USDA-FOREST SERVICE FS-2500-8 (6/06)

Date of Report: 10/03/2011

2011

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[X] 1. Funding request for estimated emergency stabilization funds
[ ] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

[X] 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: Hammer Creek

B. Fire Number:

C. State: Montana

D. County: Lake

E. Region: Northern (1)

F. Forest: Flathead

G. District: Spotted Bear

H. Fire Incident Job Code: P1GA1S

I. Date Fire Started: August 8, 2011

J. Date Fire Contained: No active suppression

K. Suppression Cost:

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 0
2. Fireline seeded (miles): 0
3. Other (identify): 0

M. Watershed Numbers: 170102110306

N. Total Acres Burned: 6,314 total acres as of September 29, 2011
NFS Acres(6,314) Other Federal (000) State (000) Private (000)

O. VegetationTypes: Douglas fir, larch, sub-alpine fir.

P. Dominant Soils:

Map Unit	Landform	Parent Material	Soil Classsification
23-7	Glaciated mountain slopes and ridges	Glacial till, Metasedimentary rocks	Loamy-skeletal, mixed Andeptic Cryoboralfs
23-8	Glaciated mountain slopes and ridges	Glacial till, Metasedimentary rocks	Loamy-skeletal, mixed Andeptic Cryoboralfs
24-8	Glaciated mountain slopes and ridges	Glacial till, Metasedimentary rocks	Loamy-skeletal, mixed Dystric Cryochrepts
26A-7	Moraines	Glacial till	Loamy-skeletal, mixed Andeptic Cryoboralfs
26A-8	Glaciated mountain slopes	Glacial till	Loamy-skeletal, mixed Andeptic Cryoboralfs
54	Cirque basins	Metasedimentary rocks	
55	Glaciated mountain slopes	Metasedimentary rocks	
72	Cirque headwalls and alpine ridges	Metasedimentary rocks	Medial-skeletal Entic Cryandepts
73	Glacial trough walls	Glacial till, Metasedimentary rocks	Loamy skeletal, mixed Andic Cryochrepts
76	Structural breaklands	Metasedimentary rocks	Ochrepts
77	Structural breaklands	Metasedimentary rocks	Ochrepts

Q. Geologic Types: Pre-cambrian metesediments including argillite, quarzites, limestones, and siltites.

R. Miles of Stream Channels by Order or Class:

Stream miles by order within perimeter.

Stream Order	Length (Miles)
1	3
2	3
3	
4	
5	
Grand Total	6

S. Transportation System

Trails: 7.0 miles Roads: 0 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): __ (unburned); 631 (low); 3,788 (moderate); 1,894 (high)

B. Water-Repellent Soil (acres): all high severity portions have varying degrees of water repellency

C. Soil Erosion Hazard Rating (acres):
3,694 (low) 1,200 (moderate) 1,420 (high)

D. Erosion Potential: 0.5 tons/acre (estimate)

E. Sediment Potential: 6,400 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

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

B. Design Chance of Success, (percent): 80

C. Equivalent Design Recurrence Interval, (years): 5

D. Design Storm Duration, (hours): 6 hour

E. Design Storm Magnitude, (inches): 1.5 inches

F. Design Flow, (cubic feet / second/ square mile): 5 cfs/mi^2

G. Estimated Reduction in Infiltration, (percent): 30

H. Adjusted Design Flow, (cfs per square mile): 70 cfs/mi^2

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

Summary of Potential Watershed Response

The majority of precipitation in the burned area occurs as snow during the winter months. Peak runoff typically occurs during snowmelt, snowmelt mixed with rain, or in rare cases, rain-on-snow. Runoff potential is relatively high in areas that experienced high burn severity. However, the mosaic pattern of burn severity levels reduces the risk of larger scale runoff events. The burned area is located mostly within the Hammer Creek watershed, a small 2nd order tributary to the South Fork Flathead River. The headwaters are relatively steep, but the lower portions of the watershed are located on relatively gentle terrain (ground moraine) and river terraces and floodplains formed by the South Fork Flathead River. Erosion potential is greatest on the steeper hillslopes in the mid and upper portions of the watershed.

Values at Risk:

The risk matrix below was used to evaluate the Risk Level for each value identified during Assessment (Exhibit 2 of Interim Directive No.: 2520-2010-1). Proposed treatments and their associated risk levels are discussed below in the following categories: Life, Property, and Natural Resources.

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**

Human Life and Safety: Forest Users on Backcountry Trails

FS trails exist throughout the burn area and there is a risk to users from hazard trees.

Risk Assessment – Threats to trail users (and Forest personnel) from hazard trees

Probablity of Damage or Loss: Possible

Magnitude of Consequence: Moderate – personal injury or fatality

Risk Level: Moderate – Identify and remove hazard trees with hand crews

Property: Forest Service Trails

Risk Assessment – Threats to Forest Service trails and associated structures

Probablity of Damage or Loss: Possible – Increased potential for erosion of surface tread. Soil deposition on trail surfaces from adjacent hillslopes may also occur on numerous trail sections on steeper slopes. These scattered locations total approximately 5 miles in length.

Magnitude of Consequence: Moderate – Eroded material could potentially enter nearby streams, and trail damage could compomise user safety.

Risk Level: Intermediate – Complete trail inspection in all burned areas to ensure proper drainage structures are in place. Where needed, install water bars and other drainage structures to minimize the potential for surface erosion and sediment delivery. Considering the existing conditions found on the trails surveyed, trail damage and some off-trail erosion/sediment delivery to channels is likely to occur along identified sections of the trails with vulnerable conditions. Trail incision and complete loss of trail tread could occur, therefore resulting in loss of trail infrastructure possibly leading to significant repairs and costs to restore sections of trail. Loss of water control may lead to off-trail slope erosion and gully formation. Once active gullies are developed, gullies will continue to erode during each storm event and contribute to downstream sedimentation and trail instability. Hazard trees will be identified and felled to protect trail crews on approximately 13 miles of trail.

Natural Resources: Soil Productivity and Water Quality

Areas burned at high severity, and some burned at moderate severity without the potential for needle cast are at elevated risk of soil erosion and degradation of watershed function. This risk assessment only applies to hillslopes, floodplains, and streams not influenced by trails.

Risk Assessment – Threats to soil productivity and watershed function

Probablity of Damage or Loss: Unlikely – based on pattern of burn severity, needle cast, and abundant down woody material.

Magnitude of Consequence: Minor – erosion hazard is elevated in some areas.

Risk Level: Low – No hillslope or channel treatments necessary. Primary risk of erosion and sediment delivery is associated with the trail system (discussed in the Property Section).

Natural Resources: Native Plant communities

There are known infestations of spotted knapweed, thistles, common toadflax, and other noxious weeds within and adjacent to the burned areas. The trails, meadows and Big Prairie administrative site all have existing infestations. Livestock and hikers use all of these areas and will be the main vector of weed seed transport through and to the fire area.

Risk Assessment – Threats to native plant communities and animal health due to toxic weeds.

Probablity of Damage or Loss: Very Likely - Based on burn severity and proximity to known weed infestations.

Magnitude of Consequence: Major – Loss of native plant communities and spread of toxic weeds.

Risk Level: Very High – Invasive species detection surveys and spraying within and adjacent to the burned area. Primary risk comes from the existing infestations along Trails 80 and 193, as well as the Big Prairie administrative site. Other trails in the burned area may already be infested (Trails 127, 734, 743). The meadows in the burned area contain existing infestations that may spread into other parts of the burn. Invasive species mitigation is only allowed during year one.

B. Emergency Treatment Objectives:

As noted above, threats to life, property, and natural resources could potentially result from post-fire conditions in the burned area. For these reasons the primary treatment objectives are:

- *Minimize potential effects of post-fire conditions on human life and safety. Primary hazards include falling trees, subsequent trail blockage, and trail washouts.*
- *Minimize potential effects of post-fire conditions on natural resources, primarily soil productivity, water quality, and native plant communities. Primary hazards include erosion, sediment delivery, and spread of noxious weeds.*

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

Land **80** % Channel **N/A** % Roads/Trails **80** % Protection/Safety **80** %

D. Probability of Treatment Success

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

E. Cost of No-Action (Including Loss): $99,700

F. Cost of Selected Alternative (Including Loss): There remains a 20% chance that the proposed treatments for this initial work may not succeed. Total cost of the action alternative plus this 20% chance of failure is $71,390.

G. Skills Represented on Burned-Area Survey Team:

[X] Hydrology	[ ] Soils	[ ] Geology	[ ] Range
[] Forestry	[ ] Wildlife	[ ] Fire Mgmt.	[ ] Engineering
[X] Recreation	[ ] Ecology	[X] Botany	[X] Archaeology
[X] Fisheries	[ ] Research	[ ] Landscape Arch	[X] GIS

Team Leader: Craig Kendall
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H. Treatment Narrative:

The proposed treatments on National Forest System lands can help to reduce the impacts of the fire, but treatments will not completely mitigate the effects of the fire. The treatments listed below are those that are considered to be the most effective on National Forest System lands given the local setting including topography and access. The attached Excel worksheet summarizes the funding request.

Road and Trail Treatments:

- Remove hazard trees on 13 miles of trail.
- Install and/or maintain existing drainage control structures on 5 miles of trail.
- Install signs to warn trail users of post-fire hazards.

Land Treatments:

- Spray noxious weeds on 40 acres, mostly along the highest priority trails, open meadows and the airstrip. These trails and open areas already have weeds present that likely will rapidly spread into adjacent burned or disturbed areas.

I. Monitoring Narrative:

- Weeds and sensitive plants are a major concern in the burned area. Funding has been requested to support a monitoring effort in the summer of 2012 to determine current status of weeds and sensitive plants. If monitoring determines additional treatment needs are necessary, an interim 2500-8 will be prepared to request additional funds.

PART VII - APPROVALS

1. /s/Chip Weber _____ 10/03/2011
Forest Supervisor Date

2. /s/_Leslie Weldon_____ XXXX/2011
Regional Forester Date