

Date of Report: July 8, 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, Monitoring Plan Funding Request
☒ 2. Accomplishment Report
☐ 3. No Treatment Recommendation

B. Type of Action

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

Phase II

- ☒ 2. Interim Report
☐ Updating the initial funding request based on more accurate site data or design analysis
☒ Status of accomplishments to date
☐ 3. Final Report (Following completion of work)

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: McNally

B. Fire Number: 55764 (CA-SQF-1888)

C. State: CA

D. County: Tulare

E. Region: Pacific Southwest (R-5)

F. Forest: Sequoia NF incl. Giant Sequoia Natl. Monument

G. District: Cannel Meadow and Tule River

H. Date Fire Started: July 21, 2002

I. Date Fire Controlled: 9/3/2002

J. Suppression Cost: 53,342,000 (as of 9/8/02)

K. Fire Suppression Damages Repaired with Suppression Funds

1. Fireline waterbarred (miles): 172 (31 miles of dozer line and 142 miles of handline)

2. Fireline seeded (miles): 0

3. Other (identify):

L. Watershed Number: Middle Kern River (1803000105)

M. Total Acres Burned: 150,670

NFS Acres (149,202) Other Federal () State () Private (1,489)

N. Vegetation Types: Mixed conifer, heavy brush, grass, and fir stands

O. Dominant Soils: Auberry-Cieneba-Rock Outcrop, Livermore family-Rock outcrop, Rock outcrop-Cieneba-Chawanakee, Chawanakee-Rock outcrop-Chaix

P. Geologic Types: Undifferentiated granitics, metamorphic rx from Kernville Series (phyllite, gartzite, schist, and marble)

Q. Miles of Stream Channels by Order or Class:

Ephemeral-1,213 Seasonal- 249 Perennial- 295

R. Transportation System

Trails: 178 miles Roads: 166 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 33,368 (Unburned Inclusions) 43,811 (low) 60,973 (moderate) 12,518 (high)

B. Water-Repellent Soil (acres): 31,900

C. Soil Erosion Hazard Rating (acres): 0 (low) 51,964 (moderate) 65,856 (high and very high)

D. Erosion Potential: 40 to 60 tons/acre

E. Sediment Potential: 4,570 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years):	<u>5</u>
B. Design Chance of Success, (percent):	<u>20</u>
C. Equivalent Design Recurrence Interval, (years):	<u>5</u>
D. Design Storm Duration, (hours):	<u>6</u>
E. Design Storm Magnitude, (inches):	<u>2.3</u>
F. Design Flow, (cubic feet / second/ square mile):	<u>8.7</u>
G. Estimated Reduction in Infiltration, (percent):	<u>21</u>
H. Adjusted Design Flow, (cfs per square mile):	<u>53.3</u>

PART V - SUMMARY OF ANALYSIS

The McNally Fire emergency rehabilitation evaluation was performed in two phases due to the continued burning of the fire. This evaluation is for the entire fire as it tripled in size from the first phase of the analysis. Those conditions or treatments that are applicable only to Phase I of this evaluation have been grayed out to reduce redundancy and confusion. Many of the conditions in Phase I are also present in Phase II and have been updated to account for concerns relative to the whole fire area. In section VI "Emergency Rehabilitation Treatments and Source of Funds by Land Ownership" spreadsheet a second sheet was added to account for costs associated with Phase II while maintaining the integrity of the original Phase I cost requests. Phase I requests may be viewed by double clicking on the spreadsheet and selecting the Phase I tab at the bottom. Since the Phase I request was submitted road engineers have evaluated the pavement conditions. The Forest is requesting replacement of fire burned pavement in this phase which was not included in Phase I request as previously thought.

A. Describe Watershed Emergency: The McNally fire started on July 21, 2002 from careless use of fire near the Roads End Resort within the Kern Canyon. The fire spread rapidly within the Kern Canyon to threaten the communities of Johnsondale, Ponderosa, and other small subdivisions on private land. It burned into the Giant Sequoia National Monument and threatened the giant sequoia groves (Fig. 1). The western advance of the fire was halted within 1 mile of the nearest grove. Its southernmost advance was to Baker Peak area at the north end of the 1990 Stormy Fire. On the southeast, the fire was halted east of Bald Mountain Lookout at the northern extent of the Manter Fire. The northern extent of the fire reached the Toowa Ridge on the Inyo National Forest.

The primary emergency is centered on the burn effects leading to threats to life and property (Fig. 2). The fire area includes communities, subdivisions, group camps, and resorts, as well as numerous Forest Service developed and dispersed campgrounds that are popular with inhabitants of nearby Bakersfield and recreation visitors from the Los Angeles area. The hazards affecting public safety include:

- The roads within the fire are affected by an increase in runoff in amounts greater than drainage structures are able to safely pass (Fig.3). This places the road system at risk and has the potential to threaten downstream users. Road and trail system drainages are designed to pass pure water, without any allowance for sediments, floatable debris, or rocks. The effects of the fire on road systems are excessive runoff, suspended solids in the runoff, and floatable debris. The emergency arises from a number of effects: culverts and other drainage structures are at risk from increased storm flows and associated debris expected from the 1st year's storms following the fire. Additionally, hazards to the road exist from dead trees and falling rocks. The severity of the burn in many locations upslope or adjacent to roads make many locations vulnerable to damage, due to loss of water control. Inadequate design flows along with inadequate drainage and ability to pass the large size and volume of sediment expected from denuded soils and high erosion rates continue to affect road resources and pose safety problems.
- An additional 178 miles of established trails exist within the second phase of the burn area (Fig.3). Emergency conditions are: 1) sections of trail downslope from high severity burn areas where log water bars have been consumed by fire resulting in trails devoid of drainage; 2) trails, which as a result of the fire currently are without proper drainage and are directly connected to aquatic habitats. Sections of trail have runoff conditions that are likely to damage trails, create detrimental effects to Kern River rainbow

trout (CDF&G species of special concern), FS designated sensitive herpetofauna and their habitat, and add to the cumulative runoff effects created by the fire, thus increasing danger to downstream communities and other values at risk. With the exception of three miles in the Ninemile and Redrock drainages, further investigations of these resources are necessary before requesting emergency funds. This information will be forthcoming.

- A number of known heritage resource sites are located in this area. Primary concerns about damage to significant heritage resources center on ground disturbance from BAER activities directly impacting known and unknown heritage resources, and the potential for erosion or sedimentation to bury surface and subsurface heritage resources which has the potential to change the context of the remains which would be vital to any scientific analysis or interpretation value that the resource may have. A total of six sites were found in need of emergency treatment. One site holds importance to the Native American community and is at risk of being lost.
- Emergency conditions exist in Rattlesnake, Ninemile (including Cold and Redrock Creeks), Soda, Manzanita, Dry Meadow, and Peppermint watersheds, where large portions of the watershed contain moderate and high severity effects above areas with downstream values at risk. The following table provides information on the percent increase in sediment and water yield expected to occur as a result of the fire in selected watersheds.

Conditions by Watershed

Watershed	% Watershed in High and Moderate Severity	% Increase in Sediment Yields	% Increase in Water Yields
Rattlesnake Creek	42%	470%	780%
Nine Mile Creek	19%	475%	355%
Manzanita Creek	79%	690%	1265%
Soda Creek	58%	870%	1295%
Osa Creek	53%	400%	690%

- There is a fire-caused emergency for loss of effective ground cover and hydrophobic conditions. Most of the high severity burn areas occurred in forested environments that provide timber resources, as well as habitat for spotted owls, fisher, and other key elements to these diverse ecosystems (Fig.4). There is a high probability of erosion, to the extent of reducing the productivity of the soil, due to non-cohesive coarse textured soils with loss of effective ground cover and the presence of hydrophobic soil conditions on all slope ranges on high and moderate severity slopes.
- An emergency exists for aquatic/riparian habitats within the North Fork Kern River basin. The emergency exists due to:
 - 1) Direct, indirect, and cumulative effects to aquatic habitat in the North Fork of the Kern River from fire-induced sedimentation. Possible effects on aquatic/riparian species of concern include the Kern River rainbow trout, mountain yellow-legged frog, foothill yellow-legged frog, and the Fairview Kern Canyon slender salamander;
 - 2) The loss of riparian vegetation, affects on beneficial uses, and the resulting fragmentation of mountain yellow-legged frog habitat within higher elevation drainages;
 - 3) The operations of Kern River 3 hydropower project, due to the increased sediment loading from the fire to the intake and "sand trap," negatively affecting downstream aquatic habitats;
 - 4) Loss of the water source to the California Department of Fish and Game Fish Hatchery if Kern River 3 becomes inoperative during periods of high turbidity.
- The terrestrial wildlife consequences for the McNally Fire are: 1) retention of stand attributes and elements important for late-seral species at risk; 2) further fragmentation of suitable habitat and isolation of TES populations; 3) protection of important riparian and meadow environments; 4) impacts on vegetative cover on deer winter range, migration routes, and applicable areas of summer range, resulting in higher levels of predation or poaching; and 5) lack of adequate forage and browse for deer within winter range and along migration routes for the 1st year following the fire. See Figure 6 for wildlife habitat associated with the fire.

- There is the potential for loss of property and loss of water quality from high water levels and excess sediment entering the Kern River from the above-named tributaries. The Fairview Dam, Southern California Edison power plant KR3, Falling Waters resort, Fish and Game fish hatchery, and dispersed campsites are at risk either from high waters resulting from loss of vegetation upstream or excess sediment introduced into the system by soil erosion and mass wasting; see Runoff Response Map (Fig. 7).
- A significant risk of noxious weeds exists resulting from weeds spreading to the fire area (that is relatively free from serious weed infestations). The initial attack equipment was cleaned on the way into the fire. However, the second shift of suppression resources did not receive cleaning on the way into the fire. Approximately 90 miles of dozer lines, 30 drop points, and 17 helispots were constructed or cleared during fire suppression activities. Dozer lines, drop points, and helispots may serve as weed dispersal corridors and suppression equipment can act as weed vectors. Movement of fire suppression and rehabilitation equipment can disperse and spread noxious weeds to and from areas within the fire and among home units. Dispersal of weeds from fire equipment movement poses a significant risk to the native plant post-fire regeneration. Roadsides and dozer lines will be most impacted by this threat.
- Durwood Creekside Resort, a special use facility on National Forest System land, is located below a 237-acre watershed. This watershed has a moderate to high burn severity and the major channel that drains this watershed crosses the driveway and is between the main lodge and shop/barn of the resort. Through the resort, this channel is confined in a 3' X 3' box culvert that is covered by wooden planks. There is a high likelihood that expected flows will exceed the capacity of the box culvert and flood the house and shop/barn. Potential damage to the structures could easily exceed \$25,000. People living in the lodge could be at risk and could get hurt or killed during a flood event. While the hazard of flooding in this area is moderate, the magnitude of impact is high.
- Safety of travelers on the Sherman Pass Road, Cherry Hill Road, Lloyd Meadow Road, Mill Campground Road traveling on the 86 miles of Forest Road within the Phase I burn area (contact was made with Tulare County Public Works to advise them of concerns for County Road 99). Sherman Pass Road is one of only two trans-Sierra routes connecting the Central Valley with Owens Valley between Tioga Pass to the north in Yosemite National Park and California Highway 178 to the south crossing Walker Pass north of Tehachapi, CA (Fig. 3). This is one of the most highly traveled roads on the Sequoia National Forest and the California Highway Patrol raised concern for driver's safety on this route. The emergency arises from a number of effects: 1) loss of road signs, 2) fire-scorch to pavement affecting traction, 3) possible loss of culverts and other drainage structures in the 1st years storms, and road hazard from dead trees and rocks falling on the road. With the exception of the pavement issue, these same hazards are found on the other roads used by local residents and recreational visitors with destinations on the National Forest or passing through to Sequoia National Park. Obviously, there is loss of Forest Service property due to the burn destroying the signs and such. The severity of the burn in many locations upslope of the roads or adjacent to them make many locations vulnerable to damage due to loss of water control.
- A similar threat to recreational users exists for the 66 miles of established trails and many developed recreation sites within the Phase I area. Many of these trails are loop trails that interconnect within the system to make closure difficult if not practically impossible. Many of the group camps including Camp Whitsett operated by the Boy Scouts of America and local communities that are recreational destinations are found scattered within the trail system affected by the McNally fire within the Phase I assessment area (Fig. 4). Both hikers and OHV trail users would be threatened. The emergency conditions are: 1) the hazard trees along the established trails, 2) destroyed signs increasing the likelihood of hikers entering areas with burn snags, and 3) sections of trail downslope from high severity burn areas where runoff is likely to damage trails. This also represents a loss of Forest Service property both actual (signs) and potential (runoff damage to trail tread). These same emergency conditions exist for the 16 Forest Service developed recreation sites. Along the Kern River corridor (near the river), weekend and holiday use of dispersed areas may involve many more people being within the burn area compared to the developed sites present within the corridor. The same emergency conditions threaten users of the

private recreational facilities such as McNally's Steakhouse and motel, Durwood Creekside Bed and Breakfast, and R Ranch Resort. Additionally, popular dispersed recreation sites scattered throughout the area of Phase I assessment are situated on alluvial flats or near channels where flash flood potential exists (Fig. 5).

B. Emergency Treatment Objectives:

1. To keep the road safe for public travel and maintain and protect the forest's investment in the road infrastructure.
2. To protect the public and employees from hazards, degraded road or trail conditions, and flash flooding and mud flow potential.
3. To provide protection of heritage sites from BAER activities and erosion and deposition resulting from post fire conditions.
4. To reduce the loss of soil by providing ground cover, and to maintain site and ecosystem productivity within Dry Meadows Creek, Rattlesnake Creek, Soda Creek drainage, Ninemile drainage, as well as increase the rate of vegetation recovery.
5. Control water runoff and sediment delivery from burnt landscapes onto existing trails, which are directly connected to riparian areas and special species habitat.
6. Monitor for the spread of noxious weeds to other areas where they are not found in the fire area, due to second shift of suppression resources not receiving cleaning on the way into the fire.
7. Monitor of deer population numbers, winter range forage condition and trend to determine the need for supplemental feed for deer and wildlife along migration corridors and winter use areas.
8. To protect the Durwood Creekside Resort by reducing storm runoff from the severely burned watershed and to control flood waters to limit damage within the resort area.

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

Land 70 % Channel % Roads 70 % Other %

D. Probability of Treatment Success

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

E. Cost of No-Action (Including Loss): \$30,534,700

F. Cost of Selected Alternative (Including Loss): \$6,748,000

G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input checked="" type="checkbox"/> Geology	<input type="checkbox"/> Range	<input checked="" type="checkbox"/> Remote Sensing
<input checked="" type="checkbox"/> Forestry	<input checked="" type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input checked="" type="checkbox"/> Engineering	<input type="checkbox"/>
<input type="checkbox"/> Contracting	<input type="checkbox"/> Ecology	<input checked="" type="checkbox"/> Botany	<input checked="" type="checkbox"/> Archaeology	
<input checked="" type="checkbox"/> Fisheries	<input checked="" type="checkbox"/> Research	<input type="checkbox"/> Landscape Arch	<input checked="" type="checkbox"/> GIS	

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H. Treatment Narrative:

The fire burned 52% of the area at high and moderate severity, 33% low severity, and 15% remained unburned. Treatments are proposed at strategic locations within high and moderate severity burn areas, in order to reduce to the extent possible detrimental effects to downstream values at risk, while providing effective ground cover to protect soil resources and provide sediment reduction. Selection of locations for land treatments considered position on the slope in relationship to the severity of the fire and downstream values at risk. Sites at selected locations were chosen based on lack of effective ground cover, position on slope, and potential for sediment retention.

Phase II Treatments

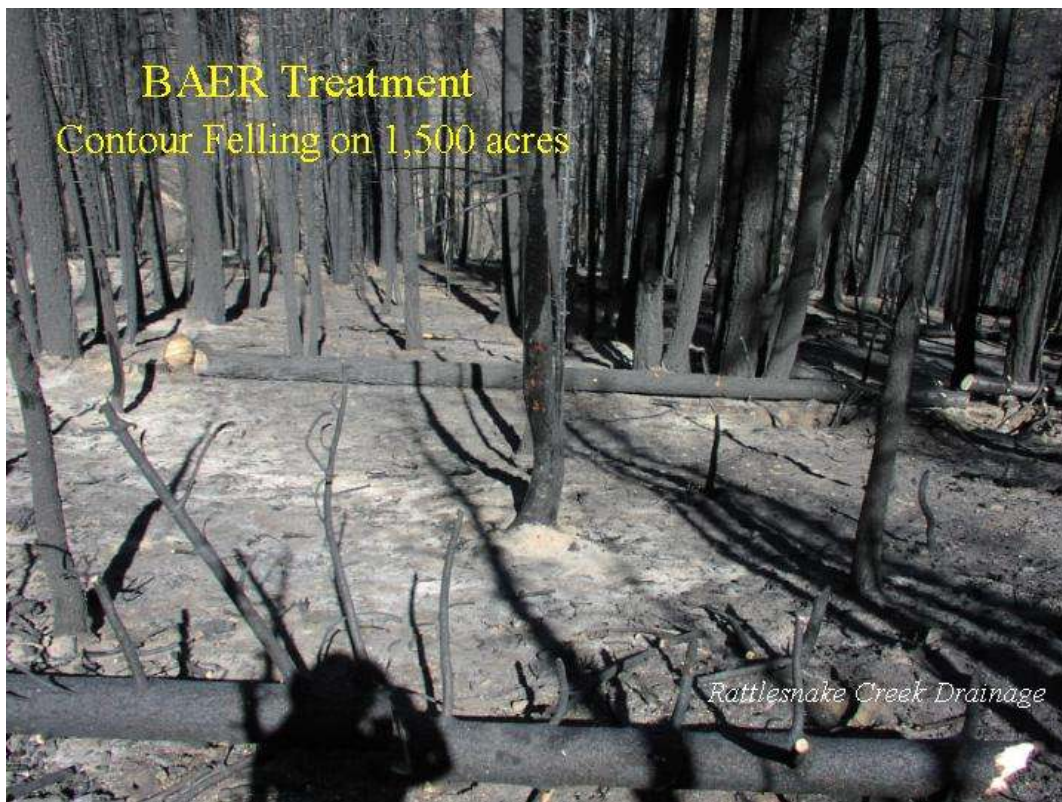
(All treatments have specification sheets that detail work and provide cost breakdowns)

Land Treatments:

Contour Felling

Contour felling is recommended to provide immediate and effective stabilization of soils, provide for retention of sediment, effective ground cover, and maximize the potential for vegetation reestablishment. This treatment is focused in the Rattlesnake Creek Drainage. Contour felling will reduce soil erosion rates, downstream sediment transport, and potential for debris slides.

Contour felling of trees is prescribed for areas of high severity in formerly forested communities where sufficient stems per acre and/or the appropriate diameter class exist. All trees < 14" dbh will be felled on contour on slopes ranging between 15-40% followed by scattering of slash. Felling on the contour should occur where feasible. The main trunk of the tree should be limbed and bucked to provide effective contact with the soil surface. Trenching and staking is not required.



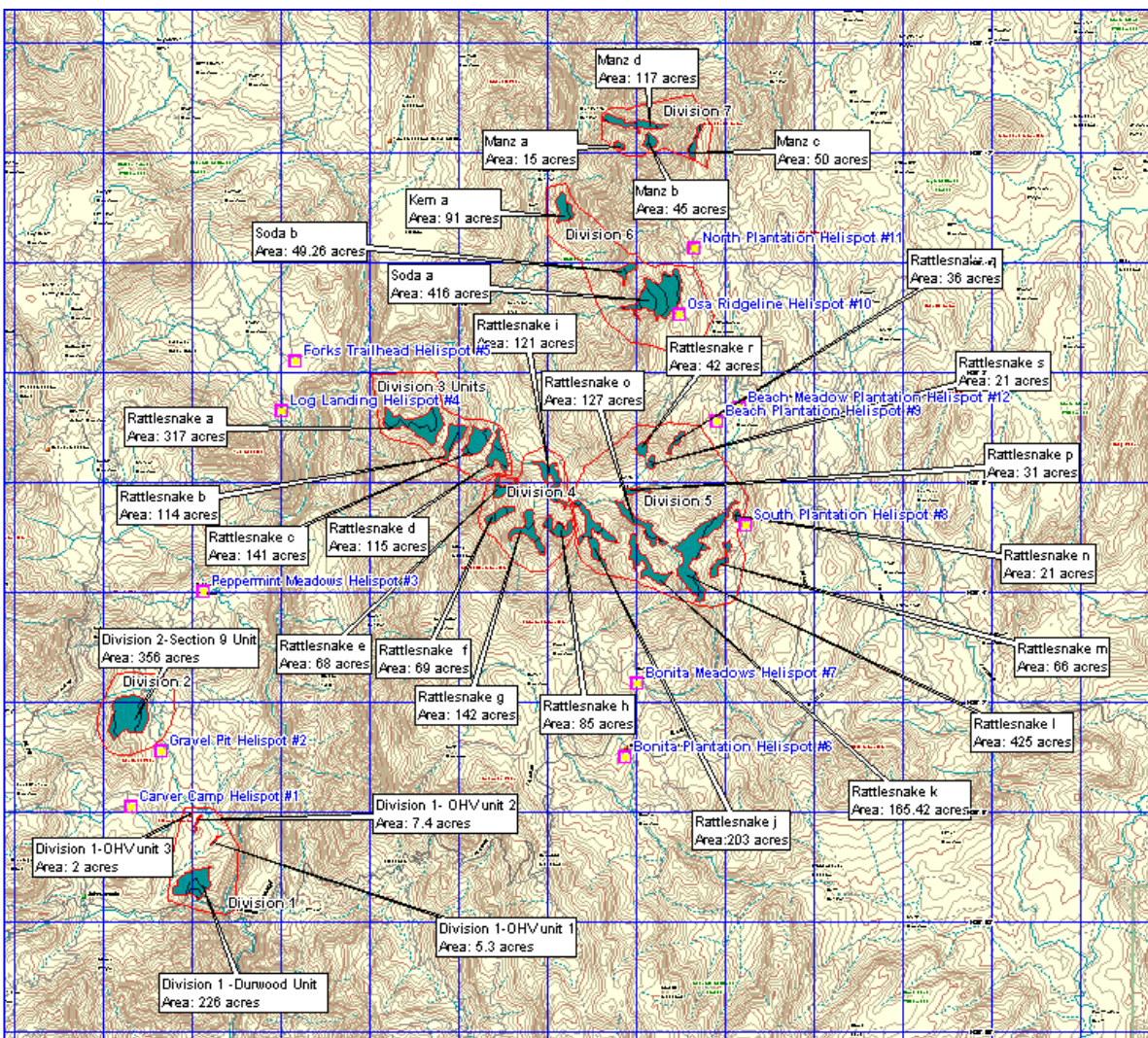
Contour felling is complete and occurred through force account and contract. Force Account costs were \$236,878.34 with treatment on 1,446 acres. Contract work occurred on 673 acres at a cost of \$148,062.00.

Heli-mulching

Heli-mulching is recommended to provide effective ground cover, reduce sediment transport, help reduce the potential loss of control of water, and provide erosion protection for heritage resources. This treatment is proposed for remote high severity sites in Ninemile, Osa, Soda, Grouse, Manzanita, and Rattlesnake Creek drainages. To implement heli-mulching straw bales are loaded into helicopter cargo net and dropped over the burned areas. Straw will be processed in a manner that releases from cargo nets and spreads evenly with approximately a 1-inch average thickness. Straw shall be applied at a rate of 1 ton per acre along strategic strips within the upper and lower third of treatment units (approximately 5,513 acres which comprise 7.5% of the high and moderate severity areas). This treatment provides immediate ground cover and reduces hydrologic response and sediment production.

Six heritage sites are proposed for treatment by aerial application of straw mulch. Three of these sites are within the upper reach of Rattlesnake Creek, and three sites are within the lower Soda and Osa Creek drainages.

Helimulching Location Map



Heli-mulching was accomplished in the Rattlesnake Creek Drainage, Nobe Young Creek and South Creek on the areas of severe burn. The Durwood Creekside Resort is included in this area. This work was done through contract. Contract cost was \$1,700,013.18. Hay was purchased separately at a cost of \$416,764.17. A total of 2993.5 acres were treated, of these 87.5 acres were archeological areas of concern. The above map shows helimulching locations. These locations were

flown using GPS coordinates. Ninemile, Osa, Soda, Grouse, and Manzanita areas were not treated after further field evaluation and need to transfer dollars to areas with higher treats to life property and resources.



Helimulching in Rattlesnake Creek Basin in photos 1 and 2, photo shows on the ground investigation of treatment in Section 9.

Willow Planting

~~Willow planting is proposed to prevent unacceptable stream bank erosion and impairment to ecosystem structure and function. Plantings will improve aquatic habitat in devastated landscapes and act to catch sediment. Riparian plantings are proposed in response reaches (low gradient channel segments with cobbles or finer substrates) in Rattlesnake and Nine Mile creeks. Willows will be collected from adjacent riparian communities near those areas proposed for treatment. Cuttings will be treated with rooting hormone and inserted into moist streambanks.~~

~~This item was not funded.~~

Road and Trail Treatments

Trails-Inyo and Sequoia

Approximately 11 miles of trails in the Redrock-Jordan trail system no longer have waterbars intact. The absence of waterbars has hydrologically connected the trail system to stream drainage. Water and sediment collected along the trail system will contribute to runoff response in the Ninemile basin, with a direct effect on sensitive species habitat. The recommendation is to replace the waterbars in the trail system to channel water away from the trail. Log grade stabilizers can be considered at channel crossings where ephemeral stream channels are crossed. The intent of log grade stabilizers is to collect material that is deposited behind woody debris that has burned as a result of the fire. Log grade stabilizers function as water bars and are not intended to be implemented as check dams. Additional stabilization measures include: tread retainers, clean existing drainages, coarse log or rock retaining walls and log removal for access to the work site. There are numerous locations along the 178 miles of trail system where erosion and concentrated runoff have the potential to affect special species and add to the potential for loss of control of water and debris processes. ~~These have not been quantified to date and will appear in a supplemental report.~~ An additional survey of the Sequoia National Forest trail system documents identical problems to those trails on the Inyo National Forest. Roughly 110 miles of trail will need rehabilitation to protect down stream areas from flooding and to protect the trail resource. The need breakdown is as follows:

Tule River Non Wilderness	\$ 87,000	25 miles
Tule River Wilderness	\$ 36,000	25 miles
Cannell Meadow	\$ 86,000	60 miles
Total	\$209,000	110 miles

Following is a list of trails on the Cannell Meadow that have been rehabilitated within the McNally fire area, using force account crews. Work includes, hazard tree removal, drainage repair, tread reconstruction and the construction of additional water diversion structures.

Trail Name	Number	Miles
Tobias Creek Trail.	# 32E34	4.6 miles
Flynn Canyon Trail	# 32E33	3.9 miles
Pack Saddle Trail	# 33E34	2.3 miles
Whiskey Flat Trail	# 32E35	1.0 miles
Rincon Trail	# 33E23	19.5 miles
Total miles completed		31.3

Planned trail work within the McNally fire area for spring FY 2003, using force account crews.

Trail Name	Number	Miles
Little Horse Trail	#34E02	2.0 miles
Mahogany Trail	#34E25	2.0 miles
Beach Trail	#34E01	4.0 miles
Rattlesnake Creek Trail	#33E22	13.7 miles
Rattlesnake Trail	#34E07	2.4 miles
Scheffer Trail	#33E24	10.2 miles
Trout Creek Trail	#33E28	2.0 miles
Sherman Pass 4x4 Rd	#33E48	8.0 miles
North Meadow Pass	#33E27	1.9 miles
Cedar Canyon Trail	#33E26	4.8 miles
Bear Trap Trail	#34E23	4.4 miles
Bonita Flat Trail	#34E04	4.9 miles
Lion Meadow Trail	#33E21	8.3 miles
Sacratone Trail	#33E19	3.9 miles
River Trail	#33E30	5.1 miles
North Meadow 4x4 Rd	#33E29	.1 miles
Sherman Peak Trail	#33E35	2.1 miles
Wood Pecker Trail	#34E08	1.0 miles
Total miles TO GO		80.2

The estimated cost of the 31.3 miles trail rehab is approximately \$20,000 this includes crew salaries vehicle costs and supplies and materials. The remaining 80.2 miles will completed this summer utilizing the Sierra Trail Shots and district Recreation workforce.

Inyo Trail Treatments Summary

Just over 20 miles of Inyo NF Wilderness trails were within the perimeter of the McNally Fire. Field survey showed approximately 11 miles of trail in high-intensity burns areas, with total loss of vegetative cover and significant loss of wooden drainage and stabilization structures on the trail itself.

Roughly two additional miles of trail were moderately burned, but had significant burned watershed above the trail, with high potential to affect the trail corridor and ephemeral channels along the trails.

In October 2002, during a 20-day period, approximately 330 person-days were spent on stabilization efforts on 13 miles of trail. All work was accomplished utilizing tools conforming to Wilderness direction (non-mechanized). The following work items were accomplished:

Rock Check Dams (Tread retaining structures)	12 each
Log Check Dams	351 each
Log Waterbars	134 each
Rock Retaining Wall	785 sq ft
Log Retaining Wall	450 sq ft
Reexcavation of tread where fully collapsed	1,500 linear ft
Causeway (For protection at seasonal drainage)	215 sq ft
Creek Ford stabilization	1 creek (120 sq ft)
New tread (original alignment irreparable)	225 linear ft
Log removal (providing trail access for work)	30 each
Log and Rock Drainage Protection Structures*	37 each - (2,386 Sq feet total)

Additionally, slough and obstacles caused by the fire were removed along substantial sections of the trails. Loose materials and slash were placed in drainages that would be subject to surface flows.

- Drainage Protection Structures are chevron-shaped structures built below trails at steep ephemeral channel crossings, where substantial energy-potential and downcutting was anticipated. The structures consist primarily of logs, placed in a "vee" shaped wall, with the lowest part of the structure in the center of the channel, forming a well-armored outlet. The logs act as energy dissipaters and support soil and the trail above the structure. Rock and slash are placed at the bottom of the structures to trap further sediment and prevent erosion under the structures from splash-back.
- Total Cost: \$88,641 as of June 1, 2003.

Trails that received the treatments listed above during October 2002:

Trail Name	Number	Miles treated
Blackrock-Kern River (Nine-mile Cr)	34E19	6
Jordan-Redrock	34E18	4
Sidehill Mdw (Cold Creek)	3309	3
TOTAL		13

Request for reprogramming existing funds for Inyo Trails

The following is a list of treatments and estimated quantities to stabilize trails and make available for use in the McNally Burned Area (Inyo N.F.):

Trail #3419 - Blackrock to Kern River:

Check Dams (Log or Rock) - New	75 each
Check Dams - Repair flood/winter damage	150 each
Water bars (Log or Rock)	20 each
Channel crossing stabilization (wall, armoring)	2 each
Repair Causeway, clear spillways	1 location
Retaining Wall	100 sq ft
Log Removal - 12-24"	5 each
Log Removal - 24-36"	12 each
Log Removal - 48-60"	1 each
Boulder Removal	3 each
Repair/Reinforce Vee Channel Structures	12 each

Trail #3418 - Redrock Creek

Waterbars (with Check Dam backup)	10 each
Check Dams (New)	40 each
Check Dams - Repair flood/winter damage	50 each
Repair/Reinforce Vee Channel Structures	8 each
Stream Ford	1 each
Off-trail check dams and drainage structures	15 each
Retaining Wall	100 sq feet
Log Removal - 24-36"	5 each

Trail #3309 - Sidehill Meadow Trail (Cold Creek)

Water bars (with Check Dam backup)	10 each
Check Dams	25 each
Re-excavate trail bed (sloughing/rilling)	1500 feet
Retaining wall (log or rock)	500 linear feet

Summary:

The Inyo N.F. is proposing to repair the following with BAER funds due to damage from winter storms.

Check Dams	200 each
Repair/Reinforce Vee channel Structures	20 each
Repair Causeway	1 each
Retaining wall	100 sq. ft.

We estimate that a 5 person crew will spend 1.5 pay periods repairing structures.

The following is a breakdown of costs:

5 person crew w/supervision, and pack support	\$10,000
Pre-implementation survey, admin. and supplies	<u>\$3,000</u>

Total \$13,000

The BAER funds will be used in conjunction with TRTR funds and appropriated dollars from the Forest to accomplish the remaining work.

Roads:

Contracts for all roadwork have now been awarded. The McNally 1 contract (Sherman Pass and Cherry Hill Roads) is 90% complete: erosion control work consisting of construction/reconstruction of 2,150 feet of roadway ditch and installation of 307 cubic yards of riprap; drainage improvement work consisting of removing 24 undersized culverts and replacing with larger sized culverts, installation of 40 metal end sections, installation of 5 new spillway inlet assemblies, and cleaning of 76 culverts and spillway inlet assemblies. Thirty-five tons of mulch was applied to fill slopes to prevent erosion. This contract is currently at \$397,735.56.



The McNally 2 contract (Lloyd Meadow Area Roads) is 90% complete: erosion control work consisting of construction/reconstruction of 150 feet of roadway ditch, 15 feet of runoff ditch, 60 feet of drainage channel, installation of 138 cubic yards of riprap and placement of 125 tons aggregate surface course; drainage improvement work consisting of removing undersized culverts and replacing with larger sized culverts, installation of 12 metal end sections, installation of 10 new spillway inlet assemblies, and cleaning of 22 culverts and spillway inlet assemblies. The cost of this contract is currently at \$222,057.50.



McNally 3 includes retrofitting drainage on 7.01 miles of the Sugarloaf road 23S16. The cost of this contract is currently \$167,810. McNally 4 includes drainage on miscellaneous dirt roads around the upper portions of the fire near 22S41 and along adjacent ridges. The current cost of this contract is \$119,298.

Road treatments focus on correction of drainage problems associated with increases in design flows, some of which have been calculated to exceed 300% pre-fire conditions. Hydro-mulching at strategic

locations is prescribed to stabilize cut and fill slopes and reduce the amount of runoff and sheet erosion associated with high and moderate severity. Riprap is prescribed to reduce the effects of concentrated water on highly erosive moderate and high severity burn areas. These treatments are proposed to reduce the potential for facilities damage, damage to riparian areas, potential for gully erosion, and downstream impacts to life and property.

General treatment work items identified for roads include installation and rebuilding of waterbars or rolling dips, placement of riprap at strategic locations, and repair of headcuts, reestablishment of drainage patterns, cleaning of culverts and catch basins to accommodate increased flows and installation of MES (metal end sections) to increase the flow capacity of existing culverts, placement of straw [Sherman Pass (22S05), Sugarloaf (23S16) and Lloyd Meadow (22S82) roads] and berm removal with outsloping of the roadway to allow sheeting action of water, rather than flow concentrations.

Management Related Issues

In addition to those active treatments documented above, there are decisions to be considered that will affect emergency conditions within and downstream of the fire.

Kern River Powerhouse # 3: On June 7, 2002, A Fairview Dam sand box flushing study assessment was performed for Southern California Edison by ENTRIX, INC. The study was performed to fulfill requirements for the license for the Kern River No. 3 hydroelectric project. The Federal Energy Regulatory Commission (FERC) requires Edison to monitor sediment conditions below Fairview Dam over a five-year period to assess potential effects of their sandbox flushing regime on trout spawning and rearing habitat. Because sediment conditions have been drastically affected by the McNally fire, it is recommended that the sediment-flushing regime be reevaluated under current sediment conditions.

[The Sequoia National Forest Service, Southern California Edison and California Department of Fish and Wildlife have met and have agreed upon a sand box flushing schedule that promotes moving McNally derived sediments through the dam and produces the least amount of affects to the riparian and aquatic habitats.](#)

Areas Under Special Use: Areas under special use permits have the potential to be affected by post fire flooding or debris flows. These include Boy Scout organization camp, Durrwood Resort, whitewater outfitter guides, Kern River Fish Hatchery, Kern Valley Golf Course and Kern River No. 3 hydroelectric project, as well as any other special permitted business that is located or spends time operating in the flood prone area of drainages affected by the fire. It is recommended that special use permits be amended to disclose the possibility of risk to life and or property resulting from potential flooding or debris flows. It is possible for white- water outfitters to place rafters at risk over the next 1-2 years from flash flooding in upstream watersheds. Durrwood Resort is at risk from debris flows as the entire upstream watershed is burnt. Similar effects could occur at the Boy Scout organizational camp, and Kern Valley Golf Course. It is important that the Sequoia National Forest is not held responsible for the after effects of the fire to permittees' operations.

[Special uses have been modified to protect Forest from liability resulting from the affects of the McNally Wildfire on lands associated with the permits.](#)

Phase I treatments have been previously reviewed for funding are as follows:

To reduce the loss of productive soil in Dry Meadow Creek (Sec. 9) and limit the generation of additional sediment from these highly erodible soils, straw mulch will be applied using the heli-mulching techniques. Aerial straw mulching involves the use of the helicopter to spread straw mulch. Straw bales are loaded into a cargo net and dropped over the burned area to increase ground cover within designated areas. All binding string is removed from the bale. Rice straw that is certified noxious weed-free will be used. Straw will be processed in a manner that releases from cargo nets and spreads evenly. Straw moisture level will be less than 13%. Straw will be chopped to a 2 to 5 inch length. Both small and large bales may be used. Small bails will weigh 60 lbs or large bails will weigh 800 lbs. Straw shall be applied at a rate of 2 tons per acre on the steep slopes in the upper one third of the treatment unit (approximately 125 acres). Apply straw at 1 ton per acre on the lower two thirds of the unit

(approximately 255 acres). . Straw shall be applied evenly across the area with a 2-inch average thickness at the 2-ton per acre rate. Straw shall be applied in a zebra stripe pattern on the contour with approximately 100-foot leave strips for the 1-ton per acre rate. See specification sheet.

To improve infiltration and control water on compacted user created OHV trails where Nobe Young and Dry Meadow creeks converge, straw mulching will be applied to the trails impacting the channels and a 50-foot buffer on either side of the treated trail section. At the site, OHV trails that have a high erosion hazard, i.e., unstable trails that are poorly drained, lack waterbars, are actively eroding, and in general have potential for concentrating runoff will be identified. They will be marked with 2-foot wide flagging that will be visible from the air. Apply straw at the coverage rate of 2 tons per acre to achieve a strip of 100% ground cover that in general is 2 inches in depth. Mulch the trail surface and a 50-foot buffer on each side of the trail. This heli-mulch will be applied to approximately 12.5 acres and coordinated with the much larger section 9 heli-mulching treatment for cost-effectiveness. See specification sheet.

To increase ground cover within high and moderate burn severity areas in the watershed draining into the channel above the Durrwood Creekside Resort. Straw mulch can effectively increase the amount of infiltration and control overland runoff and reduce the amount of hillslope erosion. Aerial straw mulching involves the use of the helicopter to spread straw mulch. Unbounded and flaked straw bales are loaded into a cargo net and dropped over the burned area to increase ground cover within designated areas. Rice straw that is certified noxious weed free will be used. Straw shall be processed in a manner that releases from cargo nets and spreads evenly. Straw must be baled loosely to facilitate spread once it is released. Straw must be baled loosely to facilitate spread once it is released. Straw moisture level shall be less than 13%. Straw should be chopped to a 2 to 5 inch length and small bails should weigh 60 lbs or large bails should weigh 800 lbs. Straw shall be applied at a rate of 2 tons per acre. Straw shall be applied evenly across the area with a 2-inch average thickness. See specification sheet.

Channel Treatments: To protect the Durrwood Creekside Resort structures, K-Rails and sandbags will be installed along the channel to control floodwaters by increasing the channel capacity through the middle of the resort and direct water away from the lodge and shop/barn. This is in conjunction with applying straw mulch aerially to reduce runoff into the Resort area. Six K-Rails will be installed on either side of the channel with the box culvert and wooden planks that is in the driveway. Two K-Rails will be installed up channel of the woodshed on the east side of the channel. The ground where the K-Rails will be located needs to be leveled prior to installation of the K-Rails. Sandbags need to be used to plug holes along and between the K-Rails. A 25' long, sand bag wall needs to be built on the east side of the patio below the driveway. This sandbag wall should have a 4' base width, 2' top width, and 4' high. After the threat of flooding has passed the K-Rails and sandbags need to be removed from the site. See attached specification sheet

Durrwood Creekside resort has had K-Rails and sandbags installed along the channel to protect the resort from stormwaters. The cost of this work is \$14,665.00.

1. Roads and Trails Treatments:

- a. Roads: Repair immediately, the safety problems that are fire related effects within the roadbed typical. Install warning and information signs. Clean blocked culverts, ditches and other drainage structures. Upsizing existing culverts in high burn severity areas not able to carry expected loads. Adding riprap reinforcement to the lower sides of road where water exits to protect slopes, road embankment, and prevent any future gully scouring. Upon completion of designed road related items it is recommended that routine maintenance patrols be in place when storms are forecast to ensure that no blockage of drainage structures develops during and soon after the event. If a patrol cannot be organized then road closure is recommended on roads with steep terrain, high burn intensity, exposed soils, and large drainages affected by the fire. See summary spreadsheet. Another workbook with a detailed breakdown of roads where the needs were logged during assessment is also available.

Follow-up detail survey is to be done on the scorched road pavement of Sherman Pass Road to determine whether additional emergency treatment is warranted. (Contact with Tulare County was made concerning County Road M-99. Similar actions are planned for the 93 culverts on that road along with contracting for storm patrol activity).

- b. Sub soiling Road: Improve infiltration, reduce runoff, and restore hydrologic connectivity across about 0.5 mile of road ending in Section 9 of Dry Meadow Creek watershed. This treatment will help to ensure the effectiveness of the Heli-mulch that is the prescribed land for the same area. Till approximately ½ mile of 22S90 within Section 9 with a D6 utilizing modified sub soiling shanks (specification available from the

Stanislaus N.F.) combined with water barring at appropriate locations to provide discrete breaks in surface continuity, and back-blading to ensure furrows are not created. **See Specification sheet**

2. Trails

- a. To address the need to protect the public and employees from imminent hazard trees, the following treatments are recommended:
 - Close all trails and roads from public access until hazard tree falling operations and other safety-related tasks are completed.
 - Develop an informational handout and map explaining the hazardous situation and the rationale for the emergency treatments.
 - Replace damaged trail signs and install hazard-warning signs.
 - Use hand crews to fall hazard trees and remove other fire-related hazards. Due to the large amount of roads, trails, and recreation sites, this treatment will carry through the 2003 season. The amount of estimated work is based upon recent experience from the Manter Fire of 2000 that affected similar trail and/or road systems. .
 - Conduct a follow-up survey of areas after the fire is fully contained and controlled to ensure that additional hazard trees have not developed since falling crews did their work during suppression actions. This is necessary because of the continued fire activity in areas where islands of green vegetation within the fire perimeter continued to burn since the initial survey for this phase of the BAER report was completed. In addition, the very large amount of roads and other facilities requires that a more intensive survey be completed once the initial report is completed and the fire is controlled.
 - Purchase and install signs at road and trail access points that warn users of the continued potential for falling trees due to the gradual deterioration of dead or damaged trees.
 - Improve trail signing to ensure that users do not stray off of designated routes and into areas that have not been treated for hazards. **See Specification sheet**
- b. Place flood warning signs at developed and dispersed recreation sites and roads.

Provide for public safety on public lands through the prompt installation of signs that warn the public of the increased risk of flash floods to occur as a result of the fire. The burn has increased the potential for flash flooding to occur within and below the fire area. The area experiences a high amount of recreational use, especially the Kern River, Brush Creek, Dry Meadow Creek, and Nobe Young Creek riparian areas. Flash flood warning signs shall be placed in areas of high recreational use to warn the public of the risk of flash flooding. The attached public safety signs were developed for immediate installation on roads and trails in the area affected by the fire that are likely to sustain damage from flooding and mudflows generated by the McNally Fire burned area. The signs are necessary to keep the public out of immediate danger posed by flooding, mudflows, rolling rocks, snags and stump holes. **See attached Specification sheet**

I. Monitoring Narrative: (total = \$77,650) Yr1 = \$37,550; yr2 = \$22,750; yr3 = \$17,350

Photo points will be established before and after evidence of storm flows in Rattlesnake, Tobias and Nobe Young creeks, and will document vegetative condition and ground cover. This will occur after the first, second and third years of treatment in high severity burn areas. Photo points will be taken at channel cross-sections along longitudinal transects to document channel conditions in Rattlesnake and Tobias Creeks. Photos will be taken along soil transect areas before storm events and before heli-mulching. Noxious weeds and other invasive species will be monitored for new infestations near Packsaddle Trail, Roads End, Baker Point and Bald Mountain Botanical areas, dozer lines, drop points and high severity burn areas over the next 3-years. Eradication is being considered for known populations at Roads End and Packsaddle trail. If new populations are found, eradication will be considered using herbicides. An updated BAER request may be necessary to cover weed eradication expenses if the cost is substantial. Road and trail treatments will be monitored for cross drainage effectiveness. Interim monitoring reports documenting these findings will be made in 2003 and 2004 and a final report completed in 2005. (\$37,550 in year 1; \$22,750 in year 2; and \$17,350 in year 3. Total expenditure = \$77,650)

McNally BAER
SEQUOIA NATIONAL FOREST
Monitoring Plan
FY 2003 Post-Fire Funding Request

Introduction

Monitoring is the periodic assessment of BAER treatments to evaluate their success and/or failure, recommend adjustments to treatments, and report on these findings to management. Forest Service Manual 2523.03 directs that the implementation and effectiveness of treatments, as well as the consequences of decisions not to treat certain areas, will be monitored. This plan will assess BAER measures taken to assist in rapid recovery of the burned sites and nearby lands and resources affected by the fire. The Forest Service Handbook 2509.13, Section 61.1 requires that, as a minimum, the following conditions be monitored:

1. The effectiveness and proper functioning of rehabilitation measures, especially road drainage facilities and channel structures.
2. Need for re-treatment, maintenance and removal of temporary structures.
3. Quality and quantity of water leaving the burned area and the location and causes of problems.
4. Rate of recovery of vegetation.
5. Effects of resource utilization, restoration activities and emergency rehabilitation measures on each other.

District and Supervisor Office personnel will be assigned by the Leadership Team to conduct the implementation and the effectiveness monitoring (FSH 2509.13 Section 61.04).

Types of Monitoring Planned

Implementation Monitoring: Did the job get done correctly on the ground?

Determine if the following proposed treatments were implemented as outlined in the BAER report:

- **Straw Mulching:** Is the straw mulch placed in the right areas with the right application rate?
- **Contour Felling:** Did contour felling occur in the right places at correct density?
- **Did channel treatments occur as prescribed at Durrwood Resort Lodge?**
- **Road Reconditioning and Obliteration:** Do the "as-built" treatments match the BAER plan prescriptions?

Effectiveness Monitoring: Did the expected response occur?

This monitoring is specifically designed to answer the question: Did the BAER treatments provide the planned protection and rehabilitation of the burned area, and if not, why?

- **Are the emergency treatments successful in meeting their stated objective?**
- **Protecting long-term soil productivity in Rattlesnake Creek, Nobe Young Creek and South Creek drainages,**
- **Preventing the deterioration of water quality,**
- **Reducing the threats to human life and property in Kernville and Durrwood Resort areas and allowing for the management of ecosystems in their properly functioning condition?**

- Preventing the potential for noxious weed establishment and spread throughout the fire area.

Overview of BAER treatment objectives:

Straw Mulching: Provide immediate cover on the site to:

- Stabilize severely burned soils to maintain long-term productivity and meet Regional and Forest Plan standards,
- Prevent production and delivery of off-site erosion to the stream channel network that may impact values at risk,
- Reduce overland flow caused by rain-drop splash that seals the soil surface,
- Provide erosion protection for heritage resources.

Contour Felling: Provide immediate and effective stabilization of soils to:

- Provide for retention of sediment on hill slopes,
- Provide effective ground cover,
- Maximize the potential for vegetation reestablishment.

Road/Trail Work: Upgrade (resize culverts, install additional drainage, water bar or rolling dip, out-slope, remove berm, disconnect trail/road with drainage system):

- Prevent roads and trails from concentrating and rerouting overland runoff (caused by the current condition of the road/trail prism) towards values at risk, and generating and delivering sediment via the road/trail ditch and prism.

Monitoring: Monitor the fire for noxious weeds and soil stabilization success or failure to:

- Determine if the fire and associated suppression efforts resulted in the introduction and spread of noxious weeds.
- Create a database of information to know in the future what treatments work well in what situations,
- Continually improve the knowledge of the forests response to fire.

General Data Collection Procedures

The information to be recorded and documented will include the dates and type of emergency treatments implemented along with the total number of acres and actual costs associated with these rehabilitation projects.

Photos will be taken before and after these treatments and locations will be plotted using a GPS. These photo points will be established above, within and below the various treatments. All photos will be collected using a digital camera in order to easily enter the images into interim and final monitoring reports.

Any monitoring item having a specific location will be mapped using GPS and loaded into the corporate GIS database (e.g., weed infestations).

The forest will ensure that all data being collected meets the established standards. Data collected for inclusion into the Forest GIS database will meet corporate standards. For all monitoring projects, as a minimum, record:

- The dates of installation or accomplishment
- Name(s) of person(s) collecting data
- Types of equipment used
- Time for project completion (length of treatment)
- GPS location as well as a detailed map and narrative of directions to the site
- Short narrative explaining how the job was completed, any problems encountered and how they were solved
- Recommendations for continued use of the treatment on other fire rehabilitation projects considering both implementation and effectiveness concerns.

Specific Data To Be Collected

Slope Treatments

Objective: Aerial mulching and contour tree felling were applied to prioritized areas within the burned area. These treatments were designed to increase soil surface stability to reduce erosion rates, provide erosion protection for heritage sites, reduce overland flow on soil surface, prevent production and delivery of off-site erosion to the stream channel network, and sediment transport. These should enhance the opportunity for native perennial vegetation reestablishment and the reduction of potential affects to downstream values at risk.

Aerial Mulching

Aerial mulch was applied in strategic locations in areas subjected to high severity fire within watersheds that were identified as a risk to life, property and resources. These areas are Rattlesnake, and Nobe Young watersheds, and the face drainage above South Creek. Mulching treatments were used on shallow slopes adjacent to riparian areas, the lower 1/3 of mountainside slopes, and the upper third of ridgelines and mountainside slopes. Straw mulch was applied at rates of 1.0 tons/acre evenly distributed across the treatment area.

Contour Tree Felling

Application of contour felling of trees in areas of high severity in formerly forested communities provides for improved effective ground cover and sediment retention. Trees (<14" dbh) were felled on the contour on slopes ranging between 15-40%. Felling on the contour occurred where feasible. The main trunk of the tree was limbed and bucked to provide effective contact with the soil surface. The treatments were focused in high severity burns in Rattlesnake Watershed where sufficient stems per acre and appropriate diameter classes existed.

Implementation Monitoring Treatments:

Implementation Monitoring for Condition of Heli-mulch and Contour Felling Treatment

Heli-mulching: Evaluation of the condition of the mulching at representative sites outside of the roadless area and through over flights in the roadless area. Presence, distribution, depth, and presence of imported exotic or noxious species are a concern is the focus of Heli-mulching implementation. Imported species has been included in the noxious weeds section.

Contour Felling: Monitoring of contour felling would include the implementation of log felling: specifically, density of felled logs and condition of the log. Is the log in contact with the soil surface? Was the log placed on the contour? How well was the felling contract followed?

Road and Trail Work: Road and trail work will be monitored for implementation through contract inspection, therefore there is no additional cost.

Effectiveness Monitoring:

Heli-mulching and Contour Felling, Watershed Treatment

Was the treatment effective in protection of off-site sedimentation and erosion to channel network?

Stream Channel Cross-Sections

Stream Cross Sections downstream of treatment area provide information on the effectiveness of treatment relative to sediment transport, and sediment delivery off-site to the stream channel network and protection of aquatic habitat. Because of an unusual storm event of high intensity and duration followed by a deep snow pack in inaccessible areas installation of silt fences was not considered to monitor ground treatments. The forest is following the logic prescribed in the BMPEP handbook of implementing an in-channel study to evaluate the effectiveness of the "suite" of erosion control treatments by comparing channel conditions immediately after the fire in Rattlesnake Creek and immediately before the fire in Tobias Creek.

Rattlesnake Creek in-channel cross-sections were done immediately after the burn prior to any rainfall to document pre-burn conditions in the creek. Tobias Creek was surveyed and cross-section data obtained just three days prior to the burn. Tobias was not treated with Heli-mulching. Comparison of cross-sections will provide us with an evaluation of pre-burn versus post-burn condition in treated and untreated area.

Evaluation of channel cross section measurements in the low gradient reaches of Rattlesnake were selected due to the logistics required to access the numerous locations and large acreage of treatment sites located deep within inaccessible areas within the Roadless areas of Rattlesnake Creek. Heli-mulch treatment was selected due to the inaccessible nature of the Rattlesnake Creek watershed. In the more accessible sites with in Rattlesnake Creek contour felling was implemented. Off-site in-channel evaluation using cross-sections and longitudinal profiles will provide information on the value of treating high severity burn over a large portion of a watershed providing information on erosion and deposition downstream of the treatment areas.

Heli-mulch Treatment

Was the treatment effective in reducing the amount of soil erosion and sediment transport?

Soil Erosion Transects:

Soil erosion transects inside and outside of treatment areas provide information on the effectiveness of BAER treatment relative to onsite soil erosion and sediment transport.

Evaluation of hill slopes inside and outside of the areas of highest erosion in the Nobe Young Drainage. Soil transects were implemented prior to heli-mulch operations immediately after the November storm. We currently have data on how much soil was lost prior to heli-mulching. Repeat surveys will provide information on additional soil loss inside and outside treatment areas.

Monitoring Time Line:

Implementation Monitoring:

Monitoring of Heli-mulching occurred immediately after operations. Additional monitoring will occur to evaluate the current condition of the mulching. Implementation monitoring of Contour felling occurred immediately after implementation. Conditions of Contour felling and sediment trapping ability will take place along with Heli-mulching monitoring in summer 2003.

Stream Cross-sections:

Cross-section plots were established at Tobias creek just a few days before the McNally fire started. This area will be re-surveyed in the summer of 2003, 2004, and 2005. To assure locations of these cross-section sites they were established along a monumented longitudinal profile.

Cross-section plots were established at Rattlesnake creek in the fall of 2002 immediately after the fire prior to rain events. This area will be re-read in the summer of 2003, 2004, and 2005. To assure locations of these cross-section sites they were established along a monumented longitudinal profile.

Soil Erosion Transects

Soil erosion transects were established inside and outside of heli-mulch locations in the Nobe Young Drainage in the fall of 2002 after the November storm event and prior to treatment; they will be resurveyed in the summer of 2003.

	Slope Treatment Effectiveness Monitoring Plan and Budget 2003	Units	Days	Personnel	Cost BAER Funds
1.	Cross-section data and Longitudinal Profiles of response reach in Rattlesnake Creek	2 Plots (before & after)	6 days total	4 GS-07	4,500
2.	Transportation (Helicopter)		2 hours		1,200
3.	Cross-section data and Longitudinal Profiles of response reach in Tobias Creek	1 Plot (after)	2 days	4 GS-07	1,250
	Transportation (vehicle)				100
4.	Soil Erosion Transects		10 days	2 GS-05	2,250
5.	Transportation (vehicle)				500
6.	Supplies (misc.)				700
	TOTAL				10,500

Soils and Hydrology:

- Establish photo points

- Monitor time frames: before and after heli-mulching.
- Document evidence of mass wasting
- Describe and map the types of damage such as overland flow and the types of lands or resources damaged, such as trails, private property, and drainage structures (e.g., culverts)
- Describe the effectiveness of the road treatments. Note if additional treatments or maintenance are needed.
- Measure sediment eroded after storm events along soil transects.

NOXIOUS WEEDS - Monitoring Treatments 2003

As awareness of the problems associated with the introduction of invasive plant species increases it becomes important to immediately evaluate the magnitude of any invasion as quickly as possible and then take aggressive control action. Fire suppression activities associated with the McNally Fire may have caused the introduction or spread of some invasive species.

The District Ranger is directed (FSM 2523.04d) to "*monitor burned areas to ensure rehabilitation treatments and other measures are functioning as planned and are effective. Monitor for the post-fire presence of invasive species. Maintain treatments to keep them functioning as designed. Use monitoring results to plan follow-up actions, including the control of invasive species.*" The treatment of noxious weeds will prevent permanent impairment of ecosystem structure and function in compliance with FSM 2523.02.

Objective:

Evaluate and eliminate the potential for noxious weed establishment and spread throughout the Forests and Wilderness as a result of fire, suppression or rehabilitation operations.

Treatments:

Inspect and monitor for newly established weed occurrences. Monitoring will include documentation and hand pulling new weed occurrences at the time of inspection. New weeds occurrences will be pulled to root depth, placed in sealed plastics bags, and properly disposed. At administrative sites, where the use of chemicals can be Categorically Excluded in the NEPA process, weeds will be treated with herbicides such as Roundup. Use of herbicides must be in full compliance with NEPA and personnel who are pesticide certified applicators for restricted herbicides must conduct application of herbicides (FSM 2154.2). Personnel with adequate pesticide training will apply non-restricted herbicides use (FHS 2109.14, Section 34).

Documentation of new infestations will include:

- GPS negative and positive inspection results
- Incorporate data into GIS spatial database
- Establish photo points
- Map perimeter of new infestation
- Estimate number of plants per square meter
- Treatment method (hand pulling, chemical, etc.)
- Dates of treatment
- Evaluate success in subsequent inspection

Monitoring Time Line:

Inspections and monitoring will be once during June or July and again in August 2003. A second inspection will ensure thorough detection to help prevent the establishment of a seed bank into

the second year. Monitoring should continue for at least three years after the fire during the spring/summer season. BAER funding is only requested for the first year after fire.

	Noxious Weed Monitoring Plan and Budget 2003	Units	Days	Personnel	Cost
1.	Walk 50% of all dozer lines	45 miles	12 days (4 m/day)	1 GS-07	2,400
2.	Slowly drive all roads and inspect pullouts (dirt and paved) Inspect Drop points Visit high burn interval sites	171 miles Phase I 15 miles Phase II 30 areas	10 days	1 GS-07	2,000
3.	Inspect and pull horehound and mustard along Packsaddle Trail (NE of Fairview)		2 day	2 GS-07	400
4.	Inspect and chemically treat Tree of Heaven at Rodeo End and vicinity		2 day	1 GS-11 1 GS-07	800 400
5.	Re-inspect areas where weeds were encountered during July monitoring		5 days	1 GS-07	1,000
6.	Re-inspect botanical areas for Noxious Weeds				
	Bald Mt. Botanical Area		5 days	1 GS-11 2 GS-05's	3,000
	Baker Point Botanical Area		5days	1 GS-11 2 GS-05's	3,000
7.	Inspect Heli-mulching Sites for exotic/noxious species		15 days	1 GS-11 2 GS-05's	9,000
8.	NEPA Compliance		3 days	1 GS-11	1,200
9.	Supplies				300
10.	Vehicle Travel FOR (41 days @ \$50/day)				3,550
TOTAL					\$27,050

Interim Evaluations

The Implementation Team Leader will conduct periodic evaluations (annually) with the District and Forest implementation team to assess implementation progress, effectiveness monitoring, and to determine if parameters measured and sampling frequency meet the planned objectives. If noxious weeds take over as a result of the fire, interim reports to request additional funding to control noxious weeds will be submitted. The BAER team understands that monitoring funds could be available for effectiveness monitoring in years 2 and 3 provided that the Sequoia National Forest submits interim reports to request additional funding and provided that the Forest documents and shares its findings.

Reports

A DRAFT INTERIM REPORT will be prepared for 2003 in 2004.

The overall results will be presented in a detailed report during 2005. This report will be submitted to the Forest Supervisor, other unit District Rangers, the Regional Office and all cooperating agencies and other interested parties.

Annual Financial Requirements

The annual cost of monitoring is itemized in the following table. The total cost for year 1 is \$37,550.00, which includes \$10,500 for soils and hydrology implementation and effectiveness monitoring and \$27,050 for noxious weed treatment and monitoring. Costs for the first year are higher because of program initiation and establishing the monitoring sites. Second year monitoring will be dependent of the results of the first year results the values provided below are only an estimate based on year 1 monitoring needs.

<i>Financial Worksheet</i>	<i>Year 1</i>		<i>Year 2</i>		<i>Year 3</i>	
Hydrology/Soils						
Cross-section data and Longitudinal Profiles	\$7,050.00		\$7,050.00		\$7,050.00	
Soil Erosion Transects	\$3,450.00		\$3,450.00		\$3,450.00	
Subtotal		\$10,500.00		\$10,500.00		\$10,500.00
Noxious Weeds						
Inspect Trails, Roads, Dozer Lines, High Potential Sites	\$20,400.00		\$10,400.00		\$5,400.00	
Treat know locations	\$1,600.00		\$800.00		\$400.00	
Administrative Costs	\$5,050.00		\$1,050.00		\$1,050.00	
Subtotal		\$27,050.00		\$12,250.00		\$6,850.00
Monitoring Cost by Year		\$37,550.00		\$22,750.00		\$17,350.00
Three Year Total						\$77,650.00

Phase-II Monitoring

Noxious Weeds: Monitoring of the McNally burn area will be required to determine if the fire and associated suppression efforts resulted in the introduction and spread of noxious weeds. Monitoring areas utilized for fire suppression activities will be key in prevention of these weeds establishing a seed bank and becoming serious pests in areas within and adjacent to the burn. These areas include fire-line constructed by dozers, staging areas for equipment, and other areas with concentrations of suppression resources.

- Treatment Type: One -Year Noxious Weed Monitoring
- Treatment Objective: Assessment of Noxious Weed Introduction and Spread from Suppression Activities.
- Treatment Description: One-Year monitoring of dozer lines, roads, helispots, drop points and other suppression activity areas.
- Treatment Cost: \$12,400 (total for Phase I and II)

Slope Treatment Monitoring: Effectiveness monitoring is proposed to measure erosion rates on slopes treated with contour logs and straw mulch and provide measure of an untreated area for control. PSW has visited the fire and is interested in working with the forests to develop a monitoring plan that tests the effectiveness of slope treatments. Areas that would provide access for monitoring could be located in the Dry Meadow Creek, Soda Creek, and Lyons Creek watersheds.

- Treatment Type: Two -Year Erosion Monitoring
- Treatment Objective: To determine if treatments are effectively reducing erosion and overland flow in order to meet BAER objectives.

- Treatment Description: Two-Year monitoring of roughly four silt fences at four locations would be installed below treatment areas to collect eroded soil. Additional silt fences at the base of slopes would be installed to measure total slope erosion on treated sites. Control fences would be included at each site.
- Treatment Cost: \$12,925 (total for Phase I and II)

Sherman Pass Road: Follow-up detail survey was done on the scorched road pavement of Sherman Pass Road and determined emergency treatment is warranted. Sequoia Engineering wants to replace chip seal on two miles of this road. These two miles were exposed to conditions that were severe enough to bubble the pavement and separate the asphalt. Engineering has a concern that the oil, which has bled to the surface, will weaken the adhesion bond to the chip material and much of the chip seal material will be lost this winter from traffic. In order to substantiate this concern the forest would like to monitor the condition of the road pavement for one year to provide a normal year's wear and tear on the road and be able to more correctly evaluate the extent of the damage associated with the fire on the road system.

. Phase I Monitoring

Mule Deer: Potential exists for the need to provide supplemental feed for deer and wildlife along migration corridors and winter use areas.

- Treatment Type: Kern River deer herd monitoring of winter range and migration routes.
- Treatment Objective: Monitor of deer population numbers, winter range forage condition and trend.
- Treatment Description: Conduct fixed wing or helicopter survey of Kern River deer herd winter areas in the fire perimeter.
- Treatment Cost: Rough estimate for two flights, one in October and one in December \$3,000.

Part VI – Emergency Rehabilitation Treatments and Source of Funds by Land Ownership

Phase I and Phase II treatments shown on separate sheets, double click to change sheets.

A. Land Treatments									
Contour Felling Rattlesnake	Acres	1500	220.45	\$330,675	\$0		\$0	\$0	\$330,675
Arch-Heli-Mulching	Acres	included	below	\$0	\$0		\$0	\$0	\$0
Heli-Mulching in Rattlesnake	Acres	2560	826.87	\$2,116,787	\$0		\$0	\$0	\$2,116,787
Heli-mulching in North	Acres	0	0	\$0			\$0	\$0	\$0
Willow Planting	Miles	0	0	\$0	\$0		\$0	\$0	\$0
Subtotal Land Treat				\$2,447,462	\$0		\$0	\$0	\$2,447,462
B. Road and Trails									
Hydromulching	Acres	93	290	\$26,970					\$26,970
Hydromulching subtotal				\$26,970	\$0		\$0	\$0	\$26,970
Removal of galvanized flume	Each	1	275	\$275	\$0		\$0	\$0	\$275
Const. Leadoff ditch	M	77.8	23	\$1,789	\$0		\$0	\$0	\$1,789
Const rolling dip	Each	75	275	\$20,625	\$0		\$0	\$0	\$20,625
Reconst rolling dip	Each	196	275	\$53,900	\$0		\$0	\$0	\$53,900
Const catch basin	Each	14	206	\$2,884	\$0		\$0	\$0	\$2,884
Reconst catch basin	Each	18	215	\$3,870	\$0		\$0	\$0	\$3,870
Reconst waterbars	Each	15	69	\$1,035	\$0		\$0	\$0	\$1,035
Install riprap, class 1	CM	43.52	481	\$20,933	\$0		\$0	\$0	\$20,933
Install riprap, class 3	CM	6.1	406	\$2,477	\$0		\$0	\$0	\$2,477
Reconditioning roadbed	km	16.25	1276	\$20,735	\$0		\$0	\$0	\$20,735
457mm Metal End Section	Each	1	415	\$415	\$0		\$0	\$0	\$415
Gate, single wide	Each	1	5500	\$5,500	\$0		\$0	\$0	\$5,500
Remove exist. Gate	Each	1	1035	\$1,035	\$0		\$0	\$0	\$1,035
Cleaning leadoff ditch	M	12.2	23	\$281	\$0		\$0	\$0	\$281
Claning SIA & flume	Each	101	83	\$8,383	\$0		\$0	\$0	\$8,383
Cleaning CMP inlet	Each	34	49	\$1,666	\$0		\$0	\$0	\$1,666
Cleaning entire CMP(flush)	Each	13	275	\$3,575	\$0		\$0	\$0	\$3,575
Cleaning Drop Inlet(DI)	Each	2	140	\$280	\$0		\$0	\$0	\$280
Cleaning catch basin	Each	1	210	\$210	\$0		\$0	\$0	\$210
Install Inlet Assemblies(SIA)	Each	1	525	\$525	\$0		\$0	\$0	\$525
Flume, 203-mm x 292-mm	M	12.2	55	\$671	\$0		\$0	\$0	\$671
Anchor Stakes	Each	12	21	\$252	\$0		\$0	\$0	\$252
Subtotal Road				\$151,316	\$0		\$0	\$0	\$151,316
Inyo Trails	Miles	14	7260	\$101,640	\$0		\$0	\$0	\$101,640
Sequoia Trails	Miles	110	1900	\$209,000					
Subtotal trails				\$310,640	\$0		\$0	\$0	\$310,640
Subtotal All Road&Trails				\$488,926	\$0		\$0	\$0	\$488,926
Phase I Undercosts									
Straw and Tucking	total	1	64,000	\$64,000	\$0		\$0	\$0	\$64,000
Total Undercost				\$64,000					\$64,000
C. BAER Evaluation									
Phase I Team	team	1	71709	\$71,709	\$0		\$0	\$0	\$71,709
Phase II Team	team	1	110000	\$110,000	\$0		\$0	\$0	\$110,000
Subtotal Evaluation				\$181,709	\$0		\$0	\$0	\$181,709
D. Monitoring									
Noxious Weeds	days	61	444	\$27,084	\$0		\$0	\$0	\$27,084
Land Treatments	days	20	525	\$10,500	\$0		\$0	\$0	\$10,500
				\$0			\$0	\$0	\$0
Subtotal Monitoring				\$37,584	\$0		\$0	\$0	\$37,584
G. Totals				\$2,882,071	\$41		\$41	\$0	\$2,882,071

Actual Costs to Date

McNally Operations								
	Engineering	Straw+Mulching	Contour Felling	Channel Treatments	Trails	Inyo	Assessment	Totals
Operating Budget					\$209,000.00		\$181,709	
McNally 1	\$857,377.00	\$229,572.00		\$6,934.00			\$71,909	
McNally 2	\$190,286.00	\$2,056,432.00	\$351,000.00	\$7,731.00		86,000.00	\$110,000	
Total	\$1,047,663.00	\$2,286,004.00	\$351,000.00	\$14,665.00	\$209,000.00	86,000.00	\$181,709	\$4,176,041.00
BAER Assessment							\$181,709	
Straw		\$416,764.17						
Mulching		\$1,700,013.18						
Contour Felling Contract			\$93,799.00					
CM Crew Costs			\$236,878.34					
K Rales				\$14,665.00				
McNally 1	\$397,735.56							
McNally 2	\$222,057.50							
McNally 3	\$167,810.00							
McNally 4	\$119,298.00							
Eng Salary	\$81,470.20							
Trails					\$209,000.00	\$88,641.00		
Totals	\$987,965.26	\$2,116,777.35	\$330,677.34	\$14,665.00	\$209,000.00	\$86,000.00	\$181,709.00	\$3,926,793.95
Remaining Dollars	\$59,697.74	\$169,226.65	\$20,322.66	\$0.00	\$0.00	\$-2,641.00	\$0.00	\$249,247.05

PART VII - APPROVALS

1. _____
Forest Supervisor, Sequoia N.F. (Signature) _____
Date

2. _____
Regional Forester (signature) _____
Date