Initial

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Filed on: Sep 03,97 12:48 PM Message attached

Subject: 2520/6520 - Burned Area Emergency Funds - Hopper Fire

Summary:

Comments:

To FS:R05F07A
To G.Schmitt:R05F07A
To PDB
To Mailroom:R05F07A
To R.Griffith
To WSA:WO

From: ARF-Ecosystem Cons
Postmark: Sep 03,97 12:17 PM
Status: Previously read
Subject: Burned-Area Emergency Rehabilitation Funds - Hopper Fire

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Comments:
No hard copy to follow.

United States Department of Agriculture | Forest Service | Pacific Southwest Region | Regional Office, R5
630 Sansome Street
San Francisco, CA 94111-2214
415-705-1098 Text (TTY)
415-705-2876 Voice

File Code: 2520/6520 Date: September 3, 1997
Route To:

Subject: Authorization for Expending Burned-Area Emergency Rehabilitation Funds (WFSU-FW22) - Hopper Fire

To: Forest Supervisor, Los Padres National Forest

Attached is the approved Burned-Area Emergency Rehabilitation Report for the Hopper fire. You are authorized to expend up to $197,600 of WFSU-FW22 funds at this time for the emergency rehabilitation evaluation, administrative support, digital IR photography for burn intensity analysis, and the other work addressed in the following paragraphs.

Cooperate with United Water Conservation District, Ventura County Flood Department, Ventura County Sheriff, private oil companies, U.S. Fish and Wildlife Service, and Natural Resource Conservation Service on early warning system for floods, rock slides and road washouts, and also on flood warning signs.

Install head and wing walls, and remove vegetation and sediment to protect large culverts. Conduct pre-rainy season culvert maintenance, staging of excavator(s), and flood patrol for emergency maintenance.

The Assistant Regional Forester for Ecosystem Conservation is authorized to expend an additional $2,000 for support of BAER evaluation and administration.

/s/ James A.Lawrence (for)
REGIONAL FORESTER TEAM

Enclosure

cc: PDB
WSA:WO
USDA NRCS State Conservationist, Davis, California
R.Griffith
G.Schmitt
ARF, EC - LP

ENCLOSURE

UNITED STATES DEPARTMENT OF AGRICULTURE
Forest Service
Los Padres National Forest
6144 Calle Real
Goleta, CA 93117

Reply to: 2520

Date: August 27, 1997

Subject: Hopper Fire BAER Report

To: Regional Forester

The initial Burned Area Report (Form FS 2500-8) for the Hopper Fire is attached. The initial report serves as the Forest request for $197,600.00 to fund the BAER Team, digital infrared (IR) photography, and to implement channel treatments, culvert maintenance and road patrol, signing, installation of head and wing walls and affiliation with the interagency cooperative team.

/s/ Margaret J. Boland
MARGARET J. BOLAND
Acting Forest Supervisor

cc: Ojai DR

HOPPER FIRE
BURNED AREA REPORT NARRATIVE
(2500-8)

AUGUST 27, 1997

BY MIKE FOSTER, BURNED AREA EMERGENCY REHABILITATION TEAM LEADER

TREATMENTS APPROVED BY MARGARET BOLAND, FOREST SUPERVISOR

USDA-FOREST SERVICE Ref. 2520 Watershed Date of Report: 08-27-97

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

PART I - TYPE OF REQUEST

A. Type of Report

[X] 1. Funding request for estimated EFFS-FW22 funds
[ ] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

[X] 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

[ ] 3. Final report - following completion of work

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: Hopper Fire
B. Fire Number: LPF-858
C. State: California
D. County: Ventura
E. Region: 05
F. Forest: Los Padres (7)
G. District: Ojai (55)

H. Date Fire Started: 08-05-97
I. Date Fire Controlled: est. 9-1-97
J. Suppression Cost: $ 7,900,000.00+

K. Fire Suppression Damages Repaired with EFFS-PF12 Funds:
1. Fireline waterbarred (miles) 5.25
2. Fireline seeded (miles) 0
3. Other (identify) 1 mile of road surface, 1 mile of stream channel.

L. Watershed Number: 1807010210 Hopper Creek
1807010209 Lower Piru Creek

M. NFS Acres Burned: 12,403 Total Acres Burned: 24,803
Ownership type:
( )State ( )BLM (12,400)PVT ( )

N. Vegetation Types: Annual grassland, northern mixed chaparral, coastal sage scrub, big cone Douglas fir, broadleaved riparian woodland, oak woodland, chamise chaparral.

O. Dominant Soils: Lithic Xerochrepts- Lithic Haploxeralfs-Rock Outcrop complex; Lodo-Botella Families Rock Outcrop assoc.

P. Geologic Types: Monterey and Sisquoc

Q. Miles of Stream Channels:

USFS	Intermittent - 48	Perennial - 6
Private	Intermittent - 30	Perennial - 5

R. Transportation System:
Trails: 11.2 (miles) Roads: 39.1 (miles)

PART III - WATERSHED CONDITION

A. Fire Intensity (Acres): 10,346 (low/unburned) 2602 (moderate) 11,744 (high)

B. Water Repellant Soil (Acres): 4,500

C. Soil Erosion Hazard Rating (Acres):
50 (low) 0 (moderate) 24,669 (high)

D. Erosion Potential: 7.8 tons/acre

E. Sediment Potential: *32,855 cu. yds/sq. mile

* Sediment estimate based upon 25 yr. 12 hr. storm event predictions provided by Ventura County Flood Control Department (Re: Hopper Fire BAER Team records)

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period: 10 years.
B. Design Chance of Success: 80 percent.
C. Equivalent Design Recurrence Interval: *25 years.
D. Design Storm Duration: *12 hours.
E. Design Storm Magnitude: 6.10 inches.
F. Design Flow: 384 cfsm.
G. Estimated Reduction in Infiltration: 60 percent.
H. Adjusted Design Flow: 615 cfsm.

* Design storm entries derived from storm/debris predictions provided by Ventura County Flood Control Department (filed with Hopper Fire BAER records).

PART V - SUMMARY OF ANALYSIS

A. Describe Emergency:

A potential watershed emergency has been created by the Hopper Fire's adverse impacts to the soil, vegetation, and hydrologic function of the affected watersheds. Inherent erosion rates are high due to the instability of the area's geologic formations and their steep topography. Erosion rates will accelerate in the fire area due to the reduction in live vegetation and coarse woody debris. Loss of vegetation will reduce evapotranspiration and in combination with increased rates of overland flow due to presence of hydrophobic soils will produce higher stream flows. Increased stream flow in concert with destabilized instream sediments and sediment inputs from raveling

slopes may lead to degradation of water quality, debris torrents, and rock slides. Degraded water quality, debris torrents, and rock slides may adversely impact Lake Piru, agricultural lands (primarily avocado and citrus orchards), State Route 126, FS road 4N13, and private roads that provide access to agricultural lands, oil developments, and private residences. Loss of water control could occur in Hopper Canyon watershed, Dominguez and Reasoner watershed, and Juan Fernandez watershed. Though less of the watershed was burned, loss of water control may occur in Pole Creek. Possible threats to human life and property exist for homes, roads and bridges, recreation facilities, orchards, and oil developments within the above mentioned watersheds.

Hopper Canyon Creek provides instream habitat for steelhead trout and influences downstream habitat quality for steelhead trout in the Santa Clara river system. Increased deposition and scouring in these streams may adversely impact steelhead spawning and rearing habitat.

Habitat for California red-legged frog and foothill yellow-legged frog may be adversely affected by scouring and deposition of streams. These impacts are anticipated to be short-term and not likely to threaten the local distribution of these amphibians.

Habitat for California condor was modified by the Hopper Fire, but no direct effects to individual condors or their roosting and nesting habitat is expected.

No heritage resource sites are threatened by post-fire impacts or proposed treatments for reducing the threats posed by this emergency.

B. Emergency Treatment Objectives:

The objective of the proposed emergency treatments on national forest system lands is to protect human lives and system road 4N13. These emergency treatments are intended to protect road crossings and reduce the threat of additional erosion occurring from road and culvert failures, and to protect human lives by providing a safe transportation corridor along FS road 4N13.

The ability to implement treatments on national forest system lands to reduce the risk of flooding and adverse impacts to water quality is limited by the natural instability of the affected landscape and its steep, mostly unroaded condition. Suitable locations on national forest system lands for debris basins, catchment structures, check dams, and other mechanical treatments do not exist due to steep terrain and narrow drainage corridors. Other factors that contribute to the lack of opportunity to implement treatments include: bedrock controlled stream reaches - these type of streams are unlikely to downcut; steep stream gradients - gradient control and sediment catchment structures are prone to failure due to high stream velocities and can be overwhelmed by high bedloads; no native wood on site for building materials or log terraces; access is not available to consider large scale use of trenching, ripping or terracing; wilderness designation precludes use of many treatments that are dependent upon motorized equipment for implementation.

Effective emergency rehabilitation measures can be implemented on private lands. Proposed rehabilitation measures and treatments are described in

section H and in Table 1 of the narrative. Treatment objectives are to reduce soil erosion, sediment production, and peak flows in the watersheds where threats to human life and property, loss of soil, and loss of water control and degradation of water quality are anticipated. These watersheds are listed in section A above. An early flood warning system, installed and monitored by Ventura County Flood Department, is also recommended in case efforts to maintain control of flood waters is not achievable.

An additional objective is to continue the coordinated response to the watershed emergency created by the fire by working with the other agencies involved. These agencies include United Water Conservation District, Natural Resource Conservation Service, and Ventura County Flood Control District.

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

Land ____ % Channel **100** % Roads **100** % Other _____ %

D. Probability of Treatment Success

	<----Years after treatment-----> 1	3	5
Land			
Channel	70%	80%	95%
Roads	70%	80%	95%
Other			

E. Cost of No-Action (Including Loss): $ **$410,439**

F. Cost of Selected Alternative (Including Loss): $ **$262,293**

G. Skills Represented on Burned-Area Survey Team:

[X] Hydrology	[X] Soils	[X] Geology	[ ] Range
[ ] Timber	[X] Wildlife	[ ] Fire Mgmt.	[X] Engineering
[ ] Contracting	[ ] Ecology	[ ] Research	[X] Archaeology
[X] GIS	[X] Fisheries	[X] Botanist	[ ] Rec/Wilderness

Team Leader: **Mike Foster**
Phone: **805-245-3731** DG Address: **M.Foster:R05F07D57A**

H. Treatment Narrative:

ACTIONS PROPOSED FOR IMPLEMENTATION ON LOS PADRES NATIONAL FOREST

Hopper Canyon Watershed

Cooperate with Ventura County Flood Department, Ventura County Sheriff, private oil companies, and the US Fish and Wildlife Service on early warning system for floods, rock slides, and road washouts. The warning system is intended to

provide local residents, motorists, and workers with adequate notice to evacuate areas that may be affected by flooding, rock slides, road washouts and debris torrents.

Cooperate with United Water Conservation District (UWCD) and Ventura County Flood Department to inventory and further evaluate the risk posed by numerous land slides found scattered throughout the watershed. Utilize California Division of Mines and Geology to complete inventory and study. This inventory and study would be used to determine if additional treatments are needed to alleviate the risk posed by landslides.

Pole Creek Watershed

Cooperate with Ventura County Flood Department and oil companies on road patrols, culvert maintenance, and early warning system for floods, rock slides, and road washouts. The warning system would provide local residents, motorists, and workers with adequate notice to evacuate areas that may be affected by flooding, rock slides, road washouts and debris torrents.

Cooperate with UWCD and Ventura County Flood Department to inventory and further evaluate the risk posed by numerous land slides found scattered throughout the watershed.

Dos Tubos Watershed

Install head and wing walls at the site of two 72-inch culverts. Reduce in-channel vegetation 100 feet above the culvert by trimming vegetation to within 2 inches of ground. Use excavator or similar type of equipment to remove sediment plain found above culvert. These measures will improve drainage through the culverts, reduce the risk of washout, and protect motorists from over road flows and road washouts.

Complete pre-rainy season maintenance of all culverts and use winter storm patrols to provide timely maintenance of culverts. Stage excavator in area for rapid response. These measures will improve drainage through the culverts, reduce the risk of washout, and protect motorists from over road flows, rock slides, and road washouts.

Install signing: "Subject to Flooding". Implement Forest Order providing winter season (Oct. 15 to March 31) road closure (gate already exists to provide traffic control). These measures will protect motorists from dangerous road conditions.

Juan Fernandez Watershed

Complete pre-rainy season maintenance of all culverts and use winter storm patrols to provide timely maintenance of culverts. Stage excavator in area for rapid response. These measures will improve drainage through the culverts, reduce the risk of washout, and protect motorists from over road flows, rock slides, and road washouts.

Install signing: "Subject to Flooding". Implement Forest Order providing winter season (Oct. 15 to March 31) road closure (gate already exists to

provide traffic control). These measures will protect motorists from dangerous road conditions.
Cooperate with UWCD to remove sediments staged at Juan Fernandez Spring. Removal of sediments will reduce the risk that these sediments will be mobilized and carried downstream into Lake Piru.

Dominguez and Reasoner Watershed

Cooperate with UWCD on road patrols, culvert maintenance, and early warning system for floods, rock slides, and road washouts.

Cooperate with UWCD and Ventura County Flood Department to inventory and further evaluate the risk posed by numerous land slides found scattered throughout the watershed.

Temescal Watershed

Cooperate with UWCD on road patrols, culvert maintenance, and early warning system for floods, rock slides, and road washouts.

Lime Canyon and Blanchard/Modelo Watersheds

Cooperate with Ventura County Road Department on road patrols, culvert maintenance, and early warning system for floods, rock slides, and road washouts.

Cooperate with UWCD and Ventura County Flood Department to inventory and further evaluate the risk posed by numerous land slides found scattered throughout the watershed.

Upper Piru I, Upper Piru II, and Tar Creek Watersheds

No emergency exists in these watershed and no treatments are recommended.

ACTIONS PROPOSED FOR IMPLEMENTATION ON NON FOREST SERVICE ADMINISTERED LANDS

As described above, a key component of the proposed actions is the development of an early warning system to notify residents, workers, and motorists of imminent hazards posed by flooding, debris flows, landslides, and road washouts. The BAER team recommends that the Forest Service, Ventura County Flood Department, Ventura County Sheriff, United Water Conservation District, California Department of Transportation, and affected oil companies combine efforts to implement an early warning system. It is recommended that pre-rainy season notices be provided to residents and landowners regarding the nature of the warning system and appropriate warning instruments should be stages as needed to detect potentially catastrophic flood waters, debris torrents, and landslides.

A second key recommendation of the BAER team is to complete a more intensive inventory of the landslides and rock slides present in the affected watersheds. This information would provide hydrologists with more accurate information regarding the risk that these landslides pose and the magnitude of sediments that are likely to be moved by storm events. This information is needed to

ensure that adequate measures have been considered for upgrading the levee and channel systems of Hopper Canyon Creek, Dominguez Creek, and Reasoner Creek.

Hopper Canyon Watershed

One possible action by the USFWS would be the construction of a straw bale deflector above the ranch house located at Hopper Mountain National Wildlife Refuge. The deflector would serve to direct overland flows and sediments away from the ranch house. It is estimated that 20 straw bales would be needed and that the total cost of the structure would be $5000.

The road providing access to the wildlife refuge needs maintenance. Providing better drainage off the road with rolling dips would reduce downcutting of road side sediments.

Bridge at Hwy 126 needs maintenance in terms of providing additional freeboard and the proper approach gradients. Additional freeboard and proper gradient are needed to help flood flows pass under the bridge without substantial deposition that would limit the capacity of the bridge. Similar work needs to be done at the railroad bridge. Stronger, more extensive wing walls may be needed as well. Cal Trans should seek to ensure that construction of the new bridge is completed prior to November 1.

The levee system along Hopper Canyon Creek needs to be evaluated and cooperative funding sought to maintain and enhance the system. Particular attention needs to be given to the mouth of Hopper Canyon. Garbage, yard and orchard trimmings, and other debris needs to be removed from the flood channel and riparian vegetation trimmed where encroachment on to the channel bottom has occurred. These actions are needed to increase the likelihood that the levee system will remain functional during large storm events.

It is recommended that a protective levee around the sewage treatment plant be evaluated as a means of providing back up protection in the event that primary levees along Hopper Canyon Creek fail.

It is recommended that opportunities to construct a debris basin below the mouth of Hopper Canyon be explored. Consideration of the habitat requirements of steelhead trout will need to be given to any proposals for debris basins.

It is recommended that for oil well sites and associated facilities including pipelines, any hazardous materials plans be re-evaluated and updated as needed to ensure that oil spills will be minimized or avoided. In addition, it is recommended that access roads be maintained and improved to reduce the road generated sediments and all well sites be evaluated to determine if mechanical protection in the forms of riprap or levees are needed to protect the site from flooding.

Pole Creek Watershed

It is recommended that pre-rainy season culvert maintenance on private roads in the watershed be conducted.

Include down stream residents in early warning notification system.

Juan Fernandez Watershed

Cooperate with UCWD to remove sediments staged at Juan Fernandez Spring. Removal of sediments will reduce the risk that these sediments will be mobilized and carried downstream into Lake Piru.

Dominguez and Reasoner Watershed

It is recommended that UCWD and USFS cooperate on road patrols and culvert maintenance.

It is recommended that UWCD conduct channel maintenance at Reasoner Bridge and seek permission from California Department of Fish and Game to trim riparian vegetation in the area immediately upstream (about 100 feet) from Reasoner Bridge.

UWCD may wish to develop a debris basin in the Reasoner watershed. Finding a suitable location is problematic and may require the use of the Piru Lake cove present at the mouth of Reasoner Creek. A berm could be constructed across the cove to trap sediments and allow their removal during the summer following any storm events.

It is recommended that recreation facilities and Piru Lake Road be signed to warn of potential risks from flooding and rock slides.

Temescal Watershed

It is recommended that UCWD and USFS cooperate on road patrols and culvert maintenance.

Lime Canyon and Blanchard/Modelo Watersheds

It is recommended that UCWD, Ventura County Road Department, and USFS cooperate on road patrols and culvert maintenance.

It is recommended that UWCD and/or Ventura County Flood Department clean out existing debris basins located in this watershed.

Upper Piru I, Upper Piru II, and Tar Creek Watersheds

No emergency exists in these watershed and no treatments are recommended.

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

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

			NFS Lands			Other Lands			
Line Items	Units	Unit Cost M$	Number of Units	EFFS-FW22 M$	Other $ ident.	Number of Units	Fed $ ident.	Non-Fed $ ident.	T
A. LAND TREATMENTS									
B. CHANNEL TREATMENTS									
Remove sediments				21.6					
C. ROADS AND TRAILS									
Head & wing walls			1	17.9					
Road Patrol & maint.			1	86.0					
Flood warning signs	sign	500	2	1.0					
D. STRUCTURES									
E. BAER EVALUATION/ ADMINISTRATIVE SUPPORT									
Salary, travel, admin.	team		1	57.8					
Interagency coop team	days	200	10	2.2					
Digital IR Photography			1	11.1					
F. TOTALS				197.6					1

PART VII - APPROVALS

1. /s/ Margaret J. Boland — August 29, 1997
for Forest Supervisor (Signature) — Date

2. /s/ _____ _____
Regional Forester (Signature) — Date

HOPPER FIRE (LPF 858)

24,000 ACRES OF PRIVATE AND FOREST SERVICE SYSTEM LANDS

NARRATIVE TO ACCOMPANY FS-2500-8

SUMMARY OF FINDINGS OF THE BURNED AREA EMERGENCY REHABILITATION SURVEY AND RECOMMENDATIONS FOR WATERSHED TREATMENT

By Mike Foster, Survey Team Leader
25 August 1997

I. INTRODUCTION

A. Description of the Incident

On Tuesday, August 5, 1997, at approximately 2:04 pm, a fire of undetermined origin began to burn wildland vegetation adjacent to an oil well. Very dry fuels composed of oaks, chaparral shrubs, sage, and annual grasses began to burn under extreme conditions created by an air temperature of about 100 degrees Fahrenheit, low humidity (under 20 percent), and southwest winds of 10-15 mph. The fire originated near Hopper Mountain just to the northwest of Hopper Mountain National Wildlife Refuge. Fire fighters worked to protect structures in the wildlife refuge, to limit the spread of the fire toward the towns of Fillmore and Piru, and to protect the facilities associated with Lake Piru and the Sespe oil fields. In addition, fire fighting objectives included avoiding adverse impacts to heritage resources and the primitive character of the Sespe Condor Refuge and the Sespe Wilderness.

The fire was contained after seven days. Control is expected on 1 September. The fire burned 12,402 acres of national forest system lands and 12,400 acres of private land (including the National Wildlife Refuge at Hopper Mountain). Several small ranches were impacted by loss of feed from annual rangelands.

B. Description of the Watershed

The fire burned portions of 10 subwatersheds:

Watershed	TOTAL ACRES	BURNED ACRES	HIGH INTENSITY	% HIGH INTENSITY*
HOPPER CYN.	12,220	11,286	6,499	53%
DOMINGUEZ & REASONER	5,237	4,943	3,173	61%
JUAN FERNANDEZ	1,023	880	224	22%
PIRU I & II	2,213	210	80	4%
LIME CANYON	1,346	1,320	185	14%
BLANCHARD/MODELO	18,792	2,109	5	< 1%
POLE CREEK	5,096	1,174	268	5%
DOS TUBOS	1,371	1,310	542	40%

* Percent of total acres of affected tributary that burned with high intensity.

Burn intensity varied from low to high within each watershed. A pattern was observed where higher intensity burns and hydrophobic soils were often found at the upper reaches of the watersheds especially on sites with deeper soils and thickets of oak. Overall, about half of the fire area burned with low to moderate intensity and about half burned with moderate/high to high intensity. Most of the riparian areas along perennial stream courses survived intact with minor amounts of ground scorching and little loss of overstory canopy.

Property at risk includes scattered ranch and farm houses, oil wells and pipelines (and associated outbuilding), a sewage treatment plant, percolation ponds, Freeman Diversion on Santa Clara River, a housing development, recreation facilities at Piru Lake, and private and public roads and bridges. These developments were built adjacent to streams and drainage channels that

receive storm flows from the fire area or are affected by landslides and rockfalls.

Monterey and Saugus geologic formations are the dominant geologic types in the fire area. In many areas, these formations are inherently unstable.

The climate of the fire area is characterized by hot, dry summers and cool, wet winters. Annual precipitation is quite variable with an annual mean of 22 inches. Low daytime humidity is often moderated by the influence of the coastal marine layer.

The burn area is also of major importance to downstream anadromous fish resources (steelhead trout) in Santa Clara River. This area has been under study for several years by the Santa Clara River Working Group and the Forest Service. Restoration efforts for Santa Clara River focus on efforts to reduce sediment delivery to the area.

Steelhead Trout migrate up the Santa Clara river to spawning grounds in Hopper Canyon Creek as well as the Sespe creek drainage. The watersheds within the fire perimeter also have provided historic habitat for the California condor (see technical reports).

II. ASSESSMENT OF THE ON-THE-GROUND CONDITIONS

Assessment of the entire burned area was made following the procedures outlined in FSH 2509.13 and FSM 2523.02. The purpose of such a post-fire assessment is to determine if an emergency to life, property, site productivity and loss of control of water and deterioration of water quality has been caused by the wildfire.

A. Initial Reconnaissance

An initial reconnaissance of the fire area was not performed. The District Ranger made a decision to summons a BAER team without an initial reconnaissance based on the following criteria: large size of the fire; prior experience with other flood prone watersheds in the general vicinity of the Hopper Fire; inclusion within the fire area of the Sespe Condor Refuge, the Sespe Wilderness, the Hopper Mountain National Wildlife Refuge, and oil developments; and proximity to the towns of Fillmore and Piru as well as Hwy 126 and numerous orchards.

Title	**Name**
Team Leader	Mike Foster, Los Padres NF
Soil Scientist	Todd Ellsworth, Stanislaus NF
Hydrologist	Steve Apperson, Stanislaus NF
Wildlife	Mollie Hurt, Stanislaus NF
Fisheries	Ben Matibag, San Bernardino NF
Archaeology	Juanita Garcia, Los Padres NF
Botanist	Dirk Rodriquez, Eldorado NF
Engineer	Kenny Shaw, Los Padres NF
Engineer	Joe Zazueta, Los Padres NF
Engineer	Joe Olson, Los Padres NF
Geologist	Allen King, Los Padres, NF

GIS Specialist	Annette Parsons, Eldorado NF
GIS Specialist	Joyce Mousseau, Stanislaus NF
GIS Specialist	Douglas Polzoni, Stanislaus NF
Administrative Assistant	Trixy Diamond, Los Padres NF

Other Individuals Consulted

Dolores Taylor, Senior Hydrologist, Ventura County Flood Department
Jayme Layber, Hydrologist, United Water Conservation District
Dave Clendenen, Wildlife Biologist, US Fish and Wildlife Service
Rex Laird, Farm Bureau
Barry Cohn, Soil Scientist and Forest Baer Team Leader, Los Padres N.F.
Sara Chubb, Fish Biologist, Los Padres N.F.
Karen Danielsen, Botanist, Los Padres N.F.
Maeton Freel, Wildlife Biologist, Los Padres N.F.
Stephen Jewett, District Conservationist, Natural Resources Conservation District

B. Findings From the On-The-Ground Survey

AREAS OF CONCERN

1. Loss of soil and site productivity

It was determined that an emergency relating to long-term site productivity DID NOT exist for the Hopper Fire. Estimated soil loss from moderate-high and high burn intensity areas is 14 tons/acre. This does not include dry ravel which could double or triple that amount. The chaparral and annual grass plant communities present are expected to respond quickly and not suffer long-term adverse effects. Approximately 11,120 acres burned at moderate-high intensity with high to very high Erosion Hazard Rating (EHR) prior to the fire. The primary effect of the fire to soil and watershed conditions is the reduction of ground cover density (GCD) and canopy cover. Ravelling on steep, shale slopes along with accelerated sheet and rill erosion will contribute to increased sediment bulking of stream channels during winter storm events.

2. Threat to life and property

The Baer Team determined that a threat to life and property existed within the fire area primarily along affected watercourses and the Piru Lake Road.

Threats to human life result from the threat of flooding, road washouts, rock slides, and debris torrents. These type of events can endanger motorists on Hwy 126, Piru Lake Road, and various private roads that provide access to houses, ranches, and oil developments. These events can also directly threaten human lives in Dominguez and Reasoner Canyons (private ranch houses), at Piru Lake recreation facilities, and along Hopper Canyon where flood waters and debris torrents could impact Hwy 126 and the housing provided along or near Hopper Canyon Creek.

Properties that may be affected include: Piru Lake Road (separate portions are maintained by Ventura County Road Department, United Water Conservation District, and USFS), Piru Lake recreation facilities, Piru Lake (through lost

storage capacity), Hwy 126, a sewage treatment plant, a housing development, a railroad bridge (currently not in use), orchards, oil pipelines, percolation ponds, and the Freeman Diversion on Santa Clara River.

3. Loss of water control

Increased volumes of water and sediment may overwhelm streams within and below the fire area resulting in flooding. Flood waters could affect Piru Lake Road, Piru Lake recreation facilities, Hwy 126, a sewage treatment plant, a housing development, a railroad bridge, orchards, oil pipelines, percolation ponds, and the Freeman Diversion on Santa Clara River.

4. Deterioration of water quality

Water quality will be adversely affected by runoff from ash covered mountainsides. Ash will adversely affect water quality by increasing turbidity and increasing the availability of nutrients. Water quality will be similarly degraded by increased suspended sediments resulting from runoff. Increased organic matter from burned vegetation may also affect water quality in Piru Lake. Fish habitat in Piru Lake is likely to be adversely affected by the influx of ash, sediments, and organic matter from tributary streams.

III. MITIGATION OF THE EMERGENCY

The following treatments have been proposed to minimize the risk of flooding and provide a warning system in the event that flooding does occur. The proposed treatments are also intended to reduce the potential threat to life and property and to protect water quality.

PIRU LAKE ROAD SITE #1

MILE POST 1.62 MAJOR DRAINAGE, REMOVE SILT DEPOSIT FROM CHANNEL AND HAUL MATERIAL TO DISPOSAL SITE AT MILE POST 2.0.
CULVERT IS A 36-INCH CMP, IT IS APPROXIMATELY 24 FEET FROM TOP OF ROADWAY TO THE CULVERT. THE CHANNEL VARIES FROM 75-FEET WIDE AT THE INLET TO 10-FEET WIDE AT THE BACK OF THE DRAINGE, THIS IS FOR A DISTANCE OF 300 FEET. EST. 6,000 TO 7,000 CU. YDS. OF MATERIAL TO BE REMOVED AND HAULED. EQUIPMENT NEEDED WILL BE A DUMP TRUCK, A SMALL DOZER, AND AN EXCAVATOR WITH A REACH OF 24 FEET. THIS PROJECT WILL TAKE APPROXIMATELY 2 WEEKS.

ESTIMATE:

FOREMAN	GS-9	80 HOURS @ $23.64 PER HR.=	$1,891.20
EXCAVATOR OPER.	WG-10	80 HOURS @ $21.94 PER HR.=	$1,755.20
DOZER OPER.	WG-10	80 HOURS @ $21.94 PER HR.=	$1,755.20
DUMP TRK.DRIVER	WG-10	80 HOURS @ $21.94 PER HR.=	$1,755.20
LABOR	WG-5	80 HOURS @ $11.50 PER HR.=	$ 920.00
PER DIEM FOR 2 WEEKS			$2,000.00
MILEAGE FOR 3 F.S. PICK UPS			$1,575.00

EQUIPMENT RENTAL WITH NO OPERATOR FOR 2 WEEKS.

EXCAVATOR WITH 24 FT. REACH	@ $1,000.00 PER WK.=	$2,000.00
DOZER	@ $1,200.00 PER WK.=	$2,400.00
DUMP TRUCK	@ $ 650.00 PER WK.=	$1,300.00
MOVE IN AND MOVE OUT OF EQUIPMENT	=	$1,000.00
TOTAL COST	=$18,351.80	

PIRU LAKE ROAD SITE #2

MILE POST 3.3 MAJOR DRAINAGE, REMOVE SILT DEPOSIT FROM CHANNEL TO PROVIDE A STRAIGHT SHOT FOR RUN OFF DURING WINTER STORMS. THIS IS A 36-INCH CMP, IT IS 24 TO 30 FEET FROM TOP OF ROADWAY TO THE CULVERT. THE SILT DEPOSIT TO BE REMOVED IS APPROXIMATELY 30 FEET LONG, 10 FEET WIDE AND IS 16 FEET HIGH. ALSO WILL REQUIRE SLOPING THE BANKS BACK TO 1 1/2 TO 1 SLOPE. APPROXIMATE CU.YDS. INCLUDING THE SLOPPED BANKS OF MATERIAL TO BE REMOVED AND HAULED TO DISPOSAL SITE AT MILE POST 2.00 IS 200.00 CU.YDS. APPROX. 2 DAYS TO COMPLETE.

FOREMAN	GS-9	20 HOURS @ $23.64 PER HR.=	$	472.80
EXCAVATOR OPER.	WG-10	20 HOURS @ $21.94 PER HR.=	$	438.80
DUMP TRK. DRIVER	WG-10	20 HOURS @ $21.94 PER HR.=	$	438.80
LABOR	WG-5	20 HOURS @ $11.50 PER HR.=	$	230.00

MILEAGE ON 2 F.S. PICK UPS	$ 250.00

EQUIPMENT RENTED WITH NO OPERATOR

EXCAVATOR WITH 24 FT.REACH	2 DAYS @$350.00 PER DAY	$	700.00
DUMP TRUCK	2 DAYS @$200.00 PER DAY	$	400.00
MOVE IN AND MOVE OUT OF EQUIPMENT		$	300.00
TOTAL COST		$3,230.40	

PIRU LAKE ROAD SITE #3

MILE POST 3.8 MAJOR DRAINAGE, TWO 72-INCH CULVERTS. CUT BACK DAMAGED INLETS, 24 TO 30 INCHES ON EXISTING 72-INCH CMPS AND REPLACE WITH NEW ENDS. CONSTRUCT CONCRETE HEADWALL WITH WING WALLS AND APRON.HEADWALL 26 FT.,WITH 24 FT. WING WALL ON NORTH SIDE AND A 12 FT. WING WALL ON THE SOUTH SIDE. REMOVE BRUSH AND DEBRIS FROM CHANNEL FOR A DISTANCE OF 5O FT. TO PROVIDE A STRAIGHT CHANNEL. CUT AND REMOVE BURNT BRUSH (SKELTONS) FROM CHANNEL BOTTOM AND SIDE BANKS UP STREAM FOR APPROXIMATELY 1,000 FT. APPROX. TWO WEEKS TO COMPLETE.

FOREMAN	GS-9	80 HRS @$23.64 =	$1,891.20
BACK HOE OPERATOR	WG-10	60 HRS.@$21.54 =	$1,292.40
FOREST CARPENTER	WG-8	80 HRS.@$20.00 =	$1,600.00
3 LABORS	WG-5	240 HRS.@$11.50 =	$2,760.00

PER DIEM	$2,000.00
MILEAGE FOR 3 F.S. VEHICLES	$1,575.00
MATERIALS:	
PIPE ENDS	$2,000.00
FORMING MATERIALS FOR HEADWALL	$1,000.00
REBAR #4	$ 500.00
CONCRETE 18 CU.YDS @ $85.00 PER CU.YD.	$1,530.00
EQUIPMENT RENTED WITH NO OPERATOR:	
BACKHOE 7 DAYS @ $250.00 PER DAY =	$1,750.00
TOTAL COST	$17,898.60

PIRU ROAD HOPPER FIRE

WINTER PATROL FOR RAINY SEASON WHICH VARIES FROM NOVEMBER THRU MARCH, WITH THE HEAVIEST RAIN USUALLY IN JANUARY AND FEBRUARY. THE WORK WILL CONSIST OF SLIDE REMOVAL AND CLEANING OF THE 28 DRAINS AS NEEDED THRU THE FIRE AREA.

ESTIMATE:
FOREMAN/DUMP TRK. DRIVER

FOREMAN/ DUMP TRK. DRIVER	GS-9	720 HRS. @$23.64	= $17,020.80
LOADER/BACKHOE OPER.	WG-10	720 HRS. @$21.54	= $15,487.20
LABOR	WG-5	720 HRS. @$11.50	= $ 8,280.00
MILEAGE ON TWO F.S. TRUCKS			= $ 4,725.00
EQUIPMENT RENTAL WITHOUT OPERATOR:			
DUMP TRUCK 90 DAYS @$250.00 PER DAY			= $18,000.00
LOADER/BACKHOE 90 DAYS @$250.00 PER DAY			= $22,500.00
TOTAL COST			= $86,013.00

HOPPER FIRE
ESTIMATED COSTS FOR PROPOSED EMERGENCY WATERSHED TREATMENTS
27 AUGUST 1997

Road Treatments

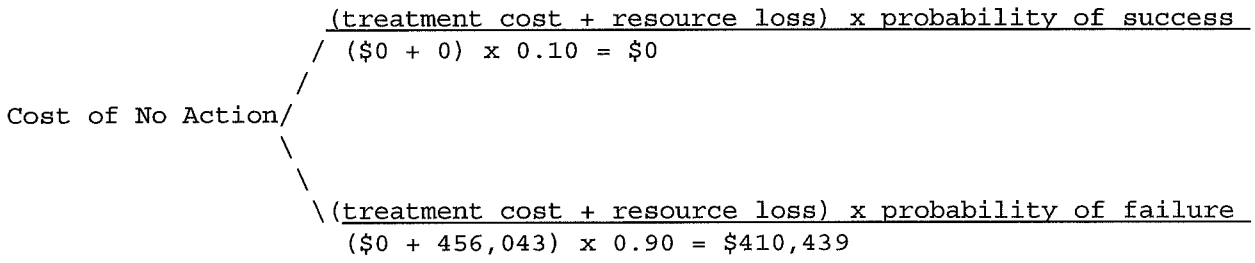
Mile post 1.62	remove silt from channel	$18,350
Mile post 3.30	remove silt from channel	3,230
Mile post 3.80	remove sediments, cut back damaged inlets, replace with new ends, construct concrete headwall and wing walls, cut and remove vegetation that burned in upstream channel for 1,000 feet.	17,900
FS road 4N13	road patrol including maintenance of 28 culverts.	86,000
	Total	$125,480

Resources at Risk

FS road 4N13	Cost of replacement is $201,000/mile or $38/foot 30 crossings are at risk. 100 feet of road at risk/crossing	
	100 feet/crossing x 30 crossings x $38/foot =	$114,000
	plus 30 culverts @ $10,000 culvert =	300,000
		$414,000
Piru Lake	Lost storage as a result of road failure: $1,136/acre foot of storage potential sediment influx from road failure is 10,000 cubic yards or about 6.2 acre feet	
	$1,136/acre foot x 6.2 acre feet =	$7,043
	degraded recreational fishing	$10,000
	lost revenues for concessionaire	$25,000
	Total	$456,043

Cost of Treatment / (treatment cost + resource loss) x probability of success
/ ($125,480 + 0) x 0.70 = $87,836
\
\ (treatment cost + resource loss) x probability of failure
($125,480 + 456,043) x 0.30 = $174,457

Total Cost of Treatment = $262,293



Total Cost No Action = $410,439