USDA-FOREST SERVICE FS-2500-8 (7/00)

Date of Report: 09-23-03

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[X] 1. Funding request for estimated WFSU-SULT funds
[ ] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

[X] 1. Initial Request (Best estimate of funds needed to complete eligible rehabilitation measures)
Assessed through September 20, 2003

[ ] 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: **BOB MARSHALL FIRE COMPLEX includes seven suppression fires** B. Fire Number: Mid Creek 14471, Gordon 15555, Leota Peak-15555, Some Creek-15555, Bartlett Mtn.-14456, and Gyp Mtn.-15555.

C. State: Montana D. County: Flathead

E. Region: 01 F. Forest: Flathead

G. District: Spotted Bear

H. Dates theFires Started: 8/8-19/2003, I. Date Fires Contained: Unknown

J. Suppression Cost: for the complex $1,835,790 (as of 9-5-03)

K. Fire Suppression Damages Repaired with Suppression Funds - **This information was not available at this time.**

Watershed Number: (Sixcode HU's) **Gordon Fire:** 170102090202, 170102090101, 17102090106; **Some Creek**: 170102090203, **Bartlett Mtn.:** 17010209203, **Leota**: 170102090104, **Gyp Mtn.:** 170102090209.

M. Total Acres Burned: Mid NFS Acres (11,213) Other/Private (0)
Gyp Mtn. NFS Acres (4,992) Other/Private (0)
Bartlett Mtn. NFS Acres (1,529) Other/Private (0)
Some Creek NFS Acres (13,114) Other/Private (0)
Leota Peak NFS Acres (1,740) Other/Private (0)
Gordon NFS Acres (14,628) Other/Private (0)

TOTAL Burn Acres – 47,216

N. Vegetation Types: Douglas-fir, Western Red Cedar, Grand Fir, and Subalpine fir Potential Vegetation Types

O. Dominant Soils: Udifluvents, Eutroboralfs, Cryoboralfs, Cryochrepts, and Cryants

P. Geologic Types: Precambrian meta-sedimentary; predominantly argillites, siltites, quartzites, or limestones. Also some Paleozoic Limestones.

Q. Approximate Miles of Stream Channels by Order:
First Order: - 48, Second Order – 7, Third Order – 11, Fourth Order^{+} -10

Transportation System: Trails: 52.8 miles FS

PART III - WATERSHED CONDITION

A. Burn Severity: (acres): 27,413 (55%-low) 17,445 (35%-moderate) 4,984 (10%-high)

B. Water-Repellent Soil (acres): 9,968

C. Soil Erosion Hazard Rating (acres): 27,413 (low) 7,476 (moderate) 14,952 (high)

D. Erosion Potential: 19.4 tons/acre (average) (range .5 to 41.1 tons/acre)

E. Sediment Potential: 10,026 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 2

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

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

D. Design Storm Duration, (hours): NA

E. Design Storm Magnitude, (inches): NA

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

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

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

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency:

- Water Quality, Fisheries, and Aquatics, both within the fire area and downstream.

  The BAER Analysis Team identified a large number of waterbars and culverts associated with the trails, that were impacted by the wildfire. Some existing culverts/waterbars may plug or be overtopped and fail, particularly ones with areas of significant fire above them. Portions of the fire also burned with such severity that land surface erosion may be significant (excess of 25 tons/acre). Experience from the Moose Fire of 2001 indicates this erosion may occur on sites that are not treated in some way to increase infiltration and protect the soil surface.

- Threats to Long-term Soil Productivity and Ecosystem Integrity

  Field reviews within the burned area validate a threat to long-term soil productivity and ecosystem integrity in areas of high/moderate burn severity where vegetation recovery is naturally slower post-fire. The sixty plus miles of trails in the burn area provide a natural avenue of ingress to a host of noxious weed species that are currently found in and surrounding the Bob Marshall Wilderness Area.

  The spread of noxious weeds is expected to increase dramatically within the fire area, especially along trails and where fire suppression activities disturbed the existing weed seed bank and opened uninfested lands to invasion by adjacent weed populations. Those species of greatest concern include spotted knapweed (Centaurea maculosa), St. Johns wort/Goatweed (Hypericum perforatum), Orange hawkweed (Hieracium aurantiacum) and Canada thistle (Circium arvense). All are Montana State and Flathead County listed noxious weed species. There are isolated infestations of Common tansy (tanacetum vulgare) as well. Tansy ragwort (Senecio jacobaea) has been located in areas of the Flathead National Forest. The Kootenai and Flathead National Forests have spent millions of dollars trying to control tansy that was introduced into Northwestern Montana by the Little Wolf Fire in 1994.

- Threats to Life and Property

  In general the system trails within the burned area of the Bob Marshall Wilderness Area were in good condition prior to the wildfire. An aerial reconnaissance survey (helicopter flight by the soil scientist) was completed to assess burn severity on the system trails in the burn area. The information from the aerial survey in concert with field reviews of some of the trail segments by the district resource personnel, were used to develop the trail safety and post-fire damage assessment. That survey information, interpretations, and estimates of needed work were used to develop specifications in this report. Due to access and the active burning/safety concerns some trail segments have not be reviewed on the ground.

  Attached is the burn severity map for the system trails within the suppression fires in the Bob Marshall Wilderness Area. See the following table for the summary of the burn severity associated with trails in these fires.

Soil Burn Severity Class Associated with System Trails	**Miles of Trail**
Low/Unburned Mosaic	26.64
Low Burn Severity	3.3
Moderate Burn Severity	27.8
High Burn Severity	1.8

The existing system trails within the Bob Marshall Fire Complex have numerous stream crossings and waterbars that have been affected by the fire. Many of the waterbars constructed from wood have burned and are no longer effective. Some culverts need cleaning and/or replacement to insure unobstructed flows. In some areas the trails have burned away portions of the tread or are very susceptible to soil erosion/raveling that make the trails very unsafe for use by the public. Purpose of the proposed treatment work is to decrease the risk that post-fire trail and hillslope surface water flows are diverted off the trails, to prevent washouts.

Prior to this report there was not time and/or safe conditions to access the historic structures within the fire area to assess any archeological/cultural treatment needs. An assessment of the existing situation will be done as soon as safety conditions allow.

B. Emergency Treatment Objectives:

- Minimize fire effects on water quality and fisheries habitat by reducing the amount of sediment delivered to streams from the fire-impacted system trails.
- Mitigate effects on long-term soil productivity and ecosystem function/integrity by seeding targeted areas.
- Provide for public health and safety by conducting hazard tree assessments and treatment. To insure public safety by repairing fire impacted trails, mitigating for future post-fire soil erosion effects, and installing health and safety signs.

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

Land **80** % Channel **NA** % Trails **80** % Other **90** %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land			
Seeding	75	85	90
Trails			
Eroison Control	90	90	90
Hazard Tree	95	85	75
Hazard Signing	100	100	100
Other			
Weed Montiorin	95	100	NA

E. Cost of No-Action (Including Loss): **See attached cost-risk analysis document.**

F. Cost of Selected Alternative (Including Loss): **See attached cost-risk analysis document.**

G. Skills Represented on Burned-Area Survey Team:

[X] Hydrology	[X] Soils	[ ] Geology	[] Range	[ ] NEPA Coordinator
[X] Forestry	[ ] Wildlife	[ ] Fire Mgmt.	[X] Engineering	[X] Recreation/Trails
[ ] Contracting	[X] Ecology	[X] Botany	[] Archaeology	[ ]
[ ] Fisheries	[ ] Research	[ ] Landscape Arch	[X] GIS	

Team Leader: Dean Sirucek, Hydrologist, Flathead National Forest

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H. **Treatment Narrative:**

LAND TREATMENTS:

Critical Area Seeding

High severity burn areas in Bartlett Creek (203) poses a threat to down-slope system trails, as well as westslope cutthroat habitat areas. Without a seeding treatment, these sites are expected to have delayed natural vegetation recovery due to the burn severity and significantly increased (up to 25 tons/acre plus) soil erosion. The seeding will involve native grass seed, to improve site conditions for the return of native vegetation while reducing the potential for erosion and weed invasion. There is a system trail directly down slope of the high burn severity are that will be very susceptible to surface soil erosion and slope raveling filling in the trail, causing a public safety hazard.

TRAIL TREATMENTS:

The existing system trails within the Bob Marshall Fire Complex have numerous areas/strucures affected by the fire including: stream crossings, waterbars, turnpike areas, and the trail prism in some areas. Some of these situations cause a public safety problem. The purpose of this work is to decrease the risk that post-fire trail and hillslope surface water flows are diverted off the trails, to prevent washouts.

Maintain Drainage Structures on Trails: Install and maintain waterbars, drain dips, relief ditches, turnpikes on trails that traverse moderate and high severity burn areas to prevent erosion that may occur during spring runoff. This work is needed immediately to protect these trails next spring.

Install/Maintain Erosion Control Structures: Within one year of containment, install and maintain waterbars (aproximately 210), culverts, drain dips, relief ditches, curb logs, and the trail tread, on trails that traverse primarily moderate and high severity burn areas to prevent erosion and trail degradation. Where needed on steeper hillslopes (35 to 60+%) that burned with moderate or high burn severity, to install curb logs as to reduce soil ravel on to the trail surface. Where the trail surface has been burned away/reduced by the wildfire, to apply a new erosion resistant surface to the trail (rethread).This work is needed within one year, but after spring runoff, to protect these trails over the long term and provide for public safety.

Field surveys revealed extensive areas of trees susceptible to tip-over due to the roots and/or boles of the trees being burned out. These hazard trees are a very serious human safety issue for users of the wilderness trail system. Most of the hazard tree concerns are in the moderate and high severity burn areas, but there are concerns in the low burn severity areas as well because many of the tree species in the burn area are susceptible to low intensity burn and thus will probably not survive.

Hazard Tree Treatment – Trails: Within one year of containment, cut and remove standing, leaning, and fallen hazard trees along the system trails, primarily within moderate and high severity burn areas, that

were weakened by the fires. Wait until summer of 2004 to allow seasonal winds and snow to bring down much of the imminent hazards and allow for a safer work environment, as well as a more natural appearance.

Install Hazard Warning Signs: Install 10 hazard warning signs at the wilderness access portals to communicate to the public of the post-fire hazard trees and flash flood potential. Also, to replace 23 burned directional signs at trails junctions to provide for public safety.

I. Monitoring Narrative:

Soil Erosion/Natural Revegetation Monitoring

Monitor to determine success of natural vegetation regeneration where grass seeding and/or slope stabilization was not prescribed. Because natural revegetation with little or no human intervention or manipulation is the standard prescription on the majority of wilderness area burned during a wildland fire event, monitoring of the native vegetation re-establishment, potential exotic plant invasion and the levels of soil erosion associated with those sites will provide critical data to evaluate whether this is the most reasonable course of action; to provide base line data to understand the level of degradation resulting from a lethal burn severity to the soil and seed bank resources. If monitoring results determine erosion levels are unacceptable, soil stabilization measures or temporary area closures may be implemented.

At the same time the seeded area in Bartlett Creek will be examined determine success of re-vegetation efforts on slope and watershed stability within the *high burn severity* area. Determine if the vegetation re-establishment on seeded areas is an effective cover for the stabilization of critical watersheds and the protection of downstream values at risk.

Noxious Weed Monitoring

Known and high potential noxious weed infestation sites within the burn area will be monitored. As required by current policy, **this monitoring will occur during the first year after fire containment**. If the monitoring indicates the fire has exacerbated the existing weed problem funding avenues for treatment will be pursued.

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

Please see attached spreadsheet.

PART VII - APPROVALS

1. /s/ Catherin Barbouletos — 9/24/03
   Forest Supervisor (signature) — Date

2. _____ — _____
   Regional Forester (signature) — Date