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

Date of Report: Feb 07, 2003

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[ ] 1. Funding request for estimated WFSU-SULT funds
[X] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

[ ] 1. Initial Request (Best estimate of funds needed to complete eligible rehabilitation measures)

[X] 2. Interim Report
[ ] Updating the initial funding request based on more accurate site data or design analysis
[X] Status of accomplishments to date

[ ] 3. Final Report (Following completion of work)

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: Curve

B. Fire Number: CA-ANF-3238

C. State: California

D. County: Los Angeles

E. Region: 05

F. Forest: Angeles

G. District: San Gabriel River (52) & Santa Clara/Mojave (54)

H. Date Fire Started: Sept. 01,2002

I. Date Fire Contained: Sept. 13, 2002

J. Suppression Cost: $13,341,621. (as of Sept. 13, 2002)

K. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 38.4 handline
2. Fireline seeded (miles): 0
3. Other (identify): 12 Helispots, 1 Campground, 2 Staging areas, 1 Fire Camp

L. Watershed Number: 1807010602, 1807010603, 1809020609,

M. Total Acres Burned: 20,857
NFS Acres(20,857) Other Federal ( ) State ( ) Private ( )

N. Vegetation Types: Most common to least- Lower Montane Mixed Chaparral, Jeffery Pine, Mixed Conifer-Fir, Mixed Conifer-Pine, Bigcone Douglas –Fir, Canyon Live Oak, Mixed Soft Scrub Chaparral, Scrub Oak, Birchleaf Mountain Mahogany, Ceanothus Mixed Chaparral, Montane Mixed Chaparral, White Alder, Barren/Rock and miscellaneous others.

O. Dominant Soils: In order of most common to least common: Rock outcrop-Litic Xerorothents-Rubble land association; Winthrop family, very stony-Lithic Xerorthents-Rock outcrop association; Stukel-Sur-Winthrop families complex; Typic Xerorthents, cold-Haploxerolls, cold – Typic Xerocherepts complex; Bakeoven-Sur, moderately deep families complex; Riverwash; Rock outcrop – Chilao family - Haploxerolls, warm association; Caperton – Trigo, granitic substratum – Ledo families complex; Trigo, granitic substratum – Exchaequer families – Rock outcrop complex.

P. Geologic Types: Basement rocks- Unnamed late Mesozoic quartz diorite; Early Triassic Lowe Granodiorite; Late Cretaceous leucocratic granitic rocks; Gneiss rocks – originally sedimentary and igneous origin; Cataclastic gneiss. Much of the basement in the North Fork San Gabriel is overlain with extremely thick landslide and talus deposits.

Q. Miles of Stream Channels by Order or Class:
I – 40.3 II – 13.6 III – 3.2 IV – 1.4

R. Transportation System:

Trails: 40.2 miles Roads: 42.8 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 976 (unburned islands) 10,528 (low) 6,961 (moderate) 2,392 (high)

B. Water-Repellent Soil (acres): aprox 9,000

C. Soil Erosion Hazard Rating (acres):
8,900 (low) 9,900 (moderate) 2,057 (high)

D. Erosion Potential: 1000 tons/acre

E. Sediment Potential: 78,740 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 7

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

C. Equivalent Design Recurrence Interval, (years): 10

D. Design Storm Duration, (hours): 6

E. Design Storm Magnitude, (inches): 4.5

F. Design Flow, (cubic feet / second/ square mile): 212

G. Estimated Reduction in Infiltration, (percent): 53

H. Adjusted Design Flow, (cfs per square mile): 113

PART V - SUMMARY OF ANALYSIS

Background Information:

The watershed of the North Fork San Gabriel River is a major recreation destination for people in the Los Angeles Basin. State Highway 39 provides access to Crystal Lake Recreation Area. Coldbrook Campground is located midway up the drainage. At the lower elevations, recreation use tends to concentrate in the riparian areas.

Crystal Lake Recreation Area is in the upper headwater located in a bowl that opens to the south. Vegetation with this area consists mainly of Canyon Live Oak, Mixed Conifer-Pine, Mixed Conifer – Fir and Bigcone Douglas-fir. At lower elevations in the watershed the slopes are generally covered by one of two varieties of chaparral or Scrub Oak.

The San Gabriel Mountains are tectonically very active and have very rapid uplift. The San Andreas Fault is located four (4) miles to the north of the Curve Fire area. The Crystal Lake Fault cuts along the northwest head wall of the Crystal Lake Basin. The Bichota Fault, a spur of the San Gabriel Fault, runs under the southern portion of the fire area. Rapid uplift has resulted in a terrain with very high erosion rates and many unstable slopes. Within the burned area, there are several large deep-seated slides that are over a mile in area and with runouts over a mile long. These very large and old slides provide storage capacity to hold significant volumes of groundwater that is released at many springs midway and near the base of the slides.

The very rapid uplift has also produced many slopes that exceed the angle of repose for loose unconsolidated material. Any disturbance that removes the supporting vegetation will result in a significant increase of rolling boulders and rocks. These boulders and rocks can land on roads, trails, cabin sites, and other areas of human use.

The basement rocks over which the Fire burned is composed of granodiorites and leucocratic granitic rocks with a few small areas of gneiss. This basement weathers and produces a granular soil that is easily eroded without a sufficient plant cover.

A. Describe Watershed Emergency:

On September 1, 2002, the Curve Fire started near State Highway 39, Mile marker 28.76, at 12:35 pm. Source of ignition was determined to be a ritual involving the use of fire (candles) and animal sacrifices. During the first afternoon, the fire's spread was very rapid due to very dry brush, high temperatures, and erratic winds. By 2:00 am the following morning the fire had burned 12,211 acres. This area included about 75% of the North Fork San Gabriel River Watershed plus an area in the East Fork San Gabriel Watershed located within the Sheep Mountain Wilderness.

During the next 13 days, the fire continued to spread within additional areas of the North Fork San Gabriel Watershed. The fire burned over a ridge separating the North Fork from Bear Creek, a tributary to the West Fork that is within the San Gabriel Wilderness. The Fire spread into the Iron Fork drainage, another tributary of the East Fork San Gabriel Watershed, which is within the Sheep Mountain Wilderness. The fire crossed over the Angeles Crest Highway and burned across the Pacific Crest Trail. The fire line was established along Highway 2 on the upper slopes of Big Rock Creek that drains north into the Mojave Basin.

The fire destroyed 73 structures; 50 recreation residences, 19 structures at Falling Springs Resort, 3 Forest Service Administrative structures including a historic log cabin, and one historic fire lookout. Only 4 recreation residences remain within the Curve's fire perimeter.

Values at Risk:

Sediment Yield

Approximately 91% of the North Fork San Gabriel Watershed is within the fire line with many areas having burned at moderate to high intensity. Using Los Angeles County Department of Public Works methodology, it is estimated that the burned North Fork San Gabriel Watershed will yield an estimated 1,599,200 cubic yards of additional sediment within the next four years. It is estimated that 1/3rd of this amount will come from Bichota Canyon.

The fire burned approximately 13% of the East Fork San Gabriel Watershed, and approximately 6% of the West Fork San Gabriel Watershed. Together, these areas will yield an estimated 701,343 cubic yards of additional sediment over the next four years.

The Narrows Fire (1997) burned 55% of the East Fork San Gabriel Watershed. The fire occurred in the summer before the major El Nino winter of 1997-98. Using data from Rowe, Countryman and Storey it is estimated that 90% of the additional sediment from the Narrows Fire has already moved or is in the process of moving through the channel system. This sediment will combine with the sediment from the Curve Fire.

Loss of water control and increased erosion will result in an increase in debris movement through the channel system. All the sediment carried out of the North Fork San Gabriel Watershed will settle out in San Gabriel Reservoir. The San Gabriel Reservoir is owned and operated for flood control purposes by the County of Los Angeles Department of Public Works. To ensure flood control benefits, the reservoir needs a large operating pool. During the 1980's the County dug out the reservoir and placed the sediment in a small side canyon. Today's cost of removing sediment to this side canyon is approximately $10.00 per cubic yard. Any reduction in erosion and the resulting sediment will directly benefit the reservoir by extending the time period between cleanouts.

Threatened and Endangered Species

The Santa Ana sucker, a threatened fish, is known to inhabit the North, East and West Forks of the San Gabriel River. It is highly likely that increased flooding and debris flow will adversely affect the fish habitat in the North Fork. While portions of the Bear Creek Tributary to the West Fork did burn, it is anticipated that the fire's effect will be insignificant to the habitat. There is a 5 mile stretch of the West Fork that can act as a refuge for this species. The fire's effect on the fish habitat in the East Fork is considered to be minor.

Sensitive Plants, Wildlife and Noxious Weeds

There are four plants, one amphibian, four reptiles, two fish and one bird, all sensitive species, found within the fire area. The habitat for the amphibian, one of the reptiles and the fish will be adversely affected if debris moves off the side slopes and into the channels.

The spread of noxious weeds is often enhanced after an area has been disturbed by fire. Monitoring will take place to observe any new infestations.

Archaeological and Historic Sites

Twenty-nine historical sites were found within the fire area. All sites were inspected to determine the fire effects with six sites requiring either treatment or documentation. The fire destroyed three Forest Service historical buildings; the Mt. Hawkins Lookout, the Ranger's house at Coldbrook Campground, and the Ranger's log cabin at Crystal Lake Recreation Area. To protect the historical integrity of the site and for general public safety, these sites need to be secured.

Road Issues

State Highway 39 is the main travel route to the recreational areas and recreation residences in the upper North Fork San Gabriel Watershed. The fire damaged a large number of trees along the road and many fell into the travel way. Felling crews made an initial assessment and cut the most threatening trees. It is anticipated that more trees may weaken and fall during the winter months becoming a hazard for road users.

The fire also reduced the stability of soil and rock that is located above the road. As a result, large volumes of rock and debris have fallen onto the road. Falling debris is a safety issue for road users. The large volume of debris is rapidly filling the approved debris disposal sites. Additional debris disposal sites must be evaluated and an environmental analysis completed prior to approvals for use.

There are five culverts along Highway 39 that are likely to become plugged with woody debris and other materials. These culverts are located at Soldier Creek, Coldbrook, Maple Canyon, Rockbound Canyon and the North Fork San Gabriel River. These channels should be cleared of all woody vegetation a minimum of 200 feet upstream of the inlet to allow continuous flow.

There are nine locations along Highway 39 and along Forest Service roads that will be subjected to high erosion. Sediment from above these sites will likely wash out onto the roads creating a hazard and plugging the drains, with a high likelihood of compromising the integrity of the road. Erosion control measures, such as hydro mulching will aid in stabilizing the slopes at these sites.

There are two culverts along Highway 39, which carry water from Cloudburst and Alpine canyons. Both of these canyons are completely filled with old landslide deposits. The vegetation on both of these landslide deposits burned at moderate to high severity. Loss of water control in both of these canyons will result in a large volume of water and debris moving down the channel. There is a high likelihood that these culverts will become plugged resulting in approximately 150 yards of highway being washed out. Removal of materials from these channels would mitigate damage to the road.

Trails

A total of 40.2 miles of trail are located within the fire area. The fire affected 7.5 miles of the Pacific Crest Trail. A number of trails in and around the Crystal Lake Recreation Area were affected. In addition, the Bear Creek Trail, which is the major portal into the San Gabriel Wilderness, was also affected. All of these trails have fallen logs and/or debris on them and are subject to washouts. Hikers need to be made aware of these hazards and/or be informed that the trails are closed until further maintenance is performed.

Plantations

Three mixed conifer plantations, Golden Cup, Bear Paw, and Valley of the Moon, are located within the fire area. They were originally planted to produce wood products for sale, but with the increased demand for recreational use of the watershed, these sites became important for dispersed recreation uses. All of these sites were severely damaged. In addition, there are stands of trees within Crystal Lake Recreation Area and Coldbrook Campground that were damaged. It is anticipated that these high value sites will be replanted with native conifers and hardwoods for future recreational purposes. These sites will experience serious erosion with a corresponding loss of soil productivity. This would affect reforestation efforts and site productivity.

Slopes adjacent to the Golden Cup Plantation and Valley of the Moon Plantation burned at a moderate to high severity. Several small gullies already exist on these slopes. With loss of water control, these gullies will increase in size and depth. Sediment will likely be deposited on Highway 39, impeding traffic flow. Natural barriers would effectively help to reduce the movement of sediment.

Recreation Residences

There are a total of 50 recreation residences that were destroyed by the fire. In addition to the remaining debris, most have hazardous materials located around the site. The four remaining structures are subject to damage

from sediment and rocks moving down slope. Efforts need to be made to secure the slopes adjacent to the remaining cabins, as well as clean up the hazardous materials and remaining debris. In addition, there are a number of trees around the cabin/sites that have been weakened by the fire and are likely to fall. Cabin owners and workers may be subject to injury or death by falling trees.

Forest Service Structures and Improvements

There are a total of 22 structures, including campground improvements that were destroyed by the fire. In addition to the remaining debris, some have hazardous materials located around the site. Efforts need to be made to clean up these materials. In the case of the campgrounds, the unaffected improvements should be moved to higher ground, as most of this campground is located within the high flow of the channel.

Weather Stations/Early Warning Systems

Currently there are no weather stations or means to provide warnings if heavy rain falls within the fire area. Rainfall information would be valuable for governmental agencies and researchers. Early warning systems should be linked to alert canyon residents when storm events exceed high flow and it is likely damage would occur.

There are eight recreational residences located immediately downstream of the fire area. The access to these residences is by crossing the stream channel. Cabin owners need to be made aware of dangers of crossing stream channels during storm events.

B. Emergency Treatment Objectives:

The base analysis used for the formulation of the Emergency Treatment Objectives for the Curve Fire was the review of Emergency Treatment Objectives developed for BAER analyses for previous wildfires in the general area, and the following goals for emergency rehabilitation of watershed following wildfires:

1. Loss of Soil Productivity
2. Deterioration of Water Quality
3. Loss of Water Control
4. Threats to Human Life and Property

-Advise the County of Los Angeles Department of Public Works of the sediment potential and the increase in floating debris that is likely to flow into their reservoirs.
-Protect the four remaining recreational residences from flooding and rolling debris.
-Provide flood control and flood readiness advice to the eight recreational residences located downstream of the fire area.
-Remove hazard trees from damaging improvements.
-Remove debris and hazardous materials from burned sites.
-Protect and inventory historical sites.
-Keep roads cleared of hazard trees, and rolling and sliding debris.
-Ensure public safety by temporarily closing access to hiking trails.
-Monitor impacts to sensitive plants and wildlife.
-Prevent soil erosion and maintain soil productivity at plantations.

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

Land **100** % Channel **100** % Roads **80** % Other ___ %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	80	95	100
Channel	75	95	100
Roads	80	95	100
Other	80	95	100

E. Cost of No-Action (Including Loss): $11,499,767

F. Cost of Selected Alternative (Including Loss): $6,042,679

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	[ ]
[ ] Fisheries	[ ] Research	[ ] Landscape Arch	[X] GIS	

Team Leader: Vic Andresen

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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.)

Initial Planning/Orientation Meeting

Prior to the commencement of Emergency Rehabilitation Treatments, the BAER Team Leader and the District Rehabilitation Team Leader and Workforce will meet to review the overall goals and objectives of the FS-2500-8 Burned-Area Report and Implementation Report Treatment Projects.

Cost: $1,000 1 Meeting - $25.00/hour X 40 personnel

A. Land Treatments:

Plantations:

The dead trees in Valley of the Moon, Bear Paw, Golden Cup, Coldbrook and Crystal Lake will be felled and limbed. All cut wood less than 4 inches in diameter will be chipped and spread back over the sites to serve as soil protection. The larger logs will be used as erosion control barriers on nearby slopes adjacent to and within the plantations.

Cost: $43,556 total of 104 acres @ $354/acres plus forestry tech costs ($6,740)

As of January 31, 2003, approximately 35% of the 34 acre Valley of the Moon Plantation had been cleared of standing dead trees. The branches were chipped and spread back over the plantation site as a soil stabilization measure and in preparation for replanting. An initial cutting of hazard trees at Coldbrook and Crystal Lake has taken place. A second round of cutting will include the remainder of the trees. Over 100 cords of fuelwood have been sold to date; additional wood sales are pending. The remainder of the plantations will be cut during the late spring and summer months.
Expenditures to date: $6,323.79

Hydro Mulch Applications.

Hydro mulch applications will consist of a biodegradable paper product along with a biodegradable binder product (MSDS must be approved prior to application). The desired rate for spread is 2,000 lbs per acre. Hydro mulch applications have proven to be an effective stabilization treatment for steeper slopes.

Aerial Hydro Mulch

Hydro mulch the upper reaches of Cloudburst and Alpine Canyons, approximately 40 acres each canyon. Include Big Cone Douglas-fir seed (on hand in Placerville stock), in the hydro mulch mixture, to reintroduce native seed to this site.

Cost: $320,000 80 acres (40 acres/canyon) X $4,000/acre for aerial hydro mulch application, includes contract administration costs
This project was not approved – no work done.

Ground Hydro Mulch:

Hydro mulch at the following upslope locations along FS roads and State Highway 39 (outside of the right-of-way) to reduce the amount of debris spill onto road surfaces:

1. FS road to Bear Paw Plantation - 44 acres.
2. Upper State Highway 39 - 45 acres.
3. State Highway 39 near Golden Cup Plantation - 51 acres
4. State Highway 39 above Yucca Flats - 21 acres.
5. Johnson Curve on State Highway 39 and near 2 recreational residences - 31 acres.
6. Maple Curve on State Highway 39 - 39 acres.
7. Coldbrook Campground road and State Highway 39 - 11 acres.
8. State Highway 39 - 33 acres.
9. FS road to pigeon ridge road above Highway 39 - 35 acres.

Cost: $930,000 310 acres X $3000/acres for ground hydro mulch application, includes contract administration costs
Per recommendations from the Forest Hydrologist (see attached email), this project has not been implemented. A contract was prepared, and bids were submitted. Bidders have been notified that contract may not be awarded.

B. Channel Treatments:

Channel Clearing: The five culverts along Highway 39 are likely to become plugged with woody debris. To mitigate this impact will require channel clearing above the culverts. Channels will be cleared of all vegetation 200 feet upstream of each culvert. All material less than 4" diameter will be chipped.

Cost: $21,110 5 days/10 person crew plus chipping time

Channel clearing has been completed. All material was chipped offsite. All large cut rounds have been removed from channel areas.
Expenditures to date: $35,455.48

C. Roads and Trail Treatments:

Road Hazard: An unspecified number of trees that have been damaged by the fire will likely fall across Highway 39 and Crystal Lake Roads. All suspect trees will be inspected by a professional feller/forester. Any trees that are determined to be a threat will be felled, cut up and chipped/removed.

Cost: $8,770 Costs for 4 person felling crew and inspector
Over 700 trees have been marked. An initial cutting of approximately 50% of these trees has been completed. The remainder of these trees will be cut prior to the reopening of Highway 39 and the Crystal Lake Roads which is anticipated for this spring.
Expenditures to date: $3,794.69

Sediment Disposal Sites: Additional sites will need to be identified to store the amount of debris that is anticipated this coming winter. State Highway personnel are currently preparing the environmental assessments for the additional sites. Forest Service staff will need to review and issue a decision memo document.

Cost: $2,000 Costs for staff time to review and preparation of NEPA documents
This item has been completed.
Expenditures to date: $0

Debris Basins: It is anticipated that the culverts along Highway 39, at the two largest canyons, Cloudburst and Alpine, will become plugged with rock and sediment unless the channels are cleared of the heavy volume of rock and debris material. It is estimated that over 30,000 cubic yards of material will need to be removed to a debris disposal site.

Cost: $317,226 for removal of 30,000 cubic yards of material
Caltrans is currently in the process of replacing the culverts located at Cloudburst and Alpine with larger structures. They have estimated that the new culverts have the capacity of accommodating the estimated flow of material.
Expenditures to date: No funds have been expended to date on debris cleanout. We are requesting that this money be available (carried over to FY04 storm season) for debris cleanout should a storm event exceed the capacity of the culverts.

Flood Watch Plan and Early Warning Systems

Develop a Flood Watch Plan, which will include all planning, purchasing, installation, and operation costs for implementation of the Early Warning Systems with partnerships with County Flood Control Agencies to draw upon expertise and existing measures already in place. The placement of four (4) early warning systems to alert Los Angeles County Department of Public Works, Sheriff, Cal Trans, and the Forest Service when storm events exceed high flows and it is likely damage will occur. The location for these stations has yet to be determined.

Cost: $80,000 $7,500 each X 4 Plans (planning, installation, operation, etc.)
$12,500 each X 4 systems
The Fire Prevention Officer developed a Flood and Emergency Preparedness Plan (Flood Watch Plan), which included the purchase of two Early Warning Weather Monitoring Systems. They have been installed and are being monitored. The District has been working closely with County of Los Angeles Flood Control to monitor long range weather forecasts. The County has weather stations within the forest/fire area and we have been monitoring their recorded information. In addition, the District has

purchased a battery operated message board for the purpose of warning motorists, and the general public as to flood potential/danger as they enter the forest/canyon areas.
Expenditures to date: $15,193.62

Trails: A total of 40.2 miles of hiking trails, including the Pacific Crest Trail are located within the burn area. The BAER survey of these trails identified that all are experiencing a high degree of dry ravel, rolling debris and falling trees. The trails will be closed for the rest of the season and reevaluated in the spring. Possible BAER funding may be requested for the follow up evaluation and emergency repair work. For the interim, trails will be posted "Closed".

Cost: $4,000 20 "Trail Closed" signs @ $200/sign
Signage has been developed in English and Spanish advising the general public/hikers as to the condition of the trails. Reassessment of trail tread/conditions will be done in late spring.
Expenditures to date: $471.43

To assist in providing the public information regarding the status of closed facilities and trails in the general area, informational kiosks will be located at three sites that experience high levels of public use. A kiosk will be constructed at the following sites: East Fork, Highway 39, and Highway 2.

Cost: $6,000 Construction of 3 kiosks @ $1,500/kiosk. Printed materials for 3 kiosks @ $500/kiosk
The information kiosks are approximately 90% complete. Installation is anticipated by mid-February.
Expenditures to date: $0

D. Structures:

Historical Sites: Five historical sites require recordation, involving mapping and photographs. A sixth site requires protection in the form of a chain link fence to keep the public off the site.

Cost: $10,760: $1,200 Recordation – mapping and photos
$9,560 Chain link fencing and installation
Recordation was not approved – no BAER funds have been expended on this work. The chain link fencing will not be installed. Work to clean up the damages at the site has been completed. There is interest in rebuilding the log cabin and efforts are underway to begin this work through volunteer labor and donated supplies.
Expenditures to date: $0

Recreation Residences Within the Fire Perimeter

There are a total of four (4) unburned recreation residences. Treatment for the protection from rolling and sloughing debris for two of these residences, Cabin #161 and Cabin # 136 will involve the installation of hog wire fencing. Treatment for the remaining two residences, Cabin # 123 and Cabin # 127 will involve the installation of silt fencing upslope of the improvements.

Cost: $12,400: $8,000 Installation of 200 feet hog wire fencing/cabin (2)
$4,400 Installation of 200 feet silt fencing/cabin (2)
Hog wire and silt fencing has been installed.
Expenditures to date: $4,811.55

An unspecified number of trees that have been damaged by the fire will likely fall across the remaining recreation residences and their related access routes/trails. All suspect trees will be inspected by a professional feller/forester. Any trees that are determined to be a threat will be felled, cut up and chipped/removed.

Cost: $7,500 Costs for 4 person felling crew and inspector
Trees in and around recreation residences have been felled, cut up and removed from the area.
Expenditures to date: To be provided at later date

There is an unspecified amount of hazardous materials located at burned and unburned recreation residence sites. If these sites are not cleaned up, there is a high likelihood that this material will be washed from the sites during a storm event. One option is to install silt fencing around each of the burned and unburned sites. Projected cost for this treatment including labor is $70,275.

Cost: $240,000 50 residences @ $4,800/site
Hazardous materials have been cleaned up at the burned and unburned recreation residence sites. Approximately 10% of the recreation residence permittees have relinquished their permits and these sites have been cleaned of debris.
Expenditures to date: $51,251.66

Recreation Residences Outside of Fire Perimeter

There are eight (8) recreation residences located directly downstream of the fire area that are accessed by crossing the North Fork San Gabriel River. Cabin owners need to be made aware of the inherent dangers of crossing and living near the stream channel. An early warning system is proposed for this area. In addition, informational meetings should be held to inform/advise permittees of potential impacts.

Cost: $21,000 $12,500 early warning system
$ 1,000 informational meetings/flyers
$ 7,500 Flood Watch Plan (As described in previous section)
See narrative and expenditures on Flood Watch Plan and Early Warning System. We are/were able to accomplish this through the acquisition of only two early warning systems, the development of the Flood and Emergency Preparedness Plan, and the sharing of information via County of Los Angeles Flood Control.

Forest Service Structures and Improvements

There are a total of twenty-two (22) structures, one historic lookout, two cabins, and campground improvements, which were destroyed. Total cleanup of each site includes removal of hazardous materials and removal of general debris. There were some sites damaged at the campground. The Coldbrook Campground cleanup would also include removing tables and other improvements to higher ground, as most of this campground is located within the high flow channel.

Cost: $92,500 $19,000 hazardous materials removal
$68,500 debris removal from 25 sites
$ 5,000 campground improvements removal
These structures have been cleaned of hazardous materials and general debris with the exception of the hazardous materials at Coldbrook Campground. A contract is being prepared to have the asbestos material removed.
Expenditures to date: $5,311.00

Sensitive Plants, Wildlife and Noxious Weeds: Four (4) plants, one (1) amphibian, four (4) reptiles, two (2) fish and one (1) bird are on the FS Sensitive Species list. No treatments are recommended for the direct benefit of these species. A monitoring program will be submitted later to assess the 'no treatment' alternative.

At this time, fire caused vegetative changes and the status of noxious weeds is unknown. A monitoring program will be submitted later to assess the fire caused changes.

Monitoring Plan to be submitted at a later date.

Threatened and Endangered Species: The Santa Anna Sucker will likely be adversely affected by the increased flow and debris generated in the burned North Fork San Gabriel Watershed. No specific action is proposed for the protection of the sucker. A refuge for the species is located in the West Fork San Gabriel upstream of the West Fork's junction with the North Fork San Gabriel. A monitoring program will be submitted later to assess the sucker's range next spring and its rate of spread into the North Fork San Gabriel drainage.
Monitoring Plan to be submitted at a later date.

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.)

A monitoring plan will be submitted later.

Yesterday - Sunday Feb. 2. 2003. I specifically went out to look at the condition of the soil where we had proposed to hydromulch.

Their were 9 sites listed in the BAER report on or near highway 39 starting at the top and working down slope.

Observations.

1. Along FS road to Bear Paw Plantation. I looked at this area and found very little or no re-growth of vegetation. Tested for water repellant soils under some of the burned brush and found it to be very repellant. The burned brush burned at high intensity. Estimated area covered by the burned brush and making the assumption that it will all be repellant. The area still has 40% of very repellant soils. Areas originally not under brush absorbs water at a moderated rate. (A drop of water at to three minutes.) Elevation of the area ranges from 5,200 feet to 5,400 feet. The road along which the treatment was to be applied needs grading due to dry ravel and rocks that has fallen on the road.

2. Upper State Highway 39. I looked at this area and found very little or no re-growth of vegetation. Like #1 above the soils under the brush was highly repellant and the brush covered a similar percentage of the area. Elevation of the area ranges from 5,000 to 5,400 feet.

3. Along State Highway 39 near Golden Cup Plantation. This area also had very little re-growth of vegetation. The brush was originally very thick on the slopes and I am assuming the soils are still water repellant. Elevation 4,500 - 5,000 feet.

4. State Highway 39 above Yucca Flats. This area has about 10-20% of the area covered by small forbs and low growing vines. This is a south facing slope and has been warmed by the midday sun The brush was originally not very dense on this slope and as a result water repellant soils is very scattered. Elevation 4,200 to 4,500 feet.

5. Johns Curve on Highway 39. This area like the area in # 4 above is south facing and receives midday heating. The coverage by forbs is about 10-20%.

6. Maple Curve on Highway 39. This area has about 20-30% coverage by forbes and vines. The soils are still moderately repellant under the burned brush. Elevation of the area to be treated is 3,300 to 3,500 feet.

7. Coldbrook Camp grounds and roads. The area to be treated has forbs and grasses about 25-30% coming up. Found water repellency to be 15 - 30 second under chamise which is moderate. Hydromulching could possibly cover some of the sprouting vegetation. A noticeable difference in coverage by frobes and grasses on the north facing to south facing slopes. Elevation 3,300-3,400 feet.

8. Along State Highway 39 between Valley of the Moon and Coldbrook. Coverage by a low growing gray-green forb is 30% and scrub oaks have 2-3 foot sprouts and the chamise has 6 inch sprouts. Little water repelantency was found in the soils. Elevation 3,300 feet.

9. The FS pigeon ridge road. This area had 25% ground cover from forbs and grasses. Lots of sprouting on the brush. This is northwest facing slope. Some water repellency was found under the burned larger brush while the areas in the open water penetration was about 30 seconds. Elevation 2,800 -3,000 feet.

Conclusions of observations: Water repellency is low and forb growth is generally good below good below 3,500 feet elevation.
From 3,500 - 4,500 feet elevation the south facing slopes are developing good cover while the shady north facing slopes have moderate to poor growth of forbs. Above 4,500 feet their is little or no growth of forbs and water repellency is still common under burned brush.

Should we Hydromulch: NO
Most of the area that burned at high intensity and had the greatest erosion risk is below 4,500 feet. From the BAER report the area with the greatest erosion risk was in the Bichota tributary. This tributary is a low elevation tributary with the majority of its drainage area on south facing slopes.
Is hydromulching needed to protect human life and property. NO Some potential values could be still saved with hydromulching at higher elevation but these values are not as great as those found at low to moderate elevations around recreational cabins. The moisture from the rain and snow that fell in November and December has drained away in the warm and dry weather of January. The early moisture and warm weather caused the soil repellency to dissipate and encouraged the growth of forbs. This has greatly reduced the erosion risk and flooding. The only problems remaining are at the higher elevations where the winter temperatures are lower. With the dry weather most of the soil moisture has drained away leaving the soil available to absorbe rains from several moderate storms; even at high elevations.

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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											
Plantation-soil	acre	418.9	104	$43,566				$0		$0	$43,566
NEPA Disposal Sites		2000.0	1	$2,000							$2,000
Road Hydromulch	acre	3000.0	310	$930,000				$0		$0	$930,000
Aerial Hydromulch	acre	4000.0	80	$320,000				$0		$0	$320,000
Subtotal Land Treatments				$1,295,566				$0		$0	$1,295,566
B. Channel Treatments											
Channel Clearing	Channe	4222.0	5	$21,110				$0		$0	$21,110
Subtotal Channel Treat.				$21,110				$0		$0	$21,110
C. Road and Trails											
Hazard Tree Removal		30.0	293	$8,790				$0		$0	$8,790
Debris Basins	yds	10.6	30000	$317,100				$0		$0	$317,100
Signs	ea	200.0	20	$4,000				$0		$0	$4,000
Kiosks/Printed Materia	ea	2000.0	3	$6,000				$0		$0	$6,000
Flood Plan/Warning Sy	ea	20000.0	4	$80,000				$0		$0	$80,000
Subtotal Road & Trails				$415,890				$0		$0	$415,890
D. Structures											
Historical Site Protection				$10,760				$0		$0	$10,760
Information Meeting	ea	1000.0	1	$1,000				$0		$0	$1,000
Flood Plan/Warning Sy	ea	20000.0	1	$20,000							
Haz tree removal (Rec)	ea	150.0	50	$7,500				$0		$0	$7,500
HazMat-Clean (Rec).	ea	4800.0	50	$240,000				$0		$0	$240,000
Fencing for Cabins	fence	3100.0	4	$12,400				$0		$0	$12,400
HazMat-Clean (FS)	es	4205.0	25	$105,125				$0		$0	$105,125
Subtotal Structures				$396,785				$0		$0	$376,785
E. BAER Evaluation											
29 Employees				$89,542				$0		$0	$89,542
hotel				$7,650				$0		$0	$7,650
Vehicals etc. est.				$10,000				$0		$0	$10,000
F. Monitoring				$0				$0		$0	$0
G. Totals				**$2,236,543**				**$0**		**$0**	**$2,216,543**

PART VII - APPROVALS

1. _/s/ Jody Cook _____ _2/10/03_____
   Forest Supervisor (signature) Date

2. _____ _____
   Regional Forester (signature) Date