

Date of Report: Dec 20, 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 #2 **changes from interim #1 highlighted in yellow**
☐ 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 DESCRIPTIONA. Fire Name: Big CreekB. Fire Number: MT-MCD-063C. State: MontanaD. County: ParkE. Region: NorthernF. Forest: GallatinG. District: Livingston

H. Fire Incident Job Code: PNC12X

I. Date Fire Started: July 25, 2006
2006 (now burning in low fuel/rocky area)J. Date Fire Contained: 90% contained as of Aug 26,K. Suppression Cost: \$5.2 million

L. Fire Suppression Damages Repaired with Suppression Funds

1. Fireline rehabilitated* (miles): 20
2. Also, 3 miles of existing open roads were used as firelines.

M. Watershed Number: 10070001100 (5th HUC)

N. Total Acres Burned: 12,180 as of Aug 12, 2006. An additional 300 acres have burned since Aug 26..

NFS Acres(5,096) Other Federal () State (0) Private (7,084)

O. Vegetation Types: Mixed grass/shrubland (40 % of fire area) lodgepole pine and Douglas fir (60 %)

P. Dominant Soils: Soils are moderately fine textured with many rock fragments. They are moderately productive and have low to moderate erosivity. Dominant parent materials are slope alluvium and colluvium over residuum derived from consolidated Tertiary volcanic conglomerates. Primary

landscape forming processes are stream downcutting, slope wash, and some debris flows. Dominant subgroups include Typic Argiborolls in grassland and transitional areas and Mollic Cryoboralfs in forested areas. Mineralogy classes are mixed. The dominant temperature regime is frigid with a relatively warm and dry climate. This area is an ecotone between forest and grassland.

Q. Geologic Types: volcanic conglomerate

R. Miles of Stream Channels by Order or Class: (1st order 22 miles; 2nd order 5 miles; 3rd order 5 miles; 4th order 1.3 miles)

S. Transportation System

Trails: 11 miles Roads: 28 miles

PART III - WATERSHED CONDITION

Burned Area Mapping (See Attached Map)

Public Land

Burn Intensity* (acres): 795 (low/unburned) 1,990 (moderate) 2,311 (high)
Burn Severity* (acres): 5,096 (low as defined below)

Private Land

Burn Intensity* (acres): 832 (low/unburned) 3,321 (moderate) 2,931 (high)
Burn Severity* (acres): 7,084 (low as defined below)

* Burn Intensity refers to vegetation effects. "High" means all vegetation is killed, and is blackened. "Low" means most vegetation is not burned. "Moderate" means there is a mosaic of "High" and "Low".

Burn Severity refers to soil effects or the degree of environmental change caused by fire. An area is classified as "high" burn severity if duff and litter layers have been completely consumed to ash such that little or no effective ground cover remains, surface soil is often loose, single grained with little sign of intact structure or fine roots. (It is important to compare to unburned areas, since sometimes this is the natural condition.) Soil structure is often destroyed, and fine roots in surface soil have been consumed. Surface soil which, prior to the fire, may have had stable granular structure can, after a high severity burn, be loose and single grained, due to volatilization of roots and binding organic compounds.

"Low" burn severity means that generally surface litter is consumed and duff deeply charred or consumed, but recognizable char and some unburned remnants of leaf or needle litter, root crowns, and duff may remain. Ash and char are present. Soil characteristics are not significantly visibly altered, other than a darkening of the first centimeter of soil. Though these soils are bare, they will resprout plants within weeks. They do contribute, however, to watershed response.

"Moderate" burn severity is a mosaic of "High" and "Low" burn severity.

B. Water-Repellent Soil (acres): 8,071

C. Soil Erosion Hazard Rating (acres):

5,287 (low) 6,353 (moderate and high)

- D. Erosion Potential: 5.2 ton/acre* (high intensity)
E. Sediment Potential: 21.6 cubic yards / square mile*

PART IV - HYDROLOGIC DESIGN FACTORS

- A. Estimated Vegetative Recovery Period, (years): 2 grass/shrublands and understory/conifer
B. Design Chance of Success, (percent): 80
C. Equivalent Design Recurrence Interval, (years): 5 (50 year unburned event)
D. Design Storm Duration, (hours): 6
E. Design Storm Magnitude, (inches): 1.4
F. Design Flow, (cubic feet/second/square mile): 9.65
G. Estimated Reduction in Infiltration, (percent): 40
H. Adjusted Design Flow, (cfs per square mile): 36.6

PART V - SUMMARY OF ANALYSIS

This request identifies additional trail resources at risk, additional weed treatment needed on Federal lands, and weed treatment needed on adjacent private lands using the Wyden amendment.

- A. Describe Critical Values/Resources and Threats:

Summary:

The Big Creek fire burned about 12,500 acres across primarily mid and lower-elevation zones of watershed 10070001100 (Big Creek - Fridley Creek) tributary to the Upper Yellowstone River. The fire was about 40% high burn intensity across primarily grassland and Douglas fir. The primary value at risk is undersized or inadequately maintained road culverts, trails on steep, burned ground, and weed infestation.

Most of the soils examined displayed hydrophobic conditions in burned and unburned areas. Even though the Big Creek burn was generally shallow and of low burn severity, stormflow runoff response could be robust through the remainder of 2006 and into the summer of 2007 due to reduced ground cover. During the winter of 2006 and 2007, fire induced water repellency is expected to be reduced, particularly after greenup. Vegetative recovery is expected to be robust during the summer of 2007.

The middle part of Fridley Creek had extensive high intensity burn but shallow burn depth. Revegetation response is expected to be robust in 2007 but the drainage will be quite responsive to localized intensive rain events.

Note: Since 55% of the entire burned area is private land outside and inside the National Forest Boundary, the NRCS (Natural Resources Conservation Service) provided two specialists (the local District Conservationist and an engineer) to assist in this assessment. They participated in the entire review of private and public values at risk and provided valuable input on range, private dwellings, culvert evaluations, and design. They also coordinated directly with landowners in the area.

Access Routes and Trail Infrastructure The Big Creek Fire burned at high intensity along the Fridley Lake and the Horseshoe Basin trails. Slopes are steep with many standing burned trees. These trails are now subject

to increased runoff that is likely to cause significant contributions of sediment to nearby streams, soil loss and the creation of gullies as a result of increased water being channeled along trails. There is an urgent need to improve drainage on these trails prior to anticipated high precipitation events next summer.

Range Vegetation and Invasive Species: Approximately 2,288 acres of known noxious weed infestation occurs within and adjacent to the fire area including spotted knapweed, Canada thistle, musk thistle, and yellow toadflax. Many of these areas are along roads or near dozer lines, which then can act as vectors for weed spread. The new seedbed created by the burned landscape is likely to increase the spread of weeds. Vulnerable vegetation types including burned woody draws, uplands, shrublands, meadows, and timbered stands are at risk from weed spread. Blackened areas include extensive private lands having known weed infestations. These lands are intermingled with Forest Service lands, resulting in a high invasion potential.

B. Emergency Treatment Objectives:

Access routes and trail infrastructure: Reduce erosion, trail template failure, and stream sedimentation by installing/ re-installing waterbars at critical locations along trails on steep slopes in burned areas. Provide for crew safety by removing hazard trees.

Range Vegetation and Invasive Species: Immediate control of known weed infestations and monitoring most likely vectors of weed spread will reduce the risk of expansion of existing infestations and allow burned plant communities to recover more rapidly on burned National Forest land.

Treatments on private land are to protect adjacent burned National Forest lands from rapid infestation on burned ground.

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

Land **100** % Channel % Roads/Trails **80** % Protection/Safety %

D. Probability of Treatment Success

| | Years after Treatment | | |
|--------------------|-----------------------|-----------|-----------|
| | 1 | 3 | 5 |
| Land | | | |
| (weed treatment) | 90 | 70 | 60 |
| Channel | na | na | na |
| Roads/Trails | 80 | 60 | 80 |
| Protection/Safety* | 90 | 50 | 50 |
| | | | |
| | | | |

E. Cost of No-Action (Including Loss): **\$145,000**

F. Cost of Selected Alternative (Including Loss): **\$132,000**

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

Team Leader: Henry F. Shovic

Email: hshovic@fs.fed.us

Phone: 406-587-6714

FAX 406-587-6758

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 - Weed Expansion: Aggressively treat existing sites for the first year. Hand-treat 980 acres of known infestation in burned areas (Closeup Three). Hand-treat 280 acres of known infestation on private lands immediately adjacent to National Forest lands, equivalent to a 300 foot buffer on burned lands for all areas having known infestation. See the attached map (Closeup Three) for known infestations and their relationship to private lands.

Spot treatment of individual plants will include truck or ATV spraying and backpack spraying, used where consistent with remaining vegetation, weed threat, and terrain. All treatments comply with State of Montana regulations.

Private land treatments are needed to protect Forest Service lands. All landowners have verbally agreed to this treatment. No treatment will be performed without signed formal participating agreements (See Closeup Three for location of private lands).

This interim #2 request for 2008 weed treatments will consist of treating approximately 1055 acres of known weed infestations within the burned area which consist of 75 acres from the initial request (approved 9/5/2007) and 980 acres from the interim #1 request (approved 1/29/2007). Weed treatments will be photo documented, locations recorded with GPS, and entered into the FACTS database.

Trail Treatments: Trail #240 (Fridley Lake Trail) passes through the burned area. About 4.1 miles of this trail are in forested, high intensity burned areas having steep continuous slopes. See the attached map (Closeup One). This trail will need an estimated 80 waterbar/ drainage dip/ improvements to reduce erosion and channeling of water.

Part of Trail #241 (Horseshoe Basin Trail) is within and next to the burned area perimeter (Closeup Two). This area burned over after this map was made, raising the total acreage burned to over 14,000 from the present 12,000. An estimated 50 waterbars will be installed on this trail segment to reduce erosion and channeling of water.

Channel Treatments: No treatments proposed.

Protection/Safety Treatments: Hazard tree removal is for safety of trail crews working on this project. Estimates are 350 trees for the 4.6 miles of trail on steep, burned land having a previous tree cover (See Closeups One and Two).

I. Monitoring Narrative:

Monitoring is funded through the initial request.

Part VI – Emergency Stabilization Treatments and Source of Funds

Interim Request

| Line Items | Units | Unit Cost | NFS Lands | | Other \$ | Other Lands | | | | All Total \$ |
|--------------------------------------|-------|-----------|------------|-----------|----------|-------------|--------|------------|------------|--------------|
| | | | # of Units | BAER \$ | | # of units | Fed \$ | # of Units | Non Fed \$ | |
| A. Land Treatments | | | | | | | | | | |
| | | | | | \$0 | | \$0 | | \$0 | \$0 |
| Ground Herbicide Treatment (NF land) | AC | 56.345 | 1055 | \$59,444 | \$0 | 0 | \$0 | 0 | \$0 | \$59,444 |
| | AC | | | \$0 | \$0 | | \$0 | | \$0 | \$0 |
| | | | | | \$0 | | \$0 | | \$0 | \$0 |
| | | | | | \$0 | | \$0 | | \$0 | \$0 |
| | | | | | \$0 | | \$0 | | \$0 | \$0 |
| | | | | | \$0 | | \$0 | | \$0 | \$0 |
| Subtotal Land Treatments | | | | \$59,444 | \$0 | | \$0 | | \$0 | \$59,444 |
| B. Channel Treatments | | | | | | | | | | |
| Insert new items above this line! | | | | \$0 | \$0 | | \$0 | | \$0 | \$0 |
| Subtotal Channel Treat. | | | | \$0 | \$0 | | \$0 | | \$0 | \$0 |
| C. Road and Trails | | | | | | | | | | |
| | | | | | \$0 | | \$0 | | \$0 | \$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 |
| Subtotal Road & Trails | | | | \$0 | \$0 | | \$0 | | \$0 | \$0 |
| D. Protection/Safety | | | | | | | | | | |
| | | | | | \$0 | | \$0 | | \$0 | \$0 |
| Subtotal Structures | | | | \$0 | \$0 | | \$0 | | \$0 | \$0 |
| E. BAER Evaluation | | | | | | | | | | |
| | | | | | | | \$0 | | \$0 | \$0 |
| | | | | | | | \$0 | | \$0 | \$0 |
| Insert new items above this line! | | | | --- | \$0 | | \$0 | | \$0 | \$0 |
| Subtotal Evaluation | | | | --- | \$0 | | \$0 | | \$0 | \$0 |
| F. Monitoring | | | | | | | | | | |
| | | | | | | | | | | |
| Insert new items above this line! | | | | \$0 | \$0 | | \$0 | | \$0 | \$0 |
| Subtotal Monitoring | | | | \$0 | \$0 | | \$0 | | \$0 | |
| G. Totals | | | | \$39,108 | \$0 | | \$0 | | | \$172,060 |
| Previously approved | | | | \$208,185 | \$0 | | | | | |
| Total for this request | | | | \$ 39,108 | | | | | | |

*note that although the FY 08 weed treatments are for \$59,994 a balance of \$20,336 unspent remains in the GNF Big Creek BAER authorization hence the total interim request #2 is \$59,994 - \$39,108 = \$39,108.

PART VII - APPROVALS

1. _____
Forest Supervisor (signature)

12/20/0
Date

2. _____
Regional Forester (signature)

Date