United States Department of Agriculture | Forest Service | Angeles National Forest | 701 N. Santa Anita Ave. Arcadia, CA 91006

Reply to: 2500 **Date:** January 30, 1995

Subject: Kinneloa Burned Area Accomplishment Report

To: Regional Forester

The Final Burned Area Emergency Rehabilitation (BAER) report is enclosed. Please see Part V, Section H, Treatment Narrative, for a discussion of BAER accomplishments within the Kinneloa Burned Area.

The recent high intensity storms that have passed through southern California have created severe erosion and property damage within and downstream from several of the major burns that occurred during the fire storms of October and November, 1993. The Kinneloa burned area, however, appears to have held up well, with minimal erosion and property damage. This can be attributed, in part, to the tremendous cooperation and coordination achieved among State, County, City, and Federal resource protection agencies and local citizen groups during the emergency rehabilitation effort and actual storm events.

The Forest Service and Natural Resource Conservation Service (formerly SCS) worked together in the true spirit of Team USDA. The efforts of all who participated in the Kinneloa BAER effort are to be commended.

Should you have any questions concerning the final report, please contact Bill Brown who served as BAER Team Leader, or Mike McCorison, Forest BAER Coordinator.

/S/MICHAEL J. ROGERS
Forest Supervisor

Enclosure:

USDA-FOREST SERVICE Date of Report: 01/29/95

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: KINNELOA B. Fire Number: ANF-11195

C. State: CALIFORNIA D. County: LOS ANGELES
E. Region: 5 F. Forest: ANGELES
G. District: ARROYO SECO

H. Date Fire Started: 10/27/93 I. Date Fire Controlled: Contained 11/1/93
J. Suppression Cost: $ 6,900,100.

K. Fire Suppression Damages Repaired with EFFS-PF12 Funds:
1. Fireline waterbarred (miles) 5-DOZER, 14-HANDLINE
2. Fireline seeded (miles) 0
3. Other (identify) 10 acres - ICP

L. Watershed Number: 1807010506, 1807010505

M. NFS Acres Burned: 3,532 Total Acres Burned: 5,800
Ownership type:
(0)State (0)BLM (2,268)PVT & COUNTY

N. Vegetation Types: Coast Live Oak, Riparian, Sycamore Alder Riparian, Mixed Chaparral, Big Cone Douglas Fir
O. Dominant Soils: Trigo, Chilao, Caperton-Trigo, Typic Xerorthents Olete-Kilburn-Etsel families
P. Geologic Types: San Gabriel Formation, Mesazoic Granitic Metamorphics-Gneiss
Q. Miles of Stream Channels by Order or Class:
Order 1 - 20.2 Order 2 - 2.8 Order 3 - 6.8
R. Transportation System:
Trails: 23.4 (miles) Roads: 21 (miles)

PART III - WATERSHED CONDITION

A. Fire Intensity (Acres): 842 (low) 258 (moderate) 4700 (high)

B. Water Repellant Soil (Acres): 3,317

C. Soil Erosion Hazard Rating (Acres):
116 (low) 754 (moderate) 4,930 (high)

D. Erosion Potential: 166 tons/acre
E. Sediment Potential: 1,300,000 cu. yds/sq. mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period: 5 years.
B. Design Chance of Success: 90 percent.
C. Equivalent Design Recurrence Interval: 10 years.
D. Design Storm Duration: 24 hours.
E. Design Storm Magnitude: 4.5 inches.
F. Design Flow: 210 cfsm.
G. Estimated Reduction in Infiltration: 55 percent.
H. Adjusted Design Flow: 240 cfsm.

PART V - SUMMARY OF ANALYSIS

A. Describe Emergency: Based on the field survey the following emergencies were identified by the BAER Team. (Section 02 FSH 2509.13)

1. Loss of site productivity - Based on the field survey conducted by the interdisciplinary team, high soil loss is expected in all areas classified as HIGH watershed hazard, and some areas classified as MODERATE hazard.

2. Loss of water control and deterioration of water quality - due to the increased efficiency of the burned watersheds within the Kinneloa Fire, Control of overland runoff on the hillslopes is an effective prevention treatment that can reduce the flood impact on the channel systems. Hill-slope conditions that are expected to cause flooding include lack of watershed cover, water repellent soils, naturally unstable geology and steep slopes. Channel conditions that can occur without preventive treatments are increased risk of flash floods, excessive flood flows, and sediment building of flood flows.

3. Threats to private property - The potential danger to property, both within and downstream of the National Forest, is extreme in the watersheds with water repellent conditions.

B. Emergency Treatment Objectives: The following objectives addresses the initial emergency treatment recommendations identified by the BAER team.

1. Maintain site productivity and control the potential for accelerated erosion, while protecting the integrity of biological diversity, with the following treatment:

   a. Aerial seeding of all high hazard hillslopes, using native plant species to the extent practicable.

b. Install erosion control blankets on selected high hazard hillslopes.

2. Reduce threat to life and property with the following actions:

   a. Install sediment traps were necessary to prevent sediment from entering homes or other structures.

   b. Intensive efforts, in cooperation with other agencies, to increase awareness of the potential flood and debris hazards.

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

Land 90 % Channel 90 % Roads 95 % Other 70 %

D. Probability of Treatment Success

	<----Years after treatment-----> 1	3	5
Land	90	100	100
Channel	90	90	90
Roads	95	100	100
Other	70	95	100

E. Cost of No-Action (Including Loss): $ 3,600,000

F. Cost of Selected Alternative (Including Loss): $ 2,053.215

G. Skills Represented on Burned-Area Survey Team:

[X] Hydrology	[X] Soils	[X] Geology	[X] Range
[X] Timber	[X] Wildlife	[X] Fire Mgmt.	[X] Engineering
[ ] Contracting	[X] Ecology	[ ] Research	[X] Archaeology
[X] Public Affair	[X] Fishery Bio	[X] Economist_	[ ] _____

Team Leader: Bill Brown
Phone: 818 574-5258 DG Address: B.Brown:R05F01A

H. Treatment Narrative:

Aerial Seeding:

The Kinneloa fire burned approximately 5,800 acres (3,500 FS and 2300 County and private) of mostly old growth chaparral above the communities of Altadena, Pasadena and Sierra Madre in late October, 1993. Between November 7-8, 1993 all but approximately 1000 acres of the burned area (2,500 FS and 2300 County and private) was seeded with a mixture of natives and non-native grasses and forbes between elevations of 800- 3,500 ft. The seed mix and application rates included deerweed (2 lbs/ac), California poppy (.5 lbs/ac), zorro fescue (.4 lbs/ac), rose clover (3 lbs/ac), and ryegrass #62 (3 lbs/ac). Approximately 22,250 lbs of seed was applied to Forest Service land at a combined rate of approximately 9 lbs/ac. A similar seed mixture and application rate was applied to County and private land by the L.A. County Fire Dept., Forestry Division.

Unfortunately, during November 13-14, 1993 a major wind storm hit the area and some of the seed applied earlier was either blown off site or irregularly redistributed. Due to the critical nature of the emergency, the burned area was reseeded a few days later on November 17-18 with same mixture of seed at a reduced rate of 2.5 lbs/ac (6,250 lbs). A grand total of 28,500 lbs of seed was applied to Forest Service land within the Burned area.

During the 1994 storm season, southern California experienced several low intensity rain storms and above normal temperatures. These conditions created favorable growing conditions for seed applied to the burned area, as well as natural seed sources. This combination of low intensity storms and favorable growing conditions resulted in reduced erosion from the burned area during the 1994 storm season. Based on observations made recently during at least two high intensity storms that have passed through southern California, it appears that the Kinneloa burned area is stabilizing and that erosion control objectives are being achieved.

Hydroseeding:

The initial BAER request called for hydroseeding five acres of denuded hill slopes near the Cobb Estate. Further examination of the need for this treatment resulted in a decision not to hydroseed. The area was aerial seeded as described above.

Straw Blankets:

Straw blankets were placed on approximately 85% (119 acres) of the treatment area within the Pasadena Glen Watershed to reduce erosion and protect life and property downstream, especially within the small community of Pasadena Glen. The actual treatment area was approximately 140 acres. Straw blankets were laid in strips within the treatment area where the following criteria were met: 1) slopes 35-70%, 2) deep and well developed soils, and 3) soil surface free of live vegetation or standing skeletons.

This project was to be completed by volunteers under an agreement with the Forest Preservation Society. However, due to unforeseen circumstances much of the work was performed by Los Angeles County Department of Corrections inmate crews and Forest fire personnel.

Although erosion control blankets have functioned well within the Pasadena Glen Watershed, their use on burned areas greater than one acre in size should be seriously evaluated due to the cost, difficulty of installation on steep denuded hill slopes, and associated safety concerns, and time required to complete large scale projects such as this one before the first damaging storm.

Structures:

Work was completed on Loma Alta sediment trap on December 10, 1993. This structure, which consists of the classic dog bone/crib design, was constructed by Forest engineering staff and fire crews. This is a small sediment control structure designed to hold approximately 6000 cubic yards of material. It is located near the top of Lake Street in the Community of Altadena and was necessary to protect life and property. Eight homes valued at approximately $275,000 each ($1,100,000 total) were protected by this structure. Inspections of the structure at various times during the 1994 storm season indicated that it was functioning as designed. More recent inspections made during high intensity storms which occurred in January, 1995 have indicated that the structure is continuing to function, but is now filled to its design capacity and requires maintenance. The Forest is responsible for maintenance of the structure and will perform this activity as soon as possible.

Total Forest Service funding approved for burned area emergency treatments within the Kinneloa burned area was $ 553,215.00. Approximately $493,534.00 were actually expended to complete land treatment, structures and support the BAER Team in preparation of the initial BAER Report (2500-8).

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.

			NFS Lands			Other Lands			All
Line Items	Units	Unit Cost $	Number of Units	EFFS-FW22 $	Other $ ident.	Number of Units	Fed $ ident.	Non-Fed $ ident.	Total $
A. LAND TREATMENTS									
Aerial Seeding	Acres	70	2500	175,747					175,747
Hydrseeding									
Straw Blankets	Acres	2,112	119	251,279					251,279
B. CHANNEL TREATMENTS									
C. ROADS AND TRAILS									
D. STRUCTURES									
Alta Loma Sediment Trap	Stru	22815	1	22,815					22,815
E. BAER EVALUATION/ ADMINISTRATIVE SUPPORT									
BAER Team (12 members)	Days	225	194	43,693					43,693
F. TOTALS									493,534

PART VII - APPROVALS

1. /S/ MICHAEL J. ROGERS — 02/01/95
   Forest Supervisor (Signature) — Date

2. _____ _____
   Regional Forester (Signature) — Date