

## Handout 12-2. Burned Area Report

USDA-FORESTSERVICE  
2500-8 (7/00)

FS-

Report: 9/18/00

Date of

### **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: Storrie Incident
- B. Fire Number: CA-PNF-848
- C. State: California
- D. County: Plumas
- E. Region: 05
- F. Forest: Plumas and Lassen
- G. District: Mount Hough (PNF) and Almanor (LNF)
- H. Date Fire Started: 08/17/00
- I. Date Fire Contained: 09/09/00
- J. Suppression Cost: \$24,000,000
- K. Fire Suppression Damages Repaired with Suppression Funds
  - 1. Fireline waterbarred (miles): 110
  - 2. Fireline seeded (miles): 0
  - 3. Other (identify): 0
- L. Watershed Number: 1802012104 (1802012102; 1802012206)
- M. Total Acres Burned: 56,060  
NFS Acres(52,035) Other Federal (0) State (0) Private (4,026)



## **PART V - SUMMARY OF ANALYSIS**

### **A. Description of the Watershed Emergency.**

The Storrie Incident burned a total of 56,060 acres of mostly steep, rocky side slopes. The fire burned hottest during its first four days when wind speeds and other factors promoted a hot, fast burn. The fire spread across watersheds rather than burning up-channel, thereby leaving both upstream and downstream reaches intact, with only light to moderate burn intensities.

Central portions of Jackass Creek, Chambers Creek, Chips Creek, Indian Creek, Yellow Creek and several smaller channels were impacted by high intensity fire during the major run of the incident. The fire also spotted across the North Fork Feather River into the Bucks Lake Wilderness above Belden. The wilderness portion of the fire created a mosaic pattern of burn intensities, with no single drainage significantly impacted.

The area of primary concern burned the first two days of the incident. Several small watersheds and a portion of Chambers Creek were heavily impacted by high intensity fire. These drainages are in very steep, inner gorge terrain, where rock fall is common and debris torrents the primary mechanism of sediment transport. All of these drainages flow to the North Fork Feather River downstream of Pacific Gas and Electric Company's (PG&E's) Rock Creek Dam and under Highway 70. PG&E's NFFR reservoirs have attained sediment storage and transport equilibrium and cannot store additional sediment. Highway 70 must pass the flows from these drainages through individual culverts and bridges. The occurrence of high flows bulked with sediment (including debris torrents) is expected to be high for at least three to five years following the burn. Wildfire areas on the Forests usually experience near complete hydrologic recovery ("Estimated Vegetative Recovery Period") within three to five years following the burn. An additional risk is the increased likelihood of rocks and other debris falling from the canyon slopes onto the highway.

Debris torrents commonly occur during exceptionally high streamflow events in most of the drainage channels impacted by the burn. The increased runoff potential caused by high burn intensities within the smaller watersheds and subwatersheds has increased the likelihood of that debris torrents can occur. The impacts caused by most occurrences would be localized, but those channels directly flowing to Highway 70 will likely cause damage. In addition, the small community at the mouth of Indian Creek and at the upper end of the Rock Creek Reservoir could experience damage from large amounts of sediment deposition at that location if a large storm event occurs before hydrologic recovery takes place. This risk would decrease each year. The Indian Creek community could expect this type of damage any year, even without the burn, but for the next several years, this likelihood is greater, although probably not to the same magnitude as what occurred in the January 1, 1997 storm.

None of the watersheds in the Bucks Lake Wilderness were burned to a level that warrants concern. Fern Canyon and Belden Ravine flow through the community of Belden and were not significantly changed by the burn to consider them for emergency treatment. Flows from these channels normally flood into the area during high flow events and usually carry low to moderate amounts of sediment. Again, a primary sediment transport mechanism for most of the canyon's drainage channels is the debris torrent, generally a release of soil, rock, and vegetation during saturated conditions and carried by storm flows.

### **Burn Intensity Descriptions.**

High Intensity: Areas where the fire burned the hottest and the soil has moderate to high water repellency over most of the area. The ground cover has been totally consumed. Shrub vegetation has been consumed to small stobs on the ground. The overstory canopy has been consumed.

Moderate Intensity: Areas where the ground cover and most of the understory canopy has been consumed. The overstory canopy has been scorched but needles and/or leaves are still in place.

Low Intensity: Areas where the ground cover was partially to completely consumed. The understory canopy layer is mostly intact. The overstory canopy is still green. The areas mapped as low intensity include unburned areas.

### **Resource Impacts.**

**Soils:** The high and moderate intensity areas are expected to produce a flush of ash and sediment the first runoff producing storms. The amount will depend on the intensity and duration of the events. Of the 8,000 acres that burned with a high intensity, 5,500 acres developed strongly water repellent conditions, all on the highly erosive granitic soils of the southern end of the burn. Initially, the infiltration rate in this area would be reduced 80%, increasing as the soils wet and conditions improve. Some water repellency will occur on the moderately burned soils and no change in the remainder of the burn.

Vegetation: Several known and potential habitat sites of sensitive and special interest plant species (rare plants) are located within the burned area. The fire burned several sites and their recovery is questionable, requiring that a representative number be monitored for several years to determine recovery success. One specific site is likely to be impacted by noxious weed invasion and will require special attention. The serpentine areas provide some of the most unique and diverse habitats in California. Much of these areas burned with low to moderate intensity, leaving most of the plant communities intact. A single, proposed Botanical Special Interest Area extends into the fire area and was moderately burned.

Heritage Resources: Although relatively few sites exist on the Plumas NF portion of the burn, several of the known sites were completely consumed or damaged. The majority of the known sites within the burned area are located on the Lassen NF. Like those on the Plumas NF, several sites were completely or partially burned, but only a few are threatened by surface erosion or undercutting by increased stream and sediment flows.

**Aquatic, Riparian, and Terrestrial Habitats:** The primary aquatic resources at risk are the cold-water fisheries and Threatened, Endangered and Sensitive (TES) amphibian populations. There are potential short- and long-term effects of sedimentation and debris torrents to these aquatic populations. There is also the potential for reduced water quality and associated increased stream temperature due to sedimentation and lost vegetative cover within sections of the perennial drainages. Amphibian species of concern include the California red-legged frog (potential occurrence) and known occurrences of Foothill and Mountain yellow-legged frogs within the fire boundary. Fisheries of concern are the wild trout population within Yellow Creek and native rainbow trout populations throughout perennial drainages within the fire boundary.

Special use areas for TES terrestrial species exist throughout, adjacent and downstream of the fire boundary. Six 1000 acre base Spotted Owl Habitat Areas (SOHA's), one 3,000 acre SOHA, and four 300+ acre Protected Activity Centers (PAC's) are totally or partially located within the fire boundary. Approximately 24,000 acres of Forest Carnivore corridor, two Goshawk Management Areas (GMA's), two Resource Natural Areas (RNA's), one Special Interest area (SIA), and 14,591 acres of Late Seral Old Growth Rank 4 were within the fire boundary

including known sightings of California Spotted Owls (CASPO), Goshawks, and Forest Carnivores. There has been a significant loss of owl and forest carnivore habitat in the areas of moderate to high burn intensity. An indirect effect is the reduction of the prey base within these watersheds and displacement of spotted owls from the burn may have an impact on adjacent owl territories. Some late-successional trees will survive, but there has been a significant reduction of large diameter trees into the future. The effects of the fire has increased fragmentation of these late succession habitats, and potentially reduced the suitability of the carnivore corridor for movement of the species. The riparian corridor along perennial channels within the carnivore corridor areas did not burn or only lightly, providing cover and travel ways.

Landlines: Approximately 25 miles of previously located property boundary lines are in the burn. Replacement would involve locating, repainting and resigning/posting the lines and corners. In addition there were approximately 70 property corners and 50 controlling corners within the burn. An estimated 30% of these were destroyed by suppression activities.

**B. Emergency Treatment Objectives.**

To reduce the impacts of debris torrents and sediment deposition along Highway 70, the railroad, and at the mouth of Indian Creek. To reduce localized impacts to rare plant populations and heritage resources in the highly impacted areas of the Yellow Creek watershed.

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

Land 100 % Channel 100 % Roads 100 % Other 100 %

**D. Probability of Treatment Success**

	Years after Treatment		
	1	3	5
Land	80	90	100
Channel	80	90	100
Roads	80	100	100
Other	100	100	100

**E. Cost of No-Action (Including Loss):** \$120,000

**F. Cost of Selected Alternative (Including Loss):** \$131,660

**G. Skills Represented on Burned-Area Survey Team:**

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

### Team Leader

Terry Benoit. E-mail: tbenoit@fs.fed.us Phone: (530) 283-7822 FAX: 283-7859

### Core BAER Team Members

Wayne Johannson, Soil Scientist, PNF  
Ken Roby, Hydrologist/Fish Biologist, LNF  
Tina Hopkins, Fish Biologist/Wildlife Biologist, PNF  
Pete Hochrein, Engineer, PNF  
Ron O'Hanlan, GPS/GIS, Vegetation Management Solutions  
Dan Elliott, Archaeologist, PNF  
Linnea Hanson, Botanist, PNF

### Other Contacts

Howard Brown, Resource Advisor/Suppression Rehabilitation Coordinator, PNF/LNF  
Jim Crane, GIS, PNF  
Kyle Felker, GPS/GIS, PNF  
Jerry Hustafa, Botanist, PNF  
Diane Watts, Archaeologist, LNF  
Rich Bednarski, Resource Advisor, PNF  
Mark Williams, Resource Advisor, LNF  
Beth Corbin, Botanist, LNF

## **H. Treatment Narrative:**

Land Treatments: Three heritage sites are expected to experience surface erosion, potentially damaging the make-up and position of the artifacts. The proposed treatment would apply rice straw mulch to the sites.

Channel Treatments: Three heritage sites are located next to stream banks expected to experience accelerated erosion due to increased runoff and sedimentation from upstream source areas. Treatment would consist of armoring channel banks associated with each site.

Roads and Trail Treatments: Three crossings are located immediately downstream from an area that was intensively burned and is expected to deliver increased amounts of water, sediment, and woody debris. Treatment would consist of (1) adding culvert pipe risers and associated trash racks and (2) constructing dips and overside-drains to provide controlled drainage if the pipes still plug. The pipes and their risers would be monitored and cleaned when accessible during the wet season.

There are several miles of roads and trails containing trees that are expected to drop unexpectedly during windy conditions, causing a safety concern. Treatment would consist of identifying and dropping these trees. There are many trees that have fallen across the trails that are expected to redirect and concentrate surface water flows, causing erosion of the trails and gullyng to nearby streams. These trees would be cut and relocated to alleviate these problems.

Structures: A wood bridge located along the Pacific Crest Trail and crossing (Little) Indian Creek was damaged by the fire, causing it to collapse into the channel and form a barrier that is expected to collect debris and, possibly, suddenly release the stored water, sediment, and other debris, increasing the magnitude of a flood event. The bridge is located approximately 1500 feet upstream from a small domestic water diversion dam and two homes. In addition, the bridge was pressure treated with pentachlorophenol, a wood preservative and hazardous chemical. Treatment would consist of cutting the bridge into pieces small enough to pack out (removal by helicopter was ruled out because of the danger of removing such unstable

material). All wood pieces and sawdust would be captured and removed as well. All material would be disposed of in an appropriate hazardous waste facility.

#### **I. Monitoring Narrative:**

Land Treatments: The three heritage sites mulched to minimize surface erosion will be inspected for success the first year following treatment.

Approximately 50 acres will be monitored along Road 26N26 for occurrence and intrusion of noxious weeds that could compete with the rare plant site recovery. The rare plant site was completely consumed during the fire, as was the nearby road area. Monitoring would consist of surveying the rare plant site for recovery for 3 to 5 years and the adjacent road for occurrences of noxious weed, primarily star-thistle. The weeds would be grubbed out and monitored for the 3 to 5 year period.

Channel Treatments: The armoring treatment adjacent to three heritage sites would be monitored for success for three years following treatment.

Roads and Trail Treatments: As described above, the function of the three culvert risers would be monitored when accessible, to determine how well they're working, the amount of material stored and whether or not they need to be cleaned to maintain their capacities and functions. These are the upper most culverts in a system of culverts and switchback road segments. It is expected that at least one cleaning will be required the first season.

The roads and trails would be monitored for additional unsafe tree and tread hazards caused by the fire.

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

Arch. Site Protection	site	3000	3	\$9,000		\$0	\$0	\$9,000
				\$0		\$0	\$0	\$0
				\$0		\$0	\$0	\$0
				\$0		\$0	\$0	\$0
<i>Subtotal Channel Treat.</i>				\$9,000		\$0	\$0	\$9,000
<b>C. Road and Trails</b>								
Trail Tread Hazard	miles	400	23	\$9,200				
Trail HazTree Removal	miles	480	23	\$11,040		\$0	\$0	\$11,040
Hazard Trail Signs	each	120	6	\$720		\$0	\$0	\$720
Dip + Drain	each	4500	3	\$13,500		\$0	\$0	\$13,500
Rd HazTree Removal	miles	250	40	\$10,000		\$0	\$0	\$10,000
<i>Subtotal Road &amp; Trails</i>				\$35,260		\$0	\$0	\$35,260
<b>D. Structures</b>								
PC Trail Bridge	each	13,000	1	\$13,000		\$0	\$0	\$13,000
Culvert Inlet	each	5000	3	\$15,000		\$0	\$0	\$15,000
Culvert Inlet Cleanout	each	1000	3	\$3,000		\$0	\$0	\$3,000
				\$0		\$0	\$0	\$0
<i>Subtotal Structures</i>				\$31,000		\$0	\$0	\$31,000
<b>E. BAER Evaluation</b>								
Terry Benoit	days	250	16	\$4,000		\$0	\$0	\$4,000
Wayne Johannson	days	250	11	\$2,750		\$0	\$0	\$2,750
Ken Roby	days	250	10	\$2,500		\$0	\$0	\$2,500
Tina Hopkins	days	250	15	\$3,750		\$0	\$0	\$3,750
Pete Hochrein	days	250	6	\$1,500		\$0	\$0	\$1,500
Dan Elliot	days	200	3	\$600		\$0	\$0	\$600
Linnea Hanson	days	250	4	\$1,000		\$0	\$0	\$1,000
Jerry Hustafa	days	200	2	\$400		\$0	\$0	\$400
Diane Watts	days	250	5	\$1,250		\$0	\$0	\$1,250
GIS Contract	hours	100	120	\$12,000		\$0	\$0	\$12,000
<i>Subtotal BAER Evaluation</i>		2250	192	\$29,750		\$0	\$0	\$14,650
<b>F. Monitoring</b>				\$0		\$0	\$0	\$0
TES Plant Weed	days	500	4	\$2,000		\$0	\$0	\$2,000
Rd/Trail HazTree	days	300	6	\$1,800		\$0	\$0	\$1,800
Culvert Inlet Succes	days	250	3	\$750		\$0	\$0	\$750
Arch Site Success	days	500	4	\$2,000		\$0	\$0	\$2,000
<i>Subtotal Monitoring</i>				\$6,550		\$0	\$0	\$6,550

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

**BURNED-AREA REPORT**  
Storrie Incident

**PART VII - APPROVALS**

\_\_\_\_\_  
Forest Supervisor (signature)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Forest Supervisor (signature)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Regional Forester (signature)

\_\_\_\_\_  
Date