



United States
Department of
Agriculture

Forest
Service

Northern Region

200 E. Broadway
P.O. Box 7669
Missoula, MT 59807

File Code: 6520/2520-3

Date: September 7, 2000

Route To:

Subject: Blodgett Fire, Burned Area Emergency Rehabilitation (BAER)

To: Forest Supervisor, Bitterroot National Forest

Enclosed is the approved initial Burned Area Rehabilitation (BAER) for the Blodgett Fire. You are authorized to spend up to \$72,280 for the assessment, land, channel, road and trail treatments and monitoring activities shown in Part VI of the report. For out-year monitoring needs, you must submit an annual interim request that describes monitoring needs based on previous year's results.

Use the assigned P-code for the approved suppression land treatments. Please provide me with your Final Accomplishment Report (FS 2500-8), describing actual costs and accomplishments, within 60 days of project completion. Based on your monitoring schedule, a monitoring report is due by June 2001. Contact Bruce Sims (406-329-3447) if you have any questions.

/s/ Ronald D. Larsen for

DALE N. BOSWORTH
Regional Forester

Enclosure



Date of Report:9/2/2000

BURNED-AREA REPORT

(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 DESCRIPTIONA. Fire Name: BlodgettB. Fire Number: MT-BRF-11440C. State: MTD. County: RavalliE. Region: R1F. Forest: Bitterroot NFG. District: StevensvilleH. Date Fire Started: 7/31/00I. Date Fire Contained: 52% as of 9/1/00J. Suppression Cost: \$8,823,510 as of 8/31/00

K. Fire Suppression Damages Repaired with Suppression Funds

1. Fireline waterbarred (miles): 8 as of 9/1/00
2. Fireline seeded (miles):
3. Other (identify): 2 miles irrigation ditch reconstruction

L. Watershed Number: 17010205-1101,1005,1004,1007M. Total Acres Burned: 11486

NFS Acres(10124) Other Federal () State (535) Private (827)

N. Vegetation Types: The burned areas consists of a variety of habitats from dry open ponderosa pine (*Pinus ponderosa*) types to moist forests and riparian areas. The drier, low elevation sites are mostly associated with bluebunch wheatgrass (*Pseudoroegneria spicata*), Idaho fescue (*Festuca idahoensis*), arrowleaf balsamroot (*Balsamorhiza sagittata*), and lupine (*Lupinus sp.*). Infestations of spotted knapweed (*Centaurea maculosa*), a Montana state listed noxious weed, are also common in these open areas. North-facing slopes in the lower elevation zone consist of Douglas-fir (*Pseudotsuga menziesia*), pinegrass (*Calamagrostis rubescens*), elk sedge (*Carex geyerii*), heartleaf arnica (*Arnica cordifolia*), and Rocky Mountain maple (*Acer glabrum*). Riparian areas and ephemeral draws contain species such as grand fir (*Abies grandis*), gray alder (*Alnus incana*), Engelmann's spruce (*Picea engelmannia*), willow (*Salix spp.*) thimbleberry (*Rubus parviflorus*), and lady fern (*Athyrium filix-femina*). Scouler's willow (*Salix scouleriana*) is scattered throughout the area.

O. Dominant Soils: Blodgett face—loamy skeletal, typic ustochrepts & loamy skeletal, dystic cryochrepts, canyons—loamy skeletal, andic cryochrepts (north aspects), loamy skeletal, typic ustochrepts

P. Geologic Types: Glaciated granite and gneiss from Idaho Batholith

Q. Miles of Stream Channels by Order or Class: 1st – 27 miles, 2nd – 3 miles, 3rd – 7 miles

R. Transportation System

Trails: 12 miles Roads: 13 miles Irrigation Ditches: 8 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 6543 (low) 1463 (moderate) 3352 (high) 118 (unburned)

B. Water-Repellent Soil (acres): weak 6776 ac, moderate 2872 ac, strong, 1838 ac

C. Soil Erosion Hazard Rating (acres):
5523 (low) 2508 (moderate) 3439 (high)

D. Erosion Potential: 3.9 tons/acre

E. Sediment Potential: 316 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 4

B. Design Chance of Success, (percent): 80

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

D. Design Storm Duration, (hours): 24

E. Design Storm Magnitude, (inches):	<u>3</u>
F. Design Flow, (cubic feet / second/ square mile):	<u>167</u>
G. Estimated Reduction in Infiltration, (percent):	<u>20</u>
H. Adjusted Design Flow, (cfs per square mile):	<u>134</u>

PART V - SUMMARY OF ANALYSIS

A, Describe Watershed Emergency:

The Blodgett fire burned across mid and lower-elevation zones of several watersheds on the Bitterroot range between Canyon, Blodgett, Mill Creek and Sheafman creek. Facilities below the fire area (ditches, houses, roads, fences) are generally buffered from high burn severity areas by unburn to low burn severity areas and low gradient flat, run out alluvial fans below stream courses. An exception is the road network (Forest roads 438 and 13105)) which cross several high burn intensity areas and which are subject to ditch and culvert washout. The storm flow analysis therefore was focused on 8 small watersheds within the Blodgett fire area, which need upgrading of culvert size.

The fire burned at moderate to high severity over most of Cow Creek, Sage Creek, and Sheridan Creek watersheds above the community of Pinesdale, and in a small, unnamed watershed above private lands between Mill Creek and Sheridan Creek. Predominant slopes are steep, 50 to 60 percent. The fire throughout these watersheds including some riparian areas has consumed most of the standing trees, shrubs, grasses and duff layer. Three transects in the high burn severity areas observed have 16% strong hydrophobicity, 25% moderate hydrophobicity, and 59% light hydrophobicity. Intense rain storms could cause overland flow and erosion from these watersheds yielding increased stream flow and sedimentation. Eight road culverts are undersized for storm flows. The upper culvert in Cow Creek has excessive in channel floatable debris. Downstream on private land, 3 ponds and 1 irrigation ditch may have increased sedimentation.

Other areas of the Blodgett Fire do not have emergency watershed conditions. Canyon Creek, Blodgett Creek, Mill Creek, and Sheafman Creek have large watershed areas with minor amounts of burn area. Most of the minor amount of burned area in these watersheds is a mosaic of unburned, lightly burned, moderately burned, and severely burned areas in the Selway Bitterroot Wilderness. There are no identified resources at risk from rain storms from these watersheds.

Most of the burn area has extremely steep topography with low probability of cultural resource site occurrence. The Confederated Salish and Kootenai Tribal Preservation Office indicated no cultural resource site concerns with the Blodgett fire. Hauf Lake cabin was protected during fire suppression and remained outside of the fire perimeter. High severity burn did occur along the west side of Tag Alder lake with moderate severity burn on the east side. Tag Alder lake has potential for pre-historic tribal lithic sites which could have had some shattering damage during the fire. It is considered unlikely that erosion potential of lithic sites around Tag Alder lake will be exposed to more erosion from the Blodgett fire since the immediate area around the lake is fairly rocky with short erosion slope lengths.

The major watershed treatment for the Blodgett fire is rehabilitation of 22 miles of dozer line which is being done with fire suppression funds and is not part of this BAER funding request.

B. Emergency Treatment Objectives:

The objectives of the proposed treatment are to prevent culvert failure along roads 438 and 13105 and subsequent erosion and sedimentation effects downstream. Two miles of ATV trail in high burn severity areas are subject to concentrating overland flow with subsequent downslope erosion and need drainage

augmentation. In addition a 30 acre area vulnerable to encroachment from existing noxious weeds will be seeded to reduce invasion potential.

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

Land 80 % Channel 80 % Roads 80 % Other n/a %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	90	100	100
Channel	90	100	100
Roads	90	100	100
Other			

E. Cost of No-Action (Including Loss): **\$105,000**

F. Cost of Selected Alternative (Including Loss): **\$75,000**

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Mark T. Story, Gallatin NF, R1 (406) 587-6713 mstory@fs.fed.us

Email: BAER contact bhammer@fs.fed.us Phone: 406-777-7423 FAX: 406-777-7423

H. Treatment Narrative:

Land Treatments:

Post-fire response from vegetation is expected to be normal, although high intensity burn areas may be slower in recovery. Preliminary post-fire field observations reveal a good response from Scouler's willow (*Salix scouleriana*), resprouting from the base of blackened stumps within a month of high severity fire activity. Pinegrass (*Calamagrostis rubescens*) was also noted as sprouting from underground rhizomes. Other species observed were Rocky Mountain maple (*Acer glabrum*), thimbleberry (*Rubus parviflora*), fireweed (*Epilobium angustifolium*), mountain arnica (*Arnica latifolia*), spiraea (*Spiraea betulifolia*), and beargrass (*Xerophyllum tenax*). An occasional spotted knapweed seedling was also seen. These appear to be sprouting from fine roots under the soil surface.

One of the objectives of the BAER team was to assess and identify areas susceptible to noxious weed spread. Spreading of existing infestations is likely to occur due to the natural response of most plant species to fire. Native forbs and shrubs will usually respond by resprouting from the root crown or rhizomes. This response is also found in spotted knapweed. However, knapweed has a competitive advantage due to its ability to germinate in both spring and fall, and the possibility of inhibiting seed germination in nearby plants by releasing the chemical cnicin into the soil.

Existing populations of spotted knapweed occur on most of the south-facing slopes on the Bitterroot National Forest at elevations below 6500 feet. There are a couple of exposed ridges within the perimeter of the Blodgett Complex where knapweed was known to occur prior to this fire incident. One ridge is between Cow and Sage Creeks and the other is between Cow and Sheafman Creeks. The first site received a low to moderate burn intensity, while the second site remained unburned. The amount of knapweed on the site most likely contributed to the low intensity burn, since knapweed does not carry fire well. However, there was some ground disturbance and burning of plant root crowns which could contribute to knapweed germination and sprouting. Herbicide treatment and seeding of the ridge between Cow Creek and Sage Creek to prevent further increase in spotted knapweed is proposed in this BAER report. This treatment should reduce the knapweed population, giving native plants a chance to come back on site. In addition, a native seed mix, consisting of bluebunch wheatgrass (*Pseudosuga menziesia*) and Idaho fescue (*Festuca idahoensis*) will be sown in order to aid in the recovery of native species. Picloram (Tordon 22K) would be applied at a rate of 1 pint/acre, sufficient to target knapweed while minimizing impacts on the native plant community. Seeding with bluebunch wheatgrass (*Pseudoroegneria spicata*) and Idaho fescue (*Festuca idahoensis*), native grass species present on the site prior to burning, should aid in recovery of native species. The native grass seed will not be affected by picloram. The area to be treated covers approximately 30 acres and could be done by hand or all terrain vehicle (ATV).

The site will be monitored over the next two to three years to determine the effectiveness of the proposed treatments. Other selected sites will also be monitored for vegetative recovery.

Channel Treatments:

Channel treatments will consist of removable of flitable debris for 300' above the main tributary of Cow Creek culvert, where if material became entrained, the culvet could become plugged.

Roads and Trail Treatments:

Eight culverts along roads 438 and 13105 will be subjected to increased storm flows from the Blodgett fire are proposed to be replaced. Culvert replacement is designed to minimize erosion impacts caused from culvert failure on the road system and watershed. On 5 miles of roads 438 and 13105 cross drains that will be impacted by the additional runoff from the burned area were identified which need augmentation. 2 miles of ATV trails in the area between Mill and Sheafman creek will have water bars installed to reduce erosion potential of down slope areas.

Culvert sizing was based on inlet control and a headwater to depth of 1.0, headwall entrance or mitered entrance type. The watershed, design flow and resulting culvert sizes include:

<u>Watershed No.</u>	<u>Design Flow</u>	<u>Culvert Diam.</u>	<u>Length</u>
1	28 cfs	36 inch	38 ft
2	19 cfs	36 inch	40 ft
3	75 cfs	48 inch	46 ft
4	15 cfs	36 inch	42 ft
5	2 cfs	24 inch	34 ft
6	18 cfs	36 inch	38 ft
7	25 cfs	36 inch	40 ft
8	24 cfs	36 inch	28 ft

Additionally, two 18-inch diameter x 28 ft long cross drains were identified for replacement.

I. Monitoring Narrative:

Monitoring of the proposed treatments will be done for up to five years post fire although BAER will directly fund only 1 year of effectiveness monitoring. Photopoints will be established to monitor vegetative recovery in low, moderate and high intensity burn areas. Chemical treatments of noxious weeds area covered under several noxious weed environmental assesments that the forest has prepared in the past. Any existing weed populations that did not burn should be monitored for spread into the burn area. Monitoring of the treated ridge (with existing weed populations) should be started during the spring of 2001 to determine plant frequency, density and cover. Photo points should also be established in areas of different burn intensities to determine response of post-fire vegetation and possible new infestations of noxious weeds

The upgraded culverts and road drainage will be monitored through 2001 to insure that culverts remain open and are functioning properly.

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

Line Items	Units	Unit Cost	NFS Lands		Other \$	Other Lands				All Total \$
			# of Units	WFSU SULT \$		# of units	Fed \$	# of Units	Non Fed \$	
A. Land Treatments										
herbicide treatment	acres	110	30	\$3,300			\$0		\$0	\$3,300
grass seeding (hand)	day	100	5	\$500			\$0			\$500
Idaho fescue	lbs	20	39	\$780			\$0		\$0	\$780
bluebunch wheatgrass	lbs	10	57	\$570			\$0		\$0	\$570
<i>Subtotal Land Treatments</i>				\$5,150			\$0		\$0	\$5,150
B. Channel Treatments										
debris removal	seg	550	1	\$550			\$0		\$0	\$550
				\$0			\$0		\$0	\$0
				\$0			\$0		\$0	\$0
				\$0			\$0		\$0	\$0
<i>Subtotal Channel Treat.</i>				\$550			\$0		\$0	\$550
C. Road and Trails										
culverts	each	3760	8	\$30,080			\$0		\$0	\$30,080
roadside drainage	mile	300	5	\$1,500			\$0		\$0	\$1,500
ATV trail drainage	mile	2000	2	\$4,000			\$0		\$0	\$4,000
ATV trail barricades	each	5	500	\$2,500			\$0		\$0	\$2,500
<i>Subtotal Road & Trails</i>				\$38,080			\$0		\$0	\$38,080
D. Structures										
				\$0			\$0		\$0	\$0
				\$0			\$0		\$0	\$0
				\$0			\$0		\$0	\$0
				\$0			\$0		\$0	\$0
<i>Subtotal Structures</i>				\$0			\$0		\$0	\$0
E. BAER Evaluation										
BAER team days	days	400	50	\$20,000			\$0		\$0	\$20,000
PD and travel	days	100	50	\$5,000			\$0		\$0	\$5,000
aerial mapping	flight	1000	1	\$1,000						\$1,000
F. Monitoring				\$0			\$0		\$0	\$0
veg, weeds, roads	yrs	2500	1	\$2,500						\$2,500
G. Totals				\$72,280			\$0		\$0	\$72,280

PART VII - APPROVALS

- /s/ Rodd Richardson
Forest Supervisor (signature)

9/2/00
Date
- /s/ Ronald D. Larsen
Regional Forester (signature)

9/7/00
Date