

Date of Report: 07/31/17

BURNED-AREA REPORT

(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

- ☒ 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)
☐ 2. Interim Report # _____
 ☐ 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 DESCRIPTIONA. Fire Name: GentryB. Fire Number: AZ-ASF 000536C. State: AZD. County: NavajoE. Region: 3F. Forest: Apache-Sitgreaves National ForestsG. District: Black MesaH. Fire Incident Job Code: P3K3FV17I. Date Fire Started: 6-28-2017J. Date Fire Contained: 7-10-2017K. Suppression Cost: \$ 1M

L. Fire Suppression Damages Repaired with Suppression Funds

1. Fireline waterbarred (miles): ~4
2. Fireline seeded (miles): 0
3. Other (identify): 0

M. Watershed Number: 99% 150200100201 West Fork Black Canyon-Chevelon Canyon; and less than 1% other including 150200100203 Bear Canyon-Black Canyon and 150601030301 Bull Flat Canyon

N. Total Acres Burned: 641

NFS Acres (641) Other Federal () State () Private ()

O. Vegetation Types: Dry Mixed Conifer Forest (394 ac.), Ponderosa Pine Forest (230 ac.), Mountain Willow Willow Riparian Forest (18 ac.)

P. Dominant Soils: Udic Haplustalfs (103 ac.), Lithic Haplustalfs (146 ac.) and Typic Glossudalfs (392 ac.)

- Q. Geologic Types: Sandstone (445 ac.) and Chert (196 ac.)
- R. Miles of Stream Channels by Order or Class: Intermittent (2.2 mi.)
- S. Transportation System
- Trails: < 0.5 miles Roads: 4.9 miles

PART III - WATERSHED CONDITION

- A. Burn Severity (acres): 468 (low/unburned) 166 (moderate) 7 (high)
- B. Water-Repellent Soil (acres): 90
- C. Soil Erosion Hazard Rating (acres): 249 (low) 0 (moderate) 392 (high)
- D. Erosion Potential: 3.2 tons/acre
- E. Sediment Potential: 177 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

- A. Estimated Vegetative Recovery Period, (years): 3-5 years
- B. Design Chance of Success, (percent): 90%
- C. Equivalent Design Recurrence Interval, (years): 25
- D. Design Storm Duration, (hours): 1
- E. Design Storm Magnitude, (inches): 2.49
- F. Design Flow, (cubic feet / second/ square mile): 471
- G. Estimated Reduction in Infiltration, (percent): 75
- H. Adjusted Design Flow, (cfs per square mile): 808

PART V - SUMMARY OF ANALYSIS

- A. Describe Critical Values/Resources and Threats:

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

Probability of Damage or Loss	Magnitude of Consequences		
	Major	Moderate	Minor
	RISK		
Very Likely	Very High	Very High	Low
Likely	Very High	High	Low
Possible	High	Intermediate	Low
Unlikely	Intermediate	Low	Very Low

Risk to Human Life and Safety

- All potential access points in and adjacent to the burned area including: Hangman's Trailhead, Gentry Campground, FS Roads 86, and along FS Road 300. Probability of damage or loss is possible and magnitude of consequence is major which rates risk as High.
- The Black Canyon Lake Recreation Area is less than ¼ mile from the burned area, downstream from the confluence of Hangman's Draw and Gentry Canyon. Post-fire hazards include flooding and debris flows along the Gentry Canyon drainage and downstream into the recreation area. Probability of damage or loss is possible and magnitude of consequence is major which rates risk as High.

Risk to Property / Infrastructure

- FS Road 86 and 86B into the Black Canyon Lake Recreation Area are of particular concern because increased flows, sedimentation, and debris jams in and around culverts has already been observed. The probability of damage or loss is likely and the magnitude of consequence is moderate which rates risk as High.
- There is an elk enclosure along the Gentry Canyon drainage just above FS road 86 which may be at risk should increased flooding and debris flows continue. The probability of damage or loss is possible and the magnitude of consequence is minor rating the risk as Low.
- There are numerous values less than ¼ mile away from the burned area, downstream at the Black Canyon Lake Recreation Area. Those values include bathrooms, picnic tables, day use sites, a boat ramp, the dam / spillway and two trails on either side of Black Canyon Lake to the east and west. The probability of damage or loss to these values is possible and the magnitude of consequence is minor which rates risk as Low.

Risk to Natural Resources

Soil Productivity and Hydrologic Function – There is a high probability that increased levels of soil erosion and sediment delivery can be expected in locations of high burn severity as well as some areas of moderate. Soil erosion modeling for high and moderate severity burned areas showed an increase in soil loss approximately 3 times greater than that of pre-fire conditions. However, the extent of these impacts across the fire as a whole to long-term soil productivity are minimal when you consider burn severity class extent. While high severity fire locations do experience impacts to long-term site productivity from soil erosion via loss of vegetative canopy / ground cover and strong soil hydrophobicity in some cases, only 7 acres of high severity occurred on the fire which makes up 1 percent of the entire burn area. About 26 percent of the fire burned moderate while the remaining 73 percent was low and unburned. Low and unburned areas generally exhibit soil loss rates very similar to that of pre-fire conditions.

It was observed and documented during the soil burn severity fieldwork that while the vegetation burn intensity was mostly moderate in areas that were BARC classified as moderate or high severity, the soil burn severity was relatively low as soils exhibited none or slight hydrophobicity, soil structural integrity and roots remained intact, and vegetative ground cover was still present in the form of existing vegetation basal area and remaining effective litter that was not entirely consumed by the fire. Also, many locations of moderate burn severity will be provided with effective litter in the future from needlecast. Some monsoonal precipitation has

occurred since the fire and it was noted that herbeceaous species were already starting to recover in moderate and high burn severity areas.

It is anticipated that there will be some impact to hydrologic function within portions of the West Fork – Black Canyon subwatershed that burned during this fire. Changes in timing, magnitude, and volume of flows is possible which may induce scouring and downcutting of channels. This has the potential to reduce flow access to floodplains which can concentrate flows in potentially deeper, narrower channels that could be prone to bank erosion and generation of additional sediment that would be carried downstream. However, it is important to keep in context the extent by burn severity class for this fire as well as the location of high / moderate burn areas when evaluating impacts to hydrologic function within across a watershed. Only 1 percent high severity burn occurred on this fire while 26 percent burned moderate. So, almost $\frac{3}{4}$ of the burned area as a whole is unlikely to experience flow rates much greater than natural conditions as a result of the fire. Additionally, less than 10 percent of the West Fork – Black Canyon subwatershed was impacted by the fire. Ultimately, the increased flows that are anticipated to originate from locations of high to moderate burn severity make up less than 3 percent of the entire West Fork – Black Canyon subwatershed. Therefore, the probability of damage or loss to soil productivity / hydrologic function is likely in a few select areas, but the magnitude of consequence is minor due to the small extent of high and moderate burn severity areas which rates risk as Low.

Threatened and Endangered Species – The primary species identified that could be potentially impacted by the burn includes the Mexican Spotted Owl (MSO). As of now, no threatened or endangered plant species of concern have been identified that may have been impacted by the fire.

Less than a third of the Hangman protected activity center (PAC) for the MSO in the southeastern part of the burn was impacted. The majority of it burned a mosaic of low and moderate burn severity. After consultation with the district wildlife biologist, she informed us that she does not have any concerns involving the MSO habitat within the burned area. The probability of damage or loss is unlikely and the magnitude of consequence is minor which rates risk as Very Low.

Aquatic Species Habitat – After consulting with the district wildlife biologist and forest aquatic / fisheries program manager, they concluded that they do not have any concerns about the aquatic habitat in Black Canyon Lake that would warrant a BAER emergency treatment specific to protection of aquatic species habitat. Black Canyon Lake harbors mainly common recreational sport fish that are found in the Rim Lakes area and is not a location of any endangered or threatened aquatic species habitat. Many of their general concerns with sedimentation and debris accumulation into the Black Canyon Lake area will be addressed through a storm patrol treatment. They will also be making contact with the Arizona Game and Fish regarding the issue. The probability of damage or loss is unlikely and the magnitude of consequence is minor which rates risk as Very Low.

Native Plant Communities – There are no invasive or noxious weed populations of major concern in or adjacent to the burned area. Spread is not a primary concern that would warrant an emergency BAER treatment. The probability of damage or loss to native plant communities is unlikely and the magnitude of consequence is moderate which rates risk as Low.

Risk to Cultural Resources

After consultation with the district and forest archaeologists, it was concluded that they do not have any concerns about cultural resources in or adjacent to the burned area. In total, four sites were identified, none of which would require BAER emergency stabilization measures. The probability of damage or loss is unlikely and the magnitude of consequence is moderate which rates risk as Low.

Critical Values Identified with Very High or High Risk

- Human life and safety associated with all access points into the burned area as well as the Black Canyon Lake Recreation Area approximately $\frac{1}{4}$ mile downstream from the burn.

- Road conditions in some locations and particularly where FR 86 and 86B intersect drainages.

B. Emergency Treatment Objectives:

- Provide for Public Safety: Place warning signs at key road access points entering burned area and at locations downstream of the burned area at high risk of post-fire hazards to human life and safety including the Black Canyon Lake Recreation Area. Ensure communication of potential post fire values at risk has occurred. Be sure to share the Gentry Burn Severity Map, reports, and any shapefiles with the local FS units, National Weather Service and Local County Government including the Flood Control District.

10 signs @ \$400/ea. = \$4,000

- Minimize Road Damage: Minimize road damage to FS Road 86 and 86B. Keep FS road 86 and 86B safe and passable as it is popular route for NF visitors traveling to and from the Black Canyon Recreation Area. It is also important to keep the 86 and 86B road passable and in good condition so FS personnel can get to and from the area safely for maintenance or general upkeep purposes. This will be accomplished by cleaning debris wood debris upstream of culverts now and completing storm patrol assessments and debris cleaning activities.

-Minimize damage to elk enclosure which straddles Gentry Creek, immediately upstream of the FR86. The Elk enclosure will catch floatable debris and will need cleaning prior to first damaging storm and be including in storm patrol activities to prevent damage.

Total Storm patrol costs 4 Events @ \$1,250 / event = \$5,000

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

Land % Channel % Roads/Trails 90 % Protection/Safety 90 %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land			
Channel			
Roads/Trails	90	100	100
Protection/Safety	90	100	100

E. Cost of No-Action (Including Loss): \$80,000

F. Cost of Selected Alternative (Including Loss): \$9,000

G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input type="checkbox"/> Geology	<input type="checkbox"/> Range
<input type="checkbox"/> Forestry	<input checked="" type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input type="checkbox"/> Engineering
<input type="checkbox"/> Contracting	<input checked="" type="checkbox"/> Ecology	<input type="checkbox"/> Botany	<input checked="" type="checkbox"/> Archaeology
<input checked="" type="checkbox"/> Fisheries	<input type="checkbox"/> Research	<input type="checkbox"/> Landscape Arch	<input type="checkbox"/> 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: N/A

Roads / Channel Treatments: Debris removal work would be concentrated along the 86 and 86B road, most notably the Gentry Canyon drainage above it's intersection with the 86 road and the Hangman's Draw drainage above it's intersection with the 86B road. Approximately 1 mile could be treated. Storm patrol work should include: cleaning channels and culverts, removing floatable debris for approximately 250 yards from channels above culverts.

Protection/Safety Treatments: Warning signs informing the public of potential hazard trees, unstable soils, flooding, and debris flows should be placed at strategic locations around the burned area and downstream at the Black Canyon Lake Recreation Area. Signs should also be placed at key road and trail access points to the burned area such as any roads entering the burned area off the 86 road.

I. 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.): N/A

Part VI – Emergency Stabilization Treatments and Source of Funds

 Interim # Initial

Line Items	Units	Unit Cost	NFS Lands		Other \$	Other Lands			All Total \$
			# of Units	BAER \$		# of units	Fed \$	# of Units Non Fed \$	
A. Land Treatments									
				\$0	\$0		\$0	\$0	\$0
				\$0	\$0		\$0	\$0	\$0
				\$0	\$0		\$0	\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0
Subtotal Land Treatments				\$0	\$0		\$0	\$0	\$0
B. Channel Treatments									
				\$0	\$0		\$0	\$0	\$0
				\$0	\$0		\$0	\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0
Subtotal Channel Treat.				\$0	\$0		\$0	\$0	\$0
C. Road and Trails									
Storm Patro/Response		1250	4	\$5,000	\$0		\$0	\$0	\$5,000
				\$0	\$0		\$0	\$0	\$0
				\$0	\$0		\$0	\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0
Subtotal Road & Trails				\$5,000	\$0		\$0	\$0	\$5,000
D. Protection/Safety									
Hazard Signs	per	400	10	\$4,000	\$0		\$0	\$0	\$4,000
				\$0	\$0		\$0	\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0
Subtotal Structures				\$4,000	\$0		\$0	\$0	\$4,000
E. BAER Evaluation									
Person Days	each	425	2		\$850				
Milage	miles	0.3	226	---	\$68		\$0	\$0	\$0
<i>Insert new items above this line!</i>				---	\$0		\$0	\$0	\$0
Subtotal Evaluation				---	\$918		\$0	\$0	\$0
F. Monitoring									
				\$0	\$0		\$0	\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0
Subtotal Monitoring				\$0	\$0		\$0	\$0	\$0
G. Totals				\$9,000	\$918		\$0	\$0	\$9,000
Previously approved									
Total for this request				\$9,000					

PART VII - APPROVALS

 1. _____
 Forest Supervisor (signature)

 7/31/2017
 Date

 2. _____
 Regional Forester (signature)

 Date