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

Date of Report: 09/18/2001

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: Hyampom Fire

B. Fire Number: CA-SHF-8086

C. State: California

D. County: Trinity

E. Region: Region 5

F. Forest: Shasta-Trinity

G. District: South Fork Management Unit (Hayfork Ranger District)

H. Date Fire Started: 08/30/01

I. Date Fire Contained: 09/04/01

J. Suppression Cost: [redacted]

K. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 25 miles
2. Fireline seeded (miles):
3. Other (identify):

L. Watershed Number: 1801021204

M. Total Acres Burned: 1065
NFS Acres (1053) Other Federal ( ) State ( ) Private (12)

N. Vegetation Types: Coastal mixed conifer, Oak woodland, and Montane

O. Dominant Soils: Deadwood/Etsel, Neuns, and rock outcrop

P. Geologic Types: Hayfork Terrane, Hayfork Bally Meta-andesite

Q. Miles of Stream Channels by Order or Class: Perennial 11, Intermittent 15, Ephemeral 22

R. Transportation System

Trails: miles Roads: 2.6 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 685 (low) 239 (moderate) 141 (high)

B. Water-Repellent Soil (acres): 141

C. Soil Erosion Hazard Rating (acres):
212 (low) 320 (moderate) 533 (high)

D. Erosion Potential: 4.7 to 7.2 tons/acre

E. Sediment Potential: 3,715 cubic yards

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 10

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

C. Equivalent Design Recurrence Interval, (years): 50

D. Design Storm Duration, (hours): 4

E. Design Storm Magnitude, (inches): 0.5

F. Design Flow, (cubic feet / second/ square mile): 0.01*

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

H. Adjusted Design Flow, (cfs per square mile): 0.05

* Average for all watersheds draining burned area

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency:

Overview : The Hyampom Fire was a human-caused (arson) fire set on Friday, August 31, 2001 and point of origin was estimated 2 ½ miles northwest of Hayfork, CA. High temperatures, low relative humidities, and strong northwest winds combined with steep slopes and very dry fuels resulted in high fire intensities and rapid rate of spread. Spotting occured up to ¼ mile ahead of the fire. The fire threatened private residences and structures on the outskirts of Hayfork which caused immediate evacuations to be ordered and implemented. The fire-threat of private residences garnered regional and national media attention. The fire is clearly evident from the Hayfork Valley, and is of significant community concern and controversy.

Statement of Emergency: Burn conditions led to devastating results across the fire-affected area. Coniferous vegetation and soil organic matter was completely consumed on approximately 40% of the burned area. The increase in overland runoff due to loss of vegetation, loss of groundcover, and increased hydrophobicity is predicted to **double** peak flow magnitudes. Soil losses of up to 7.2 tons of soil/acre/year are anticipated, which is a rate approximately 5 times higher than soil-loss tolerance levels.

Fire-affected stream channels flow immediately into Hayfork Creek, most after a short passage through private lands and residences. Hayfork Creek is inhabitated by resident rainbow trout, and summer and fall runs of ESA-listed steelhead trout and ESA-listed Chinook salmon. A downstream section of Hayfork Creek is currently eligible for inclusion into the National Wild and Scenic Rivers system, with the "outstandingly remarkable value" including moderate to high populations of steelhead, salmon, and native rainbow trout.

Without management action, 3,700 tons of sediment will be eroded from hillslopes as a result of the fire. Increased overland flow will transport this material to stream channels, where peak flows that have doubled will rapidly transport it downstream. Watershed impacts of this magnitude seriously threaten property, loss of control of water, water quality, long-term soil productivity, and aquatic habitat.

- Residents and structures (e.g. domestic water sources) located near the mouths of both Sherman and Bramlet creeks are at risk. Catastrophic flooding or debris flows could destroy property.

- The water quality of the entire burned area is threatened. Specifically, forty percent of the slopes within the fire-affected area burned at high to moderate severity. Soil and ash movement downslope is expected to adversely impact water quality. Decreased water quality would likely kill fish and severely degrade spawning habitat of ESA-listed steelhead trout and Chinook salmon within Hayfork Creek.

- Soil productivity is severely threatened in areas that burned at high and moderate severity. This loss may result in significant reduction of "productive" conifer growth, or even in loss of site carrying capacity for vegetation. Substantial reduction in site quality threatens to reduce the capacity to provide desired stand growth and characteristics, which will add several decades to a century of time necessary to develop these characteristics. Loss of soils will severely hinder basic ecosystem integrity including habitat for plants, wildlife, and fish habitats.

B. Emergency Treatment Objectives:

There are two alternatives that the team considered for the Hyampom Fire. Each alternative has separate objectives. Alternative 1 is no action. Alternative 2 represents a BAER program designed to address the threat to the major values at risk in the burned area. The areas of focus are; the drainages with domestic water supplys located in Sherman's Gulch and Bramlett (both creeks formally no name creeks), the high intensity and severely burned slopes in Upper Sherman's Gulch and the erosion control work above the culvert in the Lucky Secret area. The objectives are: 1) prevent the loss of hillslope sediments by contour falling and slash spreading and installing wattles on intensively burned high-risk areas; 2) control the spatial and temporal distribution of instream sediments by installing straw bale check dams, rock dams and high tech. log dams above high risk areas; and 3) reduce the risk of the delivery of sediment directly into Hayfork Creek by installing erosion control treatments. Also to reduce impacts to water quality, minimize sedimentation and direct impacts to fisheries habitat.

1. Loss of Control of Water: There is a threat of loss of control of water, especially in watersheds containing large areas of high burn severity. These watersheds will likely see a doubling of peak flows as a result of the loss of vegetation and groundcover in addition to the creation of hydrophobic conditions in the soil. As water volume and rate of delivery to channels increases (due to decreased soil infiltration and increased overland flow), flows will peak higher and more quickly than under pre-fire conditions. Increased peak flows increase the liklihood of incision (downcutting) or bank erosion. Increased erosion will result in more material being carried downstream to depositional areas (i.e. the pond on Sherman Gulch, exacerbating sedimentation problems in those areas.

2. Threats to Water Quality: The severe threat of increased turbidity, sedimentation, nutrient loading, and water temperature exist throughout the burned area, especially in channels draining high and moderate burn severity areas. The loss of vegetation and groundcover, and increased

3. Threats to Long Term Soil Productivity: Soil productivity is threatened in areas that burned at high and moderate severity. A total of 380 acres burned at high or moderate severity and are now threatened with loss of soil productivity. Loss of site productivity can be closely correlated to soil loss. The BAER Team soil scientist calculated estimated soil losses across the burned area with the Universal Soil Loss Equation.

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

Land 85 % Channel 80 % Roads NA % Other NA %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	80	85	90
Channel	90	80	75
Roads	NA	NA	NA
Other	NA	NA	NA

E. Cost of No-Action (Including Loss): [redacted]

F. Cost of Selected Alternative (Including Loss): [redacted]

G. Skills Represented on Burned-Area Survey Team:

[x] Hydrology	[**x**] Soils	[ ] Geology	[x] Vegetation Management
[x] Forestry	[**x**] Wildlife	[ ] Fire Mgmt.	[ ] Engineering
[ ] Contracting	[ ] Ecology	[ ] Botany	[x] Archaeology
[x] Fisheries	[ ] Research	[ ] Landscape Arch	[x] GIS

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H. **Treatment Narrative:**

Land Treatments:

Contour Felling/Slash Spreading

Contour falling and slash spreading will be performed on 65 acres in the upper watershed of Sherman's Gulch, an area identified with high intensively burned slopes. This treatment will address the threats to site productivity, loss of control of water, and the threat to water quality. Placed along the contour on moderate slopes, contour falling along with slash spreading has been proven effective in trapping small amounts of eroding material to keep it on site and provide small catchments for the accumulation of sediment that is moving down slope.

Straw Wattles

Certified weed free straw wattles (1,875 linear feet total) will also be placed on areas identified with high severely burned slopes. The placement of wattles will address the threats to site productivity, loss of control of water, and the threat to water quality. Placed along the contour on moderate slopes or in shallow swales the wattles have been proven effective in trapping small amounts of eroding material to keep it on site and provide small catchments for the accumulation of sediment that is moving down slope.

Channel Treatments:

Straw Bale Check Dams

Straw bale check dams make excellent temporary sediment catchments. The placement of straw dams will address the threats to loss of control of water, aquatic habitat and water quality. They have been prescribed in ephemeral channels that drain high to moderate burn severity slopes where sediment delivery to the channel is expected. Their primary functions are to: 1) slow water velocity and dissipate stream energy, thereby reducing channel erosion; and 2) collect and temporarily store sediment. As the straw decomposes over a period of about 3 years, the sediment is slowly metered through the system at a rate that is within channel tolerance. A total of 12 straw bale check dams are needed in the lower portion of Sherman's Gulch and in the Lucky Secret area.

Rock Grade Stabilizers

A total of 30 rock grade stabilizers will be constructed in small channels in the high burn severity of Sherman's Gulch to reestablish streambed stability. These structures also control water velocity and erosive power, and are installed to protect stream channels from excessive erosion due to increased peak flows. The channels identified for this treatment pose a direct and immediate threat to loss of control of water, and water quality.

High Tech Log Dam

The placement of these structures will address the threats to loss of control of water, water quality and stream sedimentation. Increased erosion will result in more material being carried downstream to depositional areas such as Sherman's pond and Bramlett domestic water supply, exacerbating sedimentation problems. A total of 8 High Tech Log dams will be installed in the lower portion of the main stem of Sherman's Gulch.

I. **Monitoring Narrative:**

A detailed monitoring plan will be submitted as a separate document in an interim reports.

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										
Contour Falling and	acres	[redacted]	65	[redacted]			[redacted]		[redacted]	
Slash Spreading										
Wattles	lin. ft.	[redacted]	1875	[redacted]						
Subtotal Land Treatments				[redacted]						
B. Channel Treatments										
Straw Bale Dams	ea	[redacted]	12	[redacted]			[redacted]		[redacted]	
Rock Grade Stabilizer	ea	[redacted]	30	[redacted]						
High Tech Log Dam	ea	[redacted]	8	[redacted]						
Subtotal Channel Treat.				[redacted]						
C. Road and Trails										
				[redacted]			[redacted]		[redacted]	
Subtotal Road & Trails				[redacted]						
D. Structures										
				[redacted]			[redacted]		[redacted]	
Subtotal Structures				[redacted]						
E. BAER Evaluation										
Salary, Travel, etc.	ea	9,500	1	[redacted]			[redacted]		[redacted]	
F. Monitoring	to be determined			[redacted]			[redacted]		[redacted]	
G. Totals				[redacted]			[redacted]		[redacted]	

PART VII - APPROVALS

1. /s/ J. Sharon Heywood — September 18, 2001
   Forest Supervisor (signature) — Date

2. */s/ Bernie Weingardt (for)* — September 20, 2001
   Regional Forester (signature) — Date