

BURNED-AREA REPORT

(Reference FSH 2509.13)

☒ 1. Funding request for estimated emergency stabilization funds
☐ 2. Accomplishment Report
☐ 3. No Treatment Recommendation

☒ 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)

epidemic. Engelmann spruce/subalpine fir forest and mountain shrubland were also found in small patches. Tree density and understory composition and cover varied with aspect and slope. Common understory plants included grasses and forbs in the aspen stands and common juniper and upland sedges in the lodgepole pine forests. The Roaring Fork Little Snake River flows through the fire, starting to the north in the Huston Park Wilderness Area and emptying to the south into the Little Snake River. Roaring Fork Little Snake River is low gradient with a wide riparian area where it passes through the Snake fire. The wetland vegetation is mostly herbaceous with sedge, grass and forb meadows, interspersed with large mature willows. Noxious weeds such as yellow toadflax, houndstongue, and several thistles are found in the riparian areas along the Roaring Fork and along some roadsides and disturbed meadows in the burned area.

- P. Dominant Soils:** The southwest portion of the burn area is located on gently sloping, well drained, deep soils, while the northeast portion of the burn area contains steep, well drained, moderately deep soils. Soils are from the Cowdrey, Kittredge, Legault and Grenadier Families. The basic soil is deep with a coarser textured (cobbly, gravelly loam) surface layer and finer (loam, clay loam) subsurface layer. Most soils have a moderate erosion potential and a moderate 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 granitic and Mafic intrusive rocks with some sedimentary rock in the southwestern portion of the burn area.
- R. Miles of Stream Channels by Order or Class:** 2.0 mile perennial; 8.4 mile intermittent
- S. Transportation System**

Trails 0 miles **Roads:** 6.2 miles

PART III - WATERSHED CONDITION

- A. Burn Severity (acres):** 274 (Unburned) 1,400 (low) 646 (moderate) 245 (high)
- B. Water-Repellent Soil (acres):** 730 acres (100% high/75% of moderate)
- C. Soil Erosion Hazard Rating (acres):** 456 (low) 2,106 (moderate) 3 (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 2,565 acre Snake fire burned in the Roaring Fork Little Snake and West Branch North Fork Little Snake drainages. The northwestern portion of the burn area has a Management Area designation of "Recommended for Wilderness" with little infrastructure. Management Areas in the rest of the burn area are "Aspen Maintenance and Enhancement" and "Forested Flora and Fauna", with a few roads, but limited other infrastructure. The fire burned forested areas; unforested areas were largely unburned. 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 approximately one-third 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 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 Snake burn area and is summarized in the table below:

	Probability of Damage or Loss	Magnitude of Consequence	Risk Level	Treatment Recommended
Human Life and Safety				
Burn Area, esp road system	Possible	Major	High	Yes
Property				
Roads	Possible	Moderate	Intermediate	Yes
Natural Resources				
Native Plant Communities/ Noxious weeds	Possible	Moderate	Intermediate	Yes
Soil Productivity / Hydrologic Function – considered, natural recovery acceptable.				
Critical habitat / TE terrestrial/aquatic/plant species - considered, not a concern.				
Cultural Resources				
None – considered, no known risks at this time.				

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 located within 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. Burned trees, especially those previously impacted by beetle, 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.

Natural Resources:

Native Plant Communities/Noxious Weeds: The integrity of native plant communities are at risk from non-native plant (weed) invasion following the Snake fire. Plant communities most at risk include areas with the highest soil burn severity, those closest to roads and other disturbances, those closest to known populations of weeds, and the lowest elevation areas with southernly aspects where the climate is more mild and the greatest number of weed species can persist. Native plant communities are a critical resource for maintaining the ecological integrity of National Forest System lands and providing habitat for a large variety of wildlife species.

Four non-native and noxious weed species were known to occur in the burn area but populations were relatively small and almost exclusively restricted to patches along roadsides and in the riparian area of Roaring Fork Little Snake River. However, all of these species are known to increase in patch size and distribution post-fire event. The four noxious weeds in the fire perimeter are musk thistle (*Carduus nutans*), Canada thistle (*Cirsium arvense*), yellow toadflax (*Linaria vulgaris*), and houndstongue (*Cynoglossum officinale*). Prior to the fire there were approximately 60 acres infested with patches of yellow toadflax, 15 acres with some musk thistle, and 8.5 acres with patchy Canada thistle. Houndstongue is typically found sporadically as single plants in mesic areas along Roaring Fork Little Snake River and patch sizes have not been quantified. Thistle and knapweed population expansion have been documented after other fires in the area and infestations are expected to increase along transportation corridors and in previously infested areas. Fire typically increases the distribution of these weeds and facilitates existing patch expansion because these species can quickly resprout from unburned underground structures, flower quickly and wind-disperse seed throughout the recently burned and barren landscape. In areas along NFSR 851 patches of burned yellow toadflax have been documented and we expect these patches to increase in size and multiply in the summer of 2017.

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:

Roads (NFSR 807.2C, 851, 851.1B, 851.1E, 851.1F, 851.1I): Minimize damage to road surfaces from increased runoff from the burn area by inspecting and clearing drainage features on roads.

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): \$48,400

If no action is taken, repair or reconstruction of roads and trails at increased risk of post-fire effects is estimated to be \$43,400. 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. Public information is a relatively low cost treatment to minimize the potential for injury of 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): \$12,666

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

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Phone: 307.326.2510

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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. EDRR monitoring will begin in 2017 during the flowering periods of weed species. Carbon County Weed and Pest crews will simultaneously monitor for and treat roadside noxious weeds as they survey the roadside right-of-ways and meadows in the burn area. As they are encountered, various weed species will be recorded then spot or boom treated with appropriate methods.

Channel Treatments: None recommended.

Roads and Trail Treatments:

Storm Patrol: The patrols are used to identify those road 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. road 851): Providing public information and posting of hazard warning signs at key portal entrances (NFSR 851) 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

Part V - Emergency Stabilization Treatments and Source of Funds - Initial Request										
			NFS Lands				Other Lands			All
		Unit	# of		Other		Fed	# of	Non Fed	
Line Items	Units	Cost	Units	BAER \$	\$		\$	Units	\$	Total
A. Land Treatments										
Noxious/Invasive	LS	7566	1	\$7,566	\$0		\$0		\$0	\$7,566
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Land Treatments</i>				<i>\$7,566</i>	<i>\$0</i>		<i>\$0</i>		<i>\$0</i>	<i>\$7,566</i>
B. Channel Treatments										
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Channel Treat.</i>				<i>\$0</i>	<i>\$0</i>		<i>\$0</i>		<i>\$0</i>	<i>\$0</i>
C. Road and Trails										
Storm Patrol	LS	3,100	1	\$3,100	\$0		\$0		\$0	\$3,100
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Road & Trails</i>				<i>\$3,100</i>	<i>\$0</i>		<i>\$0</i>		<i>\$0</i>	<i>\$3,100</i>
D. Protection/Safety										
Signs, Public Info	EA	1000	2	\$2,000	\$0		\$0		\$0	\$2,000
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Structures</i>				<i>\$2,000</i>	<i>\$0</i>		<i>\$0</i>		<i>\$0</i>	<i>\$2,000</i>
E. BAER Evaluation										
	LS		1	\$5,000			\$0		\$0	\$0
<i>Insert new items above this line!</i>				---	\$0		\$0		\$0	\$0
<i>Subtotal Evaluation</i>				---	<i>\$0</i>		<i>\$0</i>		<i>\$0</i>	<i>\$0</i>
F. Monitoring										
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Monitoring</i>				<i>\$0</i>	<i>\$0</i>		<i>\$0</i>		<i>\$0</i>	<i>\$0</i>
G. Totals				\$12,666	\$0		\$0		\$0	\$12,666
Previously approved										
Total for this request				\$12,666						

PART VII - APPROVALS

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

10/4/2016
Date

2. _____
Regional Forester (signature)

Date

