United States Department of Agriculture | Forest Service | Angeles National Forest | 701 N. Santa Anita Avenue
Arcadia, CA 91006-2725
818-574-5209 Text (TTY)
818-574-1613 Voice

EXTRA

File Code: 2520/6520
Route To: R.Griffith

Date: May 12, 1998

Subject: Final Burned-Area Report for Narrows Fire

To: Regional Forester

Attached is the Final Burned-Area Report (FS 2500-8) for the Narrows Fire. All the treatments have been completed and the Flood Watch was stopped on May 1, 1998. The costs for each project are current to the end of March. There will be additional expenses, such as WCF, project salaries and accounting adjustments, to be levied against each project but the net change would be minimal.

The Final Report has been edited to remove the information that was presented in the Initial Report and has not changed or does not provide critical information that would help make the Final Report understandable. The current balance of the project as of April 1, 1998 is approximately $117,000.00 so there is a large balance which will not be used. Please direct all questions to Mike McIntyre, BAER Team Leader, at (626) 574-5274

/s/ Bernice A. Bigelow

MICHAEL J. ROGERS
Forest Supervisor

enclosure:

USDA-FOREST SERVICE Date of Report: May 12 1998

BURNED-AREA REPORT
(Reference FSH 2509.13, Report FS-2500-8)

PART I - TYPE OF REQUEST

A. Type of Report

[ ] 1. Funding request for estimated EFFS-FW22 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)

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

[X] 3. Final report - following completion of work

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: Narrows B. Fire Number: ANF 21149

C. State: California D. County: Los Angeles & San Bernardino
E. Region: Pacific Southwest (05) F. Forest: Angeles (01)
G. District: Mt. Baldy (52) & Valyermo (54)

H. Date Fire Started: 8/13/97 I. Date Fire Controlled: 9/6/97
J. Suppression Cost: $ 14,806,285 (as of 1800 9/01/97), $ 18,000,000 est.

K. Fire Suppression Damages Repaired/Remaining to be Repaired with EFFS-PF12 Funds:
1. Fireline waterbarred (miles) Dozer: 2.5/5.5, Hand: .5/22.5
2. Fireline seeded (miles) 0
3. Other (identify) Helispots: 1/6; Roads: 0/2.5; Campgrounds: 2/1; Staging Areas 2/2; Fire Camps 3/0

L. Watershed Number: 1807010602 (Unit #120), 1809020602 (#97), 1809020807 (#96)

M. NFS Acres Burned: 18,148 Total Acres Burned: 18,148
Ownership type:
(0)State (0)BLM (0)PVT (0)_____

N. Vegetation Types: Forest and Alpine, Oak Manzanita, Chamise Chaparral (120); Forest and Alpine, Sagebrush Grass (#96); Juniper-Pinyon Woodland, Semi-Desert (#97)

O. Dominant Soils: Stukel-Sur-Winthrop families complex; Rock outcrop-Lithic Xerorothents-Rubble land association; Bakeoven family-Lithic Xerorthents-Sur family moderately deep complex; Rock outcrop-Chilao family-Haploxerolls, warm assoc.; Olete-Kilburn families,moderately deep-Mollic Haploxeralfs, cool complex; Haploxerolls-Riverwash association; Balder family-Xerorthents complex.

P. Geologic Types: Pre-Cretaceous Metamorphic Rocks (#120), Precambrian Igneous, Metamorphic Rock Complex, Mesozoic Granite (#96/97)

Q. Miles of Stream Channels by Order:
I - 33.3 II - 9.4 III - 9.4 IV - 1.4

R. Transportation System:
Trails: 32.5 (miles) Roads: 21.15 (miles)

PART III - WATERSHED CONDITION

A. Fire Intensity (Acres): 7343 (low) 6507 (moderate) 4298 (high)

B. Water Repellant Soil (Acres): 4298

C. Soil Erosion Hazard Rating (Acres):
0 (low) 908 (moderate) 17,240 (high/very high)

D. Erosion Potential: 112.4 tons/acre
E. Sediment Potential: 25,850 cu. yds/sq. mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period: 3-5 years.
B. Design Chance of Success: 80 percent.
C. Equivalent Design Recurrence Interval: 25 years.
D. Design Storm Duration: 24 hours.
E. Design Storm Magnitude: 9-14 inches.
F. Design Flow: 268 cfsm. *
G. Estimated Reduction in Infiltration: 16 percent.
H. Adjusted Design Flow: 300 cfsm. *
* = watersheds only that included burn area

PART V - SUMMARY OF ANALYSIS

A. Describe Emergency:

On August 13, 1997, the Narrows Fire (Fire) started at the Iron Forks Wilderness Camp in the rugged Sheep Mountain Wilderness. Before containment on August 23, it burned over 18,000 acres, all National Forest Systems Lands. The majority of the fire burned in the upper reaches of the East Fork of the San Gabriel River (EFSG), a major source of water for the eastern Los Angeles metropolitan area. The EFSG has a history of episodic catastrophic flooding events. The most memorable event in recent times was the 1969 flood, produced by rains associated with an "El Nino" event (which is being predicted for this winter) whose flow

rates categorized it as a 25 year event. This event resulted in loss of property (road and access bridges, structures) and water storage capacity (San Gabriel Reservoir). These resources, as well as the area devastated in 1969, are in the zone identified as being potentially affected by the deteriorated watershed condition resulting from the Narrows Fire. There are year-around residents also in this zone.

(TEXT REMOVED IN EDITING)

B. Emergency Treatment Objectives:

The base analysis used for the formulation of Emergency Treatment Objectives for the Narrows Fire was the review of Emergency Treatment Objectives developed for BAER analyses for previous wildfires in the general area, local resource "corporate" knowledge, and the following goals for emergency rehabilitation of watersheds following wildfires:

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

With the above parameters, following are the Emergency Treatment Objectives for the Narrows Fire:

* All treatment measures within the Sheep Mountain Wilderness must be consistent with the wilderness management objectives outlined in the Forest LMP and Sheep Mountain Wilderness Plan.

* Identify and Reduce, through the development of mitigation measures, to the extent possible:

    * The loss of site productivity (ability of the soil to support plant cover) from soil erosion processes (sheet, rill, and gully) with emphasis on those sites which support timber.

    * The loss of downstream property values from the Bridge to Nowhere to San Gabriel Reservoir.

    * The loss of habitat of the Mountain Yellow-Legged Frog and/or other TES.

    * Damage to the watershed recovery rate from recreation activities (such as OHV activity).

    * Damage to heritage resource sites.

    * Increased sediment deposition into San Gabriel Reservoir, a local water source, and Jackson Lake, a recreation source.

    * Damage to F.S. Road 3N36, Angeles Crest Highway, and Big Pines Highway; Campgrounds in Prairie Fork, Big Pines area, and Jackson Lake; Grassy Hollow Visitor Center, and Jackson Lake Organization Camps.

    * Further erosion of Mescal Creek focussing on the values of risk along the Creek.

* Work in cooperation with Federal, State, and local responsible agencies and landowners to reduce the possible hazards to downstream values at risk, both public and private, from increased flows and sedimentation. Utilize Public Involvement Tools to facilitate interaction.

* Recommend measures to insure Forest User safety during events of increased flow and sedimentation.

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

Land 90 % Channel 100 % Roads 90 % Other 100 %

D. Probability of Treatment Success

	<----Years after treatment-----> 1	3	5
Land: Rock Dis.	100%	100%	100%
Seed/Lop	50%	80%	90%
Area Clos.	80%	90%	100%
Channel: Cleanout	90%	80%	100%
Armour	80%	90%	100%
Sand (Str)	90%	NA	NA%
Sand (Rec)	70%	90%	90%
Roads	80%	90%	100%
Other	90%	100%	100%

E. Cost of No-Action (Including Loss): $ 41,852,112.00

F. Cost of Selected Alternative (Including Loss): $ 41,334,119.00

G. Skills Represented on Burned-Area Survey Team:

[X] Hydrology [X] Soils [X] Geology [ ] Range
[X] Timber [X] Wildlife [ ] Fire Mgmt. [X] Engineering - Trans
[ ] Contracting [ ] Ecology [ ] Research [X] Archaeology
[X] Recreation [X] Eng - Geotech [X] GIS/ISM [X] Realty Spec
[X] Botany

Team Leader: Michael J. McIntyre
Phone: (626) 574-5274 DG Address: M.McIntyre:R05F01A

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.

Following are the narratives for the proposed treatment narratives which will help mitigate the potential immediate adverse effects associated with the deterioration of the watershed resulting from the Narrows Fire. The treatments will be presented by the subwatersheds which served as the base analysis units for this report. Also, some treatments are proposed for the entire burned area rather than particular watersheds. These will be listed first and referenced in the subwatersheds where that treatment will be appropriate.

Trail Drainage Stabilization - This treatment will essentially address the trail system in the burned area of the East Fork of the San Gabriel River. This will entail walking the entire system, cleaning out and "stabilizing" outflows/culverts within the management guidelines of the designated Wilderness. Rolling dips will be maintained (or installed if necessary) to provide maximum effectiveness in channeling water flow. This should protect the land values from concentrated, high energy water flows which would result in adverse erosion patterns, and protect the capital improvement (trail) from the increased flows and sedimentation expected.

40 miles @ $ 500.00/mile = $ 20,000.00

This treatment was underestimated for per-unit-cost. 40 miles of trail was treated at $ 942.00/mile = $ 37,685.15

Heritage Resource Documentation - Preliminary analysis utilizing aerial photographs from 1969, and field visits have identified heritage resource site locations which have no risk, low risk, medium risk and high risk. The risk was basically determined by location (sites located on primary benches were assessed as medium or high) and soil movement in 1969. The emergency treatment objective was to minimize damage to heritage resource sites. Field visitation revealed that physical improvements such as armoring or above slope stabilization would be far more costly than other methods of preservation of the sites (as well as conflicting with wilderness management direction for some of the sites). Preservation of heritage resource sites can occur both on-site and off-site. Off-site usually means excavation or some other method of data retrieval. The site would then be preserved through the extracted data. The sites at risk are all historic sites, usually with standing architecture and little in the way of subsurface deposits. Preservation would be to take the sites (most are homestead or mining camps) "back" to data repository, either physically or through some "data" system. The information represented by these sites can be recorded with an indepth recordation of photographs and narrative.

The analysis revealed thirteen of the original thirty-three known sites to be at medium to high risk of damage from increased water and sedimentation flows. Time did not permit visitation to these sites or site areas by hydrologists to gather cross-sections to determine the actual risk. It was felt that, due to the remoteness of this area, to fund hydrologists and archaeologists to visit these sites to gather cross-section information, and then determine which are actually at risk, and return again to the field to record those sites would result in redundancy and a higher cost associated with this treatment. As such, it is proposed that all thirteen sites are at risk, and to record them in the field is the only prudent treatment to minimize the risk to them.

Thirteen sites @ $ 650.00/site = $ 8450.00

The field work revealed an additional 8 sites at risk for a total of 20 sites at potential medium to high risk of damage from increased water and sedimentation flows. However, analysis by the Forest Hydrologist who accompanied the Heritage Resource Staff in the field indicated approximately 50% of the sites to be at moderate-high risk which was the threshold identified for damage to the integrity of the sites. As such, 50% of the costs associated with this treatment will be charged to the BAER project with Heritage Resource EBLI (NFHR) being assessed 50% of the costs. Below represents the BAER costs.

Project Costs = $ 3,790.00

Accomplishments: Recordation of 20 sites (actual costs $ 380.00/site)

Flood Watch - The magnitude and devastation of past flooding in the East Fork of the San Gabriel is well documented. Initial values at risk include County Roads, Residences, Bridges, Commercial Establishments, and both permanent residents and recreation users. This past Labor Day holiday, over 2300 cars were parked along the County Road in the area from the East Fork Fire Station to the Reservoir/OHV Open Area. Combined with the vehicles parked at the private property facilities, and using 3 persons/vehicle (conservative), it is not out of the question to have over 10,000 people recreating in the stream course on high-use days.

A Flood Watch Treatment measure will be initiated with local private residences and facilities, the County Flood Control and Public Works Agencies, downstream municipalities, and other interested parties. A plan will be developed for both drainages - Mescal/Mojave and East Fork of the San Gabriel. The East Fork Plan will also include the acquisition of a radio-accessed monitoring station. These plans plan will be modeled after other similar programs developed for other BAER analyses (i.e., Cleveland Fire on the Eldorado N.F. - Region 5, Eighth Street Fire on the Boise N.F. - Region 4). Early warning systems such as radio-activated sirens linked to stream gauges could be used as well as area closures and public information/notification.

1 Plan for East Fork @ $ 30,000/plan = $ 30,000.00

1 Plan for Mescal/Mojave @ $ 10,000/plan = $ 10,000.00

As of April 1, 1998, this treatment has been in place, necessary meetings have occurred and equipment obtained, and the flood watch is merged into normal patrol duties on the East Fork drainage and the increase of patrols for possible damaging events on the Mescal-Mojave drainage. This could change if events dictate.

Project Costs = $ 24,000.00

Mountain Yellow-Legged Frog - Consultation with the Southern California Native Fish Working Group (composed of USFS, Cal Poly Pomona, US F&W, CDF&G, among others) indicated that the preferred treatment would be the no treatment and let nature run its course. Therefore no treatment measure is presented. Treatment measures for other resource values will be evaluated in regards to the Mountain Yellow-Legged Frog through the BA/BE report.

Treatment Alternative = $ 0.00

Mescal Creek Watershed -

Soil stabilization to protect site productivity in timber and downstream values (Jackson Lake and Organization Camps) hand seeding 175 acres using Barley.

175 acres @ 48.00/acre = $ 8,400.00

175 acres seeded at a cost of $ 8,605.00.

Soil stabilization to protect site productivity in timber and downstream values by using Lop and Scatter 5" and under trees and shrubs:

175 acres @ 100.00/acre = $ 17,500.00

Lop and Scatter was accomplished within a 380 acre zone before snow fall resulted in the termination of this treatment.

Project Costs = $ 6,435.00

Minimizing erosion of Mescal Creek focussing on associated downstream values (Teresita Pines Organizational Camp):

Channel Clearing and Bank Armoring = $ 3,300.00

Project completed at a cost of $ 4,330.00. (Due to the success of the armoring (gabions), the Camp will be adding additional stone-filled gabions at their expense to correct an historic erosion problem in this area.

Protection of Structures at Verdugo Pines, and Pumphouse:

Sand bagging/Hand Channel Clearing:
2 sites @ 2500/site = $ 5,000.00

Project completed at a cost of $ 3,200.00

Protection of Soil Productivity/Natural regeneration of protective ground cover from unauthorized vehicular traffic:

Signing and Wooden Barrier Posts:
2200 feet @ 9.00/foot = $ 19,800.00

This treatment is 100% complete at a cost of $ 19,500,00.

Prairie Fork Watershed

Soil stabilization to protect site productivity in timber and downstream values:

Lop and Scatter 5" and under trees and shrubs:
1000 acres @ 100.00/acre = $ 100,000.00

Lop and Scatter was accomplished within a 250 acre zone before snow fall resulted in the termination of this treatment.

Project Costs = $ 4,235.00

Protection of Life and Property as it relates to Recreation Facilities (Cabin Flat Campground, Lupine Campground) and FS Road 3N39. Preliminary analysis indicates that the treatment measures which would be successful in protecting against their loss would exceed their replacement values. With a high proportion of the watershed burned, there is a risk to the Forest user from hazard trees, and sediment and water flows. This area is the upper access to the Sheep Mountain Wilderness which also has safety issues for the Forest user. The treatment measure it to close Vincent Gulch and Prairie Fork with signs and a gate at Guffy Campground October 1 and evaluating the need for closure next May 1.

Gate Installation at Guffy Campground
1 gate @ 5000/gate = $ 5,000.00

Upon examination of current gate locations, it was felt that the present gate locations could provide the treatment to meet the BAER objective. Therefore, no measure implemented.

Campground "armoring" through sandbagging.
2 sites @ 7500/site = $ 15,000.00

(Text Removed In Editing)

Project completed at a cost of $ 4,000.00.

PART VI - EMERGENCY REHABILITATION TREATMENTS AND SOURCE OF FUNDS BY LAND OWNERSHIP

NOTE: Emergency rehabilitation is work done promptly following a wildfire and is not to solve watershed problems that existed prior to the wildfire.

Line Items	Units	Unit Cost $	NFS Lands Number of Units	NFS Lands EFFS-FW22 $	NFS Lands Other $ ident.	Proposed Costs	Actual Costs
A. LAND TREATMENTS							
ROCK DISSIPATERS -FS3N06	TON	68	155			10540.00	7115.00
HANDSEEDING	ACRE	48	175			8400.00	8605.00
LOP & SCATTER	ACRE	100	1175			117500.00	10670.00
AREA CLOSURE - VEHICLES	FT	9	2200			19800.00	19500.00
B. CHANNEL TREATMENTS							
CHANNEL CLEANOUT	EA	2800	1			2800.00	3670.00
CHANNEL ARMOURING	EA	1000	.5			500.00	655.00
SANDBAG - STRUCTURES	EA	2500	2			5000.00	3160.00
SANDBAG - REC SITES	EA	7500	2			15000.00	4000.00
C. ROADS AND TRAILS							
TRAIL DRAINAGE CONTROL	MILE	40	500			20000.00	37685.00
ROAD CLOSURE	EA	5000	1			5000.00	0.00
D. STRUCTURES							
E. BAER EVALUATION/ ADMINISTRATIVE SUPPORT							
BAER TEAM ADMIN COSTS	DAY	250	200			50000.00	51772.00
REGION CONTRACT IR RECON	1	9,851	1			9851.00	9851.00
DIBBLEE GEOLOGY BASE MAP	MAP	500	3			1500.00	1500.00
HERITAGE SITE DOCUMENT.	EA	650	13			8450.00	3790.00
FLOOD WATCH PROGRAM	PGM	20000	2			40000.00	24000.00
MONITORING	PGM	15000	1			Not Approved	N/A
F. TOTALS						314341.00	185973.00*

* - monthly trans records reflect higher expenditure

PART VII - APPROVALS

1. /s/ Bernice A. Bigelow for Michael J. Rogers — Forest Supervisor (Signature) — 5/12/98 — Date

2. /s/ _____ _____

Regional Forester (Signature) Date