

Date of Report: 10/26/2018

BURNED-AREA REPORT FOR GOLDSTONE FIRE
(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: Goldstone Fire

B. Fire Number: MT-BDF-003262

C. State: Montana/Idaho

D. County: Beaverhead/Lemhi

E. Region: Northern (1)/Intermountain (4)

F. Forest: Beaverhead-Deerlodge/Salmon-Challis

G. District: Dillon/Leadore

H. Fire Incident Job Code: P1L2N3

I. Date Fire Started: August 2, 2018

J. Date Fire Contained: Not yet contained

K. Suppression Cost: \$9 million (projected final cost)

L. Fire Suppression Damages Repaired with Suppression Funds

1. Hand Line (miles): 0.11
2. Dozer Line (miles): 2.50
3. Other (identify): 5.40 miles of Access or Improved Road

M. Watershed Numbers:

HUC 10 Name	HUC 10	HUC 12 Name	HUC 12	Acres	% of Sub-Watershed
Lower Lemhi River	1706020408	Sandy Creek-Lemhi River	170602040802	220	0.75%
Middle Lemhi River	1706020407	Kenney Creek	170602040705	1400	8.70%
		Pattee Creek	170602040704	70	0.40%
SCNF Total				1690	
Bloody Dick Creek	1002000113	Upper Bloody Dick Creek	100200011002	7680	42.72%
		Middle Bloody Dick Creek	100200011003	150	0.21%
BDNF Total				7830	

N. Total Acres Burned:

NFS Acres¹ (BDNF: 5,940 burn effects, 7,830 burn perimeter; SCNF: 1,130 burn effects, 1,690 burn perimeter)
BLM (0) State (0) Private (0)

¹ Fire acres were assessed prior to final containment, significant changes were not expected

O. Vegetation Types:

The fire burned primarily in mixed conifer fuels. The majority of the conifer fuels were heavy dead and down and decadent stands of beetle killed Lodgepole pine; other conifer species in the burned areas include Subalpine fir, Douglas fir, and Engleman Spruce.

P. Dominant Soils:

Within the Salmon-Challis NF portion of the fire perimeter, most soils are relatively fertile forested soils (Alfisols) with smaller areas of strongly glaciated lands on the northwestern edge. Within Beaverhead-Deerlodge NF portion of the fire perimeter, a majority of the landscape is glacially affected with most soils lacking horizon development (Entisols). The following two tables provide additional detail regarding the landforms and soils found within the fire perimeter.

Beaverhead-Deerlodge NF – soils within fire perimeter:

Map Unit	Landform	Parent Material	Soil Classification	BDNF Acres
227Sa	Valley troughwalls	Quartzite	Loamy-skeletal, mixed, superactive Andic Eutrocrypts/Typic Eutrocrypts/Lithic Eutrocrypts with rock outcrop and rubble land	1865
347Sa	Glacial moraine, <40%	Quartzite	Loamy-skeletal, mixed, superactive Andic Eutrocrypts/Andic Glossocryalfs/nonacid Typic Cryaquepts/Typic Eutrocrypts; Sandy-skeletal, mixed Andic Eutrocrypts; and Coarse-loamy, mixed, superactive Lamellic Eutrocrypts with rock outcrop	940
537Sa	Mountain slopes, mod	Quartzite	Loamy-skeletal, mixed, superactive Typic Eutrocrypts/Andic Eutrocrypts/Andic Glossocryalfs and Sandy-skeletal, mixed Typic Eutrocrypts	930
527Sa	Mountain slopes, gentle	Quartzite	Loamy-skeletal, mixed, superactive Andic Glossocryalfs/Andic Eutrocrypts/Typic Eutrocrypts and Sandy-skeletal, mixed Typic Eutrocrypts	815
217Vra	Cirque headwalls	Quartzite	Loamy-skeletal, mixed, superactive Typic Dystrocrypts/Andic Dystrocrypts/Lithic Eutrocrypts and Sandy-skeletal, mixed Andic Haplocrypts with rock outcrop and rubble land	715
257Sa	Cirque basins	Quartzite	Loamy-skeletal, mixed, superactive Andic Eutrocrypts/Andic Glossocryalfs/nonacid Typic Cryaquepts/Andic Eutrocrypts/Typic Eutrocrypts and Sandy-skeletal, mixed Histic Cryaquepts with rock outcrop	572
107Vra	Frost shattered ridgetops	Quartzite	Loamy-skeletal, mixed, superactive Typic Dystrocrypts/Andic Dystrocrypts/Lithic Eutrocrypts/Humic Dystrocrypts and Sandy-skeletal, mixed Typic Dystrocrypts with rock outcrop and rubble land	560
227Sr	Valley troughwalls	Quartzite	Loamy-skeletal, mixed, superactive Typic Eutrocrypts/Eutric Haplocryalfs and Sandy-skeletal, mixed Typic Eutrocrypts with rock outcrop and rubble land	523
547Sa	Mountain slopes, steep	Quartzite	Loamy-skeletal, mixed, superactive Typic Eutrocrypts/Andic Eutrocrypts and Sandy-skeletal, mixed Typic Eutrocrypts with rock outcrop	350
227Sra	Valley troughwalls	Quartzite	Loamy-skeletal, mixed, superactive Andic Eutrocrypts/Typic Eutrocrypts with rock outcrop and rubble land	140
107Sa	Frost shattered ridgetops	Quartzite	Loamy-skeletal, mixed, superactive Typic Eutrocrypts/Andic Eutrocrypts/Andic Glossocryalfs/Lithic Eutrocrypts and Sandy-skeletal, mixed Typic Eutrocrypts with rock outcrop and rubble land	85
617G	Alluvial basins	Quartzite	Loamy-skeletal, mixed, superactive Ustic Argicryolls/Ustic Haplocryolls/Typic Cryaquolls; Fine-loamy, mixed, superactive Typic Cryaquolls; Sandy-skeletal, mixed Histic Cryaquepts/Ustic Haplocryolls; and Fine, mixed, superactive Ustic Argicryolls	75
347X	Glacial moraine, <40%	Quartzite	Loamy-skeletal, mixed, superactive Ustic Eutrocrypts/Pachic Haplocryolls/Ustic Haplocryolls/Ustic Argicryolls and Sandy-skeletal, mixed Typic Eutrocrypts	70
347S	Glacial moraine, <40%	Quartzite	Loamy-skeletal, mixed, superactive Eutric Haplocryalfs/Typic Eutrocrypts/nonacid Typic Cryaquepts; Coarse-loamy, mixed, superactive Lamellic Eutrocrypts; and Sandy-skeletal, mixed Typic Eutrocrypts with rock outcrop and rubble land	55
647U	Valley bottoms	Quartzite	Loamy-skeletal, mixed, superactive Typic Eutrocrypts/nonacid Typic Cryaquepts/Oxyaquic Eutrocrypts and Sandy-skeletal, mixed Typic Eutrocrypts/Histic Cryaquepts	55
237Ua	Trough bottoms	Quartzite	Loamy-skeletal, mixed, superactive Andic Dystrocrypts/nonacid Typic Cryaquepts/Andic Glossocryalfs and Sandy-skeletal, mixed Andic Haplocrypts/Histic Cryaquepts with rock outcrop and rubble land	35
647G	Valley bottoms	Quartzite	Loamy-skeletal, mixed, superactive Typic Cryaquolls/Typic Argicryolls/Typic Haplocryolls; Fine-loamy, mixed, superactive Typic Cryaquolls; Sandy-skeletal, mixed Typic Haplocryolls; Coarse-loamy, mixed, superactive Histic Cryaquolls	15
237U	Trough bottoms	Quartzite	Loamy-skeletal, mixed, superactive Typic Eutrocrypts/Oxyaquic Eutrocrypts/nonacid Typic Cryaquepts and Sandy-skeletal, mixed Typic Eutrocrypts/Histic Cryaquepts	13
617S	Alluvial basins	Quartzite	Loamy-skeletal, mixed, superactive Typic Eutrocrypts/Eutric Haplocryalfs/nonacid Typic Cryaquepts and Sandy-skeletal, mixed Typic Cryorthents	12
547X	Mountain slopes, steep	Quartzite	Sandy-skeletal, mixed Ustic Haplocryolls/Ustic Eutrocrypts and Loamy-skeletal, mixed, superactive Ustic Eutrocrypts/Ustic Argicryolls with rock outcrop	5
Total				7830

Salmon-Challis NF – soils within fire perimeter:

Soils are characterized by Landtype, a land stratification based on geomorphic and climatic processes.

LAND-TYPE*	Landtype Description	Landtype Characteristics	Soils	SCNF Acres
Q109	Cryic ridgelands in quartzite, moist sites	Occurs in high elevation ridges, often near glaciatic lands.	moderately deep to deep loamy sand to sandy loam	666
Q109d	Cryic headlands in quartzite, moist to wet sites	Comprises the headlands of drainages formed by the accumulation of snow and ice.	Moderately deep loamy sand. Rock, pavement, and bare ground may occupy up to 30% of the unit	350
Q111d	Steep rocky glaciatic headlands in quartzite	Lands above 7500 feet that occupies the steep, rocky, ice plucked headlands of drainages. A weakly developed cirque appearance.	Deep loamy sand, gravel and cobble make up 30-50 %. Large areas of rock outcrop and talus.	325
Q109aR	Weakly dissected, rocky, cryic mountain slopeland in quartzite	Occurs on very high slopes and formed by the effects of permanent snow and ice field action.	Deep loamy sand, gravelly, large areas of talus.	145
Q109a	Weakly dissected cryic mountain slopeland in quartzite, moist sites	Occurs on very high slopes and formed by the effects of permanent snow and ice field action.	moderately deep to deep loamy sand	110
Q109b	Moderately dissected cryic mountain slopeland in quartzite, moist sites	Occurs on very high slopes and formed by the effects of permanent snow and ice field action.	moderately deep to deep loamy sand to sandy loam	73
Q109bR	Moderately dissected, rocky, cryic mountain slopeland in quartzite	Occurs on higher elevation slopes formed by fluvial action and mass wasting aided by freezing and thawing	Deep loamy sand, gravelly, large areas of talus.	21
			Total	1690

* Landtypes in this area are mapped as part of the Salmon-Challis NF Land System Inventory. The land types listed can be found in Section III (Salmon Uplands Section) compiled from 1978-1980.

Q. Geologic Types:

The Goldstone fire burned across the Continental Divide in an area of predominantly quartzite geologic type.

R. Miles of Stream Channels by Order or Class:

Stream Type	BDNF	SCNF
Perennial	8.0	1.6
Intermittent	10.0*	1.0*
Total	18.0	2.6

*likely more intermittent streams exist within fire perimeter than are mapped

S. Transportation System (miles):

System Type	BDNF	SCNF
FS Roads	13.6	3.5
FS Trails	24.1	3.3
Total	37.7	6.8

PART III - WATERSHED CONDITION

A. Burn Severity (acres):

Burn Severity	BDNF Acres	SCNF Acres
Unburned/Very Low	1,890	560
Low	2,064	547
Moderate	3,253	555
High	623	28

B. Water-Repellent Soil (acres): 3,947

As typical with most fires on Beaverhead-Deerlodge NF lands, hydrophobicity tests suggest that all high/moderate severity burned soils have some degree of water repellency (3,876 acres). According to assessment done by Salmon-Challis NF specialists, water repellency is expected across the high severity burned soils with small, isolated pockets of hydrophobicity occurring in moderate severity burned soils where prolonged smoldering of ground fuels occurred (71 acres).

C. Soil Erosion Hazard Rating (acres):

Erosion Hazard Rating	BDNF Acres	SCNF Acres
Low	1,210	1,370
Moderate	2,910	0
High	3,710	320

D. Erosion Potential: 0.07 tons/acre (based on disturbed WEPP batch run)

E. Sediment Potential: 0.07 tons/acre (based on disturbed WEPP batch run)

PART IV - HYDROLOGIC DESIGN FACTORS

- A. Estimated Vegetative Recovery Period, (years): 3 (grass/forb), 15 (shrub), 40 (conifers)
- B. Design Chance of Success, (percent): 80 % (average)
- C. Equivalent Design Recurrence Interval, (years): 50 years
- D. Design Storm Duration, (hours): 1 hour
- E. Design Storm Magnitude, (inches): 1.3 inches
- F. Design Flow, (cubic feet / second/ square mile): 9 cfs/mi²
- G. Estimated Reduction in Infiltration, (percent): 75 %
- H. Adjusted Design Flow¹ (cfs per square mile): 16 cfs/mi²

¹ Based on Rule of Thumb by Kuyumjian (2007)

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

The lightning caused Goldstone Fire was detected on August 2nd, 2018. The fire started burning in a high elevation basin near Goldstone Pass, located 18 miles south of Jackson, MT, in the Park Creek drainage in the Bitterroot Mountains. It is located in steep mountainous terrain and primarily burned in heavy mixed conifer fuels with very heavy concentrations of standing dead trees (snags). The fire only burned National Forest System lands; the majority of the fire perimeter is on the Beaverhead-Deerlodge NF, but the fire did cross the Continental Divide and burned portions of the Salmon-Challis NF.

Salmon-Challis NF BAER Assessment:

Forest Service infrastructure on the Salmon-Challis NF within the burned area is limited. Approximately 3.28 miles of Forest Trail 6111 (Continental Divide National Trail) and a total of 1.4 miles of FS Road 60184 are within the fire perimeter on the Salmon-Challis NF. Of the streams on the Salmon-Challis NF affected by the Goldstone Fire, Kenney Creek (tributary of the Lemhi River) is the most likely to experience increased flow and sediment loads during post-fire storm events (8.7% of the Kenney Creek sub-watershed burned, with the majority at Moderate severity). Some level of impacts are likely to occur in the headwaters of the Kenney Creek drainage in the short term (1 to 3 years), but this area is not expected to experience severe debris flow events or other destructive post-fire erosional events on a large scale.

The critical value matrix below shows that risks to human life and safety, property, and natural resources are expected to be Intermediate and Low. Because only High and Very High risks are considered to be 'unacceptable' and would trigger response, no BAER treatments are proposed on SCNF administered lands and this time.

Probability of Damage or Loss	Magnitude of Consequences		
	Major	Moderate	Minor
	RISK		
Very Likely	Very High	Very High	Low
Likely	Very High	High	Low Erosion and Stream Function
Possible	High	Intermediate Human Life and Safety Native Vegetation	Low Roads & Trails Bull Trout (T&E)
Unlikely	Intermediate	Low	Very Low

Human Life and Safety:

Post-Fire Hazards

Probability of Damage or Loss: Moderate
Magnitude of Consequence: Possible
Risk Level: Intermediate

Increased hillslope erosion, rockfall, and hazard trees possible along trails, particularly during thunderstorms and wind events. Risk of injury from falling hazard trees along the Continental Divide National Trail (CDNT), which is a nationally significant system, is accounted for in the BDNF BAER assessment.

Property:

Forest Roads and Trails

Probability of Damage or Loss: Possible
Magnitude of Consequence: Minor
Risk Level: Low

Limited segments of non-motorized CDNT pass through the margins of the fire area, in low and moderate severity burned areas on mainly gentle slopes. Minor short term impacts to trails may occur as a result of post-fire erosion. Deadfall will likely occur across the trail in the long term. A short segment of Forest Road 60184 passes through the fire area, in low and moderate severity burned areas. Minor short term impacts to the road may occur as a result of post-fire erosion.

Natural Resources:

Soil Erosion and Stream Channel Function

Probability of Damage or Loss: Likely
Magnitude of Consequence: Minor
Risk Level: Low

Increased soil erosion may occur in the short term, but ground cover will likely recover quickly (1-2 years). Flooding and/or debris flows are possible in Kenney Creek. This will not affect the overall balance of this high fire frequency system in terms of hydrologic function.

Bull Trout Critical Habitat

Probability of Damage or Loss: Possible
Magnitude of Consequence: Minor
Risk Level: Low

Populations of Cutthroat Trout exist in Kenney Creek and it is considered a Bull Trout critical habitat stream. The fire appeared to mimic natural fire patterns that would have historically occurred in this area and that are critical to developing and maintaining quality fish habitat and fish populations.

Spread of Invasive Species

Probability of Damage or Loss: Possible
Magnitude of Consequence: Moderate
Risk Level: Intermediate

The burned areas of the Goldstone Fire may be susceptible to colonization by invasive species. The species known to be present in the area have the potential to disrupt native plant community reestablishment in areas otherwise uninfested by noxious weeds.

Cultural Resources:

No cultural resource critical values at risk were identified by the SCNF BAER team during initial assessment.

Beaverhead-Deerlodge NF BAER Assessment:

The Beaverhead-Deerlodge NF portion of the fire perimeter does contain critical values that are considered to be at risk due to post-fire effects. On Beaverhead-Deerlodge NF lands, approximately 13.6 miles of FS Roads are within the fire perimeter with 9.7 miles within or downslope of high and moderate burn severity areas. Of the 24 miles of BDNF trails within the perimeter, approximately 13.9 miles are within areas of high and moderate burn severity, with some segments on slopes greater than 30 percent. Hazard trees on sections of burned over roads and trails are a concern for public and FS employee safety. Existing drainage features on both roads and trails, especially higher gradient segments, are expected to be inadequate for increased runoff and erosion post fire. Loss of ground cover, reduced interception from trees and understory live vegetation, and increased repellency from burned soil surfaces will increase chances for runoff.

The introduction of noxious weeds is another concern within the burned area. The burned drainages on the Beaverhead-Deerlodge NF (Bloody Dick, Park, Lake, Eunice, and Kitty Creeks) have very low levels of existing non-native and noxious weed infestations, and all four known existing species are post-fire colonizer species. In addition, weed species were likely brought to the area from fire-fighting vehicles that were used during fire suppression activities. Over 30 miles of existing roads were either used as main travel corridors or as fire line on both sides of the Continental Divide. Fire-fighting assets from all over the country were brought to fight the Goldstone Fire. Also, numerous rental vehicles were used as transports to haul supplies, personnel and equipment along these roads. The wide breadth of these outside vehicles greatly increase the chance that weed seeds were transported to the fire area.

The critical value matrix below shows that human life and safety, property, and natural resource values have been identified to be at Very High or High risk, which prompts consideration of BAER treatments. The primary threats are ground disturbance, increased post-fire runoff and erosion, and falling trees.

Probability of Damage or Loss	Magnitude of Consequences		
	Major	Moderate	Minor
RISK			
Very Likely	Very High Native Vegetation (new spread and growth of existing infestations)	Very High	Low
Likely	Very High Roads & Trails (potential for erosion/sedimentation, trail tread destabilization)	High Human Life and Safety (post-fire hazards falling on FS workers on roads and trails)	Low
Possible	High	Intermediate	Low
Unlikely	Intermediate	Low	Very Low

Human Life and Safety:

Post-Fire Hazards

Probability of Damage or Loss: Likely
Magnitude of Consequence: Moderate
Risk Level: High

High risk to forest visitors and workers exists along roads and trails, at parking areas, and at trailheads within and downslope of burned areas due to an increased threat of debris flow and falling trees/debris. During the initial BAER assessment, many burned trees were found fallen over trails and roads within the fire perimeter, and a significant amount of trees with burn-caused mortality or structural damage were still standing along burned over segments of roads and trails. Treatment specific to this risk, felling hazard trees, is addressed in the Road and Trail section.

Property:

Forest Roads and Trails

Probability of Damage or Loss: Likely
Magnitude of Consequence: Major
Risk Level: Very High

Major impacts due to post-fire increased runoff and associated erosion are expected to occur on segments of FS Roads and Trails within the fire perimeter. The BAER team recreation specialists identified 13.9 miles of FS Trail segments, some on slopes greater than 30 percent, within areas of High/Moderate burn severity that will likely require stabilization. Approximately 9.7 miles of the FS Road system within the fire perimeter have been identified to be at risk of significant damage and/or increase of sediment supply to adjacent stream systems based on burn severity, gradient, and location/capacity of existing drainage features. Specific road and trail segments with proposed road/trail treatment are listed in the treatment narrative section. Specific locations of proposed channel treatments (diagonal felling) to protect road infrastructure are also listed in the treatment narrative section.

Natural Resources:

Spread of Invasive Species

Probability of Damage or Loss: Very Likely
Magnitude of Consequence: Major
Risk Level: Very High

Soils within the burned drainages on BDNF administered lands appear to be fragile and vulnerable to weed infestations following a large-scale disturbance. These areas are especially susceptible to spread of known, existing infestations since the four documented weed species within the fire perimeter are post-fire colonizer species. Additionally, there was a significant amount of fire suppression-related traffic. Despite following vehicle inspection protocols during mobilization, it is very likely that suppression activities introduced invasive plants throughout the fire perimeter and adjacent lands.

Cultural Resources:

No cultural resource critical values at risk were identified by the BDNF BAER team during initial assessment.

B. Emergency Treatment Objectives:

The Salmon-Challis NF is not currently proposing any BAER treatments. Therefore, the emergency treatment objectives currently only address fire effects on land administered by the Beaverhead-Deerlodge NF. The treatment objectives include the following:

- Reduce risk of hazard tree injury on roads, trails, and at BAER implementation sites.
- Reduce risk of failure for road and trail infrastructure from increased post-fire flow events.
- Reduce additional sedimentation that could overwhelm drainage structures on roads in the Bloody Dick Creek watershed due to increased runoff from burned areas.
- Reduce risk of new weed infestations and the further spread of known infestations to promote recovery of desired native vegetation communities.

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

Land 90 % Channel 80 % Roads/Trails 75 % Protection/Safety 80 %

D. Probability of Treatment Success

Treatment Type	Years After Treatment		
	1	3	5
Land (Weeds)	90	80	70
Channel	75	70	65
Trails & Roads	90	85	80
Protection/Safety	75	75	75

E. Cost of No-Action (Including Loss): \$1 million

F. Cost of Selected Alternative (Including Loss): There remains a 20% chance (on average) that the proposed treatments for this initial work may not succeed. Total cost of the action alternative (\$164,690) plus this 20% chance of failure is \$197,952.

G. Skills Represented on Burned-Area Survey Teams:

The Beaverhead-Deerlodge NF and Salmon-Challis NF each conducted BAER assessments for the lands they administer. Information from both efforts is included in this report so that post-fire effects could be summarized for the entire Goldstone Fire area.

Skills Represented on Beaverhead-Deerlodge NF Burned-Area Survey Team:

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

Team Leader: Erin Ryan

Email: eryan@fs.fed.us Phone: 406-494-0244 Fax: 406-494-0269

Name	Function	Unit
Erin Ryan	Team Leader, Hydrology, Soils	Beaverhead-Deerlodge NF
Kevin Weiner	Hydrology, Soils	Beaverhead-Deerlodge NF
Tucker Porter	Range, Weeds	Beaverhead-Deerlodge NF, Dillon RD
Matthew Walter	Recreation	Beaverhead-Deerlodge NF, Dillon RD
Patrick Thomas	Recreation	Beaverhead-Deerlodge NF, Dillon RD
Steven Kujala	GIS	Beaverhead-Deerlodge NF

Skills Represented on Salmon-Challis NF Burned-Area Survey Team:

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

Team Leader: Jeremy Back

Email: jsback@fs.fed.us Phone: (208)756-511 Fax: (208)756-5151

Name	Function	Unit
Dave Deschaine	BAER Coordinator, Hydrology	SCNF – Supervisor's Office
Jeremy Back	Team Leader, Soils, GIS	SCNF – Supervisor's Office
Bill MacFarlane	Hydrology	SCNF – Supervisor's Office
Geoff Fast/Larry Vogel	Recreation	SCNF – North Zone
Diane Schuldt	Invasive Plants	SCNF – North Zone
Dan Garcia	Fisheries	SCNF – North Zone

H. Treatment Narrative:

Refer to the map on page 15 for locations of proposed treatments. All treatments occur on NFS lands. These proposed treatments are considered to be the most effective given the local setting, including topography and access. The treatments will help to reduce the impacts of the fire, but will not completely mitigate the effects of the fire. The funding request is summarized in Part VI of this document, separated by Forest.

Land Treatments:

The potential for increased weed infestation (both new from fire suppression activities and spread of existing into disturbed, burned soils) will be reduced by the use Early Detection/Rapid Response (EDRR) protocols. Weed technicians will patrol the area within and adjacent to burned lands, including major travel corridors. The proposed treatment is expected to cover up to 100 acres of actually spraying weeds. Weeds will be sprayed before they “go to seed” to help minimize further infestations. The standard herbicides for the Dillon Ranger District (Beaverhead-Deerlodge NF) will be used (Milestone and Escort) with typical surfactant/adjuvant and dye added to the tank mix. The tank mix will be applied using back pack sprayers on horses, UTVs, ATVs, and a pickup truck. Due to the relatively remote location and access challenges of the Goldstone fire area, invasive species treatment costs are expected to be slightly higher than those estimated for other recent fires on the Beaverhead-Deerlodge NF.

Channel Treatments:

The risk of debris blocking a culvert and subsequent road prism damage from overtopping flow will be reduced by in-channel directional tree felling treatments. During the initial BAER assessment, two crossings were identified for treatment – Park Creek at FS Rd 7402 and Lake Creek at FS Rd 7490. These crossings have potential for debris-jam/overtopping due to low topographical relief at the crossing and the amount of High/Moderate burn severity upstream (1,350 acres, 60% of drainage area for Park Creek location and 650 acres, 44% of drainage area for Lake Creek location). At the Park Creek location, directional tree felling will be done approximately 100 feet upstream of the crossing. At the Lake Creek location the valley is quite broad near the road prism so the directional tree felling will be located approximately 1.5 miles upstream where the valley narrows. At both locations, sawyers will utilize standing dead trees on site.

Road and Trail Treatments:

The risk of injury to forest visitors and BAER implementation personnel will be reduced by felling hazard trees as needed along burned over roads and trails. Trees leaning into or down within the road or trail right-of-way will be cleared. Sawyers will fell standing trees with major structural damage and cut stumps as flush to the ground as possible. All major road and trail segments that were burned over within the fire perimeter (see below for list of those identified as at risk) will be patrolled for hazard tree removal. However, actual treatment is expected to occur on approximately one-third of that mileage, which would equate to three miles of road and five miles of trail.

The risks of sedimentation overwhelming drainage features and infrastructure damage on roads and trails in the Bloody Dick Creek watershed will be reduced by implementing storm inspection and response, road storm proofing, and trail stabilization. The NFS System Road and Trail networks within the fire perimeter will be monitored using EDRR after precipitation events to determine critical drainage concerns and sediment delivery points. On roads, heavy equipment will then be used to install grade dips, clean ditches, and install additional cross-drains in response to post-fire hydrology. On trails, hand crews will install log water bars, grade dips/reversals, and/or check dams where appropriate. Fire-killed, sound, standing timber will be utilized for log water bars to the extent possible. Based on burn severity and gradient, the following road and trail segments within the fire perimeter have been identified as having a strong potential for requiring storm response treatment:

- FS Rd 7402 (Bench Rd)
- FS Rd 7403 (North Side Eunice Rd)
- FS Rd 7462 (Lake Creek Rd)
- FS Rd 7490 (Eunice Creek Rd)

- FS Tr 1144/SNO-1557 (Park Creek)
- FS Tr 1077/SNO-1556 (Lake Creek)
- FS Tr 1157/SNO-1555 (Eunice Creek)
- SNO-1554 (Trail C1)

Due to the relatively remote location and access challenges of the Goldstone fire area, mobilization costs and therefore road and trail treatment costs are expected to be slightly higher than those estimated for other recent fires on the Beaverhead-Deerlodge NF.

I. Monitoring Narrative:

Effectiveness of weed treatments will be monitored through visual observation. Continual assessment of weed establishment and spread will occur this fall and in early next spring.

Field observations of proposed channel, trail, and road work will be made after large storm events to monitor the success of those treatments.

Part VI – Emergency Stabilization Treatments and Source of Funds

Salmon-Challis National Forest

			NFS Lands			Other Lands				All
		Unit	# of		Other	# of	Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	BAER \$	\$	units	\$	Units	\$	\$
A. Land Treatments										
				\$0	\$0		\$0		\$0	\$0
Insert new items above this line!				\$0	\$0		\$0		\$0	\$0
Subtotal Land Treatments				\$0	\$0		\$0		\$0	\$0
B. Channel Treatments										
				\$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										
				\$0	\$0		\$0		\$0	\$0
Insert new items above this line!				\$0	\$0		\$0		\$0	\$0
Subtotal Road & Trails				\$0	\$0		\$0		\$0	\$0
D. Protection/Safety										
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
Insert new items above this line!				\$0	\$0		\$0		\$0	\$0
Subtotal Structures				\$0	\$0		\$0		\$0	\$0
E. BAER Evaluation										
SCNF Assessment	Days	\$ 373.52	3	\$1,121	\$0		\$0		\$0	\$1,121
	Days	\$ 431.48	0.5	\$216	\$0		\$0		\$0	\$216
	Days	\$ 453.04	1.5	\$680	\$0		\$0		\$0	\$680
Insert new items above this line!				\$0	\$0		\$0		\$0	\$0
Subtotal Evaluation				---	\$0		\$0		\$0	\$2,016
F. Monitoring										
				\$0	\$0		\$0		\$0	\$0
Insert new items above this line!				\$0	\$0		\$0		\$0	\$0
Subtotal Monitoring				\$0	\$0		\$0		\$0	\$0
G. Totals				\$0	\$0		\$0		\$0	\$2,016
Previously approved				\$0						
Total for this request				\$0						

PART VII - APPROVALS

1. _____
Salmon-Challis NF, Forest Supervisor
Date _____
2. _____
Intermountain Region, Regional Forester
Date _____

Part VI – Emergency Stabilization Treatments and Source of Funds

Beaverhead-Deerlodge National Forest

Line Items	Units	Unit Cost	NFS Lands		Other \$	Other Lands			
			# of Units	BAER \$		# of units	Fed \$	# of Units	Non Fed \$
A. Land Treatments									
EDRR - Invasive Species	acres	\$350	100	\$35,000	\$0		\$0		\$0
<i>Insert new items above this line!</i>									
<i>Subtotal Land Treatments</i>				\$35,000	\$0		\$0		\$0
B. Channel Treatments									
Directional Tree Felling	each	\$750	2	\$1,500	\$0		\$0		\$0
<i>Insert new items above this line!</i>									
<i>Subtotal Channel Treat.</i>				\$1,500	\$0		\$0		\$0
C. Road and Trails									
Road Storm Inspection/Response	mile	\$1,200	9.7	\$11,640	\$0		\$0		\$0
Road Storm Proofing	mile	\$5,500	9.7	\$53,350	\$0		\$0		\$0
Trail Stabilization	mile	\$4,000	13.9	\$55,600	\$0		\$0		\$0
<i>Insert new items above this line!</i>									
<i>Subtotal Road & Trails</i>				\$120,590	\$0		\$0		\$0
D. Protection/Safety									
Hazard Trees - Trails	mile	\$750	5	\$3,750	\$0		\$0		\$0
Hazard Trees - Roads	mile	\$750	3	\$2,250	\$0		\$0		\$0
<i>Insert new items above this line!</i>					\$0		\$0		\$0
<i>Subtotal Structures</i>				\$6,000	\$0		\$0		\$0
E. BAER Evaluation									
BDNF Assessment	days	\$400	14	\$5,600			\$0		\$0
<i>Insert new items above this line!</i>									
<i>Subtotal Evaluation</i>				---	\$0		\$0		\$0
F. Monitoring									
Treatment Effectiveness	days	\$400	4	\$1,600	\$0		\$0		\$0
<i>Insert new items above this line!</i>									
<i>Subtotal Monitoring</i>				\$1,600	\$0		\$0		\$0
G. Totals				\$164,690	\$0		\$0		\$0
Previously approved				\$0					
Total for this request				\$164,690					

PART VII - APPROVALS

- /s/ Jeff Tomac (for):
Beaverhead-Deerlodge NF, Forest Supervisor

10/29/2018
Date
- /s/ William Avey (for):
Northern Region, Regional Forester

11/02/2018
Date

