

# LODGEPOLE FIRE



## FS-2500-8 BURNED-AREA REPORT

SALMON-CHALLIS NATIONAL FOREST  
INITIAL REPORT  
OCTOBER 1, 2013

Date of Report : 10/1/2013**BURNED-AREA REPORT**

(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: LodgepoleB. Fire Number: ID-SCF-13165C. State: IdahoD. County: CusterE. Region: 4F. Forest: Salmon-Challis National ForestG. District: Challis-Yankee ForkH. Fire Incident Job Code: P4HRT7I. Date Fire Started: July 20, 2013J. Date Fire Contained: 80% contained as of 8/29/13  
(currently in monitor status)K. Suppression Cost: \$19,650,234 (as of 8/29/13)

## L. Fire Suppression Damages Repaired with Suppression Funds

Treatment	Amount	Completed?
Fireline waterbarred	6.8 miles dozer line	Yes
Fireline seeded	6.8 miles dozer line	Yes
	9.6 miles hand line	No
Other seeding	12 acres of safety zones	Yes

M. Watershed Number:

5 <sup>th</sup> level HUC	6 <sup>th</sup> level HUC	6 <sup>th</sup> level Watershed Name	Watershed size (acres)	Acres / Percent of watershed within burn perimeter
Challis Creek (1706020116)	170602011601	Upper Challis Creek	20,794	11,810 / 57%
	170602011602	Middle Challis Creek	14,408	8,517 / 59%
	170602011606	Lower Challis Creek	22,322	2,044 / 9%
	170602011604	Mill Creek	18,020	377 / 2%

N. Total Acres Burned:

	NFS Acres	State	Private	TOTAL
Salmon-Challis NF	22,754	0	0	22,754
OTHER NF	0	0	0	0
TOTAL	22,754	0	0	22,754

O. Vegetation Types:

The fire area spans many vegetation types at elevations of 5,800 to 9,500 feet. Forested areas include Aspen, Douglas Fir and Spruce along riparian areas and in lower elevations. Lodgepole Pine and Subalpine Fir dominate the higher elevations. Non-forested areas include Mountain Mahogany, Sagebrush, Rabbit brush and bunchgrasses.

P. Dominant Soils:

The Lodgepole Fire area soils were formed from Challis Volcanics consisting of igneous extrusive: mainly andesites, rhyolites and tuffs. These soils are generally medium to fine textured, moderate to high productive potential, and moderate to severe water erosion hazard on disturbed sites. Generally soils are shallow to moderately deep, have dark brown loam to clay loam surfaces and dark yellowish-brown loam subsoils. The soils are gravelly and contain 25 to 75% rock fragments. Running water and frost action have produced a land surface which is generally rounded and smooth on the upper ridges and sideslopes and maturely dissected stream channel lower on the sideslopes. The drainage channels form well-defined dendritic patterns throughout the entire landscape, but short slopes above the drainage channels have little dissection themselves. These soils have a relatively high inherent surface erosion hazards. Reforestation/revegetation potential is low due to high rock content, a short dry growing season and, low water holding capacity, and relatively shallow soils.

Q. Geologic Types:

	Acres withn fire perimeter	Percent of fire perimeter
Volcanic	22,165	97.4%
Alluvial	589	2.6%

R. Miles of Stream Channels by Order or Class:

	Miles within fire perimeter
Perennial	23.5
Intermittent	44.0

S. Transportation System

	Miles within fire perimeter
Motorized Trails	1.3
Non-Motorized Trails	0.0
Open System Roads	21.4
Closed System Roads	
Unclassified Roads (U-routes)	6.6

## **PART III - WATERSHED CONDITION**

### **A. Burn Severity within fire perimeter (acres):**

	<b>Acres withn fire perimeter</b>	<b>Percent of fire perimeter</b>
No Data*	3,987	17.5%
Unburned	3,321	14.6%
Low	9,242	40.6%
Moderate	5,191	22.8%
High	1,013	4.5%
<b>TOTAL</b>	<b>22,754</b>	

Burn intensity and burn severity were observed and measured in the field, and BARC data were adjusted to reflect field verification. Refer to the Hydrology and Soils specialist report for detailed information on field verification of burn intensity and severity.

### **Burn severity by watershed**

<b>Watershed</b>	<b>Watershed size (acres/ sq mi)</b>	<b>Burn Severity (acres / percent of watershed)</b>			
		<b>Low</b>	<b>Moderate</b>	<b>High</b>	<b>No data*</b>
<b>Challis Creek (to Bear Creek confluence)</b>	20,796 32.5	4543 22%	2767 13%	618 3%	1873 9%
Challis Creek (to Dam)	10,552 16.5	961 9%	410 4%	113 1%	615 6%
Lodgepole Creek (to mouth)	4,548 7.11	1476 32%	1238 27%	367 8%	820 18%
Unnamed (to mouth at Challis Creek)	610 0.95	306 50%	269 44%	9 1%	
<b>Bear Creek (to mouth)</b>	9,445 14.8	2243 24%	1626 17%	343 4%	1400 15%
West Fork Creek (to mouth at Twin Creek)	1,801 2.81	168 9%	46 3%	10 1%	98 5%
Twin Creek (to West Fork Creek confluence)	1,441 2.25	532 37%	165 11%	10 1%	196 14%
Upper Bear Creek (to confluence with Twin Creek)	1,484 2.32	196 13%	14 1%		261 18%
Cold Spring Gulch (to mouth)	456 0.71	115 25%	238 52%	15 3%	86 19%
Spring Gulch (to mouth)	1,253 1.96	358 29%	128 10%	1 0%	315 25%
<b>White Valley Creek (to mouth)</b>	4,464 6.98	998 22%	531 12%	36 1%	269 6%
<b>Pat's Creek (to mouth)</b>	3,398 5.31	657 19%	115 3%	5 0%	89 3%
Unnamed (to mouth at Pat's Creek)	739 1.15	434 59%	99 13%	5 1%	56 8%
<b>Jeff's Creek (to mouth)</b>	3,096 4.84	525 17%	122 4%	5 0%	267 9%

\* Burned Area Reflectance Classification (BARC) data were derived from two satellite passes. The first pass with Landsat 7 on August 17, 2013 resulted in strips of no data covering approximately 40% of the burned area. The second pass with Landsat 8 on August 26, 2013 provided full coverage without strips of 'no data,' but cloud cover obscured much of the western portion of the burned area. The final BARC product was derived by combining the two datasets after removing the portion of the August 26 data that was obscured by clouds. As a result, approximately 17.5% of the burned area still shows areas of 'no data.' Approximately 1/3 of the area of 'no data' covers lodgepole pine forests, and a portion of these Lodgepole forests likely burned at high severity.

B. Water-Repellent Soil (acres): 1,013 acres

*\* This figure is reported as the area of high burn severity based on field sampling. This number does not include areas of 'no data' that burned at high severity.*

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

Landtype Erosion Hazard Rating	Total acres	Percent of burned area
High	20,207	89%
Moderate	1,958	9%
Low	589	3%

*\*Acres are based on the Landtype Erosion Hazard attribute in the Landtypes GIS database.*

D. Erosion Potential: 1.2 - 5.7 tons/acre \*

*\* Based on ERMiT modeling for high burn severity on representative slopes, at the 20% probability that the sediment yield will be exceeded (see hydrology/soils specialist report).*

E. Sediment Potential: 570 – 2,705 cubic yards / square mile

#### **PART IV - HYDROLOGIC DESIGN FACTORS**

- A. Estimated Vegetative Recovery Period (years): 1-3 (grasses), 2-5 (woody), 10-50 (conifers)
- B. Design Chance of Success (percent): 80%
- C. Equivalent Design Recurrence Interval (years): 5 year
- D. Design Storm Duration (hours): 30 minute
- E. Design Storm Magnitude (inches): 0.73
- F. Design Flow (cubic feet / second/ square mile): 8-15 cfs/mi<sup>2</sup> (5-yr); 17-25 cfs/mi<sup>2</sup> (100-yr)
- G. Estimated Reduction in Infiltration (percent): 4.5% overall (0-8% by watershed)  
(based on water repellant soil acres)
- H. Adjusted Design Flow (cfs per square mile): 10-25 cfs/mi<sup>2</sup> (5-yr); 19-31 cfs/mi<sup>2</sup> (100-yr)

Estimates of pre- and post-fire flood magnitudes for streams of concern in the burn area, based on streamflow modeling using *Fire Hydrology Version 1.3* (see hydrology/soils specialist report).

	Challis Creek at Mosquito Flat Dam	Bear Creek at mouth	White Valley Creek at mouth
Flow recurrence interval (yrs)	5	5	5
Watershed size (sq mi)	16.5	14.8	6.98
Watershed size (acres)	10,552	9,445	4,464
Pre-fire flow (cfs)	219	223	56
Pre-fire flow (cfs/sqmi)	13.3	15.1	8.0
Post-fire flow (cfs)	219	366	67
Post-fire flow (cfs/sqmi)	13.3	24.7	9.6
Percent increase in flow	0%	64%	20%

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

A. Describe Critical Values/Resources and Threats:

## GENERAL DESCRIPTION

The Lodgepole Fire started as a lightning strike on the Salmon-Challis National Forest approximately 10 miles west of Challis, Idaho on July 20, 2013. The fire burned in a northeasterly direction through primarily lodgepole pine forests containing a large component of dead standing beetle-killed trees, as well as unforested sagebrush-covered hillslopes. High fire activity occurred from July 21 to August 1. After August 1, the fire continued to creep and smolder primarily in the northern portion, with little additional growth.

The fire covered an area bounded by Mosquito Flat Reservoir on the south end, Twin Peaks on the northwestern corner, and Pat's Creek on the Northeastern corner. The western portion of the fire burned up to the wilderness boundary, but did not cross into wilderness. The eastern portion of the fire burned to within about a half mile of the Forest Service boundary, but did not cross onto BLM lands. The entire fire occurred on National Forest System lands.

At the time of this report, it is estimated that full containment will not occur until a significant rain or snow event occurs, and it is anticipated that little or no additional fire growth will occur.

## BAER CRITICAL VALUES

## Human Life and Safety

## **Human life and safety on or in close proximity to burned NFS lands**

**Post-fire Hazards** \_\_\_\_\_ **Likely probability / Major consequences ... Very High risk**

Structurally compromised hazard trees exist as a result of the fire along the numerous roads within the burned area, particularly in areas burned at moderate and high intensities. These hazard trees will remain a threat to Forest users for a period of several years as root systems decay. The sudden onset of gusty winds can occur during thunderstorms, causing trees to fall. Hazard trees are also a particular concern to BAER personnel implementing BAER treatments.

Flash floods, debris flows, and rockfall are likely to occur as a result of the fire because of the steep terrain in the burned area. Typical high intensity, short duration thunderstorms can produce flash floods as a result of hydrophobic soils and loss of groundcover. The fire has resulted in increased occurrence of rockfall onto roads because of loss of stabilizing groundcover, as well as falling trees. These types of events are likely to impact human life and safety along the main roads in the Challis Creek, Bear Creek, White Valley Creek, and Pat's Creek valleys.

Loss of Access	Possible probability / Minor consequences ...	Low risk
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Roads within the burned area provide access to Mosquito Flat Reservoir, Twin Peaks Lookout, the Sleeping Deer area, and wilderness trails. All of the main roads are in the valley floor and are at some risk of washout from the main channel or debris flows from the tributaries. Short term loss of access is possible during periods of storms over the next 2 to 3 years. Alternate access exists to Mosquito Flat Reservoir and Challis Creek via the Custer Motorway.

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

**Forest Roads \_\_\_\_\_ Likely probability/ Moderate consequences ... High risk**

All of the main roads within the fire perimeter are in the valley floor and are at some risk of washout from the main channel or debris flows from the tributaries. Detailed descriptions of the conditions along these roads are provided in the Roads specialist report.

Challis Creek Road (FR#080): Forest Road #080 provides access up Challis Creek to Mosquito Flat Reservoir. This is a well maintained, well-traveled road. Post-fire flood risks to this road include two locations where bank erosion on Challis Creek is threatening the road. Post-fire floods and associated debris jams could potentially result in further loss of road. However, high burn severity in the watershed upstream of these locations is limited, and streamflows are regulated by the outflow from Mosquito Flat Reservoir, so the risk of damage in Challis Creek itself is low. Post-fire flood risks to this road also include four locations where the road crosses tributaries at culverts. The percentage of high burn severity in these watersheds ranges from 1 to 8%, with Lodgepole Creek presenting the highest risk. Debris from these drainages has the potential to block culverts and route flow down the road, causing erosion and potential loss of road. These culverts are appropriately sized, with the exception of the White Valley Creek culvert. The White Valley Creek culvert is an old 2-foot diameter, 32-foot long culvert with reduced capacity. Flood flows also have access via an 180-foot long roadside ditch to 2-foot diameter relief culvert.



*White Valley Creek Culvert on FR#080*

Bear Creek Road (FR#086): Forest Road #086 provides access to the Twin Peaks Lookout and the Sleeping Deer area. This is a well maintained, well traveled road. Post-fire flood risks to this road include five locations where the road crosses tributaries at culverts. The percentage of high burn severity in these watersheds ranges from 0 to 3%, and the percentage of moderate burn severity ranges from 10 to 52%. Debris from these drainages has the potential to block culverts and route flow down the road, causing erosion and potential loss of road. The culverts are appropriately sized, but drainage structures on the road are generally lacking.

White Valley Creek Road (FR#092): Forest Road #092 provides access to Spruce Gulch Lake. This road is a rough four-wheel drive road. Post-fire flood risks on this road include at least 3 locations where burned tributaries are likely to deposit material on the road or block culverts. Culverts are appropriately sized, but drainage structures on the road are generally lacking.

Pat's Creek Road (FR#173): Forest Road #173 provides access to the head of Pat's Creek and a motorized trail to Eddy Basin. This road is a rough four-wheel drive road. Post-fire flood risks on this road include possible erosion or blockage at two fords over the western fork of Pat's Creek and 3 culverts over Pat's Creek. Because high and moderate burn severity is very limited in the watershed, the risk of damage to the road is low.

**Mosquito Flat Reservoir \_\_\_\_\_ Unlikely probability/ Major consequences ... Intermediate risk**

The Mosquito Flat dam was constructed in 1949 and 1950 for the purpose of irrigation water storage. The Mosquito Flat Reservoir covers an area of 46 acres and provides 793 acre-feet of water at the normal pool crest elevation. The dam is a homogenous earthfill dam with single outlet conduit (24-inch diameter corrugated metal pipe). The dam is 51 feet high, with an embankment crest length of 450 feet. The dam has an earthen spillway channel and side channel spillway chute, and the spillway capacity is 336cfs. The

drainage area into the reservoir is 16.1 square miles. The dam is owned by the Mosquito Flats Water Users and lies on National Forest System lands, administered under a special use permit from the Salmon-Challis National Forest. The Mosquito Flat Water Users implemented maintenance on the dam in 2009 to fix severe leakage in the outlet pipe due to deterioration.

Approximately 14% of the contributing watershed to the reservoir lies within the fire perimeter. Only 1% of the contributing watershed burned at high severity, and 4% burned at moderate severity. Modeling indicates little or no increase in peak flows as a result of the fire. The dam is designed to pass an inflow design flood from 50 percent of the probable maximum precipitation (PMP) falling in the contributing watershed. Local PMP storm depth for a 30-minute storm is 5.41 inches, and half of the PMP is 2.51 inches (Water Management Consultants, 2008).

The dam is in good condition, and the risk of dam failure as a result of post-fire flooding is low. However, the condition of the spillway must be inspected and maintained. Numerous trees and branches were cut during firefighting operations along the spillway channel where the fire burned up to the spillway. This woody debris within the spillway channel could potentially impede flood flows in the channel. Also, woody debris that enters the reservoir can be blown toward the dam, where it could potentially cause blockage of the spillway. Runoff from the fire area is not likely to cause a large increase in woody debris input to the reservoir because of the limited fire impacts upstream of the reservoir.

## Natural Resources

### Soil Productivity and hydrologic function on burned NFS lands

#### **Stream Channel Function \_\_\_\_\_ Possible probability/ Moderate consequences ... Intermediate risk**

Challis Creek is listed by the State of Idaho as impaired for sediment, and a TMDL was prepared in 2003 (Idaho Department of Environmental Quality, 2003). Potential effects on stream channel function from the Lodgepole Fire include the following (*these effects are described in more detail in the hydrology/soils specialist report*):

Hillslope sedimentation: Sediment production from hillslopes is likely to increase over the next 1 to 3 years as a result of the fire. However, the very rocky nature of the soils in the burned area will limit the extent to which this occurs. Small debris flows from steep hillslope drainages, such as the event that occurred on August 28, 2013 in the White Valley Creek drainage, are likely to occur during high intensity rainstorms, but are unlikely to deliver large quantities of sediment to streams. Larger debris flows in larger tributaries are likely to deliver large quantities of sediment and rock to the larger stream channels. Because of the steep nature of most of these streams, sediment delivered to the system is likely to flush out in 1 to 3 years, depending on the magnitude of subsequent high water events.

Erosion from roads: Roads occupy the valley floors adjacent to Challis Creek, Bear Creek, White Valley Creek, and Pat's Creek. Roads also cross numerous tributaries. The 2003 Upper Salmon River Subbasin Assessment and TMDL (Idaho Department of Environmental Quality, 2003) indicates that the primary source of sediment to Challis Creek is stream bank and road erosion. The potential exists for post-fire flood events to cause additional bank erosion along roads, route flow onto roads and cause erosion of the road surface, and block culverts, which could lead to loss of road fill at tributaries.

Decreased bank stability: High burn intensity occurred within riparian areas of Challis Creek, Bear Creek, and White Valley Creek. Although these areas did not cause high burn severity to the soils, complete loss of riparian vegetation occurred in places. The largest extent of riparian burn occurred over a 0.8-mile long section of White Valley Creek, where bank composition is primarily finer material. Although streamflows are not expected to increase greatly in White Valley Creek, banks in this area have a high potential for continued destabilization as a result of the fire. Elsewhere, with some exceptions, streambanks are composed of larger rock material, and the banks are likely to remain relatively stable.



Sediment release from beaver dams: Some areas of Challis Creek experienced complete burn of the riparian area, as well as partial consumption of beaver dams. Bank stability in these areas is likely to decrease, and the potential exists for loss of the beaver dams during high flows. Sediment delivery from the beaver dams could potentially impact stream channel conditions downstream.

**Critical habitat or suitable occupied habitat for federally listed threatened or endangered terrestrial, aquatic animal or plant species on or in close proximity to burned NFS lands**

**Chinook, Steelhead, Bull Trout \_\_\_\_\_ Likely probability/ Minor consequences ... Low risk**

The fire burned in areas that are occupied by the following ESA listed fish species: bull trout and steelhead. The fire burned in areas that are designated critical habitat for the following ESA listed fish species: bull trout and Chinook salmon. Challis Creek downstream of the National Forest boundary is occupied by the following ESA listed fish species: bull trout, steelhead, and Chinook salmon. Challis Creek downstream of the National Forest boundary is designated critical habitat for the following ESA listed fish species: bull trout, steelhead, and Chinook salmon.

The Lodgepole Fire burned in areas occupied by ESA listed fish species and in areas that are designated critical habitat for ESA list fish species. The fire modified the fish habitat in some of these areas, and it is likely that fish habitat will be further modified in some of these areas during periods of runoff. These changes could result in the death of some individual fish. However, fire is a natural process in this ecosystem and it is needed to maintain the long-term health of fish habitat and fish populations. While the fire may have some short-term adverse effects to individual fish, it will have a long term beneficial effect on both fish habitat and fish populations.

Upon review of the area impacted by the fire, the distribution of ESA listed fish species within the area impacted by the fire, and the occurrence of designated critical habitat for ESA listed fish species within the area impacted by the fire, the BAER assessment team concluded that no actions are needed as part of the BAER effort to protect ESA listed fish species and designated critical habitat for ESA listed fish species.

**Water used for municipal, domestic, hydropower, or agricultural supply or waters with special state or federal designations on or in close proximity to the burned NFS lands**

**Irrigation ditches & water supplies \_\_\_\_\_ Possible probability/ Moderate consequences...Intermediate risk**

Several diversions are located on National Forest System lands within or immediately downstream of the burned area. These diversions primarily provide water for irrigation for downstream landowners, and they are authorized under special use permits. The diversion structures, headgates, and ditches coming from the larger streams (Bear Creek and White Valley Creek) are susceptible to damage during high flows or debris flow events.

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

**Spread of Invasive Species \_\_\_\_\_ Likely probability/ Major consequences ... Very High risk**

Field reviews indicate that there is a substantial risk of noxious weed invasion along roads, trails, trailheads, campgrounds, dozer lines, handlines, other areas used during fire suppression activities, and high intensity burned areas. This threat is due to the existence of noxious weeds in and adjacent to the burn area, and a high likelihood that noxious weed seeds were brought into the area by fire equipment that has been used on other wildfires and suppression activity within known noxious weed locations in the burned area. Known infestations of spotted knapweed are present within the burned area. Six other noxious weed species and one Lemhi County Species of Concern occupy lands immediately adjacent to the burned area. Those species are Black Henbane, Yellow Toadflax, Dalmation Toadflax, Canada Thistle, Field Bindweed, Leafy Spurge, and Sulfur Cinquefoil. Burned areas are susceptible to colonization by these species from disturbed areas adjacent to the fire and the Forest boundary.

The burned area, now lacking desired native perennial vegetation that can normally out-compete noxious weeds, supports favorable conditions for initial expansion of nearby populations of noxious weeds and other invasive species. The spread of existing or new invasive species would lead to a reduction of desirable native vegetation. Once invasive plants establish, the long-term impacts would be the loss of soil productivity due to increased solar radiation and runoff, increased fire frequency, loss of suitable wildlife habitat and decreased forage production. Stream channel and riparian condition are also at risk, particularly in the numerous riparian areas that burned at high intensity. Prevention and treatment of invasive species prior to populations becoming established and expanding is a key point in restoring desired native vegetation within the burned area and reducing long-term cost of containment, control and eradication.

**Cultural and Heritage Resources**

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

**Historic Sites** \_\_\_\_\_ **Unknown probability/ Unknown consequences ... Unknown risk**  
Known historic and cultural sites exist within the burned area. No known significant sites are at risk of damage or loss from post-fire flood events. However, it is likely that the fire may have exposed undiscovered sites, particularly in burned riparian areas. These sites may be susceptible to post-fire flood events, as well as incidental collecting.

At this time, reconnaissance assessment of the burned area has not been completed to inventory any undiscovered sites that may be at risk.

**OTHER CRITICAL VALUES** \_\_\_\_\_

**Private residences** \_\_\_\_\_ **Unlikely probability/ Moderate consequences ... Low risk**  
A number of private residences are located along the 9-mile section of Challis Creek downstream of the burned area. Water Management Consultants (2008) estimated that at least 5 houses have floor elevations within 12 feet of the streambed elevation, and 2 houses that have floor elevations within 8 feet of the streambed elevation in the Challis Creek valley. Because of the low valley gradient along Challis Creek downstream of the Forest boundary and the intact riparian area, post-fire high flow events are likely to quickly attenuate, and debris is likely to be deposited. These factors decrease any risk to private residences from post-fire flood events.

B. Emergency Treatment Objectives:

- Reduce threats to personal injury and/or human life of visitors and workers using system roads and trails within the burned area.
- Prevent the loss of road infrastructure and reduce risks to critical natural resources and downstream values, including human life and safety, habitat, and hydrologic function.
- Locate and treat new and known invasive plant species infestations during early stages of spread in ecologically sensitive burned areas in order to maintain the structure and function of the local ecosystem.

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

Land **80%** Channel **NA** % Roads/Trails **80** % Protection/Safety **90** %

D. Probability of Treatment Success

Treatment	Years after treatment		
	1	3	5
Land – weed treatments	90%	75%	25%
Channel Treatments	90%	90%	90%
Roads – road treatments	70%	80%	90%
Protection/Safety	90%	90%	90%

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

F. Cost of Selected Alternative (Including Loss): (See VAR Analysis)

**Values at Risk Summary**

Zone	Description	Market resource value	Prob. of experiencing loss with no treatment	Total treatment costs	Prob. of experiencing loss if trmt occurs	Expected benefit of treatment	Expected benefit/cost ratio
A	Entire Fire	\$149,000	0.70	\$29,978	0.40	\$44,700	1.5

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader:	Bill MacFarlane	Email: <a href="mailto:wamacfarlane@fs.fed.us">wamacfarlane@fs.fed.us</a>
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**BAER Team Members**

Team Member	Role	Location
Bill MacFarlane	Team Leader	Salmon-Challis National Forest
Dave Deschaine	Co-Team Leader/Hydrology/Soils	Salmon-Challis National Forest
Glenwood Brittain	Timber	Salmon-Challis National Forest
Mike Helm	GIS	Salmon-Challis National Forest
Pete Schuldt	Road Engineer	Salmon-Challis National Forest
Tommy Gionet	Weeds	Salmon-Challis National Forest
John Rose	Archeologist	Salmon-Challis National Forest

## H. Treatment Narrative

### Land Treatments

#### ***Early Detection Rapid Response (EDRR) Weed Control*** \_\_\_\_\_

##### **Weed Treatment**

Purpose of Treatment: To prevent known infestations from spreading and/or increasing in density and to detect and respond rapidly to new infestations associated with fire suppression/fire effects of the Lodgepole Fire. In the proposed herbicide spraying treatment areas, if treatment was not implemented the probability of irretrievable loss of the native plant community due to the invasion of noxious and non-native invasive species is 1.0 nearly certain that noxious and non-native species would out-compete native plant species.

General Description: Perform Early Detection Rapid Response (EDRR) management activities on noxious weeds species within and adjacent to the Lodgepole Fire perimeter. In addition to doing reconnaissance and treating weed species associated with roads, campgrounds, trailheads, trails and other identified potential vectors, the area around known infestations will also be examined for potential expansion into previously uninfested areas. Populations are generally along roadways, trails and drainage bottoms within or adjacent to the burned area. There are 2 known infestations within the fire perimeter constituting 1.2 acres. Immediately adjacent to the fire are an additional 6 known infestations constituting over 436 acres. The state of Idaho noxious weed species that infests the fire area is Spotted knapweed (*Centaurea stoebe*). Infestations immediately adjacent to the fire area include the following species: Black Henbane, Yellow Toadflax, Dalmation Toadflax, Canada Thistle, Field Bindweed, Leafy Spurge, and Sulfur Cinquefoil. The purpose of the treatment is to prevent establishment of new infestations, prevent spread of existing infestations, and prevent increase in weed density in existing infestations.

Location (Suitable) Sites: Existing weed infestations within and directly adjacent to the Lodgepole Fire burned areas on the Salmon-Challis National Forest.

Design Specifications: Select herbicide, application rate, and application timing based on specific weed species. Monitor location, size, and density of infestations following treatments.

##### **Monitoring**

Purpose of Treatment: To prevent known infestations from spreading and/or increasing in density, to detect and respond rapidly to new infestations associated with fire suppression/fire effects of the Lodgepole Fire. In the proposed herbicide spraying treatment areas, if treatment was not implemented the probability of irretrievable loss of the native plant community due to the invasion of noxious and non-native invasive species is 1.0 nearly certain that noxious and non-native species would out-compete native plant species.

##### **General Description:**

1. Monitoring areas disturbed by suppression actions and the burned area. Monitoring will be conducted 2 times a year to identify the spread or occurrence of weed species following the fire event and recovery. This monitoring will be funded in part by BAER and in part through other authorities where pre-fire management has taken place through the Forest Service, RAC, and CWMA. Monitoring will be conducted for the first year after the fire. Monitoring needs following this period will be conducted under normal program authorities. A minimum of five years of monitoring should be implemented by other program authorities.
2. Monitoring areas disturbed by BAER and other recovery actions. All activities in the BAER implementation process especially ground disturbing activities will be monitored for weed establishment or seed spread.
3. Monitoring of prevention requirements. All weed spread preventative measures will be monitored to ensure no weed seed collected at these preventative sites gets spread onto adjacent lands.

Location (Suitable) Sites: Monitoring areas disturbed by suppression actions and the burned area. Monitoring within the burned area will focus on areas with existing noxious weed infestations, adjacent areas, areas disturbed during suppression activities and areas which burned in the moderate and high intensity categories as identified on the BARC map.

- a) 16 FS System Roads (Open) totaling 68 Miles: 009, 057, 076, 080, 086, 090, 092, 169, 173, 176, 178, 253, 255, 537, and 600.
- b) 1 FS System Trail (Open) totaling 1.75 miles: FS Trail #352.
- c) 4 Trailheads constituting approx. 9 acres: Darling Creek, Pats Creek, Blowfly and Little West Fork Morgan Creek
- d) 2 Campgrounds constituting approx. 10 acres: Mosquito Flat Reservoir and West Fork Morgan.
- e) 8 known noxious weeds sites, approximately 437 acres
- f) 6.6 Miles of Dozer Line, 9.6 miles of Hand Line and 6 mechanically constructed Safety Zones.
- g) Multiple Drop Points, Pump sites and staging areas
- h) Approx. 1,013 acres of High Intensity Burn and approx. 5,191 acres of moderate fire intensity

Design/Construction Specifications: Thorough reconnaissance will be conducted in and around all sites and areas identified during the BAER Vegetation Assessment. These sites will be monitored by crews on foot or by vehicle as appropriate. If noxious weed infestations are identified an appropriate treatment will be implemented to eradicate or control the infestation (i.e. hand pulling, herbicide application, biological agent control, seeding of native species). All data collected regarding noxious weed treatments and reconnaissance findings will be compiled into a database for further tracking and treatment of weed sites identified during this monitoring process.

Total cost of EDRR treatments:

Personnel (22 days for crew of 3, plus 5 days oversight)	\$8,914
Materials and supplies	\$1,000
<b>TOTAL</b>	<b>\$9,914</b>

## Channel Treatments

### ***Mosquito Flat Dam Spillway cleanout and monitoring***

Purpose of Treatment: Inspect and maintain the Mosquito Flat Dam spillway to minimize the risk of damage to the dam infrastructure.

General Description: Clear accumulated woody debris from the Mosquito Flat Dam spillway channel in order to maintain proper function of the spillway. Inspect the reservoir periodically for logs that might impact the function of the spillway channel. Coordinate with the Mosquito Flat Water Users and implement corrective measures if obstructions in the spillway are found.

Location (Suitable) Sites: Mosquito Flat Dam.

Design Specifications: Clearing of woody debris in the spillway and periodic inspections of the reservoir and spillway during/after flood events will be conducted by Forest Service personnel in conjunction with normal duties in the area. No BAER funding is requested for this activity.

## Roads and Trail Treatments

### ***Culvert Replacement***

Purpose of Treatment: Replacement of the undersized culvert on White Valley Creek on FR#080 is recommended for immediate implementation in the fall of 2013 in order to decrease the risk of road failure, erosion, and sediment delivery during post-fire runoff.

General Description: The White Valley Creek culvert will be replaced with a larger culvert in approximately

the same location. The culvert will be designed to accommodate a 100-year design flow, as well as debris. The culvert will be installed so that the bottom is lined with substrate and fish passage is possible.

Location (Suitable) Sites: FR#080 culvert on White Valley Creek.

Design Specifications: The 2-foot diameter by 32-foot long White Valley Creek culvert on FR#080 would be replaced with a 4-foot by 6-foot squash culvert in approximately the same location. A 4-foot by 6-foot squash culvert at 2.5% gradient would be able to accommodate approximately 230cfs, but this capacity would be decreased because the culvert would be partially buried for fish passage design. The design flow at this location is approximately 180cfs. It is likely that during a flood, some of the flow will spill out of the main channel and flow via the ditch through the 2-foot relief culvert.

Approximately 60 yards of fill material would be required to raise the road elevation to accommodate the larger culvert. This material is available at the nearby White Valley pit (Forest Service). Two cottonwood trees growing over the existing culvert would need to be removed. Debris would be cleared from the 180-foot long ditch along the road to allow overflow to pass through the relief culvert. During construction, White Valley Creek would be de-watered through the ditch and relief culvert.

Heavy equipment work would be implemented through a task order contract. Design will follow specifications in the *Burned Area Emergency Response Treatments Catalog* (USDA Forest Service, 2006). The estimated cost of this proposed treatment is \$12,300.

## **Road Outslopes and Dips**

Purpose of Treatment: Construction of road outslopes and drainage structures, culvert catch basin cleanout, and road grading are recommended for immediate implementation in the Fall of 2013 along portions of the White Valley Creek Road (FR#092), the Bear Creek Road (FR#086), and the Challis Creek Road (FR#080) in order to protect the road infrastructure from erosion during post-fire runoff events.

General Description: The following types of treatments will be implemented at specific locations (see *Roads specialist report for detailed treatment descriptions by site*):

- 1) Road outslopes and drainage dips will be constructed, and outer berms will be removed at high-risk areas where these roads cross mouths of tributaries.
- 2) Debris will be removed from culvert inlets where needed to reduce the risk of culvert blockage during post-fire runoff events.
- 3) Portions of these roads will be graded to remove wheel depressions and outer berms in areas of high risk of the road capturing hillslope runoff from burned areas.

Location (Suitable) Sites: Treatments are proposed at the following sites:

Road	Site	Outslopes, dips, and berm removal	Culvert catch basin cleanout	Road grading
<b>Challis Cr Rd (FR#080)</b>	Lodgepole Creek crossing	X		
	Bear Creek crossing	X		
<b>Bear Creek Road (FR#086)</b>	Twin Creek crossing	X		
	Unnamed stream at swithbacks	X		
	Spruce Gulch crossing	X	X	
	Cold Spring Gulch crossing	X	X	
	Road grading where needed along 3.4 miles			X
<b>White Valley Creek Road (FR#092)</b>	Unnamed steep drainage	X		
	White Valley Creek crossing	X		
	Unnamed tributary crossing	X		
	Unnamed tributary crossing	X		
	Road grading where needed along 1.2 miles			X

Design Specifications: Heavy equipment work would be implemented through a combination of task order contract and force account. Equipment will include a dozer, backhoe, and grader. Design will follow specifications in the *Burned Area Emergency Response Treatments Catalog* (USDA Forest Service, 2006). The estimated cost of this proposed treatment is \$7,764.

## Protection/Safety Treatments

### Road and Trail Hazard Warning Signs

Purpose of Treatment: Hazard warning signs would be installed in order to warn the public of hazards that exist within burned areas, such as falling trees, rockfall, and flash floods.

General Description: Install warning signs at road intersections that provide access to the burned area. The proposed work would include purchase of signs and any incidental hardware, as well as salary for installation of the signs.

Location (Suitable) Sites: Signs would be placed at all road portals into the burned area. This includes Forest Roads #080, #086, #092, and #173.

Design Specifications: Road signs would consist of 2-post, large, reflective signs. Signs would follow Forest Service Region 4 specifications. Signs would read "Entering Burned Area, Watch for Hazards". The cost of signs, materials, and installation of each sign is estimated to be \$300. The total cost of this treatment (4 signs) is estimated to be \$1200.



#### Hazard Warning Sign Accomplishment Summary:

Hazard warning signs were placed in 4 locations along road portals into the burned area in September 2013, using extra signs that had been previously purchased for other projects. Therefore, no BAER funding is requested as part of this report.

## I. Monitoring Narrative:

The following is a summary of recommended implementation (I) and effectiveness (E) monitoring for the proposed BAER treatments on the Lodgepole Fire.

Project	Monitoring timeframe	Type	Summary of monitoring	Funding Requested
EDRR Weed Control	2014	I	Monitoring is included within the EDRR proposal.	None
Road Treatments	Summer 2014	I, E	Road treatments implemented for this project will be monitored during the summer of 2014 to ensure that they were implemented as designed, and following storm events to assess their effectiveness in protecting the road infrastructure and reducing sediment input into streams.	Funding is requested for a crew of 2 for 2 days (\$1500).

## References

Idaho Department of Environmental Quality, 2003. Upper Salmon River Subbasin Assessment and TMDL. January 2003.

USDA Forest Service, 2006. Burned Area Emergency Response Treatments Catalog. Forest Service National Technology and Development Program.

Water Management Consultants (2008). Design Report, Mosquito Flats Embankment, Outlet Works and Spillway Remediation, Challis, Idaho. IDWR Fire 72-2149. Dam ID 00139. June, 2008.



**Part VI – Emergency Stabilization Treatments and Source of Funds**
**Interim #**

		NFS Lands				Other Lands				All
		Unit	# of		Other	# of	Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	BAER \$	\$	units	\$	Units	\$	\$
<b>A. Land Treatments</b>										
EDRR Weed Treatments	each	\$9,914	1	\$9,914			\$0		\$0	\$9,914
<i>Insert new items above this line!</i>				\$0			\$0		\$0	\$0
Subtotal Land Treatments				\$9,914	\$0		\$0		\$0	\$9,914
<b>B. Channel Treatments</b>										
<i>Insert new items above this line!</i>				\$0			\$0		\$0	\$0
Subtotal Channel Treat.				\$0	\$0		\$0		\$0	\$0
<b>C. Road and Trails</b>										
Culvert replacement	each	\$12,300	1	\$12,300			\$0		\$0	\$12,300
Road outcrops and dips	each	\$7,764	1	\$7,764			\$0		\$0	\$7,764
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Road & Trails				\$20,064	\$0		\$0		\$0	\$20,064
<b>D. Protection/Safety</b>										
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Structures				\$0	\$0		\$0		\$0	\$0
<b>E. BAER Evaluation (Est total as of 9/18/13)</b>										
SCNF BAER Team	each	\$10,654	1	---	\$10,654					\$10,654
<i>Insert new items above this line!</i>				---	\$0		\$0		\$0	\$0
Subtotal Evaluation				---	\$10,654		\$0		\$0	\$10,654
<b>F. Monitoring</b>										
Implementation/Effectiveness	each	\$1,500	1	\$1,500			\$0		\$0	\$1,500
<i>Insert new items above this line!</i>				\$0			\$0		\$0	\$0
Subtotal Monitoring				\$1,500	\$0		\$0		\$0	\$1,500
<b>G. Totals</b>										
Previously approved (items with *)				\$31,478	\$10,654		\$0		\$0	\$42,132
Total for this request				\$31,478						

**PART VII - APPROVALS**

1. /s/ Charles A. Mark  
Forest Supervisor (signature)

10/1/13  
Date

2. /s/ Chris Iverson (for)  
Regional Forester (signature)

10/23/13  
Date