

2012

Date of Report: 10/05/2012

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: Prisoner Lake

B. Fire Number: P1G4AN

C. State: Montana

D. County: Powell

E. Region: Northern (1)

F. Forest: Flathead

G. District: Spotted Bear

H. Fire Incident Job Code: P1G4AN

I. Date Fire Started: July 30, 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: 170102090207

N. Total Acres Burned: 4,145 total acres as of September 30, 2012
NFS Acres(4,145) 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 Landtypes
II	Glacial Cirque Basins	Limestone and Dolomite	21-7, 21-8, 21-9
III	Forested Ground Moraine	Limestone and Dolomite	26-7, 26-8, 23-7, 23-8, 24-7, 24-8
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	6.5
2	1.5
3	
4	
5	
Grand Total	8

S. Transportation System

Trails: 4.0 miles Roads: 0 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): ___ (unburned); 782 (low); 2,502 (moderate); 1,720 (high)

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

C. Soil Erosion Hazard Rating (acres):
4,145 (low) ___ (moderate) ___ (high)

D. Erosion Potential: 0.8 tons/acre

E. Sediment Potential: 0.5 tons/acre

PART IV - HYDROLOGIC DESIGN FACTORS

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

B. Design Chance of Success, (percent):	<u>80</u>
C. Equivalent Design Recurrence Interval, (years):	<u>5</u>
D. Design Storm Duration, (hours):	<u>6 hour</u>
E. Design Storm Magnitude, (inches):	<u>1.5 inches</u>
F. Design Flow, (cubic feet / second/ square mile):	<u>5 cfs/mi²</u>
G. Estimated Reduction in Infiltration, (percent):	<u>30</u>
H. Adjusted Design Flow, (cfs per square mile):	<u>70 cfs/mi²</u>

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

Summary of Potential Watershed Response

The burned area is located primarily within the headwaters of the South Fork White River. Approximately 4 miles of Trail 380 runs along the valley bottom near the main stem, crosses the stream and runs up into the headwaters near an unnamed lake. The valley bottom along the main stem of South Fork White River is relatively wide and consists of forested ground moraine. Middle hillslopes consist of forested breaklands, alpine vegetation, and some avalanche chutes on the east side of the watershed. High elevation portions of the watershed consist of cirque basins and 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 burn severity. However, the majority of high severity burn occurred on the valley bottom where slopes are relatively gentle. In areas classified as low and moderate 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

User safety on trail 380 is a concern due to trail damage¹ and hazard trees

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

Probability of Damage or Loss: Possible

Magnitude of Consequence: Moderate – personal injury or fatality

Risk Level: Moderate – Remove all hazard trees and fallen trees with hand crews

Property: Forest Service Trails

Risk Assessment – Threats to Forest Service trails and associated structures

Probability of Damage or Loss: Possible – Increased potential for erosion of surface tread. Soil deposition on trail surfaces from adjacent hillslopes may also occur.

Magnitude of Consequence: Moderate – Eroded material could potentially enter nearby streams, and trail damage could compromise 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 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

Probability 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

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

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

Risk Assessment – Threats to native plant communities.

Probability 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 populations that may be present along Trail 380. 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, particularly on Trail 380 within moderate and high burn severity. Primary hazards include falling trees.
- Minimize the post-fire effects on natural resources, primarily soil productivity, water quality, native plant communities, and trail infrastructure. Primary hazards includes erosion, 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): \$18,060

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 \$14,242.

G. Skills Represented on Burned-Area Survey Team:

☒ Hydrology ☒ Soils ☒ Geology ☐ Range
☐ Forestry ☐ Wildlife ☐ Fire Mgmt. ☐ Engineering

2. /s/ Leslie Weldon XXXX/2012
Regional Forester Date