

Date of Report: 8/29/2008

**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:** Bear Gulch**B. Fire Number:** MT-CES-000061**C. State:** Montana**D. County:** Broadwater**E. Region:** R1**F. Forest:** Helena National Forest**G. District:** Townsend D1**H. Fire Incident Job Code:** PNEG7X**I. Date Fire Started:** 08/18/08**J. Date Fire Contained:** 08/25/08**K. Suppression Cost:** \$1,500,000**L. Fire Suppression Damages Repaired with Suppression Funds**

1. Fireline waterbarred (miles): 5.0  
2. Fireline seeded (miles): 0.0  
3. Other (identify):

**M. Watershed Number:** 100301010804**N. Total Acres Burned:** 755

NFS Acres (680)   Other Federal (0)   State (0)   Private (65)

**O. Vegetation Types:** Douglas fir (72%), sagebrush/shrub (10%), grass/forbs (9%), Lodgepole/Ponderosa pine (6%), other (3%)**P. Dominant Soils:** Soils within the Bear Gulch Fire perimeter are derived mainly from argillites, siltites, and quartzites parent materials. Sandstones and shales are found in some areas. The dominant soils are classified at the family level as loamy skeletal with loam and sandy loam surface textures. Surface rock ranges

in cover from 15 to 70 percent and in size from gravels to cobbles. Land Type units (LT) and attributes used in the analysis are from Soil Survey of the Helena National Forest (USDA, 2001)

Q. Geologic Types: Metasedimentary

R. Miles of Stream Channels by Order or Class: 0 miles

S. Transportation System

Trails: 0 miles      Roads: 0 miles

### **PART III - WATERSHED CONDITION**

A. Overstory Burn Severity (acres): 75 (low) 0 (moderate) 680 (high)  
Soil Burn Severity (acres): 200 (low) 500 (moderate) 55 (high)

B. Water-Repellent Soil (acres): 690

C. Soil Erosion Hazard Rating (acres):  
120 (low) 167 (moderate) 468 (high)

D. Erosion Potential: 13 tons/acre (year 1)

E. Sediment Potential: -- cubic yards / square mile

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

A. Estimated Vegetative Recovery Period, (years): 3 to 5

B. Design Chance of Success, (percent): na

C. Equivalent Design Recurrence Interval, (years): na

D. Design Storm Duration, (hours): na

E. Design Storm Magnitude, (inches): na

F. Design Flow, (cubic feet / second/ square mile): na

G. Estimated Reduction in Infiltration, (percent): na

H. Adjusted Design Flow, (cfs per square mile): na

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

A. Describe Critical Values/Resources and Threats:

The Bear Gulch Fire perimeter covers 755 acres, located mostly within an unnamed drainage tributary to Deep Creek. The channel most likely does not flow except during high-intensity summer rain events. A rough access road crosses the drainage on private land about 1/8 mile from the mouth. Deep Creek is on the opposite side of U.S. Highway 12 from the drainage. There are no culverts on either road.

There is no risk to structures or human health and safety.

Soil and Watershed Values: The burn area consists generally of steep slopes and shallow soils. Steeper slopes combined with relatively high burn severity result in a high probability for an increase in erosion as a result of the fire. Within the 401-acre unnamed drainage, the five-year-return-interval peak flow before the fire was modeled to be one cubic foot per second (cfs), whereas widespread hydrophobic conditions observed post-fire led to a modeled five-year peak flow of 37 cfs. If such an event were to occur before winter, the resulting debris torrent could fill in the valley bottom and possibly overtop Highway 12. Over the winter, hydrophobicity will degrade, leaving the drainage somewhat less vulnerable to larger rain events. However, the large area of moderate to high-severity burn in this drainage, the dry climate, and steep slopes will hamper recovery of groundcover species. The probability of higher peak flows and increased erosion will continue until groundcover vegetation has begun to recover over the next 3-5 years. In the event of a widespread soil erosion event, soil productivity will be degraded considerably. Peak flows were not modeled for other drainages included within the fire perimeter, as only small ridgeline portions of these basins (Bear Gulch and West Fork Cabin Gulch) were burned, and severity was generally low to moderate.

Vegetation Values: The Bear Gulch fire has an estimated 10.1 acres of dozer line and 1.4 acres of hand line. Fire and activities related to fire suppression create a significant disturbance to the landscape. This disturbance places the healthy, diverse plant communities at high risk of invasion by invasive noxious weeds. Specifically, areas near the highway where heavy equipment and trucks drove through to create fire line and access the fire are infested with spotted knapweed. It is probable that heavy equipment picked up seeds in these areas and deposited them in freshly disturbed soil as they proceeded up the ridges. Although grass seed is being planted in these areas as part of suppression rehabilitation, it is likely that the dozer lines will serve as conduits for noxious weeds into previously healthy vegetation communities. High-severity burn areas are particularly vulnerable to noxious weed invasion as well.

There are about 135 acres of known noxious weed infestations in the Bear Gulch Fire area. Spotted knapweed is the dominant invasive species in the fire area. Other species observed were Canada thistle, musk thistle, bull thistle, houndstongue, and cheatgrass. A field review on August 26, 2008, found that existing weed patches within the burned area burned with low to moderate vegetation effects and low to moderate soil burn severity. It is likely that existing weeds will re-spout quickly, and expand rapidly throughout the area.

#### B. Emergency Treatment Objectives:

The goal of emergency treatments will be to substantially reduce the existing populations of noxious weeds along firelines, and to monitor firelines and the burned area for expansion of noxious weeds in the year following the fire.

#### C. Probability of Completing Treatment Prior to Damaging Storm or Event: (not applicable)

Land \_\_\_ % Channel \_\_\_ % Roads/Trails \_\_\_ % Protection/Safety \_\_\_ %

#### D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land (weeds)	80%	70%	70%
Weed assessment needed in 09			
Channel	n/a		
Roads/Trails	n/a		
Protection/Safety	n/a		

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

Weed treatment and monitoring within the 755 acre burn area is justified to protect ecological integrity, soil productivity, and reduced weed spread potential on burned areas and onto currently unburned areas. The BAER team has the opinion that the value of protecting the ecological integrity and soil productivity of the burned area from noxious weed infestation easily exceeds the cost of treatment and monitoring, although this was not quantified.

F. Cost of Selected Alternative (Including Loss): **\$18,075**

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Dave Callery

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H. **Treatment Narrative:**

Land Treatments:

Invasive weeds can increase dramatically after a fire and post-fire herbicide application is a unique window of opportunity for effective control or containment (Asher et. al., 2002). Weed treatments in the Bear Gulch Fire area will consist of herbicide treatment of noxious weeds from existing infestations along roads at fire perimeter, dozer lines, or within fire perimeter. First year treatment area is approximately 145 acres. Approved herbicides and application techniques based on weed species, topography and environmental factors will be applied. Application methods include ATV and backpack sprayer.

Channel Treatments:

No Channel Treatment Prescribed at this time.

Roads and Trail Treatments:

No roads or trail treatments prescribed at this time.

Protection/Safety Treatments:

No protection/safety treatments prescribed at this time.

I. **Monitoring Narrative:**

National weed policy requires monitoring for effectiveness of treatment for at least 50% of treated areas. Because of the rapid potential for spread in the area affected by this fire, we are requesting 100% monitoring. The monitoring program will field review all treated areas for weed mortality, identify expansion of weed populations within the burned area and along firelines, and prescribe out-year treatments.

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

Line Items	Units	Unit Cost	NFS Lands		Other \$	Other Lands				All Total \$
			# of Units	BAER \$		# of units	Fed \$	# of Units	Non Fed \$	
<b>A. Land Treatments</b>										
weed treatment	acres	115	145	\$16,675	\$0		\$0		\$0	\$16,675
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<b>Subtotal Land Treatments</b>				\$16,675	\$0		\$0		\$0	\$16,675
<b>B. Channel Treatments</b>										
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<b>Subtotal Channel Treat.</b>				\$0	\$0		\$0		\$0	\$0
<b>C. Road and Trails</b>										
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<b>Subtotal Road &amp; Trails</b>				\$0	\$0		\$0		\$0	\$0
<b>D. Protection/Safety</b>										
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<b>Subtotal Structures</b>				\$0	\$0		\$0		\$0	\$0
<b>E. BAER Evaluation</b>										
assessment	each	6000	1	\$6,000			\$0		\$0	\$0
<i>Insert new items above this line!</i>				---	\$0		\$0		\$0	\$0
<b>Subtotal Evaluation</b>				---	\$0		\$0		\$0	\$0
<b>F. Monitoring</b>										
weed monitoring	acres	2	700	\$1,400	\$0		\$0		\$0	\$1,400
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<b>Subtotal Monitoring</b>				\$1,400	\$0		\$0		\$0	\$1,400
<b>G. Totals</b>				\$24,075	\$0		\$0		\$0	\$18,075
Previously approved										
<b>Total for this request</b>				<b>\$24,075</b>						

**PART VII - APPROVALS**

- /s/ Michael L. Cole for Kevin Riordan

8/29/2008

Forest Supervisor (signature)

Date
- Regional Forester (signature)

Date