

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: Horseshoe Wildfire B. Fire Number: AZ-COF-036
C. State: Arizona D. County: Coconino
E. Region: Southwestern (R-3) F. Forest: Coconino
G. District: Peaks Ranger District
H. Date Fire Started: May 18, 1996 I. Date Fire Controlled: May 25, 1996
J. Suppression Cost: \$3,000,000.00
K. Fire Suppression Damages Repaired with WFSU-PF12 Funds:
1. Fireline waterbarred (miles) 14.5
2. Fireline seeded (miles) 14.5
3. Other (identify) Fire Camp
L. Watershed Number: 1502001616
M. NFS Acres Burned: 8650 Total Acres Burned: 8650
Ownership type:
(0) State (0) BLM (0) PVT (0) _____
N. Vegetation Types: Ponderosa Pine; some Pinyon Pine/One-Seed Juniper;
Ponderosa Pine/Pinyon Pine/One-Seed/Juniper
O. Dominant Soils: Typic Argiborolls; Mollic Eutroboralfs;
Vitrandepctic Ustochrepts; Typic Haplustalfs
P. Geologic Types: Basalt and Cinder Parent Materials
Q. Miles of Stream Channels by Order or Class:
1 - 4.1 Miles
R. Transportation System:
Trails: 1.7 (miles) Roads: 9.7 (miles)

PART III - WATERSHED CONDITION

- A. Fire Intensity (Acres): 3150 (low) 2000 (moderate) 3500 (high)
- B. Water Repellant Soil (Acres): 200
- C. Soil Erosion Hazard Rating (Acres):
6968 (low) 950 (moderate) 732 (high)
- D. Erosion Potential: 4 tons/acre
- E. Sediment Potential: N/A cu. yds/sq. mile

PART IV - HYDROLOGIC DESIGN FACTORS

- A. Estimated Vegetative Recovery Period: N/A years.
- B. Design Chance of Success: N/A percent.
- C. Equivalent Design Recurrence Interval: N/A years.
- D. Design Storm Duration: N/A hours.
- E. Design Storm Magnitude: N/A inches.
- F. Design Flow: N/A cfs.
- G. Estimated Reduction in Infiltration: N/A percent.
- H. Adjusted Design Flow: N/A cfs.

PART V - SUMMARY OF ANALYSIS

The Horseshoe Fire began May 18, 1996 and burned approximately 8650 acres of mostly ponderosa pine forest and some pinyon-juniper woodlands in an area approximately 30 miles northwest of Flagstaff, Arizona. All acres burned by the fire are under the management and administration of the Coconino National Forest. The fire was fueled by record low fuel moistures and very strong winds. Fire intensities were high in portions of the burned area, but due to the fast moving nature of the fire, the development of water repellent soils was limited. In areas where fire intensities were high, the fire resulted in complete consumption of ground fuels and live vegetation; and a complete loss of protective vegetative ground cover.

The fire burned entirely within the upper portions of the Cedar-Deadman Watershed (approximately 237,800 acres in size) which eventually drains into the Little Colorado River. No perennial streams, lakes or riparian areas occur within this watershed. Fortunately, water quality, stream sedimentation, riparian habitat, and potential downstream flooding are not an issue associated with this fire. The fire did jump State Highway 180, which is a major route to the Grand Canyon from Flagstaff. The highway was closed for a period of time, due to fire suppression activities, fire and dense smoke. It was reopened once the threat of fire and highway smoke passed and fire suppression activities subsided within the area.

The major landform impacted by the fire (roughly 80 percent of the burn area), is primarily elevated plains occurring on slopes of less than 15 percent. Soils are typically derived from basalt bedrock with some influence from cinder parent materials. These soils were identified by the Coconino National Forest Terrestrial Ecosystem Survey as having a slight erosion hazard. In addition, the remaining 20 percent of the fire burned on scarp slopes of elevated plains and low lying hills. Slopes range from 15 to 80 percent. Soils are derived from mostly cinder parent materials and contain varying amounts of surface rock. Erosion hazard is identified as mostly severe with some soils having a moderate erosion hazard.

A. Describe Emergency:

BAER survey of the area burned by the Horseshoe Fire indicates the following emergency conditions exist:

Threat To Long-Term Soil Productivity.

Approximately 1,000 acres of soils occurring on moderately steep and steep slopes burned very hot in which all protective vegetative ground cover, live vegetation and ground fuels were consumed. Slopes average roughly 40 percent percent. Using the Universal Soil Loss Equation, there will be an estimated 14 tons/acre of soil loss while the soils have an average soil loss tolerance value of 4 tons/acre. There is a very high potential that on-site soil loss rates will increase dramatically, resulting in a loss of long-term soil productivity. Erosion hazard is mostly severe, however, some soils are characterized as having a moderate erosion hazard.

B. Emergency Treatment Objectives:

The treatment objectives are to prevent on-site soil loss, minimize surface runoff, and to protect long-term soil productivity of severely burned soils on steep slopes. The proposed treatments are considered viable and are consistent with Forest Plan goals and other long term management goals of the area.

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

Land 75 % Channel N/A % Roads N/A % Other N/A %

D. Probability of Treatment Success

	<----Years after treatment----->		
	1	3	5
Land	60	85	85
Channel	N/A	N/A	N/A
Roads	N/A	N/A	N/A
Other	N/A	N/A	N/A

E. Cost of No-Action (Including Loss): \$ 206,250.00

F. Cost of Selected Alternative (Including Loss): \$ 173,090.00

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

Team Leader: George Robertson

Phone: (520) 527-3600 DG Address: G.Robertson:R03F04A

H. Treatment Narrative:

Describe the emergency treatments, where and how they will be applied, and what they are intended to do. This information helps to determine qualifying treatments for the appropriate funding authorities. For seeding treatments, include species, application rates and species selection rationale.

Approximately 1,000 acres of soils occurring on steep slopes within the ponderosa pine forest were intensely burned. The following seed mix is proposed and is already available from the District to be used with the objective of protecting soils against excessive on-site soil loss and erosion.

Western Wheatgrass.....	71%
Arizona Fescue.....	13%
Slender Wheatgrass.....	09%
Spike Muhly.....	02%
Mountain Lupine.....	05%

Seed at a rate of 3.5 pounds/acre or about 24 seeds/square foot.

In addition it is proposed that annual rye grass be added to the seed mix to be applied at a rate of 2 pounds/acre for a total application of 5.5 pounds/acre or about 34 seeds/square foot. Annual rye grass needs to be ordered.

The annual rye was selected in order to give a quick cover during the first year when the watershed is most at risk. Annual rye grass should not compete with the native grass species. Mountain Lupine was selected because of its nitrogen-fixing abilities. The other grasses were selected to give site stability after the first season. No structural treatments are proposed because there is little risk to downstream water quality, human life and property. Temporary fencing may be necessary in the future to protect the lower slopes from livestock grazing, however, this pasture is not being grazed this year.

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		All
			Number of Units	WFSU- FW22 \$	Other \$ ident.	Number of Units	Fed \$ ident.	Total \$
A. LAND TREATMENTS								
Seed								
5.5 lbs/ac @ \$5.69/lb	Acres	18.20	1,000	\$19,170				\$19,170
(reg mix- \$5.20/lb								
ann rye- \$,49/lb								
Aerial application	Acres	3.12	1,000	\$ 3,126				\$ 3,126
Salary (19 hours)	Acres	.45	1,000	\$ 448				\$ 448
B. CHANNEL TREATMENTS								
C. ROADS AND TRAILS								
D. STRUCTURES								
E. BAER EVALUATION/ ADMINISTRATIVE SUPPORT								
F. TOTALS				\$22,744				\$22,744

PART VII - APPROVALS

1. /s/ Fred Trevey September 30, 1996
Forest Supervisor (Signature) Date
2. _____
Regional Forester (Signature) Date

