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

Date of Report: 10/05/2012

2012

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: Prisoner Lake B. Fire Number: P1G8D9

C. State: Montana D. County: Powell

E. Region: Northern (1) F. Forest: Flathead

G. District: Spotted Bear H. Fire Incident Job Code: P1G8D9

I. Date Fire Started: September 9, 2012 J. Date Fire Contained: No active suppression

K. Suppression Cost: <$500,000

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: 170102090501, 170102090502

N. Total Acres Burned: 3,473 as of September 30, 2012
NFS Acres(3,473) Other Federal () State () Private ()

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

P. Dominant Soils: The following landtypes are within the burned area: 73, 76, 77, 78, 72, 54, 55

Map Unit	Landtype Association (landform)	Parent Material	Order III Landypes
II	Glacial Cirque Basins	Limestone and Dolomite	21-7, 21-8, 21-9
VI	Peaks and Alpine Ridges Sparsely Vegetated Rockland	Limestone and Dolomite	72, 54, 55
VII	Forested Cool Aspect Breaklands	Limestone and Dolomite	73, 76, 77

Q. Geologic Types: Cambrian sediments including limestone and dolomite.

R. Miles of Stream Channels by Order or Class:

Stream miles by order within perimeter.

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

S. Transportation System

Trails: 2.9 miles Roads: 0 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 655 (unburned); 1259 (low); 838 (moderate); 319 (high)

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

C. Soil Erosion Hazard Rating (acres):
2,673 (low) ~500 (moderate) ~300 (high)

D. Erosion Potential: 0.8 tons/acre (avg. across the entire fire, localized areas are much higher)

E. Sediment Potential: 0.5 tons/acre (avg. across the entire fire, localized areas are much higher)

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 (avg. across the entire fire, localized areas are much higher)

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

Summary of Potential Watershed Response

The burned area is located primarily in the headwaters of the Spotted Bear River system. About half the fire is in the headwaters of the Spotted Bear River itself, and the other half is within the Wall Creek drainage. Two trails run through the burned area: Trail 90 runs up through Wall Creek and Trail 243 runs along the ridge between the Spotted Bear River drainage and Wall Creek drainage.

Middle hillslopes consist of forested breaklands, and alpine vegetation. High elevation portions of the watershed consist of alpine ridges that are void of vegetation.

The majority of precipitation in the burned area occurs as snow during the winter months. Peak discharges 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 and moderate burn severity. In areas classified as low burn severity, needle-cast can create a degree of ground cover that can enhance infiltration during rain events.

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

Employee and user safety on trails 90 and 243 is a concern due to trail damage[1] and hazard trees

Risk Assessment – Threats to trail users from hazard trees and fallen trees

Probablity of Damage or Loss: Possible

Magnitude of Consequence: Moderate – personal injury or fatality

Risk Level: Moderate – Remove hazard trees and fallen 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 and wetland site disturbance. Soil deposition on trail surfaces from adjacent hillslopes may also occur.

Magnitude of Consequence: Moderate – Eroded material will lower site productivity and 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, concentrated flow, gully initiation, 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 develop, they can continue to erode during each storm event and contribute to downstream sedimentation and trail instability.

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 severly burned areas,

[1] Trail damage may include loss of tread and loss of structures including water bars, retaining walls, cribs, pungeons, or turnpikes.

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

Natural Resources: Native Plant communities

Noxious weeds are not believed to be in the area, but if they are, they could spread into burned areas.

Risk Assessment – Threats to native plant communities.

Probablity of Damage or Loss: Possible - Based on burn severity and proximity to potential weed populations.

Magnitude of Consequence: Moderate – Loss of native plant communities and spread of noxious weeds.

Risk Level: Intermediate – Invasive species monitoring next year will determine if weeds are present. Primary risk comes from the existing populatons that may be present along Trail 380. Burned Area ***Emergency*** *Response (BAER) policy only allows invasive species mitigation the first year following the fire.*

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, particularly on Trail 380 within moderate and high burn severity. Primary hazards include falling trees and trail stability.

- Minimize potential effects of post-fire conditions on natural resources, primarily soil productivity, water quality, wetland, and native plant communities. Primary hazards includes erosion, concentrated flow, sediment delivery, and spread of noxious weeds.

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

Land **0** % Channel **N/A** % Roads/Trails **10** % Protection/Safety **10** %

D. Probability of Treatment Success

	Years after Treatment		
	1	2	3
Land	0	100	N/A
Channel	N/A	N/A	N/A
Roads/Trails	0	100	N/A
Protection/Safety	0	100	N/A

E. Cost of No-Action (Including Loss): $46,480

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 $35,736.

G. Skills Represented on Burned-Area Survey Team:

[X] Hydrology	[X] Soils	[X] 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

Email: ckendall@fs.fed.us Phone: 406-758-6485

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:

- Install and/or maintain existing drainage control structures on 4.5 miles of trail that will reduce potential resource impacts, future damage to the trail infrastructure, and provide for safety.
- Repair trail turnpike to protect wetland
- Remove hazard trees as necessary to provide safe environment for FS employees and trail users.
- Install signs to warn trail users of post-fire hazards.

Land Treatments:

- Monitor burned area in 2013 to determine if weeds are present.

I. Monitoring Narrative:

- Trail drainage structures will be reviewed to ensure proper function and the need for maintenance.

Table VI

Line Items	Units	Unit Cost	NFS Lands # of Units	BAER $	Other $	All Total $
A. Land Treatments						
Weed Assessment & Treatment	acres	80	10	$800	$0	$0
				$0	$0	$0
Subtotal Land Treatments				$800	$0	$0
B. Channel Treatments						
Insert new items above this line!				$0	$0	$0
Subtotal Channel Treat.				$0	$0	$0
C. Road and Trails						
Trail Erosion Control and drainage structures	miles	1060	2.4	$2,544	$0	$0
Culvert Replacement	each	350	1	$350	$0	$0
Install Curb Logs	miles	7000	0.25	$1,750	$0	
Install Turnpike	feet	55	145	$7,975		
Hazard Tree Removal	miles	630	2	$1,260		
Insert new items above this line!				$0	$0	$0
Subtotal Road & Trails				$13,879	$0	$0
D. Protection/Safety						
Post-fire Hazard Signs	each	420	6	$2,520		
					$0	$0
Insert new items above this line!				$0	$0	$0
Subtotal Structures				$2,520	$0	$0
E. BAER Evaluation						
Team Evaluation	each				$3,000	
				---	$0	
Insert new items above this line!				---	$0	$0
Subtotal Evaluation				$0	$3,000	$0
F. Monitoring						
Post-fire Monitoring-Drainage Structures	each			$1,000	$0	
Insert new items above this line!				$0	$0	$0
Subtotal Monitoring				$1,000	$3,000	$0
G. Totals				**$18,199**	$3,000	**$0**

PART VII - APPROVALS

1. /s/Chip Weber _____ 10/03/2012 _____
Forest Supervisor Date

2. _____ _____
Regional Forester Date