

**Date of Report:** 10/4/2016

## 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:** Broadway
- B. **Fire Number:** WY-MBF 016400
- C. **State:** WY
- D. **County:** Carbon
- E. **Region:** 02
- F. **Forest:** Medicine Bow Routt NF
- G. **District:** Brush Creek-Hayden
- H. **Fire Incident Job Code:** P2KL7H-0206
- I. **Date Fire Started:** 8/14/16
- J. **Date Fire Contained:** 9/28/16 (40%)
- K. **Suppression Cost:** \$3,167,003 (as of 9/26/16)
- L. **Fire Suppression Damages Repaired with Suppression Funds**
1. **Fireline waterbarred (miles):** 0
2. **Fireline seeded (miles):** 0
3. **Other (identify):**
- M. **Watershed Number:** 101800020503 – E Fk Encampment River
- N. **Total Acres Burned:** 2,121 acres
- [2,121] NFS Acres [0] Other Federal [0] State [0] Private
- O. **Vegetation Types:** Approximately 70% of the Broadway fire is comprised of montane lodgepole pine forest. There was moderate to high mortality of the lodgepole pine due to the recent mountain pine beetle epidemic. Engelmann spruce/subalpine fir forest made up the

majority of the remaining burned area. Some areas on the eastern side of the fire were previously logged and were composed of a patchwork of mature forests, dense stands of young lodgepole pine, and closed and decommissioned timber roads. Common understory plants included common juniper, upland sedges, and small forbs in the lodgepole pine forests. There are a few small forest openings, wetlands that comprise the headwaters of the Encampment River. These wetlands are dominated by herbaceous plants, mainly sedges, and likely have organic soils. There are no noxious weeds or cheatgrass documented in the fire area and the area is currently mostly unroaded with the exception of closed timber roads on the eastern side and NFSR 496 delineating the western boundary.

- P. Dominant Soils:** The burn area is located on steep, well drained, moderately deep soils. Devore-Agnewton-Baula dominate mountain slopes and Endlich-Granadier-Moran dominate subalpine slopes. Soils are from the Ansel, Granile, Frisco and Taglake Families. The basic montane soil is moderately deep with gravelly sandy and gravelly sandy clay loams. Valley bottoms contain poorly drained soils from the Typic Cryaquolls-Cumulic Cryoborolls association, with a very gravelly sandy loam texture. Generally soils in the burn area have moderate erosion potential and a low potential of mass wasting.
- Q. Geologic Types:** The fire area is located in the Sierra Madre range of the Rocky Mountains. The burn area geological materials are dominated by metasedimentary and metavolcanic rocks, and small areas of granitic rock.

**R. Miles of Stream Channels by Order or Class:** 3.1 mile perennial; 5.9 mile intermittent

**S. Transportation System**

**Trails:** 1.8 miles      **Roads:** 4.6 miles

### **PART III - WATERSHED CONDITION**

- A. Burn Severity (acres):** 1,516 (unburned) 346 (**low**) 176 (**moderate**) 83 (**high**)
- B. Water-Repellent Soil (acres):** 215 acres (100% high/75% of moderate)
- C. Soil Erosion Hazard Rating (acres):** 601 (**low**) 1,520 (**moderate**) 0 (**high**)
- D. Erosion Potential:** n/a
- E. Sediment Potential:** n/a

### **PART IV - HYDROLOGIC DESIGN FACTORS**

- A. Estimated Vegetative Recovery Period, (years):** 2-3 years
- B. Design Chance of Success, (percent):** 75
- C. Equivalent Design Recurrence Interval, (years):** 2
- D. Design Storm Duration, (hours):** 6

- E. Design Storm Magnitude, (inches): 2.16
- F. Design Flow, (cubic feet / second/ square mile): n/a
- G. Estimated Reduction in Infiltration, (percent): 75
- H. Adjusted Design Flow, (cfs per square mile): n/a

### **PART V - SUMMARY OF ANALYSIS**

- A. **Describe Critical Values/Resources and Threats (narrative):** The 2,121 acre Broadway fire burned gentle forested mountain slopes in the East Fork Encampment River/Coon Creek drainage. The East Fork area is managed primarily for backcountry non-motorized recreation with little infrastructure. The Coon Creek area is managed primarily for forest products with a road system develop for timber harvest. The fire burned mainly small patches of forested upland areas. Soil burn severity, an indication of how the fire affects soil and hydrologic conditions, is a function of fire duration (time) and heating (temperature) to the soil. Soil burn severity was found to be moderate or high in less than 15 percent of the burn area. Hazard tree safety concerns existed prior to the fire due to the beetle-kill timber, and these hazards have been further exacerbated by the fire. Increased runoff and erosion may also affect the roads and trails in the burn area. Native plant communities may be affected due to the potential for invasive weeds. There are no known threats to soil productivity, water quality, threatened or endangered species or habitats. Increased flooding downstream of the burn area is not expected to be significant and there are no known downstream values at risk from post fire events.

A BAER Risk Assessment (FSM 2523.1 Ex 2) was completed for **Critical Values** in and downstream of the Broadway burn area and is summarized in the table below:

	<b>Probability of Damage or Loss</b>	<b>Magnitude of Consequence</b>	<b>Risk Level</b>	<b>Treatment Recommended</b>
<b>Human Life and Safety</b>				
E Fk Enc. Trail #472	Possible	Major	High	Yes
<b>Property</b>				
E Fk Enc. Trail #472	Possible	Moderate	Intermediate	Yes
Roads (NFSR 496; 416 and 421 systems	Possible	Moderate	Intermediate	Yes
<b>Natural Resources</b>				
Native Plant Communities/ Invasive weeds	Possible	Moderate	Intermediate	Yes
<b>Soil Productivity / Hydrologic Function – considered, natural recovery acceptable.</b>				
<b>Critical habitat / TE terrestrial/aquatic/plant species - considered, not a concern.</b>				
<b>Cultural Resources</b>				
None – considered, no known risks at this time, but evaluation of sites not possible due to				

restricted access.
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**Human Life and Safety:**

Human Life and Safety: Threats to life and safety are highest on infrastructure used by the public and agency personnel such as roads and trails with moderate or high soil burn severity. Hazard tree safety concerns existed prior to the fire due to the beetle-kill timber, and these hazards have been further exacerbated by the fire. While previous mitigation (e.g. roadside tree clearing) addressed some of the infrastructure, the remaining trees are a high risk hazard due to the risk of injury or death from falling trees. Additionally there is increased hazard for forest users beyond this infrastructure such as hunters and others occupying the burned areas. BAER treatments are recommended to reduce the human safety risk.

**Property:**

Roads: Roads within the burned area are at risk from impacts from increased water, sediment, and/or debris. Impacts include damage to the road and/or loss of access due to severe erosion of the road surface, or deposition of sediment or debris. Roads within the burned area are also likely to exacerbate the risk of flooding and erosion by collecting surface water, concentrating it and delivering it to hillslopes or stream channels. BAER treatments are recommended to minimize the damage to the roads.

Trails: The East Fork Encampment River Trail #472 is within the fire perimeter. Trail infrastructure is a value at risk. It is anticipated that increase in flows associated with the fire effects could cause trail rilling and erosion. While no immediate needs were identified for trail stabilization, it is recommended that storm patrol be performed following spring runoff and significant summer thunderstorm events to ensure that increased erosion and sediment have not caused loss of trail tread. BAER treatments are recommended to minimize the damage to the trail.

**Natural Resources:**

Native Plant Communities/Invasive Weeds: The integrity of native plant communities are considered an intermediate risk from non-native plant (weed) invasion following the Broadway fire due to the absence of known weeds and weed vectors in the fire area. However, native plant communities are a critical resource for maintaining the ecological integrity of Forest Service lands and providing habitat for a large variety of wildlife species, thus we recommend EDRR monitoring to verify and insure that noxious weeds do not invade the area post-fire. If weeds are detected treatment measures can be designed and funding sought at that time.

**B. Emergency Treatment Objectives (narrative):****Human Life and Safety:**

Human Life and Safety: Reduce the risk of loss of life or injury to humans from falling burned snags by providing information on the increased hazards.

**Property:**

Trail #472/Roads 496, 421 and 416 systems: Minimize damage to road and trail surfaces from increased runoff from the burn area by inspecting and clearing drainage features on roads/trails.

**Natural Resources:**

Native Plant Communities/Invasive Weeds: Maintain landscape appearance, ecosystem functions, and quality and quantity of wildlife habitat, by detection and treatment new weed populations before populations are able to grow to unmanageable or difficult size.

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

Land 90% Channel n/a Roads/Trails 75% Protection/Safety 90%

**D. Probability of Treatment Success**

	Years after Treatment		
	1	3	5
Land	75	60	50
Channel	n/a	n/a	n/a
Roads/Trails	70	80	90
Protection/Safety	90	90	90

**E. Cost of No-Action (Including Loss): \$49,800**

If no action is taken, repair or reconstruction of roads and trails at increased risk of post-fire effects is estimated to be \$44,800. Loss of access for recreation/tourism, permittees, and administration is estimated at \$5,000. There is a threat to life and safety as well as natural resources that have non-monetary value (see below). The VAR tool was used to assess the cost benefit of implementing the treatments, and indicated that treatments were justified. The VARTool Calculation Spreadsheet is available in the project file. As described in this report, increased risk for impacts to life/safety and non-market ecological values exists throughout the burned area. These values were not addressed in the VAR Assessment nor considered in the benefit/cost ratio.

Human Life and Safety: Injury and loss of life are problematic to define in economic terms. Administrative closures and public information are a relatively low cost treatments to minimize the potential for injury or loss of human life.

Natural Resources:

Invasive Weeds: The costs associated with expansion of invasive species is expected to be high, especially due to the difficulty of treatment in this rugged landscape. Initial treatments to detect, contain and control expansion will be the most cost effective means to address invasive species. The costs associated with expansion of invasive species into native vegetation communities can be significant, but is difficult to quantify in dollar terms.

**F. Cost of Selected Alternative (Including Loss): \$10,472****G. Skills Represented on Burned-Area Survey Team:**

<input checked="" type="checkbox"/> Hydrology	<input type="checkbox"/> Soils	<input type="checkbox"/> Geology	<input checked="" type="checkbox"/> Range
<input type="checkbox"/> Forestry	<input checked="" type="checkbox"/> Wildlife	<input checked="" type="checkbox"/> Fire Mgmt.	<input checked="" type="checkbox"/> Engineering
<input type="checkbox"/> Contracting	<input type="checkbox"/> Ecology	<input checked="" type="checkbox"/> Botany	<input checked="" type="checkbox"/> Archaeology
<input checked="" type="checkbox"/> Fisheries	<input type="checkbox"/> Research	<input type="checkbox"/> Landscape Arch	<input checked="" type="checkbox"/> GIS

**Team Leader:** Dave Gloss

**Email:** dgloss@fs.fed.us

**Phone:** 307.326.2510

**FAX:** 307.326.5250

#### **H. Treatment Narrative:**

##### **Land Treatments:**

**Invasive Weeds:** Early Detection Rapid Response surveys: This treatment is to reduce the potential for impaired vegetative recovery and loss of native plant communities due to the spread of invasive weeds by conducting detection surveys and rapid response eradication efforts in the areas identified as being at the highest risk. High risk areas are those of moderate or high burn severity that contain known weed populations, or suppression disturbances (ie dozer line etc) adjacent to known weed population, and where vectors exist such as roads and trails. In the spring and summer of 2017 Forest Service personnel will use EDRR protocols to check for noxious weeds and cheatgrass in the fire area. They will visit south-facing slopes and open areas to check for cheatgrass infestation, and NFSR 496 and old timber units and timber roads to check for noxious weeds such as musk thistle. We estimate the burned area can be adequately assessed in one week by a team of two.

**Channel Treatments:** None recommended.

##### **Roads and Trail Treatments:**

**Storm Patrol:** The patrols are used to identify those road/trail problems such as failing drainage structures and washed out roads and to clear, clean, and/or block those roads that have received damage. The storm patrollers shall have access to at least a dozer and motor grader that can be used to maintain drainage features and repair roads which are exhibiting severe surface erosion.

##### **Protection/Safety Treatments:**

**Human Life and Safety (esp. Trail #472 (E Fk Encampment River)):** Continue fire related administrative closure (restrict access) on the portion of Trail #472 through the burn area (BAER Treatment) until hazard has been further evaluated and a risk assessment determination is made to re-open the trail. Closure may require preparation of a special order, signing on the ground and enforcement. District has the option to have crews fall hazard trees along the trail to expedite re-opening access to the trail, but this would not be part of the BAER treatment/funding. Posting of hazard warning signs at key portal entrances notifying the public of post-fire hazards. This signing will primarily address the threat of hazard trees and will help reduce the risk by informing people of the increased risk.

**I. Monitoring Narrative:** Implementation monitoring will be accomplished during implementation of BAER treatments and is included in treatment cost estimates.

**Part VI – Emergency Stabilization Treatments and Source of Funds Initial Request**

Line Items	Units	Unit Cost	NFS Lands		Other \$	Other Lands			All Total \$
			# of Units	BAER \$		# of units	Fed \$	# of Units Non Fed \$	
<b>A. Land Treatments</b>									
Noxious/Invasive	LS	2222	1	\$2,222	\$0		\$0	\$0	\$2,222
				\$0	\$0		\$0	\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0
<i>Subtotal Land Treatments</i>				<b>\$2,222</b>	<b>\$0</b>		<b>\$0</b>	<b>\$0</b>	<b>\$2,222</b>
<b>B. Channel Treatments</b>									
				\$0	\$0		\$0	\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0
<i>Subtotal Channel Treat.</i>				<b>\$0</b>	<b>\$0</b>		<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>C. Road and Trails</b>									
Storm Patrol	LS	3250	1	\$3,250	\$0		\$0	\$0	\$3,250
Clean Culverts	EA	250	14	\$3,500	\$0		\$0	\$0	\$3,500
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0
<i>Subtotal Road &amp; Trails</i>				<b>\$6,750</b>	<b>\$0</b>		<b>\$0</b>	<b>\$0</b>	<b>\$6,750</b>
<b>D. Protection/Safety</b>									
Admin. Closures	EA	500	1	\$500	\$0		\$0	\$0	\$500
Signs, Public Info	EA	500	2	\$1,000	\$0		\$0	\$0	\$1,000
				\$0	\$0		\$0	\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0
<i>Subtotal Structures</i>				<b>\$1,500</b>	<b>\$0</b>		<b>\$0</b>	<b>\$0</b>	<b>\$1,500</b>
<b>E. BAER Evaluation</b>									
	LS		1	\$5,000			\$0	\$0	\$0
<i>Insert new items above this line!</i>				---	\$0		\$0	\$0	\$0
<i>Subtotal Evaluation</i>				---	<b>\$0</b>		<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>F. Monitoring</b>									
			0	\$0	\$0		\$0	\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0
<i>Subtotal Monitoring</i>				<b>\$0</b>	<b>\$0</b>		<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>G. Totals</b>				\$10,472	\$0		<b>\$0</b>	<b>\$0</b>	<b>\$10,472</b>
Previously approved									
Total for this request				<b>\$10,472</b>					

**PART VII - APPROVALS**

1. /s/ Dennis L. Jaeger  
Forest Supervisor (signature)

10/4/2016  
Date

2. \_\_\_\_\_  
Regional Forester (signature)

\_\_\_\_\_  
Date



