

2011

Date of Report: 10/20/2011

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: Puzzle Creek

B. Fire Number:

C. State: Montana

D. County: Flathead

E. Region: Northern (1)

F. Forest: Flathead

G. District: Hungry Horse

H. Fire Incident Job Code: P1GFC7

I. Date Fire Started: September 9, 2011

J. Date Fire Contained:

K. Suppression Cost:

L. Fire Suppression Damages Repaired with Suppression Funds

1. Fireline waterbarred (miles): No suppression
2. Fireline seeded (miles): No suppression
3. Other (identify): No suppression

M. Watershed Numbers: 170102110306

N. Total Acres Burned: 2,153 total acres as of October 12.

NFS Acres(2,153) Other Federal (000) State (200) Private (000)

O. Vegetation Types: Douglas fir, sub-alpine fir, spruce.

P. Dominant Soils: Landtype 76: structural breaklands with residual soils. Soils formed in cretaceous shale, sandstone, and conglomerate. Soils are highly erodible and very sensitive to disturbance.

Q. Geologic Types: Cretaceous shale, sandstone, and conglomerate.

R. Miles of Stream Channels by Order or Class:

Stream miles by order within perimeter.

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

S. Transportation System

Trails: 0.0 miles Roads: 1.4 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): ___ (unburned); 215 (low); 1,077 (moderate); 861 (high)

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

C. Soil Erosion Hazard Rating (acres):
1,292_ (low) 861 (moderate) 000 (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): 5

B. Design Chance of Success, (percent): 90

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): 60 cfs/mi²

G. Estimated Reduction in Infiltration, (percent): 80

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

108 cfs/mi²

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 on steep hillslopes dissected by perennial and intermittent streams. The Puzzle Creek area is near the Continental Divide and is known to experience high intensity thunderstorms and high winds.

Values at Risk:

The risk matrix below, Exhibit 2 of Interim Directive No.: 2520-2010-1, was used to evaluate the Risk Level for each value identified during Assessment.

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 the Puzzle Creek Road

The Puzzle Creek Road (FSR 569) is open on a seasonal basis to motorized use. It is also used by snowmobilers in the winter months.

Risk Assessment – Threats to travelers on Forest Roads

Probability of Damage or Loss: Possible

Magnitude of Consequence: Moderate – personal injury or fatality

Risk Level: Moderate – Hazard trees will be removed through commercial timber harvest operations. No funding is requested through the BAER program for hazard tree removal.

Property: Forest Service Roads

FS road 569 is located immediately down-slope of the burned area. This is a very wet area and the road is in need of drainage work. In addition, there are 2 relief culverts that are not functioning that need to be repaired or replaced. There are also 4 stream culverts that are under-sized.

Risk Assessment – Threats to Road 569 due to lack of proper drainage

Probability of Damage or Loss: Very Likely

Magnitude of Consequence: Major – Culvert failure and/or accelerated road erosion.

Risk Level: Very High – Install rolling dips and relief culverts where necessary. Upgrade undersized culverts at stream crossings.

Natural Resources: Water Quality and Aquatic Habitat

FS road 569 is located immediately down-slope of the burned area. This is a very wet area and the road is in need of drainage work. In addition, there are relief culverts that are not functioning that need to be repaired or replaced. There are also stream culverts that are under-sized. The streams in the burned area flow into Puzzle Creek, which flows into Morrison Creek. Morrison Creek is a bull trout stream. Culvert failures and/or road erosion have the potential to degrade water quality and aquatic habitat.

Risk Assessment – Threats to water quality and aquatic habitat

Probability of Damage or Loss: Very Likely

Magnitude of Consequence: Major – Degraded water quality and aquatic habitat may result from culvert failures and/or road erosion in the burned area.

Risk Level: Very High – Install rolling dips and relief culverts where necessary. Upgrade undersized culverts at stream crossings.

Natural Resources: Native Plant community

There are known infestations of spotted knapweed, hawkweed, ox-eye daisy and many other noxious weeds on Road 569 which is within the burned area. This area is adjacent to wilderness which makes it a high priority treatment area. The forest has been working to keep weeds in check in this area for several years.

Risk Assessment – Threats to native plant communities.

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

Magnitude of Consequence: Major – Loss of native plant communities in the burned area.

Risk Level: Very High – Invasive species spraying and treatment monitoring within and adjacent to the burned area. Primary risk comes from the infestations along Road 569. 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 natural resources, primarily soil productivity, water quality, and native plant communities. Primary hazards include erosion, sediment delivery, and spread of noxious weeds.*
- Minimize potential effects of post-fire conditions on human life and safety. Primary hazards include falling trees (will be addressed through timber salvage).*

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

Land 90 % Channel N/A % Roads/Trails 90 % Protection/Safety 90 %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	75	90	80
Channel			
Roads/Trails	85	90	95
Protection/Safety	85	90	95

E. Cost of No-Action (Including Loss): \$40,000

F. Cost of Selected Alternative (Including Loss): There remains a 10% chance that the proposed treatments for this initial work may not succeed. Total cost of the action alternative plus this 10% chance of failure is \$14,600.

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 type="checkbox"/> Forestry	<input checked="" type="checkbox"/> Wildlife	<input checked="" type="checkbox"/> Fire Mgmt.	<input checked="" type="checkbox"/> Engineering
<input checked="" type="checkbox"/> Recreation	<input type="checkbox"/> Ecology	<input checked="" type="checkbox"/> Botany	<input type="checkbox"/> Archaeology
<input checked="" type="checkbox"/> Fisheries	<input type="checkbox"/> Research	<input type="checkbox"/> Landscape Arch	<input type="checkbox"/> 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:

- Install and/or maintain existing drainage control structures on 1.5 miles of system road.
- Replace under-sized culverts.
- Install signs to warn trail users of post-fire hazards.

Land Treatments:

- Spray noxious weeds on 5 acres, mostly along Road 569. This road already has weeds present that could rapidly spread into adjacent burned areas.

I. Monitoring Narrative:

If monitoring determines additional treatment needs are necessary, an interim 2500-8 will be prepared to request additional funds.

PART VII - APPROVALS

- | | | |
|----|---|---------------------------|
| 1. | <u>/s/Chip Weber</u>
Forest Supervisor | <u>10/20/2011</u>
Date |
| 2. | <u>/s/ Leslie Weldon</u>
Regional Forester | <u>10/20/11</u>
Date |