



United States
Department of
Agriculture

Forest
Service

Stanislaus National Forest
19777 Greenley Road
Sonora, CA. 95370-5909

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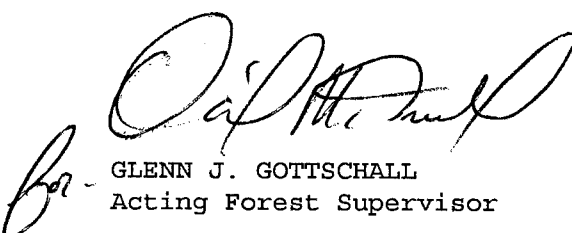
Route To:

Subject: Final 2500-8 Report - Ackerson Complex

To: Regional Forester, R-5

Enclosed is the final Burned Area Report (Form FS 2500-8 and Narrative) for the Ackerson Complex fire, which documents project accomplishments. See Section V for a comparison of prescribed vs. actual BAER prescriptions.

The initial report requested \$301,530 to implement emergency rehabilitation treatments. The final cost (\$118,405.42) was considerably less than what was requested. This is due to a significant decrease in project implementation costs by both dropping and modifying proposed treatments. This document will serve to close the BAER accounts.


GLENN J. GOTTSCHALL
Acting Forest Supervisor

Enclosures

cc: Calvin Bird, Groveland RD
Jim Frazier, SO
Todd J. Ellsworth, Groveland RD
Jerry DeGraff, Sierra N.F. SO



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USDA-FOREST SERVICE

Date of Report: Sept. 16, 1996

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

PART I - TYPE OF REQUEST

A. Type of Report

- ☐ 1. Funding request for estimated WFSU-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)
☐ 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: Ackerson B. Fire Number: P59341/YNP120
C. State: California D. County: Tuolumne
E. Region: Pacific Southwest F. Forest: Stanislaus
G. District: Groveland
H. Date Fire Started: Aug. 14, 1996 I. Date Fire Controlled: Sept. 13, 1996
J. Suppression Cost: \$ 21.8 million
K. Fire Suppression Damages Repaired with EFFF-PF12 Funds:
 1. Fireline waterbarred (miles) 18
 2. Fireline seeded (miles) 0
 3. Other (identify) 0
L. Watershed Number: 1804-00-0901-01, 0902-01, 0903-01.
M. NFS Acres Burned: 11,291 Total Acres Burned: 59,606
 Ownership type:
 () State () BLM (1,280) PVT (48,315) NPS_ Yosemite NP__
N. Vegetation Types: mixed conifer, Ponderosa oine, oak
O. Dominant Soils: Fiddletown, Holland, Gerle Families
P. Geologic Types: Granite
Q. Miles of Stream Channels by Order or Class:
 18 mi. perennial 3 mi. intermittent
R. Transportation System: Caring for the Land and Serving People
 Trails: 0 (miles) Roads: 29 (miles)





PART III - WATERSHED CONDITION

- A. Fire Intensity (Acres): 7,575 (low) 1,603 (moderate) 2,112 (high)
- B. Water Repellant Soil (Acres): 2,112
- C. Soil Erosion Hazard Rating (Acres):
3030 (low) 4545 (moderate) 3715 (high)
- D. Erosion Potential: 17 tons/acre
- E. Sediment Potential: 7680 cu. yds/sq. mile

PART IV - HYDROLOGIC DESIGN FACTORS

- A. Estimated Vegetative Recovery Period: 5 years.
- B. Design Chance of Success: 80 percent.
- C. Equivalent Design Recurrence Interval: 25 years.
- D. Design Storm Duration: 6 hours.
- E. Design Storm Magnitude: 2.8 inches.
- F. Design Flow: 125 cfs.
- G. Estimated Reduction in Infiltration: 25 percent.
- H. Adjusted Design Flow: 230 cfs.

PART V - SUMMARY OF ANALYSIS

A. Describe Emergency:

Based on field survey by the Ackerson BAER team, the following emergencies consistent with FSH 2509.13 were identified:

1. **Loss of site productivity** - High intensity burn occurred on 2112 acres and created hydrophobic conditions while removing vegetation and organic cover. It is expected that 17 tons/ac of soil loss will occur on land that is Site Class 2 and 3 for commercial timber. The affected areas are concentrated in Cherry and Eleanor Creeks.
2. **Threat to Property** - The existing system of Forest Service roads is subject to potential damage in proximity to high intensity burn areas. This loss will result from increased flows carrying soil and floatable debris that blocks culverts and causes roadbed erosion. In addition to the direct effect of repair costs to damaged roads, there is an indirect loss associated with loss of service for management activities including salvage operations and daily access for operation of Eleanor Lake dam.

A threat to life and property may occur at road crossings and streamside developments along the Middle Fork of the Tuolumne River on the Stanislaus National Forest. The river's headwaters, in Yosemite National Park upstream from forest lands, is part of the Ackerson Fire. This burned area may cause an increase in streamflow, sediment and floatable woody debris downstream. The Stanislaus BAER team and the Yosemite BAER team are still conducting the watershed survey of the headwaters area in Yosemite since completion of fire suppression there occurred later than on forest land. An interim 2500-8 may be filed later to recommend actions if the watershed survey identifies threats to life or property.

Actual Treatment: A flood hazard letter was sent to downstream user describing the potential for flooding due to the fire.





B. Emergency Treatment Objectives:

Objective 1 - Maintain soil site productivity and reduce the potential of accelerated erosion through a combination of treatments. The specific treatments applied to areas will depend on site topography, access, and slope steepness. The treatments include: aerial seeding of blue wildrye (a native species) from locally collected seed, contour trenching, constructing log erosion barriers, and contour tilling. The variety of treatments is a response to differing site characteristics, expected management, and coordination with management on adjacent National Park lands.

Objective 2 - Reduce the threat to Forest Service roads by increasing the maximum available capacity of the existing road drainage system and installation of protective measures to limit severe damage where culverts could fail.

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

Land 95 % Channel N/A % Roads 95 % Other N/A %

D. Probability of Treatment Success

	<----Years after treatment----->		
	1	3	5
Land	80%	100%	100%
Channel	N/A	N/A	N/A
Roads	90%	95%	100%
Other	N/A	N/A	N/A





E. Cost of No-Action (Including Loss): \$ 539,027

F. Cost of Selected Alternative (Including Loss): \$ 514,330

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 type="checkbox"/> Timber	<input checked="" type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input checked="" type="checkbox"/> Engineering
<input type="checkbox"/> Contracting	<input type="checkbox"/> Ecology	<input type="checkbox"/> Research	<input checked="" type="checkbox"/> Archaeology
<input checked="" type="checkbox"/> Botany	<input checked="" type="checkbox"/> GIS	<input type="checkbox"/> _____	<input checked="" type="checkbox"/> Aquatic Biology

Team Leader: Jerome V. DeGraff

Phone: (209) 297-0706 DG Address: J.DeGraff:R05F15A

H. Treatment Narrative:

The following actions are proposed as emergency treatments for the Ackerson Complex fire for lands within the Stanislaus National Forest. These treatments were formulated based on BAER objectives and survey data, and obtaining line-officer input. Additional information regarding these treatments is provided in the team members reports attached to the 2500-8.

A) Threat to Property

To protect the integrity of the road system where fire intensity has changed the hydrologic response of hillslopes, the following treatments are recommended:

- Twenty rocked intercepting dips.
- Two hundred catch basin clearings.
- Three trash racks.
- Two snorkels.
- Emergency road patrols during/after storms.

The location of this treatments is summarized below:

1N14 and 1N97 (stacked roads--Wilson Meadow/Loop area):

- Intercepting Dips
- Snorkels
- Catch basin clearing and cleaning.

1N97 (backside of Wilson Meadow Loop):

- Intercepting Dips

1N14 (Between 1N97 and Park boundary):

- Catch basin clearing and cleaning.
- Trash rack at creek

1N86 (Note: check R/W status across private land on this road)

- Emergency flood patrol

1S19A

- Caring for the Land and Serving People
- Intercepting dip





1N26Y and old spur RR grades) [Need to check R/W status]

Intercepting dips

1S26Y (Ackerson Meadow area) :

Catch basin clearing and cleaning.
Trash rack at Ackerson Creek

1S25C (Off Evergreen Road and 1S25) :

Catch basin clearing and cleaning.
Trash rack at creek

System-Wide in Burn and immediately downstream:

Emergency flood patrol
Catch basin clearing and cleaning.

Actual Treatment: Engineering installed 2 culvert risers, constructed 6 rocked dips, 6 rip rapped fills and placed aggregate base at 4 locations. Emergency storm patrol was performed during the early storms. The rain on snow event in early January 1997 caused extensive road damage. Total cost for installing road drainage structures was \$34,017.81. The total cost for road patrol was \$7,345.71.

B) Loss of soil/site productivity

1,770 acres of high intensity burn are recommended for treatment. These are high site class soils within mixed conifer and Ponderosa pine stands.

These treatments occur in the Cherry Creek, Eleanor Creek and Middle Fork Tuolumne River watersheds. The areas are currently mapped from field observation and helicopter reconnaissance and digitized into the geographic information system (GIS) data base on the Stanislaus National Forest.

630 acres of seeding with blue wildrye

Aerially seed designated high intensity burn areas to quickly establish soil cover and develop a root mass to hold soil in place. Blue wildrye is a native species; the seed source is local seed from the same elevation on the Groveland Ranger District. The proposed seed rate is 20 seeds per square foot. Soil samples from selected locations within the proposed seeding area are being watered to determine if surviving seeds from native plants are likely to germinate. The number of acres being seeded or the seeding rate may be adjusted based on these results. Blue wildrye was selected since it is a fast growing plant native to this area. It is compatible with conifer plantings and is used on the adjacent Yosemite National Park in erosion control/restoration.

Actual Treatment - 689 acres of blue wild rye was seeded. The increased acreage is due to extra seed available after the initial blocks were treated. The cost is higher due to an initial miscalculation, not due to increased treated acres. Cost per acre was approximately \$86.14.

530 acres of contour striping for the Land and Serving People





Till contour strips about 25 feet apart using a small tractor. Use three ripper shanks and till to at least 6 inches in depth (rip deep enough to break through any compacted areas). This creates a series of furrows which disturbs the hydrophobic layer and creates an opportunity for surface flow to penetrate the soil. This treatment reduces surface erosion by decreasing slope length and increasing infiltration capacity.

Actual Treatment - This treatment was not implemented based on further field investigation of proposed treatment areas. This area recovered adequately this past winter and spring without emergency treatment.

245 acres of log erosion barriers (LEB's)

Place a series of logs (10 to 20 feet long, 4 to 8 inches in diameter) on the contour with soil scraped onto the log on the back side to create a small trench. This disturbs the hydrophobic layer, slows surface run-off, increases infiltration, catches sediment, and breaks up rill development.

Actual treatment: A total of 143 acres were treated in the Cherry Creek watershed and Middle Fork Tuolumne watershed. This treatment was used in conjunction with contour trenching. Treatment occurred on slopes over 35%. Cost per acre was approximately \$31.00.

365 acres of contour trenching

Treat the prescribed locations similar to LEBs but without the log. Hand excavate the contour trenches. This treatment can be used on some of the more gentle slopes and where there are no logs for LEBs. The cost is estimated to be about 40% less than LEBs.

Actual Treatment: A total of 430 acres were treated in the Cherry Creek and Middle Fork Tuolumne watersheds. This treatment was used in conjunction with Log Erosion Barriers on slopes under 35%. The production rate of this treatment was approximately 3 times the rate on log erosion barriers. It is recommended that this treatment be used in place of log erosion barriers due to lower cost, faster production and safer implementation. Cost per acre was approximately \$10.00.

Treatments by watershed are as follows:

Cherry Creek Watershed

1. Seed a 630 acre high intensity burn area with blue wildrye and, within this same area, construct 225 acres of contour trenches and 225 acres of log erosion barriers.
2. On other areas in this watershed build 65 acres of contour trenches and contour strip till 270 acres.

Eleanor Creek Watershed

1. Contour strip till 200 acres
2. Construct contour trenches on 75 acres
3. Build log erosion barriers on 10 acres

Middle Fork Tuolumne River

1. Contour strip ~~on 10 acres~~ **Caring for the Land and Serving People**
2. Build log erosion barriers on 10 acres





These treatments are expected to be 80 % effective in retaining soil on the slopes. An unquantified benefit of these treatments in the Cherry Creek watersheds is the reduction of sediment delivered to this stream. While there is not a water quality emergency within this stream, it is controlled by a reservoir immediately above and flows are seldom sufficient to move large quantities of sediment. A large sediment load would require a number of years to move through this system.

COST RISK ANALYSIS

No Action Alternative: Cost + Risk = \$539,027

10% chance of no damaging storm with normal soil loss valued at \$56,336	= \$ 5,635
90% chance of damaging storm with accelerated soil loss and damage to road system	= \$533,394

Response alternative: Cost + Risk = \$514,330

80% chance of successful treatment with some soil loss and cost of treatment	= \$344,296
20% change of unsuccessful treatment with accelerated soil loss, damage to road system, and loss of treatment investment	= \$170,034





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

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

Line Items	Units	Unit Cost \$	NFS Lands			Other Lands			Al
			Number of Units	EFFS- FW22 \$	Other \$ ident.	Number of Units	Fed \$ ident.	Non-Fed \$ ident.	Tot \$
A. LAND TREATMENTS									
Contour trenches	ac	140	365	51,100					51,
Log erosion barriers	ac	225	245	55,125					55,
Contour strip tilling	ac	75	530	39,750					39,
Seeding	ac	67	630	42,210					42,
B. CHANNEL TREATMENTS									
C. ROADS AND TRAILS									
Intercepting dips	ea	1,250	20	25,000					25,
Catch basin cleaning	ea	50	200	10,000					10,
Trash/debris racks	ea	2,500	3	7,500					7,
Snorkels/vert. risers	ea	3,750	2	7,500					7,
Emergency patrol				20,000					20.
D. STRUCTURES									
E. BAER EVALUATION/ ADMINISTRATIVE SUPPORT									
Evaluation				43,345					43,
F. TOTALS									
									301,

PART VII - APPROVALS

1. /s/ Janet L. Wold 9/16/96
Forest Supervisor (Signature) Date
2. /s/ Gilbert J. Espinosa 09/18/96
Regional Forester (Signature) Date



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BAER TEAM MEMBER REPORTS

1. Geology
2. Soils
3. Botany/Plant Ecology
4. Hydrology
5. Fisheries
6. Engineering
7. Wildlife
8. Heritage Resources

