Date of Report: 7/22/2021

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: Pinnacle

B. Fire Number: AZ-CNF-000427

C. State: AZ

D. County: Graham

E. Region: 03

F. Forest: Coronado

G. District: Safford RD

H. Fire Incident Job Code: P3N2LR0305

I. Date Fire Started: 6/10/2021

J. Date Fire Contained: 7/16/2021

K. Suppression Cost: $10,500,000

L. Fire Suppression Damages Repaired with Suppression Funds (estimates): No suppression lines on NFS lands

1. **Fireline repaired (miles):**
2. **Other (identify):**

M. Watershed Numbers:

Table 1: Acres Burned by Watershed

HUC #	Watershed Name	Total Acres	Acres Burned	% of Watershed Burned
150400050807	Telegraph Wash	14,841	6,011	41%
150400050802	Underwood Wash	23,316	4,009	17%
150400050808	Upper Black Rock Wash	35,649	16,637	47%
150400050902	Goodwin Wash	34,810	672	2%
150502030703	Klondyke Wash-Aravaipa Creek	13,374	1,699	13%
150502030705	Stowe Gulch-Aravaipa Creek	34,826	23	<1%
150502030409	Buford Canyon-Aravaipa Creek	25,610	5,365	21%

N. Total Acres Burned:

Table 2: Total Acres Burned by Ownership

OWNERSHIP	ACRES
NFS	25,034
BLM	4,295
STATE	4,135
PRIVATE	952
TOTAL	34,416

O. **Vegetation Types:** 83% Interior chaparral characterized as P-J overstory with shrub oak understory; 5% semi-desert grassland; 4% Madrean Encinal Woodland; 2% Chihuahuan Desert Scrub; 5% sparsely vegetated

P. Dominant Soils: Soils located within the Pinnacle burn area are shallow to moderately deep inceptisols with sandy loam and loam textures, and a high gravel and cobble content. The soils, as currently mapped in the General Terrestrial Ecosystem Survey (GTES, 1991), fall within hydrologic soil groups B and C, which are typical to sandy loam and loam textures, respectively, and have a moderate potential for runoff.

Q. **Geologic Types:** Geologic types are a combination of granitic and metamorphic rocks (quartz monzonite, schist); volcanics, including rhyolite, tuff and andesite flows on the western side of the burn; and weakly to well indurated conglomerate and breccia gravels in the drainages (USGS, 1978).

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	0.0
INTERMITTENT	13.2
EPHEMERAL	261.5
OTHER (DEFINE)	

S. **Transportation System:**
Trails: *National Forest (miles):* 33.3 *Other (miles):*
Roads: *National Forest (miles):* 8.6 *Other (miles):*

PART III - WATERSHED CONDITION

A. Burn Severity (acres):

Table 4: Burn Severity Acres by Ownership

Soil Burn Severity	NFS	Other Federal (BLM)	State	Private	Total	% within the Fire Perimeter
Unburned	1380	452	451	100	2383	7%
Low	14066	3670	2667	625	21028	61%
Moderate	9053	381	1017	19	10470	30%
High	535	1	0	0	536	2%
Total	25034	4504	4135	744	34417	100%

B. Water-Repellent Soil (acres):

C. Soil Erosion Hazard Rating: Within the fire perimeter, 7,574 acres have a slight erosion hazard rating and 17,299 acres have a severe erosion hazard rating. Examination of both erosion and sedimentation modeling results indicates that soil loss and subsequent downslope deposition as a result of fire activity is

possible with minor to moderate consequences, making the risk of damaging soil loss low to intermediate depending on the individual watershed. Overall, the potential risk of soil loss for the entire Pinnacle burned area is low. Recall that these ratings are directly linked to soil loss tolerance values and do not indicate that no erosion will occur; the soil loss simply falls below the high-risk threshold. Due to the majority of low and moderate soil burn severity on the fire, and with the onset of monsoon rains, natural recovery is expected to occur.

D. **Erosion Potential:** Results of erosion modeling using the RHEM model reported a potential average erosion rate of 6.41 tons/acre for all soil burn severities, and a combined potential of 3.81 tons/acre for the moderate and severe burn severities within the fire perimeter on National Forest System land.

E. Sediment Potential: The ERMiT model displays potential sedimentation rates in the years immediately following the fire. Results of ERMiT modeling displaying average predicted sedimentation rates for each burn severity (unburned, low, moderate, and high) in the first 3 years post-fire show minor potential increases in sedimentation as a result of increased burn severity.

F. Estimated Vegetative Recovery Period (years): Herbaceous grasses and forbs, 1-2 years; shrubs 3-5 years; trees 5-15 years

G. Estimated Hydrologic Response (brief description): Expect a significant increase in post fire flooding due to the high amount of moderate soil burn severity with patches of high soil burn severity. In general, the output results show that what would once produce a typical 2-year flooding event would now produce a 10-year event for nearly all of the models which were conducted at the forest boundary. Flash flood risk is greatest for areas within the Upper Black Rock Wash, Underwood Wash, and Telegraph Wash watersheds. Most of the burn area requires a rainfall rate greater than 36mm/hr. to exceed a 50% likelihood of debris flow occurrence with higher hazard areas only requiring a rainfall rate between 24-32 mm/hr. to exceed the 50% likelihood. Most watersheds are estimated to produce volumes between 10,000 and 100,000 cubic meters, which results in a low to moderate combined debris flow hazard for the area.

PART V - SUMMARY OF ANALYSIS

Introduction/Background: The fire scar is mainly within the Santa Teresa Wilderness area with a minor amount of FS infrastructure other than system trails. Trail access is mainly at informal parking areas and not fully-developed trailheads.

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):** There is a High to Very High risk that trail users of six trails within the burn scar could encounter wash-outs and flooding at drainage crossings during rainfall events. Degraded trail conditions could lead to increased risk of injury to users. Recommend placing emergency warning signs at trail locations entering the burn scar. Trail closure not recommended due to light trail usage in this remote location that is mainly within wilderness.
2. **Property (P):**
3. **Natural Resources (NR):**
4. **Cultural and Heritage Resources:**

B. **Emergency Treatment Objectives:** Warn public of possible hazards on NF system trails and at entry to two ML2 roads by installing signs that read: “ENTERING BURNED AREA FALLEN ROCK AND DEBRIS FLASH FLOOD AREA”

C. Probability of Completing Treatment Prior to Damaging Storm or Event:
Land:
Channel:
Roads/Trails: Some rains have occurred but will continue through September. Signs will need to be ordered and installed; anticipate completion prior to end of monsoon season. Trail hazards will persist for multiple years until fire recovery, so signage will be serving purpose to warn of hazards for multiple years.
Protection/Safety:

D. Probability of Treatment Success

Table 6: Probability of Treatment Success

	1 year after treatment	***3 years after treatment***	***5 years after treatment***
Land			
Channel			
Roads/Trails	100%	100%	Take down signs
Protection/Safety			

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

F. Cost of Selected Alternative (Including Loss):

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Christine Thiel
Email: christine.thiel@usda.gov **Phone(s)** (520) 388-8351

Forest BAER Coordinator: Christine Thiel
Email: christine.thiel@usda.gov **Phone(s):** (520) 388-8351

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

Skill	**Team Member Name**
Team Lead(s)	Christine Thiel
Soils	Maureen Yonovitz
Hydrology	Alex Makic
Engineering	
GIS	Robert Arlowe, Steve Mantani (trainee)
Archaeology	
Weeds	
Recreation	
Other	

H. Treatment Narrative:

Land Treatments:

Channel Treatments:

Roads and Trail Treatments: Emergency warning signs at selected trail and road access points within and around the fire perimeter. All signage will meet Regional guideline for size and text. The cost includes the purchase price of the sign plus 30 days of labor for GS-5 Recreation Technicians to assemble signage and hike into remote areas to install signs.

Protection/Safety Treatments:

I. Monitoring Narrative:

PART VI – EMERGENCY STABILIZATION TREATMENTS AND SOURCE OF FUNDS

Line Items	Units	Unit Cost	# of Units	BAER $	Other $	# of units	Fed $	# of Units	Non Fed $	Total $
A. Land Treatments										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$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
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treatments				$0	$0		$0		$0	$0
C. Road and Trails										
Trail & Road Warning Signs	each	536	16	$8,580	$0		$0		$0	$8,580
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road and Trails				$8,580	$0		$0		$0	$8,580
D. Protection/Safety										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Protection/Safety				$0	$0		$0		$0	$0
E. BAER Evaluation										
Initial Assessment	Report			---	$11,544		$0		$0	$11,544
				$0	$0		$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				$0	$11,544		$0		$0	$11,544
F. Monitoring										
				$0	$0		$0		$0	$0
				$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				$8,580	$11,544		**$0**		**$0**	**$20,124**
Previously approved										
Total for this request				**$8,580**						

PART VII - APPROVALS

1. /s/ ***Kerwin Dewberry*** 7-21-2021
   Forest Supervisor Date