

Date of Report: 09-15-03

BURNED-AREA REPORT Black
(Reference FSH 2509.13)**PART I - TYPE OF REQUEST**

A. Type of Report

- ☒ 1. Funding request for estimated WFSU-SULT funds
☐ 2. Accomplishment Report
☐ 3. No Treatment Recommendation

B. Type of Action

- ☒ 1. Initial Request (Best estimate of funds needed to complete eligible rehabilitation 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: Black Mountain 2 B. Fire Number: MT-SWS-177
C. State: Montana D. County: Missoula
E. Region: Northern F. Forest: Lolo
G. District Missoula:
H. Date Fire Started: Aug 8, 2003 I. Date Fire Contained: Sept 2, 2003
J. Suppression Cost: \$13.2 million as of Sept 12, 2003
K. Fire Suppression Damages Repaired with Suppression Funds
 1. Fireline waterbarred (miles): 39
 2. Fireline seeded (miles): 30
 3. Other (identify): helipads, camp, 2 acres
L. Watershed Number: 170102040205, 170102051409, 170102051502, 170102051503
M. Total Acres Burned: 7072
 NFS Acres(**6038**) Other Federal () State () Private (**1234**)
N. Vegetation Types: The fire burned in warm and dry mixed conifer vegetation types with some larch and pockets of Ponderosa pine. Elevations within the fire perimeter range from about 3,100 feet in the bottom of O'Brien Creek to about 5,814 feet at the apex of Black Mountain. The burned area is characterized by slopes greater 60 percent at the higher elevations, and slopes ranging from 15 to 40 percent along the northern and eastern flank.

O. Dominant Soils: The dominant soils in the burned area are derived from Precambrian meta-sedimentary rocks from Belt Supergroup quartzites, siltites, and argillites. Soils are non-plastic sandy loams and fine sandy loams and contain many hard rock fragments. The parent materials in valley bottoms of some of the fire area includes alluvium deposits on terraces and floodplains. The soils are typically moderately deep to shallow on the mountain side-slopes or ridges, and deep on toe-slopes and valley bottoms. Most soils usually have a volcanic ash influence surface layer with a silt loam texture, with coarse fragments ranging from 5 to 15 percent pebbles or gravels. The subsoils are typically silt loams or sandy loams, having 20 to 60 percent coarse fragments

P. Geologic Types: Precambrian meta-sedimentary rocks from Belt Supergroup quartzites, siltites, and argillites. The fire area includes a series of landforms in the landscape going from lower elevation alluvial stream deposits, to moderately steep to steep, complex mountain slopes. Drainageways are somewhat broad and form a trellis pattern. Streams are predominantly steep (>10% gradient) intermittent tributaries to Obrien Creek.

Q. Miles of Stream Channels by Order or Class: Order 1: 11.9, Order 2: 4.2, Order 3: 3.8, Order 4: 2.7

R. Transportation System

Trails: 7.6 miles Roads: 24 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 1757 (low) 2174 (moderate) 3341 (high)

B. Water-Repellent Soil (acres): 7072

C. Soil Erosion Hazard Rating (acres):
1460 (low) 5830 (moderate) 0 (high)

D. Erosion Potential: 4.25 tons/acre

E. Sediment Potential: 704 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 3

B. Design Chance of Success, (percent): 90

C. Equivalent Design Recurrence Interval, (years): 10

D. Design Storm Duration, (hours): 24

E. Design Storm Magnitude, (inches): 0.8

F. Design Flow, (cubic feet / second/ square mile): 10.3

G. Estimated Reduction in Infiltration, (percent): 33

H. Adjusted Design Flow, (cfs per square mile): 14.3

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency:

Values are at risk from increased stream flows, invasion of noxious weeds, and erosion. Stream flows are predicted to increase from two to 30 times in areas. Soil erosion is likely to increase by a factor of ten. Residences on private land are at risk from sediment as well as stormflows. Public access may be limited by stream channel filling and erosion. Noxious weeds, already a widespread and spreading problem could quickly invade burned-over elk range. Culverts may overtop and erode due to flooding, and access to homes and other resources may be cut off.

B. Emergency Treatment Objectives:

The following is a summary of treatments recommended for the immediate emergency. Treatment areas were prescribed based on the potential for damaging floods, loss of soil productivity, and for the mitigation of loss of life and property.

These treatments are designed to:

- Protect the USFS road system from increased stormflows
- Protect O'Brien Creek channel from excessive sediment
- Reduce increased stormflows in Lyons Gulch, Geier Gulch, and Cedar Gulch
- Mitigate effects of increased stormflows in Lyons Gulch
- Protect soils and vegetation on Black Mountain winter range

C. Probability of Completing Treatment Prior to First Major Damage-Producing Storm:

Land 95 % Channel 95 % Roads 95 % Other 95 %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land			
Seeding	70	85	90
Spraying	85	60	30
Channel			
Culvert removal	85	85	85
Dip Const.	85	80	80
Roads			
Culvert Cleaning	85	50	50
Obliteration	80	80	80
Other			

E. Cost of No-Action (Including Loss): \$594,000 see **BlackMountain2cost_risk_analysis.xls**.

F. Cost of Selected Alternative (Including Loss): \$536,000 see **BlackMountain2cost_risk_analysis.xls**.

G. Skills Represented on Burned-Area Survey Team: (See Appendix One for Team Makeup)

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

Team Leader: Henry F. Shovic, Gallatin National Forest

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H. **Treatment Narrative:**

(Describe the emergency treatments, where and how they will be applied, and what they are intended to do. This information helps to determine qualifying treatments for the appropriate funding authorities. For seeding treatments, include species, application rates and species selection rationale.)

Land Treatments:

1. Critical Area Seeding/Erosion Control – Lyons, Cedar and Geier Gulches

Aerially seed LNF portions of these small subwatersheds as soon as practical this fall, 2003. Reference the treatment specifications map for areas to be seeded. There are approximately 758 acres in total. These areas are to be stabilized and revegetated with the following seed mix: winter wheat, annual rye and slender wheatgrass (*Agropyron trachycaulum*) at an application rate of 35#/acre.

2. Critical Area Seeding/Weed Control – O'Brien Creek Winter Range

Aerially seed moderate and high severity burn Ponderosa pine/Dry Douglas-fir and all Ponderosa pine/grass savannah sites as soon as practical this fall, 2003. Reference the treatment specifications map for areas to be seeded. There are approximately 831 acres in total. These areas are to be revegetated with a grass mix that will effectively compete with or exclude establishment of common noxious weeds found in the area. No seeding will be done in the vicinity of Forb Recovery Monitoring Plots. Grass mix is: bluebunch wheatgrass (*Agropyron spicatum*), annual rye and slender wheatgrass (*Agropyron trachycaulum*) at an application rate of 30#/acre.

3. Noxious Weed Control –O'Brien Creek Winter Range

Apply herbicide, cultural or mechanical control treatments on known noxious weed infestations within moderate and high severity burn areas on the O'Brien Creek Winter Range. Reference the treatment specifications map for areas to be treated (3385 acres.) Treat as late as possible in September 2004 to allow maximum time for aerially seeded and natural grasses and conifers to establish and harden off. Limit applications of picloram to 1 pint active ingredient per acre. An existing EIS allows aerial herbicide applications in this specific area.

Channel Treatments:

See Roads and Trail Treatments for culvert removal and maintenance.

Roads and Trail Treatments:

Roads in the Black Mountain fire area are a mix of USFS, small private, and county roads, with the FS being the predominant land and road owner. Affected roads provide access to the Blue Mountain area and the O'Brien Creek drainage. FS roads range from arterials serving Blue Mountain to very low standard jammer roads.

Several sub-drainages within the O'Brien Creek drainage were severely burned and the risk of floods and debris flows are significant in portions of the O'Brien Creek drainage. Road treatments proposed for FS roads in the Blue Mountain and O'Brien Creek areas are designed to minimize flow concentration and the possibility of debris flows.

Road treatments designed for the Black Mountain fire area include:

- Maintenance-type activities to ensure proper drainage. These activities include cleaning existing culverts, cleaning and reshaping drivable dips, and constructing new drivable types where needed. This type of work is appropriate where the road is needed for on-going access and properly designed and maintained drainage structures can handle the anticipated increased runoff.
- Storm-proofing roads where access is not immediately needed. This consists of removing drainage way and ditch relief culverts altogether, and constructing waterbars as needed across the roadway. By removing the culverts, the drainage capacity is practically unlimited and there simply is no longer a structure that could plug; hence, maintenance and monitoring of structures is not needed.
- Culvert Removal. This consists of removing individual failed (or at high risk of failure) culverts that have been identified. The flat-graded, plugged culvert near the end of the O'Brien Creek road has been identified for removal.
- Jammer Road Rehabilitation. This treatment obliterates old jammer roads and thereby removes the risk of concentrated flows from jammer road areas. There are about 8 miles of old jammer roads in an approximately 100 acre area (85 miles / square mile) in the severely burned Lyon Gulch drainage immediately upslope from residences and upstream from residences along Lyon Gulch creek and O'Brien Creek. Logs and stumps were incorporated in the fills; they have burned, leaving oversteepened and unstable fill slopes. Grades in many cases are steep and continuous to the draws. Waterbars are infrequent and too small. Roads surfaces are severely compacted. The fire has removed virtually all vegetation and, vegetative debris, and duff. The roads are not needed. Treatment includes deep ripping the roadbed to promote infiltration and pulling the fill shoulders up to the bottom of the cut bank. Natural drainage and infiltration is re-established and revegetation is promoted.

Trail Treatments

None Recommended.

Structures:

none

I. Monitoring Narrative:

(Describe the monitoring needs, what treatments will be monitored, how they will be monitored, and when monitoring will occur. A detailed monitoring plan must be submitted as a separate document to the Regional BAER coordinator.)

- (1) **Monitor stream discharge in O'Brien Creek and peak discharges in three severely burned tributaries.** Collecting streamflow information following the fire will allow: 1) validation of peak flow model coefficients, 2) determination of the effects of land treatments on mitigating peak flows and 3) evaluation of whether changes in private land watershed improvements are related to changes in flow regimes. **Collecting further information on post fire runoff is critical to improving quantitative predictive models used by the BAER Teams.** This information is central to treatments prescribed. On O'Brien Creek would be by a combination of current meter and automatic water level recorder. Peak flow in the severely burned tributaries would be via "crest gages". Three gages can be assembled on-forest from easily purchased material and installed this fall. The gages would be read twice a week between April 1 and June 30, 2004. The cost of this item would be 24 person days for data collection and reduction at \$4,800 plus \$200 for supplies and material costs. Estimated total cost is \$5,000.
- (2) **Monitor effectiveness of runoff dispersion treatments of jammer roads** at selected indicator sites by establishing photo points. Photo points would be established this fall and observations and photo documentation of site condition would be completed. These observations and photography would be repeated after snowmelt runoff and again late in the fall of 2004 after the summer thunderstorm season. Effectiveness would be determined by the degree of rilling or gulying observed (photographed), amount of off-site sediment movement and the degree of re-vegetation of the treatment. The cost is estimated at ten work-days plus photography costs for \$1,500.
- (3) **Monitor results of aerial grass seeding** by standard vegetation plot transect methodology. Each seeded area would be surveyed once during mid-to-late summer 2004. Estimated cost is ten work-days for \$1,500.
- (4) **Monitor effectiveness of noxious weed treatment** by standard vegetation plot transect methodology. Survey would be conducted mid-to-late summer 2004. Estimated cost of monitoring ten work-days is \$1,500.
- (5) **Monitor stream morphology and habitat conditions** via a resurvey of streams above and below treatment areas to determine the effectiveness of treatments. 1997 bull trout baseline analysis will provide baseline information to compare against. Standard methods for aquatic data collection and analysis as documented in Lolo National Forest Monitoring Plans would be used. The resurvey would provide information regarding the effectiveness of various erosion abatement projects implemented under the emergency fire rehabilitation. Information collected in 2004 will be used to evaluate the need for follow-on treatments and/or monitoring. The monitoring will be conducted within the O'Brien Creek watershed: Estimated Cost for monitoring is ten work-days at \$1,500.
- (6) **Monitor Costs and Accomplishment Schedules of Recommended BAER Treatments** by monthly reconciliation of financial transaction records, time sheets, project notes and other accounting records. Spreadsheets tracking expenditures and accomplishments will be updated on a monthly basis and reports provided to the Regional BAER Coordinator on demand. The estimated cost for monitoring and recording costs and accomplishments is 15 work-days at \$2,500.
- (7) **Noxious Weed Monitoring:** Monitor known and high potential infestation sites for noxious weed species in the burned area; determine need and extent of control treatment to be implemented. See the monitoring specification for more information.
- (8) **Seeding Effectiveness Monitoring – Lyons, Cedar and Geier Gulches:** Monitor reseeded areas in the first year following treatment (2003) to determine success of revegetation efforts on slope and watershed stability within the Black Mountain 2 Fire on Lolo National Forest lands. Determine vegetation re-establishment on seeded areas as an effective cover for the stabilization of critical watersheds and the protection of downstream values at risk. See the monitoring specification for more details.

Part VI – Emergency Rehabilitation Treatments and Source of Funds by Land Ownership

PART VI -- EMERGENCY REHABILITATION TREATMENTS AND SOURCE OF FUNDS BY LAND OWNERSHIP

BLACK MOUNTAIN FIRE

			Lolo N. F.			OTHER LANDS		All
		Unit	# of	FED	Other	# of	Non Fed	Total
Line Items	Units	Cost	Units	\$	\$	Units	\$	\$
A. Land Treatments								
Aerial Seeding	acre	100	1589	\$158,900				
Aerial Herbicide	acre	40	3385	\$135,400				
<i>Subtotal Land Treatments</i>				\$294,300			\$0	\$294,300
B. Channel Treatments								
<i>Subtotal Channel Treatments</i>				\$0			\$0	\$0
C. Road and Trails								
Drainage Dip Reconstruction	each	154	38	\$5,852				
Drainage Dip Construction	each	213	38	\$8,094				
Culvert Removal	each	1073	4	\$4,292				
Obliterate upper Haggerty	mile	15644	0.25	\$3,911				
Jammer road rehab	mile	2100	7.5	\$15,750				
Storm Proof	mile	1821	3.4	\$6,191				
Culvert Cleaning	mile	84	19	\$1,596				
<i>Subtotal Road & Trails</i>				\$45,686			\$0	\$45,686
D. Structures								
<i>Subtotal Structures</i>				\$0			\$0	\$0
E. BAER Evaluation								
Team				\$12,000			\$0	\$0
satellite imagery	each	4500	1	\$900				\$0
Implementation Leader		7000	1	\$7,000				\$0
Forest Liaison	day	350	10	\$3,500				
				\$0				
<i>Subtotal BAER Evaluation</i>				\$23,400			\$0	\$23,400
F. Monitoring								
Monitor streamflow,								
jammer road treatment eff.,								
stream morphology, and								
costs and accomplishments	project	12000	1	\$12,000				
Monitor revegetation seeding	project	4365	1	\$4,365				
Monitor weed treatments	project	11199	1	\$11,199				

Appendix One: Team Makeup

POSITION	TEAM MEMBER / AGENCY
Team Leader	Henry Shovic, USFS, Gallatin NF
Private Liaison	Kit Sutherland, Private Lands
Administrative Support	Becky Chapman, USFS, Lolo NF Carol Goffe, USFS, Region One
Archaeology	Roger Free, USFS, Lolo NF Sydney Wimbrow, Lolo, NF
Engineering (Roads & Trails)	Randy Gage, USFS, Lolo NF Roger Billadeau, USFS, retired, Lolo NF Alan Christian, USFS, Lolo, NF
Fisheries	Pat Price, USFS, Kootenai NF
Soil and Watershed	Scott Hagerty, USFS, Olympic NF John Blaine, NRCS Neill Svenson, NRCS Jeff Collins, DNRC
Vegetation	Steve Dagger, USFS, Lolo, NF
Wildlife	Mike Hillis, USFS, retired, Lolo, NF
GIS	Dan Hurlbert, NPS, Shenandoah NP Kendall Cikanek, USFS, Superior, NF
Hydrology	Ted Geier, USFS, Region Nine Rob Davies, USFS, Idaho Pan, NF Amy Rollins, USFS, Lolo, NF Renee Hannah, DNRC
Plans and Logistics, PIO/Writer/Liaison	Marcia Hogan, USFS, Region One Sue Reel, USFS, Lolo, NF
Other Support	Skip Rosquist, USFS, Lolo, NF Shane Hendrickson, USFS, Lolo, NF Rob Mcleod, USFS, Lolo, NF Janet Krivacek, USFS, Lolo, NF Dennis Gordon, USFS, Bitterroot, NF