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

Date of Report: 7/11/2016

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
[ ] 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: Juniper

B. Fire Number: AZ-TNF-000476

C. State: Az

D. County: Gila

E. Region: 03

F. Forest: Tonto

G. District: 05, 06

H. Fire Incident Job Code: P3J9BB

I. Date Fire Started: 05/20/2016

J. Date Fire Contained: 07/15/2016 (estimated)

K. Suppression Cost: $11,800,000 (Current), $15,000,000 (Estimated)

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 19
2. Fireline seeded (miles): 15
3. Other (identify):

M. Watershed Number:

150601030407	PB Creek – Cherry Creek	9,180 acres
150601030408	Coopers Fork – Cherry Creek	3,780 acres
150601030409	Bladder Canyon – Cherry Creek	760 acres
150601030801	Reynolds Creek	6,520 acres
150601030802	Workman Creek	4,850 acres
150601030901	Coon Creek	2,400 acres
150601030902	Chalk Creek	255 acres
150601030907	Cottonwood Wash	2,850 acres

N. Total Acres Burned: 30,631
NFS Acres(30,544) Other Federal ( ) State ( ) Private (87)

O. Vegetation Types:

Mixed Broadleaf Riparian Forest	220 acres
Semi-Desert Grassland Shrubland	1,710 acres
Interior Chaparral	4,625 acres
PJ Live Oak	7,710 acres
Ponderosa Pine Forest	11,715 acres
Mixed Conifer	3,225 acres
Madrean Encinal Woodland	1,435 acres

P. Dominant Soils: Udic Paleustalfs, Pachic Caliustolls, Typic Haplustalfs,Typic Argiustolls,Typic Haplustepts Udertic Halplustalfs, Lithic Haplustalfs, Typic Agriudolls, and Udic Argiustolls

Q. Geologic Types: Troy Quartzite, Diabase, Mescal Limestone,

R. Miles of Stream Channels by Order or Class:
Perennial Streams – 10.7 mi
Intermittent Streams – 6 mi
Ephemeral Streams – 65.3 mi

S. Transportation System

Trails: 33.7 miles Roads: 54 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 14,654 (low) 7,198 (moderate) 3,284 (high) 5,500 (Unburned)

B. Water-Repellent Soil (acres): 10,482

C. Soil Erosion Hazard Rating (acres):
14,654 (low) 7,198 (moderate) 3,284 (high)

D. Erosion Potential: 2.4 tons/acre

E. Sediment Potential: .32 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 4

B. Design Chance of Success, (percent): 70

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

D. Design Storm Duration, (hours): 1

E. Design Storm Magnitude, (inches): 2.1

F. Design Flow, (cubic feet / second/ square mile): 146

G. Estimated Reduction in Infiltration, (percent): 20

H. Adjusted Design Flow, (cfs per square mile): 457

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

The Risk Matrix from Interim Directive No.: 2520-2012-1 was used to evaluate risk levels for values identified during the assessment.

BAER Risk Assessment

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**

Values at Risk

Threats to human life and safety on NFS lands

Roads, trails, and Recreation Sites- Approximately 34 percent of the area within the fire perimeter burned with moderate to high severity. There are approximately 54 miles of NFS roads within or near the fire perimeter. An additional 20 miles of State Highway 288 also passess within or immediately adjacent to the burned area. Popular roads within the burned area include the Workman Creek (FR 487) and Reynolds Creek (FR 410) Roads. The Cherry Creek Road (FR 203) passes through or near much of the eastern boundary of the fire. Steep slopes above these roads have burned with moderate to high severity at a number of locations. Travelers on these roads are at risk from flash floods and flood borne debris, rolling rocks, and falling trees.

Probability of Damage or Loss: Likely – Magnitude of Consequences: Major – Risk Assessment: Very High

There are also approximately 34 miles of trails within the fire perimeter that provide access to the Sierra Ancha Wilderness. Approximately 15 miles of these trails pass through areas of moderate to high burn severity. Hikers on these trails are at risk from flash floods, rolling rocks, and falling limbs and trees.

Probability of Damage or Loss: Likely – Magnitude of Consequences: Major – Risk Assessment: Very High

Three recreation sites are developed along Workman Creek within the burned area, one recreation site is developed on Reynolds Creek just below the burned area and one recreation site is developed on Rose Creek below the burned area. The percent of high and moderate burn severity above Recreation sites on Workman Creek ranges from 23 – 29 percent. Peak flows from summer thunderstorms will increase at these sites potentially putting users at risk from flash floods and flood borne debris.

Probability of Damage or Loss: Possible – Magnitude of Consequences: Major – Risk Assessment: High

Percentages of high and moderate burn severity in the watershed above the Reynolds Creek and Rose Creek recreation sites are 18 and 4 percent respectively. Camping areas at the Reynolds Creek site are above the floodplain and the percent of high and moderate burn severity at the Rose Creek site is very low.

Probability of Damage or Loss: Unlikely – Magnitude of Consequences: Major – Risk Assessment: Intermediate.

The stairs and handrail leading to the Rocky Mountain Forest and Range Experiment Station (RMFRES) weir at the main dam was destroyed by the fire. With the loss of the stairs and handrail the access to the weir is a steep loose gravel trail that poses a safety hazard to users.

Probability of Damage or Loss: Possible – Magnitude of Consequences: Moderate – Risk Assessment: Intermediate

The Arizona Department of Transportation (ADOT) operates maintenance facilities in the Parker Creek Watershed adjacent to state Hwy 288. These facilities are permitted on NFS lands and are used for storing equipment, a diesel generator, fuel, and overnight stays when conditions on SH 288 require long workshifts. Slopes above the facilities have burned with moderate to high severity that threaten the facilities and users of the facilities with flash , sediment and debris

Threats to property on NFS lands

Runoff and erosion, sediment, and debris from moderately and severely burned areas threaten roads and trails within and below the burned area. The Forest Service has significant investment in its' road and trail infrastructure within and below burned areas. These roads provide access to popular recreation sites, the Sierra Ancha Wilderness, a Forest Service Lookout (Aztec Peak LO), RMFRES research facilities, A Natural Resources Conservation Service (NRCS) Snotel site, range developments, and private lands.

Probability of Damage or Loss: Very likely – Magnitude of Consequences: Major – Risk Assessment: Very High

Runoff and erosion from moderately and severely burned areas threatens structures on NFS lands at the Parker Creek RMFRES headquarters and ADOT facilities on NFS lands in the Parker Creek watershed. Facilities at the RMFRES headquarters at Parker Creek include a number of cabins, an office building, a mess hall, a water system and a number of outbuildings. Many of the facilities have been refurbished in the last few years. Slopes immediately above some of the structures burned with moderate to high severity and approximately 40 percent of the Parker Creek watershed (Parker Creek flows through the compound) burned with moderate to high severity.

Probability of Damage or Loss: Very likely – Magnitude of Consequences: Moderate – Risk Assessment: Very High

Threats to Natural Resources on NFS lands

Runoff and erosion threaten outstanding cultural resource values (cliff dwellings and pueblos) in canyons on the east side of the fire that drain to Cherry Creek (examples include cliff dwellings in Pueblo Canyon and a pueblo structure on the ridge above Hinton Creek). These sites are invaluable cultural resources, particularly the cliff dwellings in Pueblo Canyon. Loss or damage to these resources would be devastating.

Probability of Damage or Loss: Possible – Magnitude of Consequences: Major – Risk Assessment: High

The potential for introducing noxious weeds exists due to a Malta Starthistle infestation in an area where a portion of the Juniper fire camp was set up in Young. It is likely that equipment and personnel transported seeds from the infestation to areas disturbed as part of the suppression effort. Dozer lines, hand lines, spike camps, and helispots are areas where star thistle may have been introduced.

Probability of Damage or Loss: Likely – Magnitude of Consequences: Moderate – Risk Assessment: High

Areas with moderate to high burn severity threaten soil productivity and hydrologic function on National Forest System lands. Approximately 10,500 acres (34%) of the burned area burned with moderate to high severity. These areas have the potential for very high erosion and sediment delivery, runoff and peak flows, and water quality impacts that can adversely affect soil productivity, stream channels, and aquatic habitat for many years.

Probability of Damage or Loss: very likely – Magnitude of Consequences: Major – Risk Assessment: Very High

B. Emergency Treatment Objectives:

- Protect trail infrastructure by installing additional erosion protection measures. Hazard trees along trails would be removed prior to arrival of crews that would construct erosion control measures.
- Seed and mulch Moderate and high severity burned areas within and above critical cultural resources.
- Provide warnings to travelers on roads and trails entering or below burned areas about hazards from the burned area.
- Repair stairs and handrail leading to RMFRES weir on Workman Creek
- Detect and remove noxious weeds that may have been introduced to the burned area on dozer lines, hand lines, spike camps, and other disturbed areas.
- Seed and mulch moderate to high burn severity areas above roads, RMFRES facilities, ADOT facilities and areas where runoff and erosion from moderate to high burn severity areas would impair soil productivity and hydrologic function.

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

Land 50 % Channel ___ % Roads/Trails 50 % Protection/Safety 50 %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	75	75	90
Channel			
Roads/Trails	75	75	75
Protection/Safety	100	100	100

E. Cost of No-Action (Including Loss): $2.7 million

F. Cost of Selected Alternative (Including Loss): $1.9 million

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Grant Loomis

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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:

Seed and Mulch approximately 11 acres of moderate and high burn severity of mesa top above Pueblo Canyon Ruins to reduce runoff from the mesa that can cause erosion of the soil column in front of the cliff dwellings that would potentially destabilize the ruins. The soil directly in front of the ruins would also be seeded by hand. Less than one acre of weed and mulch would be applied to the pueblo ruin in the Hinton Creek watershed. Seed mix would include Cereal Barley, Sideoats Grama, Blue Grama, and Western Wheat Grass. Application rate would be 20 PLS/sq ft on the mesa top and the Hinton Creek ruin and 35 pls for the hand applied seed in front of the Pueblo Canyon ruin. This seed mix was proposed for the low elevation areas on the Tonto NF in the seed mix proposed for the regional IDIQ seeding contract. (Previously Approved)

Seed and mulch approximately 466 acres of areas burned with moderate to high severity to protect soil productivity and hydrologic function, to reduce runoff, erosion, sediment, and debris on roads and trails, RMFRES facilities, and ADOT facilities on NFS lands.

Approximately 295 acres of dozer lines, hand lines, spike camps, and helispots with up to a 100 foot buffer on either side or around disturbed areas would be monitored in the spring and fall following the fire to assess whether invasive species (particularly malta star thistle) were sprouting. If invasive species are detected they would be treated with herbicides in accordance with the guidance in the Environmental Assessment for Treatment of Noxious or Invasive Plants prepared by the Tonto NF. (Previously Approved)

Channel Treatments:

Roads and Trail Treatments:

Arizona Conservation Corps crews would install additional erosion protection measures on trails passing through moderate and high burn severity areas. Upslope areas would be mulched with straw to reduce the amount of runoff draining across the trails. Costs would include packing supplies in by horseback, the cost of the supplies and some overhead. Crews would include fallers that would take down hazard trees before trail protection work begins. The crews would also include a project manager. (Previously Approved)

Storm patrols would be implemented on 14.5 miles of roads passing through or below the burned area to ensure roads are passable and drainage facilities are functioning. (Previously Approved)
Additional funding is requested for storm patrol due to the severity of impacts that have occurred from thunderstorms on the southern part of the burned area.

Protection/Safety Treatments:

Signs warning motorists and hikers about the hazards within the burned area would be installed on roads entering and passing below the burned area. Signs would also be posted on trails entering the burned area or passing below it. (Previously Approved)

Gabions and wattles would be placed to divert flows away from RMFRES facilities in Parker Creek and Gabions or Krails would be used to protect ADOT facilities at Parker Creek

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.)

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										
Mulch	acres	750	465	$348,750	$0		$0		$0	$348,750
Seed & Mulch Cultrl	Acres	800	10	$8,000	$0		$0		$0	$8,000
Weed Dtctn & Rmvl	acres	35	295	$10,325	$0		$0		$0	$10,325
Seed	Acres	40	465	$18,600	$0		$0		$0	$18,600
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$385,675	$0		$0		$0	$385,675
B. Channel Treatments										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treat.				$0	$0		$0		$0	$0
C. Road and Trails										
Trail Protection	mi	6,000	8.05	$48,300	$0		$0		$0	$48,300
Storm Patrol	mi	1000	14.5	$14,500	$0		$0		$0	$14,500
Storm Patrol	evnt	2500	4	$10,000	$0		$0		$0	$10,000
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$72,800	$0		$0		$0	$72,800
D. Protection/Safety										
Warning Signs	ea	300	20	$6,000	$0		$0		$0	$6,000
Gabions &/or K rails	ft	50	150	$7,500	$0		$0		$0	$7,500
Wattles	acres	1	1000	$1,000	$0		$0		$0	$1,000
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$14,500	$0		$0		$0	$14,500
E. BAER Evaluation										
	ea	27000	1	---	$27,000		$0		$0	$27,000
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				---	$27,000		$0		$0	$27,000
F. Monitoring										
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$0	$0		$0		$0	$0
G. Totals				$472,975	$27,000		**$0**		**$0**	**$499,975**
Previously approved	brown text			$87,125						
Total for this request				**$385,850**						

PART VII - APPROVALS

1. /S/ Tom Torres 7/11/2016
   for Forest Supervisor (signature) Date

2. _____ _____
   Regional Forester (signature) Date