

Date of Report: 12/7/2021**BURNED-AREA REPORT****TRAIL CREEK FIRE 2021
(SALMON-CHALLIS NATIONAL FOREST PORTION)***Night ignitions on 079 Road (from inciweb.com)***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

The Trail Creek Fire burned on the Beaverhead-Deerlodge NF/Region 1 (82% of the fire / 51,005 acres), the Salmon-Challis NF/Region 4 (17% of the fire / 10,657 acres), and a small amount outside of National Forest boundaries (1% of the fire / 581 acres). The total burned area for the fire is 62,243 acres, based on BARC burn boundary mapping.

The information in this report pertains to only the portion of the fire on the Salmon-Challis NF.

- | | |
|------------------------------------|---------------------------------------|
| A. Fire Name: Trail Creek | B. Fire Number: MT-BDF-006272 |
| C. State: Idaho | D. County: Lemhi |
| E. Region: R4 | F. Forest: Salmon-Challis NF |
| G. District: North Fork | H. Fire Incident Job Code: |
| I. Date Fire Started: July 8, 2021 | J. Date Fire Contained: November 2021 |
| K. Suppression Cost: \$40,000,000 | |

L. Fire Suppression Damages Repaired with Suppression Funds (estimates):

1. Fireline repaired (miles): See below.
2. Other (identify): See below.

Because the fire burned late into the season, fire suppression repairs were not completed prior to snowfall blocking access to the area. Fire suppression damages include extensive dozer line and hand line. Fire suppression rehab will occur in the spring of 2022 using a Type 4 team and suppression funds. A suppression rehab plan is being developed.

Feature Category	Repair Status	Miles
Completed Dozer Line	Repair Needed	6.73
Completed Fuel Break	Completed - Ready for Inspection	1.12
	Repair Needed	5.08
Completed Hand Line	Completed - Inspected	7.97
	Completed - Ready for Inspection	2.99
	Repair Needed	0.57
Completed Mixed Construction Line	Repair Needed	0.68
Completed Road as Line	Completed - Inspected	2.51
	No Repair Needed	3.95
Contained Line	Unknown	8.23
Repair Line	Completed - Inspected	1.07
	Repair Needed	0.15
Road Repair	In Progress	1.90

M. Watershed Numbers:

Table 1: Acres Burned by Watershed

HUC #	Watershed Name	Total Acres	Acres Burned	% of Watershed Burned
170602030602	Dahlonega Creek	20,917	10,659	51%

N. Total Acres Burned:

Table 2: Total Acres Burned by Ownership

OWNERSHIP	ACRES
NFS (SALMON-CHALLIS NATIONAL FOREST)	10,552
OTHER FEDERAL (LIST AGENCY AND ACRES)	0
STATE	0
PRIVATE	105
TOTAL	10,657

O. Vegetation Types: Approximately 97% of the burned area consists of Forested cover types, with the dominant tree species being Douglas Fir. Lodgepole pine also exist in the higher elevations, and ponderosa pine also exist in the lower elevations.

Cover Type	Acres	Percent
Douglas-fir	5986.2	56%
Lodgepole Pine	2474.6	23%
Ponderosa Pine	1437.4	13%
Spruce/Fir	372.0	3%
Grass/Forb	107.4	1%
Bunchgrass/Fescue	100.1	1%
Whitebark Pine	49.8	0.5%
Fescue/Conifer	40.0	0.4%
OTHER Cover Types	95.6	0.9%
TOTAL	10,663	

P. Dominant Soils: Soils in the burned area are described based on Landtypes shown in the table below. Soils are typical of steep, dissected canyonlands in heavily timbered landscapes along the Continental Divide. As a result of the quartzite parent material, soils are thin and rocky on steeper slopes, with higher organic content/litter in areas with lower slopes.

Landtype Description	Landtype	Acres	Percent
Strongly dissected mountain slopeland in quartzite, cool and moist sites	Q120c	5258	49.3%
Moderately dissected mountain slopelands in quartzite, cool and moist sites	Q120b	2228	20.9%
Steep timbered headlands, moist to wet sites	Q120d	1300	12.2%
Moderately dissected mountain slopeland in quartzite, warm and dry sites	Q120bs-1	562	5.3%
Steep rocky headlands	Q120dR	527	4.9%
Strongly dissected mountain slopeland in quartzite, warm and dry sites	Q120cs-1	483	4.5%
Steep-rocky headlands in granite and border zone, cold sites	G120dR	118	1.1%
Steep timbered headlands in granite, cold and moist sites	G120d	84	0.8%
OTHER Landtypes		102	1.0%
TOTAL		10,662	

Q. Geologic Types:

Quartzite Landtypes 10,460 acres (98%)
 Granitic Landtypes 202 acres (2%)

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	13.2
INTERMITTENT/EPHEMERAL	29.7
OTHER (DEFINE)	0

S. Transportation System:

Trails: National Forest (miles): 17.8 miles Other (miles): 0
 2.9 miles non-motorized trail
 14.9 miles motorized trails (includes 8.8 miles of the CDT on the SCNF-BDNF boundary)

Roads: National Forest (miles): 22.9 miles Other (miles): 0
 11.7 miles open road
 9.0 miles closed road
 2.2 miles unauthorized route

PART III - WATERSHED CONDITION**A. Burn Severity (acres):**

BARC Model: The BAER Team used BARC (Burned Area Reflectance Classification) data derived from the Forest Service Remote Sensing Applications Center (RSAC) as a basis for analyzing burn intensity (vegetative scorch) and burn severity (fire impacts to the soil). BARC data were derived from a comparison of Sentinel 2A imagery on 9/30/2021 with pre-fire Sentinel 2B imagery from 9/30/2020. The original classification thresholds of the BARC model are as follows:

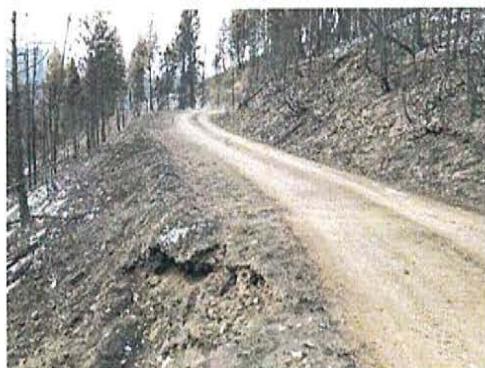
Original BARC thresholds: Unburned/Undetectable 0-73, Low 74-125, Moderate 126-242, High 243+

Burn Intensity: BARC data verification of burn intensity for the portion of the fire on the Salmon-Challis National Forest was conducted during a 10/14/2021 field visit by Salmon-Challis National Forest BAER Team personnel. The original BARC data were determined to be representative of burn intensity. No adjustment of the original BARC4 dataset was needed to characterize burn intensity.

Burn Severity: Field observations and limited field sampling of burn severity (soil burn severity testing) for the portion of the fire on the Salmon-Challis National Forest was conducted on the 10/14/2021 field visit to establish a relationship between burn intensity as shown in the BARC model and the effects of the fire on the soil (burn severity). The BAER Team determined that soil burn severity was roughly equivalent to burn intensity as depicted by the BARC4 dataset.

**High Intensity/High Severity**

Areas burned at high intensity and high severity generally occurred on steeper slopes, with full consumption of all ground cover and much of the downed log component on the forest floor. These soils are hydrophobic as a result of high heat and prolonged smoldering.

**Moderate Intensity/Moderate Severity**

Areas burned at moderate intensity and moderate severity typically experienced full consumption of needles on trees and fine fuels on the ground, but downed trees on the forest floor were not typically consumed. Impacts to the soils in these areas were mixed, with hydrophobic soils developing only in areas where prolonged smoldering of downed trees did occur.

**Low Intensity/Low Severity**

Areas burned at low intensity and low severity resulted in consumption of some fine fuels and charring of tree trunks, but larger material was not consumed. Soils were lightly impacted, and the roots of grasses and shrubs remained intact. However, scattered single tree torching did result in full consumption of some standing trees and roots, resulting in some localized impacts to the soil.

Table 4: Burn Severity Acres by Ownership

Soil Burn Severity	NFS	Other Federal (List Agency)	State	Private	Total	% within the Fire Perimeter
Unburned/Undetectable	1,739	0	0	41	1,780	17%
Low	4,862	0	0	39	4,901	46%
Moderate	3,633	0	0	25	3,658	34%
High	319	0	0	0	319	3%
Total	10,553	0	0	106	10,659	

B. Water-Repellent Soil (acres): Approximately 700 acres. Water repellent soils are likely present in areas of high burn severity, as well as some areas of moderate burn severity where heavy ground fuels caused extended periods of smoldering.

C. Soil Erosion Hazard Rating: Landtype Association Erosion Hazard Ratings for the burned area are shown in the table below:

LTA Erosion Hazard Rating	Acres	Percent
Low	37	0.3%
Moderate	10,423	98%
High	202	2%
TOTAL	10,662	

D. Erosion Potential: Up to 1.0 tons/acre*

* Based on ERMIT modeling for high burn severity on representative slopes, at the 20% probability that the sediment yield will be exceeded.

E. Sediment Potential: Up to 474 cubic yards/square mile

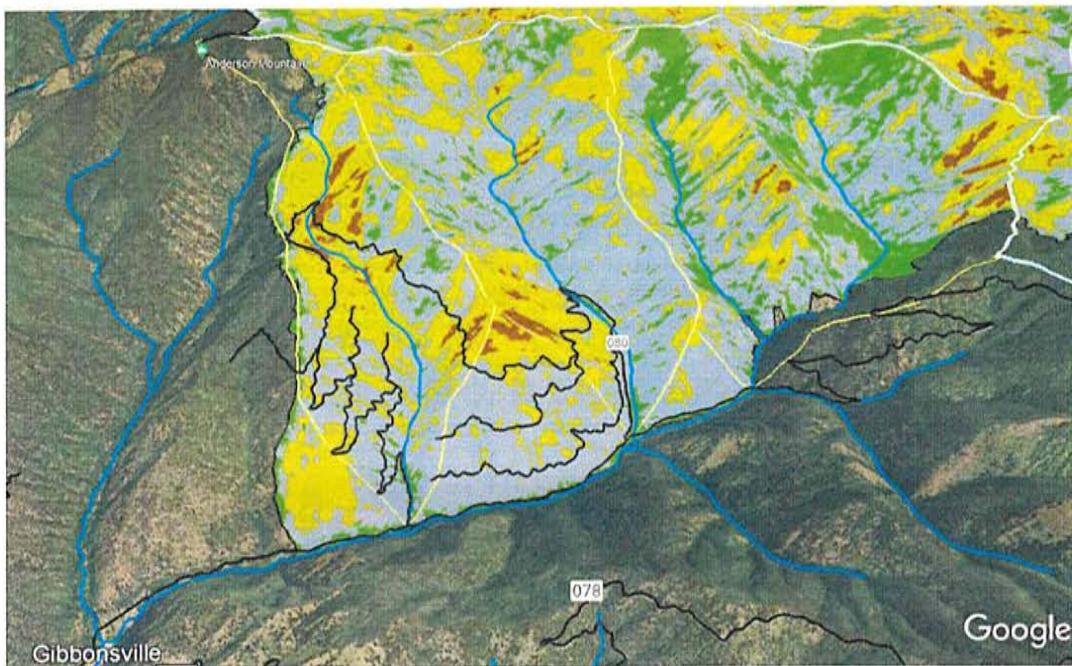
F. Estimated Vegetative Recovery Period (years): 1-3 (grasses), 2-5 (woody), 10-50 (conifers)

G. Estimated Hydrologic Response (brief description):

The portion of the fire within the Salmon-Challis National Forest burned completely within the Dahlonega Creek Watershed. Approximately 51% of this watershed burned. Because of the limited amount of high and moderate severity burn in the watershed (1.5% and 17% of the watershed, respectively), large scale flooding is not expected in Dahlonega Creek.

Most of the burned area occurred within three tributaries of Dahlonega Creek (Smithy Creek, Threemile Creek, and Nez Perce Creek). These tributaries drain into a 3.8 mile long section of Dahlonega Creek that flows through a relatively low gradient valley (average 2%) with wide floodplains and intact riparian vegetation. Any post-fire effects from the tributaries (flooding, debris flows, etc) are likely to be attenuated in the lower section of Dahlonega Creek prior to reaching the community of Gibbonsville and the confluence with the North Fork Salmon River. While potential debris flows are not likely to reach Gibbonsville, some degree of increased streamflows and/or sediment delivery should be expected at the mouth of Dahlonega Creek for a period of 3 to 5 years depending on the occurrence of storm events.

These 3 tributaries are all relatively steep drainages that drain the Continental Divide. Predicted post-fire response in these tributaries varies based on burn severity. High intensity storm events in this area during late summer thunderstorms are capable of producing flood events as a result of burned area conditions. In addition to hydrophobic soil conditions, tree mortality in this heavily timbered area will likely contribute to the potential for increased post-fire runoff and flood events.



Google Earth image showing burn severity and watersheds on the Salmon-Challis National Forest portion of the Trail Creek Fire. Watersheds (outlined in yellow) from left to right: Smithy Creek, Threemile Creek, Nez Perce Creek. Green=Unburned, Blue=Low, Yellow=Moderate, Red=High.

- 84% of the Smithy Creek watershed is within the burn boundary, with 6% of the watershed burned at high severity and 44% burned at moderate severity. While the upper headwaters did not burn, the large amount of high and moderate severity burn located on steep slopes on both sides of the valley are conducive to producing post-fire flood events and/or debris flows (photo – right). The channel gradient consistently averages about 10% over the length of this stream. The risk in this watershed is high.
- 100% of the Threemile Creek watershed is within the burn boundary, with 2% of the watershed burned at high severity and 39% burned at moderate severity. Similar concerns exist in this watershed as in the Smithy Creek watershed, but because much of the valley floor burned at low severity, intact riparian vegetation along the lower gradient portions of Threemile Creek would likely attenuate these impacts. The channel gradient averages about 8% in the upper half of this stream, and 4% in the lower half. The risk in this watershed is moderate.
- 90% of the Nez Perce Creek watershed is within the burn boundary, with 2% of the watershed burned at high severity and 20% burned at moderate severity. This watershed burned in a mosaic pattern of low and moderate severity along with many unburned areas (27% of the watershed). The lower reaches of both forks have channel gradients averaging 4 to 6%, steepening in the upper reaches. The risk in this watershed is low.



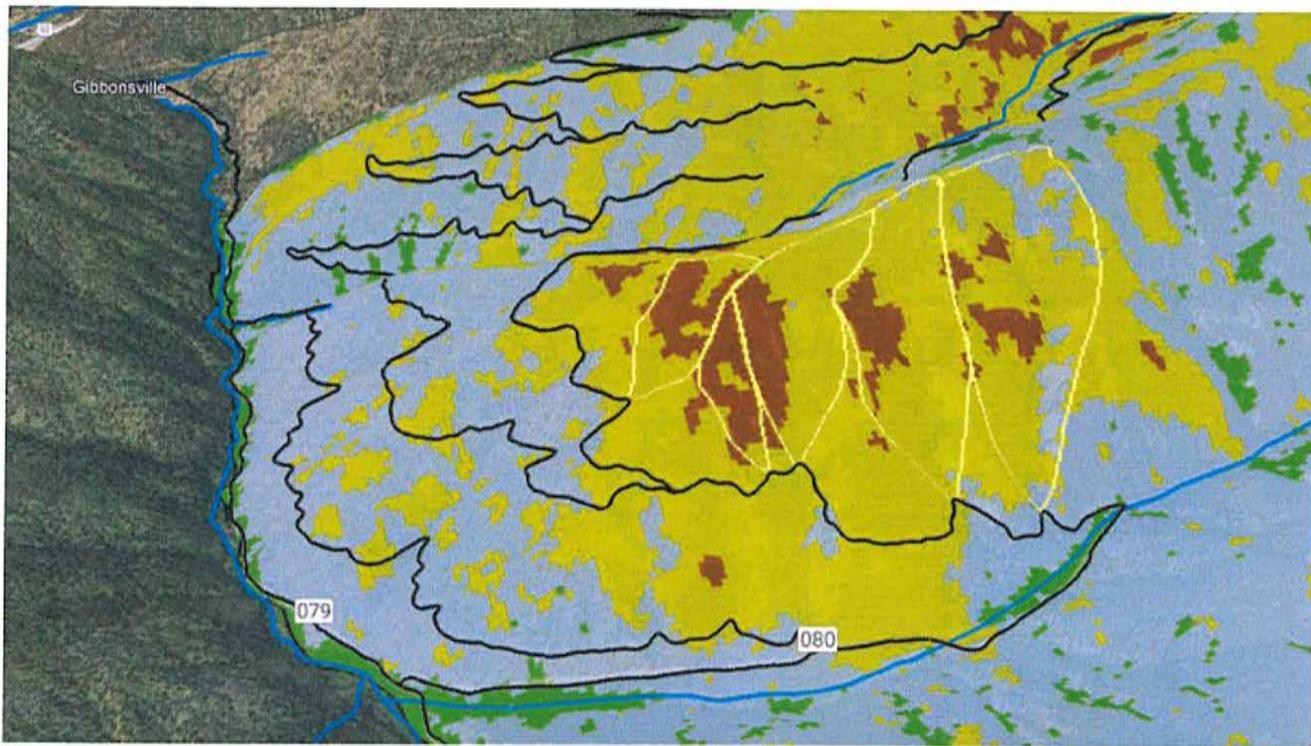
The most severe post-fire impacts are likely to occur on a localized scale. Specifically, five steep, intermittent tributaries in the Threemile Creek drainage that burned at moderate and high severity have the potential to produce excess runoff and potentially debris flows. These are of concern because of their potential impact to

FR60080. These drainages range in size from 14 to 100 acres, with 11 to 83% of each drainage having burned at high severity, and average stream course gradients of 30 to 45% (*photo – right*).

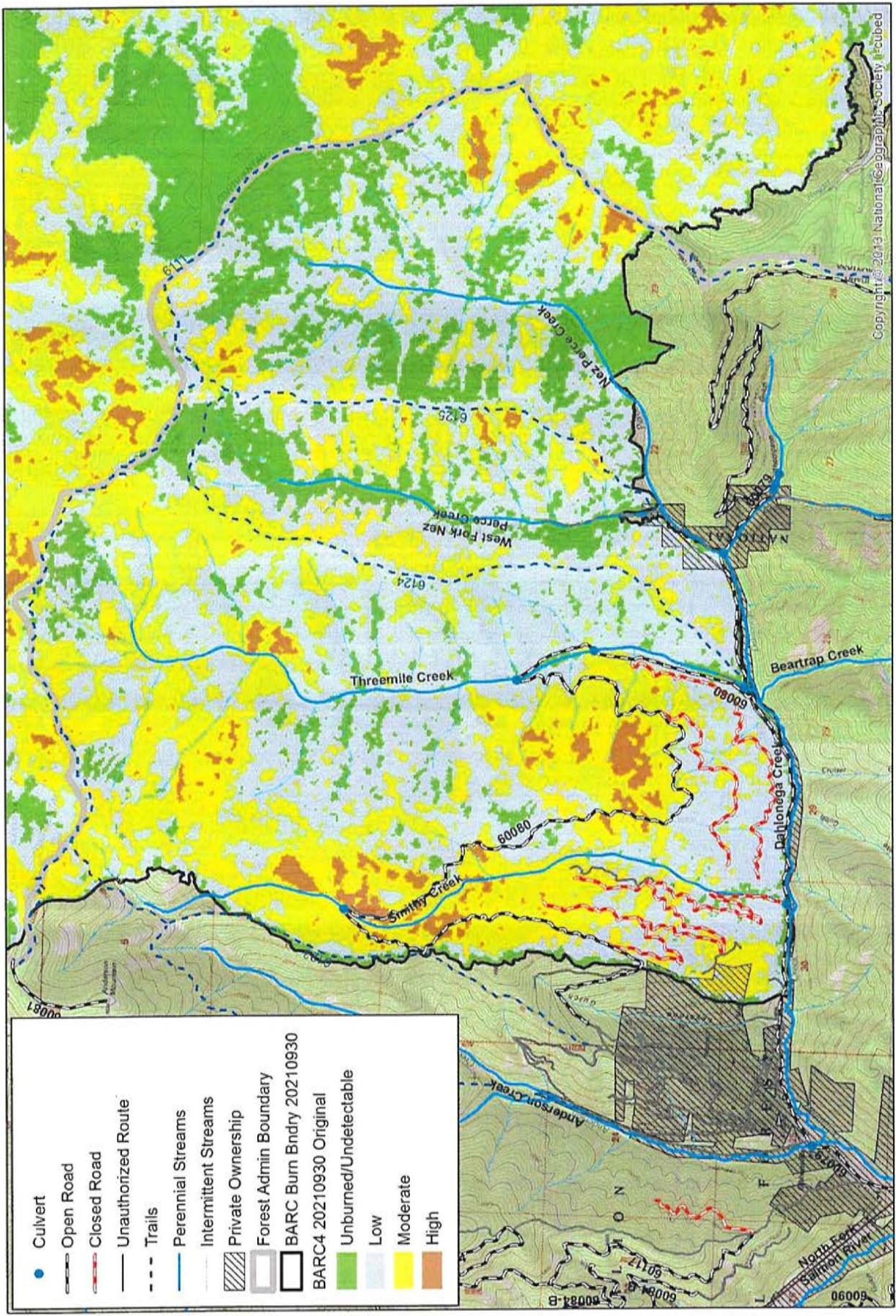


Burn severity for selected watersheds (acres and percent of watershed)

Burn Severity by Watershed	Watershed Area	Unburned	Low	Mod	High
Smithy Creek at FR079	2108	100 (5%)	601 (28%)	934 (44%)	126 (6%)
Smithy Creek at FR080	762	25 (3%)	88 (12%)	272 (36%)	33 (4%)
Threemile Creek FR080 middle culvert	3446	270 (8%)	1750 (51%)	1359 (39%)	67 (2%)
Threemile Creek FR080 upper culvert	2989	251 (8%)	1502 (50%)	1192 (40%)	44 (1%)
Threemile Creek at FR079	3879	298 (8%)	1952 (50%)	1532 (39%)	96 (2%)
Nez Perce Creek FR079	4683	1280 (27%)	1900 (41%)	958 (20%)	78 (2%)
Gully #1 at FR080	100	0 (0%)	19 (19%)	70 (70%)	11 (11%)
Gully #2 at FR080	63.0	0 (0%)	1.0 (2%)	50.5 (80%)	11.5 (18%)
Gully #3 at FR080	46.2	0 (0%)	0 (0%)	34 (73%)	12 (27%)
Gully #4 at FR080	13.5	0 (0%)	0 (0%)	2.3 (17%)	11.2 (83%)
Gully #5 at FR080	25.8	0 (0%)	0 (0%)	12.1 (47%)	13.7 (53%)



Google Earth image showing burn severity in the small gully drainages along FR60080 just west of Threemile Creek, numbered 1 through 5 from right to left. Green=Unburned, Blue=Low, Yellow=Moderate, Red=High.



Burn Intensity/Severity Map for the Trail Creek Fire (Salmon-Challis National Forest Portion Only)

Map created 11/2/2021 by the Salmon-Challis National Forest Trail Creek BAER Team. BARC Data and Fire Perimeter from analysis of 9/30/2021 Sentinel 2A satellite imagery, by USDA Forest Service, Geospatial Technology and Applications Center, BAER Imagery Support Program. Map shows burn intensity/severity based on original BARC4 data. Burn intensity and severity are roughly equivalent, field verified 10/14/2021.

1 Miles
0 0.25 0.5 1 Miles

N

PART V - SUMMARY OF ANALYSIS**Introduction/Background**

The Trail Creek Fire started on July 8, 2021 as a result of lightning. The fire started in the Trail Creek area in Montana and burned extensively in Montana before crossing over the Continental Divide onto the Salmon-Challis National Forest in Idaho on July 24, 2021. The fire slowly backed down Threemile Ridge into the Dahlonega Creek watershed, ultimately reaching the Dahlonega Creek Road, where firefighters were able to backburn from containment lines along FR60079. The fire continued to burn in the Threemile Creek drainage, slowly moving west into Smithy Creek and threatening the community of Gibbonsville, Idaho. Fire activity diminished by early October, with higher humidities, rain, and snow.

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

Table 5: Critical Value Matrix

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

1. Human Life and Safety (HLS):

BAER Value: Human life and safety on or in close proximity to burned NFS lands

What is at Risk: Human life and safety

Probability: Possible

Consequences: Major

Risk: High

Comments: Increased risk of hillslope erosion, rockfall, hazard trees, high flows, and debris flows will likely be present for 3 to 5 years following the fire. Forest roads and trails access much of the portion of the burned area on the Salmon-Challis National Forest, and this area is popular for dispersed camping, recreation, and hunting. Increased amounts of deadfall along the trail system is likely to be a concern for at least 5 to 10 years, and potentially longer.

2. Property (P):

BAER Value: Buildings, water systems, utility systems, road and trail prisms, dams, wells, or other significant investments on or in close proximity to burned NFS lands

What is at Risk: Forest Trails

Probability: Possible

Consequences: Moderate

Risk: Intermediate

Comments: Trails within the Salmon-Challis National Forest portion of the burned area, including the Continental Divide Trail, are primarily located along ridgelines, in unburned areas and areas of low to moderate burn severity. Those trail segments within areas of moderate burn severity may be at risk of damage during post-fire storm events and are likely to experience degraded conditions as a result of soil erosion. However, no trail segments pass through areas burned at moderate or high severity on steep slopes (>45%). Existing trail drainage structures on the Continental Divide Trail will help to protect the trail to some degree. Other trails, including the Threemile Ridge Trail, are lacking trail drainage structures and may experience increased impacts from post-fire runoff and erosion. Deadfall has been a considerable impediment to keeping some of these trails passable in the past, and increased deadfall as a result of the fire is likely to be a concern for at least 5 to 10 years along these trails, and potentially much longer.

BAER Value: Buildings, water systems, utility systems, road and trail prisms, dams, wells, or other significant investments on or in close proximity to burned NFS lands

What is at Risk: Roads within the burned area

Probability: Likely

Consequences: Moderate

Risk: High

Comments: Roads within the burned area are at risk of damage as a result of post-fire runoff, flooding, erosion, or debris flows.

- The Dahlonega Creek Road (FR60079) is a heavily used road that runs along the southern boundary of the burned area, providing access to Big Hole Pass into Montana. The fire burned at low severity adjacent to the road. However, the road crosses near the mouth of each of the three major drainages burned by the fire. The Smithy Creek culvert at FR60079 is at high risk because of the degree of moderate and high severity burn in the watershed, the relatively high stream gradient, and the potential for a debris jam to block the 42-inch culvert. The Smithy Creek crossing is at the high point of its alluvial fan, creating conditions where overflow could flow either direction down the road and cause considerable damage to the road. The Threemile Creek and Nez Perce Creek crossings are at low risk because of lower burn severity, lower channel gradients, and larger culverts. Most of the road along the burned area contains a 1 to 2-foot high outer berm. These berms are likely to concentrate excess post-fire hillslope runoff along the road, causing additional damage to the road and additional risk at the stream crossings.



Smithy Creek crossing on FR60079.



2-foot high outer berm along FR60079.

- The Anderson-Threemile Road (FR60080) is a seasonally open road (5/22 to 9/7) with no outlet, providing access to Threemile Creek and Smithy Creek drainages. This road includes two culverts on Threemile Creek and one culvert on Smithy Creek. The risk to the road at each of these culverts is low because of generally low burn severity upstream of the culverts, low channel gradients, intact riparian vegetation, and adequately sized culverts. However, a portion of FR60080 crosses several steep intermittent gullies west of Threemile Creek. The small drainages of these gullies burned at mostly moderate and high severity, and the crossings consist of old 18-inch culverts (and one 24-inch culvert) that are in disrepair and partially to fully blocked. The road is not adequately outsloped at these crossings, and the slope of the road is conducive to capturing excess post-fire runoff from these drainages for a long distance. The road is at moderate to high risk of damage or loss at these crossings in the event of a high intensity storm event in this location. Other portions of this road that cross moderate and high severity burned areas are at low risk of loss because the road is adequately outsloped, but soil erosion, sloughing of the cut and fill slopes, increased runoff, and considerable deadfall result in a moderate risk of some road damage and impassability.



View down Gully #3 to FR60080.



18-inch culvert at Gully #3 crossing.

3. Natural Resources (NR):

BAER Value: Soil productivity and hydrologic function on burned NFS lands

What is at Risk: Soil erosion and stream channel function

Probability: Possible

Consequences: Minor

Risk: Low

Comments: Increased soil erosion will likely occur in areas of high and moderate burn severity. Ground cover will likely recover quickly (1-3 years) in low and moderate severity burned area, and over a period of 3 to 5 years in high severity burned areas. Post-fire flooding and/or debris flow events are likely to occur to some degree. However, fire is a natural part of this landscape, and any hydrologic impacts resulting from this fire will not alter the overall natural balance between runoff and erosion in the Dahlonega Creek watershed.

BAER Value: Critical habitat or suitable occupied habitat for federally listed threatened or endangered terrestrial, aquatic animal or plant species on or in close proximity to buned NFS lands

What is at Risk: Chinook, Steelhead, and Bull Trout Habitat

Probability: Possible

Consequences: Minor

Risk: Low

Comments: Steelhead are present in Dahlonega Creek and the lower reaches of Smithy Creek, Threemile Creek, and Nez Perce Creek. These areas are also designated critical habitat for Steelhead, and Dahlonega Creek is designated critical habitat for bull trout. The fire appears to have mimiced natural fire patterns that would have historically occurred in this area and are critical to developing and maintaining quality fish habitat and fish populations by introducing woody material and spawning gravel to the stream systems through increased erosion and debris flow events. If post-fire events occur and result in flood or debris flow events, it is anticipated that those impacts would be short term and localized.

BAER Value: Native or naturalized communities on NFS lands where invasive species or noxious weeds are absent or present only in minor amounts

What is at Risk: Spread of invasive species

Probability: Likely

Consequences: Moderate

Risk: High

Comments: The invasive plant species known to be present in the area have the potential to disrupt native plant community reestablishment in areas otherwise uninfested by noxious weeds. Invasive plant species inventoried in the burned area currently include large infestations of spotted knapweed, particularly along roads, as well as numerous smaller infestations of invasive plant

species that are of particularly high concern. Invasive plants infestations inventoried within the burned area on the SCNF include the following:

Species	Acres
spotted knapweed	1192.7
hoary alyssum	358.5
sulphur cinquefoil	27.7
oxeye daisy	7.7
common St. Johnswort	2.2
Dalmatian toadflax	1.3
Canada thistle	1.1
gypsyflower	0.4
Yellow toadflax	0.2
leafy spurge	0.2
Russian knapweed	0.1
musk thistle	0.1
black henbane	0.1
TOTAL	1592

The area burned in the Trail Creek Fire on the SCNF is of very high value for native plant communities and big game habitat values. Climax plant communities dominated by late seral bunchgrasses that provide key big game winter range and crucial spring transitional range are distributed across thousands of acres in the Dahlonega Creek watershed. Rocky Mountain elk and mule deer occupy suitable habitats in this area. Roads, trails, and backcountry use within the burned area increase the risk to susceptible areas, particularly in the first year following the fire. Fire suppression impacts, including extensive use of dozer lines and hand lines, also have a high potential to result in the spread of invasive plants.

4. Cultural and Heritage Resources:

BAER Value: Cultural resources on NFS lands which are listed on or potentially eligible for the National Register of Historic Places

What is at Risk: Historic Sites

Probability: Unlikely

Consequences: Moderate

Risk: Low

Comments: Historic sites exist within and adjacent to the burned area. However, no concerns exist at this time as to the integrity of these sites related to post-fire erosion or flood events.

B. Emergency Treatment Objectives:

- Reduce the risk of loss of Forest road infrastructure.
- Reduce the risk of new weed infestations in the burned area and promote the recovery of native plant populations.
- Decrease risk to public life and safety within the burned area.

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

Land: 80%

Channel: N/A – No BAER Treatments Proposed

Roads/Trails: 80%

Protection/Safety: 80%

D. Probability of Treatment Success

Table 6: Probability of Treatment Success

	1 year after treatment	3 years after treatment	5 years after treatment
<i>Land</i>	90%	80%	70%
<i>Channel</i>	N/A	N/A	N/A
<i>Roads/Trails</i>	80%	80%	80%
<i>Protection/Safety</i>	75%	75%	75%

E. Cost of No-Action (Including Loss):

The cost of no action is estimated to be \$280,000 (See VAR Worksheet):

Native Plant Communities: The cost that would be needed to treat weeds in the area of likely invasive plant expansion as a result of the fire if no BAER treatments were to occur is estimated to be approximately \$200,000, based on 20% annual expansion of infested acres after 3 years (treatments for approximately 69 acres of high concern EDRR species and an additional 200+ acres of spotted knapweed spread into previously uninfested areas at \$370/acre/treatment, and two treatments).

Roads: Approximately 2 miles of road are at high risk as a result of the fire. At a replacement cost of \$40,000 per mile, the cost of no action is \$80,000.

Human life and safety: The cost of no action cannot be quantified.

F. Cost of Selected Alternative (Including Loss):

The total cost of proposed treatments is \$41,426. Implementing the proposed treatments would reduce the probability of experiencing this loss by 0.5. The expected benefit of treatment would be \$140,000. Treatment is justified.

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 type="checkbox"/> Other: | | | | |

Team Leader:

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Team Members:

Skill	Team Member Name
<i>Team Lead(s)</i>	Dave Deschaine
<i>Soils</i>	Dave Deschaine
<i>Hydrology</i>	Bill MacFarlane, Dave Deschaine
<i>Engineering</i>	Pete Schuld
<i>G/S</i>	Bill MacFarlane
<i>Archaeology</i>	Cammie Sayer
<i>Weeds</i>	Diane Schuld
<i>Recreation</i>	Larry Vogel
<i>Fisheries</i>	Kelly Schade

H. Treatment Narrative:**Land Treatments:**

EDRR Weed Treatments - Conduct Early Detection Rapid Response (EDRR) management activities on invasive plant species within and adjacent to the burned area. Areas around known infestations along existing roads and trails will be examined for potential expansion into previously uninfested areas. EDRR activities will begin at known weed infestations and then radiate out from these epicenters to detect, map and treat new infestations. Chemical treatment will be the primary method used, and all herbicides proposed for use (see spec sheet in project file) are covered under the Salmon-Challis National Forest Invasive Plant Treatment Final Environmental Impact Statement (November 2015).

Invasive plant populations are known to occur along and adjacent to most roads and trails within the burned area on the Salmon-Challis National Forest. While most of the invasive plant infestations are large, established infestations of spotted knapweed (1193 acres inventoried) and hoary alyssum (359 acres inventoried), numerous smaller infestations of invasive plant species of particularly high concern that can be effectively controlled through Early Detection Rapid Response (EDRR) are present within the burned area. These invasive plant species include Russian knapweed (0.1 acres inventoried), musk thistle (0.1 acres inventoried), oxeye daisy (7.7 acres inventoried), gypsyflower (0.4 acres inventoried), common St. Johnswort (2.2 acres inventoried), black henbane (0.1 acres inventoried), dalmatian toadflax (1.3 acres inventoried), and sulphur cinquefoil (27.7 acres inventoried). These species have high spread rates and can be very difficult to control once established. With approximately 40 acres of infestation of these high concern species, the high potential for spread into moderate and high severity burned areas, and potential spread rates of 10 to 30% in the first year following the fire, over 50 acres of these species would need to be treated in the first year to prevent large scale spread in the burned area of the Trail Creek Fire. While EDRR is not applicable to treatment of existing large infestations of species such as spotted knapweed and hoary alyssum, EDRR may also be used where applicable to prevent large scale spread of these species into previously uninfested areas that were made susceptible as a result of the fire where native plant communities are at high risk.

Access to this area is difficult because of steep topography. Stock use (with packer support) will be needed for crews to access much of the area for EDRR weed treatments. Downed trees will further complicate access, and it may be necessary for crews to clear roads and trails to allow access for EDRR treatments.

The proposed EDRR work is estimated to require approximately 15 days of treatments. The work would be completed by Forest Service seasonal crews, partnership crews, and/or contracts. Proposed costs are summarized below. Permanent employee salary is not included, as this would be funded through regular program funds. Costs for this EDRR work reflect the large area over which treatments may be needed, the dispersed nature of the existing infestations, the rugged inaccessibility of much of the area, the prevalence of invasive plant species and vectors for spread, and the need for multiple treatments to effectively control invasive plant spread. Although approximately 50 acres of treatments may be needed, this number may be higher because of recent infestations that have not been inventoried. Crews will likely cover two to three times that area to ensure infestations have not spread and to treat infestations that have spread.

Herbicide/Adjuvant	\$693
Materials and Supplies	\$375
Labor (Contract, Partners, FS Seasonals, etc.)	\$34,158
TOTAL COST	\$35,226

Regular program funds (non-BAER) will be used for the following weed treatment tasks:

- Permanent Forest employee salary costs associated with the proposed treatments.
- Weed treatments within portions of the burned area impacted by suppression damages (dozer lines, hand lines, staging areas, etc). This will be funded through the fire p-code, which will be left open in 2022 to finish the suppression repair work. This is likely to be a substantial workload that will require multiple treatments and seeding.
- Non-EDRR treatments of large existing infestations of spotted knapweed. We are very much concerned about the ecological impacts of spotted knapweed post-fire. Efforts will be made in 2022 to knock back a fresh flush of sprouting seeds that will erupt from the seed bank during Spring 2022.
- Additional invasive species inventory and control that will be required in subsequent years (after 2022), because the risk cannot be eliminated, nor eradication achieved in a single year.

Channel Treatments:

No BAER Treatments proposed.

Roads and Trail Treatments:

Forest Road Stormproofing: Conduct storm proofing along 2.7 miles of the Dahlonega Creek Road (FR60079) adjacent to the burned area from 1 mile east of Hwy 93 to Nez Perce Creek, and 1.5 miles of the Anderson-Threemile Road (FR60080) within the burned area on the steep slopes just west of Threemile Creek. Stormproofing will include the following:

- Partial removal of the 1 to 2-foot high outer berm will occur along the 2.7 mile section of the Dahlonega Creek Road to improve drainage and prevent concentration of hillslope runoff or stream overflow on the road surface. Breaks in the berm will be constructed at strategic locations where the berm would impede the flow of runoff from the road, and particularly in the vicinity of each of the 3 stream crossings (Smithy Creek, Threemile Creek, and Nez Perce Creek). This will reduce the risk of damage to the road that could potentially make it impassable after storm events. This work will be conducted with a backhoe, with an estimated 2 days of work. Material removed from the berm will be spread on the opposite side of the road in suitable locations.
- Drainage dip/water bar construction and outsloping will occur along the 1.5 mile section of the Anderson-Threemile Road to prevent excess post-fire runoff from the steep gullies from being captured by the road surface. At each of the five gully crossings, the existing 18 to 24-inch culverts will be cleaned out and will remain in place, and drivable dips and/or water bars will be constructed so that any overflow (in the event of flows exceeding capacity or debris jamming the culvert inlets) would be routed directly across the road. The road will also be outsloped at these crossings to help route any overflow across the road. This work will be conducted with a backhoe (1 day) and a grader (1 day) in conjunction with the Dahlonega Creek Road work.

This project will require 3 days of backhoe time (\$500/day), 1 day of grader time (\$1,000/day), 4 days of labor for a crew of 2 including a pickup truck (\$500/day), and equipment mobilization (\$500). Total project cost is estimated to be approximately \$5,000.

Protection/Safety Treatments:

Hazard warning signs – Place hazard warning signs at the following locations to provide awareness to visitors about the hazards associated with this fire:

- Dahlonega Creek Road (FR60079) just east of Gibbonsville
- Dahlonega Creek Road (FR60079) at Nez Perce Creek
- Continental Divide Trail approximately 1.5 miles north of Big Hole Pass
- Anderson Mountain Road/CDT approximately 3.5 miles south of Hwy43

Implementation costs are estimated to be \$300 per sign (\$150 supplies and \$150 labor per sign), for a total estimated cost of \$1200.

I. Monitoring Narrative:

Monitoring inherently occurs as a part of EDRR activities to prevent the spread of invasive plants into susceptible burned areas. No additional monitoring is proposed.

PART VI – EMERGENCY STABILIZATION TREATMENTS AND SOURCE OF FUNDS

		NFS Lands				Other Lands				All
		Unit	# of	BAER \$	Other \$	# of units	Fed \$	# of Units	Non Fed \$	
Line Items	Units	Cost	Units	\$						
A. Land Treatments										
EDRR Weed Treatments	Each	35,226	1	\$35,226	\$0		\$0		\$0	\$35,226
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Land Treatments				\$35,226	\$0		\$0		\$0	\$35,226
B. Channel Treatments										
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Channel Treatments				\$0	\$0		\$0		\$0	\$0
C. Road and Trails										
Forest Road Stormproofing	Each	5,000	1	\$5,000	\$0		\$0		\$0	\$5,000
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Road and Trails				\$5,000	\$0		\$0		\$0	\$5,000
D. Protection/Safety										
Hazard Warning Signs	Signs	300	4	\$1,200	\$0		\$0		\$0	\$1,200
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Protection/Safety				\$1,200	\$0		\$0		\$0	\$1,200
E. BAER Evaluation										
Initial Assessment	Report	\$4,000	1	---	\$0		\$0		\$0	\$0
					\$0	\$0		\$0		\$0
<i>Insert new items above this line!</i>				---	\$0		\$0		\$0	\$0
Subtotal Evaluation				\$0	\$0		\$0		\$0	\$0
F. Monitoring										
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Monitoring				\$0	\$0		\$0		\$0	\$0
G. Totals										
Previously approved										
Total for this request				\$41,426	\$0		\$0		\$0	\$41,426

PART VII - APPROVALS

1. Charles a. mark
Forest Supervisor

12/7/21

Date