

**BIOLOGICAL EVALUATION AND ASSESSMENT
FOR
FOREST SERVICE SENSITIVE AND
FEDERALLY LISTED
PLANT SPECIES**

BALD FIRE SALVAGE AND RESTORATION PROJECT

HAT CREEK RANGER DISTRICT
LASSEN NATIONAL FOREST
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I. INTRODUCTION

The purpose of this Biological Evaluation/ Biological Assessment (BE/BA) is to review the potential effects of the proposed Bald Fire Salvage and Restoration Project (Bald Project) on federally listed Threatened or Endangered species and Forest Service Region 5 Sensitive (TES) plant species. Specifically, the BE/BA determines whether the proposed action will result in a trend toward any Sensitive plant species becoming federally listed as Threatened or Endangered under the Endangered Species Act (1973, as amended). It also documents anticipated effects of the project on Threatened and Endangered plants and determines whether consultation with the U.S. Department of the Interior, Fish and Wildlife Service (USDI FWS) is required for this project. Appendix A contains the complete list of plant species considered, determinations, and rationales. This BE/BA follows standards established in Forest Service Manual and Handbook direction (FSM 2670.3, 2671.2 & 2672.42, and R-5 FSH 2609.25) for Threatened, Endangered, and Sensitive (TES) species.

The Hat Creek Ranger District (HCRD) of the Lassen National Forest (LNF) is proposing the Bald Project, which would salvage harvest fire killed trees, conduct area fuels treatments, plant native conifers and remove hazard trees on approximately 14,363 acres of National Forest System (NFS) lands. The proposed action is designed to implement and be consistent with the 1992 *Lassen National Forest Land and Resource Management Plan* (LRMP) and 1993 *Record of Decision* (ROD), as amended by the *Sierra Nevada Forest Plan Amendment* (SNFPA) *Final Environmental Impact Statement* (FEIS) and ROD 2004, and the Management Indicator Species (MIS) amendment (2007).

This Biological Evaluation documents potential effects from Bald Project activities to TES species with the potential to be found on the Lassen National Forest. Currently there is one Forest Service Region 5 Sensitive plant species, *Eriastrum tracyi*, known to occur within the fire-affected area. There are no known USDI FWS Threatened or Endangered plant species occurrences or Designated Critical Habitat within the fire-affected area. Appendix A contains the complete list of plant species considered, along with determinations, and rationales.

II. CONSULTATION

The most current list of federally listed Threatened and Endangered plant species that may be present on the Lassen NF was obtained from the Sacramento Field Office of the US Department of the Interior, Fish and Wildlife Service (USDI FWS) on March 13, 2015. *Orcuttia tenuis* and *Tuctoria greenei* are the only listed species whose known range includes the Lassen National Forest (USDI FWS 2015). Butte County meadowfoam (*Limnanthes floccosa* ssp. *californica*) is also listed as potentially occurring on the Lassen National Forest in Butte County (USDI FWS 2015), although it has not been found on the forest and does not have designated critical habitat on the forest (USDI FWS 2003, USDA FS 2014b). *Orcuttia tenuis* and *Tuctoria greenei* have approximately 25,000 acres of designated critical habitat on or adjacent to the Lassen National Forest (USDI FWS 2003). Neither of these species is known to occur within the fire-affected area, and potential habitat for these species does not occur within the fire-affected area. Neither consultation with the USDI FWS nor a Biological Assessment of project effects on these species is therefore required.

III. CURRENT MANAGEMENT DIRECTION

A. Land and Resources Management Plan Direction for Bald Project area (LRMP)

The Bald Project is contained within the Ladder (MA #5) Management Area of the Lassen National Forest Land and Resources Management Plan (LRMP 1992).

B. LRMP Direction for Sensitive Plants

The LNF LRMP management direction for Sensitive Plants includes the following goals, standards, and guides (LRMP pp 4-26 and 4-27):

- a. Maintain habitat and viable populations to contribute to eventual de-listing of Sensitive plants that are found on the Forest.
 - (1) Identify, preserve, or enhance Sensitive plant populations.
 - (2) Restrict vegetative or soil disturbance in areas occupied by Sensitive plants, unless manipulation is need to perpetuate the species.
 - (3) Within the planning period, develop Species Management Guides for Sensitive plants that identify population goals and compatible management activities.
- b. Manage Sensitive plants to insure that species do not become Threatened or Endangered because of Forest Service actions.
 - (1) Evaluate all proposed projects for potential Sensitive plant habitat. Conduct surveys at the correct time of year for species identification if potential habitat exists in a project area.
 - (2) If Sensitive plants are found in a proposed project, modify the project or take mitigative action as necessary to protect the habitat.

C. SNFPA Direction (2004):

Standard and Guideline #125- Conduct field surveys for Threatened, Endangered, Proposed and Sensitive (TESP) plant species early enough in the project planning process that the project can be designed to conserve or enhance TESP plants and their habitat. Conduct surveys according to procedures outlined in the Forest Service Handbook (FSH 2609.25.11). If additional field surveys are to be conducted as part of project implementation, surveys results must be documented in the project file (SNFPA, ROD Errata. pg. 66).

IV. DESCRIPTION OF THE PROPOSED PROJECT

A. Project Area Description:

The Bald Project is located approximately 14 miles southeast of Fall River Mills, California. The legal location for the Bald Project includes portions of Township (T) 34 North (N), Range (R) 5 East (E), Section 1; R6E, Sections 1-18, 20-23, and 27; R7E, Sections 5-7, and 18; T35N, R5E, Sections 11-15, 22-26 and 35-36; R6E, Sections 7-36; R7E, Sections 18-20 and 30-31; T36N, R5E, Sections 25-27 and 33-36; R6E, Sections 16, 19-22, and 26-35, in Shasta and Lassen Counties, California. There are approximately 8,500 acres of Bureau of Land Management (BLM), State and privately owned land within the fire-affected area.

The predominant habitat type within the fire-affected area is eastside pine with inclusions of low sagebrush flats, shrub fields, springs with associated wet meadow habitat, juniper flats and pine plantations. Sections of Beaver Creek are perennial and there are seasonally flowing streams scattered across the fire-

affected area. Overall, the most common conifers are Jeffrey and ponderosa pine, white fir, Incense cedar and western juniper, with a smaller component of sugar pine, lodgepole and gray pine. Hardwoods include California black oak, white oak and aspen. The understory vegetation components include greenleaf manzanita, Mahala mat, antelope bitterbrush, big sagebrush, serviceberry, gooseberry, snowberry and forbs and graminoid species such as yarrow, larkspur, wavyleaf Indian paintbrush, Idaho fescue, Sandberg’s bluegrass, threadleaf sedge and slenderbeak sedge. Elevations range from approximately 4,100 to 5,800 feet.

B. Background

The Bald Fire was started by lightning on July 30, 2014 and burned approximately 39,832 acres of National Forest System (NFS), BLM, State, and private land before being controlled on September 15, 2014. Of the total acreage, 31,324 were on National Forest System (NFS) lands. Burn severity varied across the landscape; leaving areas with complete tree mortality while other areas still support a green tree component. Table 1 summarizes the percent of the acres burned by the fire and the level of basal area tree mortality relative to the total acres burned in the fire.

Table 1 – Bald Fire Area Percent Burn Severity

	Severity - Percent Basal area tree mortality		
	Low-Moderate (less than 50%)	Moderately High (50% to 75%)	Very High (greater than 75%)
Acres of fire area ¹	6,232	6,550	18,542
Percent of Fire Area	20%	21%	59%

Source: Based upon data received from the Remote Sensing Applications Center (RSAC) at Salt Lake City, Utah.¹

C. Alternative 1 - Proposed Action:

The proposed action was developed to accomplish the purpose and need for the Bald Project by evaluating existing vegetation conditions, fire burn patterns and intensities, and land allocations within the fire perimeter. Preliminary estimates of treatment acres were based on the Bald Fire Rapid Assessment. These acreages have been adjusted since original scoping based on analysis for wildlife habitat needs, considerations for riparian area and aquatic feature protection, and archeological sites. Additional pockets of merchantable timber (commercial salvage) have been identified in areas initially designated for fuels treatment. Areas identified for commercial salvage would also receive follow-up fuels treatments if needed to meet desired fuel loading: these may include mechanical, hand, and prescribed fire² treatments. Large and medium patches of existing burned forest habitat interspersed throughout the burned area would be left untreated under the proposed action to allow for natural recovery.

¹ The RSAC produces a suite of products using the Rapid Assessment of Vegetation Condition after Wildfire (RAVG) process following containment of a wildfire that burns 1,000 acres or more of forested National Forest System land. The LNF obtained the geographic information system (GIS) information from <http://fsweb.rsac.fs.fed.us/RAVG/Region5/2014/Bald>

² Prescribed fire is an inclusive term that refers to underburning, broadcast burning, and pile burning. All burning would be completed within prescription as well as in accordance with all State and County regulations.

To provide for snags and down woody debris across the treatment areas, retention islands would be designated in all treatment units except road hazard removal units. Retention islands would consist of small-untreated patches within the boundary of treatment units that range in size commonly between two to five acres, and would comprise 20 percent of the acres within each unit. Retention islands would be distributed across the unit to provide a variety of burned conditions representative of those present in the unit prior to treatment. Snag retention differs in the riparian conservation area (RCA) land allocation to provide for future coarse woody recruitment that would provide aquatic habitat structural diversity and hydrologic function such as sediment routing. No treatment would occur with the RCA of the Beaver Creek mainstem with the exception of limited hand treatments of fuels within one sensitive area, hazard tree felling adjacent to fences that requires repair, and possibly small patches of site prep prior to planting riparian vegetation (if monitoring deems artificial regeneration necessary). Within the RCA of the tributaries to Beaver Creek, other ephemeral and intermittent drainages within the project area, and the special aquatic features at Sheeps' Flat and Negro Gulch integrated design features would be implemented. No treatment are proposed around Willow, Coble, and Gibbs Springs.

Treatments proposed under Alternative 1 include hazard tree removal, area salvage, area fuels treatments, and planting only treatments (Table 2). Treatments would use a combination of mechanical, hand, and prescribed fire. All acres unless specifically noted were analyzed for mechanical equipment. All acres proposed for treatment would also be analyzed for planting.

Table 2. Proposed treatment and estimated acres in the Bald Project

Alternative 1	Estimated Acres	Percent of Bald Project area
Hazard Tree Removal	4,815	15%
Area Salvage	3,632	12%
Area Fuels	5,499	18%
Reforestation Only	417	1%
Total proposed for treatment	14,363	46%
Natural Recovery	16,961	54%

Hazard Tree Removal

Hazard trees within approximately 150 feet along maintenance level (ML) 2 or higher roads within the fire-affected³ area would be felled and removed. Hazardous trees along the Burlington Northern Santa Fe railroad easement would also be felled. Depending on access, these trees would be removed or left in place.

Hazard tree marking guidelines would be based upon both the fire-injured tree marking guidelines and the hazard tree marking guidelines developed by Region 5 Forest Health Protection (USDA 2011, USDA 2012). The objectives of these guidelines are to: 1) remove those trees that are dead or have a high probability of mortality due to fire-injury or that have structural defects that indicate high failure potential to

³ In addition to roads, and the railway within the fire perimeter; incidental hazards along the perimeter roads would be treated

abate potential hazards to visitors and improve safety and access and 2) retain those trees that would likely survive to maintain visual quality, wildlife habitat and recreational values. This balance aims to retain healthy forested conditions while providing for safety and access to the area. The marking guides for hazard tree removal would be based on a probability of mortality of 60 percent (Pm-0.6). Sub-merchantable trees and non-merchantable hazard trees would be felled and left in place, or piled and the piles burned, depending upon the amount of surface fuel loading present.

Area Salvage Harvesting

Fire-killed and fire-injured trees within the Bald Fire perimeter would be harvested. Merchantable trees would be removed as sawlogs if operations occur before the wood deteriorates. Non-merchantable trees would be removed as biomass, masticated, felled and lopped, machine piled and burned or broadcast burned to meet desired fuel conditions.

Fire salvage marking guidelines to be used are based upon the fire-injured tree marking guidelines developed by Region 5 Forest Health Protection⁴. The marking guides for area salvage would be based on a probability of mortality of 70 percent (Pm-0.7). The objectives of these guidelines are to balance the need remove hazardous trees to allow for safety in accessing national forest lands and retain the healthier trees for other resource needs

The salvage harvest operations would utilize ground-based, mechanical harvesting to remove fire-killed and fire-injured trees from treatment areas on slopes 35 percent or less. Activity-generated fuels would be masticated, broadcast burned, piled mechanically or by hand, and the piles burned. On slopes greater than 35 percent, hand felling would be used to create openings for artificial regeneration and activity fuels would be hand treated

Area Fuel Treatments

In areas that burned at moderate and high severity and where timber does not meet merchantability standards, hazard abatement, fuels reduction, and site preparation for reforestation would be accomplished by biomass removal, mastication, felling and lopping, machine piling and burning, or broadcast burning. Ground based mechanical harvesting would be used areas on slopes 35 percent or less. On slopes greater than 35 percent, only hand operations would be allowed. In all areas, trees designated for removal would use the same guidelines as discussed above under Area Salvage. Activity-generated fuels would be broadcast burned or piled mechanically or by hand, and piles burned.

Reforestation

Reforestation would be implemented on approximately 11,688⁵ acres within the fire-affected area following salvage and fuel treatments. In addition to the areas identified for area salvage harvest and fuels treatment units, there are an additional 538 acres (approx.) designated as “reforestation-only units” (see Table 2).

Prior to planting, concentrations of activity-generated fuels and sub-merchantable trees would be removed to facilitate reforestation, help protect planted trees once they become established, and reduce the risk of a possible reburn. Site preparation would include a variety of treatment methods that include machine or hand cutting and piling followed by pile burning, mastication of fire killed shrub stems and trees less than

⁴ Report #RO-011-01, Smith and Cluck, May 2011 developed by Region 5 Forest Health Protection.

⁵ Estimated acres based on gross stand acres and do not account for wildlife retention islands or non-plantable areas

5-inches dbh (diameter breast height), or broadcast burning fire-killed trees. In addition, sprouting shrubs and vegetation may need to be treated adjacent to planted trees to reduce competition for site resources in order to assure establishment. This may be done through manual or mechanical cutting methods such as grubbing, mastication, or use of brush cutters. Ripping may be done prior to planting. Reforestation would need to occur within two years to increase the probability of survival of the planted trees with the competing brush.

Tree planting strategies would be implemented to comply with Region 5 Stocking Guidelines over time. These guidelines define future minimum and recommended stocking levels by forest type and site class, ranging from 75 to 300 trees per acre. Lower quality sites would have lower stocking levels than higher quality sites, contributing to a heterogeneous forest structure across the landscape. Planted tree species would represent the historical tree community for each site. This mixture of tree species would include Jeffrey, ponderosa, western white, or sugar pines, as well as Douglas fir, and incense cedar. Only native tree species grown from locally adapted seed sources would be planted.

Planting strategies proposed for reforestation include conventional planting, founder stands, cluster planting, and natural regeneration. Reforestation strategies are based upon the primary objectives for the landbase. On the T (timber emphasis) and K (timber emphasis on rocky ground) designated management prescriptions, the objective would be to create conditions of a fully stocked stand. On A and B (range-wildlife emphasis) designated management prescriptions the growth and production of timber is a lesser objective. Reforestation objectives on A and B areas would be to maintain a tree component on the landscape. Natural regeneration is a reforestation strategy that would be used in areas where live trees remain on site or in the adjacent areas, areas dominated by montane chaparral, juniper, or are economically or technically infeasible, and in retention islands.

Reforestation strategies include considerations for vegetative diversity where it exists within the fire-affected area. Since no reforestation would occur in retention areas, once the snags fall, these areas would temporarily function as openings within a re-forested conifer-dominated landscape. Hardwood trees would be encouraged and promoted.

In conifer plantations, survival examinations would occur at one year and three years after planting. Planted units would be assessed for seedling survival and whether competing vegetation may need to be treated. The proposed action includes at least one release treatment using manual or mechanical methods such as hand grubbing, mastication, or brush cutting to control competing vegetation within one to three years and a second treatment conducted within two to five years of planting. Planted sites would be certified of establishment five years after planting. Animal control actions such as protective barriers or trapping may be used.

Managing Road Infrastructure

Where possible, the existing forest transportation system roads would be used to provide access to proposed treatment areas. Road maintenance, including surface protection and erosion control, would be performed on portions of system roads as needed for project implementation. A dust abatement plan would be included to control wind-caused erosion from road use. National Forest System roads and non-paved county roads used for haul would receive pre-, during-, and post-haul maintenance.

Approximately 2.2 miles of non-system roads within the fire-affected area would be needed for project implementation (salvage, fuel treatments, and reforestation) and long-term future management. These non-system roads would be added to the Forest transportation system as maintenance level 2 roads. Temporary roads may be constructed to access proposed treatment areas. Following project implementation, these roads would be decommissioned.

All water sources proposed for use in this project for dust abatement meet best management practice (BMP) standards. The following water sources would be used for dust abatement:

- Halls Flat (T33N R6E, N ½ sec. 13)
- Bidwell Pond (T34N R4E, S ½ sec. 1)

D. Integrated Design Features (IDF) for all Action Alternatives:

The following Integrated Design Features (IDF's) are included as Botanical Protection Measures for the Bald Project. See the Bald Project, Environmental Assessment for IDF's for other resources, hereby incorporated by reference.

Threatened, Endangered, Forest Service Sensitive (TES) and Special Interest (SI) Plant Species:

Alternative 1:

1. All known occurrences of *Eriastrum tracyi*, *Hackelia cusickii*, *Limnanthes floccosa* ssp. *floccosa*, *Mimulus pygmaeus*, and *Thermopsis californica* var. *argentata* (with the exception of LNF occurrences #10 and #29) and low sagebrush plant communities would be protected from project activities through flag-and-avoid methods.
2. Tree planting would not occur within 25 feet of all known occurrences of TES and SI plant species and low sagebrush plant communities (with the exception of *Astragalus inversus*, for which no planting buffers would be required).
3. The *Eriastrum tracyi* occurrence along road 35N14 located within T35N R6E section 32, in the vicinity of Coble Spring, would not be bladed or scraped during pre-haul maintenance or during project implementation activities.
4. New occurrences of TES and SI plant species discovered before or during ground-disturbing activities would be protected from project activities through flag-and-avoid methods and no tree planting would occur within 25 feet of these occurrences (with the exception of *Astragalus inversus*, for which no special protections from any project activities would be required).

Alternative 3:

5. All known occurrences of *Eriastrum tracyi*, *Hackelia cusickii*, *Limnanthes floccosa* ssp. *floccosa*, *Mimulus pygmaeus*, and *Thermopsis californica* var. *argentata* (with the exception of LNF occurrences #10 and #29) would be protected from hazard tree felling activities through flag-and-avoid methods.
6. The *Eriastrum tracyi* occurrence along road 35N14 located within T35N R6E section 32, in the vicinity of Coble Spring, would not be bladed or scraped during pre-haul maintenance or during project implementation activities.

7. New occurrences of TES and SI plant species discovered before or during ground-disturbing activities would be protected through flag-and-avoid methods (with the exception of *Astragalus inversus*, for which no special protections would be required).

Invasive Plant Species for Alternatives 1 and 3:

8. Staging of equipment would be done in weed free areas.
9. Known invasive plant infestations would be identified, flagged where possible, and mapped for this project. Locations would be displayed on contract maps. Identified invasive plant sites within or adjacent to the Bald Project area containing isolated patches with small plant numbers would be treated (hand pulled or dug) by forest botany staff prior to project implementation. Any larger or unpullable infestations would be avoided by harvesting equipment, or equipment used would be washed on site before leaving the infested area and entering un-infested areas to prevent spreading of invasive plants within the Bald Project area.
10. New small infestations identified during project implementation would be evaluated and treated according to the species present and project constraints and avoided by project activities. If larger infestations are identified during implementation, they would be isolated and avoided by equipment, or equipment used would be washed on site before leaving the infested area and entering un-infested areas.
11. Hazard trees would be hand felled and left in place where they occur within invasive plant infestations.
12. Post-project monitoring for implementation and effectiveness of invasive plant treatments and control of new infestations would be conducted as soon as possible and for a period of multiple years following project completion.
13. If project implementation calls for mulches or fill, they would be certified weed-free. Seed mixes used for re-vegetation of disturbed sites would consist of locally adapted native plant materials to the extent practicable.

Fuels:

14. Fire lines would be constructed for prescribed fire operations, except where existing roads, skid trails, or natural barriers would serve as control lines. Hand lines would not be constructed within RCAs and wet meadow areas where graminoid and forb indicator species of a wet site are present.
15. Pile burning and ignition for underburning would not occur within 25 feet of low sagebrush plant communities or dry meadow areas; or where graminoid and forb indicator species of a wet site are present; however, low intensity fire would be allowed to back into portions of these areas.

Silviculture:

16. All stumps 24 inches in diameter and greater within 200 feet of NFS roads would be treated in all vegetation types except aspen, with Sporax® ,Cellu-Treat® or a similarly registered product, to prevent the spread of annosus root disease. No Sporax or Cellu-Treat would be applied within 25 feet of known Forest Service Sensitive and Special Interest plant species, or stream courses, and special aquatic features, shown on the contract map.

E. Alternative 2 - No Action:

Under the No Action alternative, none of the activities proposed under Alternative 1 would be implemented. The No Action alternative would not preclude activities already approved in this area or activities planned as separate projects. No fuels treatments, site preparation, or reforestation would occur. Current management practices such as road maintenance and fire suppression would continue. To protect public safety hazards trees would be felled as part of road maintenance. These hazard trees would be felled and left in place.

F. Alternative 3 - Road Hazard Only:

To respond to concerns raised during public scoping, the Responsible Official has proposed limiting treatment to hazard tree removal (along approximately 129 miles of NFS roads and approximately 10 miles of the Burlington Northern Santa Fe railway). Commercial sized hazards would be felled and removed along ML2 and higher roads. Sub-merchantable hazards would be felled and left in place or piled and burned. No other site preparation or reforestation would occur along these roads. No other management activities (besides those previously authorized) would occur. The total footprint of treatments on national forest lands under Alternative 3 would be approximately 4,736 acres. Existing roads used under this alternative would be repaired and maintained.

V. EXISTING ENVIRONMENT

A. Surveys

The Bald Project area has been surveyed in the past for TES species and invasive plant species for various projects; however, the majority of the fire-affected area has not been surveyed in recent years (Table 3). Floristic surveys were conducted in general accordance with California Native Plant Society Botanical Survey Guidelines (CNPS 2001). Survey routes are documented in the NRIS TESP-Invasive Species geodatabase (USDA Forest Service 2014a). In addition, the fire-affected area was visited by botany specialists in August, 2014 for Burned Area Emergency Response (BAER) assessments immediately following containment of the Bald Fire.

Table 3: Past Surveys Conducted in the Bald Project area

Project	Survey Year
Balderdash	1991
Beaver Creek Design (EM)	1994
Beaver Creek Underburn	1997
Beaver Creek Wetlands	1992
Blacks Ridge	2000
Boothill Biomass	1993
Boothill Thinning	1997
Duke Thin	1995
Eastside Salvage	2004
Eastside Underburn	2010
Gulch Salvage	1996
HC Grazing Permit Exchange	1994
HC Wildlife Enhancement	1996
Ladder Brush	2003
Mr. Wilson T.S.	1990
North Coble	2001
OHV Route Designation	2009

Project	Survey Year
Pittville	2000
Pittville Hwy Brushfield	1992
Procter Thinning	1992
Reservoir 8	1992
Roadside Hazard Tree Salvage	2004
Sheepy Brushfields	1992
Waterhole 6	1992
Waterhole 9	1992
Wilson Insect Salvage	1993
Wilting Insect Salvage	1993

Source: USDA Forest Service 2014a

B. Species and Habitat Presence in the Bald Project area

One Forest Service Region 5 Sensitive plant species, Tracy’s eriastrum (*Eriastrum tracyi*), was located along FS road 35N14, near Coble Spring, during field visits in January and June of 2015 for the Bald Project. This occurrence is located within a proposed hazard tree removal treatment unit. No other TES species have been located during past surveys.

There are currently seven California Department of Food and Agriculture (CDFA) listed invasive plant species within the fire-affected area. Bull thistle (*Cirsium vulgare*), a CDFA C-rated species is known to be scattered across the fire-affected area, in fairly small numbers, at disturbed sites such as old landings and skid trails. Dyer’s woad (*Isatis tinctoria*), a CDFA B-rated species is known from one locations within the fire-affected area. Klamathweed (*Hypericum perforatum* ssp. *perforatum*), a CDFA C-rated species is known from one location within the fire-affected area. Medusahead (*Elymus caput-medusae*), a CDFA C-rated species occurs in several areas across the fire-affected area. Yellow starthistle (*Centaurea solstitialis*), a CDFA C-rated species is known to occur along forest system road 35N10 within the fire affected area. Scotch thistle (*Onopordum acanthium* ssp. *acanthium*), a CDFA A-rated species is known from three locations and Spotted knapweed (*Centaurea stoebe* var. *micranthos*), a CDFA A-rated species occurs at two sites within the fire-affected area. In addition to the invasive plants located within the project boundary, there are three invasive plant species that occur within the water draft sites which will be used for dust abatement activities. These invasive plants include Klamathweed (*Hypericum perforatum* ssp. *perforatum*), whitetop (*Cardaria* sp.) and yellow starthistle (*Centaurea solstitialis*), all of which are CDFA C-rated species. Klamathweed and yellow starthistle occur at the Bidwell Pond draft site and whitetop is known from the Halls Flat site. See the Bald Project Invasive Plant Species Risk Assessment (Bald Project Record) for a discussion of project level effects associated with invasive plant species.

Eriastrum tracyi Species Account

Eriastrum tracyi, Tracy’s eriastrum, is a hairy annual herb in the phlox family with narrow, alternating leaves and small, trumpetlike, 5-parted flowers that are white to purple below, white to yellow at the flare, and white, pink, or pale blue at the top. Generally within California, the species can be found in open areas on shale or alluvium, in open woodlands and chaparral at elevations from approximately 1,000 to 5,400 feet (Baldwin et al. 2012, CNPS 2015). On the Lassen National Forest, this species generally grows in volcanic cinder, mainly along roads (USDA FS 2014b). This taxon has a California Rare Plant Rank of 3.2, and it is considered a California endemic that is fairly endangered (CNPS 2015). It is known from 90 occurrences

across 11 counties, from Kern County in the south to Shasta and Trinity counties in the north (CDFW 2015). The Lassen National Forest currently has four occurrences, all along the Hat Creek Rim. The smallest occurrence is reported as having only 20 plants; the largest as having thousands. Due to taxonomic difficulties and to the dramatic fluctuations in plant numbers from year to year that sometimes characterize annual plants, the overall numbers and population trends of *Eriastrum tracyi* are not clearly known.

VI. ENVIRONMENTAL EFFECTS

Alternative 1 – Proposed Action

A. Direct Effects

Direct effects involve physical damage to plants or their habitat. This may include crushing, breaking, or burning plants; burying them under displaced slash or duff; or disturbing or compacting soils in the immediate vicinity of plants. Such damage has the potential to cause mortality to individual plants. Activities with the potential to cause direct effects to Sensitive plant species within danger tree removal units include effects associated with the falling and skidding of danger trees, the placement of piles, pile burning, and the creation and use of landings. In area salvage harvesting units, direct effects may result from mechanical equipment entry, creation and use of skid trails and landings, creation and placement of hand piles and mechanical piles, pile burning, site preparation activities such as manual scalping or grubbing, and broadcast burning. In reforestation units, direct effects may result from mechanical equipment entry, the use of skid trails and landings, the creation and placement of hand piles and mechanical piles, pile burning, broadcast burning, and site preparation activities such as grubbing or mastication.

Eriastrum tracyi is the only TES plant species known from the fire-affected area. There is one documented occurrence along the shoulder of an access road within a proposed hazard tree removal treatment unit, though there are no hazard trees adjacent to this occurrence as it is located within a forest opening. With the implementation of project IDF's, this occurrence would be protected through flag and avoid methods from all project-related activities. However, this species was not known to the LNF until 2009 and may occur along other roads and in areas with suitable habitat throughout the project boundary where floristic surveys have not been conducted in recent years. If there are other *Eriastrum tracyi* occurrences within or adjacent to treatment units, individuals of this species may be impacted by project activities. Nevertheless, this species has an annual life cycle and diminutive stature, and is generally found in disturbed areas with little to no competition from neighboring vegetation. Therefore, damage to individual plants may result in short term negative effects, but in the long term, effects to these occurrences could be beneficial where existing vegetation is removed and soils are exposed, creating new habitat for these plants to occupy. However, since population viability thresholds have not been determined for *Eriastrum tracyi*, it is not possible to define at what point a disturbance effect would change from favorable to unfavorable. On the LNF, *Eriastrum tracyi* plants generally emerge and complete their life cycle over a short time during mid-summer; therefore, this species may not be present as living plants, but instead as seed during project implementation; nevertheless, if individual plants are damaged by project activities they are likely to be replaced the following year from the existing seed bank. Furthermore, if new occurrences of this species are discovered before or during project implementation, they would be protected through flag and avoid methods as stipulated in Bald Project IDF's. In summary, direct effects may be sustained by

potential habitat or any *Eriastrum tracyi* occurrences missed by previous surveys where mechanical equipment is used in hazard tree removal, area salvage harvest, fuels treatments and reforestation activities. However, these effects are expected to be short-term and minimal with the incorporation of IDF's and in consideration of the inherent tolerance of many annual species to short-term ground disturbance.

B. Indirect Effects

Indirect effects are separated from an action in either time or space. These effects, which can be beneficial or detrimental to rare species, may include changes in a species' habitat, such as the effects from salvage harvest, fuels treatments and reforestation activities on shrub and tree canopy cover, the use of Sporax®, or changes in the fire regime or the risk of invasive plant introduction and establishment.

Disturbance caused by hazard tree removal, salvage harvest, fuels treatments and site preparation for reforestation may create new areas of bare mineral soil for this species to colonize which may be beneficial to *Eriastrum tracyi*. cursory observations suggest this species prefers to germinate and grow on sites where the competing vegetation has been removed. Therefore, the habitat of *Eriastrum tracyi* might be improved by the introduction of disturbance to soils and removal of competing plants. The value of the improved condition of the habitat would be dependent on the numbers and subsequent reproductive success of the *Eriastrum tracyi* plants within and adjacent to these areas. However, the encroachment of more aggressive annual plants such as non-native grasses may preclude an otherwise improved condition of the habitat, depending on the potential introduction and rate of spread of these plants.

Given that *Eriastrum tracyi* plants inhabit open areas with little to no canopy cover, the effects of reforestation activities on tree canopy cover could constitute a long-term adverse indirect effect to this species. Reforestation activities would result in an accelerated re-establishment of tree canopy cover and could shade out plants within *Eriastrum tracyi* occurrences over the long-term, as the species is primarily known from sites where plants receive full sun. The only known occurrence of *Eriastrum tracyi* is located within a hazard tree removal unit; however, Bald Project IDFs stipulate no conifers would be planted within 25 feet of known rare plant occurrences, including any new occurrences located before or during reforestation activities. Therefore, adverse effects from reforestation activities would be limited to potential habitat and any new occurrences that may be present in the fire-affected area that are not discovered before or during implementation.

Sporax® treatment for annosus root disease is also proposed for use within the fire-affected area and would be applied to fresh-cut conifer stumps 14 inches in diameter or greater. At high enough soil concentrations Sporax® can be toxic to plants. However, when used as proposed to selectively treat stumps, Sporax® soil concentrations would not approach levels that are known to be toxic to plants (USDA Forest Service 2006). Project IDF's stipulate that Sporax® would not be applied within 25 feet of Sensitive plant occurrences. There would be no effects to the known *Eriastrum tracyi* occurrence within the fire-affected area; however, *Eriastrum tracyi* plants that may be present within treatment units and not discovered before or during implementation may be affected by the application of Sporax®. Nonetheless, this species generally occurs in openings lacking competing vegetation and are not likely to occur within 25 feet of conifers large enough to be treated with Sporax®. Still, there is potential for some *Eriastrum tracyi* plants to be effected by the use of Sporax® within the fire-affected area.

Another potential indirect effect to *Eriastrum tracyi* occurrences is an increase in invasive plant species or other undesirable non-native species as a result of project activities. The Bald Project Invasive Plant Species Risk Assessment (Bald Project Record) reports a high risk of weed spread associated with the implementation of Alternative 1. Many occurrences of invasive plants are known from the fire-affected area within treatment units and along access roads which will be used during project implementation. *Eriastrum tracyi* occurrences would be at risk from competition for available sunlight, nutrients, water and other resources if invasive plants were to establish within these areas. However, project IDFs are designed to reduce the risk of invasive plant establishment and spread, through flag and avoid methods, equipment washing and post-project monitoring intended to locate new invasive plant occurrences and rapidly treat them prior to seed set and establishment. Therefore, *Eriastrum tracyi* occurrences are not expected to sustain extensive project-related indirect effects from invasive plants.

Overall, indirect effects to *Eriastrum tracyi* plants may occur as a result of project-related activities from soil disturbance, changes in forest vegetation structure, the use of Sporangin® and spread of invasive plants; some of these effects are expected to be beneficial, while potential adverse effects would be reduced with the implementation of project IDFs.

B. Cumulative Effects

Current inventories of Sensitive plant species capture the aggregate impact of past human actions and natural events that have led to the current inventory of these species within the fire-affected area (CEQ 2005). Past human actions and natural events are therefore implicit within existing conditions and are addressed within the Existing Environment section above. These include the effects of the 2014 Bald Fire and associated fire suppression activities, as well as past timber harvest and fuels reduction activities, livestock grazing, fuelwood cutting and recreation within the fire-affected area, as well as activities occurring within private inholdings. See the Bald Project PORFFA Report (Bald Project Record) as hereby incorporated by reference, for descriptions of additional past actions within the Bald Project area. Cumulative effects for TES species analyzed within this document are spatially bounded by the Bald Project area and temporally bounded by a 20 year time frame. Cumulative effects would result when the direct and/or indirect effects of Alternative 1 on a given species add incrementally to the effects of past, present, and reasonably foreseeable future actions.

Ongoing projects with the potential for the highest impact to Sensitive plant species include vegetation management on private lands and LNF road maintenance activities. Other actions, such as railroad maintenance, fuelwood cutting, public recreational use and Christmas tree cutting may contribute only incidental effects on *Eriastrum tracyi*, if any (Bald PORFFA, Bald Project Record). Ongoing and future actions on adjacent private lands may also add cumulatively to those affects from the implementation of Alternative 1, but since survey requirements and mitigations are not known on these lands, the type and extent of impacts to *Eriastrum tracyi* or its potential habitat cannot be quantified.

As with ongoing actions, future actions such as timber harvest, site preparation, machine piling, pile burning, and reforestation activities within the fire-affected area (Bald PORFFA, Bald Project Record) would be surveyed to similar standards as previous projects to ensure that any impacts to Sensitive plant species are either beneficial or mitigated so that the long-term viability of each Sensitive plant species on the forest is maintained. In addition, livestock grazing may contribute future impacts to Sensitive plants and

habitat. Presently there are four active allotments within the fire-affected area; however, project IDF and forest standards and guidelines stipulate that grazing would be deferred until desired vegetation conditions are established (LRMP). Desired vegetative conditions means all rangelands are in satisfactory or better ecological condition with stable or upward trends (Bald Project Range Report). Following fuels reduction treatments, suitable habitat for *Eriastrum tracyi* that may have been protected from cattle could be opened up to livestock trailing between pastures. Sensitive plants and habitat could be negatively impacted by defecation and trampling. However, native shrubs would eventually grow large enough to prevent livestock from accessing all areas within the project. Thus, short-term effects from livestock grazing may occur in subsequent years in the form of trampling damage and add cumulatively to the actions proposed under Alternative 1, but only if cattle were to trail through occurrences of *Eriastrum tracyi*.

Past, ongoing and reasonably foreseeable future actions may add cumulatively to the direct and indirect effects of Alternative 1 as described above. The implementation of Alternative 1 may result in direct effects to unknown *Eriastrum tracyi* occurrences and potential habitat, but these effects are expected to be minimal and short-term. Short-term indirect effects from the reduction in canopy cover and soil disturbance may be beneficial to *Eriastrum tracyi* occurrences, while long-term adverse indirect effects from reforestation activities and invasive plant establishment on potential habitat for *Eriastrum tracyi* may occur; however, these effects would be minimized with the implementation of Bald Project IDF's. Although project effects may add cumulatively to the effects of past, ongoing and future actions on *Eriastrum tracyi*, these effects would not lead to a loss of viability for this species within the fire-affected area or across the LNF for at least the next 20 years.

Alternative 2 – No Action

A. Direct Effects

There would be no direct effects to *Eriastrum tracyi* other than those associated with ongoing activities.

B. Indirect Effects

Indirect effects from Alternative 2 would be those associated with post-fire habitat succession and the future risk of invasive plant establishment and spread. In the absence of Alternative 1, post-fire habitat succession within areas that burned under moderate to high intensities would favor shrub and forb species prior to the re-establishment of a tree canopy. In the absence of reforestation activities under Alternative 1, delayed establishment of tree canopy cover would therefore constitute a beneficial indirect effect to *Eriastrum tracyi* that occurs in areas with little to no remaining canopy cover; although this effect would be at least partially offset by the establishment and cover of shrubs that may compete with this species for light and resources.

Under Alternative 2, the threat of invasive plant spread and establishment may constitute an adverse indirect effect to *Eriastrum tracyi*. The Invasive Plant Species Risk Assessment for the Bald Project (Bald Project Record) determined that current habitat vulnerability to invasive plants was high, due to the lack of surface vegetation and duff and a reduction in overstory cover in the fire-affected area where the Bald Fire burned at moderate to high intensities. Under the No Action Alternative, reforestation activities that would accelerate the re-establishment of tree canopy cover that may inhibit the growth and reproductive success of invasive plants would not occur. The persistence of early seral habitats under Alternative 2 constitutes a potential adverse indirect effect to *Eriastrum tracyi* if invasive plants were to be introduced into new areas,

due to the suitability of this habitat to invasive plants. Currently there are several known invasive plant occurrences within the fire-affected area which have the potential to spread into habitat rendered vulnerable by the Bald Fire and associated suppression activities, including disturbed areas that may be suitable habitat for *Eriastrum tracyi*. However under this alternative, hazard trees would be treated non-commercially, meaning these hazards would be dealt with as they develop by forest staff. This would almost certainly be a burden to the forest workforce and budget, which may result in area closures where the number and density of hazard trees is sufficient to present an immediate risk to public safety if the forest is unable to eliminate these hazards in a timely manner. While these closures are active, they would reduce the risk of weed spread and establishment by vehicles operated by the public in certain sections, but the risk of spread would still exist in other portions of fire-affected area.

Overall, *Eriastrum tracyi* may sustain detrimental indirect effects from invasive plants and partially beneficial effects from post-fire habitat succession under Alternative 2.

C. Cumulative Effects

The scope of analysis and the effects of past, ongoing and future foreseeable actions under Alternative 2 would be identical to those discussed for Alternative 1, with the exception of the effects of future livestock grazing discussed below. The implementation of Alternative 2 would not result in direct effects to *Eriastrum tracyi* occurrences. Therefore, past, ongoing and reasonably foreseeable future actions would add cumulatively only to the indirect effects of Alternative 2 as described above. These include the partially beneficial indirect effects of post-fire habitat succession on *Eriastrum tracyi* in areas that burned at moderate to high intensities in the Bald Fire and the potential negative effects from and invasive plant spread and establishment.

Under Alternative 2, livestock grazing would still be deferred until desired vegetation conditions are established, commensurate with forest standards and guidelines (LRMP). *Eriastrum tracyi* occurrences and habitat may benefit with added protection from livestock impacts in the absence of salvage harvest and fuels treatments under this alternative. Post-fire habitat succession would continue and non-hazard trees killed by fire would be left in place and eventually fall over, adding to the accumulation of downed tree limbs and partially burned vegetation already present within the fire-affected area. The resulting fuel loads may provide barriers to livestock, creating sites that may protect *Eriastrum tracyi* plants from potential trampling damage when livestock grazing resumes within the fire area. However, the accumulation of heavy fuel loads may prevent the potential introduction and establishment of *Eriastrum tracyi* in some areas. Still, future effects on Sensitive plants from livestock grazing under the No Action Alternative could be less than those that may occur under Alternative 1.

In summary, there would be no direct effects from this alternative on *Eriastrum tracyi* and this species may sustain detrimental indirect effects from invasive plants and partially beneficial effects from post-fire habitat succession and a reduction in future impacts from livestock grazing. Therefore, *Eriastrum tracyi* may sustain negative effects with the implementation of Alternative 2, but it is not expected to affect the viability of this species within the fire-affected area or across the Lassen NF for at least the next 20 years.

Alternative 3 – Road Hazard Only

A. Direct Effects

Direct effects to Sensitive plants and habitat would be similar to those discussed under Alternative 1, but to a lesser extent. Project activities would occur on a much smaller footprint, 4,736 acres under Alternative 3 compared to 14,363 acres under Alternative 1; therefore, the risk of project activities occurring within suitable habitat for *Eriastrum tracyi* or unknown occurrences that may be present in the fire-affected area would be reduced. Suitable habitat and potential occurrences could sustain direct effects from hazard tree felling and removal, especially considering this species has been found growing in volcanic cinder on LNF roads, and since many roads proposed for hazard treatment have been surfaced with this rock type, it follows that other occurrences may be present within these treatment units. Under Alternative 3, hazard trees would be removed and activity generated fuels would be treated but no reforestation activities would occur, resulting in the creation of small areas with bare mineral soil and little to no canopy cover or other competing vegetation. Therefore, damage to individual *Eriastrum tracyi* plants may result in short-term negative effects, but in the long-term, effects to this species may be beneficial where existing vegetation is removed and soils are exposed, creating new sites for these plants to colonize. However, since population viability thresholds have not been determined for *Eriastrum tracyi*, it is not possible to define at what point a disturbance effect would change from favorable to unfavorable. Nevertheless, this species has been found in disturbed areas, has an annual life cycle and may recover from the seed bank if individual plants are impacted during project activities. Furthermore, if new occurrences of this species are discovered before or during project implementation, they would be protected through flag and avoid methods as stipulated in Bald Project IDF's.

In summary, direct effects may be sustained by potential habitat or any *Eriastrum tracyi* occurrences missed by previous surveys where mechanical equipment is used during roadside hazard tree removal. However, these effects are expected to be short-term and minimal with the implementation of IDF's and in consideration of the inherent tolerance of many annual plant species to short-term ground disturbance.

B. Indirect Effects

Indirect effects from Alternative 3 would be those associated with the felling of roadside hazard trees, post-fire habitat succession, the use of Sporax® and the risk of invasive plant introduction and establishment. The felling of roadside hazard trees may benefit *Eriastrum tracyi* by increasing available sunlight to the forest floor and creating disturbed areas with bare mineral soil for these plants to potentially colonize. Post-fire habitat succession within areas that burned under moderate to high intensities would favor shrub and forb species prior to the re-establishment of a tree canopy. Since no reforestation activities would occur under Alternative 3, delayed establishment of tree canopy cover would constitute a beneficial indirect effect to *Eriastrum tracyi* that occurs in areas with little to no canopy cover; although this effect would be at least partially offset by the establishment and cover of shrubs that may compete with this species for light and resources.

Sporax® treatment for annosus root disease is also proposed for use under Alternative 3 and would be applied to fresh-cut conifer stumps 14 inches in diameter or greater. Indirect effects from the application of

Sporax® on *Eriastrum tracyi* would be similar to those associated with Alternative 1 but to a smaller degree since this product would only be used within hazard tree units.

Potential indirect effect to *Eriastrum tracyi* occurrences from the introduction and establishment of invasive plant species or other undesirable non-native species would be similar to those discussed under Alternative 1 but to a smaller degree. The footprint of the treatment area would be considerably less under Alternative 3; therefore, the threat of invasive plant spread into native plant communities from project-related activities would be reduced. In addition, post-project invasive plant monitoring may be more effective under this Alternative since project activities would be confined to a smaller area and new infestations may be found and eradicated more quickly, since they would occur within the corridor of the established transportation system.

Overall, indirect effects to Sensitive plants and habitat may occur as a result of project-related activities from soil disturbance, post-fire habitat succession, the use of Sporax® and spread of invasive plants; some of these effects are expected to be beneficial, while potential adverse effects would be reduced with the implementation of project IDFs.

C. Cumulative Effects

Cumulative effects would result when the direct and/or indirect effects of Alternative 3 on a given species add incrementally to the effects of past, present, and reasonably foreseeable future actions. These past, present and reasonably foreseeable future actions would be identical to those discussed under Alternative 1, with the exception of the effects of future livestock grazing discussed below.

As with Alternative 1, livestock grazing would be deferred in accordance with project IDFs and forest standards and guidelines. Cumulative effects from livestock grazing would be similar to those discussed under Alternative 1 but to a smaller degree. The footprint of the treatment area would be considerably less under Alternative 3; therefore, there would be large accumulations of fuels in areas outside of the hazard tree units. These heavy fuel loads may provide *Eriastrum tracyi* with protection from livestock trampling, but may also prevent this species from potentially establishing in other areas disturbed by fire. Therefore, future impacts on Sensitive plants from livestock grazing may occur under Alternative 3, but these effects are expected to be less than those that may occur under Alternative 1.

Past, ongoing and foreseeable future actions may add cumulatively to the direct and indirect effects of Alternative 3 as described above. The implementation of Alternative 3 could result in direct effects to *Eriastrum tracyi*, but these effects are expected to be minimal and short-term. Indirect effects from soil disturbance, post-fire habitat succession, the use of Sporax® and spread of invasive plants may occur, but some of these effects are expected to be beneficial, while potential adverse effects would be reduced with the implementation of project IDFs. Although project effects may add cumulatively to the effects of past, ongoing and future actions on *Eriastrum tracyi*, these effects would not lead to a loss of viability for this species within the Bald Project area or across the LNF for at least the next 20 years.

VII. DETERMINATIONS

With the incorporation of project Integrated Design Features, I have determined that the implementation of Alternatives 1 and 3 may effect individuals of *Eriastrum tracyi*, but are not likely to result in a trend toward Federal listing as Threatened or Endangered or a loss of viability for this species.

VIII. COMPLIANCE WITH FOREST PLAN AND OTHER REGULATORY DIRECTION

All alternatives for the Bald Project are consistent with the Forest Plan (USDA Forest Service 1993) and other direction with regard to R5 Forest Service Sensitive plant species and their habitats.

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Appendix A
Determinations and Rationales for Federally Listed (FT/FE) and
Region 5 Forest Service Sensitive (S) Plant Species
Bald Fire Salvage and Restoration Project

Species	Status*	Determination**	Rationale:
<i>Limnathes floccosa</i> ssp. <i>californica</i> (woolly meadowfoam)	FE	Not Analyzed	Low-elevation westside vernal pool habitat below 3000 ft. not present in fire-affected area.
<i>Orcuttia tenuis</i> (slender Orcutt grass)	FT	Not Analyzed	Vernal pool habitat from 4900-5760 ft., including designated critical habitat, not present in fire-affected area.
<i>Tuctoria greenei</i> (Greene's tuctoria)	FE	Not Analyzed	Vernal pool habitat from 4900-5760 ft., including designated critical habitat, not present in fire-affected area.
<i>Astragalus pulsiferae</i> var. <i>suksdorfii</i> (Suksdorf's milk-vetch)	S	Not Analyzed	Habitat of sandy volcanic soil in sagebrush or pines from 4500-6500 ft. not present in fire-affected area.
<i>Boechea constancei</i> (Constance's rock cress)	S	Not Analyzed	Habitat of serpentine soils or rock outcrops from 3500-6750 ft. not present in fire-affected area.
<i>Botrychium ascendens</i> (upswept moonwort)	S	Not Analyzed	Habitat of perennially wet springs, seeps, and streambanks in mixed coniferous forests from 5200-6240 ft. not present in fire-affected area.
<i>Botrychium crenulatum</i> (scalloped moonwort)	S	Not Analyzed	Habitat of perennially wet springs, seeps, and streambanks in mixed coniferous forests from 5040-6000 ft. not present in fire-affected area.
<i>Botrychium lunaria</i> (common moonwort)	S	Not Analyzed	Habitat of moist subalpine meadows, stream banks, springs or seeps from 7000-10000 ft. not present in the fire-affected area.
<i>Botrychium minganense</i> (Mingan moonwort)	S	Not Analyzed	Habitat of perennially wet springs, seeps, and streambanks in mixed coniferous forests from 5240-6250 ft. not present in fire-affected area.
<i>Botrychium montanum</i> (western goblin)	S	Not Analyzed	Habitat of perennially wet springs, seeps, and streambanks in mixed coniferous forests from 5200-6250 ft. not present in fire-affected area.
<i>Botrychium pinnatum</i> (northwestern moonwort)	S	Not Analyzed	Habitat of perennially wet springs, seeps, and streambanks in mixed coniferous forests from 5200-6250 ft. not present in fire-affected area.
<i>Bruchia bolanderi</i> (Bolander's bruchia)	S	Not Analyzed	Habitat of bare soil along westside montane stream banks in mixed conifer forests from 3800-8200 ft. not present in the fire-affected area.
<i>Buxbaumia viridis</i> (green bug-on-a-stick)	S	Not Analyzed	Habitat of highly decayed logs, peaty soil or humus in westside, moist, shaded conditions not present in the fire-affected area.
<i>Calochortus longebarbatus</i> var. <i>longebarbatus</i> (long haired star tulip)	S	Not Analyzed	Habitat of eastside seasonally wet meadows north of Highway 299 (Hat Creek Ranger Dist.) from 4000-6300 ft. not present in fire-affected area.

Species	Status*	Determination**	Rationale:
<i>Clarkia gracilis</i> ssp. <i>albicaulis</i> (white-stemmed clarkia)	S	Not Analyzed	Habitat of low elevation westside foothill open areas from 500-3600 ft. not present in fire-affected area.
<i>Clarkia mildrediae</i> ssp. <i>mildrediae</i> (Mildred's clarkia)	S	Not Analyzed	Habitat of sandy, often granitic or disturbed soils in lower montane mixed conifer forests from 1500-5200 ft. not present in fire-affected area.
<i>Collomia larsenii</i> (talus collomia)	S	Not Analyzed	Alpine fell-field habitat from 7250-11500 ft. not present in fire-affected area.
<i>Cryptantha crinita</i> (silky cryptantha)	S	Not Analyzed	Habitat of foothill gray pine forest and blue oak woodlands below 3700 ft. near the Ishi Wilderness not present in fire-affected area.
<i>Cypripedium fasciculatum</i> (clustered lady's-slipper)	S	Not Analyzed	Habitat of mid- to late-seral westside mixed conifer forest not present in fire-affected area.
<i>Cypripedium montanum</i> (mountain lady's-slipper)	S	Not Analyzed	Habitat of moist mixed coniferous forest and riparian areas with high canopy cover from 2800-6000 ft. and north of Burney (Hat Creek RD) not present in fire-affected area.
<i>Eremogone cliftonii</i> (Clifton's sandwort)	S	Not Analyzed	Open habitat among mixed conifers or manzanita or in meadow, typically on granitic soil with limited organic material, at 1500-5800 ft. not present in fire-affected area.
<i>Eriastrum tracyi</i> (Tracy's eriastrum)	S	May Affect Not Likely	Habitat of open chaparral north of Hwy. 44 and below 4500 ft. present in fire-affected area. Species known to occur within fire-affected area.
<i>Eriogonum prociduum</i> (prostrate buckwheat)	S	Not Analyzed	Habitat of open, dry, rocky, volcanic soils in eastside pine forest, juniper woodlands, or low sage from 4200-8200 ft. surveyed not present in fire-affected area.
<i>Eriogonum spectabile</i> (Barron's buckwheat)	S	Not Analyzed	Habitat of glaciated andesite soil in open red fir/lodgepole forest from 6600-6640 ft. not present in fire-affected area.
<i>Frangula purshiana</i> ssp. <i>ultramafica</i> (Caribou coffeeberry)	S	Not Analyzed	Habitat of shallow, rocky ultramafic soil covered primarily with shrubs, at elevations from 2700-6330 ft. not present in fire-affected area.
<i>Fritillaria eastwoodiae</i> (Butte County fritillary)	S	Not Analyzed	Habitat of lower westside mixed conifer or brushy areas from 100-4000 ft. not present in fire-affected area.
<i>Helodium blandowii</i> (Blandow's bog moss)	S	Not Analyzed	Habitat of wet meadows, seeps or fens in westside subalpine coniferous forest or alpine lakes from 6000-8100 ft. not present in fire-affected area
<i>Juncus leiospermus</i> var. <i>leiospermus</i> (Red Bluff dwarf rush)	S	Not Analyzed	Habitat of lower elevation vernal pool or seasonally wet flats north of Hwy 299 and from 175-3300 ft. not present in fire-affected area.
<i>Juncus luciensis</i> (Santa Lucia dwarf rush)	S	Not Analyzed	Habitat of wet, sandy soils in open areas from 980-7000 ft. not present in fire-affected area.

Species	Status*	Determination**	Rationale:
<i>Lewisia kelloggii</i> ssp. <i>hutchisonii</i> (Hutchison's lewisia)	S	Not Analyzed	Habitat of ridge tops or relatively flat, open areas with bare, rocky soil at moderately high elevations from 5100-7000 ft. in Sierra Nevada not present in fire-affected area.
<i>Limnanthes floccosa</i> ssp. <i>bellingeriana</i> (Bellinger's meadowfoam)	S	Not Analyzed	Habitat of seasonally wet areas in oak or oak/juniper woodlands below 3600 ft. and north of Highway 299 not present in fire-affected area.
<i>Lomatium roseanum</i> (adobe parsley)	S	Not Analyzed	Habitat of shallow, rocky soil on open, wind-swept ridge tops on the Diamond Mountains from 5880-7280 ft. not present in the fire-affected area.
<i>Meesia uliginosa</i> (broad-nerved hump moss)	S	Not Analyzed	Species and habitat of moist logs in westside fens not present in fire-affected area.
<i>Mimulus evanescens</i> (ephemeral monkeyflower)	S	Not Analyzed	Habitat of seasonal lake margins, streambanks, or wet areas in eastside pine or sagebrush/juniper vegetation from 3900-5580 ft. surveyed in past, but species not present in fire-affected area.
<i>Monardella follettii</i> (Follett's monardella)	S	Not Analyzed	Habitat of serpentine soils from 4000-6500 ft. not present in fire-affected area.
<i>Oreostemma elatum</i> (Plumas alpine aster)	S	Not Analyzed	Habitat of westside fens or very wet meadows from 3800-6200 ft not present in fire-affected area.
<i>Packera eurycephala</i> var. <i>lewisrosei</i> (cut-leaved ragwort)	S	Not Analyzed	Habitat of serpentine soils in mixed coniferous forest from 4100-6240 ft. not present in fire-affected area.
<i>Peltigera gowardii</i> <i>Goward's waterfan</i>	S	Not Analyzed	Habitat of cool, clear, shallow, spring-fed westside streams not present in fire-affected area
<i>Penstemon personatus</i> (closed-throated beardtongue)	S	Not Analyzed	Habitat of north-facing slopes with a substantial red fire component on the southern edge of the Almanor RD from 4000-6500 ft. not present in fire-affected area.
<i>Penstemon sudans</i> (Susanville beardtongue)	S	Not Analyzed	Habitat of open, often rocky, volcanic soils in juniper woodlands or yellow pine forests near Susanville from 3900-5600 ft. not present in fire-affected area.
<i>Phacelia inundata</i> (playa phacelia)	S	Not Analyzed	Habitat of eastside subalkaline flats from 5000-6600 ft. not present in fire-affected area.
<i>Pinus albicaulis</i> (whitebark pine)	S	Not Analyzed	Generally open habitat above 6500 ft. not present in fire-affected area.
<i>Poa sierrae</i> (Sierra bluegrass)	S	Not Analyzed	Habitat of moist, shady slopes, often with mossy rocks, from 1150-5000 ft. not present in fire-affected area.
<i>Pyrrocoma lucida</i> (sticky goldenweed)	S	Not Analyzed	Habitat of open, vernal wet drainages, swales, or flats south of Highway 36 from 2290-6730 ft. not present in fire-affected area.
<i>Rorippa columbiae</i> (Columbia yellow cress)	S	Not Analyzed	Habitat of large, open, seasonally wet eastside flats (playas) from 4000-5950 ft. not present in fire-affected area.

Species	Status*	Determination**	Rationale:
<i>Rupertia hallii</i> (Hall's rupertia)	S	Not Analyzed	Habitat of lower westside mixed coniferous forest in Campbellville/ Butte Meadows/Onion Butte area below 4800 ft. (Almanor RD) not present in fire-affected area.
<i>Scheuchzeria palustris</i> (American scheuchzeria)	S	Not Analyzed	Habitat of floating sphagnum fens in cold, moderately high elevation lakes from 3000-9000 ft. not present in fire-affected area.
<i>Sedum albomarginatum</i> (Feather River stonecrop)	S	Not Analyzed	Habitat of serpentine rock outcrops from 1500-6400 ft. not present in fire-affected area.
<i>Silene occidentalis</i> ssp. <i>longistipitata</i> (long-stiped campion)	S	Not Analyzed	Habitat of openings in mid-elevation, westside mixed coniferous forests from 3300-6100 ft. not present in fire-affected area.
<i>Thelypodium howellii</i> ssp. <i>howellii</i> (Howell's thelypody)	S	Not Analyzed	Habitat of alkaline meadows, seeps and pastures or sagebrush/rabbitbrush scrub from 4100-6700 ft. surveyed not present in fire-affected area.

*Status: FE = Federal Endangered; FT = Federal Threatened; S = Forest Service Sensitive

Determinations: **Not Analyzed = Species and Its Habitat Not Known from the Fire-affected area; **No Effect** = Would Not Affect the Species; **May Affect Not Likely** = May Affect Individuals or Habitat, But Not Likely to Result in a Trend toward Federal Listing or Loss of Viability for the Species