Date of Report:

6/18/19

BURNED-AREA REPORT

PART I - TYPE OF REQUEST

A. Type of Report

☒ 1. Funding request for estimated emergency stabilization funds

☐ 2. No Treatment Recommendation

B. Type of Action

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

☐ 2. Interim Request #___

☐ Updating the initial funding request based on more accurate site data or design analysis

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: Mountain Fire

B. Fire Number: AZ-TNF-000566

C. State: Arizona

D. County: Maricopa County

E. Region: Region 3

F. Forest: Tonto National Forest

G. District: Cave Creek

H. Fire Incident Job Code: P3L94J

I. Date Fire Started: **Friday, June 7, 2019**

J. Date Fire Contained: 6/18/19

K. Suppression Cost: Estimated at $2,500,000

L. Fire Suppression Damages Repaired with Suppression Funds (estimates): $300

1. **Fireline repaired (miles):** Fireline was created by slurry drops only
2. **Other (identify):** N/A

M. Watershed Numbers:

Table 1: Acres Burned by Watershed

HUC #	Watershed Name	Total Acres	Acres Burned	% of Watershed Burned
150602030507	Buck Basin-Verde River	28,385	3,377.91	12
150602030701	Camp Creek	32,827	557.38	2
150602030702	Indian Spring Wash-Verde River	18,756	3,220.80	17
150602030509	Lower Verde River-Bartlett Reservoir	34,457	324.69	1

N. Total Acres Burned:

Table 2: Total Acres Burned by Ownership

OWNERSHIP	ACRES
NFS	7,480.78
OTHER FEDERAL (LIST AGENCY AND ACRES)	0
STATE	0
PRIVATE	0
TOTAL	0

O. Vegetation Types: Interior Chaparral - 2143 acres, Mojave Sonoran Desert Shrub - 2310 acres, Semi-desert Grassland - 3014 acres, Desert Willow - 5 acres, Fremont Cottonwood Shrub - 14 acres

P. Dominant Soils: Lithic Ustic Haplargids, Lithic Ustic Haplocambids, Aridic Ustorthents, Lithic Ustic Torriorthents, Ustic Haplargid, Aridic Haplustalfs, Lithic Haplustalfs

Q. Geologic Types: Entire burn area is within Middle Proterozoic Granitic Rocks - Mostly porphyritic biotite granite with large microcline phenocrysts, with local fine-grained border phases and aplite. Associated pegmatite and quartz veins are rare. This unit forms large plutons, including the Oracle Granite, Ruin Granite, granite in the Pinnacle Peak - Carefree area northeast of Phoenix, and several bodies west of Prescott.

R. Miles of Stream Channels by Order or Class:

Table 3: Miles of Stream Channels by Order or Class

STREAM TYPE	MILES OF STREAM
PERRENIAL	0
INTERMITTENT	0
EPHEMERAL	27
OTHER (DEFINE)	0

S. **Transportation System:**
Trails: *0 (miles):* *Maricopa County – 6.0 miles:*
Roads: *National Forest - 22.8 miles:* *Other (miles):*

PART III - WATERSHED CONDITION

A. Burn Severity (acres):

Table 4: Burn Severity Acres by Ownership

Soil Burn Severity	NFS	Other Federal (List Agency)	State	Private	Total	% within the Fire Perimeter
Unburned	491.46	0	0	0	491.46	6.57%
Low	2960.87	0	0	0	2960.87	39.58%
Moderate	4003.55	0			4003.55	53.52%
High	24.90	0	0	0	24.90	0.33%
Total	7480.78	0	0	0	7480.78	

B. Water-Repellent Soil (acres):
High – 75 acres
Moderate - 100 acres
Low – 7300 acres

C. Soil Erosion Hazard Rating:
Slight – 2157acres
Moderate – 4797 acres
Severe – 532 acres

D. Erosion Potential:
0.33 tons/acre

E. Sediment Potential:
18.21 cu yds/sq mi

F. Estimated Vegetative Recovery Period (years):
3-5 years

G. Estimated Hydrologic Response (brief description):
Peak flows were modeled for two of the watersheds within the burned area. These include the Indian Springs Wash watershed and the wash that parallels and crosses the Horseshoe Lake Road. Peak flows increased an average of 51 percent on the Indian Springs Wash watershed which burned primarily with low soil burn severity and an average of 74 percent on the wash along the Horseshoe Lake Road which burned with a higher percentage of moderate soil burn severity. Flash flood hazards are increased as a result of these changes.

PART V - SUMMARY OF ANALYSIS

Introduction/Background

The Mountain fire is located near the Phoenix metropolitan area and the popular recreation areas along Bartlett Lake on the Cave Creek district of the Tonto National Forest. The fire burned approximately 7500 acres of primarily sonoran desert, semidesert grassland, and chaparral vegetation types. Strong winds moved the fire rapidly through these vegetation types resulting in short heat residence times. the Bart (2005), St Claire (1991), and Cave Creek Complex (2005) fires burned through portions of the Mountain fire perimeter and result in smaller fuel accumulations than would have occurred with less recent fires. The combination of rapid fire movement and low fuel buildups resulted in primarily low to moderate burn severity (93% of the burned area) and very little development of water repellent soils. Two major roads pass through the burned area; the Bartlett Lake Road which accesses Bartlett Lake to the east and the Horseshoe Lake Road which provides access to Horseshoe Lake to the north of the burned area. Much of the burned area has been closed to Off Highway Vehicle use since the earlier fires and the area is not within an active grazing allotment.

A. Describe Critical Values/Resources and Threats (narrative):

Table 5: Critical Value Matrix

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**

1. Human Life and Safety (HLS):

Resource	Probability of Damage or Loss	Magnitude of Consequences	Risk
Bartlett Lake Road	Unlikely	Major	Intermediate
Horseshoe Lake Road	High	Moderate	Intermediate
Recreation (Flash Flooding)	Possible	Major	High

2. Property (P):

Resource	Probability of Damage or Loss	Magnitude of Consequences	Risk
FR 2068 OHV Staging Area	Possible	Minor	Low

3. Natural Resources (NR):

Resource	Probability of Damage or Loss	Magnitude of Consequences	Risk
Soil Productivity and hydrologic function	Very Likely	Moderate	Very High
Native or naturalized communities on NFS lands	Likely	Major	Very High
Wildlife (Desert Tortoise)	Possible	Minor	Low

Cultural and Heritage Resources:

Resource	Probability of Damage or Loss	Magnitude of Consequences	Risk
Brazaletes Ruin Complex (Arch site)	Likely	Major	Very High
Other Arch Sites	Unlikely	Moderate	Low

B. Emergency Treatment Objectives:

The burned area has an increased risk of flash flooding due to reduced ground cover. Forest users of roads entering or passing through the burned area and users of dispersed recreation sites within the burned area are at risk from these flood conditions. Flash flood warning signs would be placed to inform users of this risk.

Most of the burned area would be an attractive area for Off Highway Vehicle (OHV) use due to the loss of brush cover, suitable topography, and the proximity to already heavily used OHV areas. Much of the burned area was previously fenced following earlier fires to prevent OHV access. Some of the fence was damaged during the Mountain fire and needs emergency repair. The fire burned along two additional miles of road that have not been previously fenced. The unfenced areas are attractive access points for OHV's and need fencing as well. OHV use threatens recovery of soil and hydrologic function by compaction and trailing that would increase erosion, runoff, potential for flash floods, and generally impair recovery. Fencing would reduce the likelihood of these impacts. Several carsonite signs posted along the Bartlett Lake and Horseshoe Lake roads identifying that motorized vehicle use was prohibited in areas burned by the fire were damaged in the fire and need to be replaced as well.

The FR 2068 OHV staging area was recently completed. The perimeter of the staging area was lined by a fence that prevented OHV's from straying off designated roads into the adjacent uplands. Approximately two thirds of the fence was damaged by the fire. Emergency repair is needed to prevent OHV access into the burned area.

The archaeological site on St Claire Mountain (Brazaletes Ruin Complex) is a high valued cultural resource (eligible to the National Register of Historic Places) that is at risk of accelerated erosion. Existing cultural resources on the surface could be eroded from the site and other cultural resources buried (including human remains) at shallow depths could be exposed and subjected to looting or vandalism. Mulching this site, installing wattles, and closing the user created hiking trail that accesses the site would reduce the likelihood of damage to these resources.

The burned area is already occupied by invasive species such as red brome and Saharan mustard. These species are widespread and naturalized within and outside of the burned area. Species such as buffelgrass, fountain grass, and bull thistle are found around the margins of the burned but are rare within it. Spread of these species into the burned area is likely. A program for early detection and rapid response is proposed to prevent invasion of these species into the burned area. Without the appropriate measures *Pennisetum ciliare* and *Pennisetum setaceum*, both species can grow very "large and bunchy" in a short period of time which can carry more severe fire than the fine fuels from annual invasive species in warm desert biomes, which is a prime example fare characteristic of the Mountain Fire. Both species can persist after fire situations by sprouting from rhizomes, tillers, or buds that will survive fire. They can use the disturbance conditions created by fire to seek establishment opportunities and develop monocultures, outcompete other herbaceous species. Both species can undergo rapid resprouting after fire, in a very short period, which can significantly alter the Mountain fire scar.

Probability of Completing Treatment Prior to Damaging Storm or Event:

Land High
Roads/Trails High
Channel not proposed
Protection/Safety High

D. Probability of Treatment Success

Table 6: Probability of Treatment Success

	1 year after treatment	***3 years after treatment***	***5 years after treatment***
Land	50	75	90
Channel	-	-	-
Roads/Trails	100	90	75
Protection/Safety	100	90	75

E. Cost of No-Action (Including Loss): $1,350,000

F. Cost of Selected Alternative (Including Loss): $740,000

G. Skills Represented on Burned-Area Survey Team:

☒ Soils ☒ Hydrology ☐ Engineering ☐ GIS ☒ Archaeology
☒ Weeds ☐ Recreation ☐ Fisheries ☒ Wildlife
☐ Other:

Team Leader: Grant Loomis/Ryan Nicholas
Email: Moalty21@gmail.com **Phone(s)**480 406 7352

Forest BAER Coordinator: Ryan Nicholas
Email: RNicholas02@usda.gov **Phone(s):**602-225-5386

Team Members:*Table 7: BAER Team Members by Skill*

Skill	Team Member Name
Team Lead(s)	Grant Loomis
Soils	Mark Casillas
Hydrology	Grant Loomis , Kelly Mott Lacroix
Engineering	
GIS	Kelly Mott Lacroix
Archaeology	Kim Stahl
Weeds	Ryan Nicholas
Recreation	
Other	

H. Treatment Narrative:

Land Treatments:. Reiterating what was mentioned above in the noxious weeds emergency treatment objective, the plan and utilization for the intended $15,000 is as follows: as the TNF invasive species coordinator (Ryan Nicholas), underneath my AZ issued pesticides license plans and activities will be directed under my guidance. An Early, Detection and Rapid Response (EDRR) program for noxious weeds would be conducted by the Cave Creek Fire Program under the direction of the TNF invasive species coordinator who has a state of Arizona issued pesticide license. Funds will provide for crew work, purchasing materials, and planning. Fall and spring are growing seasons for weeds within this region and EDRR will be utilized for both seasons. Treatment methods for EDRR in this case would be herbicidal or manual which are both approved in the Tonto Noxious Weeds EA. Manual methods use hand tools to selectively remove noxious weeds from native plant communities. These treatments are effective in controlling new infestations of many weeds; however, they are very labor-intensive and may be ineffective on some types of weeds such as deep-rooted species or ones with fibrous roots. Herbicidal application of approved chemicals to these species of noxious weeds would be the preferred removal method

Channel Treatments: No treatments proposed

Roads and Trail Treatments: Approximately two miles of fence would be constructed along the Bartlett Lake and Horseshoe Lake roads to prevent OHV access into the burned area. Carsonite “Motorized Vehicle Use Prohibited” signs would be placed along these roads as well. Fencing is the least-cost action that can effectively manage the risk posed to soil function and hydrologic recovery from OHVs. It has proved a successful tool in this area prior to the burn at deterring unauthorized motorized use. Administrative closure alone does not provide enough of a response action. The adjacent area already receives a high level of use from OHV enthusiasts, who travel cross-country where fences are not present. The Forest is limited by the number of law enforcement officers available to patrol this area and prevent cross-country motorized travel, thus posing an unacceptable risk to watershed recovery.

Protection/Safety Treatments:
Flash flood warning signs would be placed on roads entering or passing through the burned area. Approximately 2-3 acres of a high value cultural resource site would be mulched with wood fiber mulch and wattled to reduce erosion. A user created trail providing access to the site would be closed to reduce the likelihood of vandalism or looting.

I. Monitoring Narrative:

For the Mountain Fire cultural resource site treatment, monitoring shall take place during implementation and immediately after the first significant precipitation event. It shall consist of visiting the site to determine if mulching, straw wattle, and closure objectives were met and photo documentation of treatments. Implementation monitoring shall answer: whether the mulching was implemented as designed; how much mulch covered the artifact concentrations at risk. Since some treatment measures may have a risk of failure,it may be necessary to monitor the effectiveness of the treatments in providing the appropriate protection for the heritage values at risk. Effectiveness monitoring shall answer: whether erosion is evident within the site; what percentage of mulch cover remains on the features at risk; whether natural vegetation is recovering; whether the mulch and straw wattles are effectively stabilizing the artifacts and whether looting is occurring.

PART VI – EMERGENCY STABILIZATION TREATMENTS AND SOURCE OF FUNDS

			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										
Weed Dtctn & Rpd Rspns	ea	15,000	1	$15,000	$0		$0		$0	$15,000
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$15,000	$0		$0		$0	$15,000
B. Channel Treatments										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treatments				$0	$0		$0		$0	$0
C. Road and Trails										
OHV Fencing	mi	21,500	2	$43,000	$0		$0		$0	$43,000
	ea			$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road and Trails				$43,000	$0		$0		$0	$43,000
D. Protection/Safety										
Hazard signs	ea	300	9	$2,700	$0		$0		$0	$2,700
Arch site protection	ea	17,500	1	$17,500	$0		$0		$0	$17,500
carsonite signs	ea	60	15	$900	$0		$0		$0	$900
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Protection/Safety				$21,100	$0		$0		$0	$21,100
E. BAER Evaluation										
Initial Assessment	Report			---	$10,500		$0		$0	$10,500
				$0	$0		$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				$0	$10,500		$0		$0	$10,500
F. Monitoring										
effctvns of cltrl rsrc trtmt	ea	$5,000	1	$5,000	$0		$0		$0	$5,000
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$5,000	$0		$0		$0	$5,000
G. Totals				$84,100	$10,500		**$0**		**$0**	**$94,600**
Previously approved										

PART VII - APPROVALS

1./s/ Debbie Cress for Neil Bosworth 6/21/19
Forest Supervisor Date