

**Date of Report: 9/8/21****BURNED-AREA REPORT****PART I - TYPE OF REQUEST****A. Type of Report**

- ☒ 1. Funding request for estimated emergency stabilization funds
- ☐ 2. No Treatment Recommendation

**B. Type of Action**

- ☒ 1. Initial Request (Best estimate of funds needed to complete eligible stabilization measures)
- ☐ 2. Interim Request # \_\_\_\_\_
- ☐ Updating the initial funding request based on more accurate site data or design analysis

**PART II - BURNED-AREA DESCRIPTION****A. Fire Name: Black Butte Creek****B. Fire Number: OR-MAF-021300****C. State: OR****D. County: Grant and Harney****E. Region: 6****F. Forest: Malheur****G. District: Prairie City****H. Fire Incident Job Code: P6N7RT (0604)****I. Date Fire Started: 8/3/21****J. Date Fire Contained: 95% on 8/30/21****K. Suppression Cost: \$14,000,000****L. Fire Suppression Damages Repaired with Suppression Funds (estimates):**

1. Fireline repaired (miles): 7 miles of fire line repaired
2. Other (identify): 5 drop points, helispots and dip site repaired and seeded

**M. Watershed Numbers:***Table 1: Acres Burned by Watershed*

Watershed/Subwatershed by Soil Burn Severity												
Hydrologic Unit Number	Watershed Name Subwatershed Name	Outside Fire		Soil Burn Severity								Grand Total
				High		Moderate		Low		Unburned		
		Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	
1705011606	Otis Creek	96,959	98%	9	0.0%	59	0.1%	1,026	1.0%	928	0.9%	98,981
170501160601	Tamarack Creek	22,349	92%	9	0	59	0	1,026	0	928	0	24,371
1705011611	Upper North Fork Malheur River	88,585	80%	1,194	0	2,686	0	13,971	0	3,660	0	110,096
170501161102	Elk Creek-North Fork Malheur River	12,005	89%	43	0	139	0	1,231	0	105	0	13,523
170501161103	Crane Creek	21,326	73%	275	0	779	0	5,844	0	1,158	0	29,382
170501161104	Bear Creek	20,305	95%	63	0	286	0	551	0	257	0	21,461
170501161105	Skagway Creek-North Fork Malheur River	9,372	47%	814	0	1,481	0	6,346	0	2,140	0	20,153

**N. Total Acres Burned: 23,534 total acres**

Table 2: Total Acres Burned by Ownership

OWNERSHIP	ACRES
NATIONAL FOREST SYSTEM	21,333
BURERU OF LAND MANAGEMENT	1,511
PRIVATE	689
TOTAL	23,534

- O. Vegetation Types:** Vegetation types within the fire perimeter mostly consist of forested potential vegetation types (PVTs), though about 35% are mapped as grasslands and shrublands. The remaining forest vegetation types include about 30% ponderosa pine forests, 15% Douglas-fir forests, 10% grand fir, and 2% lodgepole pine. About 2% of the area within the fire perimeter is dominated by western juniper plant communities, especially in the hotter, drier, and lower elevations in the southern and eastern parts of the burn. Dominant shrubs across all vegetation types include mountain big sagebrush, low sagebrush, stiff sagebrush, mountain mahogany, and snowberry. Dominant graminoids include pinegrass, elk sedge, Idaho fescue, and bluebunch wheatgrass. Riparian plant communities and scablands also occur in the Black Butte Fire area.
- P. Dominant Soils:** Dominant soils originate from residuum and colluvium and an influence of volcanic ash in the upper part. Volcanic ash was deposited from the eruption of Mount Mazama (present-day Crater Lake) over 7,700 years ago. Soils range from sandy loam to loam in the surface with varying amounts of rock content, generally increasing with depth. Rock outcrops are common throughout the area mapped within the fire perimeter as described in the Terrestrial Ecological Unit Inventory (TEUI) soils data as part of soil series complexes. Soils tend to be shallow to moderately deep, depth to bedrock is 10 to 40 inches. Dominant soils in this area generally originate from andesite, basalt or welded tuff mixed with loess. These soils are well drained with moderate to moderately rapid permeability.
- Q. Geologic Types:** Poorly mapped and undifferentiated andesite, dacite, and olivine basalt lava flows that erupted from a number of composite volcanoes near John Day.

**R. Miles of Stream Channels by Order or Class:**

Table 3: Miles of Stream Channels by Order or Class

STREAM TYPE	MILES OF STREAM
PERENNIAL	34
INTERMITTENT	36

**S. Transportation System:**

**Trails:** National Forest (miles): 18.7      Other (miles):  
**Roads:** National Forest (miles): 88      Non-NFS roads (miles): 5

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

**A. Burn Severity (acres):**

Table 4: Burn Severity Acres by Ownership

Soil Burn Severity	NFS	BLM	Private	Total	% within the Fire Perimeter
Unburned	4,016	459	112	4,588	19%
Low	13,439	1,003	556	14,998	64%
Moderate	2,678	47	20	2,678	12%
High	1,201	2	1	1,204	5%

Soil Burn Severity	NFS	BLM	Private	Total	% within the Fire Perimeter
<b>Total</b>	21,333	1,511	689	23,534	

**B. Water-Repellent Soil (acres):**

Water Repellency	Total Acres	USFS Acres
Slight	10,067	8,450
Moderate	3,346	3,279
Strong	603	600

**C. Soil Erosion Hazard Rating (acres):**

Soil Erosion Rating	Acres	Percent of Fire (USFS Lands)
Low	9,637	41%
Moderate	6,077	26%
High	5,078	22%
Very High	2,742	12%

**D. Erosion Potential:**

Soil Burn Severity	1 <sup>st</sup> year (tons / acre)	2 <sup>nd</sup> year (tons / acre)
Unburned	0	0
Low	0.29	0.01
Moderate	0.30	0.002
High	1.29	0.34

**E. Sediment Potential:**

Soil Burn Severity	Sediment Potential (tons / acre)	Sediment Potential (cubic yards / square mile)
Low	0.075	72
Moderate	0.075	72
High	0.41	393.6

**F. Estimated Vegetative Recovery Period (years):** 1-3 years for grass to achieve effective ground cover, 5-15 years shrubs, 20-70 years conifers

**G. Estimated Hydrologic Response (brief description):** The Black Butte Fire burned within the headwaters North Fork Malheur River, including portions of Crane Creek and Little Crane Creek with a mosaic of high, moderate, and low burn severity. A peak flow analysis was conducted using regression equations calibrated to rural, unregulated basins in Eastern Oregon, expected to mimic peak flows primarily caused by snowmelt and rain-on-snow events. The Q2, or the storm event with a 50% chance of occurring annually, was estimated for pre-fire and post-fire conditions. A mosaic burn pattern of primarily low soil burn severity with patches of high and moderate burn severity help ameliorate potential impacts to post-fire runoff. Overall, modelled drainages within the Black Butte Fire ranging from 600 – 69,000 acres showed relatively low (1.1 – 1.2 times) increases in post-fire peak flows compared to the pre-fire condition.

In addition to increased peak flows, the watershed response will include an initial flash of ash and burned materials, temporary increase in turbidity, rill and gully erosion in drainages on steeper slopes in the burned area, increased sediment transport and deposition, and higher potential for debris-laden flows. Steeper canyons within high and moderate burn severity in the lower portion of the North Fork Malheur River corridor will likely experience higher hillslope erosion and sediment transport. These responses may lead to short-term water quality concerns for downstream fish habitat and off-forest values. Watershed responses are dependent on the occurrence of rainstorm and rain-on-snow events from Jan - May and will likely be greatest with initial storm events, with greatest impacts most likely to occur in the first year or two after the fire. Disturbances will become less evident as vegetation is reestablished, providing ground cover that reduces erosion and increases surface roughness to slow flow accumulation and increase infiltration. These processes will attenuate over time and should recover to pre-fire rates over the next 3-5 years.

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

### **Introduction/Background**

#### **A. Describe Critical Values/Resources and Threats (narrative):**

*Table 5: Critical Value Matrix*

Probability of Damage or Loss	Magnitude of Consequences		
	Major	Moderate	Minor
	<b>RISK</b>		
Very Likely	<b>Very High</b>	<b>Very High</b>	<b>Low</b>
Likely	<b>Very High</b>	<b>High</b>	<b>Low</b>
Possible	<b>High</b>	<b>Intermediate</b>	<b>Low</b>
Unlikely	<b>Intermediate</b>	<b>Low</b>	<b>Very Low</b>

- 1. Human Life and Safety (HLS):** Human life/safety is at risk on NFS land from threats associated with post-fire related hazard trees, rock fall, increased flooding and debris flows, and loss of egress/access throughout the burned area, but particularly on roads and trails. A large number of the primary roads have already been snagged out thus greatly reducing the overhead hazards however the interior roads have not been inspected for over head hazards. Treatments such as closure and signage will be critical in protecting human life and safety.
- 2. Property (P):** Damage to, or loss of, sections of trail could occur from increased runoff, erosion, flooding, and debris flows within and downslope or downstream of areas of moderate and high soil burn severity. There are approximately 9.7 miles of trail are at risk of trail loss due to high and moderate burn severities upslope. Pre-fire, these are high use trails.

Many of the drainages exhibiting high or moderate soil burn severity in the Black Butte Fire lie downstream of USFS infrastructure. Primary Roads of concern that have stream crossings downstream of moderate to high burn severities include the 1675-774, 1420-832, 1600-812, & 1600-851. The 1675-774, 1600-812, & 1600-851 road systems have sections containing high densities of fire-weakened hazard trees. These roads have native surfaces built on an out-sloped template with minimal drainage appurtenances. The 1420-832 is an aggregate surface road having inboard ditches and numerous culverts. Sections of hazard trees are less frequent than many of the other interior public roads but does have some drainages with moderate to high burn severities and an increased potential for increased flows & debris transport resulting in road failures.

#### **3. Natural Resources (NR):**

- a. Hydrologic Function,** fire impacts proper functioning of hydrologic processes with the greatest and longest lasting impacts occurring from high soil burn severity and anthropogenic activities. Fire impacts within moderate, low, and very low burn areas are recoverable and expected to diminish as vegetation reestablishes. Most of the burn area resulted in low soil burn severity.

The primary threat to values at risk for hydrology are associated with flooding, debris flows, and sedimentation as a result of altered soil hydrologic function and slope stability associated with burned soils and vegetation. Hydrologic changes induced by wildfire that can impact values at risk include reductions or elimination of rainfall interception, transpiration, litter storage of water, and infiltration. These reductions typically result in greater runoff, increased overland flow, increased streamflows, increased water yields and increases in stormflow. In addition to increased flows, as root strength is lost from wildfire induced tree mortality, slopes stability decreases leading to higher susceptibility to landslide or debris flows.

- b. **Native and naturalized plant communities:** Populations of five R6 sensitive plant species occur within the fire perimeter: *Bryum calobryoides*, *Carex cordillerana*, *Ophioglossum pusillum*, *Schistidium cinctidondontum*, and *Tritomeria exsecta*. We have included the rare species *Lomatium ravenii* and *Meesia uliginosa* as indicators of sensitive habitats—scablands and fens, respectively. Habitats of these species are the most at risk when they occur within moderate to high-severity burn or high vegetation mortality areas, in particular where noxious weeds occur nearby. Some of the scablands where *Lomatium ravenii* grows were disturbed in the suppression response, so these areas will be surveyed as part of our early detection and rapid response (EDRR) for noxious weeds.

Significant riparian habitats occur within the fire perimeter, and we considered these in our assessment as natural protection areas due to their importance to natural resource values, including threatened and endangered fish species. Many riparian plant communities occurred in moderate- to high-severity burn areas, and these are included in our EDRR detection and treatment area. These habitats are particularly vulnerable invasion by Canada and bull thistles. Some populations of these species are already documented within the burned area, but it's highly likely that many more populations exist, as our invasive detection is not 100% complete. For example, a population of Canada thistle not previously documented was mapped by the BAER team in riparian next to the North Fork Malheur River, in an area with low to moderate burn severity but immediately adjacent to high severity burn.

We have documented the following high priority noxious weeds in or near the Black Butte Fire: Canada thistle, low whitetop, diffuse knapweed, spotted knapweed, bull thistle, gypsyflower, common St. Johnswort, and ventenata. These are all Oregon state listed noxious weeds. New invasive plants could have been brought in by suppression equipment and activities, though mitigation was implemented to lessen this risk (weed wash stations). Many of the suppression disturbances occurred within scablands where ventenata occurs nearby—these disturbances are especially prone to invasion by ventenata.

- c. **Threatened and Endangered Fisheries and Wildlife** species exist within the burn area. Species of concern include Bull trout. Increased habitat degradation and juvenile and sub-adult mortality of Bull Trout is possible due to accelerated sedimentation, debris flow, loss of stream shade and large wood, and potential accelerated channel erosion mostly focused in the North Fork Malheur River. Trail treatments and storm inspection and response will ameliorate additional sedimentation by maintaining and improving drainage capacity and soil stability. EDRR treatments will benefit T&E listed species (Bull trout within the North Malheur basin) by promoting the recovery of native riparian communities, particularly wetlands which mitigate for decreased water quality and increased stream temperatures resulting from potentially high-

sediment loads. Robust riparian communities outcompete introduced and/or invasive plant species, store and release cold water during the summer, increase stream shade, and improve streambank stability during high-flow events, and are essential to preserving fish habitat and cold-water refugia. Fisheries specific actions are more long-term where strategic assessments are needed to inform actions. There are no specific treatment recommendations for fisheries at this point, other than those already recommended by hydrology, engineering, recreation, and range (i.e. storm inspection and response, trail stabilization, fence repair, resting grazing allotments).

- d. **Soil Productivity** – Overall, the probability of damage to soil productivity is likely and the magnitude of consequence is minor based on the following:

The fire resulted in a mosaic of soil burn severity. The ground surface was largely intact, and the majority of the canopy remained green and slightly charred in the low soil burn severity areas. The portion of the fire that burned in high SBS (5%) with steep terrain is expected to have increased erosion rates based on steep slopes, lack of ground cover, and loss of soil structure. In areas of high SBS it was observed that very fine roots were fully consumed and fine roots to be either fully consumed or scorched. In low SBS areas roots were either scorched to dry and brittle or unaffected by the burn. In high SBS majority of the ground cover had been lost while in moderate SBS some ground cover was not lost leaving a mosaic of charred duff and consumed duff. This mosaic burn pattern aids in providing a buffer that can capture or interrupt runoff and soil erosion.

The magnitude of consequences was rated minor due to the large extent of the fire being low SBS with a mosaic burn pattern that will allow catchments of erosion with remaining ground cover, available needle cast, and downed woody debris.

To assess potential loss of soil productivity, soil erosion rates were compared to the tolerable soil loss (T) estimates published by NRCS. The T factor estimates the maximum amount of erosion at which the quality of a soil as a medium for plant growth can be maintained in tons per acre. This data was accessed through the TEUI data the Access Database for the Malheur National Forest. The T factor designation for the dominant soil series within the fire perimeter ranged from 1 – 5 tons/acre/year. The factor of 1 ton/acre/year is for shallow or fragile soils while the factor of 5 tons/acre/year is for deep soils that are the least subjected to damage by erosion.

Comparing the T values to estimated erosion potential, all values in the moderate and high SBS are well below the T value. We would not expect severe erosion to occur thus we do not expect long-term loss of productivity.

This brought the overall risk to soil productivity to Low.

4. **Cultural and Heritage Resources:** Cultural resources at risk include traditional use areas, prehistoric lithic scatters, aspen dendroglyphs, historic range management infrastructure, rock features, and a historic wagon trail. Of those that qualify as BAER Critical Values, there are no cultural resource sites that due to effects of wildfire are at risk to looting and/or degradation from erosion.

## **B. Emergency Treatment Objectives:**

### Proposed Land Treatments

The objective of the land treatments are to:

1. Promote and protect native and naturalized vegetative recovery by reducing the spread of noxious weeds (**P1a, P1b, P2, P3**).

2. **Note** - No active land treatments are recommended for long-term soil productivity. Allowing for natural recovery is the recommended course of action.

#### Proposed Road and Trail Treatments

The objective of the road and trail treatments are to:

1. Protect road and trail investments from becoming impassible and damaged due to increased post-fire runoff (**R1a, R2, R13, T1**).
2. Reduce sedimentation into streams degrading water quality important for T&E Fish species (**R1a, R2, R13, T1**).

#### Proposed Protection/Safety Treatments:

The objective of the protection/safety treatments are to:

1. Protect human life and safety by raising awareness through posting hazard warning signs at recreation sites and trailheads. (**S1a, S1b**)
2. Posting of hazard warning signs along various forest service roads and trails to warn users of potential hazards resulting from post-fire conditions (**P1a, P1b, P2**)
3. Protect worker and public safety by removing hazard trees associated with BAER treatments and within the vicinity of road, trail and hazardous material mitigation BAER treatment sites (**R1a, R2, R13, T1**)
4. Interagency Communication essential to coordinate access between ODFW and NFS in order to coordinate public messaging between land managers. This treatment will help in the coordination and communication of management of rangeland between the Forest Service and ODFW. (**S10**)
5. Protection of Forest Service investments and recreation infrastructure (**S3**).

#### Proposed Treatment Effectiveness Monitoring:

No proposed treatment effectiveness monitoring.

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

**Land:** 90%

**Channel:** NA

**Roads/Trails:** 75%

**Protection/Safety:** 90%

#### **D. Probability of Treatment Success**

*Table 6: Probability of Treatment Success*

	<b>1 year after treatment</b>	<b>3 years after treatment</b>	<b>5 years after treatment</b>
<b>Land</b>	80	85	90
<b>Channel</b>	90	80	90
<b>Roads/Trails</b>	80	85	90
<b>Protection/Safety</b>	80	90	90

**E. Cost of No-Action (Including Loss): \$406,000 (Not including threat to human life and safety) If no action is taken there will be a loss of native plant communities to invasive plant populations.**

**F. Cost of Selected Alternative (Including Loss): \$92,180 (Assuming 15% Loss)**

#### **G. Skills Represented on Burned-Area Survey Team:**

- |   |  |   |   |   |
|---|--|---|---|---|
| <input checked="" type="checkbox"/> Soils           | <input checked="" type="checkbox"/> Hydrology  | <input checked="" type="checkbox"/> Engineering | <input checked="" type="checkbox"/> GIS | <input checked="" type="checkbox"/> Archaeology |
| <input checked="" type="checkbox"/> Weeds           | <input checked="" type="checkbox"/> Recreation | <input checked="" type="checkbox"/> Fisheries   | <input type="checkbox"/> Wildlife       |   |
| <input checked="" type="checkbox"/> Other:<br>Range |  |   |   |   |

**Team Leader:** Kyle Wright

**Email:** kyle.wright2@usda.gov**Phone(s)** 458-292-6027**Forest BAER Coordinator:** Hannah Grist**Email:** hannah.grist@usda.gov**Phone(s):** 541-285-7817**Team Members:** *Table 7: BAER Team Members by Skill*

<b>Skill</b>	<b>Team Member Name</b>
<i>Team Lead(s)</i>	Kyle Wright, Hannah Grist
<i>Soils</i>	Leslee Crawford
<i>Hydrology</i>	Sam Spengler, Hazel Wood, Jordan Bass
<i>Engineering</i>	Chase Bloom
<i>GIS</i>	Dee McConnell, Dorothy Thomas
<i>Archaeology</i>	Robert Dickenson
<i>Weeds</i>	Jesse Brunson
<i>Recreation</i>	Jared Bowman
<i>Fisheries</i>	Jason Wilcox, Ryan Monzulla, Erika Porter
<i>Range</i>	Elena Burlet

**H. Treatment Narrative:****Land Treatments:****P1a. / P1b. Invasives EDRR and Invasives EDRR Suppression:**

P1a. Early Detection Rapid Response (EDRR) detection and treatment within the fire extent is proposed for moderate to highly burned riparian plant communities, current noxious weed inventory plus a 100-foot buffer to account for spread into the fire, and rare plant habitats that burned at 50% or more vegetation mortality. These areas were included across the burned area, regardless of land ownership. Early detection and treatment will help prevent new infestations from invading newly burned ground.

P1b. For EDRR related to fire suppression, we propose detection and treatment for dozer lines, staging areas, drop points, Big Creek IC post, and other ground disturbance caused by fire suppression activities to prevent invasion into disturbed areas. The likelihood that heavy equipment working on the fire brought in propagules from outside the Malheur National Forest is moderate to high. It's also highly likely that new disturbance areas created by fire suppression equipment will provide open niches for the establishment of nearby noxious weeds and windborne weed seeds.

We expect much of this EDRR work to go into an existing partnership agreement with Grant Soil and Water Conservation District Weed Control Department. They have equipment designed for efficient right-of-way treatments and have conducted treatment on many forest roads as a partner for several years now. This work would be an extension of the work they currently conduct for us.

<b>Treatment</b>	<b>Units</b>	<b>Unit Cost</b>	<b># of Units</b>	<b>Total Cost</b>
P1a. - Invasives EDRR (FS Staff)	Acres	\$130	73	\$9,490
P1b. - Invasives EDRR-Suppression (FS Staff)	Acres	\$130	50	\$6,500
P1b. - Invasives EDRR-Suppression (Partner)	Acres	\$120	328	\$39,360
<b>TOTAL</b>				<b>\$55,710</b>

**Channel Treatments: None Proposed****Roads and Trail Treatments:**



Only those FS roads and trails within or below areas burned at moderate or high SBS and have increased risk of damage due to post-fire conditions, are recommended for emergency response. Proposed treatments are designed to improve drainage at drainage crossings and along adjacent slopes to remove higher levels of runoff from trails and roads before extensive damage or loss of infrastructure can occur. Roads and trails were designed to be practical, economic treatments to mitigate risk to acceptable levels. To protect roads in the burned area Storm Inspection and Response is proposed. No road closure devices will be placed because there is an area closure in effect until spring when the forest will re-evaluate hazards on the high use roads.

**R3. Storm Inspection and Response:** Roads within the Black Butte Fire contain drainage structures that cross streams located in watersheds that have a high to moderate burn severity. These streams now have the potential for increased runoff and debris flows. These increases in flows pose a threat to the existing crossings which may result in plugging drainage structures or exceeding their maximum flow capacity. If these flows plug drainage structures the result could be massive erosion and debris torrents further down the drainage due to the failure. Storm inspection/response keeps culvert and drainage structures functional by cleaning sediment and debris from the inlet between or during storms. This work will be accomplished through Forest Service Road Crew, equipment rental, and general labor and focus on the 1675-744, 1420-832, 1600-812, 1600-851, & the 1420 roads. Communication with Buelah Reservoir managers via Prairie City aquatics will be triggered if there is a significant precipitation event, for warning of potential downstream log or tree transport that could impact the Reservoir.

Treatment	Units	Unit Cost	# of Units	Total Cost
R3. Storm Inspection and Response	Days	\$500	10	\$5,000

**T1. Trail Drainage:** 1.6 miles of trail will require drainage treatments due to increased water compromising trail tread. All this milage is on the North Fork Malheur River Trail south of Crane Crossing on or below moderately-severely burned soils. Work will include installing drainage (rolling grade dips, grade reversals), step-down drain installations (armored drainage crossings), restoring out slope, re-establishing tread, replacing damaged retaining structures where necessary, and snagging trees as appropriate for worker safety. A four-person crew, two recreation/trail and two fire/chainsaw, should be able to complete this work in a two week. Logout and limited snag removal will be necessary.

Treatment	Units	Unit Cost	# of Units	Total Cost
T1. Trail Drainage Stabilization	Miles	\$5,000	1.6	\$8,000

### Protection/Safety Treatments:

Treatments are specifically designed to protect the public, employees, contractors and municipal waters from immediate threats as a result of the fire. Threats include hazard trees, rock fall, potential flood and debris flows, and hazardous materials.

**S1a. Road Warning Signs:** Install warning signs for flash flooding and potential debris flows. Replace warning and directional signs damaged by the fire. Install "Entering Burned Area Fallen Rock and Debris" signs where necessary to properly alert the travelers of the dangers ahead. Road Hazard and Road Closure Signs will be placed at the locations provided below the cost estimate.

Treatment	Units	Unit Cost	# of Units	Total Cost
S1a. Road Hazard Signs	Sign/Post	\$475	7	\$3,325
S1a. Road Closure Signs	Sign/Post	\$475	3	\$1,425
<b>Grand Total</b>				<b>\$4,750</b>

Sign Type	Location
ENTERING BURNED AREA FALLEN ROCK AND DEBRIS	On FSR 1600-812 @ 16 Intersection facing North
	On FSR 1600-851 @ 16 Intersection facing West
	On FSR 1420 E of 1663 Intersection facing NW
	On FSR 1675, W of 898 Intersection facing East
	On FSR 1675, E of 423 Intersection facing West
ROAD CLOSED	On FSR 1675-774 @ 1675 facing east
	On FSR 1675-774 @ 1420 facing south
	On FSR 1663-809 @ 1663 facing west
HAZARD TREES AHEAD	On FSR 1675-774 @ 1675 facing east
	On FSR 1675-774 @ 1420 facing south

**S1b. Trail/Recreation Hazard Signs:** This cost estimate is for placing information boards and posting hazard related signs to notify the public of post fire hazards and maintenance for one year (see treatment map for locations). Burn area hazard and trail closure sign placement at the following trailhead locations in the table below.

Treatment	Units	Unit Cost	# of Units	Total Cost
S1b. Trail/Recreation Hazard Signs	Sign/Post	\$200	7	\$1,400
S1b. Trail/Recreation Closure Signs	Sign/Post	\$200	7	\$1,400
<b>Total Cost</b>				<b>\$2,800</b>

Sign Type	Location
ENTERING BURNED AREA FALLEN ROCK AND DEBRIS	North Fork Malheur River North Trailhead (44.195040, -118.381094)
	North Fork Malheur River South Trailhead (44.076416, -118.321976)
	North Fork Malheur River South Trailhead (44.075248, -118.296202)
	Crane Creek Trailhead at entrance of FSR 1663809 (44.151436, -118.456807)
TRAIL CLOSED	Crane Crossing North (44.162229, -118.371725)
	Crane Crossing South (44.159515, -118.369062)
	Crane Crossing (44.161637, -118.372496)

**S3. Hazard Trees (developed sites):** This treatment will mitigate hazard trees from falling and damaging Forest Service properties with significant economic value such as trail bridges, trailhead signboards, fence gates. Hazard tree felling will occur at the following trailhead locations: Crane Crossing North, Crane Crossing South, Crane Crossing, North Fork Malheur River North Trailhead.

Treatment	Units	# of Units	Unit Cost	Total Cost
S3. Hazard Tree Felling	Each	4	\$1000	\$4000

**I. Monitoring Narrative:** None Proposed

**PART VI – EMERGENCY STABILIZATION TREATMENTS AND SOURCE OF FUNDS**

			NFS Lands	
		Unit	# of	
Line Items	Units	Cost	Units	BAER \$
<b>A. Land Treatments</b>				
P1a. Invasives EDRR	Acres	130	73	\$9,490
P1a. EDRR Suppression	Acres	122	378	\$46,116
<i>Subtotal Land Treatments</i>				<b>\$55,606</b>
<b>B. Channel Treatments</b>				
<b>C. Road and Trails</b>				
R2. Storm Inspection and Respons	Days	500	10	\$5,000
T1. Trail Drainage	Miles	5,000	2	\$8,000
<i>Subtotal Road and Trails</i>				<b>\$13,000</b>
<b>D. Protection/Safety</b>				
S1a. Road Hazard Signs	Sign/Post	475	7	\$3,325
S1a. Road Closure Signs	Sign/Post	475	3	\$1,425
S1b. Trail/Rec Hazard Signs	Sign/Post	200	7	\$1,400
S1b. Trail/Rec Closure	Sign/Post	200	7	\$1,400
S3. Hazard Trees (Developed Site	Each	1,000	4	\$4,000
<i>Subtotal Protection/Safety</i>				<b>\$11,550</b>
<b>E. BAER Evaluation</b>				
Initial Assessment	Report			\$33,601
				\$0
<i>Subtotal Evaluation</i>				<b>\$33,601</b>
<b>F. Monitoring</b>				
				\$0
<i>Subtotal Monitoring</i>				<b>\$0</b>
<b>G. Totals</b>				<b>\$80,156</b>
Previously approved				
Total for this request				<b>\$80,156</b>

## PART VII - APPROVALS

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 Forest Supervisor

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 Date