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

Date of Report: **Aug 9, 2004**

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: Sims

B. Fire Number: CA-SRF-3784

C. State: CA

D. County: Trinity

E. Region: 05

F. Forest: Six Rivers & Shasta Trinity

G. District: Lower Trinity & Hayfork

H. Date Fire Started: July 28, 2004

I. Date Fire Controlled: not controlled as of Aug 9

J. Suppression Cost: [redacted] as of Aug 5

K. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 11.3 dozer; 14.5 hand
2. Fireline seeded (miles): 0
3. Other (identify): related PG&E access roads

L. Watershed Number: HUC4 #18010212

M. Total Acres Burned: 4030 (2345 SHF / 1685 SRF)
NFS Acres (3294) Other Federal (0) State (0) Private (736)

N. Vegetation Types: Mixed conifer, chaparral, oak woodland

O. Dominant Soils: Skalon, Dunsmuir, Holland, Clallon

P. Geologic Types: Franciscan ultramafic mélange, Jurasic metasediments

Q. Miles of Stream Channels by Order: 1 = 23.6; 2 = 13.2; 3 = 3.8; 4 = 3.5; 5 = 5.0

R. Transportation System

Trails: 0 miles Roads: 23 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 623 (low) 1812 (moderate) 1595 (high)

B. Water-Repellent Soil (acres): 322

C. Soil Erosion Hazard Rating (acres):
34 (low) 1578 (moderate) 2245 (high)

D. Erosion Potential: 3.7 tons/acre

E. Sediment Potential: 2385 *tons* / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 5

B. Design Chance of Success, (percent): 85

C. Equivalent Design Recurrence Interval, (years): 25

D. Design Storm Duration, (hours): 24

E. Design Storm Magnitude, (inches): 8

F. Design Flow, (cubic feet / second/ square mile): 512

G. Estimated Reduction in Infiltration, (percent): 71

H. Adjusted Design Flow, (cfs per square mile): 1741

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency:

Overview

The fire resulted in high burn severity on a substantial portion of the upper end of a large, deep-seated, dormant rotational slide with multiple nested shallow rotational slides of varying stability. It is drained by Grapevine Creek and an unnamed stream to the south (Glass Creek for this report and supporting documentation), and it faces directly on the west bank of the South Fork Trinity River. Other large areas of high burn intensity occurred in unnamed tributaries to Grouse Creek, which is also a tributary to South Fork Trinity.

South Fork Trinity is listed as a 303d sediment impaired stream; it has a sediment TMDL. It is also habitat for several salmonid fish species of interest, as is Grouse Creek. These include Threatened Coho salmon, Upper Klamath – Trinity Rivers ESU Chinook Salmon, and the Klamath Mountains Province ESU steelhead. Post-fire sediment production has the potential to impact anadromous fish habitat downstream.

The burn area comprises about 3% and 5% of the watershed areas associated with the burn on South Fork Trinity and Grouse Creek, respectively. Existing sediment production and bedload from upstream are several orders of magnitude larger than the predicted short-term surface erosion pulses from the burn area, with or without treatment. For these reasons, the primary concern is the potential for stream networks on the large dormant slide to become destabilized. This would result in a long period of chronic increased sediment production due to channel re-adjustment in the colluvial material, and the associated destabilization of adjacent banks and hillslopes.

Not all of the intensely burned areas resulted in emergency situations. The headwater streams of Glass Creek are marginally stable also, but the soils are substantially more rocky. The soil surfaces are generally very rocky, permeable, and resistant to surface erosion. Therefore no emergency exists in this watershed. As for the unnamed tributary to Grouse Creek, evaluation determined that the benchy topography provided sufficient sediment trapping and retarding capacity to mitigate sediment delivery adequately. Details are documented in the hydrology specialist report.

Also of concern is the potential for damage to the road system within the burn. County road 311 is the primary access to the area, but it is often closed during winter by mass movement on Big Slide just south of the burn area. During such closures, Forest road 4N20 provides alternate access and egress from Hyampom/Hayfork for the private landowners in the area. A segment of 4N20 traverses the burn area and is vulnerable to stream crossing failure as noted below, under “Roads”.

Private land residences and other structures were evaluated for risk of damage from NF flood source areas. None were found to be at risk, so no emergency exists with respect to NF lands. Risk from private land source areas appears to be low, but was not evaluated in detail. Private landowners will be advised of the local NRCS contact for possible assistance under that agency’s EWP program.

Known heritage resources were evaluated for post-fire threats, and none of the sites were at risk.

The wildlife biologist identified no terrestrial wildlife emergencies.

Stream and Hillslope Stability

The headwater streams of Grapevine Creek are marginally stable, many of which have one or more nick points eroding headward. Accelerated upslope runoff and erosion will increase the power of storm flows to erode the channels. In-channel coarse woody debris was largely consumed by the fire, reducing the energy dampening capacity of the stream channels and increasing their erodability during flood events. The resulting channel and bank erosion will also destabilize adjacent banks and hillslopes. Once destabilized, the stream / hillslope system will take many years to re-adjust, during which time sediment rates will be chronically elevated.

Roads

Many of the culverts on the roads within the burn are inadequately sized to pass the design storm flows or the elevated debris loads. Culvert failures would result in facility repair costs, increased sediment delivery (up to 19,000 cubic yds) to South Fork Trinity and Grouse Creek, and would cut off road access for local residents. Culverts on roads within light and moderate burn severity areas are subject to greater loads of woody debris capable of plugging the culvert. This is due to partial consumption of woody debris in the channels, which leaves behind smaller pieces that can be more easily mobilized during storm runnoff, but which are still large enough to bridge culvert openings.

Noxious Weeds

Construction of dozer control lines, operation of fire camp, use of water drafting sites, and opening of closed roads created potential for introduction of noxious weeds. If any actual introductions are not detected and eradicated timely, substantial long-term ecosystem and economic damage could result.

B. Emergency Treatment Objectives:

Land

Retard storm runoff and erosion on intensely burned upper Grapevine Creek watershed slopes adjacent to order 1 and 2 streams (ephemeral and NWFP intermittent). Areas selected for treatment are targeted at reducing peak runoff rates and degree of bulking, in order to reduce erosive forces on low order streams and their channel treatments. This in turn will decrease risk of accelerated nick point migration, new nick point initiation, and debris torrent initiation with cascading downstream scouring.

Channel

Dissipate stream energy in order 1 and 2 streams by restoring coarse woody debris into the channel and bank environment.

Reduce risk of culvert plugging by cleaning mobilizable woody debris from channels upstream of culverts in light and moderate burn areas.

Roads

Reduce risk of stream crossing failure by upgrading culverts to pass design storm flows and debris loads. Reduce risk of cascading stream diversion by constructing critical dips where diversion potential exists.

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

Land **95** % Channel **95** % Roads **95** % Other ___ %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	80	85	90
Channel	80	85	90
Roads	90	95	97
Other			

E. Cost of No-Action (Including Loss): $*****

F. Cost of Selected Alternative (Including Loss): $*****

G. Skills Represented on Burned-Area Survey Team:

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

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H. **Treatment Narrative:**

Land Treatments:

Contour fall fire-killed trees on 282 acres adjacent to order 1 and 2 streams in upper Grapevine Creek watershed.

Channel Treatments:

Herring-bone fall fire-killed trees 3 miles of order 1 and 2 streams in upper Grapevine Creek watershed.

Remove mobilizable woody debris that is large enough to bridge culvert openings from 8500 linear feet of channels upstream from about 30 culverts located in light and moderate burn areas.

Roads and Trail Treatments:

Remove 9 undersized culverts and replace with larger culverts; install 1 new culvert cross-drain; construct 3 critical dips; construct 5 new surface cross drains (dips); improve culvert inlet / outlet.

Patrol after first and second storms of the season that result in runnoff, to detect and prevent culvert plugging. Patrol thereafter during or after storms with magnitudes that approach the design storm. Patrol once at end of wet season to clear any remaining partial culvert blockages.

Structures:

None

Noxious Weed Assessment

Monitor during the 2005 growing season to detect any noxious weed infestations associated with suppression activities and BAER road improvements. Refer to noxious weed monitoring plan for details.

H. **Monitoring Narrative:**

The purpose of this monitoring is to measure how effectively Herringbone Log Dams trap/store sediment and reduce the risk of in-channel debris flow bulking / scouring that destabilize channel grade and banks.

This monitoring will involve surveying channels treated with Herringbone Log Dams before and after for three consecutive years. Dam configuration, channel cross-sections, longitudinal profiles, bed-material composition, bank stability, and photo points will be surveyed/measured immediately after installation to provide a baseline. The channels will be re-surveyed for the first two winters following the fire. For more details please refer to the Sims Fire Hydrologist Specialist Report.

The total cost for installing and the first year of monitoring will be $***** dollars. Additional funding requests will be made for out-year monitoring will be submitted in subsequent interim 2500-8 reports.

			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										
Contour falling	acre		282							
Subtotal Land Treatments										
B. Channel Treatments										
Herringbone falling	mile		3							
Debris removal	lin. ft.		8500							
Subtotal Channel Treat.										
C. Road and Trails										
Improve culverts	job		1							
Storm patrol	patrol		1000							
Subtotal Road & Trails										
D. Structures										
Subtotal Structures										
E. BAER Evaluation										
Initial survey	job		1		$0					
Tracking / reporting	job		1		$0					
Nox weed assmnt	job		1		$0					
Insert new items above this line!					$0					
Subtotal Evaluation					$0					
F. Monitoring										
Chan Trtmt Effctvns	job		1		$0					
Insert new items above this line!					$0					
Subtotal Monitoring					$0					
G. Totals					**$0**					

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

PART VII - APPROVALS

1. _____ August 9, 2004
Forest Supervisor (signature) Date

2. _____ _____
Regional Forester (signature) Date