

Date of Report: 08/29/2019**BURNED-AREA REPORT****PART I - TYPE OF REQUEST****A. Type of Report**

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

B. Type of Action

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

PART II - BURNED-AREA DESCRIPTION**A. Fire Name:** Boulder Lake Fire**B. Fire Number:** WY-PDD-019303**C. State:** Wyoming**D. County:** Sublette**E. Region:** Intermountain (4)**F. Forest:** Bridger-Teton**G. District:** Pinedale**H. Fire Incident Job Code:** PDMM3619**I. Date Fire Started:** 08/17/2019**J. Date Fire Contained:** 08/26/2019

K. Suppression Cost: Estimated final total cost:
\$2,000,000.00

L. Fire Suppression Damages Repaired with Suppression Funds (estimates): \$10,000.00 (all suppression repair occurred on BLM and private)

1. Fireline repaired (miles): n/a
2. Other (identify): n/a

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

HUC #	Watershed Name	Total Acres	Acres Burned	% of Watershed Burned
140401020404	Falls Creek	26697	287	1.07%
140401020504	Lower Boulder Creek	16316	1071	6.57%

N. Total Acres Burned:

Table 2: Total Acres Burned by Ownership

OWNERSHIP	ACRES
NFS	722
BLM	31
STATE	563
PRIVATE	34
TOTAL	1350

- O. Vegetation Types:** Within the Boulder Lake Fire perimeter is a Coarse Upland ecological site. The typical plant community is a mix of perennial bunch grasses, antelope bitterbrush, sagebrush and forbs.
- P. Dominant Soils:** The soil survey information is unavailable in soil mapper.
- Q. Geologic Types:** The ridge burned by the Boulder Lake Fire is a mixture of lateral and terminal moraines associated with the Bull Lake and Pinedale glaciations, for which the last retreat of ice occurred roughly 10,000 years ago (per review of Google Earth imagery and personal knowledge of the area). Correspondingly, the area is mapped as Pleistocene-Holocene glacial deposits of till and outwash (sand, gravel, and boulders) (Love and Christiansen, 1985). Lithologies of this till are dominantly Precambrian granitic intrusive and metamorphic rock sourced from the Wind River Range to the east. Bedrock is likely to be encountered at significant depths (beyond excavation depth) and is probably Eocene age sedimentary rock of the New Fork Tongue of the Wasatch Formation or Fontenelle Tongue of the Green River Formation. These were deposited as parts of an alluvial-fluvial succession (mixed lithologies of marlstone, shale, mudstone, +/- siltstone and sandstone). The Wyoming Geological Survey geologic hazards web map shows no swelling soils or quaternary/active faults that would contribute to landslide hazard in the area. The same map shows a low-moderate prevalence of landslides in terrain similar to the burned ridge. However, one large pre-historic landslide exists just outside of the fire's eastern extent.

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	0
INTERMITTENT	0
EPHEMERAL	0
OTHER (DEFINE)	

S. Transportation System:

Trails: National Forest (miles): 0 Other (miles):
Roads: National Forest (miles): 0.97 Other (miles):

PART III - WATERSHED CONDITION

A. Burn Severity (acres):

Table 4: Burn Severity Acres by Ownership

Soil Burn Severity	NFS	BLM	State	Private	Total	% within the Fire Perimeter
Unburned	22	2	7	1	32	0.02
Low	598	26	333	29	986	0.73
Moderate	102	3	223	4	332	0.24
High	0	0	0	0	0	0
Total	722	31	563	34	1350	

B. Water-Repellent Soil (acres): 102

C. Soil Erosion Hazard Rating: 82% (low) 18% (moderate)

D. Erosion Potential: unknown **Sediment Potential:** unknown

F. Estimated Vegetative Recovery Period (years): 1-3 years

G. Estimated Hydrologic Response (brief description): The fire burned within two watersheds on NFS, the Falls Creek watershed and Lower Boulder Creek Watershed, of which only 8% of the total watersheds were burned. There are not any perennial or intermittent stream channels within the fire perimeter, but Boulder Lake is adjacent to the fire area. Approximately 83% of the fire was low burn severity and the other 17% was moderate burn severity. Hydrophobicity was present in the soils within the moderate soil burn severity acres. There is potential for soil movement if a late summer precipitation event were to occur but risk of loss of infrastructure is low due to little to no infrastructure existing within the fire perimeter.

PART V - SUMMARY OF ANALYSIS

Introduction/Background

The removal of vegetation and increased soil hydrophobicity due to fire have the potential to decrease slope stability. From a hydrologic standpoint, an emergency condition does not exist. The low amount and location of moderate burn severities creates an unlikely potential for unacceptable loss USFS roads and trails, soil & site productivity, and water quality.

This fire burned in a Coarse Upland ecological site. Sagebrush rangeland is very important to migrating ungulates and sage grouse, as well as many other sagebrush obligate species. Local managers are very concerned about cheatgrass becoming dominate on this ridge causing this important plant community to transition from a sagebrush rangeland to a grassland. Rangeland fires often provide post conditions that are favorable for the establishment and expansion of noxious and invasive plant species, where invasive plants currently are absent or present in minor amounts. Fire removes trees, shrubs, grasses, forbs and even surface soil organic layers, creating niches for invasive plant establishment. Invasive plants are typically early seral species with capabilities of outcompeting native vegetation by monopolizing available soil moisture and nutrients. A narrow 1 to 2 year window to limit the establishment and spread of invasive plants exists after fire. Treatments to curtail the spread of invasive plants are most successful when implemented within this window. On the Bridger-Teton National Forest, herbicide treatments have been successful in minimizing invasive plant establishment and spread, enhancing watershed conditions, and maintaining or initiating upward trend toward desired condition

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):

a. Click here to enter text.

2. Property (P):Click here to enter text.

3. Natural Resources (NR):Native and Naturalized Ecosystems (Noxious and Invasives): Very likely + Major = Very High

4. Cultural and Heritage Resources:Click here to enter text.

B. Emergency Treatment Objectives: Primary - To employ Imazapic and Indaziflam herbicides in initial and long-term prevention and control of cheatgrass infestations within the burned area such that cheatgrass cover does not exceed thresholds associated with establishment of permanently altered fire regimes. This effort is to begin within a year of this proposal; the first growing season after the Boulder wildfire.

Secondary - To compare short and long-term efficacy of both herbicides so as to guide future post fire control efforts in similar ecological sites.

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

Land 90%

Channel Click here to enter text.

Roads/Trails Click here to enter text.

Protection/Safety Click here to enter text.

D. Probability of Treatment Success

Table 6: Probability of Treatment Success

	1 year after treatment	3 years after treatment	5 years after treatment
Land	90%	75%	n/a
Channel	n/a	n/a	n/a
Roads/Trails	n/a	n/a	n/a
Protection/Safety	n/a	n/a	n/a

E. Cost of No-Action (Including Loss): Local managers are very concerned about the cheatgrass becoming dominate on this ridge causing this important plant community to transition from a sagebrush rangeland to a grassland. The USDA's Using Resilience and Resistance Concepts to Manage the Threats to Sagebrush Ecosystems, Gunnison Sage-Grouse and the Greater Sage-Grouse in Their Eastern Range: a Multi-Scale Approach states that "where weed populations already exist, seek opportunities to maximize treatment effectiveness by prioritizing restoration within relatively intact sagebrush communities". The Sublette County Invasive Species Taskforce has been prioritizing treatment areas to protect our sagebrush rangelands. This recent burn poses a significant threat to the Hoback to Red Desert Mule Deer Migration Corridor and is within the sage grouse core area, it is a very high priority treatment area because of the fire.

F. Cost of Selected Alternative (Including Loss): Click here to enter text. **Skills Represented on Burned-Area Survey Team:**

- ☐ Soils ☒ Hydrology ☐ Engineering ☒ GIS ☐ Archaeology
☒ Weeds ☐ Recreation ☐ Fisheries ☐ Wildlife
☐ Other:

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Forest BAER Coordinator: Trevlyn Robertson

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Team Members: Table 7: BAER Team Members by Skill

Skill	Team Member Name
Team Lead(s)	Trevlyn Robertson
Team Leader	Kate Olsen
Trainee	
Hydrology	Trevlyn Robertson
Engineering	
GIS	Chris McCollister
Archaeology	
Weeds	Dave Cottle
Recreation	
Other	

H. Treatment Narrative: Land Treatments: Herbicides will be aerially applied on burned areas of moderate burn severity totaling 102 acres. Areas subject to low burn severity that have increased susceptibility to the establishment and spread of invasive plants as a result of the fire (appx. 598 acres) will also be treated. The

fire perimeter map shows 702 acres burned on the USFS but we need to adjust those acres for the extreme slopes of the ridge. With model help, we estimate the treatment area to be 750 acres with slope considered. Due to the fact that Esplanade and Esplanade Plus (indaziflam-rimsulfuron mixture) are not currently labeled for use on rangelands the area of application for either of these products will be limited to 10 acres under authority relating to demonstration projects. The extremely rocky slope, steep topography, and lack of ground access limits largescale control tools to aerial treatment. We know from experience that aerial treatments are the only ecologically and economically acceptable tool in this type of area. Small scale experiments can be executed with backpack sprayers. We anticipate a decision on the final EIS for invasive species management on the Bridger Teton National Forest this fall. We anticipate aerial treatment in this area once that tool is available.

I. Monitoring Narrative:

Installation of the vegetation plots will occur in spring of 2019. Establishment and sampling of vegetation plots is expected to require 1 to 2 weeks annually with a 2 person crew. Estimated monitoring costs are listed below. Over a 3-year time period, canopy cover will be estimated from 4-6, 50- x 100-cm extended Daubenmire frame (Bonham et al. 2004) in each 10- x 30-ft plot. Canopy cover by species and groups of species will be estimated to the nearest 1% following the method described by Bonham et al. (2004) from all frames in each plot. Bare ground and litter cover will also be estimated from all frames. Density by species of invasive annual grasses will be estimated by counting the number of individuals rooted in each frame or a portion thereof (depending on plant size and number present). If possible, we will also collect pre-treatment vegetation data from plots in areas to be sprayed so that pre-treatment plant abundance can be compared to post-treatment plant abundance. Given the size of these treated areas, each area may need to be stratified for monitoring (e.g. benches and steep slopes). Vegetation sampling will occur between June and August in 2020, 2021, and 2022. All plots will be permanently established and become part of the Bridger-Teton National Forest's Studies Inventory. Two control (untreated) plots will also be established near the treatment plots described above. Each control plot will be approximately 5 acres in extent and will reflect vegetation, soils, aspect, slope, and other characteristics of the treatment plots as closely as possible. The primary purpose of these plots will be to provide a baseline for comparison of treatment plots, and for an overall comparison of treated versus untreated areas with regard to observed re-infestation and proximity to thresholds for changes in fire regime.

See Boulder Fire Herbicide Application Report for an in-depth description of the monitoring plan.

PART VI – EMERGENCY STABILIZATION TREATMENTS AND SOURCE OF FUNDS

Line Item	Units	Cost	# of Units	BAER \$	Total \$
Natural Resources					
Native and Naturalized Ecosystems					
Aerial Treatment with Imazapic herbicide	acre	\$18.24	730	\$13,316	\$13,316
Aerial Treatment with Indaziflam herbicide	acre	\$45.70	10	\$577	\$577
BAER Evaluation					
Team Salary	4	\$464	10	\$4,640	\$4,640
Monitoring			Year 1		
Supplies & materials for transect readings		\$330	1	\$330	\$330
Travel/ per diem/vehicles		\$2,706	1	\$2,706	\$2,706
Data Analysis		\$2,500	1	\$2,500	\$2,500
Report writing		\$500	1	\$500	\$500
Totals					
Previously approved					\$0
Total for this request				\$24,569	\$24,569

PART VII - APPROVALS

1. 
 Forest Supervisor

9/4/19

Date