

Date of Report: 1/6/03

**BURNED-AREA REPORT
(Reference FSH 2509.13)****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: Borrego Mesa B. Fire Number: NM-SNF-077
C. State: New Mexico D. County: Rio Arriba & Santa Fe
E. Region: 03 F. Forest: Santa Fe
G. District: Espanola
H. Date Fire Started: May 22, 2002 I. Date Fire Controlled: Estimated containment-6/8/02
J. Suppression Cost: \$6,750,000
K. Fire Suppression Damages Repaired with -PF12 Funds
 1. Fireline waterbarred (miles): 26
 2. Fireline seeded (miles):
 3. Other (identify):
L. Watershed Number: 1302010109
M. NFS Acres Burned: 11,071 Total Acres Burned: 12,950
 Other ownership type: () State () BLM (461) PVT (1418) Truchas Land Grant
N. Vegetation Types: PJ-804, Pupos-7088, Mixed Conifer-4941, Spruce Fir-117
O. Dominant Soils: Ustochrepts
P. Geologic Types: metamorphic, granites

Q. Miles of Stream Channels by Order or Class: 210 total
4TH 4.68 3RD 11.14 2nd 21.2 1st 173

R. Transportation System

Trails: 22.5 miles Roads: 265 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 6868 (low) 4784 (moderate) 1072 (high)

B. Water-Repellent Soil (acres): 4425

C. Soil Erosion Hazard Rating (acres):
0 (low) 3700 moderate) 9100 (high)

D. Erosion Potential: 6.2 tons/acre

E. Sediment Potential: 19,821 cubic yards / square 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: 1 hours

E. Design Storm Magnitude: 1.75 inches

F. Design Flow: 20 cubic feet per second per square mile

G. Estimated Reduction in Infiltration: 46 percent

H. Adjusted Design Flow: 570 cubic feet per second per square mile

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency:

The Borrego Fire burned 12,950 acres; 11,071 acres on Forest Service administered lands, (including Wilderness), 418 acres on private land, and 1418 acres on the Truchas land grant. Topography in the burned area is steep, and includes over 200 miles of streams and drainages, which are expected to contribute to sediment loading if summer rains occur.

Fire severity, a measure of the fire effects to organic duff and soil, over the fire area were divided as follows: acres (8%) of high severity, (38%) of moderate severity, and (54%) of low severity. Fire intensity, a measure of impacts to vegetation cover is as follows: (29%) of severe intensity, (30%) of mosaic intensity, and (41%) of under burn/no-burn intensity.

The fire boundary contains large portions of two 6th code watersheds: the Rio Medio and Rio Quemado, both of which have intermittent/ephemeral tributaries on steep gradients. The headwaters of these streams are not within the burned area. Approximately 21% of the Rio Medio watershed burned, with about 2% (560 acres) of it burned at high severity. Approximately 20% of the Rio Quemado watershed burned, with about 2% (512 acres) burned at high severity. Although the Rio Quemado itself is mostly outside the burn perimeter, tributaries (Rinconada, etc.) in the northeastern portions of the fire burned with high to moderate severity.

Road 306, an important road used by both the agency and the public, will likely be heavily impacted by upcoming storm events and is proposed to be closed temporarily. It appears that 13 existing culverts are not of adequate size to accommodate expected runoff. The road parallels a deep canyon which burned with high severity for several miles below the road.

Water quality in Rio Medio and the Santa Cruz reservoir will be impacted by ash, sediment and fire retardant (slurry). Due to the continuing drought, the reservoir is expected to be empty by the end of June prior to the summer monsoons. This reservoir can act as a catchment for ash and sediments for the next three years.

(Note: further background information, survey methodology and specialists' assessments are included in the Borrego BAER project record)

VALUES AT RISK

1. THREAT TO LIFE AND PROPERTY
2. LOSS OF CONTROL OF WATER

Threats to property off the Forest include the Truchas land grant and to the communities of Santa Cruz and Cordova. An assessment by the NRCS of structures within the Quemado drainage indicated that though several simplistic head-gate structures exist and will probably be removed by the anticipated flow these can easily be replaced. Existing engineered structures along the Quemado should handle the expected flows. Some structures within the floodplain, such as corrals, may be affected and culverts and bridges along the Quemado have insufficient capacity to pass design storm runoff. Threats on the Forest include FR 306, where ash and sediment on slopes and in drainages have the potential to plug and back up the culverts and breach the fill slopes. Residual fire retardant (slurry) and ash will wash into the Rio Medio and Rio Quemado, likely resulting in negative effects on fish and other biota. Tributaries of the Rio Medio will contribute ash and sediment to the Santa Cruz reservoir.

B. Emergency Treatment Objectives:

- 1) Protect Forest Road 306 from loss and damage due to anticipated runoff.
- 2) Control water flow to reduce sedimentation and peak timing to reduce impacts to human safety and private property and infrastructure in the Rio Quemado drainage.

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

Land 90 % Channel % Roads 90 % Other %

D. Probability of Treatment Success

Years after Treatment			
	1	3	5
Land	75	90	100
Channel			
Roads	75	100	100
Other			

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

F. Cost of Selected Alternative (Including Loss):\$1,849,500

G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input type="checkbox"/> Geology	<input checked="" type="checkbox"/> Range	<input checked="" type="checkbox"/> NRCS
<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 type="checkbox"/> Research	<input checked="" type="checkbox"/> Archaeology	<input type="checkbox"/>

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H. Treatment Narrative:

Northeast treatment area: (400 acres) The upper third of the slopes less than 30% with high severity burn and the moderate burn area immediately above the high intensity burn slopes will be aerial seeded. Usually we do not treat moderate areas these areas usually provide needle fall of sufficient depth to protect the site, but in this particular case there are significant acreages that are intermingled high and moderate (usually classed as moderate) and in this case it is important to ensure control of water into high severity burn areas. Mulching (using weed-free straw) will be done on the seeded areas. Trees will then be randomly felled to provide a micro climate and hold straw in place. Seeding will use the Santa Fe mix (30% Mountain Brome, 30% Slender Wheatgrass, 30% annual rye, 10% cereal barley) at a rate of 36# PLS per acre to achieve the target of 60 seeds per square foot. A portion of the area needing treatment falls within the Pecos Wilderness. Although the preference in wilderness areas is no treatment and natural recovery, treatment of about 40 acres is important to protecting the downstream values in the Rio Quemado. No tree felling will be done inside the wilderness boundary and, due to wilderness policy regarding the use of native or indigenous grass, no seeding will be done in the wilderness. However, the straw mulching portion of the treatment is proposed inside the wilderness in order to provide the immediate ground cover needed for treatment success. The goal of the treatments proposed in the the Northeast treatment area is to manage initial flow into tributary drainages of the Quemado and reduce water flow and erosion within the burned area. As part of this request we are requesting Regional Forester approval for the use of mechanical equipment in the Pecos Wilderness since helicopters will be needed to position the strawbales that are the source of the straw mulch. Crews will spread the straw by hand and no other mechanized equipment will be needed.

ACCOMPLISHMENT:

Seeding took place according to plan and was completed by mid-June. Mulching was postponed due to unusually busy fire activity and corresponding unavailability of helicopters throughout the summer. The mulching proposal was reevaluated in September, and was determined to be still of benefit (not enough rain had fallen directly on the severely burned slope to wash away the ash). The treatment area was decreased, however, to accommodate a request by district recreation staff to omit the wilderness portion and to avoid a slope base (just above FR 306) that is under consideration for salvage logging. The final area treated with weed-free straw mulch was 155 acres beginning at the wilderness boundary and including the majority of continuous, upper slope shown in the original proposal (see accompanying map "treatment.jpg"). Some of the mulched area overlaps a proposed salvage unit, but we treated anyway because of the inaccessibility of the slope and the possibility that the area would be excluded from salvage operations in the final NEPA decision. Having continuous cover provides a better chance of success at erosion mitigation. Quality control was performed to assure adequate straw depth and distribution.

West treatment area: (700 acres) Aerial seeding using Santa Fe mix (same rates as above) within the high severity burned areas and adjacent, uphill moderate-severity burned areas above FR306, west of private lands, and north of the break into the Rio Medio. Seeding will be followed by mulching of aerial-seeded areas with weed free straw that will be positioned by helicopter for hand crews to spread. A tracked cutter mulcher will be used on mesas following helicopter distribution of hay bales and mulching. The goal of this treatment is the protection of FR306 and reduced contribution of sediment into tributaries of the Quemado.

FR 306: Replace and enlarge 13 culverts and install stand pipe or armor outlets depending on drop and slope of fill. Improve water control structures along travelway. Close FR 306 during summer monsoon season (July thru September for 2002 and 2003)

ACCOMPLISHMENT:

Seeding took place according to plan and was completed by mid-June. During June and July a rubber-tire chipper-shredder was used on 226 acres of the western mesa, focusing on areas that were less than 25% slope and avoiding drainageways. The machine shredded burned pinyon, juniper, and small-diameter ponderosa (up to 7 dbh) to provide mulch. An archaeologist walked in front of the machine to assure no site disturbance occurred. FR 306 was bladed after storms carried slick ash onto the roadbed, and one plugged culvert was cleaned out. Warning signs and gates were installed to control access to the burned area. The monsoon season brought minimal rain, so there was not as much damage to the road as anticipated.

Central treatment area: (2900 acres) Other areas within the ponderosa pine and mixed conifer zones outside of wilderness and outside of the Northeast and West treatment areas with high severity or moderate severity areas providing flow into high severity areas will be aerial seeded with the Santa Fe mix at a reduced rate (roughly 10 seeds per square foot) due to spotty distribution and intermixed with low/unburned areas below treatment areas.

ACCOMPLISHMENT:

Seeding took place according to plan and was completed by mid-June.

Southwest treatment area: No treatment proposed due to remoteness and low probability of success of treatments in pinyon juniper stands.

Treatments considered but not proposed:

Wilderness seeding and felling

Log erosion barriers

Wattles

Hydromulch

Treatment on slopes over 30%

Removal of material from channels

Treatment of southwest burn area

NRCS will coordinate private land and county issues and impacts to travelways, developments, and irrigation structures. Consideration with counties and other agencies of a early warning system/flood patrol.

BLM has been advised on possible effects to Santa Cruz Reservoir and the possible use of reservoir as a sediment trap on the Rio Medio.

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

Line Items	Units	Unit Cost \$	NFS Lands			Other Lands		All
			Number of Units	WFSU-SULT \$	Other \$ NFN3	Number of Units	Fed \$ -----	Total \$

A. Land Treatments

Seed (60 s/sq ft rate)	acre	\$ 22.68	1100	\$24,948				\$ 24,948
Seed (10 s/sq ft rate)	acre	\$ 4.41	2343	\$10,332				\$ 10,332
Aerial application	acre	\$ 5.25	4120	\$21,630				\$21,630
Mulch (40 bales/acre) 2-4 crews, helicopter, (crew baer funds)	acre	\$650	155	\$100,750				\$100,750
Mechanical cut/slash	acre	\$248.24	226	\$56,084				\$56,084

B. Roads and Trails

Culvert cleanout	job	\$ 300	1	\$300				\$300
Road closure gates	each	\$ 1,500	2	\$1,500				\$1,500
Warning signs	each	\$ 100	8	\$800				\$800
Blading road	job	\$ 300	1					\$300

C. BAER Evaluation/Administrative Support

BAER Assessment Team	Job		1	\$19,879				\$19,879
BAER Implementation Team	job		1	\$10,583				\$10,583

D. Totals				\$246,346				\$246,346
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PART VII - APPROVALS

1. _____
Forest Supervisor

Date

Borrogo BAER General Treatment Area Location Map

