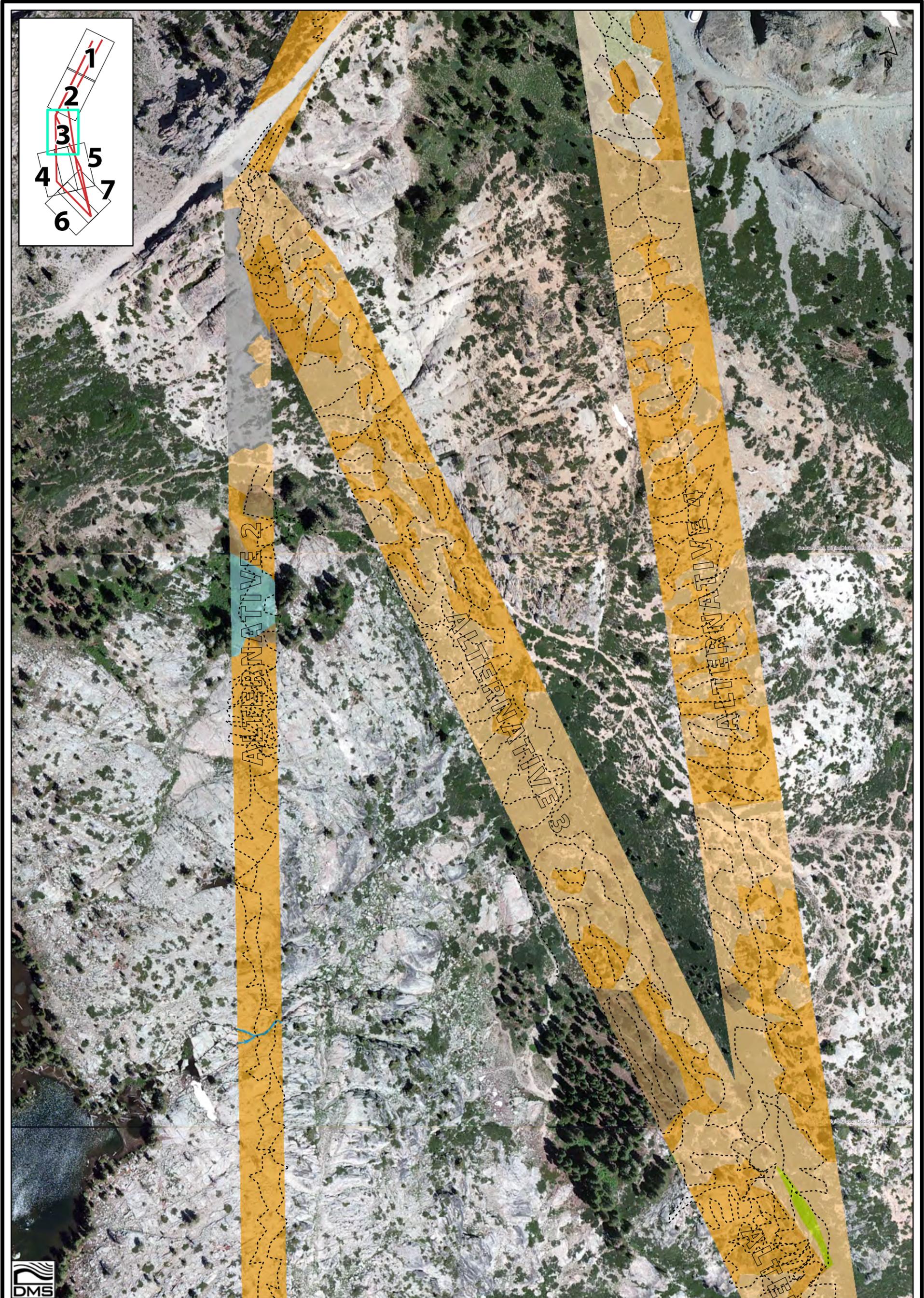
Legend

- Berteroa incana*
- Lepidium latifolium*
- Surveyed Tracks
- Coniferous Woodland
- Montane Chaparral
- Bitter Cherry Thicket
- Mountain Sagebrush - Forb
- Aspen
- Mesic and Riparian Shrubland
- Mountain Alder Thicket
- Freshwater Emergent Wetland
- Pond
- Tributary
- Rock and Talus
- Rock Outcrop
- Urban
- Ruderal

Notes

Rock and Talus includes both granitic and volcanic lithology. Mapping of wetlands and other waters is partial. Please refer to other baseline reports for additional information. Portions of some areas that were surveyed in the field are not represented by tracks shown on this figure.

Aerial Source: NAIP 2016, ESRI, Digital Globe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.



Squaw Alpine Interconnect Project
Figure 2. Botanical and Vegetation Study
Placer County, California

Page 3 of 7



Scale 1:2,400 (1 in = 200 ft)

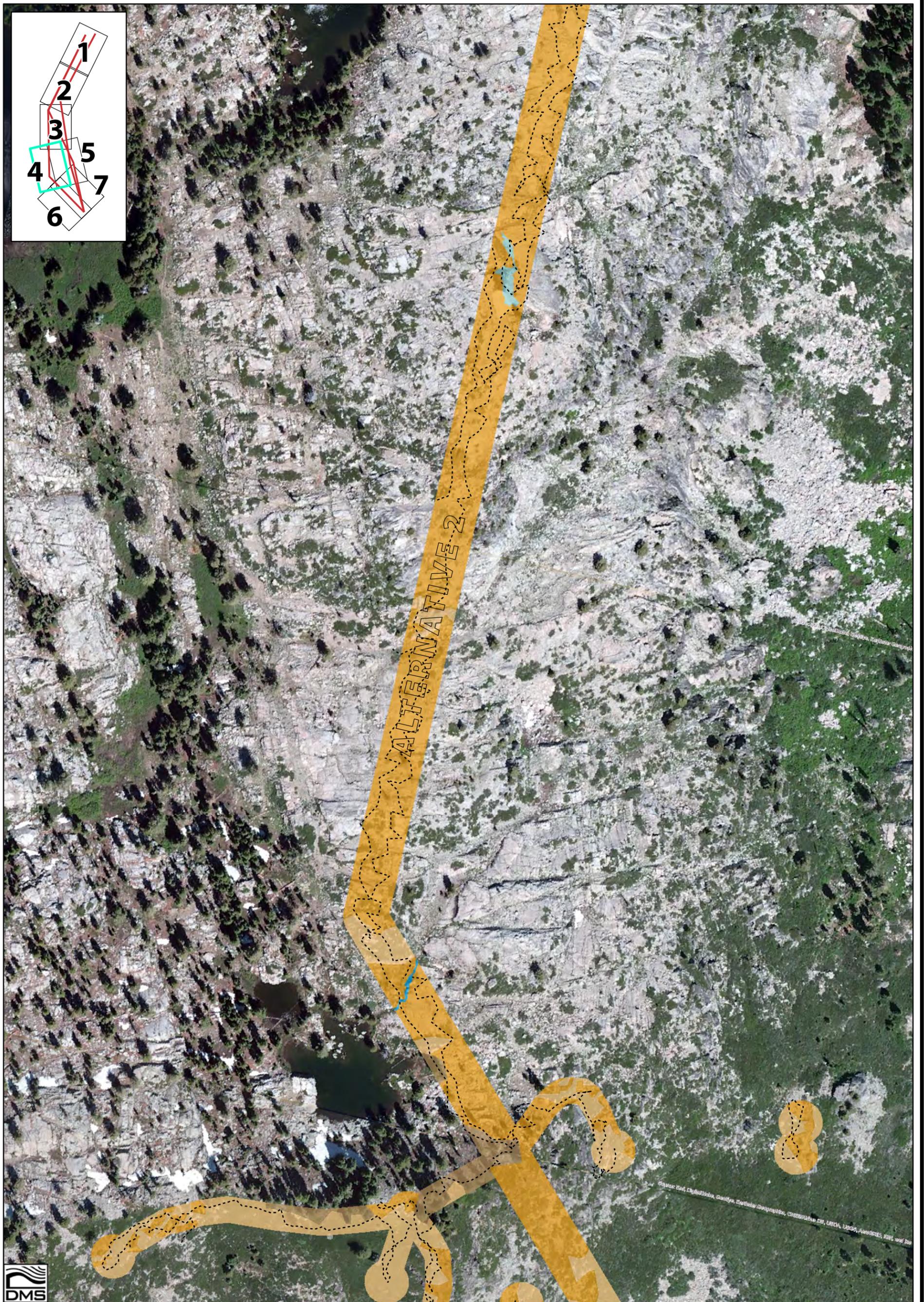
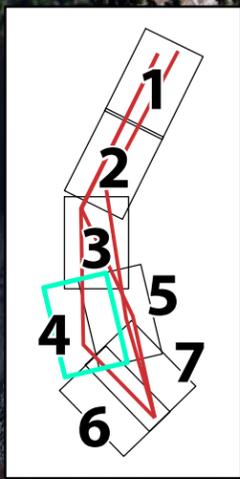
Legend

- Berteroa incana*
- Lepidium latifolium*
- Surveyed Tracks
- Coniferous Woodland
- Montane Chaparral
- Bitter Cherry Thicket
- Mountain Sagebrush - Forb
- Aspen
- Mesic and Riparian Shrubland
- Mountain Alder Thicket
- Freshwater Emergent Wetland
- Pond
- Tributary
- Rock and Talus
- Rock Outcrop
- Urban
- Ruderal

Notes

Rock and Talus includes both granitic and volcanic lithology. Mapping of wetlands and other waters is partial. Please refer to other baseline reports for additional information. Portions of some areas that were surveyed in the field are not represented by tracks shown on this figure.

Aerial Source: NAIP 2016, ESRI, Digital Globe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.



Squaw Alpine Interconnect Project
Figure 2. Botanical and Vegetation Study
Placer County, California

Page 4 of 7



Scale 1:2,400 (1 in = 200 ft)

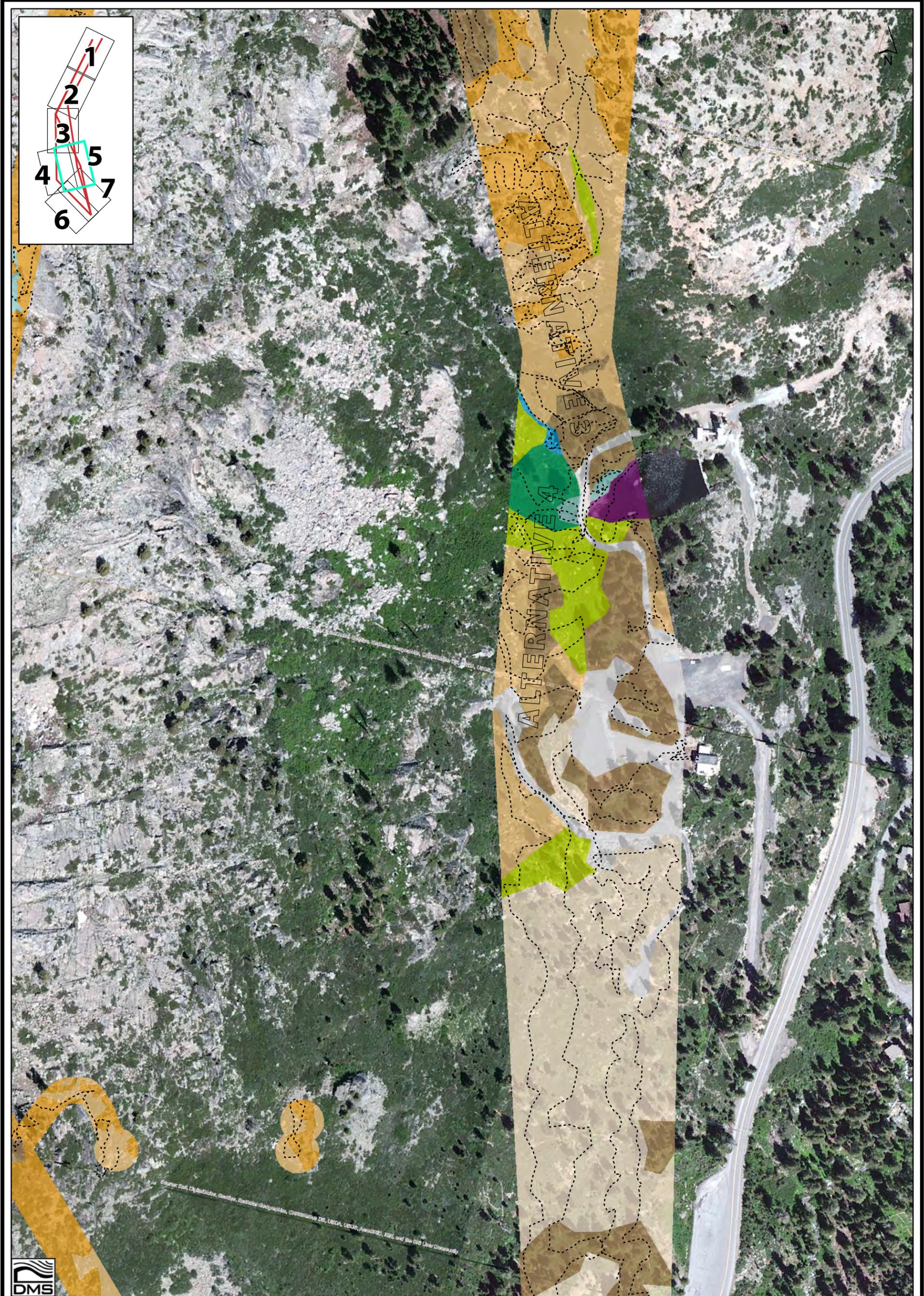
Legend

- | | | |
|----------------------------|------------------------------|-----------------------------|
| <i>Berberoa incana</i> | Coniferous Woodland | Freshwater Emergent Wetland |
| <i>Lepidium latifolium</i> | Montane Chaparral | Pond |
| Surveyed Tracks | Bitter Cherry Thicket | Tributary |
| | Mountain Sagebrush - Forb | Rock and Talus |
| | Aspen | Rock Outcrop |
| | Mesic and Riparian Shrubland | Urban |
| | Mountain Alder Thicket | Ruderal |

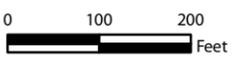
Notes

Rock and Talus includes both granitic and volcanic lithology. Mapping of wetlands and other waters is partial. Please refer to other baseline reports for additional information. Portions of some areas that were surveyed in the field are not represented by tracks shown on this figure.

Aerial Source: NAIP 2016, ESRI, Digital Globe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.



Squaw Alpine Interconnect Project
Figure 2. Botanical and Vegetation Study
Placer County, California



Scale 1:2,400 (1 in = 200 ft)

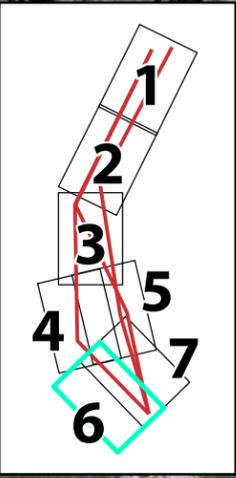
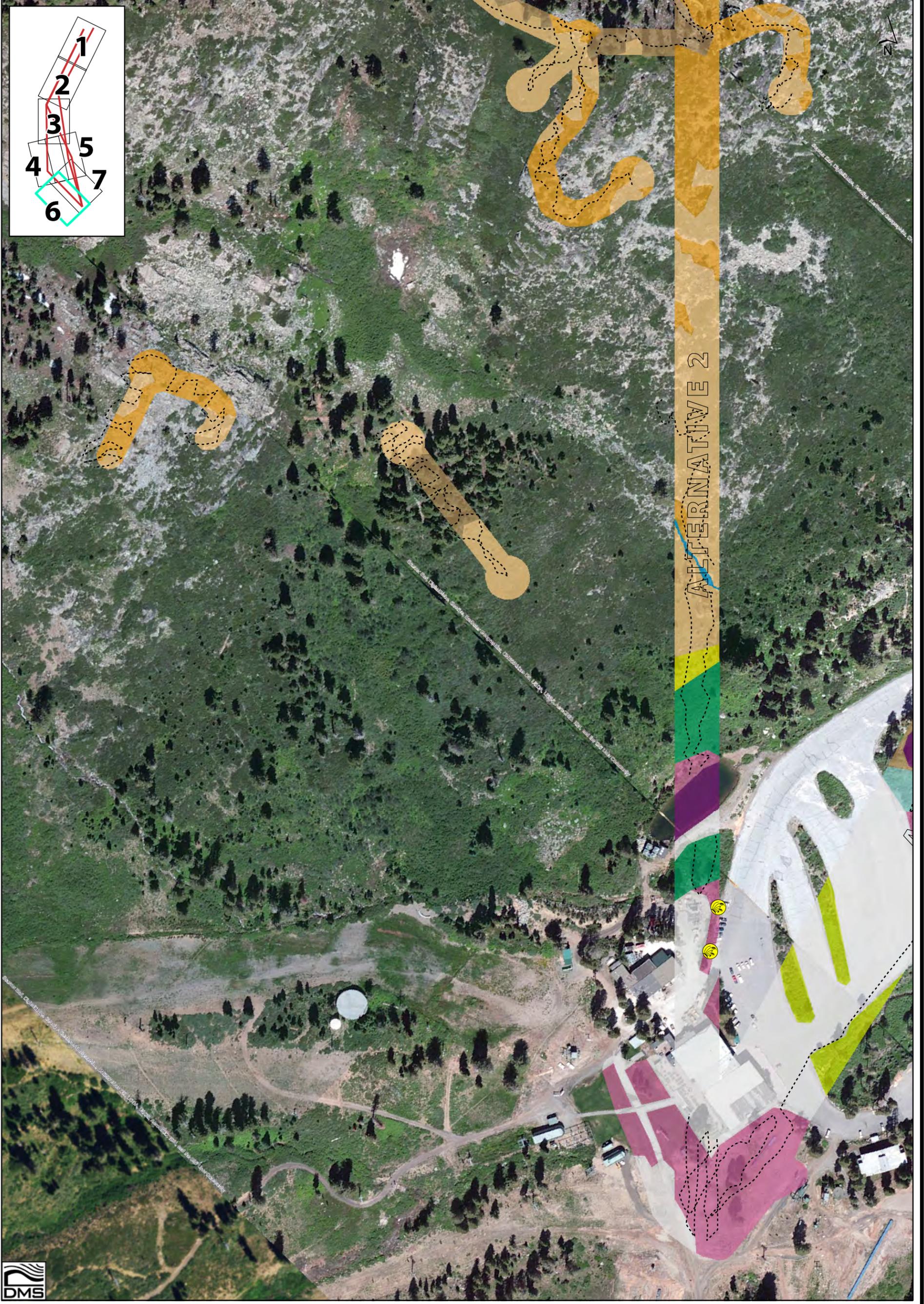
Legend

-  Berteroa incana
-  Lepidium latifolium
-  Surveyed Tracks
-  Coniferous Woodland
-  Montane Chaparral
-  Bitter Cherry Thicket
-  Mountain Sagebrush - Forb
-  Aspen
-  Mesic and Riparian Shrubland
-  Mountain Alder Thicket
-  Freshwater Emergent Wetland
-  Pond
-  Tributary
-  Rock and Talus
-  Rock Outcrop
-  Urban
-  Ruderal

Notes

Rock and Talus includes both granitic and volcanic lithology. Mapping of wetlands and other waters is partial. Please refer to other baseline reports for additional information. Portions of some areas that were surveyed in the field are not represented by tracks shown on this figure.

Aerial Source: NAIP 2016, ESRI, Digital Globe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.



Squaw Alpine Interconnect Project
Figure 2. Botanical and Vegetation Study
Placer County, California

0 100 200
 Feet
 Scale 1:2,400 (1 in = 200 ft)

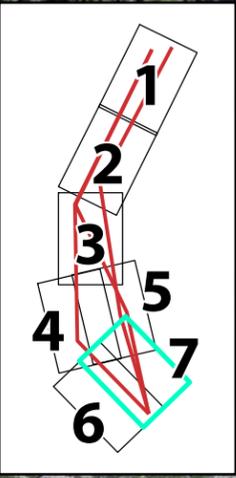
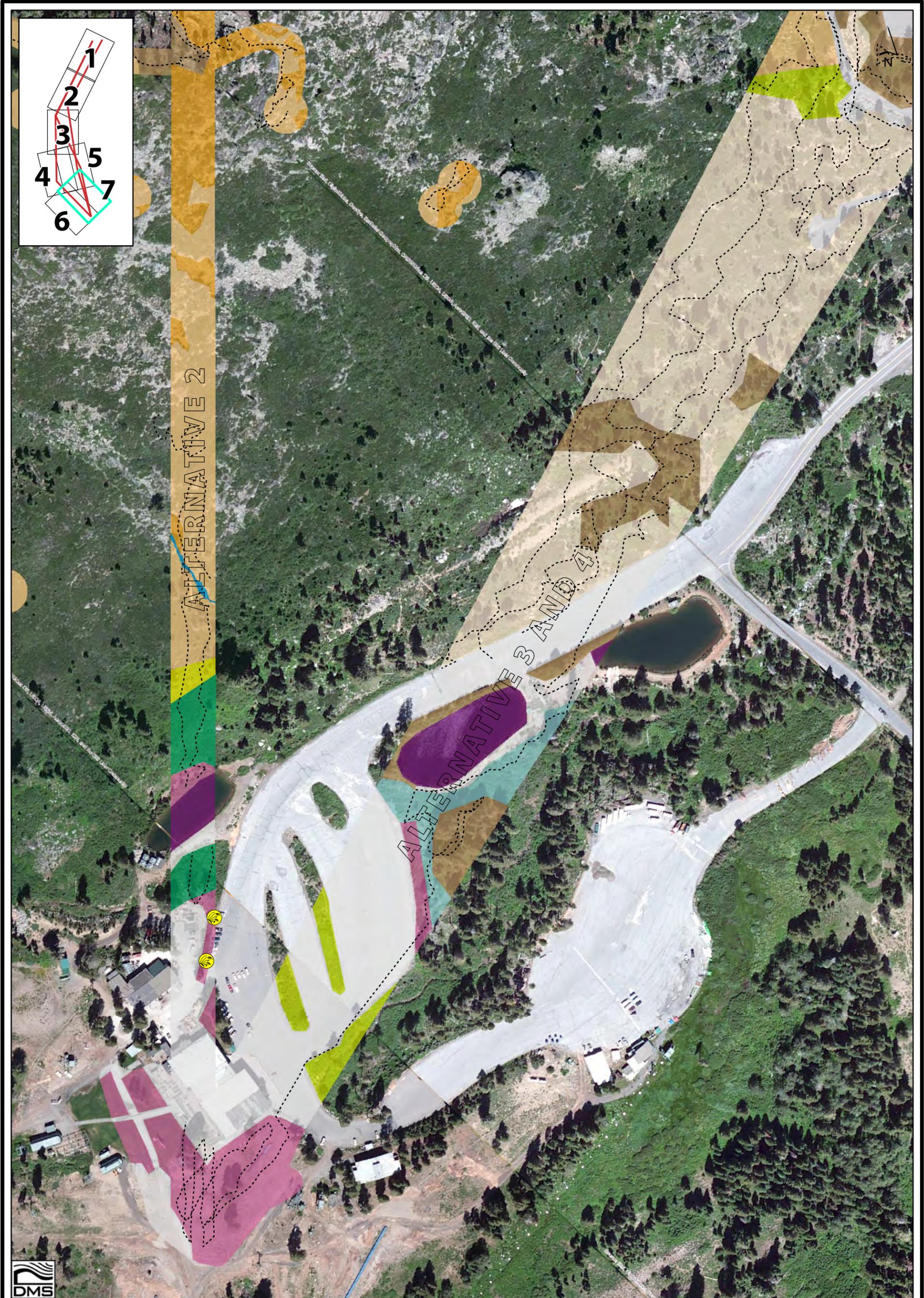
Legend

- Berteroa incana*
- Lepidium latifolium*
- Surveyed Tracks
- Coniferous Woodland
- Montane Chaparral
- Bitter Cherry Thicket
- Mountain Sagebrush - Forb
- Aspen
- Mesic and Riparian Shrubland
- Mountain Alder Thicket
- Freshwater Emergent Wetland
- Pond
- Tributary
- Rock and Talus
- Rock Outcrop
- Urban
- Ruderal

Notes

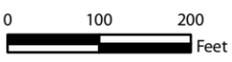
Rock and Talus includes both granitic and volcanic lithology. Mapping of wetlands and other waters is partial. Please refer to other baseline reports for additional information. Portions of some areas that were surveyed in the field are not represented by tracks shown on this figure.

Aerial Source: NAIP 2016, ESRI, Digital Globe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.



Squaw Alpine Interconnect Project
Figure 2. Botanical and Vegetation Study
Placer County, California

Page 7 of 7



Scale 1:2,400 (1 in = 200 ft)

Legend

- Berteroa incana*
- Lepidium latifolium*
- Surveyed Tracks
- Coniferous Woodland
- Montane Chaparral
- Bitter Cherry Thicket
- Mountain Sagebrush - Forb
- Aspen
- Mesic and Riparian Shrubland
- Mountain Alder Thicket
- Freshwater Emergent Wetland
- Pond
- Tributary
- Rock and Talus
- Rock Outcrop
- Urban
- Ruderal

Notes

Rock and Talus includes both granitic and volcanic lithology. Mapping of wetlands and other waters is partial. Please refer to other baseline reports for additional information. Portions of some areas that were surveyed in the field are not represented by tracks shown on this figure.

Aerial Source: NAIP 2016, ESRI, Digital Globe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.

H2

Animal Species Observed within the Study Area for the Squaw-Alpine Base to Base Gondola Project

Animal Species Observed within the Study Area for the Squaw-Alpine Base to Base Gondola Project

Common Name	Scientific Name
Birds	
American crow	<i>Corvus brachyrhynchos</i>
American dipper	<i>Cinclus mexicanus</i>
American goldfinch	<i>Spinus tristis</i>
American peregrine falcon	<i>Falco peregrinus anatum</i>
American robin	<i>Turdus migratorius</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Band-tailed pigeon	<i>Patagioenas fasciata</i>
Barn swallow	<i>Hirundo rustica</i>
Brown-headed cowbird	<i>Molothys ater</i>
Brown creeper	<i>Certhia americana</i>
Bushtit	<i>Psaltriparus minimus</i>
Calliope hummingbird	<i>Selasphorus calliope</i>
Cassin's finch	<i>Carpodacus cassinii</i>
Cassin's vireo	<i>Vireo cassinii</i>
Chipping sparrow	<i>Spizella passerina</i>
Clark's nutcracker	<i>Nucifraga columbiana</i>
Common goldeneye	<i>Bucephala clangula</i>
Common raven	<i>Corvus corax</i>
Cooper's hawk	<i>Accipiter cooperi</i>
Dark-eyed junco	<i>Junco hyemalis</i>
Evening grosbeak	<i>Coccothraustes vespertinus</i>
Fox sparrow	<i>Passerella iliaca</i>
Golden eagle	<i>Aquila chrysaetos</i>
Golden-crowned sparrow	<i>Zonotrichia atricapilla</i>
Golden-crowned kinglet	<i>Regulus satrapa</i>
Green-tailed towhee	<i>Pipilo chlorurus</i>
Hairy woodpecker	<i>Picoides villosus</i>
Hermit warbler	<i>Setophaga occidentalis</i>
House wren	<i>Troglodytes aedon</i>
House finch	<i>Carpodacus mexicanus</i>
Lewis's woodpecker	<i>Melanerpes lewis</i>
Mallard	<i>Anas platyrhynchos</i>
Mountain chickadee	<i>Poecile gambeli</i>
Northern flicker	<i>Colaptes auratus</i>
Northern saw-whet owl	<i>Aegolius acadicus</i>
Olive-sided flycatcher	<i>Contopus cooperi</i>
Pied-billed grebe	<i>Podilymbus podiceps</i>
Pygmy nuthatch	<i>Sitta pygmaea</i>
Red-breasted nuthatch	<i>Sitta canadensis</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Rock wren	<i>Salpinctes obsoletus</i>
Rufous hummingbird	<i>Selasphorus rufus</i>
Sooty grouse	<i>Dendragapus fuliginosus</i>

Animal Species Observed within the Study Area for the Squaw-Alpine Base to Base Gondola Project

Common Name	Scientific Name
Steller's jay	<i>Cyanocitta stelleri</i>
Townsend's solitaire	<i>Myadestes townsendi</i>
Turkey vulture	<i>Cathartes aura</i>
Western tanager	<i>Piranga ludoviciana</i>
Western wood-pewee	<i>Contopus sordidulus</i>
White-headed woodpecker	<i>Picoides albolarvatus</i>
Williamson's sapsucker	<i>Sphyrapicus thyroideus</i>
Yellow-rumped warbler	<i>Setophaga coronata</i>
Yellow warbler	<i>Dendroica petechia</i>
Mammals	
Black bear	<i>Ursus americanus</i>
California ground squirrel	<i>Otospermophilus beecheyi</i>
Chipmunk	<i>Neotamias</i> sp.
Coyote	<i>Canis latrans</i>
Douglas' squirrel	<i>Tamias douglasii</i>
Golden-mantled ground squirrel	<i>Callospermophilus lateralis</i>
Mole	<i>Scapanus</i> sp.
Mule deer	<i>Odocoileus hemionus</i>
Raccoon	<i>Procyon lotor</i>
Yellow-bellied marmot	<i>Marmota flaviventris</i>
Yellow pine chipmunk	<i>Tamias amoenus</i>
Invertebrates	
Checkered white	<i>Pontia protodice</i>
Monarch butterfly	<i>Danaus plexippus</i>
Orange sulphur	<i>Colias eurytheme</i>
Water boatman	<i>Hesperocorixa vulgaris</i>
Water scavenger beetle	<i>Hydrophilidae</i> sp.
Water strider	<i>Gerris remigis</i>
Bumble bee	<i>Bombus</i> sp.
Honey bee	<i>Apis</i> sp.
Fish	
Rainbow trout	<i>Oncorhynchus mykiss</i>
Brown trout	<i>Salmo trutta</i>
Brook trout	<i>Salvelinus fontinalis</i>
Koi	<i>Cyprinus carpio</i>
Amphibians and Reptiles	
Common garter snake	<i>Thamnophis sirtalis</i>
Southern long-toed salamander	<i>Ambystoma macrodactylum</i>
Sierra garter snake	<i>Thamnophis couchii</i>
Sierra Nevada yellow-legged frog	<i>Rana sierrae</i>
Sierran treefrog=Pacific chorus frog	<i>Pseudacris sierra (Hyla regilla)</i>
Western terrestrial gartersnake	<i>Thamnophis elegans</i>
Western fence lizard	<i>Sceloporus occidentalis</i>

H3

California Natural Diversity Database Results



Selected Elements by Element Code
California Department of Fish and Wildlife
California Natural Diversity Database



Query Criteria: BIOS selection

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AAAAA01085	<i>Ambystoma macrodactylum sigillatum</i> southern long-toed salamander	None	None	G5T4	S3	SSC
AAABH01340	<i>Rana sierrae</i> Sierra Nevada yellow-legged frog	Endangered	Threatened	G1	S1	WL
ABNKC01010	<i>Pandion haliaetus</i> osprey	None	None	G5	S4	WL
ABNKC10010	<i>Haliaeetus leucocephalus</i> bald eagle	Delisted	Endangered	G5	S3	FP
ABNKC12040	<i>Accipiter cooperii</i> Cooper's hawk	None	None	G5	S4	WL
ABNKC12060	<i>Accipiter gentilis</i> northern goshawk	None	None	G5	S3	SSC
ABPAE33040	<i>Empidonax traillii</i> willow flycatcher	None	Endangered	G5	S1S2	
ABPBX03010	<i>Setophaga petechia</i> yellow warbler	None	None	G5	S3S4	SSC
AFCHA02081	<i>Oncorhynchus clarkii henshawi</i> Lahontan cutthroat trout	Threatened	None	G4T3	S2	
AMACC01110	<i>Myotis volans</i> long-legged myotis	None	None	G5	S3	
AMAEA0102H	<i>Ochotona princeps schisticeps</i> gray-headed pika	None	None	G5T2T4	S2S4	
AMAEB03012	<i>Lepus americanus tahoensis</i> Sierra Nevada snowshoe hare	None	None	G5T3T4Q	S2	SSC
AMAEB03041	<i>Lepus townsendii townsendii</i> western white-tailed jackrabbit	None	None	G5T5	S3?	SSC
AMAF01013	<i>Aplodontia rufa californica</i> Sierra Nevada mountain beaver	None	None	G5T3T4	S2S3	SSC
AMAFJ01010	<i>Erethizon dorsatum</i> North American porcupine	None	None	G5	S3	
AMAJF01014	<i>Martes caurina sierrae</i> Sierra marten	None	None	G5T3	S3	
AMAJF01021	<i>Pekania pennanti</i> fisher - West Coast DPS	None	Candidate Threatened	G5T2T3Q	S2S3	SSC
AMAJF03010	<i>Gulo gulo</i> California wolverine	Proposed Threatened	Threatened	G4	S1	FP
ICMAL05970	<i>Stygobromus lacicolus</i> Lake Tahoe amphipod	None	None	G1	S1	
ICMAL05A70	<i>Stygobromus tahoensis</i> Lake Tahoe stygobromid	None	None	G1	S1	



Selected Elements by Element Code
 California Department of Fish and Wildlife
 California Natural Diversity Database



Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
IIPLE03200	<i>Capnia lacustra</i> Lake Tahoe benthic stonefly	None	None	G1	S1	
IITRI11010	<i>Cryptochia excella</i> Kings Canyon cryptochian caddisfly	None	None	G1G2	S1S2	
IITRI77010	<i>Desmona bethula</i> amphibious caddisfly	None	None	G2G3	S2S3	
IMBIV27020	<i>Margaritifera falcata</i> western pearlshell	None	None	G4G5	S1S2	
IMGASM6020	<i>Helisoma newberryi</i> Great Basin rams-horn	None	None	G1	S1S2	
PDAST0S1S2	<i>Artemisia tripartita ssp. tripartita</i> threetip sagebrush	None	None	G5T4T5	S2	2B.3
PDAST3M2K0	<i>Erigeron miser</i> starved daisy	None	None	G3?	S3?	1B.3
PDBRA061R1	<i>Arabis rigidissima var. demota</i> Galena Creek rockcress	None	None	G3T3Q	S1	1B.2
PDBRA270M0	<i>Rorippa subumbellata</i> Tahoe yellow cress	None	Endangered	G1	S1	1B.1
PDFAB0F120	<i>Astragalus austiniæ</i> Austin's astragalus	None	None	G2G3	S2S3	1B.3
PDHYD0C4D0	<i>Phacelia stebbinsii</i> Stebbins' phacelia	None	None	G3	S3	1B.2
PDMAL140F0	<i>Sphaeralcea munroana</i> Munro's desert mallow	None	None	G4	S1	2B.2
PDPGN086U9	<i>Eriogonum umbellatum var. torreyanum</i> Donner Pass buckwheat	None	None	G5T2	S2	1B.2
PDPOR040K0	<i>Lewisia longipetala</i> long-petaled lewisia	None	None	G2	S2	1B.3
PDRHA0C010	<i>Rhamnus alnifolia</i> alder buckthorn	None	None	G5	S3	2B.2
PDROS0X0K0	<i>Ivesia sericoleuca</i> Plumas ivesia	None	None	G2	S2	1B.2
PDVIO04280	<i>Viola tomentosa</i> felt-leaved violet	None	None	G3	S3	4.2
PMCYP033H0	<i>Carex davyi</i> Davy's sedge	None	None	G3	S3	1B.3
PMPOA2Y080	<i>Glyceria grandis</i> American manna grass	None	None	G5	S3	2B.3
PMPOT03080	<i>Potamogeton epihydrus</i> Nuttall's ribbon-leaved pondweed	None	None	G5	S2S3	2B.2
PMPOT030Z0	<i>Potamogeton robbinsii</i> Robbins' pondweed	None	None	G5	S3	2B.3



Selected Elements by Element Code
California Department of Fish and Wildlife
California Natural Diversity Database



Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
PPOPH010L0	<i>Botrychium crenulatum</i> scalloped moonwort	None	None	G4	S3	2B.2
PPOPH010R0	<i>Botrychium minganense</i> Mingan moonwort	None	None	G4G5	S3	2B.2
PPOPH010S0	<i>Botrychium ascendens</i> upswept moonwort	None	None	G3G4	S2	2B.3

Record Count: 44

H4

USDA Forest Service Sensitive Animal Species by Forest List

USDA Forest Service, Pacific Southwest Region

Sensitive Animal Species by Forest

6/30/2013; Updated 9/9/2013

Scientific Name	Common Name	Angeles	Cleveland	Eldorado	Inyo	Klamath	Lassen	Los Padres	Mendocino	Modoc	Plumas	San Bernardino	Sequoia	Shasta-Trinity	Sierra	Six Rivers	Stanislaus	Tahoe	Lake Tahoe Basin
BIRDS (12)																			
<i>Accipiter gentilis</i>	Northern goshawk	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Campylorhynchus brunneicapillus sandiegensis</i>	San Diego cactus wren		X									X							
<i>Centrocercus urophasianus</i>	Greater sage-grouse				X					X									
<i>Coccyzus americanus occidentalis</i>	Western yellow-billed cuckoo	X	X		X							X	X			X			
<i>Coturnicops noveboracensis</i>	Yellow rail						X							X					
<i>Empidonax traillii</i>	Willow flycatcher			X	X	X	X	X	X		X	X	X	X	X		X	X	X
<i>Grus canadensis tabida</i>	Greater sandhill crane					X	X			X	X							X	
<i>Haliaeetus leucocephalus</i>	Bald eagle	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Pelicanus occidentalis</i>	Brown pelican		X					X				X							
<i>Strix nebulosa</i>	Great gray owl			X	X	X	X			X	X		X		X		X	X	X
<i>Strix occidentalis occidentalis</i>	California spotted owl	X	X	X	X		X	X		X	X	X	X		X		X	X	X
<i>Vireo vicinior</i>	Gray vireo	X	X									X							
MAMMALS (13)																			
<i>Antrozous pallidus</i>	Pallid bat	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Brachylagus idahoensis</i>	Pygmy rabbit				X					X									
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Glaucomys sabrinus californicus</i>	San Bernardino flying squirrel											X							
<i>Gulo gulo luscus</i>	North American wolverine			X	X	X	X		X	X	X		X	X	X	X	X	X	X
<i>Martes caurina</i>	Pacific marten			X	X	X	X		X	X	X		X	X	X	X	X	X	X
<i>Pekania pennanti</i>	Fisher			X	X	X	X		X		X		X	X	X	X	X	X	X
<i>Myotis thysanodes</i>	Fringed myotis	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Ovis canadensis nelsoni</i>	San Gabriel Mountains bighorn sheep	X										X							
<i>Perognathus alticolus alticolus</i>	White-eared pocket mouse											X							
<i>Perognathus alticolus inexpectatus</i>	Tehachapi pocket mouse	X						X											
<i>Tamias speciosus callipeplus</i>	Mount Pinos lodgepole chipmunk							X											
<i>Vulpes vulpes necator</i>	Sierra Nevada red fox				?		X										X		
AMPHIBIANS (21)																			
<i>Anaxyrus canorus</i>	Yosemite toad			X	X										X		X		
<i>Anaxyrus exsul</i>	Black toad				X														
<i>Batrachoseps bramei</i>	Fairview slender salamander												X						
<i>Batrachoseps campi</i>	Inyo Mountain salamander				X														
<i>Batrachoseps gabrieli</i>	San Gabriel Mountains slender salamander	X										X							
<i>Batrachoseps incognitus</i>	San Simeon slender salamander							X											
<i>Batrachoseps minor</i>	Lesser slender salamander							X											
<i>Batrachoseps regius</i>	Kings River slender salamander														X				
<i>Batrachoseps relictus</i>	Relictual slender salamander												X						
<i>Batrachoseps simatus</i>	Kern Canyon slender salamander												X						
<i>Ensatina eschscholtzii croceater</i>	Yellow-blotched salamander	X						X					X						
<i>Ensatina eschscholtzii klauberi</i>	Large-blotched salamander		X									X							
<i>Hydromantes brunus</i>	Limestone salamander														X		X		
<i>Hydromantes shastae</i>	Shasta salamander													X					
<i>Plethodon stormi</i>	Siskiyou Mountain salamander					X													

Scientific Name	Common Name	Angeles	Cleveland	Eldorado	Inyo	Klamath	Lassen	Los Padres	Mendocino	Modoc	Plumas	San Bernardino	Sequoia	Shasta-Trinity	Sierra	Six Rivers	Stanislaus	Tahoe	Lake Tahoe Basin
<i>Rana aurora aurora</i>	Northern red-legged frog													X		X			
<i>Rana boylei</i>	Foothill yellow-legged frog			X		X	X	X	X		X		X	X	X	X	X	X	
<i>Rana cascadae</i>	Cascade frog					X	X							X					
<i>Rana muscosa</i>	Mountain yellow-legged frog: Southern Sierra DPS				X								X						
<i>Rana sierrae</i>	Sierra Nevada yellow-legged frog			X	X		X				X				X		X	X	X
<i>Rhyacotriton variegatus</i>	Southern torrent salamander					X								X		X			
REPTILES (12)																			
<i>Emys marmorata</i>	Western pond turtle	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Anniella pulchra</i>	California legless lizard	X	X					X				X	X						
<i>Aspidoscelis hyperythra</i>	Orange-throated whiptail		X									X							
<i>Charina umbratica</i>	Southern rubber boa											X							
<i>Crotalus ruber ruber</i>	Red diamond rattlesnake		X									X							
<i>Diadophis punctatus modestus</i>	San Bernardino ringneck snake	X						X				X							
<i>Diadophis punctatus similis</i>	San Diego ringneck snake		X									X							
<i>Elgaria panamintina</i>	Panamint alligator lizard				X														
<i>Lampropeltis zonata parvirubra</i>	San Bernardino Mountain kingsnake	X										X							
<i>Lampropeltis zonata pulchra</i>	San Diego Mountain kingsnake		X																
<i>Lichanura orcutti</i>	Coastal rosy boa or 3-lined boa	X	X									X							
<i>Thamnophis hammondi</i>	Two-striped garter snake	X	X					X				X							
INVERTEBRATES, TERRESTRIAL (24)																			
<i>Bombus occidentalis</i>	Western bumble bee			X		X	X			X	X			X		X		X	X
<i>Danaus plexippus</i>	Monarch butterfly							X											
<i>Euphilotes baueri (battoides) vernalis</i>	Vernal blue butterfly											X							
<i>Euphilotes enoptes cryptorufes</i>	Pratt's blue butterfly											X							
<i>Euphilotes enoptes nr. Dammersi</i>	Dammer's blue butterfly											X							
<i>Euphydryas editha bingi</i>	Bing's checkerspot butterfly									X									
<i>Euphydryas editha ehrlichi</i>	Ehrlich's checkerspot butterfly											X							
<i>Euphydryas editha karinae</i>	Karin's checkerspot butterfly								X										
<i>Euphydryas editha monoensis</i>	Mono Lake checkerspot butterfly				X														
<i>Glaucopsyche piasus nr. sagittigera</i>	Arrowhead blue butterfly											X							
<i>Hermelyceana hermes</i>	Hermes copper butterfly		X																
<i>Incisalia mossii hidakupa</i>	San Gabriel Mountains elfin											X							
<i>Monadenia troglodytes troglodytes</i>	Shasta sideband snail													X					
<i>Monadenia troglodytes wintu</i>	Wintu sideband snail													X					
<i>Plebejus saepiolus aureolus</i>	San Gabriel Mountains blue butterfly	X										X							
<i>Plebulina emigdionis</i>	San Emigdio blue butterfly	X			X							X							
<i>Polites mardon</i>	Mardon skipper															X			
<i>Rothelix warnerfontis</i>	Warner Spring shoulderband snail		X																
<i>Speyeria egleis tehachapina</i>	Tehachapi fritillary butterfly												X						
<i>Speyeria nokomis apacheana</i>	Apache silverspot butterfly				X														
<i>Trilobopsis roperi</i>	Shasta chaparral snail													X					
<i>Trilobopsis tehamana</i>	Tehama chaparral snail					X								X					
<i>Vespericola pressleyi</i>	Big Bar hesperian snail													X					
<i>Vespericola shasta</i>	Shasta hesperian snail						X							X					

Scientific Name	Common Name	Angeles	Cleveland	Eldorado	Inyo	Klamath	Lassen	Los Padres	Mendocino	Modoc	Plumas	San Bernardino	Sequoia	Shasta-Trinity	Sierra	Six Rivers	Stanislaus	Tahoe	Lake Tahoe Basin
INVERTEBRATES, AQUATIC - Mollusks (13)																			
<i>Anodonta californiensis</i>	California floater (freshwater mussel)						X			X				X		X		X	
<i>Fluminicola seminalis</i>	Nugget pebblesnail						X							X					
<i>Helisoma newberryi newberryi</i>	Great Basin rams-horn (snail)						X											X	X
<i>Juga (Calibasis) acutiflosa</i>	Topaz juga (snail)						X			X									
<i>Juga chacei</i>	Chace juga (snail)															X			
<i>Juga nigrina</i>	Black juga (snail)						X			X				X				X	
<i>Juga (Calibasis) occata</i>	Scalloped juga (snail)						X							X					
<i>Lanx patelloides</i>	Kneecap lanx (limpet)						X							X					
<i>Pisidium (Cyclocalyx) ultramontanum</i>	Montane peaclam						X							X					
<i>Pristinicola hemphilli</i>	Pristine springsnail															X			
<i>Pyrgulopsis lasseni</i>	Willow Creek pyrg (springsnail)									X									
<i>Pyrgulopsis owensensis</i>	Owen's Valley springsnail				X														
<i>Pyrgulopsis wongi</i>	Wong's springsnail				X														
FISHES (22)																			
<i>Catostomus occidentalis lacusanserinus</i>	Goose Lake sucker									X									
<i>Entosphenus similis</i>	Klamath River lamprey					X													
<i>Entosphenus tridentatus</i>	Pacific lamprey			X		X	X	X	X	X				X		X			
<i>Gila bicolor pectiniifer</i>	Lahontan Lake tui chub																	X	X
<i>Gila bicolor thalassina</i>	Goose Lake tui chub									X									
<i>Gila orcutti</i>	Arroyo chub	X	X					X				X							
<i>Lampetra hubbsi</i>	Kern brook lamprey												X		X				
<i>Lampetra richardsoni</i>	Western brook lamprey					X			X							X			
<i>Lampetra tridentata</i> ssp.	Goose Lake lamprey									X									
<i>Lavinia exilicauda chi</i>	Clear Lake hitch								X										
<i>Mylopharodon conocephalus</i>	Hardhead			X			X		X	X	X		X	X	X		X	X	
<i>Oncorhynchus clarkii</i>	Coastal run cutthroat trout															X			
<i>Oncorhynchus mykiss</i>	Steelhead - Klamath Mountains Province ESU					X								X		X			
<i>Oncorhynchus mykiss aguabonita</i>	California golden trout				X								X						
<i>Oncorhynchus mykiss aquilarum</i> (pop 5)	Eagle Lake rainbow trout						X												
<i>Oncorhynchus mykiss gilberti</i>	Kern River rainbow trout													X					
<i>Oncorhynchus mykiss</i> pop 4	Warner Valley redband trout									X									
<i>Oncorhynchus mykiss</i> pop 6	Goose Lake redband trout						X			X									
<i>Oncorhynchus mykiss</i> pop 7	McCloud River redband trout													X					
<i>Oncorhynchus tshawytscha</i>	Upper Klamath-Trinity chinook ESU					X								X		X			
<i>Oncorhynchus tshawytscha</i> ssp.	SONCC Chinook salmon															X			
<i>Rhinichthys osculus</i> ssp 8	Santa Ana speckled dace	X	X									X							
R5 Total Sensitive Animals = 124	Total # Sensitive Animals per Forest	22	22	18	27	23	32	21	16	26	17	36	25	34	19	24	18	21	14
		ANG	CLE	ELD	INY	KNF	LAS	LP	MEN	MOD	PLU	SB	SEQ	S-T	SIE	6R	STAN	TAH	LTB

Note: Common names may not always meet official standards used by various scientific organizations, but have been edited for document consistency. Only the first letter of the common name has been capitalized unless referring to a personal or geographic name.

H5

USFWS IPaC Resource List

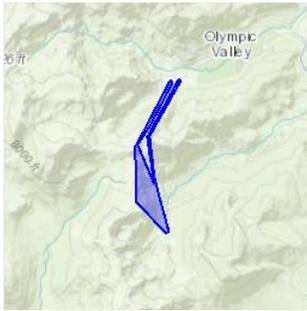
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Placer County, California



Local office

Sacramento Fish And Wildlife Office

☎ (916) 414-6600

📠 (916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service.

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.

The following species are potentially affected by activities in this location:

Amphibians

NAME	STATUS
Sierra Nevada Yellow-legged Frog <i>Rana sierrae</i> There is final critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/9529	Endangered

Fishes

NAME	STATUS
Lahontan Cutthroat Trout <i>Oncorhynchus clarkii henshawi</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3964	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
Sierra Nevada Yellow-legged Frog <i>Rana sierrae</i> https://ecos.fws.gov/ecp/species/9529#crithab	Final

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service³. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured. Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>

- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or are known to have particular vulnerabilities in your project location. To learn more about the levels of concern for birds on your list, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your specific project area. To see maps of where birders and the general public have sighted birds in and around your project area, visit E-bird tools such as the [E-bird data mapping tool](#) (search for the scientific name of a bird on your list to see specific locations where that bird has been reported to occur within your project area over a certain time-frame) and the [E-bird Explore Data Tool](#) (perform a query to see a list of all birds sighted in your county or region and within a certain time-frame). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list can be found [below](#).

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC), but is of concern in this area either because of the Eagle Act, or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Mar 20 to Sep 15
Black Swift <i>Cypseloides niger</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC), but is of concern in this area either because of the Eagle Act, or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Apr 1 to Aug 31
Lewis's Woodpecker <i>Melanerpes lewis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30
Olive-sided Flycatcher <i>Contopus cooperi</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Rufous Hummingbird <i>selasphorus rufus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds elsewhere
Williamson's Sapsucker <i>Sphyrapicus thyroideus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8832	Breeds May 1 to Jul 31
Willow Flycatcher <i>Empidonax traillii</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/3482	Breeds May 20 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in your project's counties during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

- The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
- To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
- The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (I)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the counties of your project area. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

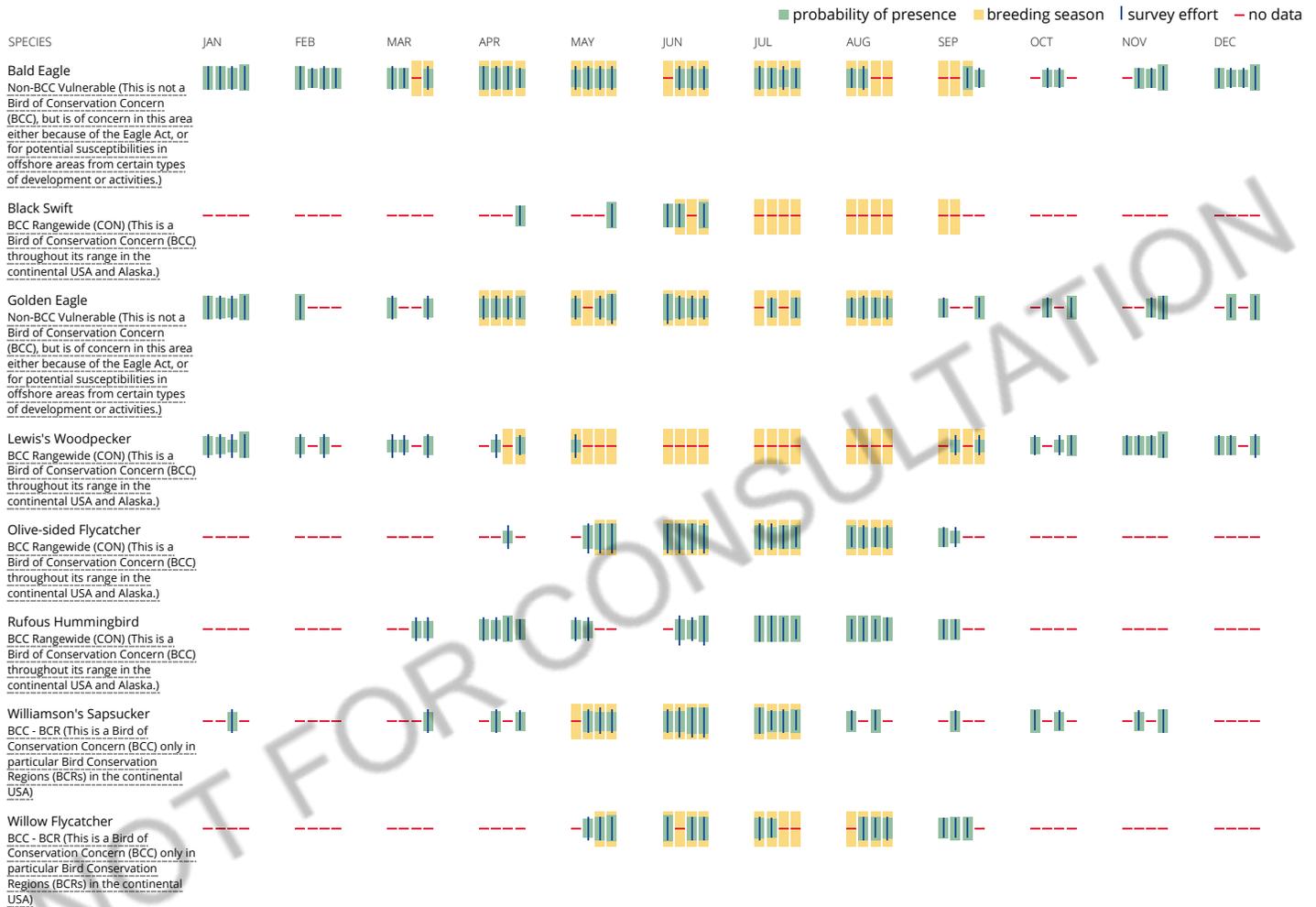
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (-)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information.



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Such measures are particularly important when birds are most likely to occur in the project area. To see when birds are most likely to occur in your project area, view the Probability of Presence Summary. Special attention should be made to look for nests and avoid nest destruction during the breeding season. The best information about when birds are breeding can be found in [Birds of North America \(BNA\) Online](#) under the "Breeding Phenology" section of each species profile. Note that accessing this information may require a [subscription](#), [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) that might be affected by activities in your project location. These birds are of priority concern because it has been determined that without additional conservation actions, they are likely to become candidates for listing under the [Endangered Species Act \(ESA\)](#).

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#). The AKN list represents all birds reported to be occurring at some level throughout the year in the counties in which your project lies. That list is then narrowed to only the Birds of Conservation Concern for your project area.

Again, the Migratory Bird Resource list only includes species of particular priority concern, and is not representative of all birds that may occur in your project area. Although it is important to try to avoid and minimize impacts to all birds, special attention should be made to avoid and minimize impacts to birds of priority concern. To get a list of all birds potentially present in your project area, please visit the [E-bird Explore Data Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird entry on your migratory bird species list indicates a breeding season, it is probable the bird breeds in your project's counties at some point within the time-frame specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

[Avoidance and minimization measures](#) should be implemented to reduce impacts to birds on your list, and all other birds that may occur in your project area. Nationwide Standard Conservation Measures can be applied for any project, regardless of project type or location.

If measures exist that are specific to your activity or to any of the species on your list that are confirmed to exist at your project area, these should also be considered for implementation in addition to the Nationwide Standard Conservation Measures. Implementation of avoidance and minimization measures is particularly important for BCC birds of rangewide concern.

If your project has the potential to disturb or kill eagles, you will need to [obtain a permit](#) to avoid violating the BGEPA should such impacts occur.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

Facilities

Wildlife refuges and fish hatcheries

REFUGE AND FISH HATCHERY INFORMATION IS NOT AVAILABLE AT THIS TIME

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

This location overlaps the following wetlands:

FRESHWATER FORESTED/SHRUB WETLAND

[PSSC](#)

FRESHWATER POND

[PUBHx](#)

A full description for each wetland code can be found at the National Wetlands Inventory website: <https://ecos.fws.gov/ipac/wetlands/decoder>

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

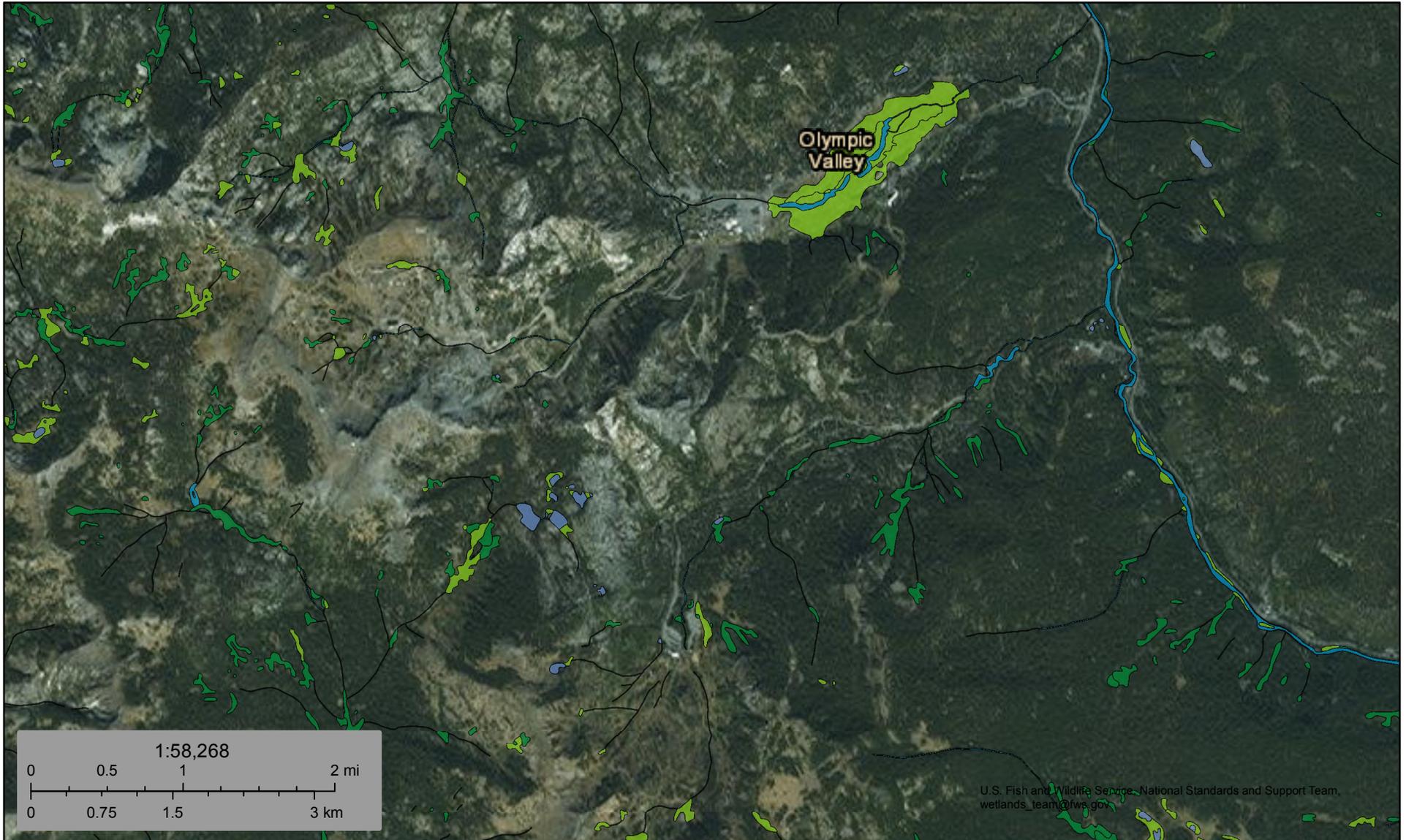
Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical

scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION



January 5, 2018

Wetlands

- | | | |
|--|---|--|
|  Estuarine and Marine Deepwater |  Freshwater Emergent Wetland |  Lake |
|  Estuarine and Marine Wetland |  Freshwater Forested/Shrub Wetland |  Other |
| |  Freshwater Pond |  Riverine |

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.