

Date of Report and Type: October 22, 2017; Initial

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:** Highway 200/Moose Peak**B. Fire Number:** MT-LNF-001811 (Highway 200), MT-KNF-225 (Moose Peak)**C. State:** Montana**D. County:** Sanders/Lincoln**E. Region:** Northern Region**F. Forest:** Kootenai NF, Lolo NF**G. District:** Plains (Lolo), Cabinet/Libby (Kootenai)**H. Fire Incident Job Code:** P1LBG4(0116) (Highway 200), P1LA9H (Moose Peak)**I. Date Fire Started:** 8/29/2017**J. Date Fire Contained:** 10/6/2017 (Highway 200)**K. Suppression Cost:** \$12.5 million to date (Highway 200), \$9 million (Moose Peak)**L. Fire Suppression Damages Repaired with Suppression Funds (estimates):**

- 1. **Dozer Fireline repaired** (miles): Data unavailable at the time of the assessment
- 2. **Excavator Fireline repaired** (miles):
- 3. **Other** (identify):

M. Watershed Numbers:

Table 1a: Cub Creek Fire Acres Burned by Watershed

HUC #	Watershed Name	Total Acres	Acres Burned	% of Watershed Burned
170102130605	Clear Creek	18,561.3	27.9	0.2
170102130702	Little Beaver Creek	14,134.3	1,406.9	10
170102130704	Lower Big Beaver Creek	24,988.1	4,133.3	16.5
170102130701	Upper Big Beaver Creek	18,800.9	325.1	1.7

Table 1b: Deep Creek Fire Acres Burned by Watershed

HUC #	Watershed Name	Total Acres	Acres Burned	% of Watershed Burned
170102130903	Deep Creek	8916.2	3,841.4	43.1
170102130901	Graves Creek	18,350.2	2,782.1	15.2
170102130904	Mosquito Creek-Noxon Reservoir	15,305.8	636.9	4.2
170102130401	Radio Creek	9,768.6	577.3	5.9
170102130801	Upper Vermilion River	31,409.7	7,320.4	23.3
170102130403	West Fork Fishtrap Creek	11,588.3	1,207.7	10.4

Table 1c: Moose Peak Fire Acres Burned by Watershed

HUC #	Watershed Name	Total Acres	Acres Burned	% of Watershed Burned
170101020201	East Fisher Creek	22,771.9	5,626.1	24.7
170101020107	McGinnis Creek	20,156.7	2,732.2	13.6
170102130401	Radio Creek	9,768.6	155.7	1.6
170102130402	Upper Fishtrap Creek	12,317.3	1,942.3	15.8
170102130801	Upper Vermilion River	31,409.7	3,513.4	11.2

Table 1d: Sheep Gap Fire Acres Burned by Watershed

HUC #	Watershed Name	Total Acres	Acres Burned	% of Watershed Burned
170102130511	Eddy Creek	8,795.0	4,468.3	50.8
170102130505	Miller Creek	16,275.5	146.3	0.9
170102130512	Munson Creek-Clark Fork	26,857.4	3,744.8	13.9
170102130509	Swamp Creek	28,796.2	15,997.3	55.6
170102130510	Town of Plains-Clark Fork	19,446.3	560.3	2.9

N. Total Acres Burned:

Table 2a: Cub Creek Fire Total Acres Burned by Ownership

OWNERSHIP	ACRES
KOOTENAI NF (CABINET RD)	5,864.8
LOLO NF (THOMPSON FALLS/PLAINS RD)	28.4
TOTAL	5,893.2

Table 3b: Deep Creek Fire Total Acres Burned by Ownership

OWNERSHIP	ACRES
KOOTENAI NF (CABINET RD)	7,315.2
LOLO NF (THOMPSON FALLS/PLAINS RD)	9,046.4

OWNERSHIP	ACRES
WATER	4.3
(LNF CLASSIFICATION ACROSS ALL OWNERSHIPS)	
TOTAL	16,365.9

Table 4c: Moose Peak Fire Total Acres Burned by Ownership

OWNERSHIP	ACRES
KOOTENAI NF (CABINET RD)	3,297.0
KOOTENAI NF (LIBBY RD)	4,534.4
LOLO NF (THOMPSON FALLS/PLAINS RD)	2,064.9
STATE	414.6
WEYERHAEUSER	2,952.9
PRIVATE	706.0
TOTAL	13,969.7

Table 5d: Sheep Gap Fire Total Acres Burned by Ownership

OWNERSHIP	ACRES
LOLO NF (THOMPSON FALLS/PLAINS RD)	19,516.1
STATE	842.0
WEYERHAEUSER	3,940.8
PRIVATE	615.0
WATER	3.3
(LNF CLASSIFICATION ACROSS ALL OWNERSHIPS)	
TOTAL	24,917.2

- O. Vegetation Types:** The dominant vegetation types within the fire area are dry, mixed coniferous forests (lodgepole, western larch, Douglas fir, and ponderosa pine) and cool moist coniferous forests (subalpine fir).
- P. Dominant Soils:** Predominantly silt-loam to loam soil textures with high rock content (skeletal) both in the soil profile and on the soil surface. Generally, there is volcanic ash mixed with residuum over metasedimentary bedrock throughout the majority of the fire area.
- Q. Geologic Types:** Belt metasediments with infrequent interspersed glacial deposits
- R. Miles of Stream Channels by Order or Class:**

Table 6a: Cub Creek Miles of Stream Channels by Order or Class

STREAM TYPE	MILES OF STREAM
PERENNIAL	6.4
INTERMITTENT	10.8

Table 7b: Deep Creek Miles of Stream Channels by Order or Class

STREAM TYPE	MILES OF STREAM
PERENNIAL	17.2
INTERMITTENT	43.2
OTHER (ARTIFICIAL PATH & CONNECTOR)	0.8

Table 8c: Moose Peak Miles of Stream Channels by Order or Class

STREAM TYPE	MILES OF STREAM
PERENNIAL	3.7
INTERMITTENT	31.3

STREAM TYPE	MILES OF STREAM
OTHER (ARTIFICIAL PATH)	0.3

Table 9d: Sheep Gap Miles of Stream Channels by Order or Class

STREAM TYPE	MILES OF STREAM
PERENNIAL	11.3
INTERMITTENT	70.6
OTHER (ARTIFICIAL PATH & CONNECTOR)	0.4

Transportation System:

Cub Creek

Trails: National Forest (miles): 3.5

Roads: National Forest (miles): 33.0

Other (miles): 0

Deep Creek

Trails: National Forest (miles): 5.5

Roads: National Forest (miles): 105.6

Other (miles): 0

Moose Peak

Trails: National Forest (miles): 3.2

Roads: National Forest (miles): 31.1

Other (miles): 43.2

Sheep Gap

Trails: National Forest (miles): 12.5

Roads: National Forest (miles): 141.1

Other (miles): 49.5

PART III - WATERSHED CONDITION

A. Burn Severity (acres):

Table 10a: Cub Creek Burn Severity Acres by Ownership

Soil Burn Severity	Kootenai NF (Cabinet RD)	Lolo NF (Thompson Falls/Plains RD)	Total	% within the Fire Perimeter
Low	2,020.6	12.5	2,033.1	35%
Moderate	992.4	0.3	992.7	17%
High	245.7	-	245.7	4%
Unburned	2,606.1	15.6	2,621.7	44%
Total	5,864.8	28.4	5,893.2	

Table 11b: Deep Creek Burn Severity Acres by Ownership

Soil Burn Severity	Kootenai NF (Cabinet RD)	Lolo NF (Thompson Falls/Plains RD)	Water (LNF classification across all ownerships)	Total	% within the Fire Perimeter
Low	914.4	1,726.0	1.1	2,641.5	16%
Moderate	2,060.8	2,099.9	1.4	4,162.1	26%
High	1,844.9	842.4	-	2,687.3	16%

Soil Burn Severity	Kootenai NF (Cabinet RD)	Lolo NF (Thompson Falls/Plains RD)	Water (LNF classification across all ownerships)	Total	% within the Fire Perimeter
Unburned	2,495.0	4,378.1	1.8	6,874.9	42%
Total	7,315.2	9,046.4	4.3	16,365.9	

Table 12c: Moose Peak Burn Severity Acres by Ownership

Soil Burn Severity	Kootenai NF (Cabinet RD)	Kootenai NF (Libby RD)	Lolo NF (Thompson Falls/Plains RD)	State	Weyerhaeuser	Private	Total	% within the Fire Perimeter
Low	1,169.1	895.6	586.9	45.5	654.6	273.2	3,624.9	26%
Moderate	717.4	961.5	348.4	12.0	1,289.7	174.2	3,503.2	25%
High	120.7	838.8	179.8	11.1	363.5	35.2	1,549.1	11%
Unburned	1,289.8	1,838.5	949.9	346.0	645.1	223.4	5,292.7	38%
Total	3,297.0	4,534.4	2,065.0	414.6	2,952.9	706.0	13,969.9*	

*Totals may not be precise due to rounding errors.

Table 13d: Sheep Gap Burn Severity Acres by Ownership

Soil Burn Severity	Lolo NF (Thompson Falls/Plains RD)	State	Weyerhaeuser	Private	Water (LNF classification across all ownerships)	Total	% within the Fire Perimeter
Low	5,551.8	366.4	1,272.2	145.3	0.8	7,336.5	29%
Moderate	6,261.7	339.4	1,712.9	41.8	-	8,355.8	34%
High	2,921.0	71.4	500.9	5.3	-	3,498.6	14%
Unburned	4,781.4	64.9	454.8	422.6	2.5	5,726.2	23%
Total	19,516.0	842.0	3,940.8	615.0	3.3	24,917.1	

B. Water-Repellent Soil (acres): approx. 7,700

C. Soil Erosion Hazard Rating: High (based on erosion potential listed in Part D)

D. Erosion Potential (tons/acre): 10 tons/acre (ErMiT model output, average value for loam soils, greater than 35% slopes, 10% probability of occurrence)

E. Sediment Potential (cubic yards/square mile): Not estimated as a part of this assessment

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period (years): 1-3 years grass (achieve % effective ground cover), 10-15 years shrubs, 20-50 years conifers

B. Design Chance of Success (percent): 50-90%, depending on site and treatment

C. Equivalent Design Recurrence Interval (years): 10-year post-fire

D. Design Storm Duration (hours): 24-hour*

E. Design Storm Magnitude (inches): 2.5 inches

F. Design Flow (cubic feet / second/ square mile): 32 cfs/mi²

G. Estimated Reduction in Infiltration (percent): 41%

H. Adjusted Design Flow* (cfs per square mile): 106 cfs/mi²

*Actual model input was an SCS Type II rainfall distribution, which captures shorter duration events

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

The Highway 200 Complex and Moose Peak Fires added to what was already an extremely busy fire season in western Montana. The Highway 200 Complex consisted of the Sheep Gap, Cub Creek, and Deep/Miller Fires, along with multiple fires less than 100 acres in extent with no values at risk.

The Sheep Gap wildfire, which started on 8/29/2017, burned approximately 25,000 acres to the west of Plains, MT in steep forested terrain. Much of the southern and central portion of the fire burned under moderate to high severity, while much of the north end of the fire upslope of River Road burned under low to moderate severity. Burn intensity exceeded burn severity in some cases; areas burned under high intensity were commonly found to have soils near complete consumption of litter and white ash on the surface but intact soil peds and generally intact root structures, albeit charred and/or brittle in some locations. Moderate burn intensity had charred but frequently intact litter, intact soil peds, and pliable roots. Low burn severity was observed in areas with unburned canopy. Root collars were all intact and litter was minimally consumed but charred.

Numerous values at risk were observed within and adjacent to the Sheep Gap burn perimeter, including road crossing and drainage infrastructure, trails and campgrounds, cultural resource sites, and native vegetation communities (risk of weed proliferation).

The Deep Creek Fire, which started on 8/30/2017, burned approximately 2,700 acres to the east of Thompson Falls, MT in both the Vermilion River and Graves Creek drainages and spanned the divide between the Kootenai and Lolo NF. The fire started as two separate fires, the Deep Creek Fire and the Miller Fire, and merged into one after a sustained burn period. The far north end of the fire (originally Miller Fire, north of Vermilion Pass) burned largely under moderate to high severity. To the south of Vermilion Pass, the burn pattern was more of a mosaic of multiple burn severities, albeit dominated by moderate and high burn severity. The greatest extent of high and moderate burn severity fell primarily along the highest elevations to the north and east of Cougar Peak, with lower burn severities most commonly observed lower on slopes.

Values at risk observed within the Deep Creek Fire encompassed the same categories found within the Sheep Gap Fire.

The Cub Creek Fire, which started on 10/30/2017, experienced the most suppression action of all of the wildfires in the Highway 200 Complex. Total fire extent was approximately 5,900 acres. Burned extent was somewhat more limited within the Cub Creek Fire burn perimeter, in part due to difficult terrain. High burn severity was focused on ridgelines and shoulder slopes. A limited number of values at risk were observed within the Cub Creek burn perimeter, albeit in the same categories as those found within the other burn perimeters.

The Moose Peak Fire burned approximately 14,000 acres across both the Cabinet and Libby Districts of the Kootenai NF. The south central portion of the fire, primarily east of Sylvan Lake, burned under moderate to high severity. The southwest portion of the fire burned under predominantly low severity. Substantial patches of unburned area can be found within the burn perimeter. Team capacity and logistical challenges (long driving distances, snow, and downed trees) made assessment of Moose Peak difficult. While portions of the fire were assessed on the ground and remotely, a more thorough assessment of several values at risk using either a team stationed closer to the fire or local personnel is recommended, especially in the vicinity of Sylvan Lake Campground. Those specific values at risk of concern will be highlighted below.

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

Table 14: Critical Value Matrix

Probability of Damage or Loss	Magnitude of Consequences		
	Major	Moderate	Minor
	RISK		
Very Likely	Very High - Open Roads; Campground (Visitors); Weeds	Very High	Low
Likely	Very High -	High - Trails; Grazing	Low
Possible	High - Stream Crossings; Cultural Site	Intermediate - Fisheries	Low - Soil Productivity
Unlikely	Intermediate Health and Safety	Low - Trails,	Very Low

1. Human Life and Safety (HLS):

- a. **Very High Risk (Likely, Major) to forest visitors and Forest Service employees traveling segments of open roads in areas burned under moderate to high severity from road washout, hazard trees, and rockfall.**

Roads within or downstream of moderate and high burn severity areas are at increased risk of failure due to increased flows and runoff in storm events. Consequences from failures could vary from minor to severe and have significant impact on human health and safety to travelers on the roads and cause catastrophic property damage to the road infrastructure.

- b. **Very High Risk (Likely, Major) of road infrastructure loss due to increased post-fire runoff and erosion at the location of the "Sheep Gap Slide".**

Within the Sheep Gap burn perimeter, Forest Road 7581 (an ML2 collector road) serves as the sole access to a large portion of the Eddy Creek drainage and the north end of the burned area. The road crosses an area where long-term erosion has created a large gully (approximately 30 feet wide, 875 feet long, and 10 feet deep) resembling a translational slide. A seep downslope of the road bed has likely been contributing to erosion and road instability. With localized loss of evapotranspiration due to the fire, upslope areas burned under moderate to high severity, and the prospect of intense rainfall threatening to overwhelm current drainage capacity on the road, there is an increased risk of infrastructure loss as a result of the fire. **Final treatment recommendations will be finalized pending further coordination between Lolo NF and RO personnel.**

- c. **High Risk (Possible, Major) to forest visitors and Forest Service employees from crossing washout resulting from post-fire runoff and debris-bulked peak flows.**

Post-fire runoff estimates suggest that runoff response will be robust, with post-fire debris-bulked flows anticipated to double if not increase by an order of magnitude. There is substantial risk to human life and safety resulting from this increase. Without treatment, numerous road-stream crossings on open, heavily trafficked forest roads are likely to be overwhelmed, resulting in crossing failure and potential for injury or death.

- d. **Very High Risk (Likely, Major) to forest visitors at Sylvan Lake Campground and High Risk (Possible, Major) Willow Creek Campground due to campground inundation from post-fire flows.**

The Sylvan Lake Campground lies in a floodplain near an unnamed tributary to East Fisher Creek. The majority of the tributary drainage (approx. 1.5 mi²) burned under high severity. Runoff response is anticipated to robust, potentially inundating campsites and threatening campground infrastructure.

The Willow Creek Campground is similarly situated in a floodplain near the confluence between Willow Creek and the Vermilion River. While the overall threat of inundation is lower due to less upslope drainage area burned under moderate to high severity, consequences of inundation are the same as for Sylvan Lake Campground.

2. Property (P):

- a. **High Risk (Likely, Moderate) of loss of trail infrastructure due to post-fire erosion and slumping and loss of trail stability due to burned out trees.**

Trails across the affected ranger districts provide important recreational opportunities for both locals and tourists. Further, the Sunset Peak to Sacajawea Peak has cultural significance; the area was an important resource gathering area for native tribes in the area. Trails burned under moderate to high severity were observed during the BAER assessment to be missing drainage structures (wooden waterbars burned up during the fire) and highly susceptible to washout with removal of forest canopy. Further, trail tread has been destabilized as a result of loss of intact trees holding the tread in place.

3. Natural Resources (NR):

- a. **Very High Risk (Very Likely, Moderate) to native vegetation and ecological integrity due to fire-induced weed spread.**

The main weed species of concern within the fire perimeter are blueweed, hawkweeds (both orange and yellow), St. Johnswort and spotted knapweed. These species are present in areas along roads that access and are within the fire perimeter, on at least 20 feet either side of the road, mostly on the fill and cut slopes, and generally, throughout harvested areas of private lands within the interior of the fires. Seed dispersal from residual populations and regrowth is likely for these species after the fire. The roads within these fires act as vectors for weed spread to these vulnerable plant communities. Without monitoring and treatment, weed proliferation is very likely.

- b. **Low Risk (possible, minor) to widespread loss of soil productivity as a result of post-fire erosion.**

Loss of ground and overstory cover may contribute to accelerated erosion within the burn perimeter. Over the long-term, loss of surface soils can lead to decreased site productivity. No data or observations made through the BAER assessment process suggested that extent and severity of fire effects were outside the natural range of variability; while post-fire site conditions are conducive to accelerated erosion, there is a minimal likelihood of significant loss of soil productivity. **No treatments are warranted.**

- c. **Intermediate Risk (Possible, Moderate) of damage or loss to fisheries resources within or immediately downstream of the burn perimeter resulting from post-fire exacerbated runoff and erosion.**

Through the BAER assessment process, bull trout populations and designated critical habitat were determined to be at lower risk due to their downstream distance from burned areas and low overall burn percentage of occupied HUCs as compared to westslope cutthroat trout and eastern brook trout populations that exist within the burn perimeter. Native fish species in the Northern Rocky Mountains have adapted to an environment historically shaped by wildfire. Provided landscape connectivity is maintained (i.e. no manmade barriers present), fish populations may be locally impacted by wildfire effects but will often remain resilient at the watershed scale due to recolonization from upstream and downstream sources. **No treatments are warranted.**

- d. **High Risk (Likely, Moderate) of native vegetation recovery impairment should grazing occur next year.**

Two grazing allotments on the Lolo NF were affected by the Highway 200 Complex and Moose Peak wildfires: the Fishtrap Allotment (Deep Creek and Moose Peak Fires) and the Swamp Creek Allotment. Substantial portions of both allotments burned under moderate to high severity. Without action (grazing deferment), grazing is “Likely” to slow down native vegetation recovery and soil stabilization as plants and litter will take longer to due to establish. The magnitude of consequences is considered “Moderate” since precipitation or drought is variable as it relates to a recovery trajectory and speed of recovery. Early establishment of a good grass and litter cover, and subsequent conservative management, provides for more soil stability and low sediment yields on moderate slopes and gentle slopes. **Deferment can be accomplished through administrative action through permit administration and is not recommended for BAER funding per policy.**

4. Cultural and Heritage Resources:

- a. **High Risk (Possible, Major) to structure damage at the Poacher Creek cultural site within the Sheep Gap burn perimeter**

A historic cabin site in Poacher Gulch within the Sheep Gap burn perimeter has an accompanying rock wall that is at risk of compromise from fire-weakened trees falling on the wall. Without emergency treatment, this cultural feature may sustain irreparable damage.

B. Emergency Treatment Objectives:

- Mitigate and protect, to the extent possible, threats to personal injury or human life of forest visitors and Forest Service employees by raising awareness through posting hazard warning signs on roads and trails, reinforcing trail tread, improving trail drainage and stream crossings, and communicate hazard of flooding, debris flows, and rock fall. Communicate to cooperating agencies and community groups. Consider temporary closures to protect public users of NFS lands and recreation facilities.
- Protect or minimize damage to NFS investments in roads and trail infrastructure by installing drainage features capable of withstanding potential increased stream flows and/or debris flows. Minimize damage to key NFS travel routes.
- Protect or mitigate potential post-fire impacts to critical natural and cultural resources within the burned area.
- Treat invasive plants that are a threat to naturalized ecosystems by minimizing the expansion of existing populations in the burned area and control of expected invasion of noxious weeds within and adjacent to the area where soils/vegetation was disturbed as a result of fire suppression activities.
- Assist cooperators, other local, State, and Federal agencies with the interpretation of the assessment findings to identify potential post-fire impacts to communities and residences.

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

Land: 90
Roads/Trails: 90

Channel: NA
Protection/Safety: 90

D. Probability of Treatment Success

Table 15: Probability of Treatment Success

	1 year after treatment	3 years after treatment	5 years after treatment
Land	80	85	90
Channel			
Roads/Trails	80	90	95
Protection/Safety	90	80	70

E. Cost of No-Action (Including Loss):**F. Cost of Selected Alternative (Including Loss):****F. Skills Represented on Burned-Area Survey Team:**

<input checked="" type="checkbox"/> Archaeology	<input checked="" type="checkbox"/> Botany	<input type="checkbox"/> Ecology	<input type="checkbox"/> Economist	<input checked="" type="checkbox"/> Engineering
<input checked="" type="checkbox"/> Fisheries	<input type="checkbox"/> Forestry	<input checked="" type="checkbox"/> GIS	<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Range
<input checked="" type="checkbox"/> Recreation	<input checked="" type="checkbox"/> Soils	<input checked="" type="checkbox"/> Team Lead	<input type="checkbox"/> Wildlife	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Team Leader: Andy Efta**Email:** jefta@fs.fed.us **Phone:** 406-255-1407 **FAX:****Forest BAER Coordinator:** Ann Hadlow/John Carlson**Email:** ahadlow@fs.fed.us/jwcarlson01@fs.fed.us **Phone:** 406-626-5402/406-283-7634**Core Team Members:**

Table 16: BAER Team Members by Skill

Skill	Team Member Name
Team Lead(s)	Andy Efta (Custer Gallatin NF)
Archaeology	Erika Karuzas (Lolo NF), Dustin Hill (Kootenai NF)
Botany	Craig Odegard (Lolo NF), Mike Mueller (Lolo NF)
Ecology	
Economist	
Engineering	Andy Christensen (Daniel Boone NF), Judy Erwin (Kootenai NF), Jared Koskela (Lolo NF), Teresa Morales (R1 Regional Office)
Fisheries	Jeff Shearer (R1 Regional Office)
Forestry	
GIS	Taylor Greenup (Flathead NF)
Hydrology	Leah Shipstead (Pike-San Isabel NF), Deana DeWire (Lolo NF), Jamie Krezelok (Pike-San Isabel NF)
Range	Heather Berman (Lolo NF)
Recreation	Joel Sather (Kootenai NF), Robin Jermyn (Lolo NF), Heather Berman (Lolo NF)
Soils	Luke Cerise (Okanagan-Wenatchee NF)
Wildlife	

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

Land Treatment- Grazing Deferment

Land Treatment – Noxious Weed Early Detection/Rapid Response

The purpose of this treatment is to reduce the potential for new noxious weed infestations in native or naturalized communities where noxious weeds are present in only minor amounts, particularly within vulnerable high and moderate burn areas.

Treatment of open or seasonally open roads within the fire perimeter, as well as those used as fireline, are the highest priority. These roads are the seed source and the vector for weed spread into and around high and moderate burned area. The immediate need is to treat about 77 miles of road that are within the fire perimeters across the four fires. The organic layer and the tree and shrub canopy layer of the surrounding area which these roads bisect has been removed in moderate to high burn severity areas. This condition exacerbates the potential for rapid weed establishment and spread. The main weed threat along the roadways is spotted knapweed, St. Johnswort, meadow hawkweed, and oxeye daisy. These weeds can spread into uninfested areas by using these roadways as vectors. Though no known occurrences exist in the fire area, the discovery of any rush skeletonweed or blue weed within the fire perimeter would necessitate immediate eradication.

The proposed treatment would spray 7 oz. of Aminopyralid (trade name – Milestone) per acre near any water source and up to 32 oz. of Picloram per acre or 32 oz. of 2,4-D in the drier areas along with a surfactant to control spotted knapweed, St Johnswort, oxeye daisy and meadow hawkweed. Tables 8 and 9 show the cost of treatment on each affected forest.

Table 17: Kootenai Weeds EDRR Treatment Types and Cost (Note: does not include an estimate for affected roads on the Libby District- information was not available at the time of initial BAER request submittal).

TREATMENT DESCRIPTION	TARGET WEED SPECIES	PRESCRIPTION	ESTIMATED ACRES	COST PER ACRE	COST	TIMING
EDRR SUPPRESSION IMPACTS-ROADS	Spotted Knapweed, St. Johnswort, Orange or Meadow Hawkweed Complex, Oxeye Daisy	Ground application (broadcast) on open and seasonal open roadways	113	\$100.00	\$11,300.00	Spring 2018
EDRR SUPPRESSION IMPACTS – ROADS	Spotted Knapweed, St. Johnswort, Orange or Meadow Hawkweed Complex, Oxeye Daisy	Efficacy monitoring for the treated acres	113	\$5.00	\$565.00	Summer 2018

Table 18: Lolo Weeds EDRR Treatment Types and Cost

TREATMENT DESCRIPTION	TARGET WEED SPECIES	PRESCRIPTION	ESTIMATED ACRES	COST PER ACRE	COST	TIMING
EDRR SUPPRESSION IMPACTS-ROADS	Spotted Knapweed, St. Johnswort, Orange or Meadow Hawkweed Complex, Oxeye Daisy	Ground application (broadcast) on open and seasonal open roadways	179	\$100.00	\$17,900.00	Spring 2018
EDRR SUPPRESSION IMPACTS – ROADS	Spotted Knapweed, St. Johnswort, Orange or Meadow	Efficacy monitoring for the treated acres	179	\$5.00	\$895.00	Summer 2018

TREATMENT DESCRIPTION	TARGET WEED SPECIES	PRESCRIPTION	ESTIMATED ACRES	COST PER ACRE	COST	TIMING
	Hawkweed Complex, Oxeye Daisy					

Channel Treatments:**Roads and Trail Treatments:****Road Treatment- Road Drainage Reconstruction and Stormproofing**

In coordination with the affected ranger districts, it was determined that there were no roads in the fire perimeter that were candidates for closure or storage. Completed transportation analysis and the Forests desire to pursue fire salvage has verified the long term need for the existing transportation system for land management purposes. In addition to providing access for management purposes, the transportation system provides access for day hikers, backpackers, anglers, horseback riders, hunters, outfitters and Forest Service trail, recreation and fire crews. Therefore, the strategy is to implement treatments to reduce the risk to critical values, including threats to human health and safety, property, and natural resources.

The outlined treatments were chosen to minimize or mitigate:

- Threat to life and safety on vulnerable roads and within the burned area;
- Road property loss due to impact from up-gradient burn areas and resulting flood flows and debris;
- Threat to natural resources from chronic and episodic sediment delivery to the watershed.

Approximately 130 miles of road were identified for treatment. Below is a cost estimate for implementing the recommended treatments. Approximately 65 miles are located on each of the Lolo and Kootenai National Forests. The following tables summarize the treatments and costs, by Forest.

Eighty-four crossings locations were evaluated across all of the fire areas for their capacity to accommodate projected post-fire flows. On the Kootenai NF, thirty crossings on Maintenance Level 1 Roads have been recommended for removal and up to nine may be in need of structure upsizing, armoring, construction of critical dips, armored spillways, or some combination of the above treatments. Due to the nature of the rapid assessment of the fires, final structure and treatment recommendations have not yet been completed; further site review is necessary in order to complete structure design for these locations of concern. Two weeks of engineering time is requested to complete final structure recommendations, finalize cost estimates, and coordinate installation with implementation crews.

Of the 45 crossings reviewed on the Lolo NF, a similar situation exists- a combination of crossing removal and stormproofing has been proposed. No further engineering support is being requested for the Lolo NF; engineering services will be provided by the forest. A cost estimate to address crossings will be included when the Lolo NF submits their initial funding request.

Table 19: Kootenai Road Safety and Drainage Cost Estimate

TREATMENT	UNIT	UNIT COST	# OF UNIT	TOTAL COST
ROADWAY STORM INSPECTION AND RESPONSE (STORM PATROL) ENGINEERING SUPPORT FOR CROSSING REVIEW	Each	\$1636.00	17.5	\$28,630.00
	Day	\$600.00	14	\$8400.00

TREATMENT	UNIT	UNIT COST	# OF UNIT	TOTAL COST
STORMPROOFING WITH ROLLING DIPS AND OUTSLOPING TOTAL	Mile	\$1,630.00	65	\$105,950.00
				\$142,980.00

Table 20: Lolo Road Safety and Drainage Cost Estimate

TREATMENT	UNIT	UNIT COST	# OF UNIT	TOTAL COST
TEMPORARY ROAD CLOSURES (GATES) ROADWAY STORM INSPECTION AND RESPONSE (STORM PATROL) STORMPROOFING WITH ROLLING DIPS AND OUTSLOPING TOTAL	Each	\$2,110.00	16	\$33,760.00
	Each	\$1636.00	17.5	\$28,630.00
	Mile	\$1,630.00	65	\$105,950.00
				\$168,340.00

Trails Treatments- Trail Drainage Reconstruction and Tread Stormproofing

The trails impacted by the Highway 200 Complex and Moose Peak fires provide access into popular areas for recreation and hunting opportunities. A total of eight system trails were impacted by the Highway 200 Complex and Moose Peak fires with a total 24.6 miles of trail contained within fire perimeters. All the trails receive use and are maintained on a 2 – 3 year rotation. Treatment would be conducted on one mile on the Kootenai NF and 9.5 miles on the Lolo NF.

Treatments include the installation of rolling grade dips, water bars, berm removal, bank stabilization and a retaining wall construction to reduce erosion of the trail prism. Areas of moderate to high burn severity will be the primary treatment areas.

Table 21: Kootenai Trails Treatments Cost Estimate

TREATMENT	UNIT	UNIT COST	# OF UNIT	TOTAL COST
HAZARD TREE MITIGATION	Mile	\$650.00	1	\$650.00
TREAD OUTSLOPING/DRAINAGE	Mile	\$1,500.00	0.75	\$1,125.00
DRAINAGE FEATURE RECONSTRUCTION	Each	\$50.00	110	\$5,500.00
TOTAL				\$7,275.00

Table 22: Lolo Trails Treatments Cost Estimate

TREATMENT	UNIT	UNIT COST	# OF UNIT	TOTAL COST
HAZARD TREE MITIGATION	Mile	\$650.00	3	\$1,950.00
TREAD OUTSLOPING/DRAINAGE	Mile	\$1,500.00	9.5	\$14,250.00
DRAINAGE FEATURE RECONSTRUCTION	Each	\$50.00	284	\$14,200.00

TREATMENT	UNIT	UNIT COST	# OF UNIT	TOTAL COST
TOTAL				\$30,400.00

Protection/Safety Treatments:Safety Treatments- Road and Campground Warning Signage

The overall purpose of this treatment is to reduce risks to human life and safety by warning motorists and/or Forest visitors of existing threats while traveling within and downstream of the burned area.

Signs will be strategically posted on roads of concern and at both affected campgrounds to warn Forest visitors of hazards associated with traveling in the burn perimeter or occupying campgrounds.

Table 23: Kootenai Roadway Safety Treatment Cost Estimate

TREATMENT	UNIT	UNIT COST	# OF UNIT	TOTAL COST
CAMPGROUND SIGNAGE (PERSONNEL, MATERIALS, MILEAGE)	Lump Sum	\$700.00	1	\$700.00

Table 24: Lolo Roadway Safety Treatment Cost Estimate

TREATMENT	UNIT	UNIT COST	# OF UNIT	TOTAL COST
SIGNS	Each	\$441.50	13	\$5,379.50

Cultural Treatments:Poacher Gulch Heritage Site Hazard Tree Mitigation

Hazard tree falling is proposed to mitigate the hazard posed by fire-weakened trees to a rock wall associated with this cultural site within the Sheep Gap Fire Perimeter.

Table 16: Lolo Cultural Treatment Cost Estimate

TREATMENT	UNIT	UNIT COST	# OF UNIT	TOTAL COST
HAZARD TREE MITIGATION	Each	\$1,000.00	1	\$1,000.00

BAER Evaluation

Table 17: Combined Kootenai and Lolo Coordination and Consultation

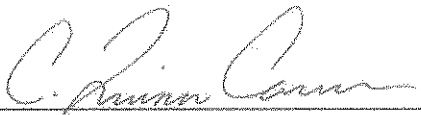

ITEM	UNIT	UNIT COST	# OF UNIT	TOTAL COST
ESTIMATED SALARY	Day	\$350.00	91	\$31,850.00
ESTIMATED TRAVEL	Lump Sum	\$9,500.00	1	\$9,500.00
RECONNAISSANCE FLIGHT	Lump Sum	\$2512.00	1	\$2512.00
TOTAL				\$43,862

I. Monitoring Narrative:

PART VI – EMERGENCY STABILIZATION TREATMENTS AND SOURCE OF FUNDS**Kootenai National Forest**

Line Items	Units	Unit Cost	NFS Lands		Other \$	Other Lands			All Total \$	
			# of Units	BAER \$		# of units	Fed \$	# of Units		Non Fed \$
A. Land Treatments										
Weeds EDRR	Lump sum	11,865	1	\$11,865	\$0		\$0		\$0	\$11,865
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
Subtotal Land Treatments				\$11,865	\$0		\$0		\$0	\$11,865
B. Channel Treatments										
			1	\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
Subtotal Channel Treatments				\$0	\$0		\$0		\$0	\$0
C. Road and Trails										
Road drainage reconstruction and stormproofing	Lump sum	142,980	1	\$142,980	\$0		\$0		\$0	\$142,980
Trail tread and drainage reconstruction/hazard tree mitigation	Lump sum	7,275	1	\$7,275	\$0		\$0		\$0	\$7,275
					\$0		\$0		\$0	\$0
Subtotal Road and Trails				\$150,255	\$0		\$0		\$0	\$150,255
D. Protection/Safety										
Campground signage	Lump sum	700	1	\$700	\$0		\$0		\$0	\$700
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
Subtotal Protection/Safety				\$700	\$0		\$0		\$0	\$700
E. BAER Evaluation										
Initial Assessment- See Lolo for accounting	Report			---	\$0		\$0		\$0	\$0
					\$0		\$0		\$0	\$0
				---	\$0		\$0		\$0	\$0
Subtotal Evaluation				\$0	\$0		\$0		\$0	\$0
F. Monitoring										
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
Subtotal Monitoring				\$0	\$0		\$0		\$0	\$0
G. Totals										
Previously approved				\$162,820	\$0		\$0		\$0	\$162,820
Total for this request				\$162,820						

PART VII - APPROVALS

1.		10/23	/2017
for	Kootenai Forest Supervisor		Date
2.		10/24	/2017
	Leanne Marten, Region 1 Regional Forester		Date

PART VI – EMERGENCY STABILIZATION TREATMENTS AND SOURCE OF FUNDS**Lolo National Forest**

		NFS Lands				Other Lands				All
		Unit	# of		Other	# of	Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	BAER \$	\$	units	\$	Units	\$	\$
A. Land Treatments										
Weeds EDRR	Lump sum	18,795	1	\$18,795	\$0		\$0		\$0	\$18,795
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
Subtotal Land Treatments				\$18,795	\$0		\$0		\$0	\$18,795
B. Channel Treatments										
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
Subtotal Channel Treatments				\$0	\$0		\$0		\$0	\$0
C. Road and Trails										
Road drainage reconstruction and stormproofing	Lump sum	168,340	1	\$168,340	\$0		\$0		\$0	\$168,340
Trail tread and drainage reconstruction	Lump sum	30,400	1	\$30,400	\$0		\$0		\$0	\$30,400
				\$0	\$0		\$0		\$0	\$0
Subtotal Road and Trails				\$198,740	\$0		\$0		\$0	\$198,740
D. Protection/Safety										
Road hazard signage	Lump sum	442	13	\$5,740	\$0		\$0		\$0	\$5,740
Hazard tree mitigation for cultural site	Lump sum	1	1,000	\$1,000	\$0		\$0		\$0	\$1,000
				\$0	\$0		\$0		\$0	\$0
Subtotal Protection/Safety				\$6,740	\$0		\$0		\$0	\$6,740
E. BAER Evaluation										
Initial Assessment	Report	\$1	43,862	---	\$43,862		\$0		\$0	\$43,862
				\$0	\$0		\$0		\$0	\$0
				---	\$0		\$0		\$0	\$0
Subtotal Evaluation				\$0	\$43,862		\$0		\$0	\$43,862
F. Monitoring										
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
Subtotal Monitoring				\$0	\$0		\$0		\$0	\$0
G. Totals										
Previously approved				\$224,275	\$43,862		\$0		\$0	W
Total for this request				\$224,275						

PART VII - APPROVALS

1. _____ /2017
Lolo Forest Supervisor Date

2. _____ /2017
Leanne Marten, Region 1 Regional Forester Date