

Date of Report: 10/11/2007**BURNED-AREA REPORT**  
(Reference FSH 2509.13)**PART I - TYPE OF REQUEST****A. Type of Report**

- ☒ 1. Funding request for estimated emergency stabilization funds  
☐ 2. Accomplishment Report  
☐ 3. No Treatment Recommendation

**B. Type of Action**

- ☒ 1. Initial Request (Best estimate of funds needed to complete eligible stabilization measures)  
  
☐ 2. Interim Report #\_\_\_\_\_.  
    ☐ Updating the initial funding request based on more accurate site data or design analysis  
    ☐ Status of accomplishments to date  
  
☐ 3. Final Report (Following completion of work)

**PART II - BURNED-AREA DESCRIPTION**

- A. Fire Name:** Boundary-Junction      **B. Fire Number:** ID-CWF-000047  
**C. State:** Idaho      **D. County:** Idaho  
**E. Region:** Northern (R1)      **F. Forest:** Clearwater NF  
**G. District:** Lochsa      **H. Fire Incident Job Code:** P1DV7H  
**I. Date Fire Started:** 8/10/2007      **J. Date Fire Contained:** Not yet contained  
**K. Suppression Cost:** \$ 1,750,000  
**L. Fire Suppression Damages Repaired with Suppression Funds**  
    1. Fireline waterbarred (miles): 1.1 miles (yet to be accomplished)  
    2. Fireline seeded (miles): none  
    3. Other (identify): none  
**M. Watershed Number (HUC6):**  
170603030601 23,238 total acres (1323 acres burned)  
170603030602 22,662 total acres (3003 acres burned)  
170603030301 26,845 total acres (429 acres burned)  
170603030304 27,176 total acres (326 acres burned)

**N. Total Acres Burned:**

**[~5081] NFS Acres   [ ] Other Federal   [ ] State   [ ] Private**

**O. Vegetation Types:** Mixed coniferous forest vegetation including western redcedar, grand fir, Douglas-fir, western larch, lodgepole pine, subalpine fir, etc.

**P. Dominant Soils:** Moderately deep silt loam soils derived from Mazama volcanic ash to shallow, rocky, loams to sandy loams. Rock outcrops are common across the burn area on steeper terrain.

**Q. Geologic Types:** Border Zone micaceous schists/gneisses with small inclusions of Idaho Batholith granitics.

**R. Miles of Stream Channels by Order or Class:**

Order 1: 20.86 miles

Class 1: 6.54 miles

Order 2: 8.22 mile

Class 2: 29.08 miles

Order 3: 20.86 miles

Order 4: 8.22 miles

**S. Transportation System**

Trails: 6.18 miles

Roads: 7.32 miles

**PART III - WATERSHED CONDITION****A. Burn Severity (acres):**

Unburned or very low:

1942 acres (38.2%)

Low:

1919 acres (37.8%)

Moderate:

948 acres (18.7%)

High:

272 acres (5.4%)

**B. Water-Repellent Soil (percent):** 588 acres (11.6%)

**C. Soil Erosion Hazard Rating<sup>1</sup> (percent):**

Low:

1524 acres (30%)

Moderate:

1270 acres (25%)

High:

2287 acres (45%)

**D. Erosion Potential:** 64.8 tons/acre<sup>2</sup>

<sup>1</sup> Soil erosion hazard was estimated from the landtypes present within the burn perimeter. The landtypes have low to moderate mass wasting potentials as well as sediment delivery efficiencies. Underlying parent material erosion potentials are high to very high but much of the burn area contains an intact Mazama volcanic ash layer.

**E. Sediment Potential:** 11.5 tons/acre<sup>3</sup>

#### **PART IV - HYDROLOGIC DESIGN FACTORS**

##### **A. Estimated Vegetative Recovery Period, (years):**

The effects of the Boundary-Junction fire on recovery of vegetation within its boundaries will vary primarily by the severity of the burning that took place and the available seed sources. In undisturbed soil areas, the native seedbank for trees, shrubs, forbs, and grasses will likely respond favorably to the burn since they have evolved with such natural disturbances. Where the soil has been altered, primarily by road construction, spread of noxious weeds is a concern that should be monitored over time. Slope, aspect, fuel loadings, and the type of vegetative cover present when the fire burned influenced the severity of the burn. Much of the burn occurred as a rapidly moving crown fire, so while there may be areas with significant tree mortality, the impacts to the soil in these locations was often low.

**Unburned to Low Severity Burn Areas:** In areas where the soil burn severity was unburned to low, recovery would generally be expected to occur within one growing season. Vegetative recovery is considered to be any vegetation which providing more than 80% cover which effectively intercepts rainfall and provides an extensive root mass as defined on page II-26 of the Clearwater National Forest Plan. These unburned to low severity burn areas are expected to maintain adequate live tree stocking levels and associated understory vegetation in most cases, but not all as mentioned above. Tree mortality is expected to average less than 50% in these areas, ranging from 0% to 80%. Most of the needles remain on the trees, with some having turned red as a result of the burn effects. Perennial grasses, forbs, and shrubs generally will resprout after low severity burns and a duff/litter layer will reform within several years. Tree planting may be planned for many areas where fire has killed significant areas of the live tree cover. All areas on National Forest System (NFS) lands requiring tree planting will have trees established and free to grow within five growing seasons. Vegetative recovery will vary from 0 to 5 years.

**Moderate Severity Burn Areas:** In areas where the soil burn severity was moderate, the majority of the trees are expected to die as a direct result of the fire, with mortality ranging from 50% to 100%. Most of the needles remain on the trees, but have turned red as a result of the burn effects. Tree planting will likely occur on National Forest System Lands. All areas requiring tree planting on National Forest Lands will have trees established and free to grow within five growing seasons. Vegetative recovery will vary from 1-15 years. Some of the larger areas that burned at moderate severity are a greater distance from surviving seed sources. This will slow the recovery time. Existing seed from shrubs, forbs, and grasses stored deeper in the soil, will provide some vegetative recovery in these areas

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<sup>2</sup> Results derived from Disturbed WEPP. Modeled high intensity fire in the uplands and riparian, silt loam soil, 35% slope, 20% ground cover, 20% rock, and modified Orofino climate. This is a worse case analysis.

<sup>3</sup> Results derived from ERMiT. Modeled high intensity fire, silt loam soil, 20% rock, 35% slope, and modified Orofino climate. This is a worse case analysis.

**High Severity Burn Areas:** In areas where the burn severity was high, nearly all of the trees were killed or are expected to die as a direct result of the fire, with mortality ranging from 80% to 100%. Tree planting will likely occur on National Forest System Land. All areas requiring tree planting will have trees established and free to grow within five growing seasons. Vegetative recovery will vary from 3-20 years. The largest areas that burned at high severity are surrounded by medium severity burn areas and thus are at a greater distance from seed sources. This will slow the vegetative recovery time. The heat produced in the high severity burning in these areas has destroyed much of the existing seed stored in the soil, so shrub, forb, and grass recovery will occur at a slower pace. Encroachment by noxious weeds may be a concern on high burn severity areas adjacent to road and trail corridors where weeds already exist.

#### Vegetative Recovery Period on NFS Lands - Years

Burn Severity	Total Acres	Reforestation Period	Vegetative Recovery Period <sup>4</sup>
None to Low	3861	0-5 years	<b>0-5 years</b>
Moderate	948	1-5 years	<b>1-15 years</b>
High	272	3-5 years	<b>3-20 years</b>
Total	3509		

<b>B. Design Chance of Success, (percent):</b>	75
<b>C. Equivalent Design Recurrence Interval, (years):</b>	25 years
<b>D. Design Storm Duration, (hours):</b>	0.25 hours
<b>E. Design Storm Magnitude, (inches):</b>	0.53 inches
<b>F. Estimated Reduction in Infiltration, (percent):</b>	25 %
<b>G. Adjusted Design Flow, (cfs per square mile):</b>	23 cfs <sup>5</sup>

<sup>4</sup> Vegetative Recovery is considered be any vegetation which provide >80% cover which effectively intercept rainfall and provides an extensive root mass, to prevent or minimize soil erosion.

<sup>5</sup> Use 110 cfs for watershed less than 2 mi<sup>2</sup>; Parret et al. 2003. Fire Hydrology. July 2003. For watersheds 5-20 mi<sup>2</sup>, the design storm should be approximately 23 cfs; Arkell Richard E, and Frank Richards, 1986. Short Duration Rainfall Relations for the Western United States. August 1986. Gerhardt, N, 2003. Precipitation – Frequency Values for Lolo Pass, Idaho/Montana. Unpublished Paper. September 2003

## **PART V - SUMMARY OF ANALYSIS**

### **A. Describe Critical Values/Resources and Threats (narrative):**

#### **Threat to Federal Property and aquatic ecosystem integrity:**

The fire burned in a variable mosaic pattern on rolling mountain slopelands primarily in the headwaters of Hungry Creek. The burn was primarily a crown fire in most locations, so the soil burn severity was generally low, with patches of moderate to high burn severity.

Spotted knapweed and St Johnswort are common invasive plant species along FS Road 500 as well as other roads and trails in and near the fire perimeter. Roads and trails used during the suppression effort contain spotted knapweed and there is a high probability that knapweed seeds may be introduced within the burn perimeter resulting in invasion into a previously weed-free location.

Spotted knapweed is an aggressive invasive weed species known to produce allelopathic compounds harmful to other plants. Due to the nature of the often roadless terrain within the burn perimeter limiting herbicide treatment options, the ecologist felt that introduction of approved bio-control agents would be the best option to reduce knapweed invasion into the burned area. Weed populations will be monitored during the first year for invasion into the burned area.

Increased erosion is likely to occur along trail # 48 for 1.5 miles. The construction of waterbars and checkdams is needed to reduce this risk of erosion from the effects of the fire.

### **B. Emergency Treatment Objectives (narrative):** The emergency treatment objectives are to:

1. Prevent impairment of ecosystem function from the invasion of spotted knapweed into the burned area (which had been weed-free prior to the wildfire) through the release of biological control agents.
2. Weed monitoring would be conducted to identify areas where weed invasion may occur primarily along Roads 485 and 500 and Trails 48 and 230.
3. Reduce erosion and sedimentation from Trail 48 through the construction of waterbars and check dams which will divert, and dissipate runoff flowing down the trail tread. This will protect watersheds by lessening the force and concentration of water flowing downstream.

### **C. Probability of Completing Treatment Prior to Damaging Storm or Event:**

The proposed treatment involves the release of bio-control insects in spring/summer 2008 to prevent weed invasion into the burn area. We believe there's an 80% probability that the bio-control insect releases will be effective during the first year, increasing to 100% by year 5 when the bio-control insects will have expanded well beyond their release points.

Trail erosion control measures will be completed as soon as possible and treatment effectiveness is estimated at 95% after implementation in the first year and 100% as soon as the soil disturbance recovers.

Land 80 % Channel     % Roads 95 % Other     %

#### D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	80	90	100
Channel	XXX	XXX	XXX
Roads/Trails	95	100	100
Protection/Safety	XXX	XXX	XXX

E. Cost of No-Action (Including Loss): XXX

F. Cost of Selected Alternative (Including Loss): \$6250

The monetary cost of the recommended weed treatments is minimal IF action is taken immediately next spring to release the bio-control insects (\$1500) and conduct follow-up monitoring (\$1500). If weed invasion is observed, further, immediate treatments (rapid detection, early response techniques) must be implemented.

Trail erosion control measures are expected to cost \$3250 for the construction of 65 water bars and/or check dams.

#### G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input type="checkbox"/> Geology	<input checked="" type="checkbox"/> Recreation
<input type="checkbox"/> Forestry	<input type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input type="checkbox"/> Engineering
<input type="checkbox"/> Contracting	<input checked="" type="checkbox"/> Ecology	<input type="checkbox"/> Botany	<input type="checkbox"/> Archaeology
<input type="checkbox"/> Fisheries	<input type="checkbox"/> Research	<input type="checkbox"/> Landscape Arch	<input checked="" type="checkbox"/> GIS

Team Leader: Jim Mital

Email: jmital@fs.fed.us

Phone: (208) 476-8348

FAX: (208) 476-8329

#### H. Treatment Narrative:

(Describe the emergency treatments, where and how they will be applied, and what they are intended to do. This information helps to determine qualifying treatments for the appropriate funding authorities. For seeding treatments, include species, application rates and species selection rationale.)

**Land Treatments:**

Five releases of bio-control insects will be conducted within the burn perimeter.

Proposed release sites are:

- 1) Off Road 500 in Section 17
- 2) Junction of Roads 500 and 485
- 3) Off road 500 in Section 3
- 4) Road 485 at Windy Saddle
- 5) Off road 485 in Section 15

**Channel Treatments: None****Roads and Trail Treatments:**

Construction of 65 waterbars and/or checkdams along a 1.5 mile section of Trail #48 in Sections 8 and 9.

**Structures: None****I. Monitoring Narrative:**

(Describe the monitoring needs, what treatments will be monitored, how they will be monitored, and when monitoring will occur. A detailed monitoring plan must be submitted as a separate document to the Regional BAER coordinator.)

Spotted Knapweed Monitoring (\$1500)-Previous spotted knapweed locations along Roads 485 and 500 will be monitored in spring/summer 2008 where they intersect with the burn perimeter. Roads and trails will be monitored for encroachment of knapweed (and other weeds) into areas of moderate to high burn severity. If such monitoring identifies the invasion of knapweed (or other weeds) into previously weed-free areas, appropriate treatment measures will be identified and an interim 2500-8 report will be submitted for weed treatment funding.

## Part VI – Emergency Stabilization Treatments and Source of Funds

Interim #

Part IV - Emergency Stabilization Treatments and Closure of Lands											
			NFS Lands				Other Lands			All	
		Unit	# of		Other		# of	Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	BAER \$	\$		units	\$	Units	\$	\$
A. Land Treatments											
Bio-Control Releases	Ea	300	5	\$1,500	\$0			\$0		\$0	\$1,500
				\$0	\$0			\$0		\$0	\$0
				\$0	\$0			\$0		\$0	\$0
Insert new items above this line!				\$0	\$0			\$0		\$0	\$0
Subtotal Land Treatments				\$1,500	\$0			\$0		\$0	\$1,500
B. Channel Treatments											
					\$0			\$0		\$0	\$3,250
				\$0	\$0			\$0		\$0	\$0
				\$0	\$0			\$0		\$0	\$0
Insert new items above this line!				\$0	\$0			\$0		\$0	\$0
Subtotal Channel Treat.				\$0	\$0			\$0		\$0	\$3,250
C. Road and Trails											
Waterbars-Trail # 48	Ea	65	50	\$3,250	\$0			#REF!		#REF!	#REF!
				\$0	\$0			\$0		\$0	\$0
				\$0	\$0			\$0		\$0	\$0
Insert new items above this line!				\$0	\$0			\$0		\$0	\$0
Subtotal Road & Trails				\$3,250	\$0			#REF!		#REF!	#REF!
D. Protection/Safety											
				\$0	\$0			\$0		\$0	\$0
				\$0	\$0			\$0		\$0	\$0
				\$0	\$0			\$0		\$0	\$0
Insert new items above this line!				\$0	\$0			\$0		\$0	\$0
Subtotal Structures				\$0	\$0			\$0		\$0	\$0
E. BAER Evaluation											
Team Costs				\$2,000	\$0			\$0		\$0	\$0
Insert new items above this line!				---	\$0			\$0		\$0	\$0
Subtotal Evaluation				\$2,000	\$0			\$0		\$0	\$0
F. Monitoring											
Weed monitoring	Ea	1500	1	\$1,500	\$0			\$0		\$0	\$1,500
Insert new items above this line!				\$0	\$0			\$0		\$0	\$0
Subtotal Monitoring				\$1,500	\$0			\$0		\$0	\$1,500
G. Totals				\$6,250	\$0			#REF!		#REF!	#REF!
Previously approved											
Total for this request				\$6,250							



**PART VII - APPROVALS**

1. /s/ Kimberly D. Nelson (for) Thomas K. Reilly 10/11/2007  
Forest Supervisor (signature) Date
  
2. \_\_\_\_\_  
Regional Forester (signature) Date