Date of Report: 9/17/2002

BURNED-AREA REPORT
(Reference FSH 2509.13)

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

[ ] 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 and design analysis
[ ]Status of accomplishments to-date

[ ] 3. Final report - following completion of work

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: **Pines** B. Fire Number: **CNF-1634**

C. State: **CA** D. County: **San Diego**
E. Region: **05** F. Forest: **Cleveland**
G. District: **Descanso**

H. Date Fire Started**:** **7/29/2002** I. Date Fire Controlled (estimate): **8/20/02**
J. Suppression Cost: **$16,500,000 (estimate)**

K. Fire Suppression Damages Repaired with Suppression Funds:
1. Fireline waterbarred (miles) **2 (dozer)**
2. Fireline seeded (miles) **0**
3. Other (identify) **n/a**

L. Watershed Number: **10020017 - Vallecito Creek**

M. NFS Acres Burned: **950** Total Acres Burned: **62,000**
Ownership type: (16000)BLM (16000) State Parks (1050) Calif. Department of Fish and Game (7000) BIA (3000) County (18000) Private

N. Vegetation Types: **Montane Mixed Chaparral**
O. Dominant Soils: **MrG, SrD - Metamorphic rock land, and Sloping gullied land**
P. Geologic Types: **gneiss, schist, granodiorite and associated alluvial fan**

Q. Miles of Stream Channels by Order or Class: n/a - no perennial streams on National Forest System lands
Order 1: __ Order 2: ___ Order 3: ___ Order 4:

R. Transportation System: (NFS lands)
Trails: **1.5** (miles) Roads: **0** (miles)

PART III - WATERSHED CONDITION

A. Fire Severity (Acres): **500** (low) **350** (moderate) **100** (high)

B. Water Repellent Soil (Acres): **100**

C. Soil Erosion Hazard Rating (Acres):
500 (low) **350** (moderate) **100** (high)

D. Erosion Potential: **98** tons/acre
E. Sediment Potential: **50,000** cu. yds/sq. mile

PART IV - HYDROLOGIC DESIGN FACTORS
Provided by Jason Jackson, Soil Scientist

A. Estimated Vegetative Recovery Period: **4** years.
B. Design Chance of Success: **90** percent.
C. Equivalent Design Recurrence Interval: **20** years.
D. Design Storm Duration: **6** hours.
E. Design Storm Magnitude: **0.6** inches.
F. Design Flow: **110** cfsm.
G. Estimated Reduction in Infiltration: **75** percent.
H. Adjusted Design Flow: **250** cfsm.

PART V - SUMMARY OF ANALYSIS

A. Describe Emergency:

The fire burned 62,000 acres of which 950 acres were on the Cleveland National Forest and 61,050 within various other federal, state, county and private ownerships. The other affected land management agencies are preparing their own rehabilitation plans, therefore this plan will address only National Forest System (NFS) lands and associated downstream areas. The area downstream of the Cleveland National Forest is entirely within the Sawtooth Mountain Wilderness, which is owned by the Bureau of Land Management (BLM). The fire burned through portions of the upper watersheds of Storm Canyon and Cottonwood Canyon. Both of these empty into Vallecito Creek near County Road S-2 .

The Pines Fire severity was mostly low to moderate with many areas that are solid bedrock. Rocky areas comprise nearly 50% of the acres burned on the Cleveland National Forest. The remainder of the area is steep with erosive soils and large boulders. It is expected that the top inch or two of soil may erode from the moderate and high severity burn areas, which may affect the wilderness located downstream. Fuel accumulations were high and left a 1 to 2 inch ash layer above the soil surface. A few areas of the soil surface in the moderate and high severity portions of the fire are hydrophobic, causing concern for the upcoming rainy season which usually starts in November. If significant rainfall occurs, minor debris flows of ash, soil and rock may occur in the steeper areas of the fire (mostly on the desert escarpment). However, the total number of acres with hydrophobic soils is small which would minimize the effect.

Within the fire perimeter, there were at least two significant archaeological sites that were burned over and four previously unrecorded sites. The sites are at risk from erosion related to the fire and need further evaluation and protection. The estimated cost to complete these actions is $2,000. See discussion below for details.

A limited evaluation of the effects of the Pines Fire on archaeological and historical properties was conducted on 15 August and 19 August 2002. The initial investigation was to assess the status of two known historic properties within the burned area; a historic/proto-historic/prehistoric Native-American Kwaymii Trail and two Traditional Cultural Properties (TCP) referred to by the Kwaymii as the “Shrine” and the “Guardian of the Trail”. An additional goal was to identify any unrecorded historic properties associated with or in close proximity to the Trail. A local Kwaymii informant was present during both investigations to assist in the identification and interpretation of any cultural features observed.

The initial investigation located two previously unrecorded habitation sites represented by numerous ceramic fragments and ocean mollusk shell. Numerous large and small “Cairns” were also noted. According to the local informant, these Cairns represented Trail markers. During the second investigation, two more habitation sites also represented by ceramic fragments were found.

There were no other resources, life, or property at risk, and no emergencies identified on National Forest System lands. There was a concern about the 1.5 miles of the Pacific Crest Trail that were within the burn. This area was investigated in detail by Dave Harloff, Forest Trails Specialist, and Kirsten Winter, BAER Team leader on August 6, 2002. The portion of the trail between Pioneer Mail and the Garnet Fire was surveyed for possible emergencies. The trail is well constructed with numerous dips and drains. The adjoining slopes are at least 50% rock so are relatively stable. No emergencies related to the effects of the fire were identified.

The areas downstream of the NFS acres are within a Bureau of Land Management Wilderness. Due to the minimal impact of the fire on these areas, the desire to preserve wilderness values, and the absence of risks to downstream property or homes, BLM staff recommended that no burned area rehabilitation be completed on these lands.

The BAER team considered a seeding alternative. The team concluded that the bulk of the burn area was too steep for seeding to be successful. Vegetation specialists concluded that studies and research show that most sites recover successfully under natural conditions with native vegetation, and that seeding may set back vegetation recovery (see attached report).

B. Emergency Treatment Objectives:

Archeological sites:

For the purposes of heritage resources impact analysis, the “Area of Potential Effect” (APE) for the Pines Fire is located within the combined perimeter of the fire burn area, locations of rehabilitation actions, and areas potentially impacted by indirect fire effects (i.e. flooding, debris flows, etc).

Research has shown that wildfires clearly have the potential to damage or destroy heritage resources through: (1) direct effects of the fire; (2) ground disturbing suppression or rehabilitation activities; and/or (3) erosive soil movement caused by subsequent storm precipitation. These impacts may completely destroy historic and archeological resources or alter the context of surface and subsurface cultural remains vital to any scientific analysis or interpretation. Also, wildfires may increase the visibility and accessibility of archeological site locations making them more susceptible to vandalism/artifact looting and unauthorized recreational activity. The Pines Fire has the potential to directly or indirectly impact four (4) heritage resources (habitation sites) and one (1) Traditional Cultural Property (TCP) located within the area.

The objective of this report is to reduce damage to significant heritage resources due to the increased runoff and erosion, and debris flows resulting from the effects of damaging events (i.e. storms) on the deteriorated watershed as well as from the rehabilitation measures themselves. Any unknown heritage resource, or those which

have not been evaluated as to their significance, would be classified as Class II Heritage Resource Sites. Manual direction states that all Class II sites be afforded the same consideration and protection as Class I sites, which are defined as those historic or prehistoric resources determined eligible to the National Register of Historic Places (NRHP) per criteria 36 CFR 60.4 until that evaluation takes place (FSM 2361).

Primary concerns about damage to significant heritage resources centers on ground disturbance directly impacting known and unknown heritage resources, the potential to bury surface and subsurface heritage resources to prohibit discovery; and the possibility of soil movement which would change the context of the remains which would be vital to any scientific analysis or interpretation value that the resource may have. The burn may have an indirect impact of increasing the visibility of the site locations to make them more susceptible to vandalism. It is assumed the same effects would hold true for any unknown heritage resources within the burn perimeter.

The slopes on which the recently located four (4) habitation sites are situated have burned in a moderate intensity fire. It be expected that sediment movement may result from a damaging storm event. As such, the few above surface remnants of these four habitation sites are at risk of being impacted and possibly destroyed. A hydrologist and/or soil scientist is needed to evaluate the erosiveness of the soils in which these heritage resources are located. Protective measures for these heritage resources can be developed, depending on the results of these studies.

The Traditional Cultural Property (TCP), formally located within a densely vegetated area, was burned in a moderate in a moderate intensity. As a result, this heritage resource is now completely visible and is at risk for vandalism. An evaluation by a botanist or similar specialist of the general area in which this TCP is located by is needed to access the capability of the area to re-vegetate. Recommendations for the protection from vandalism of the TCP will be based on the results of these studies.

Estimated cost for these preliminary Heritage Resources BAER studies is $2,000

Rest of area: No treatment. Due to the low risks to life and property, the wilderness area located within and downstream of the burned area, and the limited effectiveness of available treatments, the BAER team recommends that no treatments be applied to the remainder of the burned area.

C. Probability of Completing Treatment Prior to First Major Damage Producing Storm: 100%.

D.Probability of Treatment Success: Prescribed archaeological site treatment is survey and protection. Prescribed land treatment is natural vegetation recovery. Based on experience with past fires on the Cleveland, predicted success is as follows:

Years after Treatment

	1	3	5
Land	95%	95%	95%
Channel	N/a	N/a	N/a
Roads	N/a	N/a	N/a
Other	90%	90%	90%

E. Cost of No-Action (Including Loss): $ **50,000** **(soil loss)**

F. Cost of Selected Alternative (Including Loss): $ **50,000** **(soil loss)**

G. Skills Represented on Burned-Area Survey Team:

[ ] Hydrology [X] Soils [ ] Geology [] Range
[ ] Timber [X] Wildlife [X] Fire Mgmt. [X] Botany
[X] Archaeology [X] Trails Specialist

Team Leader:Kirsten Winter

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H. Treatment Narrative: No emergency treatments are recommended.

Suppression Rehabilitation

To protect the native vegetation and wildlife resources on National Forest System lands, bulldozer lines and staging areas will be ripped and revegetated. Revegetation will be accomplished by pulling back brush that was cleared (on bulldozer lines). Natural barriers such as boulders and constructed barriers such as wood posts will be installed to prevent foot traffic or vehicle traffic on rehabilitated lines and staging areas. Where affected by suppression activity, the Pacific Crest Trail will be restored to its pre-fire condition by a trail machine.

I. Monitoring Narrative: Monitoring the effectiveness of “no treatment” at archaeological sites is recommended. Monitoring should occur for one year at an estimated cost of $4000. Monitoring will require visiting the 6 sites in Cottonwood Canyon before and after winter rains to assess whether there is a need to protect sites with straw wattles or other measures.

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				$0						$0
				$0			$0		$0	$0
				$0			$0			
				$0			$0		$0	$0
				$0			$0		$0	$0
Subtotal Land Treatments				$0			$0		$0	$0
B. Channel Treatments										
				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
Subtotal Channel Treat.				$0			$0		$0	$0
C. Road and Trails										
				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
Subtotal Road & Trails				$0			$0		$0	$0
D. Structures										
				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
Subtotal Structures				$0			$0		$0	$0
E. BAER Evaluation				$7,000						$7,000
				$0			$0		$0	$0
				$0			$0		$0	$0
F. Monitoring				$4,000			$0		$0	$4,000
G. Totals				**$11,000**			**$0**		**$0**	**$11,000**

PART VII - APPROVALS

1. __/s/ Anne S. Fege_____ _10/24/02
Forest Supervisor (signature) Date

2. _____ _____
Regional Forester (signature) Date

BAER TEAM/ SUPPRESSION REHAB TEAM PARTICIPANTS

Ron Woychak, Fire Management Specialist, Bureau of Land Management, San Diego

Jason Jackson, Soil Conservationist, Natural Resources Conservation Service, Escondido

Michael Weichman, Forest Archaeologist, Cleveland National Forest.

Dave Harloff, Trails Specialist/Assistant Team Leader, Cleveland National Forest

Kirsten Winter, Biologist/Team Leader, Cleveland National Forest

ATTACHMENTS

1. Biologist Report. Cleveland National Forest and Bureau of Land Management.
2. Vegetation Specialist Report. Cleveland National Forest.

BIOLOGIST REPORT
PINES FIRE
CLEVELAND NATIONAL FOREST

Prepared by Kirsten Winter - Forest Biologist

THREATENED, ENDANGERED, PROPOSED, AND SENSITIVE SPECIES

There are no populations of threatened, endangered, or proposed plant or animal species and there is no potential habitat for any threatened, endangered, or proposed species within the burned area on National Forest System lands.

There is one historic sighting of the San Diego Mountain Kingsnake (Lampropeltis zonata pulchra), a Regional Forester's Sensitive list species, within the area affected by the fire suppression activities. This was near Garnet Peak. The activity in this area was construction of bulldozer line. This activity was expected to have no effect on Mountain Kingsnake as it did not affect the large rock outcrops that this species inhabits.

There are no records for Regional Forester's Sensitive plant species within or immediately adjacent to the Pines Fire.

VEGETATION SPECIALIST REPORT
PINES FIRE
CLEVELAND NATIONAL FOREST

Prepared by Kirsten Winter - Forest Biologist

EXPECTED VEGETATION RECOVERY

Based on the following information, the probability that the vegetation will recovery rapidly, without any treatment, is high. Natural revegetation is expected to reduce erosion and overland waterflow in high hazard areas. The following information is derived from the Fire Effects Information System except where otherwise cited.

Shrub Recovery

All chaparral species have the ability to regenerate rapidly after fire through seed germination or resprouting (Keeley 1977). Fire usually kills seeds on the soil surface. However, buried seeds remain insulated from extremely high temperatures, provided that the soil is relatively dry (summer and fall conditions). Some seeds, especially those of ceanothus and fire-following herbs, only germinate after fire. Chaparral species that are obligate seeders after fire are resilient to fire-free intervals of 100 years or more (Keeley, 1976). Some of these species germinate in response to fire-related opening of the seed coat, while others respond to chemicals in the ash.

Moreno and Oechel (1991) investigated the effect of fire intensity on the germination of shrubs and herbs in chaparral. They piled brush onto established plots prior to burning to achieve different fire intensities. Increasing fire intensities promoted earlier germination of Ceanothus greggii, but resulted in decreased germination of chamise (Adenostoma fasciculatum). Amongst herbs, fire-following annuals such as Phacelia brachyloba were resistant to increasing fire intensity. Deerweed (Lotus strigosus) was stimulated by all levels of increased fire intensity.

In the Pines Fire, the chaparral that burned was dominated by Manzanita (Arctostaphylos glandulosa), Mountain Mahogany (Cercocarpus betuloides) and Scrub Oak (Quercus x acutidens). All of these species sprout vigorously after fire and recruit vigorously from seed. Evidence of this was present at the southern perimeter of the fire. Within the area burned in the Laguna 100 fire in 1999, resprouting manzanita bushes are already 1 foot tall.

Herbaceous Vegetation Recovery

In the first spring after a fire there is abundant growth of deciduous semi-woody and herbaceous plants that arises from the seed bank or from underground rhizomes or bulbs. Keeley et al. (1981) studied first year post-fire herbaceous cover within the perimeter of the Laguna and Boulder Fires in San Diego County. These fires occurred during late September and early October in 1970. Average herbaceous cover measured between 30 and 80 percent. Common native species included annual snapdragon (Antirrhinum coulterianum), pincushion flower

(Chaenactis artemisiaefolia, popcorn flower (Cryptantha intermedia), and annual lotus (Lotus salsuginosus).

Personal observations of post-fire recovery after the Ortega Fire, which burned 10,000 acres of the Cleveland National Forest in 1993, and of recovery from the Vail Fire which burned 10,000 acres on the Palomar Ranger District in 1989, indicate that recovery of herbaceous vegetation after fire is rapid and abundant. Cover values of 70% or greater were observed during the spring following the fire, even in areas where the burn intensity was high (see photo files, Cleveland National Forest).

Herbaceous species that can be expected to be abundant after fire include Morning Glory (Calystegia macrostegia), Popcorn Flower (Cryptantha intermedia), Whispering Bells (Emmenanthe penduliflora), Phacelia (several species), and Deerweed (Lotus scoparius).

EFFECTS OF SEEDING

Due to the steep and rocky nature of the slopes in the burned area, seeding of the slopes is unlikely to be an effective treatment for maintaining slope stability. In the event that a seeding treatment is selected, adverse effects on the recovery of native vegetation are to be expected.

Seeding with Non-native Annual Grasses

Chaparral is a fire-adapted plant community that typically burns in high-intensity crown fires. In studies of the effects of seeding with annual ryegrass (Lolium multiflorum), a non-native grass, unseeded and seeded areas have had similar rates of vegetation recovery and erosion. Conard (1993) studied three Southern California fires over 2 years. Only one site had significantly higher cover in seeded vs. unseeded plots, and her analysis showed "no evidence that the seeding of ryegrass significantly reduced the amount of surface erosion in the post-fire environment at any of the three sites." A study conducted in chaparral in San Diego County obtained similar results (Keeley 1981).

Soil loss is accelerated after fire and the risk of flooding is increased. Wells (1985) studied fires in the San Gabriel Mountains, and found that dry ravel and formation of rill networks account for most of the increased erosion. In areas where hydrophobic soils were present, large debris flows occurred. As little as 15 mm of rainfall could initiate a flow. According to Rice (1974), almost 70 per cent of the sediment flow from burned watersheds occurs in the first year following fire. Since much of the erosion may occur soon after the fire, and before there has been enough rain to allow seeds to germinate, seeding with ryegrass has little effect on postfire erosion (Wakimoto, 1979; Krammes and Hill, 1963).

Response of Native Vegetation

Many studies have reported the inhibition of chaparral shrubs, conifers, and native herbaceous species by exotic grasses used in fire rehabilitation in Southern California. Nadkarni and Odion

(1985) compared seeded areas with unseeded areas. Unseeded plots had higher native species diversity and biomass. Seeding of ryegrass apparently inhibited growth of fire-following herbs (Helianthemum scoparium, Turricula parryi) and inhibited shrub seedlings (Ceanothus crassifolius). Conard (1993) studied three fires and concluded that in all cases, species diversity was higher on unseeded plots. Seeding appeared to facilitate introduction of other non-native grasses. The Marble Cone Fire on the Monterey District of the LPNF was studied for three years by Griffin (1982). Ryegrass seeding was associated with high mortality of ceanothus shrub seedlings and decreased regeneration of pines. Other researchers have confirmed that ryegrass seeding inhibits the regeneration of native shrubs and herbs (Taskey et al. 1988, Keeley et al. 1981).

Zedler et al. (1983) studied a fire in San Diego County that was seeded with annual ryegrass. Where ryegrass was successfully established, it provided a fuel layer that supported a reburn of the area just one year later. The native shrubs had reseeded and sprouted after the first burn, but nearly all were killed by the second fire. This resulted in a type conversion of the area from native chaparral to non-native grassland.

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