



**United States
Department of
Agriculture**

**Forest
Service**

**Plumas
National
Forest**

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File Code: 2520-3

Date: May 14, 2004

Subject: Initial and Final Cottonwood BAER Report

To: Regional Forester

Enclosed is the Initial and Final BAER Report, no treatments are recommended. Please contact Barbara Drake, Forest Earth Scientist at (530) 283-7822, if you need further information.

/s/ James M. Peña
JAMES M. PEÑA
Forest Supervisor

cc: Brent Roath, Angie Dillingham, Bob Schultz



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
- ☒ 3. No Treatment Recommendation

B. Type of Action

- ☒ 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: Cottonwood Fire
- B. Fire Number: PNF379
- C. State: California
- D. County: Plumas
- E. Region: R5
- F. Forest: Plumas
- G. District: Beckwourth
- H. Date Fire Started: May 4, 2004
- I. Date Fire Controlled: May 9, 2004
- J. Suppression Cost: \$800,000
- K. Fire Suppression Damages Repaired with Suppression Funds
 - 1. Fireline waterbarred (miles): Five miles
 - 2. Fireline seeded (miles): 0
 - 3. Other (identify): Road waterbarred/drainages pulled/reclosed: 1.0 mile
- L. Watershed Number: 1802012202
- M. Total Acres Burned: 560
 - NFS Acres(X) Other Federal () State () Private ()

- N. Vegetation Types: Mixed Conifer/Eastside Pine
- O. Dominant Soils: Shepan, Polecreek, Haypress and Sattley.
- P. Geologic Types: Primarily volcanic with some granitic.
- Q. Miles of Stream Channels by Order or Class: Class 4: 1.2 miles
- R. Transportation System
- Trails: 0 miles Roads: 0 miles

PART III - WATERSHED CONDITION

- A. Burn Severity (acres): 302 (low) 168 (moderate) 90 (high)
- B. Water-Repellent Soil (acres): 90 acres
- C. Soil Erosion Hazard Rating (acres): 155 (low) 0 (moderate) 405 (high)
- D. Erosion Potential: 5.7 tons/acre
- F. Sediment Potential: 2500 cubic yards / square mile

PART V - SUMMARY OF ANALYSIS

- A. Describe Watershed Emergency:

Overview:

On the afternoon of May 4, 1996, a fire started in the vicinity of Clarks Creek ten miles west of Milford, following a warm, dry Spring. Driven by strong winds the fire rapidly spread to the east over Stony Ridge before containment the following day. The fire was contained within a 560 acre perimeter and burned approximately 380 acres of forest and chaparral. Large islands of rocky barrens were essentially left unburned. The fire fluctuated in intensity depending on fuel conditions: vegetation at the crest of the ridge and pockets of dense white fir with high mortality burned intensely while the remainder of the fire was underburned with minimal soil and hydrologic effects. Given the character of the burn, we expect an increase in erosion and sedimentation over baseline conditions, but not to the extent that the burn would substantially affect on-site soil quality or downstream beneficial uses/properties.

Existing Situation

The Cottonwood Fire burned within a perimeter of 560 acres. Three intermittent channels drain the burned area. They are steep in the headlands, transitioning to a gentler gradient as the streams approach Clarks Creek. Debris flows have occurred in the past, but the bulk

of their flows have not extended to Clarks Creek. Water originating within the burned area flows to Clarks and Stony Creeks and thence to Last Chance Creek and the North Fork of the Feather River. Primary uses include irrigation in Indian Valley, recreation, hydropower in the North Fork, and wildlife and fishery habitat downstream from the burn.

Vegetation varies across the burn and consists of second growth Jeffery pine and white fir along the lower slopes transitioning to mature pine and mountain mahogany near the top of Stony ridge. Pockets of aspen are present just below the ridge on the eastern slope below the steep gravel/talus and rock outcrop habitat that are situated at the top of the flat ridge top. Soils within the burned area are formed from Eocene volcanic basalt and Mesozoic granitic parent materials. The soils are mainly silty and clay loams and loamy sands with a moderate to high maximum erosion hazard. Elevations of the fire range from 6,000 feet along the western perimeter to 6,800 feet at the top of Stony Ridge.

The burn intensity was inventoried as 16% (90 acres) high intensity, 30% (168 acres) moderate intensity, and 54 % (302 acres) low intensity or no burn. The high intensity areas lost all ground cover and canopy cover. The high intensity areas have moderate to high hydrophobicity and are all situated within the Clarks watershed. The moderate intensity areas generally retained at least one-half inch of litter, and the canopy cover is scorched with numerous pine trees expected to survive. The low intensity areas include areas that were unburned and areas where the ground cover is relatively intact and the tree and shrub canopy is still green over most of the area.

The majority of the fire and all the high intensity burn areas occurred on slopes that drain to Clarks Creek. Just downstream from the burn a restoration project was completed in 2001 utilizing “pond and plug” techniques. Presently, Clarks Creek flows into a large constructed pond, which now serves as a sediment catchment. It is expected that sediment delivered to Clarks Creek will settle out in this pond. There are no property values downstream, which would be threatened by increased flows from the burned area.

Initial Concerns Related to the Need for Emergency Burned Area Treatments

1. **Sediment Yields:** Over the next five years it is expected that sediment yield from the fire area will increase five to ten fold over preburn levels, which were low. However, the size of the fire was small relative to the size of the Clarks and Stony Creek Watersheds (3 and 6 percent, respectively) so the sediment loads will be diluted by flows from the watershed areas above the burn. As mentioned on Clarks Creek, most of the sediment will be deposited within the constructed pond, which is desirable. In Stony Creek watershed slopes are gentler and soils are less erosive and sediment yields from the burn will be relatively low (only 60 acres were burned at a moderate intensity). It is not expected that vegetative or mechanical treatments would reduce erosion and sediment levels substantially to make those treatments cost effective.
2. **Peak Flows:** For the first two to three years following the fire, peak flows from the burned area are not expected to increase over one or two percent in Clarks and Stony Creeks since the intensely burned areas make up such a small portion of the watersheds.

Given this small increase, channel stability in Stony Creek, a well-armored transport stream, will not be affected. Clarks Creek, an alluvial channel, has occasional channel instability problems, which could be aggravated by increased flows, particularly from a debris flow. However, it is not expected that treatment measures could reduce the threat of a debris flow or significantly mitigate increased flows from conventional storm events, which, as discussed above, is expected to be relatively low.

3. Debris Flows: There is potential for debris flows from three of the intermittent streams draining into Clarks Creek. No private property values or lives are at risk from this treat. Prior to the winter season the District will remove road fill from a non-system roadway used to access the fire. A system road located just below this roadway could be impacted by a debris flow, but could be easily repaired by the Forest road maintenance crew. Road crossings along Clarks and Stony creeks should not be impacted by debris from the burn.
4. Soil Productivity: Ninety acres of timberland burned intensely within the burn and expected erosion rates within these areas are very high. Soil erosion, which occurs within these areas, could reduce the quality of the site, which is presently site class 5 to 6. Given the small acreage of highly erodible land within the burn and the general lack of effectiveness of seeding to reduce erosion on these sites, no action is planned under this BAER request to mitigate expected erosion.

G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input type="checkbox"/> Soils	<input type="checkbox"/> Geology	<input type="checkbox"/> Range	<input type="checkbox"/>
<input type="checkbox"/> Forestry	<input type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input type="checkbox"/> Engineering	<input type="checkbox"/>
<input type="checkbox"/> Contracting	<input type="checkbox"/> Ecology	<input checked="" type="checkbox"/> Botany	<input type="checkbox"/> Archaeology	<input type="checkbox"/>
<input type="checkbox"/> Fisheries	<input type="checkbox"/> Research	<input type="checkbox"/> Landscape Arch	<input type="checkbox"/> GIS	

Team Leader: Bob Schultz

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Phone: 530-836-7146

FAX: 530-836-0493

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 treatment, is being recommended

Channel Treatments:

No treatment, is being recommended

Roads and Trail Treatments:

No treatment, is being recommended

Structures:

No treatment, is being recommended

H. 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.)

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											
				\$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
Subtotal Channel Treat.				\$0				\$0		\$0	\$0
C. Road and Trails											
				\$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
Subtotal Structures				\$0				\$0		\$0	\$0
E. BAER Evaluation											
				\$0				\$0		\$0	\$0
G. Monitoring Cost				\$0				\$0		\$0	\$0
H. Totals				\$0				\$0		\$0	\$0

PART VII - APPROVALS

1. _____
Forest Supervisor (signature) _____
Date
2. _____
Regional Forester (signature) _____
Date