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

Date of Report: 9/28/2006

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
[x] 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: Titus (Happy Camp Complex)

B. Fire Number: CA-KNF-3536

C. State: CA

D. County: Siskiyou

E. Region: 05

F. Forest: Klamath

G. District: Happy Camp

H. Date Fire Started: July 23, 2006

I. Date Fire Contained: Sept. 24, 2006

J. Suppression Cost: $13,000,000

K. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 16
2. Fireline seeded (miles):
3. Other (identify):

L. Watershed Number: 180102090503

M. Total Acres Burned: 6,134
NFS Acres(**6,134**) Other Federal ( ) State ( ) Private ( )

N. Vegetation Types: Douglas fir with hardwood understory and mixed conifer

O. Dominant Soils: Dome, Rogue, Chaix, Goodwin, Chawanakee, Deadwood, Kindig, Neuns

P. Geologic Types: Granitics and metasediments

Q. Miles of Stream Channels by Order or Class: Order 1: 19.7 miles; Order 2: 4.9 miles; Order 3: 6.2 miles

R. Transportation System

Trails: 1.68 miles Roads: 1.26 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 3,312 (low) 1,595 (moderate) 1,227 (high)

B. Water-Repellent Soil (acres): 997

C. Soil Erosion Hazard Rating (acres):
0 (low) 2,147 (moderate) 3,987 (high)

D. Erosion Potential: 6.0 tons/acre

E. Sediment Potential: 388 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 25

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

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

D. Design Storm Duration, (hours): 6

E. Design Storm Magnitude, (inches): 17.5

F. Design Flow, (cubic feet / second/ square mile): 260

G. Estimated Reduction in Infiltration, (percent): 5

H. Adjusted Design Flow, (cfs per square mile): 272

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

On July 23, 2006 a lightening-caused fire started in the southern part of Independence Creek watershed, within the Marble Mountain Wilderness. It spread to the north, northeast and northwest, including some lands outside of Wilderness. The initial attack personnel were not able to contain the fire, which spread to Coon Hollow, Stanza-Bishop and Elk-Granite 7th field watersheds. Most of the burn remained in the Independence Creek watershed with 80% of the fire inside the wilderness. It was contained on September 24th. Forty-two percent of the fire burned in high and moderate severity classes. The moderately and severely burned areas in the Titus Fire were generally the same areas that burned at these severities in the 1987 wildfire so most of the Independence Creek watershed area that burned at moderate to high in the Titus Fire was brush and/or small trees. Independence and Coon Hollow Creek watersheds drain to the Klamath River which has high value

anadromous fisheries. Johnson and Tickner Creeks drain into Elk Creek which is also a high value anadromous fisheries creek as well as a the municipal water supply for the town of Happy Camp.

Threat to watershed values: Approximately 53% of Independence Creek sixth field watershed burned in the fire. About 13% of the watershed burned with a high severity, 12% burned with a moderate severity and about 14% burned with a low severity. Another 14% burned with a very low severity or was unburned area within the fire perimeter.

A partial cumulate watershed effects (CWE) analysis was completed to evaluate the effects of the wildfire on Independence Creek. One component of this CWE land disturbance model is a surface erosion/sediment delivery (USLE) analysis. The USLE analysis was used to evaluate the difference between pre-wildfire and post-wildfire watershed conditions. This USLE analysis estimates sedimentation by considering factors such as disturbance type and land sensitivity. As disturbances to the land surfaces and stream channels in a watershed occur over space and time, the risk of initiating or contributing to existing adverse cumulative watershed effects becomes a concern. A continuum exists from lower to higher risk of adverse watershed effects. This USLE analysis has an inference point that is intended to represent the center of that risk continuum. If the wildfires' expected effect on water quality is above the inference point, the risk ratio will be above 1. A comparison of the pre-wildfire modeled risk ratio to the post-wildfire risk ratio provides a basis for analyzing the wildfire's risk of adversely affecting watershed conditions. The further above 1.0 that the risk ratio is, the higher the likelihood that there will be increased sediment production and delivery. The USLE model showed that the risk ratio changed from 0.06 (pre-wildfire) to 2.59 (post-wildfire). The 0.06 risk ratio represents an increase of 75 yds^3/year above background levels and the 2.59 post-wildfire risk ratio represents approximately 3200 yds^3 of delivered sediment above background levels.

Intense rainfall events are not uncommon in this part of the Forest. Flashy runoff peaks associated with cover loss and hydrophobicity of granitic soils within the high and moderate burn severity areas will increase sheet erosion, form rills and shallow debris torrents which would be delivered to Independence Creek. Independence Creek watershed lost its riparian vegetation and ground cover within the moderate and high burn severity areas and lacks sediment filtering capacity. An estimated 3200 yds^3 of sediment will be delivered to the Independence Creek stream channel system. Although Independence Creek has considerable storage volume for sediment and large wood it is likely that pool filling and increased substrate embeddedness will result from introduction of the increased sediment. The pool filling and embeddedness will probably extend from within the burned area downstream to the confluence of Independence Creek with the Klamath River.

Threat to private property: There are no threats to private property or roads. One road crossing of Independence Creek is located downstream from the burned area. The crossing is a bridge with ample flood capacity. There is a large arch pipe in Coon Hollow Creek downstream from the burn that is not threatened because of its capacity and because only a relatively small portion of the watershed burned.

Threat to fishery values:

Coho salmon (listed as "Threatened" under the Federal ESA) and Chinook salmon (listed as "Sensitive" by USFS Region Five) use the lowest 0.6 miles of mainstem Independence Creek for rearing and spawning. Steelhead trout (listed as "Sensitive" by USFS Region Five) spawn and rear in the lower 2.8 miles of mainstem Independence Creek below the confluence with Coon Hollow Creek. Resident rainbow trout are suspected to spawn and rear in the lower three miles of Coon Hollow Creek, and in another seven miles of mainstem Independence Creek above the Coon Hollow Creek confluence. The nearest Coho and Chinook salmon habitat to areas burned in the Titus Fire is over four miles downstream. The nearest steelhead trout habitat to areas burned in the Titus Fire is over two miles. The fire burned adjacent to about 3.0 miles of resident rainbow trout habitat in upper Independence Creek but mostly at low intensity as follows: about 2.6 miles burned at low intensity, 0.4 miles burned at moderate intensity, and none burned at high intensity. Stream shading and large woody debris were not significantly reduced in low intensity burned areas.

No direct fire effects are expected to salmon or steelhead because the Titus Fire was four and two miles upstream/upslope from nearest salmon and steelhead habitat, respectively. Indirect effects of the Titus Fire on salmon and steelhead habitat include: (1) increased stream heating from loss of stream shading, (2) increased

erosion and sediment delivery to streams, and (3) increased surface runoff and peak flows. These indirect effects are discussed below.

Increase in stream heating from loss of stream shade is expected to be minor and water temperature is expected to remain in the optimum range for salmonids.

Increased sediment delivery to streams is likely to adversely affect resident rainbow trout habitat in the three miles of mainstem Independence Creek downstream of the Coon Hollow Creek confluence by excessive infilling of pools, excessive fines in spawning substrate, increased spawning gravel instability, and increased turbidity. Elevated runoff from moderate and high intensity burned areas will slightly increase peak flows which will further destabilizing spawning gravels. Adverse effects of excessive erosion and sedimentation, and increased peak flows, will gradually diminish downstream of the moderate and high intensity burn areas and downstream of the Coon Hollow Creek confluence so that adverse affects of excessive sedimentation to salmon and steelhead trout habitat below Coon Hollow Creek will be slight. Adverse effects of excessive sedimentation and turbidity, and peak flows, are expected to be high after the first hard rain and wet season but will diminish rapidly over the next few years to pre-fire levels.

Threat to ecosystem integrity: The threat of non-native invasive weed species spreading into or with the burned area was determined to be low. There are no known noxious weed sites of concern in the vicinity and the fire suppression efforts had measures in place from the beginning to prevent introduction of weed plant materials.

B. Emergency Treatment Objectives:

There is a high liklihood of a threat to fisheries values but since 80% of the fire is within the wilderness, the effectiveness of treating only a small portion of the high burn severity areas outside the wilderness would not significantly lower the estimated delivered sediment to Independence Creek. Treatments outside the wilderness would therefore not be cost effective in protecting fisheries values. Also, no threats are anticipated to life, property, watershed, or ecosystem values.

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

Land __ % Channel __ % Roads __ % Other __ %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land			
Channel			
Roads			
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	[ ] Geology	[ ] Range	[ ]
[ ] Forestry	[ ] Wildlife	[ ] Fire Mgmt.	[ ] Engineering	[ ]
[ ] Contracting	[ ] Ecology	[X Botany	[ ] Archaeology	[ ]
[X] Fisheries	[ ] Research	[ ] Landscape Arch	[X GIS	

Team Leader: Roberta Van de Water

Email: rsvandewater@fs.fed.us Phone: (530) 841-4534 FAX: (530) 841-4571

H. **Treatment Narrative:**

(Describe the emergency treatments, where and how they will be applied, and what they are intended to do. This information helps to determine qualifying treatments for the appropriate funding authorities. For seeding treatments, include species, application rates and species selection rationale.)

Land Treatments: No treatments proposed

Channel Treatments: No treatments proposed

Roads and Trail Treatments: No treatments proposed

Structures: No structures proposed

I. **Monitoring Narrative:**

(Describe the monitoring needs, what treatments will be monitored, how they will be monitored, and when monitoring will occur. A detailed monitoring plan must be submitted as a separate document to the Regional BAER coordinator.)

No monitoring is proposed.

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

Line Items	Units	Unit Cost	# of Units	WFSU SULT $	Other $	# of units	Fed $	# of Units	Non Fed $	Total $
A. Land Treatments										
				$0			$0		$0	$0
				$0			$0			
				$0			$0		$0	$0
				$0			$0		$0	$0
Subtotal Land Treatments				$0			$0		$0	$0
B. Channel Treatments										
				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
Subtotal Channel Treat.				$0			$0		$0	$0
C. Road and Trails										
				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
Subtotal Road & Trails				$0			$0		$0	$0
D. Structures										
				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
Subtotal Structures				$0			$0		$0	$0
E. BAER Evaluation										
Salary				$0	$4,250		$0		$0	$4,250
Vehicle mileage				$0	200		$0		$0	$200
F. Monitoring				$0			$0		$0	$0
G. Totals				**$0**	**$4,450**		**$0**		**$0**	**$4,450**

PART VII - APPROVALS

1. _____ _____
Forest Supervisor (signature) Date

2. _____ _____
Regional Forester (signature) Date