USDA-FOREST SERVICE FS-2500-8 (7/00)

Date of Report: 03/04/2003

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[ ] 1. Funding request for estimated WFSU-SULT funds
[ ] 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 or design analysis
[ ] Status of accomplishments to date

[x] 3. Final Report (Following completion of work)

PART II - BURNED-AREA DESCRIPTION

A. Fire Name:Oversite

B. Fire Number: P33917

C. State:AZ

D. County: Cochise

E. Region:03

F. Forest: Coronado

G. District: Sierra Vista

H. Date Fire Started: 2-28-02

I. Date Fire Controlled:3-?-02

J. Suppression Cost: $1,000,000

K. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 5 miles of handline
2. Road Grading (approximently$14,000)
3. Surfacing provided for 1.5 miles of road within Coronado National Memorial (NPS) and grading at a cost of approximently $19,000

L. Watershed Number: San Pedro River Garden (HUC=1505020202) Ramsey and Miller Canyons and San Pedro River Headwaters (HUC= 1505020201) Bear and Ida Canyons.

M. Total Acres Burned: 2190 acres
NFS Acres(2189) Other Federal (-) State (-) Private (-)

N. Vegetation Types: Oak Woodland, Chaparral and Mixed Conifer

O. Dominant Soils: Soil depths are mostly shallow to moderately deep. Particle size classes are mostly loamy-skeletal with some loamy. Mineralogy classes are all mixed as no one mineralogy dominates. Dominant

parent materials are colluvium over residuum derived from granitic and sedimentary parent materials. Dominant temperature regimes are Frigid (mixed conifer) and Mesic (oak woodland and chapparal). Dominant subgroups are Lithic Ustochrepts with some Lithic Haplustalfs, Typic Ustochrepts and Typic Haplustalfs. Very steep slopes (40-80%+) and a high quartz content (sand and silt) make these soils highly erosive. The area as a whole contains over 30% rock outcrop.

P. Geologic Types: Precambrian granites of various mineral compositions dominate the east side of the fire perimeter (Miller Canyon). The west side (Bear Canyon and Ida Canyon) consists of sedimentary rocks, including conglomerates and limestone (south side of Ida Canyon). The limestone belongs to the Naco group and contains caves.

Q. Miles of Stream Channels by Order or Class: First order = 2.16 miles, second order = 1.89 miles.

R. Transportation System: miles

	Trails	Roads	Total
NFS	10.5	None	10.5
PVT	None	None	None
Total	10.5	None	10.5

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 1690 (low) ___ (moderate) 500 (high)

B. Water-Repellent Soil (acres): None

C. Soil Erosion Hazard Rating (acres):
___ (low) ___ (moderate) 2190 (high)

D. Erosion Potential: 5.6 tons/acre

E. Sediment Potential: 2400 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 3-10 years, based on previous fires in same area adjacent to Oversite Fire.

Chaparral recovers in 3 years or less due to vigorous sprouting of oak brush and various chaparral species.

Mixed Conifer was not damaged severely and at best was burned in patches at low intensity. Recovery expected in 3 years or less.

Oak Woodland will recover in 3 to 5 years based on leaf fall and grass recovery. Litter layer is expected to recocver to pre-burn conditions in 10 years.

B. Design Chance of Success, (percent): of treatments 95%
Treatments are limited to trail rehabilitation work (drainage). Structures installed in trails usually have high success rate and last about 10 years. No road-related work is anticipated.

C. Equivalent Design Recurrence Interval, (years): 10 years

D. Design Storm Duration, (hours): 24 hours

E. Design Storm Magnitude, (inches): 3.8 inches

F. Design Flow, (cubic feet / second/ square mile): 37 cfs/square mile

G. Estimated Reduction in Infiltration, (percent): 10% over whole fire

H. Adjusted Design Flow, (cfs per square mile): 40 cfs/sq. mi.

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency: The Oversite Fire burned entirely within the Miller Peak Wilderness. Total perimeter acreage of 2190 acres includes significant portions of green and unburned areas as well as low intensity burned areas that did not consume crowns or even brush canopies. After several overflights, the BAER Team members all agreed that likely no more than 500 acres were severely burned.

The following discussoion covers all aspects of fire damage assessed by the BAER Team.

1. **Acreage Determinations:**
Fire Perimeter determinations were derived using GPS out of a helicopter platform. This was performed by fire supression personel who were familiar with locations of all hand lines and burned area outlines. Significant unburned green areas remain inside the plotted perimeter, as well as large blocks of low intensity burned areas.

High Intensity Burned Areas were derived through several methods, both of which resulted in the same estimate. After the initial overflight, the BAER Teams' impression was that only 20-30% of the entire area burned severely. This would range from 438 to 657 acres. In order to further refine and map the locations of all severely burned areas, a GPS and photodocumentation flight was scheduled. A loop was flown around the severely burned areas which included a lot of unburned areas. Within this loop, it was estimated that 50% was severely burned. Total acreage of the loop was 918 acres, 50% of which is 459 acres. This was rounded to 500 acres, and deemed a conservative estimate.

2. **Seeding**:
The BAER Team members involved in the damage assessment did not recommend a seeding treatment of any Oversite acreage. All of the severely burned areas were on very steep slopes (40-80%), shallow soils or rock outcrop, and the success rate of seeding such areas is very limited. The majority of the severely burned acreage occurred in oak brush and chaparral, which tends to re-sprout rapidly after burns. Many chaparral species are known to sprout and grow a foot tall before benefitting from summer rains. The severely burned portions of the Oversite Fire are expected to sprout and at least partially recover in the next 6 months (by end September 2002).

Downslope effects of possible runoff and debris were considered, but the physical distance between severe burn areas and any potentially affected resource is great, allowing for significant buffering of impacts. Buffers of green or low intensity burn areas range from a ¼ to one mile wide.

3. **Erosion Control Structures:**
Due to lack of tree cover and wilderness related issues, the potential use of log erosion barriers or contour felling was eliminated. No in-channel structures of any sort were deemed necessary and none are recommended.

4. **Road Channel Crossings:**
There are no roads within the Wilderness, however downstream effects to adjacent roads were considered and throughly evaluated.

Ramsey Canyon: Located on the northwest end of fire, no severly burned acres occur in the Ramsey watershed. The head of Ramsey watershed consists of mixed conifer, which did not burn extensively. A burnout operation was executed but only a cold patchy underburn resulted. There was no intense burn or crown fire. The buffer between low intensity burn areas and private lands, roads and structures is approximetly 2 miles. No downstream effects are anticipated from this.

The BAER Team examined Ramsey Canyon to evaluate for the potential of effects of flooding. The uppermost private lands belong to the Nature Conservency and contain numerous structures near the active channel. The Ramsey Canyon road crosses the channel twice, and the upper crossing at the Consevency contained perennial flow consisting of less than 1 cfs. At this location the channel is at most 10 feet wide, has a steep gradient estimated at 2-4%, and alluvium consisting of large boulders and course cobbles. This indicates the occurrence of very high flows of past flood events. No evidence of recent flooding was present. Natural woody riparian vegetation consists mainly of sycamore with some cottonwood.

The lower crossing on the Ramsey Canyon Road consists of a large bridge that is deemed adequate to pass most flood flows.

Carr Canyon, Brown Canyon, Hunter Canyon and Lutz Canyon: These canyons do not contain burned areas from the Oversite Fire and no downstream effects are anticipated.

Miller Canyon: The Miller Canyon Road (FR 56) does not cross Miller Canyon all the way to it's end point at the Beatty property. The portion of the Miller watershed immediately above the Beatty property contains no intensely burned area. Mr. Beatty is not concerned with fire effects from the Oversite Fire. The Miller Canyon channel at this point is characterized as having a bolder and large cobble bedload indicating past high flow events. The channel passes through Mr. Beatty's private property and he is aware there is inherent risk to his improvements. The foot bridge crossing the channel on his property is at greatest risk. The woody riparian vegetation consists of sycamore and some walnut.

Bear Canyon at FR 61: Forest Road 61 crosses Bear Creek with a large bridge which will pass most flood flow. The bridge footings are located on bedrock. The BEAR Team saw no problem from upstream fire effects. Bear Creek at this location is characterized by low perennial flows and supports riparian vegetation. The channel is armored with bedrock controls on the banks as well as in the bed itself. Fine sediments are lacking to very thin.

Ida Canyon at FR 61: Forest Road 61 crosses Ida Canyon with a bridge, also. Again this bridge was deemed large enough to pass flood flows without damage to the structure. The channel associated with Ida Canyon is intermittant and has a gravel and sand sediment substrate. The bridge footings are located on fill.

5. **Trails:**
The entire fire perimeter contains approximately 10.5 miles of trails. Of this, the high intensity burned area contains 5.2 miles of trail, and the lower intensity burn area contains 5.3 miles. The BAER Team assessed the risk of damage to the established trails, and recommended clearing potential hazard trees adjacent to the trail. This was accomplished through suppression funds. Further recommendation consists of restoring drainage to the trail system that was damaged by the fire. This will be accomplished through BAER funds.

6. **Signs:**
A number of signs were burned in the Oversite Fire. These include trail markers and informational signs internal to the Wilderness. These signs cannot be replaced with BAER funds but temporary warning signs at trailheads warning the public that some trails are in the burn area and a brief description of the hazads they will encounter, can be paid for with BAER funds. Cost of signs includes installation at the trail heads.

7. **Tombstone Water Line in Miller Canyon:**
The Town of Tombstone has filed a claim for a water right in Miller Canyon, which is used for municipal water. The Town of Tombstone has an easement for their existing waterline. This line pre-dates the Forest Service, and has already withstood numerous flood events. The BAER Team recognizes that total mitigation of water

quality impacts is impossible. A contact has been made with Tombstone water department officials to make them aware of their potential problem.

8. Ida Cave Water Quality Concerns:
The concern regarding fire retardant entering Ida Cave was brought forward. The chemicals found in the retardent have the potential to pollute the water in Ida Cave and furthermore affect the formations within. A possible mitigation measure to minimize surface flow entering the cave is the construction of an upslope diversion trench and around the entrance of the cave. This is not a BAER funded activity.

B. Emergency Treatment Objectives:
Objective is to stabilize established foot trails in the Wilderness area by replacing damaged drainage structures and to add additional drainage structures needed due to increased runoff. Cost reflects 2 crews for 7 days, hiking into Wilderness, doing hand work (w/o mechanized equipment). A crew of 20 costs $6,000/day.

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

Land **N/A** % Channel **N/A** % Trails **100%** Roads **N/A** % Other **N/A** %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	N/A	N/A	N/A
Channel	N/A	N/A	N/A
Trails	100%	100%	100%
Other	N/A	N/A	N/A

E. Cost of No-Action (Including Loss):
5.2 miles of new trail construction would be approximately $104,000.
Cost estimates based on $20,000/mile, considering wilderness access and hand labor.

F. Cost of Selected Alternative (Including Loss): **$98,276**

G. Skills Represented on Burned-Area Survey Team:

[X] Hydrology	[X] Soils	[X] Geology	[X] Range	[X] Recreation
[ ] Forestry	[ ] Wildlife	[X] Fire Mgmt.	[X] Engineering	[ ]
[ ] Contracting	[ ] Ecology	[ ] Botany	[ ] Archaeology	[ ]
[ ] Fisheries	[ ] Research	[ ] Landscape Arch	[X] GIS	

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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.)

Land Treatments: No land treatments. Fire suppression is responsible for fire line rehabilitation.

Channel Treatments: N/A

Roads and Trail Treatments: **COMPLETED** No road treatments planned. 5.2 miles of trails that are within the high intensity burned area are proposed to be drained. Some of this work replaces drainage structures lost in the fire, and some that are proposed to mitigate increased runoff.

Structures: N/A

H. **Monitoring Narrative:**

(Describe the monitoring needs, what treatments will be monitored, how they will be monitored, and when monitoring will occur. A detailed monitoring plan must be submitted as a separate document to the Regional BAER coordinator.)

There is a need to monitor the effectiveness of trail treatments performed within the high intesity burn area.

Plan of Detailed Monitoring for the Oversite Fire:

Trail treatment effectiveness monitoring. There is a need to monitor the effectiveness of trail treatments proposed on the 5.2 miles of trail within the the high intensity burn area. Specifically, this includes reconstructing damaged drainage structures (burned out log drainage structures) and additional drainage structures necessary to accommodate the increased surface flow from the high intensity burn area. This will involve walking or traveling by horseback the 5.2 miles of worked trail to determine that drainage is functional realizing that the trails in question are scattered over the fire which is totally within the Miller Peak Wilderness. (See attached Oversite BAER map). This is estimated to take 7.5 days per monitoring or 15 days for two monitorings, one after the monsoons and a second one, one year after the fire or when conditions permit travel.

Time and cost figures are based on discussion with the Sierra Vista Ranger District trails specialist. The monitoring planned to be conducted in fiscal 2003 will be planned for via an interium 2500-8 BAER report.

Ida Cave Monitoring: The issue of water quality monitoring was brought forth. BAER funds cannot pay for this but fire suppression funds (P code) can. This is the case because this is a fire suppression related effect or activity. The water quality issue involves monitoring for cyanide from sodium ferro-cyanide, a corrosion inhibitor in the retardant. The other component of concern in the retardant is the fertilizer, which is the active ingredient. The brand of retardent used on the Oversite Fire was Firetrol. This

formulation includes sodium ferro-cyanide and ammonium poly phosphate. The level of application was likely level 6 to level 8. This means that 6 to 8 gallons of retardant were applied per 100 square feet. Water in Ida Cave should be monitored for ingredients found in Firetrol. The MSDS sheet is the best source for information concerning the specific ingredients.

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

Line Items	Units	Unit Cost	# of Units	WFSU SULT $	Other $	# of units	Fed $	# of Units	Non Fed $	Total $
A. Land Treatments										
N/A				$0			$0		$0	$0
				$0			$0			
				$0			$0		$0	$0
				$0			$0		$0	$0
Subtotal Land Treatments				$0			$0		$0	$0
B. Channel Treatments										
N/A				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
Subtotal Channel Treat.				$0			$0		$0	$0
C. Road and Trails										
Trail Drainage	miles	16,154	5.2	$84,001			$0		$0	$84,001
Trail Signs	each	100	6	$600			$0		$0	$600
				$0			$0		$0	$0
				$0			$0		$0	$0
Subtotal Road & Trails				$84,601			$0		$0	$84,601
D. Structures										
N/A				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
Subtotal Structures				$0			$0		$0	$0
E. BAER Evaluation										
	days	350	33	$11,550			$0		$0	$11,550
				$0			$0		$0	$0
G. Monitoring Cost	miles	408.65	5.2	$2,125			$0		$0	$2,125
H. Totals				**$98,276**			**$0**		**$0**	**$98,276**

PART VII - APPROVALS

1. /s/ John M. McGee — Forest Supervisor (signature)
   03.18.02 — Date

2. _____ — Regional Forester (signature)
   _____ — Date