USDA-FOREST SERVICE FS-2500-8 (6/06)

Date of Report: 07/24/14
Date of Interim No. 1 7/25/4/2014

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[X] 1. Funding request for estimated emergency stabilization funds
[ ] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

[] 1. Initial Request (Best estimate of funds needed to complete eligible stabilization measures)

X] 2. Interim Report # 1
[X] 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:San Juan Fire

B. Fire Number:AZ-FTA-000089

C. State: Arizona

D. County:Apache

E. Region: R3

F. Forest: Apache Sitgreaves

G. District: Springerville

H. Fire Incident Job Code: PAH6LP

I. Date Fire Started: 06/26/14

J. Date Fire Contained:07/07/14

K. Suppression Cost:6,000,000

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 13.2
2. Fireline seeded (miles): 1.5
3. Other (identify): N/A

M. Watershed Number:150200020401 6th code

N. Total Acres Burned: 6,961
NFS Acres(6,680) Other Federal ( ) State ( ) Private ( ) White Mountain Apache Reservation (290)

O. Vegetation Types: Mixed Conifer, Ponderosa Pine

P. Dominant Soils: Haplustalfs,Haplocryalfs, Glossudalfs

Q. Geologic Types: Basalt, Cinder cone

R. Miles of Stream Channels by Order or Class: Ephemeral 5.9 miles, Intermitent 10 miles, Perrenial 2.4 miles

S. Transportation System

Trails: 0 miles Roads: 14.6 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 4,000 (low) 1,420 (moderate) 809 (high)

B. Water-Repellent Soil (acres): 1,582

C. Soil Erosion Hazard Rating (acres):
1,764 (low) 1,222 (moderate) 3,975 (high)

D. Erosion Potential: 7.3 tons/acre

E. Sediment Potential: 392 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 5

B. Design Chance of Success, (percent): 75

C. Equivalent Design Recurrence Interval, (years): 25 year

D. Design Storm Duration, (hours): 1 hour

E. Design Storm Magnitude, (inches): 1.95

F. Design Flow, (cubic feet / second/ square mile): 178

G. Estimated Reduction in Infiltration, (percent): 75

H. Adjusted Design Flow, (cfs per square mile): 435

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:
The San Juan burned area is located approximately 22 miles west of Springerville Arizona and burned on both the Springerville and Lakeside Ranger Districts and on the White Mountain Apache Reservation.The point of ignition was on the Fort Apache Indian Reservation along the boundary between the Reservation and the Forest.The fire was human caused and was started June 26th. The 6,961 acre fire resulted in 2,238 acres of high and moderate burn severity mainly in the mixed conifer.Threats to public safety exist as a result of the fire. Forest infrastructure is at risk as a result of the fire which includes damage to level 2 and 3 Forest roads located within the burned area. Soil productivity and watershed function are at great risk of experiencing negative effects due to loss of vegetative canopy, vegetative ground cover and the duff layer which will contribute to an increase in erosion and sedimentation rates.

Critical Values Identified
Critical Values identified (FSM 2523.1 Exhibit 01) during the BAER assessment are: Human life and safety, property, natural resources and cultural/heritage resources. The BAER team evaluated the risk to those critical values using the BAER Risk Assessment (FSM 23235.1 Exhibit 02).

The following risk matrix shown below, Exhibit 2 of Interim Directive No.: **2500-2010-1**, was used to evaluate the Risk Level for each value at risk identified during Assessment:

The Very High and High Risk are unacceptable risk levels due to threats to human life, property, infrastructure and resources, therefore treatments should be applied. An Intermediate Risk could be unacceptable if human life or safety is the critical value at risk.

A full list of values at risk that were analyzed during the assessment can be found in Appendix A

Probability of Damage or Loss	**Magnitude of Consequences**		
	Major	Moderate	Minor
	Loss of life or injury to humans; substantial property damage; irreversible damage to critical natural or cultural resources.	Injury or illness to humans; moderate property damage; damage to critical natural or cultural resources resulting in considerable or long term effects.	Property damage is limited in economic value and/or to few investments; damage to natural or cultural resources resulting in minimal, recoverable or localized effects.
	RISK		
Very Likely (>90%)	**Very High**	**Very High**	**Low**
Likely (>50% to <90%)	**Very High**	**High**	**Low**
Possible (>10% to <50%	**High**	**Intermediate**	**Low**
Unlikely (<10%)	**Intermediate**	**Low**	**Very Low**

Human Life and Safety
Individuals who find themselves on level 2 and 3 roads within the burned area are at risk from post fire flows and run the risk of becoming stranded during and after rain events due to road failures and washouts.

FS Infrastructure
There is a very high risk of substantial damage to Forest Service road systems due to post fire conditions. These roads serve as some of the only access to manage this portion of the Forest. These roads are expected to be heavily impacted by extreme flows and excessive sedimentation. Potential loss of portions of these roads

are anticipated if they are not prepped prior to the monsoon season. There are several Level 2 roads that run the risk of becoming severely gullied due to additional water they will receive as a result of the burn if additional drainage is not added. There is a high risk of siltation and potential breaching of numerous dirt tanks and a small reservoir within the burned area.

Natural Resources

Soils

There is a very high risk of accelerated soil erosion and sediment production predicted within the San Juan Fire burned area, particularily in the high burn severity. Modeling shows that erosion will increase from pre-fire levels of just over 0 tons per acre to post fire levels of over 50 tons per acre. Of the 6,961 total acres within the burned area, 3,975 acres have a soil erosion hazard rating of severe. The initiation of new surface erosion sources from the very steep slopes pose an extreme threat to long-term soil productivity.

Hydrologic Function

Hydrologic function will be greatly reduced due to loss of vegetative overstory, vegetative ground cover, and the duff layer. The loss of these layers in the ecosystem has profound negative effects to hydrologic function. In a functioning watershed these layers intercept and slow raindrop impact, absorb and slow overland flow, and provide a natural resistance to excessive erosion. Recovery of watershed condition and hydrologic function can take up to 20 years to stabilize.

B. Emergency Treatment Objectives:

1. Post warning and hazard signs at key access points of the burned area to warn the public of hazards they may encounter after entering the burned area. Closure gates will be installed on FR 96 to keep the public from entering the high severity burned area of the fire and exposure to the risks associated with the area.

2. Seed with certified weed free seed, approximately 1,220 acres of high burn that has some intermingled moderate burn seveity within the seeding poloygons. This is to provide for relatively quick establishment of vegetative ground cover to assist the burned area in maintaining soil productivity. This treatment will also assist in reducing the amount of erosion and loss of control of water that the burned area will experience which should reduce the negative impacts to the Forest Service road system and siltation of numerous dirt tanks found within the burned area.

3. Prep Forest roads 96 and 61 with additional drainage to prevent road failure due to excessive flows and sedimentation from post fire rain events. Clean culverts, lead out ditches and add additional drainage features such as rolling dips to minumize post fire effects to the roads. Armor road ditches and leadout ditches with rip rap in key areas to prevent exessive soil erosion from occurring.

Wildlife Species

Mexican Spotted Owl

There were two Mexican Spotted Owls PACs that occurred within the San Juan fire perimeter. Both PACs experienced a considerable amount of high severity burn within them.

Apache Trout

Mineral Creek is an occupied Apache trout recovery stream, a federally Threatened species with no designated critical habitat. It is a replicate population of Ord Creek on White Mountain Apache Tribal lands. Approximately 2.9 miles of the stream is occupied habitat. The San Juan Fire perimeter encompassed approximately 0.4 miles of occupied habitat.

C. Probability of Completing Treatment Prior to Damaging Storm or Event:

Land **80** % Channel **75** % Roads/Trails **80** % Protection/Safety **75** %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	70	80	80
Channel	N/A	N/A	N/A
Roads/Trails	70	70	80
Protection/Safety	80	80	80

E. Cost of No-Action (Including Loss):2,467,200

F. Cost of Selected Alternative (Including Loss):1,197,115

G. Skills Represented on Burned-Area Survey Team:

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

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H. **Treatment Narrative:**

Land Treatments:

Areas of high and some intermingled moderate burn severity areas would be seeded with a quick germinating nonpersistent annual cereal barley that would provide rapid ground cover and native perennial species that would give the burned area a jump start in natural recovery and provide for long term ground cover. All seed to be applied would be tested and would be certified weed free. Seeding would reduce negative impacts to soil productivity, hydrologic function, reduce soil erosion and reduce threats to road infrastructure and dirt tanks by reducing erosion and runoff. The treatment area is identified on the attached seeding map. The proposed seed mix is identified in the table below.

Seeding is necessary to provide vegetative ground cover where the soil seedbank has been eliminated. A majority of the high burn severity that occurred as a result of the San Juan Fire burned in mature mixed conifer. Dense, closed canopy accumulated a thick layer of duff over time, essentially excluding forb or graminoid

cover and seed source. The tree seeds are often destroyed in the organic duff layer, as are grass and forb seeds. Seeds are consumed in the fire or heat sterilized. Therefore, these soils do not have a viable seed bank of their own and will not stabilize naturally without sacrificing site potential.

Certified Weed Free Seed Mix

Species	Planting Rate (pls #'s/acre)	Seeds/ft2 Contribution from Planting Rate
Barley (*Hordeum vulgare*)	45.30	13
Prairie Junegrass (*Koeleria macrantha*)	0.04	2
Mountain Brome (*Bromus marginatis*)	2.05	3
Muttongrass (*Poa fedleriana*)	0.10	2
Arizona Fescue (Festuca *arizonica)*	0.24	3
Total	47.73	23/ft2

Channel Treatments:

Clean out 5 dirt stock tanks that will act as sediment traps reducing downstrean sedimentation

Roads Treatments:

8 miles of road will be treated with additional drainage structures and prep work to mitigate negative impacts to the forest level 3 roads. Several of these roads are critical access points to this portion of the forest. Below is a breakdown of the various treatments that would be implemented to Forest roads within the burned area.

- Clean culvert inlet and outlet. This work shall include cleaning the inlet and outlet of culverts to maximize flow and rebuilding ditch blocks to insure culvert is at capacity. A backhoe would be used for this task and operated on the shoulder of the existing roadway.
- Armor leadout ditch and culvert outlets with riprap. This work shall include the placement of 6" – 24" rip rap borrow on roadway shoulder and or ditch line. A backhoe, trackhoe or dozer will be used to shape or place.
- Install low standard rolling grade dips. The existing roadway would be excavated and lead out ditch or sediment trap constructed.
- Construct broad based rolling dips. Grade dip would be constructed to insure roadway drainage operation. A dozer would be used for this task.
- Addition road work, including drainage and rip/rap, are required to stablize forest system roads within the burned area following a number of rain events subsequent to submitting the initial 2500-8.

Protection/Safety Treatments:

Post Hazard/Warning signs at entry points into the burned area. Hazard tree removal along level 3 roads within the burned area. Installation of closure gates on either end of Forest road 96 to prevent public access in the most severly burned area of the San Juan Fire.

Additional hazard tree removal is required along forest service roads within the burned area. The estimated cost in the initial 2500-8 underestimated the number of hazard trees defined by methodolgy ID 2520-2012-1.

Storm Inspection and Response

Roads affected by the San Juan Fire will see significant increases in runoff and sediment during the monsoon season. The patrols are used to identify road problems such as plugged culverts and washed out roads and to clear ditch lines and leadout ditches, or make passable those road segments that are

damaged. Storm Inspection and Response is vital in providing for public safety and to mitigate excessive negative impacts to the Forest road sytem affected by the San Juan Fire.

I. **Monitoring Narrative:**

Seeding Implementation Monitoring
Field monitoring visits to assure correct seeding application rates are applied to the treatment units in the San Juan Fire. This will be accomplished by treatment inspector and project COR.

Noxious Weed Detection
Field site visits for the detection of invasive noxious weed species will take place post monsoon season and again in the spring.

Seeding Effectiveness Monitoring
Monitor to evaluate the effectiveness of seeding treatment on increasing ground cover. This will be accomplished through ground cover transects and photo points. A detailed monitoring plan will be submitted at a later date.

Part VI – Emergency Stabilization Treatments and Source of Funds Interim

			NFS Lands				Other Lands			All
		Unit	# of		Other	# of	Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	BAER $	$	units	$	Units	$	$
A. Land Treatments										
Aerial Seeding	acres	100	1,223	$122,300	$0		$0		$0	$122,300
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$122,300	$0		$0		$0	$122,300
B. Channel Treatments										
Dirt tank/sed cleaning	per	1,500	5	$7,500	$0		$0		$0	$7,500
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treat.				$7,500	$0		$0		$0	$7,500
C. Road and Trails										
Road Preperation	miles	4,100	8	$32,800	$0		$0		$0	$32,800
Additional Drainage	miles	1900	4	$7,600	$0		$0		$0	$7,600
Rip/Rap	per	80	270	$21,600	$0		$0		$0	$21,600
Storm Patrol/Respons	each	5,000	5	$25,000						
Rip/Rap	per	80	60	$4,800						$4,800
Additional Drainage	miles	1,900	4.84	$9,200						$9,200
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$101,000	$0		$0		$0	$76,000
D. Protection/Safety										
Hazard/closure signs	each	250	14	$3,500	$0		$0		$0	$3,500
Hazard tree Removal	mile	1,000	8	$8,000	$0		$0		$0	$8,000
Closure gates	per	2,500	4	$10,000	$0		$0		$0	$10,000
Hazard tree Removal	mile	1,000	6	$6,000						$6,000
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$27,500	$0		$0		$0	$27,500
E. BAER Evaluation										
				---			$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				---	$0		$0		$0	$0
F. Monitoring										
Noxious weed	per PP	5,000	1	$5,000	$0		$0		$0	$5,000
Seeding Effectiveness	days	1,000	10	$10,000						$10,000
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$15,000	$0		$0		$0	$15,000
G. Totals				$273,300	$0		**$0**		**$0**	**$248,300**
Previously approved				$253,300						
Total for this request				**$20,000**						

PART VII - APPROVALS

1. Thomas D. Osen — 7/24/2014
   Forest Supervisor (signature) — Date

2. */s/ Gilbert Zepeda (for)* — 7/25/2014
   Regional Forester (signature) — Date