



United States
Department of
Agriculture
Forest
Service

July 2015



Amendment to the Botany Report

Westside Fire Recovery Project

Happy Camp Oak Knoll and Salmon/Scott River Ranger Districts,
Klamath National Forest
Siskiyou County, California

For Information Contact: Marla Knight
1711 South Main Street, Yreka, CA
530-842-4425

Non-Discrimination Policy

The U.S. Department of Agriculture (USDA) prohibits discrimination against its customers, employees, and applicants for employment on the bases of race, color, national origin, age, disability, sex, gender identity, religion, reprisal, and where applicable, political beliefs, marital status, familial or parental status, sexual orientation, or all or part of an individual's income is derived from any public assistance program, or protected genetic information in employment or in any program or activity conducted or funded by the Department. (Not all prohibited bases will apply to all programs and/or employment activities.)

To File an Employment Complaint

If you wish to file an employment complaint, you must contact your agency's EEO Counselor (PDF) within 45 days of the date of the alleged discriminatory act, event, or in the case of a personnel action. Additional information can be found online at www.ascr.usda.gov/complaint_filing_file.html.

To File a Program Complaint

If you wish to file a Civil Rights program complaint of discrimination, complete the [USDA Program Discrimination Complaint Form](#) (PDF), found online at www.ascr.usda.gov/complaint_filing_cust.html, or at any USDA office, or call (866) 632-9992 to request the form. You may also write a letter containing all of the information requested in the form. Send your completed complaint form or letter to us by mail at U.S. Department of Agriculture, Director, Office of Adjudication, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, by fax (202) 690-7442 or email at program.intake@usda.gov.

Persons with Disabilities

Individuals who are deaf, hard of hearing or have speech disabilities and you wish to file either an EEO or program complaint please contact USDA through the Federal Relay Service at (800) 877-8339 or (800) 845-6136 (in Spanish).

Persons with disabilities who wish to file a program complaint, please see information above on how to contact us by mail directly or by email. If you require alternative means of communication for program information (e.g., Braille, large print, audiotape, etc.) please contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

Table of Contents

I.	Summary of Modifications between Draft and Final EIS.....	1
II.	Environmental Consequences of Modified Alternatives	2
	Methods.....	2
	Modified Alternative 2.....	2
	Environmental Consequences.....	2
	Project Area A: Beaver Fire.....	2
	Project Area B: Happy Camp Complex.....	3
	Project Area C: Whites Fire.....	3
	Compliance with Law, Policy and the Forest Plan.....	3
	Modified Alternative 3.....	4
	Environmental Consequences.....	4
	Project Area A: Beaver Fire.....	4
	Project Area B: Happy Camp Complex.....	4
	Project Area C: Whites Fire.....	5
	Compliance with Law, Policy and the Forest Plan.....	5
III.	Modification of Environmental Consequences by Fire Area since the Draft EIS.....	6
	Affected Environment.....	6
	Project Area A: Beaver Fire.....	6
	Project Area B: Happy Camp Complex.....	7
	Project Area C: Whites Fire.....	8
	Environmental Consequences.....	8
	Alternative 1.....	8
	Direct Effects, Indirect and Cumulative Effects.....	8
	Project Area A: Beaver Fire.....	8
	Project Area B: Happy Camp Complex.....	9
	Project Area C: Whites Fire.....	9
	Alternative 2.....	11
	Direct Effects, Indirect and Cumulative Effects.....	11
	Project Area A: Beaver Fire.....	11
	Project Area B: Happy Camp Complex.....	11
	Project Area C: Whites Fire.....	12
	Alternative 3.....	12

Direct Effects, Indirect and Cumulative Effects	12
Project Area A: Beaver Fire.....	12
Project Area B: Happy Camp Complex.....	12
Project Area C: Whites Fire.....	13
Alternative 4.....	13
Direct Effects, Indirect and Cumulative Effects	13
Project Area A: Beaver Fire.....	13
Project Area B: Happy Camp Complex.....	14
Project Area C: Whites Fire.....	14
Alternative 5.....	15
Direct Effects, Indirect and Cumulative Effects	15
Project Area A: Beaver Fire.....	15
Project Area B: Happy Camp Complex.....	15
Project Area C: Whites Fire.....	15
Summary of Effects	16
Compliance with law, regulation, policy, and the Forest Plan	17
Additional Literature Cited.....	18

List of Tables

Table 3-11. Number of Sensitive botanical species populations that may be affected by project activities for each alternative. 9

Table 3-12. Number of Survey and Manage botanical populations that may be affected by project activities for each alternative. 10

Table 3-13. Number of Non-native Invasive species populations that may be affected by project activities for each alternative. 10

Table 3-14: Summary of Effects by analysis indicator for the Beaver Fire Area 16

Table 3-15: Summary of Effects by analysis indicator for the Happy Camp Fire Area 16

Table 3-16: Summary of Effects by analysis indicator for the Whites Fire Area 17

I. Summary of Modifications between Draft and Final EIS

It was clarified in Chapter 3 of the Environmental Impact Statement that botanical species of concern are assumed to be dead if located in areas that experienced moderate to high vegetation mortality, as indicated by RAVG data. This assumption is being field verified.

Threatened, Endangered and Proposed Species

Suitable oak-chaparral habitat was surveyed for the Endangered *Fritillaria gentneri* in April 2015 in the Beaver fire area, however; no populations were located. Specific details can be found in Section III of this Amendment.

Sensitive Species

Alterations to unit boundaries occurred based on public scoping and the consultation process. These alterations did not result in any changes to the populations of Sensitive species present within activity units for Alternatives 1-5. These changes will not influence the methodology used to assess effects on botanical resources in the Botany Resource Report. Effects to Sensitive species as a result of Modified Alternative 2 and 3 are discussed in Section II of this Amendment.

Affects to *E. hirtellum* populations from project activities were clarified in Chapter 3 of the Environmental Impact Statement and in Section III of this Amendment.

It was clarified in Chapter 3 of the Environmental Impact Statement, that following surveys in spring 2015 some populations of *E. hendersonii* were located in burned areas. Burns have been shown to benefit the vigor of *Erythronium* species.

The beneficial effects of disturbance to *Thermopsis robusta* were clarified in Chapter 3 of the Environmental Impact Statement. Specifically, disturbance is beneficial to *Thermopsis robusta* populations by scarifying the seed coat which increases the germination rate and by creating openings in Forest environments which creates more suitable habitat allowing for population growth and increased seedling vigor.

Survey & Manage

Alterations to unit boundaries occurred based on public scoping and the consultation process. These alterations resulted in a decrease in the number of Survey & Manage populations that are present within activity units for Alternatives 1-5 (described in detail in Section III). Effects to Survey & Manage species as a result of Modified Alternative 2 and 3 are discussed in Section II of this Amendment.

A change in how Survey & Manage botanical populations in Category C and D will be managed during this project were made between the draft and final Environmental Impact Statement. Survey & Manage Category C and D species require the management of high priority sites. Previously, the Botany Resource Report stated that populations of Category C and D botanical species would be protected if they were considered high priority. However; because no high priority sites have been designated on the Klamath National Forest all Category C and D botanical populations within project activity units and on the Klamath National Forest will be considered high priority and subsequently protected for site persistence.

It was clarified in Chapter 3 of the Environmental Impact Statement that pre-disturbance surveys are not required for routine maintenance which includes the falling of hazard trees as directed by what is defined as habitat-disturbing activities. Regardless, every effort will be made to protect suitable habitat and known populations that may be affected by roadside hazard tree removal activities.

Cultural Plant Collecting Areas

Potential impacts to beargrass populations were added to Chapter 3 of the Westside Fire Recovery Environmental Impact Statement.

Non-native Invasive Species

Alterations to unit boundaries, based on public scoping and the consultation process, did affect which known infestations are present within activity units for Alternatives 1-5 (described in detail in Section III). These changes will not influence the methodology used to assess the risk of introducing and spreading non-native invasive species as described in the Botany Resource Report. Effects on non-native invasive species infestations as a result of Modified Alternative 2 and 3 are discussed in Section II of this Amendment.

II. Environmental Consequences of Modified Alternatives

Methods

The methods used for this analysis can be found in detail in the Botanical Resources and Non-Native Invasive Species Report for the Westside Fire Recovery project.

Modified Alternative 2

Environmental Consequences

Project Area A: Beaver Fire

Direct Effects, Indirect Effects, Cumulative Effects

Sensitive Species

This alternative will have the same direct, indirect, and cumulative affects to Sensitive species in the Beaver fire area as Alternative 2 and the same Project design features will be incorporated to mitigate those effects.

Survey & Manage Species

This alternative will have the same direct, indirect, and cumulative affects to Survey & Manage species in the Beaver fire area as Alternative 2 and will incorporate the same Project design features to mitigate those effects.

Non-native Invasive Species

Direct, indirect, and cumulative effects from this alternative to the risk of spread and introduction of non-native invasive species (NNIS) infestations within the Beaver fire area will be the same as for Alternative 2, and the same Project design features will be incorporated to mitigate effects.

Project Area B: Happy Camp Complex

Direct Effects, Indirect Effects, Cumulative Effects

Sensitive Species

This alternative will have the same direct, indirect, and cumulative affects to Sensitive species in the Happy Camp fire area as Alternative 2 and the same Project design features will be incorporated to mitigate those effects.

Survey & Manage Species

This alternative will have the same direct, indirect, and cumulative affects to Sensitive species in the Happy Camp fire area as Alternative 2, and the same Project design features will be incorporated to mitigate effects to known populations.

Non-native Invasive Species

Direct, indirect, and cumulative effects from this alternative to the risk of spread and introduction of non-native invasive species (NNIS) infestations within the Happy Camp Complex fire area will be the same as for Alternative 2, and the same Project design features will be incorporated to mitigate effects.

Project Area C: Whites Fire

Direct Effects, Indirect Effects, Cumulative Effects

Sensitive Species

This alternative will have the same direct, indirect, and cumulative affects to Sensitive species in the Whites fire area as Alternative 2 and the same Project design features will be incorporated to mitigate effects to known populations.

Survey & Manage Species

This alternative will have the same direct, indirect, and cumulative affects to Sensitive species in the Whites fire area as Alternative 2, and the same Project design features would be incorporated to mitigate effects to known populations.

Non-native Invasive Species

Direct, indirect, and cumulative effects from this alternative to the risk of spread and introduction of non-native invasive species (NNIS) infestations within the Whites fire area will be the same as for Alternative 2, and the same Project design features will be incorporated to mitigate effects.

Compliance with Law, Policy and the Forest Plan

Threatened, Endangered, and Sensitive Botanical Species: The Westside Fire Recovery project complies with section 7 of the Endangered Species Act of 1973, as amended, in the preparation of a Biological Assessment and Biological Evaluation and the disclosure of effects; Forest Service Policy (FSM 2670), and Klamath National Forest Plan Standards and Guidelines for Sensitive plant species have been met by managing populations for viability.

Survey & Manage Plants: The Westside Fire Recovery project complies with the 2001 Record of Decision and Standards and Guidelines for Amendments to the Survey & Manage, Protection

Buffer, and other Mitigation Measures Standards and Guidelines by preparing an assessment and documenting effects (USDA 2014a).

Non-native Invasive Species: The Westside Fire Recovery project complies with Forest Service Manual 2900 and Forest Plan Standards and Guidelines for Non-native invasive species by preparing the Noxious Weed Risk Assessment, and providing Project design features to mitigate risk of introduction and spread.

Modified Alternative 3

Environmental Consequences

Project Area A: Beaver Fire

Direct Effects, Indirect Effects, Cumulative Effects

Sensitive Species

This alternative will have the same direct, indirect, and cumulative affects to Sensitive species in the Beaver fire area as Alternative 2 and the same Project design features will be incorporated to mitigate those effects.

Survey & Manage Species

There would no longer be any effects to *Ptilidium californicum* populations in the Beaver Fire area under this alternative (Table 3.12). The direct, indirect, and cumulative affects to Survey & Manage botanical populations still located within activity units will be the same as for Alternative 2 and the same Project design features will be incorporated to protect species viability.

Non-native Invasive Species

Direct, indirect, and cumulative effects from this alternative on the risk of spread and introduction of NNIS infestations within the Beaver fire area would be the same as for Alternative 2, except fewer populations of *Centaurea solstitialis* and *Isatis tinctoria* would be located within project activity units (Table 3.13). The decrease in risk will be very minimal and not enough to lower the risk rating from high due to the highly vulnerable condition of the habitat. The same Project design features will be incorporated to mitigate effects.

Project Area B: Happy Camp Complex

Direct Effects, Indirect Effects, Cumulative Effects

Sensitive Species

This alternative will have the same direct, indirect, and cumulative affects to *Erythronium hendersonii* and *Thermopsis robusta* populations as Alternative 2 and will incorporate the same Project design features to mitigate those affects. The likelihood of effects from this alternative to *Eriogonum hirtellum* populations will be reduced because fewer populations are located within proposed activity units (Table 3.11). The direct, indirect, and cumulative affects to populations still located within activity units will be the same as for Alternative 2 and the same Project design features will be incorporated to protect species viability.

Survey & Manage Species

The likelihood of effects from this alternative to *Cypripedium fasciculatum* populations would be reduced in the Happy Camp Complex fire area because fewer populations are located within activity units (Table 3.12). The direct, indirect, and cumulative affects to Survey & Manage botanical populations still located within activity units will be the same as for Alternative 2 and the same Project design features will be incorporated to protect species viability.

Non-native Invasive Species

Direct, indirect, and cumulative effects from this alternative on the risk of spread and introduction of NNIS infestations within the Happy Camp Complex fire area would be the same as for Alternative 2, except fewer populations of *Euphorbia esula* (leafy spurge) would be located within project activity units (Table 3.13). The decrease in risk will be very minimal and not enough to lower the risk rating from high due to the highly vulnerable condition of the habitat. The same Project design features will be incorporated to mitigate effects.

Project Area C: Whites Fire

Direct Effects, Indirect Effects, Cumulative Effects

Sensitive Species

This alternative will have the same direct, indirect, and cumulative affects to Sensitive species in the Whites fire area as Alternative 2 and the same Project design features will be incorporated to mitigate effects to known populations.

Survey & Manage Species

The likelihood of effects from this alternative to *Cypripedium montanum* populations would be reduced in the Whites fire area because fewer populations are located within activity units (Table 3.12). The direct, indirect, and cumulative affects to Survey & Manage botanical populations still located within activity units will be the same as for Alternative 2 and the same Project design features will be incorporated to protect species viability.

Non-native Invasive Species

Direct, indirect, and cumulative effects from this alternative on the risk of spread and introduction of NNIS infestations within the Whites fire area would be the same as for Alternative 2, except fewer populations of *Centaurea maculosa* and *Isatis tinctoria* would be located within project activity units (Table 3.13). The decrease in risk will be very minimal and not enough to lower the risk rating from high due to the highly vulnerable condition of the habitat. The same Project design features will be incorporated to mitigate effects.

Compliance with Law, Policy and the Forest Plan

Threatened, Endangered, and Sensitive Botanical Species: The Westside Fire Recovery project complies with section 7 of the Endangered Species Act of 1973, as amended, in the preparation of a Biological Assessment and Biological Evaluation and the disclosure of effects; Forest Service Policy (FSM 2670), and Klamath National Forest Plan Standards and Guidelines for Sensitive plant species have been met by managing populations for viability.

Survey & Manage Plants: The Westside Fire Recovery project complies with the 2001 Record of Decision and Standards and Guidelines for Amendments to the Survey & Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines by preparing an assessment and documenting effects (USDA 2014a).

Non-native Invasive Species: The Westside Fire Recovery project complies with Forest Service Manual 2900 and Forest Plan Standards and Guidelines for Non-native invasive species by preparing the Noxious Weed Risk Assessment, and providing Project design features to mitigate risk of introduction and spread.

III. Modification of Environmental Consequences by Fire Area since the Draft EIS

Affected Environment

No changes to the general description of the affected environment were necessary between the draft and final Westside Fire Recovery Environmental Impact Statement. Clarification of affected environment by fire area is provided below.

Project Area A: Beaver Fire

The Beaver fire area was severely burned during the 2014 fires and has been heavily impacted by private salvage operations.

Threatened, Endangered and Proposed Species

Field surveys for *Fritillaria gentneri* were conducted in areas considered to be suitable habitat within the Beaver fire area (subpart A) on April 13th, 20th and 23rd 2015. Aerial photographs and past management activities followed by field verification were used to determine the presence of suitable habitat. Specifically, surveys were conducted in Township 47N, Range 8W, Section 28, Township 46N, Range 8W, Sections 6 and 2, and Township 46N, Range 9W, Section 12. No populations of *F. gentneri* were located during these surveys.

Sensitive Species

No known sensitive botanical species are present in this fire area (excepting *Cypripedium fasciculatum* and *C. montanum* which are being analyzed following Survey & Manage guidelines).

Survey & Manage Species

There are 5 Survey & Manage botanical species that are known to occur in the Beaver fire area. These include: *Alpova olivaceotinctus* (1 population), *Choiromyces alveolatus* (1 population), *Cypripedium fasciculatum* (3 populations), *Cypripedium montanum* (2 populations), and *Ptilidium californicum* (1 population).

Non-Native Invasive Species

There are 5 NNIS that are known to occur in the Beaver fire area. These include: *Cardaria chalapensis* (4 infested sites), *Cardaria draba* (1 infested site), *Centaurea solstitialis* (6 infested sites), *Isatis tinctoria* (6 infested sites), and *Tribulus terrestris* (1 infested site, river access site).

Project Area B: Happy Camp Complex

The Happy Camp Complex fire area is characterized by a mixed severity burn. Some areas, such as grider and walker creek drainages, were severely burned during the 2014 fires.

Threatened, Endangered and Proposed Species

There are no known populations of or suitable habitat present for any Threatened, Endangered, or Proposed species in the Happy Camp Complex fire area.

Sensitive Species

There are 3 Sensitive botanical species known to occur in the Happy Camp Complex fire area. These include: *Eriogonum hirtellum* (6 populations), *Erythronium hendersonii* (2 populations), and *Thermopsis robusta* (1 population).

Survey & Manage Species

There are 11 Survey & Manage botanical species that are known to occur in the Beaver fire area. These include: *Cantharellus subalbidus* (2 populations), *Cypripedium fasciculatum* (20 populations), *Cypripedium montanum* (14 populations), *Gomphus clavatus* (1 population), *Otidea leporina* (2 populations), *Phaeocollybia fallax* (1 population), *Phaeocollybia gregaria* (1 population), *Phaeocollybia olivacea* (2 populations), *Ptilidium californicum* (2 populations), *Ramaria abientina* (1 population), and *Tremiscus helvelloides* (2 populations).

Cultural Plant Collecting Areas

Beargrass leaves are harvested by many tribal groups for basketry and other crafts. The maintenance and perpetuation of cultural botanical resource is required by Forest Standard and Guideline 6-21. Beargrass is scattered across the project area and may overlap proposed project activity units along ridge tops, and in areas characterized by patches of open canopy and rocky ultramafic soils. Although, beargrass responds favorably to low to moderate fire; high intensity, duff-consuming fires will destroy the meristematic region subsequently killing the plants (Stickney 1981). Salvage and site preparation and planting units are in areas that experienced moderate to high vegetation mortality and in general the complete consumption of duff layers and therefore these activities are not anticipated to affect beargrass populations since they have likely been lost in these areas. Fuels treatments are aimed at reducing hazardous fuel loads and thinning dense stand while maintaining adequate duff layers and canopy cover. Beargrass responds favorably to low intensity fires which have historically been used by tribal groups to maintain optimum leaf strength for basketry (Hummel et al. 2012). Subsequently, fuel treatments are anticipated to have a positive effect on the viability of beargrass populations. On the Forest, beargrass can be also be found growing in young plantations and along skid roads indicating that it responds favorably to disturbances that open canopy cover. Therefore, roadside hazard treatments are not anticipated to impact the continuation of beargrass populations in the Project area, however, minor impacts to beargrass populations may occur from roadside hazard treatments due to mechanical disturbance to the rhizome and potential soil compaction.

Non-native Invasive Species

There are 8 NNIS known to occur in the Happy Camp Complex fire area. These include: *Centaurea maculosa* (9 infested sites), *Centaurea pratensis* (2 infested sites, mainly riverbar), *Centaurea solstitialis* (10 infested sites), *Centaurea squarrosa* (5 infested sites, mainly river

bar), *Cytisus scoparius* (18 infested sites), *Euphorbia esula* (55 infested sites, mainly river bar), *Isatis tinctoria* (38 infested sites), and *Lepidium latifolium* (11 infested sites).

Project Area C: Whites Fire

The Whites fire area is characterized by a mixed burn severity and is primarily within Late Successional Reserve management areas.

Threatened, Endangered and Proposed Species

There are no known populations of or suitable habitat present for any Threatened, Endangered, or Proposed species in the Whites fire area.

Sensitive Species

No known sensitive botanical species are present in this fire area (excepting *Cypripedium fasciculatum* and *C. montanum* which are being analyzed following Survey & Manage guidelines).

Survey & Manage Species

There are 8 Survey & Manage botanical species that are known to occur in the Beaver fire area. These include: *Albatrellus flettii* (1 population), *Cypripedium fasciculatum* (7 populations), *Cypripedium montanum* (7 populations), *Marasmius applanatipes* (1 population), *Mycena tenax* (1 population), *Phaeocollybia californica* (1 population), *Phaeocollybia olivacea* (1 population), and *Ptilidium californicum* (1 population).

Non-native Invasive Species

There are 4 NNIS known to occur in the Whites fire area. These include: *Centaurea maculosa* (13 infested sites), *Centaurea solstitialis* (1 infested site), *Cytisus scoparius* (3 infested sites), and *Isatis tinctoria* (9 infested sites).

Environmental Consequences

Alternative 1

Direct Effects, Indirect and Cumulative Effects

Project Area A: Beaver Fire

Sensitive Species

No changes in effects to Sensitive botanical species occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Beaver fire area.

Survey & Manage Species

No changes in effects to Survey & Manage botanical species occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Beaver fire area.

Non-native Invasive Species

No changes in the risk of spread and introduction of NNIS infestations occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Beaver fire area.

Project Area B: Happy Camp Complex*Sensitive Species*

No changes in effects to Sensitive botanical species occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Happy Camp fire area.

Survey & Manage Species

No changes in effects to Survey & Manage botanical species occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Happy Camp fire area.

Non-native Invasive Species

No changes in the risk of spread and introduction of NNIS infestations occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Happy Camp fire area.

Project Area C: Whites Fire*Sensitive Species*

No changes in effects to Sensitive botanical species occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Whites fire area.

Survey & Manage Species

No changes in effects to Survey & Manage botanical species occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Whites fire area.

Non-native Invasive Species

No changes in the risk of spread and introduction of NNIS infestations occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Whites fire area.

Table 3-11. Number of Sensitive botanical species populations that have the potential to be affected by project activities for each alternative.

Fire Area	Species	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Mod Alt 2	Mod Alt 3
Beaver	NA	0	0	0	0	0	0	0
Happy Camp	<i>Eriogonum hirtellum</i>	6	5	5	3	5	5	2
	<i>Erythronium hendersonii</i>	2	2	2	2	2	2	2
	<i>Thermopsis robusta</i>	1	1	1	1	1	1	1
Whites	NA	0	0	0	0	0	0	0

Table 3-12. Number of Survey and Manage botanical populations that have the potential to be affected by project activities for each alternative.

Fire Area	Species	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Mod Alt 2	Mod Alt 3
Beaver	<i>Alpova olivaceotinctus</i>	1	0	0	0	0	0	0
	<i>Choiromyces alveolatus</i>	1	0	0	0	0	0	0
	<i>Cypripedium fasciculatum</i>	3	2	2	2	3	2	2
	<i>Cypripedium montanum</i>	2	1	1	1	1	1	1
	<i>Ptilidium californicum</i>	1	1	1	1	1	1	0
Happy Camp	<i>Cantharellus subalbidus</i>	2	0	0	0	0	0	0
	<i>Cypripedium fasciculatum</i>	20	10	10	10	10	10	9
	<i>Cypripedium montanum</i>	14	7	7	7	7	7	7
	<i>Gomphus clavatus</i>	1	0	0	0	0	0	0
	<i>Otidea leporina</i>	2	1	1	1	1	1	1
	<i>Phaeocollybia fallax</i>	1	0	0	0	0	0	0
	<i>Phaeocollybia gregeria</i>	1	0	0	0	0	0	0
	<i>Phaeocollybia olivacea</i>	2	1	1	1	1	1	1
	<i>Ptilidium californicum</i>	2	1	1	1	1	1	1
	<i>Rameria abientina</i>	1	0	0	0	0	0	0
	<i>Tremiscus helvelloides</i>	2	1	1	1	1	1	1
Whites	<i>Albatrellus flettii</i>	1	1	1	1	1	1	1
	<i>Cypripedium fasciculatum</i>	7	6	6	6	6	6	6
	<i>Cypripedium montanum</i>	7	6	6	6	6	6	5
	<i>Marasmius applanatipes</i>	1	0	0	0	0	0	0
	<i>Mycena tenax</i>	1	0	0	0	0	0	0
	<i>Phaeocollybia californica</i>	1	1	1	1	1	1	1
	<i>Phaeocollybia olivacea</i>	1	1	1	1	1	1	1
	<i>Ptilidium californicum</i>	1	0	0	0	0	0	0

Table 3-13. Number of Non-native Invasive species populations that have the potential to be affected by project activities for each alternative.

Fire Area	Species	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Mod Alt 2	Mod Alt 3
Beaver	<i>Cardaris chalapensis</i>	4	0	0	0	0	0	0
	<i>Cardaria draba</i>	1	1	1	1	1	1	0
	<i>Centaurea solstitialis</i>	6	6	6	6	6	6	5
	<i>Isatis tinctoria</i>	6	6	6	6	6	6	5
	<i>Tribulus terrestris</i>	1	1	1	1	1	1	0
Happy Camp	<i>Centaurea maculosa</i>	9	5	5	5	5	5	2
	<i>Centaurea pratensis</i>	2	1	1	1	1	1	1
	<i>Centaurea solstitialis</i>	10	9	9	9	9	9	9
	<i>Centaurea squarrosa</i>	5	2	2	2	2	2	2
	<i>Cytisus scoparius</i>	18	14	14	14	14	14	11
	<i>Euphorbia esula</i>	55	24	24	24	24	24	6
	<i>Isatis tinctoria</i>	38	33	33	33	33	33	28

Fire Area	Species	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Mod Alt 2	Mod Alt 3
	<i>Lepidium latifolium</i>	11	4	4	4	4	4	1
Whites	<i>Centaurea maculosa</i>	13	13	13	13	13	13	12
	<i>Centaurea solstitialis</i>	1	1	1	1	1	1	1
	<i>Cytisus scoparius</i>	3	3	3	3	3	3	3
	<i>Isatis tinctoria</i>	9	9	9	9	9	9	8

Alternative 2

Direct Effects, Indirect and Cumulative Effects

Project Area A: Beaver Fire

Sensitive Species

No changes in effects to Sensitive botanical species occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Beaver fire area.

Survey & Manage Species

No changes in effects to Survey & Manage botanical species occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Beaver fire area.

Non-native Invasive Species

No changes in the risk of spread and introduction of NNIS infestations occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Beaver fire area.

Project Area B: Happy Camp Complex

Sensitive Species

No changes in effects to Sensitive botanical species occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Happy Camp fire area.

It was clarified that effects to *E. hirtellum* are anticipated to be minimal because these species occur in areas typically not characterized by conifer cover and therefore project activities should be extremely limited in areas that currently support or may provide suitable habitat for *E. hirtellum*. Additionally, the proposed use of helicopter salvage techniques in the overlapping unit would limit the likelihood of damage to suitable habitat from equipment entry.

Survey & Manage Species

Alterations to unit boundaries, based on public scoping and the consultation process, resulted in one known population of *Cypripedium montanum* no longer being within project activity units. Effects and project design features as described in the Botany Resource Report are unchanged for all other Survey & Manage botanical populations in the Happy Camp Complex fire area.

Non-native Invasive Species

Alterations to unit boundaries, based on public scoping and the consultation process, resulted in a minor reduction in the acres of NNIS infestations located within activity units in the Happy Camp Fire area. Additionally, one known infestation of *Euphorbia esula* is no longer within any

activity units. These alterations were very minimal and did not result in a lower risk rating for the spread and introduction of NNIS.

Project Area C: Whites Fire

Sensitive Species

No changes in effects to Sensitive botanical species occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Whites fire area.

Survey & Manage Species

Alterations to unit boundaries, based on public scoping and the consultation process, resulted in one known population of *Cypripedium montanum* no longer being within project activity units. Effects and project design features as described in the Botany Resource Report are unchanged for all other Survey & Manage botanical populations in the Whites fire area.

Non-native Invasive Species

Alterations to unit boundaries, based on public scoping and the consultation process, resulted in a minor reduction in the acres of NNIS infestations located within activity units in the Whites fire area. Additionally, one known infestation of *Centaurea solstitialis* is no longer within any activity units. These alterations were very minimal and did not result in a lower risk rating for the spread and introduction of NNIS.

Alternative 3

Direct Effects, Indirect and Cumulative Effects

Project Area A: Beaver Fire

Sensitive Species

No changes in effects to Sensitive botanical species occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Beaver fire area.

Survey & Manage Species

No changes in effects to Survey & Manage botanical species occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Beaver fire area.

Non-native Invasive Species

No changes in the risk of spread and introduction of NNIS infestations occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Beaver fire area.

Project Area B: Happy Camp Complex

Sensitive Species

No changes in effects to Sensitive botanical species occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Happy Camp fire area.

Survey & Manage Species

Alterations to unit boundaries, based on public scoping and the consultation process, resulted in one known population of *Cypripedium montanum* no longer being within project activity units. Effects and project design features as described in the Botany Resource Report are unchanged for all other Survey & Manage botanical populations in the Happy Camp Complex fire area.

Non-native Invasive Species

Alterations to unit boundaries, based on public scoping and the consultation process, resulted in a minor reduction in the acres of NNIS infestations located within activity units in the Happy Camp Fire area. Additionally, one known infestation of *Euphorbia esula* is no longer within any activity units. These alterations were very minimal and did not result in a lower risk rating for the spread and introduction of NNIS.

Project Area C: Whites Fire

Sensitive Species

No changes in effects to Sensitive botanical species occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Whites fire area.

Survey & Manage Species

Alterations to unit boundaries, based on public scoping and the consultation process, resulted in one known population of *Cypripedium montanum* no longer being within project activity units. Effects and project design features as described in the Botany Resource Report are unchanged for all other Survey & Manage botanical populations in the Whites fire area.

Non-native Invasive Species

Alterations to unit boundaries, based on public scoping and the consultation process, resulted in a minor reduction in the acres of NNIS infestations located within activity units in the Whites fire area. Additionally, one known infestation of *Centaurea solstitialis* is no longer within any activity units. These alterations were very minimal and did not result in a lower risk rating for the spread and introduction of NNIS.

Alternative 4

Direct Effects, Indirect and Cumulative Effects

Project Area A: Beaver Fire

Sensitive Species

No changes in effects to Sensitive botanical species occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Beaver fire area.

Survey & Manage Species

No changes in effects to Survey & Manage botanical species occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Beaver fire area.

Non-native Invasive Species

No changes in the risk of spread and introduction of NNIS infestations occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Beaver fire area.

Project Area B: Happy Camp Complex

Sensitive Species

It was clarified that fewer populations of *E. hirtellum* would be located within project activities under this Alternative.

Survey & Manage Species

Alterations to unit boundaries, based on public scoping and the consultation process, resulted in one known population of *Cypripedium montanum* no longer being within project activity units. Effects and project design features as described in the Botany Resource Report are unchanged for all other Survey & Manage botanical populations in the Happy Camp Complex fire area.

Non-native Invasive Species

Alterations to unit boundaries, based on public scoping and the consultation process, resulted in a minor reduction in the acres of NNIS infestations located within activity units in the Happy Camp Fire area. Additionally, one known infestation of *Euphorbia esula* is no longer within any activity units. These alterations were very minimal and did not result in a lower risk rating for the spread and introduction of NNIS.

Project Area C: Whites Fire

Sensitive Species

No changes in effects to Sensitive botanical species occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Whites fire area.

Survey & Manage Species

Alterations to unit boundaries, based on public scoping and the consultation process, resulted in one known population of *Cypripedium montanum* no longer being within project activity units. Effects and project design features as described in the Botany Resource Report are unchanged for all other Survey & Manage botanical populations in the Whites fire area.

Non-native Invasive Species

Alterations to unit boundaries, based on public scoping and the consultation process, resulted in a minor reduction in the acres of NNIS infestations located within activity units in the Whites fire area. Additionally, one known infestation of *Centaurea solstitialis* is no longer within any activity units. These alterations were very minimal and did not result in a lower risk rating for the spread and introduction of NNIS.

Alternative 5

Direct Effects, Indirect and Cumulative Effects

Project Area A: Beaver Fire

Sensitive Species

No changes in effects to Sensitive botanical species occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Beaver fire area.

Survey & Manage Species

No changes in effects to Survey & Manage botanical species occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Beaver fire area.

Non-native Invasive Species

No changes in the risk of spread and introduction of NNIS infestations occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Beaver fire area.

Project Area B: Happy Camp Complex

Sensitive Species

No changes in effects to Sensitive botanical species occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Happy Camp fire area.

Survey & Manage Species

Alterations to unit boundaries, based on public scoping and the consultation process, resulted in one known population of *Cypripedium montanum* no longer being within project activity units. Effects and project design features as described in the Botany Resource Report are unchanged for all other Survey & Manage botanical populations in the Happy Camp Complex fire area.

Non-native Invasive Species

Alterations to unit boundaries, based on public scoping and the consultation process, resulted in a minor reduction in the acres of NNIS infestations located within activity units in the Happy Camp Fire area. Additionally, one known infestation of *Euphorbia esula* is no longer within any activity units. These alterations were very minimal and did not result in a lower risk rating for the spread and introduction of NNIS.

Project Area C: Whites Fire

Sensitive Species

No changes in effects to Sensitive botanical species occurred between the draft and final Westside Fire Recovery Environmental Impact Statement in the Whites fire area.

Survey & Manage Species

Alterations to unit boundaries, based on public scoping and the consultation process, resulted in one known population of *Cypripedium montanum* no longer being within project activity units.

Effects and project design features as described in the Botany Resource Report are unchanged for all other Survey & Manage botanical populations in the Whites fire area.

Non-native Invasive Species

Alterations to unit boundaries, based on public scoping and the consultation process, resulted in a minor reduction in the acres of NNIS infestations located within activity units in the Whites fire area. Additionally, one known infestation of *Centaurea solstitialis* is no longer within any activity units. These alterations were very minimal and did not result in a lower risk rating for the spread and introduction of NNIS.

Summary of Effects

Table 3-14: Summary of Effects by analysis indicator for the Beaver Fire Area

Indicator	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Mod Alt. 2	Mod Alt. 3
Likelihood of jeopardizing the continued existence of Threatened, Endangered, Proposed, or Candidate species populations	No likelihood of jeopardizing continued existence	No likelihood of jeopardizing continued existence	Same as Alt 2				
Trend of Sensitive species population viability	Static trend, no known populations present	Static trend, no known populations present	Same as Alt 2				
Compliance with Survey & Manage guidelines as defined by the 2001 ROD	Compliant	Compliant following implementation of PDF's	Same as Alt 2				
Risk of introducing and/or spreading non-native invasive species	High	High	Same as Alt 2				

Table 3-15: Summary of Effects by analysis indicator for the Happy Camp Fire Area

Indicator	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Mod Alt. 2	Mod Alt. 3
Likelihood of jeopardizing the continued existence of Threatened, Endangered, Proposed, or Candidate species populations	No likelihood of jeopardizing continued existence	No likelihood of jeopardizing continued existence	Same as Alt 2				
Sensitive species viability: <i>Eriogonum hirtellum</i>	Static trend in population viability	Static trend in population viability	Same as Alt 2				

Sensitive species viability: <i>Erythronium hendersonii</i>	Declining trend in population viability	Increasing trend in population viability	Same as Alt 2				
Sensitive species viability: <i>Thermopsis robusta</i>	Declining trend in population viability	Short term increasing trend in population viability	Same as Alt 2				
Compliance with Survey & Manage guidelines as defined by the 2001 ROD	Compliant	Compliant following implementation of PDF's	Same as Alt 2				
Risk of introducing and/or spreading non-native invasive species	High	High	Same as Alt 2				

Table 3-16: Summary of Effects by analysis indicator for the Whites Fire Area

Indicator	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Mod Alt. 2	Mod Alt. 3
Likelihood of jeopardizing the continued existence of Threatened, Endangered, Proposed, or Candidate species populations	No likelihood of jeopardizing continued existence	No likelihood of jeopardizing continued existence	Same as Alt 2				
Trend of Sensitive species population viability	Static trend, no known populations present	Static trend, no known populations present	Same as Alt 2				
Compliance with Survey & Manage guidelines as defined by the 2001 ROD	Compliant	Compliant following implementation of PDF's	Same as Alt 2				
Risk of introducing and/or spreading non-native invasive species	High	High	Same as Alt 2				

Compliance with law, regulation, policy, and the Forest Plan

Alternatives are still compliant with law, regulation, policy, and the Forest Plan following changes between the draft and final Westside Fire Recovery Environmental Impact Statement. No changes were necessary. See the Botany Resource Report for more information.

Additional Literature Cited

Crane, M. F. 1990. *Xerophyllum tenax*. In: Fire Effects Information System, [Online].

U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/> [2015, July 7].

Hummel, Susan; Foltz-Jordan, Sarah; Polasky, Sophia 2012. *Natural and Cultural History of Bear Grass (Xerophyllum tenax)*. Pacific Northwest Research Station GTR-864. October 2012.