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

Date of Report: 9/11/2003

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)

[ ] 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: Snow-Talon

B. Fire Number: MT-HNF-075

C. State: MT

D. County: Lewis & Clark

E. Region: R1

F. Forest: Helena National Forest

G. District: Lincoln D-4

H. Date Fire Started: 8/12/2003

I. Date Fire Controlled: 10/15/2003 (estimated)

J. Suppression Cost: $ 14,700,000 as of 9/10/2003

K. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 27.8 – Dozer, 22.3 - Handline
2. Fireline seeded (miles): 27.8 - Dozer
3. Other (identify):

L. Watershed Number: 170102030502, 170202030501, 170102030501A, 170102030501B

M. Total Acres Burned: 37,706
NFS Acres(34,362) Other Federal ( ) State ( ) Private (3344)

N. Vegetation Types: Subalpine fir/beargrass, Subalpine fir/menziesia, Subalpine fir/grouse whortleberry, Subalpine fir/twinflower, Subalpine fir/woodrush, Subalpine fir/bedstraw

O. Dominant Soils:Typic Cryoboralfs, Typic Cryochrepts, Typic Ustochrepts, Andic Cryochrepts, Mollic Cryoboralfs, Lithic Cryoborolls, Typic Cryumbrepts, Lithic Ustochrepts,

P. Geologic Types: Metasedimentary glacial till; Glacial till and moraines; Argillites, siltites and quartzites; Mixed alluvium

Q. Miles of Stream Channels by Order or Class: 14 mi – 4th Order, 12 mi – 3rd Order, 15 mi – 2nd Order, 52 mi – 1st order

R. Transportation System

Trails: 28.8 miles Roads: 59.6 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 4,180 (low) 1,690 (moderate) 26,500 (high) As of 9/5/2003 Fire is still burning in the wilderness and acres will be updated once fire is considered controlled. Additional acres will not affect what is being proposed.

B. Water-Repellent Soil (acres): 5,900 – Moderate, 25,970 – Low,

C. Soil Erosion Hazard Rating (acres):
10,320 (low) 19,000 (moderate) 860 (high)

D. Erosion Potential: 10 - 50 tons/acre

E. Sediment Potential: 550 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 also looked at short duration high intensity storms

E. Design Storm Magnitude, (inches): 2.4

F. Design Flow, (cubic feet / second/ square mile): 11

G. Estimated Reduction in Infiltration, (percent): 16

H. Adjusted Design Flow, (cfs per square mile): 15

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency: The Snow-Talon fire burned National Forest Lands that are heavily used for recreation. The area is a primary access to the Scapegoat Wilderness. The fire burned 37,700 acres to date most of which are on the Helena National Forest. Of the acres that have burned 26,500 acres are mapped as high severity. Slopes average 40 percent with some slopes as steep as 60%. The burn had extensive crown fires and for the most part was stand replacing. Additional mortality is expected in areas

that are rated low severity. This has resulted in reduced soil cover, reduced permeability, and increased runoff and erosion potential. This combination will cause runoff following a storm event to increase significantly, increasing the overland flow available to initiate soil erosion, resulting in sheet or rill erosion and debris flows.

There are 59.6 miles of road and many of the culverts throughout the area are undersized for the anticipated flows. Proper sizing of culverts or temporary removal will be imperative to prevent road segments from washing away with increased flows. Installing drainage on roads will be necessary to minimize sedimentation. Over 20 culverts and two bridges have been identified as at risk from potential storm flow increases. Installing overflow channels for both culverts and bridges will help assure that we do not lose these structures.

Both Copper Creek and the Lander's Fork support bull trout, a species listed as "threatened" under the Endangered Species Act. Both streams have been identified as critical habitat in the proposed designation of critical habitat for the Klamath River and Columbia River distinct population segments of bull trout. Copper Creek is also considered a priority drainage under the Inland Native Fish Species Strategy. Westslope cutthroat trout, a sensitive species, occupy all surveyed drainages within the fire perimeter. Sediment reduction is considered critical for these species. Fish passage is also critical in terms of planning culvert size. Some culverts have had high bedload inlet deposition problems before the fire and this will be exacerbated because of the fire.

The rapid spread of noxious weeds as a result of the fire has caused concern for federal, private landowners within the burned area. The expected spread of noxious weeds will result in a loss of vegetation which will have impacts to wildlife habitat, watershed stability, site productivity, aesthetics, and impacts to threatened, endangered or sensitive plant and animal species. Unless treated the potential long term effects to the forest and riparian ecosystems will be significant.

There are over 26 miles of trail within the burned area that have been affected by the fire. The fire destroyed many of the drainage structures on these trials. Stream and spring flows are expected to increase causing accelerated erosion on these trails. To help alleviate the expected erosion and sediment delivery, drainage structures will be required on these trails. Puncheons have been constructed to protect resources such as wet meadows and help to reduce the amount of sediment that is delivered to streams. These partially burned puncheons no longer provide protection to these resources. In addition, these burnt puncheons present a safety hazard for horses and hikers with a real risk for someone being injured.

Hazard trees also present another danger in the burned area. Copper Creek is a very popular recreation area both summer and winter and the potential is high for hazard trees falling and injuring someone. Hazard tree felling will be imperative to reduce the potential for loss of life along roads that are heavily used, trailheads, trails and the Copper Creek Campground.

B. Emergency Treatment Objectives: The objectives for the proposed treatments include:

- minimizing loss of life through hazard tree felling
- reduce the impacts of the fire to bull trout by reducing sediment delivery from roads and trails
- limit the spread of existing populations of noxious weeds
- reduce the risk of losing bridges by providing over spill protection
- reduce the risk of loss of culverts by either pulling culverts or where pulling is not feasible upsizing to allow for passage of excess water and debris
- provide for overflow protection for culverts that are upsized
- provide for fish passage in culverts that are upsized

- where upsized culverts are not expected to provide for passage of post fire flow and debris (as well as provide fish passage) consider replacement with bridges

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

Land **90** % Channel ___ % Roads **90** % Other **90** %

D. Probability of Treatment Success

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

E. Cost of No-Action (Including Loss): $1,140,000

F. Cost of Selected Alternative (Including Loss): $773,300

G. Skills Represented on Burned-Area Survey Team:

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

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H. **Treatment Narrative:**

Land Treatments:

Weed treatment will occur on 653 acres. These acres are associated with roads and openings (primarily clearcuts) that have been burnt over. Treatment will occur this fall and next spring to prevent the spread of noxious weeds from existing populations. Infestations are likely to dramatically increase adjacent to existing populations if not treated. The most probable species to spread are butter and eggs, spotted knapweed, dalmation toadflax, thistles, and houndstongue.

No other land treatments are anticipated as the natural understory vegetation is expected to recover within three years.

Channel Treatments: no channel treatments are anticipated at this time.

Roads and Trail Treatments:

Road and culvert work includes installing drain dips (approx 230), removal of culverts and replacement next year with upsized culverts (12), culvert replacement with upsized culverts and overflows (20), culvert removal and replace with bridge (1), ditch cleaning (2.4 miles), installation of small trash racks/sediment basins to protect cross drains (20), rock spillways at two bridges (2), removal of burned bridge at Red Creek crossing. These improvements will be installed on roads 1881, 330, 330-A1, 1832-A2, 771, 330-B1, 1832, 1800, 1883 and 1821. One culvert will be removed and replaced by a bridge. This is necessary due to the large amount of bedload that this stream carries which the fire will only exacerbate. This site has been identified in an ongoing EIS for Copper Creek and fish passage for bull trout is critical here and cannot be accomplished with a culvert. Where feasible, culvert removal with upsizing next summer is preferable to allow for passage of debris and flood flows. While this requires mobilization twice it does protect our investment on these roads during the critical time period. Where culvert removal and waiting cannot be done due to public safety during winter use, culverts will be upsized accordingly to handle flood and debris. Fish passage is critical for bull trout on several of these and a bottomless arch is being proposed for one of the culverts.

Trail work will include installing 285 drainage structures on 26.5 miles of trail, six wooded culverts and 155 feet of puncheon. Drainage structures are necessary to reduce sediment delivery to streams. Replacement of the 155 feet of puncheon is necessary for both drainage and safety reasons. These partially burned puncheons present a real hazard to horse and foot travel.

Hazard Tree Felling: Due to the high recreation traffic this area receives an aggressive hazard tree felling program is being proposed to reduce the risk of loss of human life. Larger trees within one tree length of forest system roads 1882, 330, 1882, and the Copper Creek campground will be felled. Trees that are greater than seven inches, damaged or killed by fire, and pose an immediate threat to public safety or property will be felled. To minimize the risk to fellers, a mechanical feller buncher will be used where possible. Use of feller buncher also reduces costs.

Hazard tree felling will also occur along the 26.5 miles of trail. Due to the historical nature of the mainline trail this will be done by hand. Only those trees that pose an immediate threat to public safety will be felled. Because a feller buncher cannot be used here the cost per acre will increase.

H. **Monitoring Narrative:**

Weed Treatment: Check known weed infestations in the spring of 2004 to assess the effects of fall 2003 treatments – 5 days

Roads: Roads will be assessed mid to late spring 2004 to determine effectiveness of drain dips, upsizing culverts, ditch cleaning, bridge spillways, trash racks/sediment basins. – 5 days

Trails: Trails will be assessed as to whether drainage structures were adequate and whether additional treatment is necessary – 5 days

Hazard Tree Felling: Assess effectiveness of hazard tree felling and whether additional felling is necessary – 5 days

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

			NFS Lands				Other Lands			All
		Unit	# of	WFSU	Other	# of	Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	SULT $	$	units	$	Units	$	$
A. Land Treatments										
Noxious weed control	acres	$164	653	$106,909			$0		$0	$106,909
				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
Subtotal Land Treatments				$106,909			$0		$0	$106,909
B. Trails										
Drainage Structures	each	$60	285	$17,100			$0		$0	$17,100
Wooden Culverts	each	$200	6	$1,200			$0		$0	$1,200
Puncheon	ft	$200	155	$31,000			$0		$0	$31,000
				$0			$0		$0	$0
Subtotal Trails				$49,300			$0		$0	$49,300
C. Roads										
Drain Dips	each	$156	231	$36,089			$0		$0	$36,089
Culvert Removal	each	$1,042	12	$12,498			$0		$0	$12,498
Culvert Replacement	each	$3,320	20	$66,397			$0		$0	$66,397
30 foot bridge	each	$31,246	1	$31,246			$0		$0	$31,246
Culvert Overflow	each	$2,604	20	$52,076			$0		$0	$52,076
Rock Spillway	each	$10,415	2	$20,831			$0		$0	$20,831
Bottomless Arch	each	$13,540	1	$13,540			$0		$0	$13,540
Small Trash racks	each	$521	20	$10,415			$0		$0	$10,415
Clean Ditches	miles	$1,042	2.4	$2,500			$0		$0	$2,500
Remove burnt bridge	each	$5,208	1	$5,208			$0		$0	$5,208
Subtotal Roads				$250,800			$0		$0	$250,800
D. Hazard Tree										
Keep Cool Area	acres	$860	6	$5,160			$0		$0	$5,160
Copper Creek	acres	$605	129	$78,059			$0		$0	$78,059
Indian Meadows	acres	$954	32	$30,520			$0		$0	$30,520
Copper Cr. C.G.	acres	$641	5	$3,207			$0		$0	$3,207
Indian Mdws Tr. Head	acres	$641	5	$3,207			$0		$0	$3,207
Trails	miles	$1,887	26.5	$50,000			$0		$0	$50,000
Subtotal Structures				$170,153			$0		$0	$170,153
E. BAER Evaluation										
Team	days	$281	84	$23,604			$0		$0	$23,604
Subtotal Evaluation				$23,604			$0		$0	$23,604
G. Monitoring Cost							$0		$0	$0
Monitoring	days	$281	20	$5,620			$0		$0	$5,620
Subtotal Monitoring				$5,620			$0		$0	$5,620
H. Totals				**$606,386**			**$0**		**$0**	**$606,386**

PART VII - APPROVALS

1. _____ _____
Forest Supervisor (signature) Date

2. _____ _____
Regional Forester (signature) Date