Date of Report: 10/23/2020

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

X] 1. Funding request for estimated emergency stabilization funds
[ ] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

X] 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: Woodhead Fire

B. Fire Number: 000570

C. State: Idaho

D. County: Washington/Adams

E. Region: 4- Intermountain

F. Forest: Payette

G. District: Council

H. Fire Incident Job Code: P4NKD121

I. Date Fire Started: 9/07/2020

J. Date Fire Contained: **will not be declared contained until snowfall*

K. Suppression Cost: $ 12.3 million (not final)

L. Fire Suppression Damages Repaired with Suppression Funds

1. **Fireline waterbarred (miles)**: Fire line will be repaired by recontouring and spreading berms and organic material back across line
2. **Fireline seeded (miles):** Dozer line will be seeded with exception of areas in open, scabby areas where seed source is natural and determined to be sufficient without added seed.
3. **Other (identify):** Approximately 55 miles of dozer line (15.4 on NFS lands, 27.1 on private, 7.3 on state, and 5.2 on BLM) are currently being repaired; repair has just begun and will be ongoing for the next several weeks. Approximately 7 miles of handline will be repaired as well- berms will be pulled back and organic material scattered across line.

M. Watershed Number: See below

Subwatersher number (6th code)	Subwatershed Name	Percent burned (% high sev)
170501240607	Bacon Creek-Weiser River	%0.4
170502010402	Brownlee Creek	%1.3
170501240606	Camp Creek	%0.0
170502010503	Crooked River	%4.2
170502010403	Dukes Creek-Snake River	%0.5
170501240604	Goodrich Creek	%0.2
170501240602	Johnson Creek	%1.9
170501240503	Lower Pine Creek	%0.3
170502010505	Lower Wildhorse River	%13.4
170501240605	Rush Creek	%0.1
170501240302	Upper Hornet Creek	%1.2
170501240501	Upper Pine Creek	%0.7
170502010504	Upper Wildhorse River	%1.4
170501240502	West Pine Creek	%1.6

N. Total Acres Burned:
[37,510] NFS Acres [4,268] Other Federal [21,190] State [23,086] Private

O. Vegetation Types:Subalpine fir/grouse whortleberry; Grand fir/Rocky Mountain maple; Grand fir/white spirea; Douglas-fir/snowberry;Ponderosa pine/Bluebunch wheat grass; Mountain Big Sagebrush; Bluebunch wheatgrass/ Idaho Fescue

Habitat Types	Sum of High Severity Acres
1 Dry Ponderosa Pine/Xeric Douglas-Fir	23
2 Warm Dry Douglas-Fir/Moist Ponderosa Pine	33
3 Cool Moist Doug-Fir	8
4 Cool Dry Douglas-Fir	17
5 Dry Grand fir	37
6 Cool moist Grand fir	631
7 Warm Dry Subalpine Fir	446
9 Hydric Subalpine Fir	35
10 Persistent Lodgepole Pine	10
11 High Elevation Subalpine Fir	<1
98 Rock & Barren	<1
99 Non-Forest	33
Grand Total	**1594**

P. Dominant Soils: Ranging from fine loams to sandy and coarse loamy soils. Skeletal areas also present, particulary on southerly aspects. Depths range from moderately deep to shallow.

Dominant classifications: Lithic and Typic Cryoborolls, coarse loamy and loamy skeletal, mixed; Typic Argiudolls, fine, mixed, mesic; Lithic Argiborolls, loamy skeletal mixed; Typic Haploxerolls, sandy, skeletal, mixed, mesic.

Q. Geologic Types: Mixed geology. Predominately Imnaha and Columbia River Basalts. Areas of meatmorphosed granitics, greenstone volcanoclastics, andesite and mica schists.

R. Miles of Stream Channels by Order or Class:51.4 miles perennial 98.4 miles intermittent

S. Transportation System

Trails: 73.6 **miles** **Roads:** 70.4 **miles**

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 33,108 **(low)** 31,136 **(moderate)** 1,843 **(high)**

B. Water-Repellent Soil (acres): Using the water drop penetration time test (WDPT), water repellency was determined to be nonexistent (WDPT values of 0-10 sec) to weak (WDPT values of 11-40 sec) on most burned areas, including some areas with high soil burn severity. Limited strong water repellency (WDPT values >40 sec.) was observed on some areas with high soil burn severity. Within the entore fire perimeter, it is estimated that approximately 450 acres of strongly water repellent soils exist in some areas with high soil burn severity.

C. Soil Erosion Hazard Rating (acres) (note: only FS lands, 38143 acres have available data:

Soil Erosion Hazard Rating	Acres
Very Low	47
Low	5008
Low-Moderately Low	1694
Moderately Low-Moderate	10115
Moderate-Moderately High	19907
Moderately High-High	720
High	587
Very High	65

D. Erosion Potential:

0 tons/acre (on unburned slopes, using using ERMiT model.

2.96 tons/acre in high severity burned areas (using ERMiT model for 1st year following fire)

E. Sediment Potential: 2.96 tons/acre (using ERMiT model for 1st year following fire)

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 2-4

B. Design Chance of Success, (percent): 80%

C. Equivalent Design Recurrence Interval, (years): 20 year storm

D. Design Storm Duration, (hours): Not available using Peak Flow Calculator

E. Design Storm Magnitude, (inches): 3.3

F. Design Flow, (cubic feet / second/ square mile): 2,358 prefire (No Business Creek)

G. Estimated Reduction in Infiltration, (percent): 18%

H. Adjusted Design Flow, (cfs based on 18% bulking factor): 5,894 postfire for highest severity

PART V - SUMMARY OF ANALYSIS

Background: On September 7, 2020, the Woodhead Fire started near Highway 71,northwest of of Cambridge, Idaho, near Brownlee Reservoir. Within a few days, the fire had grown and a Type 2 Incident Management Team took control of suppression efforts. Land ownership affected by the fire includes: NFS lands, BLM lands, State lands, and private land and property. This BAER Report only addresses threats and treatments located on NFS lands; however, ongoing coordination is happening between the BLM and FS, and information has been sent to the Cecil Andrus Wildlife Management Area,Idaho Department of Lands and the Adams and Washington County Emergency Managers, as well as the NRCS and National Weather Service. Private residences downstream of drainages that burned at the highest severity are being considered in coordination with the Weather Service and in considering BAER treatments above on FS lands.

Above: Examples of high burn severity in No Business Creek, and moderate burn severity along the Ditch Creek Road 50060 at the north end of the fire.

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

Value Life, Property, and Safety

(High Risk)

1) A National Weather Service hydrologist is engaged with the BAER team and addressing the risk to private property.

   The No Business Creek watershed contains Moderately and Strongly Dissected Mountain Slope Lands and Over-steepened Canyon Lands with moderate to moderately high inherent erosion hazard ratings. Most of this watershed burned at moderate soil

burn severity and includes notable areas that burned at high soil burn severity. Most of the high soil burn severity is on the steep dissected slopes along upper No Business Creek and Galena Creek. These areas are particularly at risk for susceptible to increases in post-fire erosion, depending on weather events. Approximately 30 percent of the subwatershed burned with *moderate* to *high* severity.

The Crooked River watershed is dominated by Moderately Dissected Escarpments and Mountain Slope Lands with moderately high inherent erosion hazard ratings. Most of this watershed burned at moderate soil burn severity and includes areas that burned at high soil burn severity. These factors indicate an increased risk of post-fire erosion in this watershed.

Value-Native or Naturalized Plant Communities

Threats to Ecosystem Integrity from Noxious Weeds and Livestock Grazing

(High Risk)

1) The expansion of invasive non-native plants into fire-disturbed areas from nearby source areas poses a significant threat to the integrity of the native plant communities and ecosystem processes. This threat is greatest along the roads in or adjacent to burned areas where noxious and invasive plants currently exist. State of Idaho listed noxious weeds include rush skeletonweed, white top, Canada thistle, houndstongue, spotted knapweed, Scotch thistle, field bindweed. Invasive non-listed weeds include Bull thistle, common mullein, common tansy, Sulphur cinquefoil and St. Johnswort. Invasive grasses at lower elevations include medusahead, cheat grass, and jointed goat grass with potential for ventenata.

2) The area of the fire has had ongoing weed infestation monitoring for several years. These infestations primarily occur at lower elevations on the south along the private/forest boundary and west in the Brownlee/Dukes Creek area with some infestations scattered through the northern end. At the time of the surveys, invasive and noxious weeds were well established primarily along roads, trails and other areas where soil has been disturbed. We aniticpate these infestations to become more severe, larger in size, and propagate new infestations due to the disturbances of the fire and related suppression activities. The invasion or expansion of noxious weeds is likely to alter soil stability, nutrient cycling, wildlife habitat and fire regimes with consequences for long-term ecological diversity and stability.

3) Continued livestock grazing in areas which received moderate to severe burning would have an immediate adverse effect on range condition, both short-term and long-term. Cattle that were pushed out of the fire area immediately returned. Research has shown that bluebunch wheat grass and Idaho fescue should receive rest post-fire. Continued grazing this fall and next season would also contribute to noxious weed expansion into the burned area. Cattle have been removed for the season (other than being allowed to move through the area on the way off the allotment) and should be excluded for **at least** one full season and recommendation of two, unless field visits by the Forest botanist, soil scientist, and range specialist decide otherwise in the late spring 2021. Vegetation

needs to recover to help prevent the spread of noxious weeds and new weed infestations.

Value- Life and Property

Threat to Safety and the Forest Road Infrastructure

The fire burned several critical road infrastructure water management and erosion control components. It is crucial that these structures be stabilized, removed, replaced or repaired to prevent future costly damages to the road system, such as total loss of the road prism as a result of the road capturing surface water or landslide. The following is a short summary of the damage and associated critical values and specific threats:

Surface water road interception

Risk is High.

Two Roads are at high risk of capturing surface water.

The threat asociated with the roadways capturing surface water is a loss of access to Forest and Private inholdings, as well as increased sediment loads associated with road failures. The potential for losing a significant protion of these two roads due to errosion during a storm event is high.

Safety Concerns from Falling Debris

Risk is High.
It is expected that rollout and debris will continue to fall onto the road, inslope ditches, culvert inlet, and cutslopes throughout the winter, requiring removal of these hazards in the spring and at least through summer 2021. The fire on steep slopes has already caused rocks, debris, and burnt snags to fall onto the road, inslope ditches, culvert inlets, and cutslopes. Removal of debris will protect public safety and maintain drainage features.

Road User Safety Concern

Risk is High.
The hazards associated with recent burned areas needs to be brought to the attention of the public.

Threats to NFS Trails

Risk is High.

The table below catalogues estimated mileage within each BARC burn severity category. Approximately 74 miles of system trails lie in the burned area. Based on this, 31 miles lie within moderate severity and 1 mile lies within high burn severity, while the majority only incurred low severity fire (42 miles).

Number	Name	Mileage by Burn Severity			Overall Mileage (NRM)*	Notes
		Low	Mod	High		
234	June Creek	0.9	0.7		2.1	
235	Crooked River	0.7	2.6	0.4	3.8	
236	Weiser/Council Boundary	0.6			4.7	
241	Goodrich Creek	0.8	0.4		2.5	
245	Boundary	2.7	1.5		7.6	
246	Cow Creek	0.6	0.1		2.4	
251	Summers Grave-Lost Basin	0.9	1.5	0.4	2.4	
252	Grouse Creek/Grizzly Creek	3.5	2.0	0.4	14.3	Grizzly Creek crossing has dangerous washout/water inundation (see photo); substantial amount of downed timber
253	Dukes Creek-Starveout Creek	0.7	1.6	0.1	5.2	
254	Dukes Creek Rim	1.5	0.5		1.9	
255	Dukes Creek	1.6	0.3		1.8	
256	Cracker Jack Creek	2.8	2.0	0.1	6.1	
257	Grade Creek/044	2.0	3.8		7.9	
258	E/F Brownlee Creek	2.2	0.6		2.9	
259	Camp Creek	2.0	1.5		4.5	
262	Rush Creek	1.6	4.1		8.6	
263	E/F Pine Creek	5.0	1.6		7.9	
264	Fox Prairie	1.1	1.0		3.0	
287	Brownlee Creek/Grade Creek Conn	2.4	0.5		3.0	Some areas of impact
288	Upper Camp Creek Trail	1.2	1.5		0.8	NRM incorrect length
289	Cow Pt Trail North	0.4	0.2		0.6	
318	Calamity Creek	1.6	1.7		3.3	
352	Big Flat	5.2	1.0		4.2	
Total		**42.0**	**30.7**	**1.4**		
Mileage in Burned Area				**74.1**		

* Includes trail mileage outside burned area

Risk of loss of trail tread and dangerous and impassable trails:

- Low burn severity: low
- Moderate burn severity: high in some locations
- High burn severity: high in many locations

Signage should be used at trailheads for trails that enter the burned area notifying the public of inherent burned area hazards.

Value- ESA-Listed Fish and Critical Habitat

The Woodhead Fire burned with a moderate to high severity in the Crooked River and Hornet Creek drainages which contain occupied bull trout critical habitat. The primary threat to bull trout critical habitat after fire is increased sediment delivery to streams as a result of failure of undersized culverts on roads and trails. However, a GIS exercise and field assessment in areas of high to moderate severity in bull trout subwatersheds did not find culverts that may pose a risk to bull trout and bull trout critical habitat. Therefore, there are no recommended emergency treatments for ESA-listed fish and critical habitat.

B. Emergency Treatment Objectives (narrative):

NOXIOUS WEEDS and LIVESTOCK GRAZING

a. Treat the known extent of weed populations within the fire area with herbicides. The purpose of the treatment is to maintain ecosystem integrity by treating known weed infested sites. These treatments will prevent known infestations within the burned area from increasing and/or spreading. These treatments will reduce the amount of weed seed in the burn area and prevent the establishment of new infestations which would likely spread due to fire disturbance. This will give native plant communities time to recover with less competition from non-native invasive plants. Rush skeletonweed and invasive thistles are already establishing in rosette stage in parts of the burned area. With fall moisture and warmer temperatures some weeds (namely houndstongue, common mullein, rush skeletonweed and invasive thistles) have well-established growth with nutrients being routed to the root systems. This fall (October/November 2020) will be the most effective time to treat these emerging populations of invasive weeds. Further treatment will be needed in late spring/summer of 2021 for spring germinating plants and new growth.

b. Exclude livestock grazing for **at least** one growing season and, depending on review by the botantist, soil scientist, and range specialist, up to two seasons to allow for proper vegetation recovery and to help prevent the spread of noxious weeds and new weed infestations. Livestock will have to move through some areas of the fire this fall on their way home. It will be important to move them through these areas as quickly as possible.

c. Monitor and treat all areas where fire suppression activities caused soil disturbance (hand lines, dozer lines, etc.). Treat existing weed populations in the burned areas to prevent the expansion of State of Idaho listed noxious weeds. These listed weeds include white top, rush skeletonweed, Canada thistle, houndstongue, spotted knapweed, Scotch thistle, field bindweed, as well as, invasive non-listed weeds including bull thistle, Common mullein, common tansy, Sulphur cinquefoil and St. Johnswort.

ROADS

1. Road Treatment Objectives: Provide protection from loss of road prism in moderate and high burn severity along Forest Road #50044 (East Brownlee Road 8 miles) and #50060 (Ditch

Creek Road 3.3 miles) and #50082 (Borden Mine 2.19 miles). Provide for public safety by installing burned area signs.

Exigency road work.

a) Provide safety for users by installing entering burned area signs
b) Grade 50044, 50082 and 50060 roadways to prevent road capture of increased runoff.
c) Clean ditches on 50044, 50082 and 50060 to reduce the potential of cross drainage culverts plugging.
d) Reduce imminent hazards by removing hazardous downfall and rocks along road, in-slope ditch, and cut slopes of roads interior to the fire.
e) Protect road templates by installing 1 dip below culverts at all minor drainages.
f) Patrol and monitor roads interior to the fire for expected rollout and removal of material blocking road drainage until winter closes the road and as soon as snow melts in the spring.

TRAILS

1. Trail Objectives:

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

Roads/Trails % 85 Protection/Safety % 90

D. Probability of Treatment Success

	Years after Treatment		
	1	**3**	**5**
Roads/Trails	75	85	95
Protection/Safety	90	95	95

E. Cost of No-Action (Including Loss): Roads: $153,000 Trails:

F. Cost of Selected Alternative (Including Loss): Roads: $49,199 (incl. 25% chance of failure) Trail:

G. Skills Represented on Burned-Area Survey Team:

[X] Hydrology	**[X] Soils**	**[ ] Geology**	**[X] Range**
[ ] Forestry	**[ ] Wildlife**	**[ ] Fire Mgmt.**	**[X] Engineering**
[ ] Contracting	**[ ] Ecology**	**[X] Botany**	**[X] Archaeology**
[X] Fisheries	**[ ] Research**	**[ ] Landscape Arch**	**[X] GIS**

Team Leader: Melanie Vining

Email: melanie.vining@usda.gov **Phone**: 208-253-0131 **FAX**: 208-253-0109

H. Treatment Narrative:

(Describe the emergency treatments, where and how they will be applied, and what they are intended to do. This information helps to determine qualifying treatments for the appropriate funding authorities. For seeding treatments, include species, application rates and species selection rationale.)

TREATMENTS TO PROTECT ECOSYSTEM INTEGRITY FROM NOXIOUS WEEDS

Treat infestations within burned areas (approximately 830 acres) and fire-suppression damaged areas (approximately 25 acres) within known weed populations in fall of 2020 and spring/summer/fall of 2021, to prevent the expansion of State of Idaho listed noxious weeds including rush skeletonweed, Canada thistle, houndstongue, spotted knapweed, Scotch thistle, and field bindweed. Also, to prevent the spread and establishment of non-listed invasive weeds including Bull thistle, Common mullein, common tansy, Sulphur cinquefoil and St. Johnswort. Herbicide spraying will be performed with UTV-mounted sprayers or backpack sprayers in areas not accessible by vehicle**.** For the initial BAER request, we will begin treating weeds in the fall of 2020 as fall is the most effective time for treatment of several listed weed species. We will begin treatments again in the late spring/summer of 2021 as weed species begin actively growing.

TREATMENT TO PROTECT VEGETATION RECOVERY

Remove livestock grazing from the high soil burn severity areas that are accessible to grazing and determined to be necessary for vegetation recovery by the ID team and the authorized officer (i.e. No Business Creek, E. Brownlee Creek, Big Flat, Crooked River, etc.) for two growing seasons, until approximately July 1, 2022. In moderate soil burn severity areas livestock grazing will be removed for one growing season. These rest periods will allow native vegetation to recover and help prevent soil erosion, the spread of noxious weed infestations and the establishment of new infestations of noxious weeds.

ROAD TREATMENTS

1. **Install signage:**

Install entering burned area signs at 11 locations where major roads enter the burned area. These devices will notifiy the public of the hazards associated with burned areas reducing the potential for harm.

2. **Road Grading and Ditch Cleaning:**

Grade the surface of the 50044 and 50060, and 50082 roadways and clean the ditches in areas of moderate or high burn severity. Doing this treatment will reduce the likelyhood of the road surface eroding due to the anticipated increased runnoff flowing on the road surface. Cleaning the ditches will allow for the more efficient transportation of the increased runnoff anticipated. Cleaning the ditches will have the secondary effect of decreasing the risk of cross drain culverts plugging during storm events.

3. **Rock Rollout and Fallen Snag Clean up:**

Remove rocks, sediment, and burnt snags that fall onto the road, inslope ditches, culvert inlet, and cutslopes. Use backhoe/loader and dump truck to haul to designated diposal site. This treatment will prevent ditches from plugging and reduce the likelyhood of the roadway catching significant post fire flows.

4. **Install Dips in 50044 and 50060, 50082.**

Install rolling dips in the roadway on the 50044, 50082 and 50060. These dips will be situated such that they will divert any water that reaches the roadway. They will be installed below small drainages the will experience an increased likelyhood of debris flows or greatly increased runoff. If the culverts located in these drainages are inadequate for the flows or become plugged due to debris the rolling dips will direct the flows off of the roadway. This action will limit any damage to the subject roads to small segments of road rather than long segments reducing the amount of sediment delivered to nearby waters and decrease the cost of any necessary repairs.

5. **Monitoring Patrols:**

Maintain regular storm patrol to monitor and remove hazards that will continue to fall onto the road, inslope ditches, culvert inlet, and cutslopes until snow closes the road and as soon as snow melts in the spring. This treatment will ensure that the roadway will have the best possible chance to weather significant storms by ensuring all drainage features are operatable

TRAIL TREATMENTS

1. **Remove rocks, debris slides, and burnt snags that have fallen onto or across trails only where needed to access approved BAER treatment sites:**

This is to allow safe access for BAER treatment crews and to remove standing snags that pose a safety risk to crewmembers immediately adjacent to treatment sites.

This will also prevent erosion problems and water entrainment from livestock and other trail users creating routes around debris/slides/etc.

2. **Stabilize tread and provide for surface drainage:**

Because of anticipated increased runoff in moderate and severe burned areas, trail drainage structures installation and maintenance as well as proper outsloping will be critical to prevent obliteration of the trail by runoff and severe gullying.

3. **Provide for public safety over the long term:**

Installation of warning signage and addressing obvious and serious safety issues (e.g. undermined/collapsing trail in cliffed areas) will be critical to addressing public safety concerns on these trails. Most of this work is anticipated during the 2021 field season. Work following this would be addressed via the Forest's standard trail maintenance plan.

I. Monitoring Narrative:
(Describe the monitoring needs, what treatments will be monitored, how they will be monitored, and when monitoring will occur. A detailed monitoring plan must be submitted as a separate document to the Regional BAER coordinator.)

None

Part VI. Emergency Stabilization Treatments and Source of Funds Initial #1

Subtotal Land Treatments				$91,500	$0		$0		$0	$91,500
B. Channel Treatments										
None proposed				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treat.				$0	$0		$0		$0	$0
C. Road and Trails										
SDRR Treatment	mile	811	13.5	$10,949	$0		$0		$0	$10,949
Storm Patrol	each	1000	10	$10,000	$0		$0		$0	$10,000
Conservation Corps Crew for trail rehab	each	12000	3	$36,000	$0		$0		$0	$36,000
Pressure treated 4x4x8	each	11	20	$220	$0		$0		$0	$220
Burned Area signs	each	10.95	46	$504	$0		$0		$0	$504
Carsonite posts	each	23	20	$460	$0		$0		$0	$460
Burned Area Decals	each	5	30	$150					$0	$150
Shipping costs	lump	200	1	$200	$0				$0	$200
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$58,482	$0		$0		$0	$58,482
D. Protection/Safety										
Trail Warning Signs	each			$0	$0		$0		$0	$0
Road Warning Sign	each	300	11	$3,300	$0		$0		$0	$3,300
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$3,300	$0		$0		$0	$3,300
E. BAER Evaluation										
Initial BAER Report	*each*			*$0*	*$0*		*$0*		*$0*	*$0*
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				---	$0		$0		$0	$0
F. Monitoring										
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$0	$0		$0		$0	$0
G. Totals				$153,282	$0		**$0**		**$0**	**$153,282**
Previously approved										
Total for this request				**$153,282**						

PART VII - APPROVALS

_LINDA
JACKSON
Digitally signed by LINDA JACKSON
Date: 2020.11.05
12:56:40 -07'00'

1. _____ _____
Forest Supervisor (signature) Date