

**Burned Area Emergency Response Plan
Vegetation Resource Assessment
Stafford Fire
Hayfork RD
Shasta-Trinity National Forest
24 September 2012
Carrie Schreiber, Six Rivers National Forest Botanist**

I. OBJECTIVES

- Identify known locations and extent of/impacts to rare plant populations and special habitats.
- Identify noxious weed populations and pre- and post-fire suitable habitat for weeds.
- Provide management recommendations for reducing impacts from noxious weed introductions as a result of the fire.
- Provide management recommendations, where warranted, for repair of impacts to rare plants or special habitats.

II. GENERAL ISSUES

- Impacts of damage to special habitats and rare plants from wildfire and fire suppression activities on ecosystem stability.
- Impacts of noxious weeds on ecosystem stability and soil productivity.

III. OBSERVATIONS

A. Background Information

The Stafford Fire started on Wednesday September 5, 2012, at approximately 14:00pm from a chainsaw at the Bluebird Mine site along Hayfork Creek. Approximately 4,400 acres burned in the fire with soil burn severities of 18% unburned, 35% low, 26% moderate, and 21% high. The fire was contained on September 13, 2012.

Land Management Designations

A proportion (approximately 125 acres) of the burned area is under private ownership. The remainder is under National Forest management, within the Shasta-Trinity National Forest. A portion of the fire (roughly 600 acres) is in an area designated within National Forest land as an Inventoried Roadless Area (IRA); this area is located in the eastern portion of the fire area and is bounded by Wildwood Rd. and extends north to the private property boundary.

Plant Communities

Plant Communities	mixed conifer/hardwood with ponderosa pine, Douglas fir
	montane chaparral
	alder/willow riparian areas
Special Habitats	mixed conifer or conifer/oak forest, especially on ridgetops & old road cuts
	rock outcrops
	hardwood trees, primarily black oak
	ultramafic soils

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Forest Sensitive Botanical Species

No federally listed Threatened or Endangered plant species or their habitats are known to occur in the Stafford fire area. No Forest Service Sensitive plant species were known in the fire area, as surveys had not been conducted in this area. However, suitable habitat does exist for three Forest Service sensitive species, as noted in the table below. Roughly 3 acres of serpentine soils exist within the fire area near Kingsbury Gulch. Serpentine areas adjacent to dozer lines were visited on September 23, 2012; these areas underwent a moderate burn.

Table 1: Sensitive plant species with suitable habitat in the fire area.

Scientific Name	Common Name	Symbol	Rank
<i>Cypripedium montanum</i>	Mountain lady's slipper	CYMO2	G4/S4.2
<i>Cypripedium fasciculatum</i>	Clustered lady's slipper	CYFA	G4/S3.2
<i>Eriastrum tracyi</i>	Tracy's eriastrum	ERTR4	G3Q/S3

Cypripedium montanum (Mountain lady's slipper) is an herbaceous, perennial orchid that occurs in mixed conifer or oak forests on a variety of soils, often in association with riparian areas. Its distribution is widespread across Oregon, Washington, California and British Columbia; however, population sizes are generally small. Burn severity varied greatly throughout the fire area from low to very high intensity. Fire effects to this species are unknown; however, lady's slipper orchids may be able to tolerate low-intensity burns (Seevers and Lang 1998). It is ranked G4/S4.2.

Cypripedium fasciculatum (Clustered lady's slipper) is an herbaceous, perennial orchid that occurs in a variety of habitats including mixed conifer and Douglas-fir forests, often in association with riparian habitats. It has a broad distribution across eight coastal and interior-West states. No known occurrences of this species were noted in the fire area. However, suitable habitat exists for this species in the fire area, and adverse effects at sites where fire severity was moderate to high are likely. It is ranked G4/S3.2.

Eriastrum tracyi (Tracy's eriastrum) is an herbaceous annual that occurs on gravelly or loamy soils in open woodland or chaparral or in closed-cone pine forests. Being that it is an annual species and the fire burned after seed set, adverse effects to its populations are not likely. It is ranked G3Q/S3.

Survey and Manage

The 2001 ROD requires management of known sites of any Category A, B, or E species and high-priority sites of Category C or D species. High-priority sites are those that are needed to provide for reasonable assurance of species persistence. There are no known occurrences of survey and manage species within the Stafford Fire.

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Noxious Weeds

Since the Stafford Fire is within the wildland urban interface (WUI), noxious weed presence is generally abundant in the fire vicinity, along access roads and on private property adjacent and also within the fire area. Records of known noxious weed occurrences are mapped adjacent and within the fire perimeter. Species known to occur within the fire area are listed in the following table.

Table 3: Invasive plants in the Stafford Fire area.

Scientific Name	Common Name	Symbol	CDFG Weed List
<i>Centaurea solstitialis</i>	yellow starthistle	CESO3	C
<i>Centaurea stoebe</i> ssp. <i>micranthos</i>	spotted knapweed	CESTM	A
<i>Isatis tinctoria</i>	dyer's woad	ISTI	B
<i>Cirsium arvense</i>	Canada thistle	CIAR4	B
<i>Cirsium vulgare</i>	bull thistle	CIVU	--
<i>Dipsacus fullonum</i>	wild teasel	DIPU2	--
<i>Foeniculum vulgare</i>	sweet fennel	FOVU	--
<i>Bromus tectorum</i>	cheatgrass	BRTE	--
<i>Hypericum perforatum</i>	Klamath weed, St. Johnswort	HYPE	C
<i>Rubus armeniacus</i>	Himalayan blackberry	RUAR9	--
<i>Verbascum thaspus</i>	common mullein	VETH	--

A. Reconnaissance Methods

Information on noxious weeds, rare plant habitat, and populations was derived from Shasta-Trinity National Forest file records, the California Natural Diversity Database, the California Native Plant Society Inventory of Rare and Endangered Plants, the California Department of Food and Agriculture "Encycloweediea", and from visits to the fire area between September 20, 2012 and September 23, 2012.

B. Findings/Description of Emergency

Critical Value at Risk: Native or naturalized communities on NFS lands where invasive species or noxious weeds are absent or present in only minor amounts.

Priority Threats: Dozer line construction and noxious weed introduction and spread probability is likely with a moderate magnitude of consequences, which ranks the risk to this critical value as HIGH.

Weed infestations will displace valuable native plant species, thus reducing wildlife habitat, and they can result in increased soil erosion because these species are less capable of stabilizing soil

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than their native-plant counterparts. Many roadsides of the Stafford Fire are occupied to varying degrees with noxious weeds that were noted while conducting BAER field assessments and through discussions with the local Forest Service botanist (Lusetta Nelson, pers. comm.), including yellow starthistle, spotted knapweed, bull thistle, Dyer's woad, teasel, common mullein, cheatgrass, and Canada thistle.

The two weeds with the highest level of concern for spread are spotted knapweed, which occurs along Wildwood Rd. south of the fire area, and yellow starthistle, both of which have a high likelihood of spread into the newly created habitat at landings and on dozer lines. Spotted knapweed is a biennial to short-lived perennial. It can be found in disturbed open sites, grasslands, overgrazed rangelands, roadsides and logged areas. It crowds out native species and forage for livestock, and can invade undisturbed native bunchgrass stands. An individual plant may produce as many as 40,000 seeds. Yellow starthistle is a winter annual that can produce up to several thousand seeds per plant; large plants can produce 100,000 seeds (DiTomaso, et al.). It occurs along roadsides and in pastures, grasslands, and waste areas and is currently spreading below 7,000 ft elevation in the Central Valley. It is estimated that 15 million acres in California are infested with yellow starthistle, and it has spread to other western states, including Oregon, Washington, Nevada, and Idaho.

Equipment washing was instituted at the beginning of the fire suppression activities for equipment used by the Forest Service, which undoubtedly reduced the amount of introduction of invasives to the fire area. However, equipment used by Cal-Fire for their suppression activities was likely not washed prior to coming onto those private lands and accessing Forest Service roads. A wash station was set up at the Hayfork Fairgrounds, which helped reduce the spread of invasives. Equipment and vehicles were mobilized onto the fire before the wash station was set up, and after it was taken down equipment was still used on the fire, so the risk of spread and introduction was higher during these times. With the many miles of dozer line constructed for suppression of this fire, it is likely that weeds were spread internally to other portions of the fire, and are poised to move into parts of the fire that burned hot enough to kill existing vegetation and to damage the native seed bank.

Approximately 903 acres underwent a high-intensity burn in the Stafford Fire. In these areas and in their adjacent landings, the risk for spread and introduction of invasives is very high, as the fire burned hot enough to kill all understory and overstory existing native vegetation. Most if not all existing landings were dozed during the fire; several of these had existing weed infestations on them. Known infestations included bull thistle, yellow starthistle, and Dyer's woad. Equipment working in these areas likely picked up and dispersed noxious weed seed along the dozer lines that were created.

These newly disturbed areas (along dozer lines and in high intensity burn areas) have a high probability for introduction of new weed infestations, especially for the A-rated invasive weed species, spotted knapweed. The known infestation along Wildwood Rd. had been treated in the year prior to the fire, so the infestation at that site was controlled. However, the same heavy

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equipment was used for the Stafford Fire that was used for the nearby Happy Fire in the South Fork and the Red Fir project areas, where spotted knapweed is abundant (Lusetta Nelson, pers. comm.).

Due to the steep rugged terrain and other geologic and hydrologic characteristics of the fire area, it appears that there is considerable potential for erosion, debris flows, and other soil-transfer events. Soil transfer equates to seed bank transfer and movement of invasive plant populations to new sites. It also results in new habitat formation at both the point of origin and at the point of deposition. Soil movement issues are being addressed by geology, soils, and/or hydrology reports.

EMERGENCY TREATMENT RECOMMENDATIONS

FSM 2523.3 gives direction to monitor burned areas for up to 3 years from containment to ensure emergency stabilization measures are functioning as planned and effective.

Noxious Weed Detection Surveys

All dozer lines on or within fire perimeter should be surveyed in 2013, with new infestations hand treated and mapped.

Dozer lines are generally mapped with varying levels of quality in different parts of the fire area, so number and length of lines in the GIS database can only be considered to be estimates. Line location and number should be validated in the field as treatments proceed. Using the GIS database, there are 21.7 miles of dozer lines on or within the fire perimeter.

MONITORING COSTS

Cost Summary

	Units	Unit Cost	# of Units	BAER \$
Monitoring				
Noxious Weed Detection Surveys	miles	\$XXXXX	21.7	\$XXXXX
TOTAL				\$XXXXX

LONG TERM RECOVERY OPTIONS

Other fire suppression impact areas such as drop points, helicopter landings, and staging areas, both outside and within fire perimeter, should be monitored in the next few years to determine if new noxious weed infestations have occurred, hand-treated as infestations are detected during surveys, and mapped to facilitate evaluation of subsequent treatments. Monitoring of sites where dozer lines intersect roads and landings is of high priority, as these sites often serve as the source point for noxious weed invasions along dozer lines.

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Appendix A - Global Rank (G-) and State Rank (S-)

Rank	Meaning (at species or Natural Community level)
G1 or S1	Less than 6 Element Occurrences (EO) OR less than 1,000 individuals OR less than 2000 acres
G2 or S2	6 - 20 EOs OR 1,000 - 3,000 individuals OR 2,000 - 10,000 acres
G3 or S3	21 - 100 EOs OR 3,000 - 10,000 individuals OR 10,000 - 50,000 acres
G4 or S4	Apparently secure; this rank is clearly lower than G3 but factors exist to cause some concern; i.e. there is some threat, or somewhat narrow habitat.
G5 or S5	Population or stand demonstrably secure to ineradicable due to being commonly found in the world
Sx.1	very threatened
Sx.2	Threatened
Sx.3	no current threats known
Additional Ranks: (GH, GX, GXC, G1Q, T)	(All sites are historical, All sites are extirpated, Extinct in the wild- exists in cultivation, taxonomic questions associated with the species, Rank applies to a subspecies or variety)