

Date of Report: 09/25/2018

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: Paola Ridge

C. State: Montana

D. County: Flathead

E. Region: Northern (1)

F. Forest: Flathead

G. District: Hungry Horse

H. Fire Incident Job Code: P1L28U18

I. Date Fire Started: August 11, 2018

J. Date Fire Contained: November 1, 2018

K. Suppression Cost: \$ 2,803,490

L. Fire Suppression Damages Repaired with Suppression Funds

1. Fireline waterbarred (miles):
2. Fireline seeded (miles):
3. Other (identify):

M. Watershed Numbers: 170102070305

N. Total Acres Burned:

NFS Acres (862) Other Federal () State () Private ()

O. Vegetation Types: Douglas fir, ponderosa pine, larch, sub-alpine fir, riparian

P. Dominant Soils:

Landtype	Description	Slope (%)	Soils (order of proportion)
57-9	Residual soils on rolling and steep hillslopes influenced by volcanic ash and glaciation.	40-60	Andic Cryochrepts, Typic Cryochrepts, Typic Eutrocrepts (ash influenced)
76	Residual soils on extremely steep breaklands on convex hillslopes.	40-80	Cryochrepts, Cryandepts
73	Glacial till soils on extremely steep concave hillslopes.	60-80	Ochrepts, Boralfs
27-7	Glacial till soils reworked by glacial meltwater, located on rolling and steep kames and stream terraces.	<20	Dystric Eutrochrepts, Typic Cryochrepts, Cryic

Q. Geologic Types: Glaciated siltite, argillite, quartzite, and/or limestone within the Belt Supergroup.

R. Miles of Stream Channels by Order or Class:

Stream miles by order within perimeter.

Stream Order	Length (Miles)
1	6
2	0
3	0
4	0
5	0
Grand Total	6

S. Transportation System

Trails: 0 miles Roads: 0 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 252 (unburned); 273 (low); 316 (moderate); 21 (high)

B. Water-Repellent Soil (acres): High severity and moderate portions have varying degrees of water repellency.

C. Soil Erosion Hazard Rating (acres):
400 (low) (moderate) 462 (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>85 cfs/mi²</u>

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

Summary of Potential Watershed Response

The Paola Ridge Fire burned roughly 861 acres on a face drainage between the Paola Creek and Dickey Creek watersheds. The first order streams that drain the burned area terminate at the base of the hillslope. This was a mixed severity burn with good mosaic (Figure 1). The BARC imagery has not been field verified. However, numerous field verification efforts from past fires on the forest have shown that initial BARC imagery slightly over-estimates severity.

Landforms in the burned area consist of alpine ridges and concave hillslopes influenced by glaciation. The concave hillslopes on the east side of the burn are extremely steep.

Watershed response is expected to be fairly low. However, the eastern portion of the burn is on very steep hillslopes, so there is a high potential for erosion there. Potential sediment delivery is not a concern because the streams that drain the eastern face are disconnected from downstream water bodies. The combination of fall rains and mosaic burn patterns are conducive to low erosion potential overall. In low and moderate severity burns, needle cast is common, which aids in infiltration. Erosion is likely to occur during spring snowmelt and rain, particularly on the eastern face of the burn. In terms of potential erosion, recovery of this burned area is expected to be fairly rapid.



Figure 1. Paola Ridge BARC imagery looking west.

Values at Risk:

The risk matrix below and associated definitions were used to evaluate risk levels in the 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

Probability of Damage or Loss: The following descriptions provide a framework to estimate the relative probability that damage or loss would occur within 1 to 3 years (depending on the resource):

- Very likely. Nearly certain occurrence (90% - 100%)
- Likely. Likely occurrence (50% - 89%)
- Possible. Possible occurrence (10% - 49%)
- Unlikely. Unlikely occurrence (0% - 9%)

Magnitude of Consequences:

- Major. Loss of life or injury to humans; substantial property damage; irreversible damage to critical natural or cultural resources.
- Moderate. Injury or illness to humans; moderate property damage; damage to critical natural or cultural resources resulting in considerable or long term effects.

- Minor. Property damage is limited in economic value and/or to few investments; damage to critical natural or cultural resources resulting in minimal, recoverable or localized effects.

Natural Resources: Native Plant communities

Noxious weeds occur adjacent to and within the fire perimeter and present a threat of further invasion into the burned area. Dozer lines have been constructed through these infestations and into the burned area, likely moving weed seed into the burned area. These infestations have the potential with the available open canopy and soil-nutrient poor habitat created by the fire to spread into burned areas.

Risk Assessment – Threats to native plant communities

Probability of Damage or Loss: Very Likely - 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: Very High – Invasive species treatment is needed on documented infestations and additional invasive species monitoring next year will determine if weeds are spreading farther into the fire perimeter.

There are eight acres within and adjacent to the burned area which are infested with yellow toadflax, Canada thistle, and hawkweed. Of great concern is the invasion of the rhizomatous yellow toadflax into the burned area. It occupies a meadow that was partially burned and contains dozer line. There are also 34 acres along the west side of the fire perimeter (buffered 100 feet on the interior of the perimeter) with the potential of weed infestation, which intersects these meadows. There are an additional 20 acres of meadows that intersect with the fire perimeter which the weed status is unknown; however, considering the existence of weeds in the eight acres of meadows, it is highly likely that the other meadows, sandwiched between the fire and the railroad, are infested. In total, 62 acres would need EDRR for the Paola Ridge fire.

B. Emergency Treatment Objectives:

Emergency treatments focus only on natural resources. No threats to life or property were identified. The primary treatment objectives are:

- Reduce or prevent the spread of noxious weeds within the burned area. The gravel pit adjacent to the burn is infested with several weed species. EDRR will focus on preventing weed spread onto the burned area.

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

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

EDRR for weeds would begin in the spring.

D. Probability of Treatment Success

	Years after Treatment		
	1	2	3
Land	N/A	75	N/A
Channel	N/A	N/A	N/A
Roads/Trails	N/A	N/A	N/A
Protection/Safety	N/A	N/A	N/A

E. Cost of No-Action (Including Loss): \$18,600

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 \$16,520

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 type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input type="checkbox"/> Engineering
<input 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 trail treatments are designed to reduce the spread of noxious weeds into the burned area. This loss is likely to occur in the next 12 months without treatment. Proposed treatments are summarized below.

- EDRR to prevent or reduce the spread of noxious weeds.

I. Monitoring Narrative:

Monitoring of post-fire conditions will be monitored informally by ranger district personnel and reported to the Forest BAER Coordinator.

PART VI - EMERGENCY STABILIZATION TREATMENTS AND SOURCE FUNDS

			NFS Lands		
		Unit	# of		Other
Line Items	Units	Cost	Units	BAER \$	\$
A. Land Treatments					
EDRR	acres	200	62	\$12,400	
<i>Subtotal Land Treatments</i>				\$12,400	\$0
B. Channel Treatments					
<i>Insert new items above this line!</i>				\$0	\$0
<i>Subtotal Channel Treat.</i>				\$0	\$0
C. Road and Trails					
<i>Insert new items above this line!</i>					
<i>Subtotal Road & Trails</i>				\$0	\$0
D. Protection/Safety					
<i>Insert new items above this line!</i>				\$0	\$0
<i>Subtotal Structures</i>				\$0	\$0
E. BAER Evaluation					
Team Evaluation	each				\$1,500

<i>Insert new items above this line!</i>				---	\$0
<i>Subtotal Evaluation</i>				\$0	\$1,500
F. Monitoring					
Post-fire Monitoring				\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0
<i>Subtotal Monitoring</i>				\$0	\$0
G. Totals				\$12,400	\$1,500

PART VII - APPROVALS

1. /s/ Chip Weber 10/02/2018
Forest Supervisor Date
2. /s/ Jane D. Darnell 10/04/2018
Regional Forester Date