

NON-NATIVE INVASIVE PLANT SPECIES BAER REPORT

Nickowitz Fire

Six Rivers National Forests

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I. INTRODUCTION

The Nickowitz Fire burned 7,509 acres on the Orleans Ranger Station, Six Rivers N.F. An uncontrolled fire edge exists on the east side of the fire where it entered the Siskiyou Wilderness, hence containment is not expected to occur until after the commencement of Fall rains.

II. OBJECTIVES

Reduce the potential for establishment of new non-native invasive plant infestations in native or naturalized communities, particularly establishment of new non-native invasive plant infestations in highly susceptible burned areas (moderate to high intensity), and prevent spread of existing infestations resulting from fire suppression activities.

III. INITIAL CONCERNS

The initial concern is the high risk to native or naturalized vegetative communities due to the loss of vegetative cover from the fire and the likelihood of spread by suppression activities. A weed wash station was set up at fire camp several days after initiation of suppression activities and it is assumed that most equipment entering and leaving the Forest and some of the crews and equipment going to and from the fire was washed. However, equipment moving in and around the fire was not washed.

Known non-native invasive plant populations exist within and immediately adjacent to the burned area, and they will compete aggressively with native species for space and nutrients. There is a high risk of introduction and spread of non-native invasive plant species from:

- known populations of noxious and invasive plant species expanding into un-infested areas as a result of fire disturbance and associated removal of competing species.
- suppression activities creating a setting conducive to establishment.
- suppression equipment and crews serving as a vector for weed seed.
- species introduced by OHV use on dozer lines that are left "open".

Areas of moderate to high intensity fire have lost the competitive vegetative barrier which serves to reduce if not prevent the spread of invasive plant species into new areas. Keeping new or expanding noxious/invasive species from becoming established due to fire, fire suppression activities, and BAER treatment activities is a high priority across federal, state, and private lands ownership boundaries. Many non-native invasive species have either rhizomatous root structures or produce abundant seed coupled with high germination rates that allow plants to establish rapidly following fire. The presence of weeds may prevent establishment of desirable native vegetation and can change natural fire regimes. Prevention and treatment of weeds prior to populations becoming established and expanded is a key point in restoring desired native vegetation within the burn areas and reducing long-term cost of containment, control, and eradication (Zouhar et al. 2008).

IV. EMERGENCY DETERMINATION

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.

Probability of Damage or Loss is likely to result from both the fire and fire suppression activities based on a body of published literature (Der Lippe 2007, Christen 2006, Rooney 2005) as well as agency guidelines that have been developed to address the risk of introducing and spreading non-native invasive plants associated with wild fires.

Magnitude of Consequences: Non-native invasive plant species displace native species, homogenize the community (loss of diversity), degrade range and recreation values, reduce water availability to native plants, and negatively influence the ecology of the community (e.g. pollinators, sources of browse material for wildlife...). The magnitude of consequences to native communities on National Forest land is moderate in moderate to high intensity burn areas where the loss of competitive vegetation and canopy has made these areas vulnerable to noxious and invasive plant species establishment. Additionally the magnitude of consequences is moderate due to fire suppression activities which serve to spread non-native invasive plant species into areas made vulnerable by the fire.

Table 1 - Risk Analysis Matrix

Probability of Damage or Loss	Magnitude of Consequences		
	Major	Moderate	Minor
	RISK		
Very Likely	Very High	Very High	Low
Likely	Very High	High	Low
Possible	High	Intermediate	Low
Unlikely	Intermediate	Low	Very Low

- **High Risk** (likely, moderate) to native plant diversity, native plant communities or naturalized communities due to the threat of introduction and spread of noxious and non-native invasive plants from known populations (Canada thistle, foxglove, spotted knapweed, scotch broom) that exist within and adjacent to areas of high and moderate burn severity. Areas of moderate to high intensity fire have lost the competitive barrier (i.e. existing vegetation) which serves to reduce if not prevent the spread of non-native invasive plants into new areas and have altered habitat conditions (e.g. soils) that favor invasive plant seed establishment. Displacement of native species by non-native invasive plant species can result in a loss of viability for Region 5 Sensitive plant species that occur within the fires. These species include the Kohler’s rockcress, opposite-leaved lewisia, the Siskiyou bells and the Siskiyou ragwort. Encroachment by non-native invasive plants can also result in the degradation of range and recreational values, reduction of water availability to native plants, and can negatively impact community ecology. (LS-01)
- **High Risk** (likely, moderate) to native plant diversity due to the threat from the spread of non-native invasive plant species from known noxious weed populations (Canada thistle, diffuse knapweed, yellow star-thistle, scotch broom) as a result of fire suppression (e.g. seed imported on bulldozers).

V. TREATMENTS

A. Early Detection/Rapid Response (EDRR)

Reduce the potential for establishment of non-native invasive plant infestations in native or naturalized communities, particularly establishment of infestations in highly susceptible burned areas or dozer lines, prevent spread of existing infestations, and decrease rate of spread of non-native invasive plant density from existing infestations.

Treatment includes an initial detection survey combined with treatment at time of discovery, if possible. Surveys will begin in 2016 at times when the target species are the most visible. Treatments are associated with known sites within the fire noted in the following table. Inventory and treatment will also occur at 16 intersections (totally approximately 1 acre) of newly constructed dozer line with existing National Forest transportation system roads. Additional treatment sites are likely to be identified following a more comprehensive survey of the burned areas in 2016.

Table 2 - High Priority Non-Native Invasive Plant Locations

UTM E	UTM N	species	Acreage	Resource	Treatment
440734	4588126	Scotch broom	0.1	Weed	Inventory/Treat
440171	4588290	Scotch broom	0.1	Weed	Inventory/Treat
436747	4585963	French broom	0.1	Weed	Inventory/Treat
436700	4587053	Scotch broom	0.1	Weed	Inventory/Treat
439681	4588597	Scotch broom	0.1	Weed	Inventory/Treat
438926	4588475	Scotch broom	0.1	Weed	Inventory/Treat
438529	4587122	Scotch broom	0.1	Weed	Inventory/Treat
437842	4588069	Scotch broom	0.1	Weed	Inventory/Treat

Table 3 – EDRR Cost

L-01 EDRR Treatment Cost Estimate	Detection Survey Area (acres)	Labor	Mileage	Total
Nickowitz Fire	1.8	\$REDACTED	\$REDACTED	\$REDACTED

B. Natural Native Community (NNC) Stabilization: Eight high priority non-native invasive plant treatment sites (see Treatment in tables 2) would be mulched with weed free straw and seeded with locally collected native grass seed to lower the risk of spread and reduce or retard the potential for subsequent germination of non-native invasive plant species.

Table 7 - NNC Stabilization Treatment by Fire

L-05 NNC Stabilization Treatment	Acres Treated	Materials
Nickowitz Fire	1.8	\$REDACTED

Any vehicles or equipment brought in for emergency efforts must be washed at pre-approved vehicle and equipment washing stations and free of weed seed or plant propagules prior to entry of the National Forest lands. Staging of equipment and/or rehabilitation materials will not be allowed in known infestation sites.

All locations of non-native invasive plant species discovered would be mapped and entered into the National Resource Inventory System (NRIS) according to National protocol. Treatment would be recorded as directed by the same National protocols. Treatment would consist of hand pulling to root depth and, if seed is present, plants will be bagged and disposed of properly.

VI. RECOMMENDATIONS

Treatment is recommended at existing known weed infestation locations disturbed by fire suppression activities, and all BAER treatment areas. Mulching with weed free wood chips/straw mulch is recommended at critical sites that are found to be infested with high priority non-native invasive plant species to avoid importation of undesirable plant species.

VII. COST ESTIMATE

Table 8 - Cost Estimate Nickowitz Fire

Bear Fire 21 Acres Treatment		Days	Cost	total
GS-11	Admin/Data Entry/Treat			
GS-9	Treat			
GS-9	Treat			
Vehicle				
Mileage				
Lodging	GS-9			
Lodging	GS-9			
Lodging	GS-11			
Per diem	GS-9			
Per diem	GS-9			
Per diem	GS-11			
		# Bales	\$/Bale	
Mulch	1.8 ac	221	\$REDACTED	\$REDACTED
	Delivery 221 bales			\$REDACTED
Grass Seed		Acres	Cost/Ac	
		1.8	\$REDACTED	\$REDACTED
TOTAL				\$REDACTED

VII. CONSULTATIONS

Treatment concepts and specifications were developed by the following individuals

Lisa Hoover	Six Rivers NF Forest Botanist
John McRae	Six Rivers NF Assistant Forest Botanist

VIII. References

Zouhar, Kristin; Smith, Jane Kapler; Sutherland, Steve; Brooks, Matthew L., eds. 2008. Wildland Fire in Ecosystems: Fire and Nonnative Invasive Plants. Gen. Tech. Rep. RMRS-GTR-42-volume 6. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

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